FLORIDA'S TURNPIKE

FLORIDA'S TURNPIKE ENTERPRISE

LANDSCAPE PROGRAM MASTER PLAN

UPDATED 8/1/2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In order to achieve a successful, predictable and efficient Landscape Program, **Florida's Turnpike Enterprise (FTE)** has developed this **Landscape Master Plan (Plan)**. The Plan coalesces many of the policies and procedures already being utilized into a comprehensive approach to managing the **FTE Landscape Program**. The Plan is comprised of several sections which outline the vision, design philosophy, work program, technical criteria and performance monitoring metrics, all necessary for the implementation of a successful landscape program.

Consistent with the Departmental Mission, the **FTE Landscape Vision** is, "***To Promote Safe And Cost Efficient Landscapes Which Attract and Grow Business***". Components of this **Master Plan** serve to provide specific guidance beyond statewide standards for the development of landscape projects within the FTE highway systems. The goal is to establish a comprehensive management system, design approach and guidelines which will assist with the implementation of landscape projects to provide long-term value for FTE and its customers.

CONTACT:
Daniel Kastelic, RLA, LEED AP
Turnpike Landscape Architect
Daniel.Kastelic@dot.state.fl.us
Tel: (407) 264-3478

LANDSCAPE PROGRAM ORGANIZATION

The **FTE Landscape Program** is managed by the **District Landscape Architect** under the **Transportation Development Section**. The **District Landscape Architect** is supported by in-house staff who develop concepts, and a **General Design Consultant** who is primarily responsible for the development of the landscape working drawings.

Landscape working drawings can be prepared in several distinct ways. Stand-alone independent landscape plans are projects which do not necessarily follow or are ‘tied to’ roadway construction projects. Stand alone dependent landscape plans are produced as part of new roadway projects however, these are separate projects and are usually let independently or as a goes-with project. Landscape projects which are included as part of the roadway construction project are considered incidental and cannot exceed the lesser of $100,000 or 10% of the preliminary cost estimate.

Each have specific, unique preparation and contractual obligations which are defined in **Section Three of the Master Plan**. Stand alone landscape projects are let for bidding and are maintained by the **Operations and Maintenance Section**. Coordination between these sections occurs at many levels and is essential to a successful landscape program and projects.

MASTER PLAN ORGANIZATION

The Master Plan is organized into six main sections with an Executive Summary. The Executive Summary explains the purpose of the Plan; The first section, **Context**, describes the overall system and specific system features which are unique to FTE; the second section, **Controlling Criteria**, provides an overview of the Federal, State, Departmental and FTE governing policies and procedures to which our program must adhere; the third section, **Design Philosophy**, identifies components of project planning and guides the development of our landscapes; the fourth section, **Project Planning and Design**, identifies the design processes which are critical for maintaining consistency and delivering successful landscape projects; The fifth section, **Landscape Work Program**, contains an explanation of the methodology by which projects are selected and the current five year work program; The final section, **Resources**, contains procedures, templates, examples, checklists, and links to outside resources that serve as references to consultants as they perform work for FTE's Landscape Program.

SECTION 1: CONTEXT

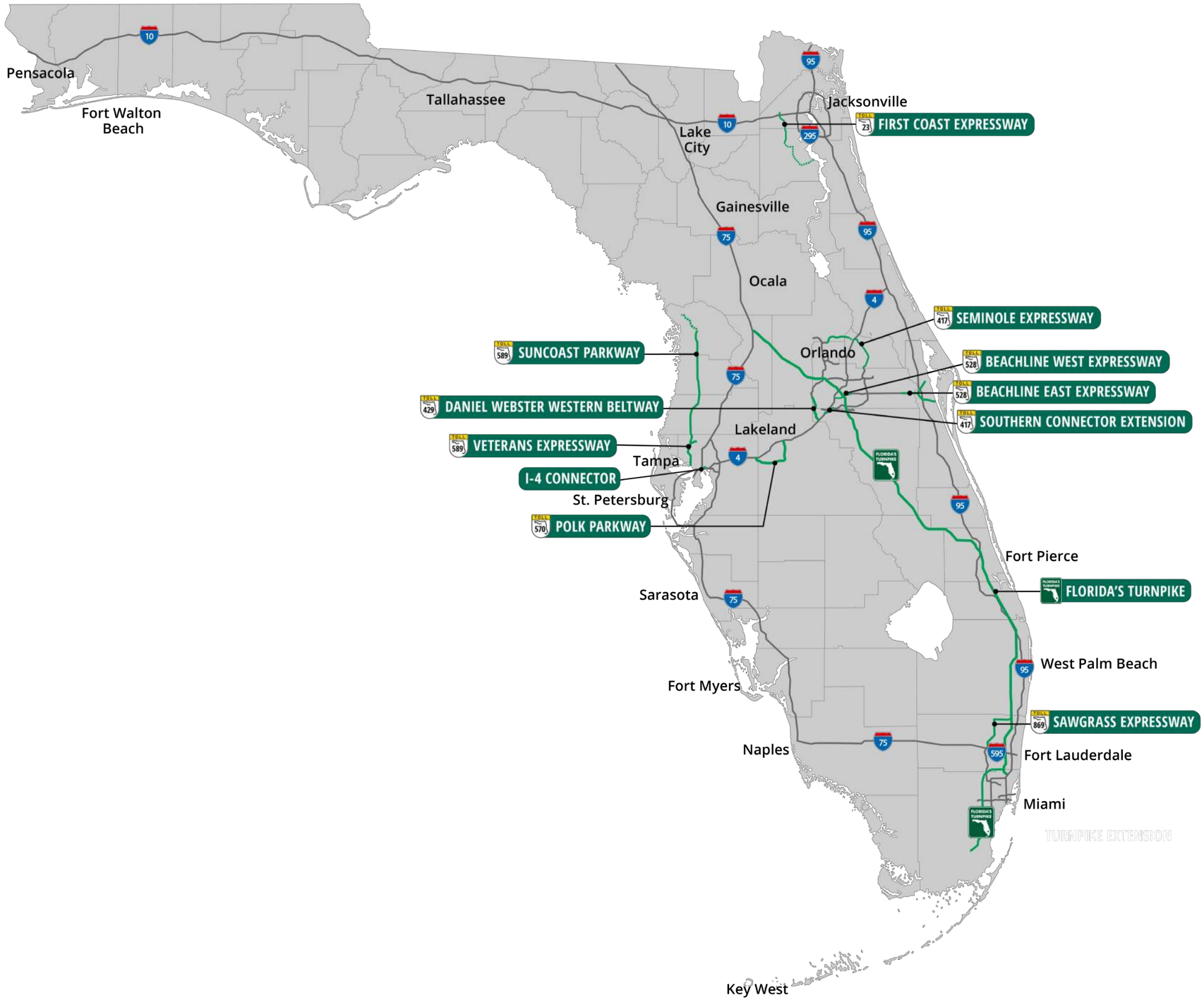
SECTION 1: CONTEXT

DISTRICT DESCRIPTION

The Turnpike system consists of over 480 miles of limited access toll highways and eight (8) service plazas across many regions of the State of Florida. An average of five million motorists utilize these highways daily. For the purposes of this Master Plan the Turnpike System has been identified by four regions: South Florida, Turnpike mainline from Miami to North Central Florida (SR 91), as well as the Homestead Extension (HEFT-SR 821), Sawgrass Expressway (SR 869); Central Florida, Seminole Expressway (SR 417), Beachline Expressway (SR 528), Southern Connector Extension of the Central Florida GreeneWay (SR 417), Western Beltway (SR 429); and West Florida, the Veterans Expressway (SR 589), Suncoast Parkway (SR 589) and Polk Parkway (SR 570) and the North, First Coast Expressway. The Turnpike's mainline alone consists of 312 miles extending through 11 counties.

To view more maps of the Turnpike's facilities, please visit:

» https://floridasturnpike.com/system-maps/



DISTRICT FEATURES

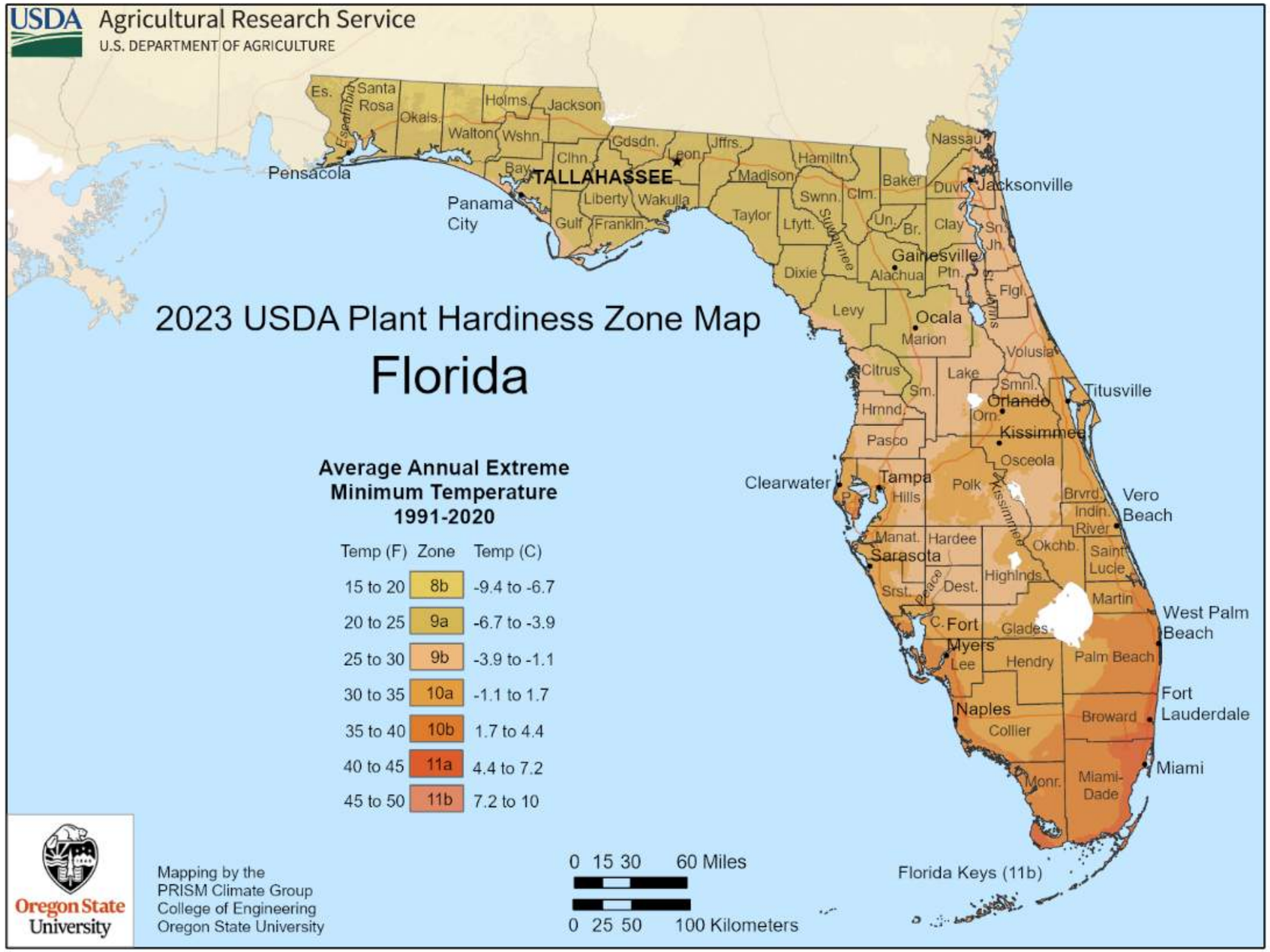
This geographic diversity necessitates maximum flexibility of our designers to respond to regional context and variable climatic conditions. FTE must also balance the landscape program to allow for equitable distribution of the overall landscape budget amongst the South, North and Western Regions.

The Turnpike system extends from Miami-Dade County to Jacksonville and across the state from the Atlantic Ocean to the Gulf of Mexico. It crosses four plant hardiness zones as established by the US Department of Agriculture. Based on the variation of hardiness zones, the FTE system has been divided into two distinct plant palettes: North and West Region (Zones 9A & 9B) and South Region (Zones 10A & 10B).

Although the plants within this document are categorized into two palettes, the cultural identity of the Turnpike System varies greatly based on the communities through which it passes, and designers must consider context when making selections.

The Florida Association of Native Nurseries has published a useful tool linking native plant communities to their USDA hardiness zones. Link to FANN website here:

» https://www.floridanativenurseries.org/plant-communi-



SECTION 2: CONTROLLING CRITERIA

SECTION 2: CONTROLLING CRITERIA

The FTE Landscape Program has been developed in accordance with and must comply with numerous Federal, State and Departmental criteria which are shown below.

GOVERNING POLICIES

ARTICLE II, SECTION 7(A), FLORIDA CONSTITUTION

"It shall be the policy of the state to conserve and protect its natural resources and scenic beauty."

SECTION 334.044 (26) FLORIDA STATUTES

"The department shall have the powers and duties to...conserve the natural roadside growth and scenery; and to provide for the implementation and maintenance of roadside conservation, enhancement, and stabilization programs. No less than 1.5 percent of the amount contracted for construction projects shall be allocated by the department for the purchase of plant materials...."

FDOT MISSION STATEMENT

"The mission of the Florida Department of Transportation is to provide a safe statewide transportation system that promotes the efficient movement of people and goods, supports the state's economic competitiveness, prioritizes Florida's environment and natural resources, and preserves the quality of life and connectedness of the state's communities."

FDOT POLICY TOPIC NO. : 000-650-011-D

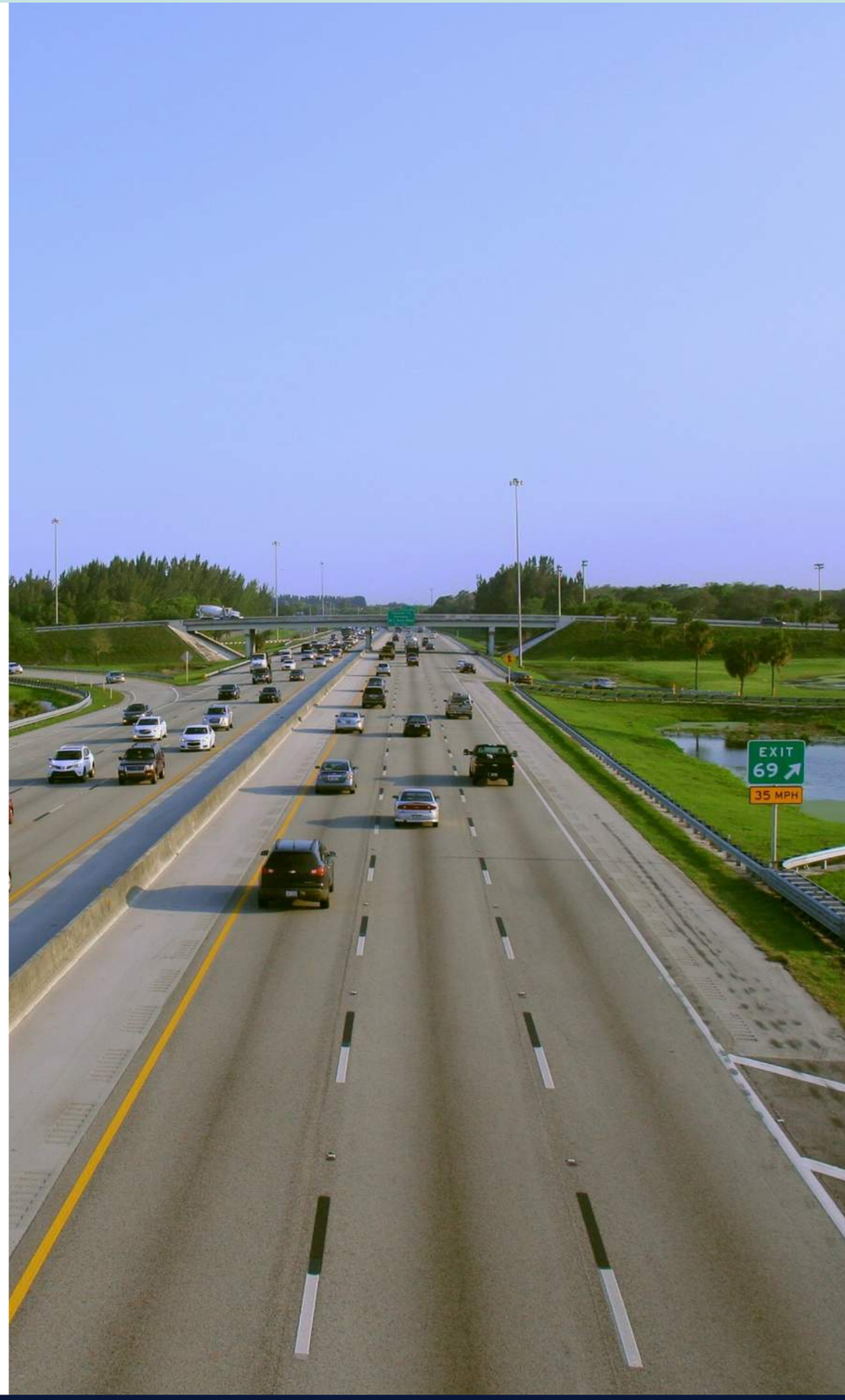
It is the policy of the Florida Department of Transportation to conserve, protect, and enhance Florida's natural resources and scenic beauty when planning, constructing, and maintaining the State Transportation System.

UNDER THIS POLICY, FLORIDA CAN HAVE:

- Safe, attractive, and high-quality transportation facilities that reflect and recognize the beauty and nature of Florida.
- Corridors with landscapes that improve air and water quality, benefit ecosystems, and enhance communities.
- A transportation system that attracts and supports diverse economic opportunities and tourism..

IN CARRYING OUT THIS POLICY, THE DEPARTMENT WILL:

- Develop and commit to aesthetics, landscape opportunities, and landscape conservation and protection concepts early in programming, planning, and designing of transportation facilities.
- Rely on interdisciplinary planning and design processes.
- Engage in public outreach and communicate with local governments and communities to form strong partnerships.
- Accommodate existing and proposed landscapes.
- Utilize a diverse mix of context appropriate, resilient, Florida Friendly, primarily native plants that reflect the regional identity.
- Implement design and construction solutions to streamline landscape maintenance activities.
- Promote awareness of the many benefits of transportation landscapes enjoyed by the public and within the Department.
- Measure the costs and benefits.



SECTION 3: DESIGN PHILOSOPHY

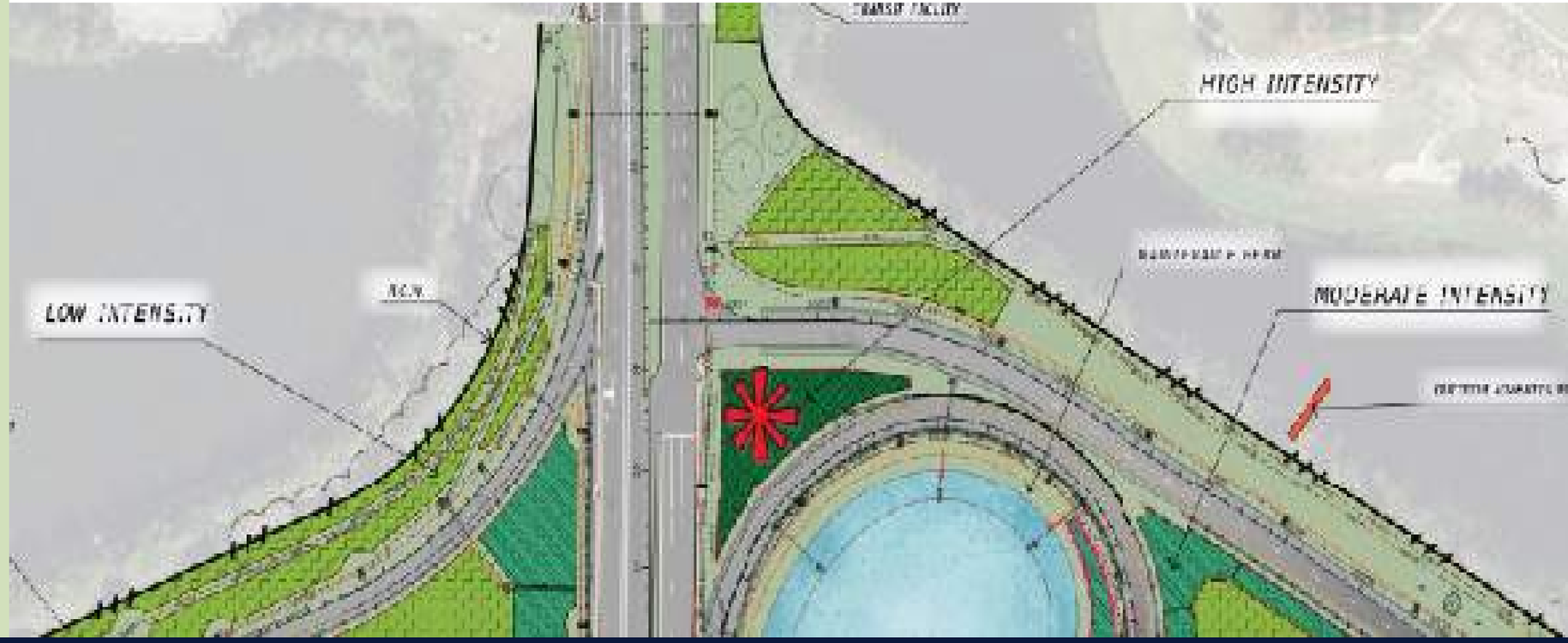
SECTION 3: DESIGN PHILOSOPHY

FTE's landscape design philosophy incorporates landscape and conservation values. Our focus as a program has shifted away from the "bold vision" design approach characterized by designing beautification projects using many large signature palms and few, if any, shrubs and returned to its historical roots of developing sustainable native landscapes. The FTE landscape program limits high intensity landscapes to landmark destinations and focuses on healing native landscapes.

While important, aesthetics is only part of the complex equation for producing responsible landscapes within the FTE highway system. Turnpike landscapes must also be called upon to modulate traffic behavior, stabilize steep erodible embankments, screen or emphasize views, and minimize maintenance needs. Therefore, in keeping with the mandate issued by **Department Policy Topic No. 000-650-011c**, "Highway Beautification" future landscapes will provide a balance of high intensity landscapes and native or naturalistic plantings.

LANDSCAPE INTENSITY

Each project must develop a landscape hierarchy based on the level of aesthetic impact and corresponding maintenance requirements which defines the intensity level of both construction and maintenance. Intensity areas are to be designated as High Intensity, Moderate Intensity, and Low Intensity. High Intensity landscape areas are limited to no more than 10% of the total project area. Moderate Intensity landscape is limited to no more than 40% of the total project area. Low Intensity landscape must meet a minimum threshold of 60% of the total project area.



HIGH INTENSITY LANDSCAPE DESIGN

High intensity landscape design areas should comprise no more than 10% of the total landscape for each project.

High intensity design characteristics:

- » Areas of exotic or indigenous trees and palms.
- » With or without understory plantings.
- » Requires fertilization, pest control, and pruning.

HIGH INTENSITY LANDSCAPE DESIGNS are located in the most visible areas are designed for maximum aesthetic impact and may require a higher level of long-term maintenance.

Greater amount of non-native palms - require more frequent pruning and fertilization.

Shrubs close to road or guardrail require frequent maintenance and pruning.

Densely planted understory.

Clumping palms - require dead frond removal.

Date palms - require annual pruning and fertilization.

Areas of greater visual interest through variety of plants and planting pattern.

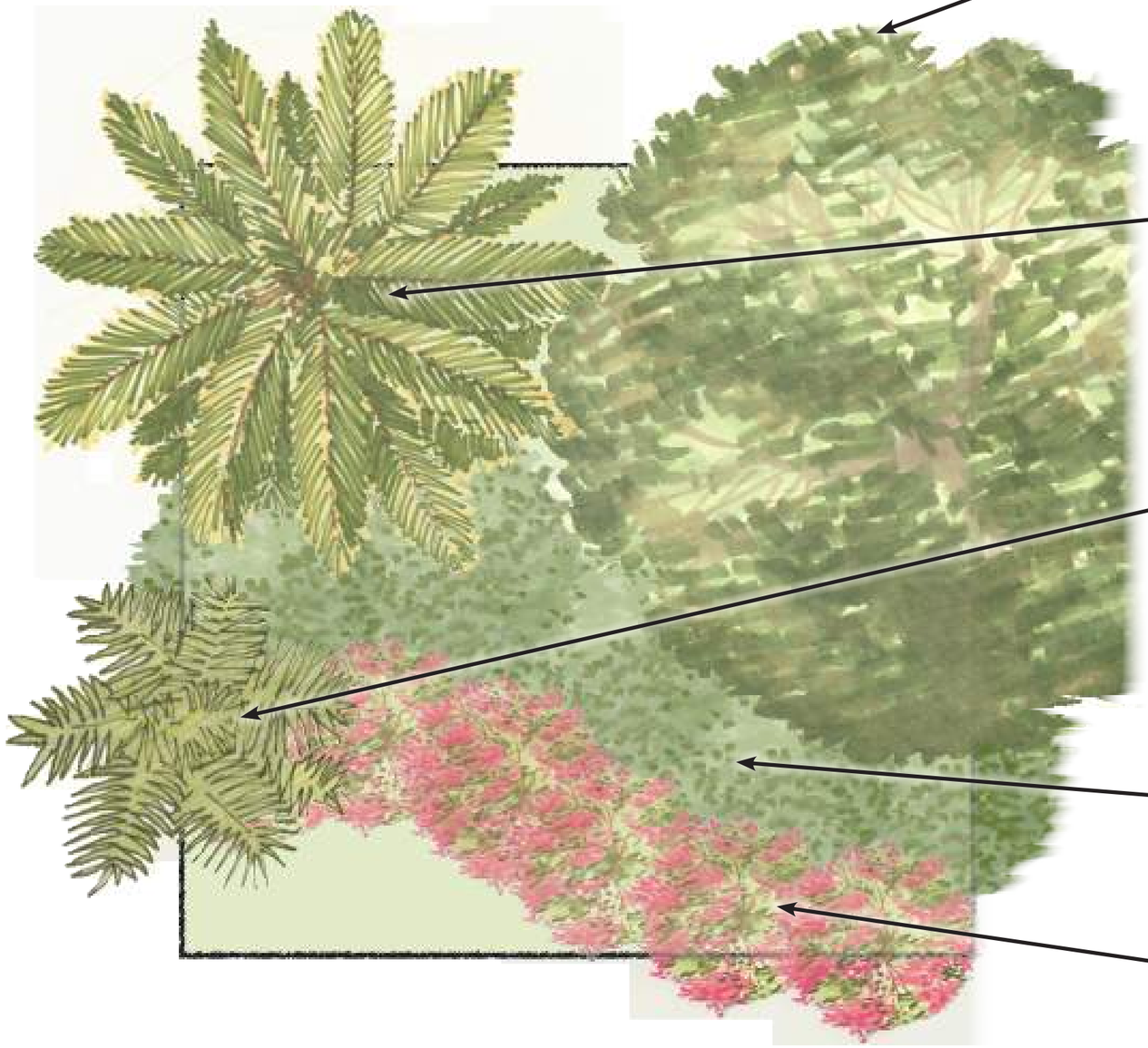
Palms - require annual pruning and fertilization.

Flowering trees.

Shrubs - require pruning, shaping, and fertilization.

Mulched planting beds.

HIGH INTENSITY LANDSCAPE DESIGN PLANTING PATTERN & MAINTENANCE



TREE EXAMPLES:

- » Crape Myrtle (Lagerstroemia indica) - Possibly requires once-annual pruning
- » Royal Poinciana (Delonix regia) - Occasional pruning and litter removal.
- » West Indian Mahogany (Swietenia mahagoni) - Occasional pruning and litter removal.

PALM EXAMPLES:

- » Royal Palm (Roystonea regia) - Requires dead/hanging frond & seed pod removal.
- » Bismarck Palm (Bismarckia nobilis) - Requires dead/hanging frond & seed pod removal. Requires fertilizer.
- » Date Palm (Phoenix spp.) - Requires dead / hanging frond & seed pod removal. Requires fertilizer.

ACCENT TREE/PALM EXAMPLES:

- » Ligustrum (Ligustrum japonicum) - Possibly requires annual pruning.
- » Holly (Ilex spp.) - Some species require pruning to maintain shape.
- » Paurotis Palm (Acoelorrhaphe wrightii) - Sucker growth control, requires dead/hanging frond & seed pod removal.

SHRUB & GROUNDCOVER EXAMPLES:

- » Hedges - Require regular pruning and shaping.
- » Flowering plants - require pruning after flowering. Require fertilization.

Trash / litter removal required periodically. Invasive species removal required annually.

MODERATE INTENSITY LANDSCAPE DESIGN

Moderate intensity landscape design areas should comprise no more than 40% of the total landscape for each project.

Moderate intensity design characteristics:

- » Areas of indigenous trees or palms with undersory plantings. May include native and non-native species requiring fertilization and pruning.
- » Recommend understory plantings to to eliminate mowing, or self mulching species.
- » No re-mulching required after establishment.
- » Periodic trash removal.

MODERATE INTENSITY LANDSCAPE DESIGNS are transitional landscapes that complement high intensity landscapes, provide a variety of color and texture.

Royal Palms - dead/hanging frond & fruit removal. Requires fertilization.

Wildflower areas - requires mowing after bloom & reseeding.

Royal Palms - dead / hanging frond & fruit removal. Requires fertilization.

Mowing required between trees planted close together.

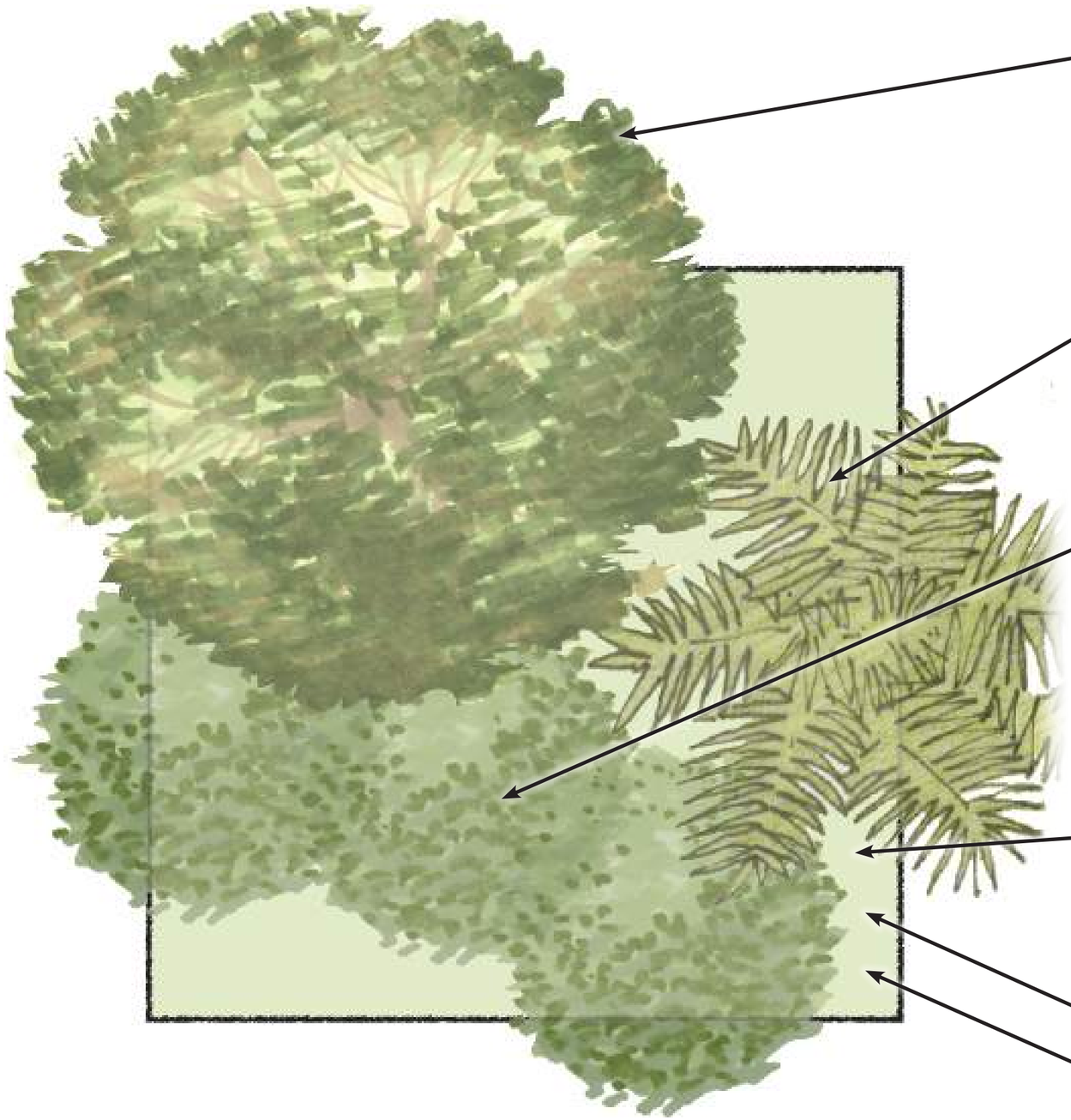
Florida Thatch palms - no maintenance required.

Pine trees - minimal / no pruning necessary. Dead wood removal when necessary.

Wax Myrtle - large shrub - no maintenance required.

Hedge - requires regular pruning and shaping.

MODERATE INTENSITY LANDSCAPE DESIGN PLANTING PATTERN & MAINTENANCE



TREE EXAMPLES:

- » Live Oak (Quercus virginiana) - Required pruning every 2-5 years depending on maturity.
- » Buttonwood (Conocarpus erectus) - Requires deadwood removal.
- » Southern Magnolia (Magnolia grandiflora) - No pruning required.

PALM EXAMPLES:

- » Sabal Palm (Sabal palmetto) - Hanging fronds (dead & hanging) or fallen frond removal only.
- » Florida Thatch Palm (Thrinax radiata) - No maintenance required.

SHRUB EXAMPLES:

- » Stoppers (Eugenia spp.)
- » Loropetalum (Loropetalum chinense)
- » Cocoplum (Chrysobalanus icaco)
- » Can be used as a mounding shape which requires no pruning. Can be shaped or hedged with more maintenance required.

GROUNDCOVER EXAMPLES:

- » Grasses - low to no maintenance required
- » Wildflowers - requires once annual mowing and reseeding every 3 years.

Trash / litter removal required periodically.

Invasive species removal required annually.

LOW INTENSITY LANDSCAPE DESIGN

Low intensity landscape design areas (buffers, sustainable field conditions, & reforestation) and non-landscaped areas (storm water management, limits of horizontal clearance, etc.) should make up a minimum of 60% of total landscape area.

Low intensity design characteristics:

- » Plantings of pines and cabbage palms with native understory plants to reduce maintenance, mowing operations, and erosion on steep slopes.
- » Naturally occurring pine mulch
- » Annual removal of invasive species
- » Annual removal of dead or dying vegetation
- » Periodic trash removal

LOW INTENSITY LANDSCAPE DESIGNS are native or naturalistic plantings utilized for screening views, ecosystem restoration, or as a backdrop to specimen landscapes. These low intensity areas will accordingly require less long-term maintenance.

Pine trees - minimal/no pruning necessary

Mid-level shrubs - minimal/no pruning necessary

Groundcovers & grasses - once annual/no pruning required

Native Sabal Palms - only hanging or fallen fronds to be removed

Groundcovers & grasses - once annual/no pruning required

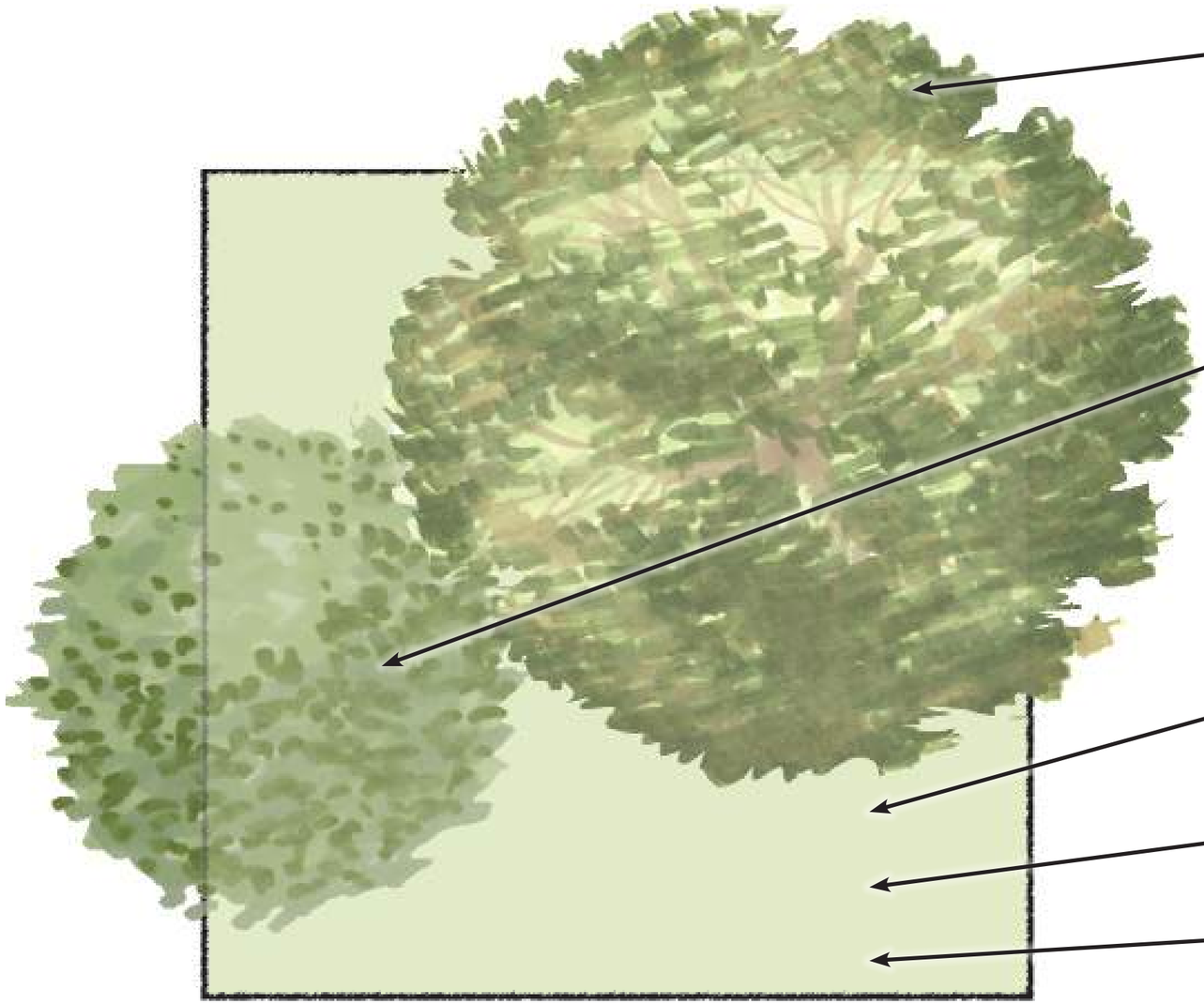
Shrubs & Palmetto - no pruning required

Pine trees - minimal/no pruning required

Natural pine mulch

Periodic trash/litter removal and invasive species control required.

LOW INTENSITY LANDSCAPE DESIGN PLANTING PATTERN & MAINTENANCE



NATIVE/NATURAL TREE EXAMPLES:

- » Longleaf Pine (Pinus palustris) - Requires little to no pruning. Suggested deadwood removal once annually.
- » Sabal Palm (Sabal palmetto) - Hanging fronds (dead & hanging) or fallen frond removal only.
- » Pond Cypress (Taxodium spp.) - No pruning required.

LARGE SHRUB EXAMPLES:

- » Seagrape (Cocoloba uvifera)
- » Wax Myrtle (Myrica cerifera)
- » Firebush (Amelia patens)
- » All large, mounding forms when placed in areas that allow for full growth. None or once annual pruning required

Natural pine straw mulch - no maintenance or replenishment required

Invasive species removal once annually

Litter / trash removal required annually.

LOW MAINTENANCE AREA

The Low Maintenance Area designation is intended for areas within the Limited Access Right of Way which are typically comprised of under-performing turf and areas that do not have any direct functional characteristic for the roadway excepting dry drainage management facilities.

The intent is to manage these areas as meadows comprised of desirable herbaceous plant materials in an effort to promote aesthetics and reduce maintenance costs. These areas will be comprised of a variety of grasses and other non-woody plants which aid in storm water runoff management and promote biodiversity.

Low Maintenance Areas can be achieved with little or no effort beyond controlling the maintenance activities associated with the desired effect. Specific areas will be designated in the Landscape Design plans and the Post Establishment Maintenance Plan which will document quantified maintenance activities and cycles.

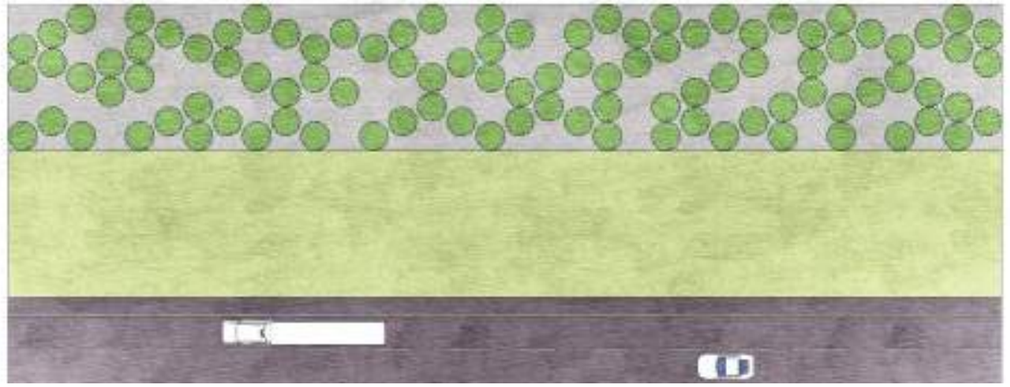
Low Maintenance Areas will be included in the calculation for Low Intensity Landscape Areas. This will serve to reduce overall maintenance costs and provide enhanced aesthetics. These items will be tracked cumulatively each fiscal year.

REFORESTATION

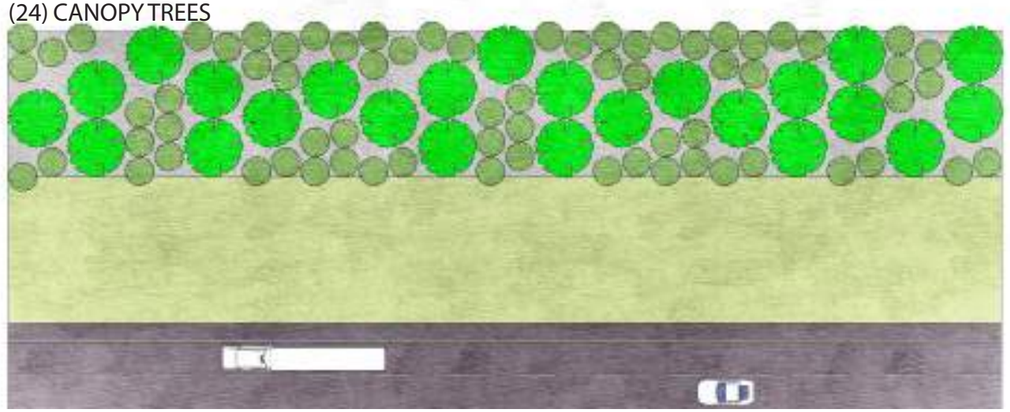
Reforestation is intended to be proposed for areas which have been previously cleared and have no other roadway function. Reforestation serves to reestablish the indigenous forest canopy and may be utilized to screen undesirable views or stabilize slopes.

Through the reforestation practice of applied nucleation, small groupings of trees are planted to attract wildlife seed dispersers to mimic natural succession processes. This method has been shown to increase the density and diversity of reforested areas compared to passive restoration areas--and at a lower cost than traditional plantation grid layouts.

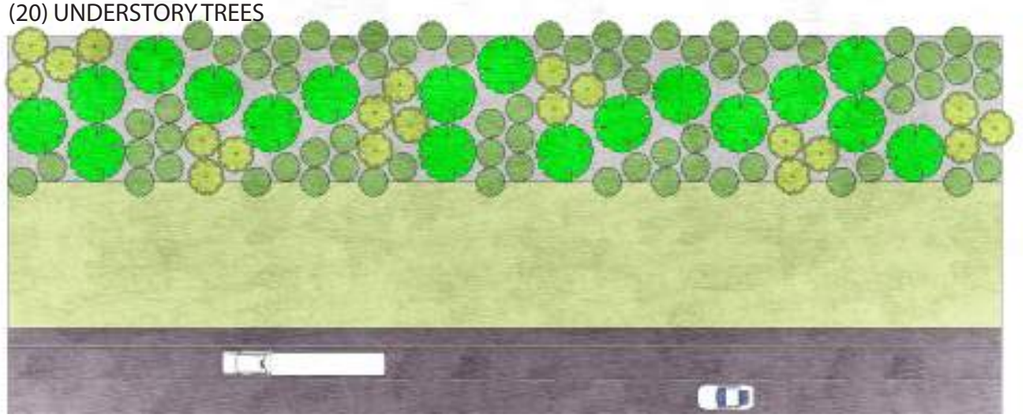
LEVEL 1 REFORESTATION (1/4 ACRE STRIP)
(100) NATIVE PINES



LEVEL 2 REFORESTATION (1/4 ACRE STRIP)
(70) NATIVE PINES
(24) CANOPY TREES



LEVEL 3 REFORESTATION (1/4 ACRE STRIP)
(70) NATIVE PINES
(18) CANOPY TREES
(20) UNDERSTORY TREES



PLANT VARIETY GOALS

It is intended that the High Intensity landscape areas comprise no more than 25% of the total landscape for each project. The remainder will be Low Intensity landscape (buffers, low maintenance areas, or reforestation) and non-landscaped areas (storm water management, limits of horizontal clearance, etc.). A minimum of 50% of the plant palette should be native and indigenous to the respective USDA climatic hardiness zone. Wildflower use should be used where appropriate.

Species variation is a prudent goal for the establishment of man-made and managed ecosystems. Species variation is a natural, low impact means to mitigate the potential negative effects of blight, insect infestation, and fire threat and other potentially harmful threats. It is also a means to broaden the overall aesthetic of any particular landscape providing for a range of color, texture and bloom time.

FDOT SPECIES DIVERSIFICATION

Create landscapes with a range of sizes and species. No more than 10 percent of the same species, 20 percent of the same genus, and 30 percent of the same family.

» Community Aesthetic Features:
FDM 228: https://www.fdot.gov/roadway/fdm/default.shtm

SPECIES VARIATION

Horticulturalists and Landscape Architects are taught that Species Variation is a prudent goal for the establishment of man-made and managed ecosystems. Species Variation is a natural, low impact means to mitigate the potential negative effects of blight, insect infestation, and fire threat and other potentially harmful threats. It is also a means to broaden the overall aesthetic of any particular landscape providing for a range of color, texture and bloom time.

Mitigating the potential negative effects of monoculture (lack of species variation) is also a prudent method of protecting the investment in green infrastructure FDOT makes. A modern example of the negative effects of monoculture is the near entire loss of the urban forest canopy of most towns and cities throughout the northeast and midwest due the Dutch Elm Disease. This scenario has also played out here in Florida with the recent discovery of the Texas Phoenix Palm Disease which has affected several roadway landscape projects with devastating results.

THE IMPORTANCE OF USING INDIGENOUS SPECIES

Native vs. Indigenous – While we generally refer to the use of Native plants in our landscape projects, it is important to match the species to the ecosystem in which they are being planted. This insures that the landscape project will have a greater chance of success. It also means that the species selection will support the ecosystem in which it is planted. The use of Native plants is to be commended however, they should also be endemic to the surrounding ecosystem to ensure the best results.

In biogeography, a species is defined as native (or indigenous) to a given region or ecosystem if its presence in that region is the result of only natural processes, with no human intervention. Every natural organism (as opposed to a domesticated organism) has its own natural range of distribution in which it is regarded as native. Outside this native range, a species may be introduced by human activity; it is then referred to as an introduced species within the regions where it was anthropogenically introduced.

An indigenous species is not necessarily endemic. In biology and ecology, endemic means exclusively native to the biota of a specific place. An indigenous species may occur in areas other than the one under consideration.

MAINTENANCE COST CONTAINMENT

Recent departmental policy focuses on containing maintance costs for landscape. The intent of each new landscape project will be to develop a system with lower maintance costs per roadway mile. The summation of the different design strategies outlined in this document will result in a more valuable roadside environment that is easier and less costly to maintain.

Maintenance Cost Containment will be measured by establishing a baseline maintenance cost for the currently installed and maintained landscape projects and adjusted over time as new landscape projects that adopt a regenerative approach to the ecology and new less invasive maintenance practices are put into effect throughout the system.

MAINTENANCE

Designs for FTE landscape projects must consider long term maintenance as one of the leading factors. Department policy will require maintenance costs to fall below $6/SY for new projects. Accordingly, the FTE Landscape Program has developed a strategy for controlling long term maintenance costs for their landscapes and will require designers to develop their designs accordingly and document these efforts.

In order to meet this new policy FTE landscape designs will be required to include up to three intensity areas, High Intensity, Moderate Intensity and Low Intensity, and quantify them on their plans. FTE will supply current maintenance costs for each zone and the designer will adjust their plans accordingly to remain below the target maintenance cost.

High Intensity landscape areas are limited to no more than 10% of the project area. Moderate Intensity areas are limited to no more than 40% of the project area and Low Intensity areas must comprise a minimum of 60% of the project area.

MONETARY CONTRIBUTIONS

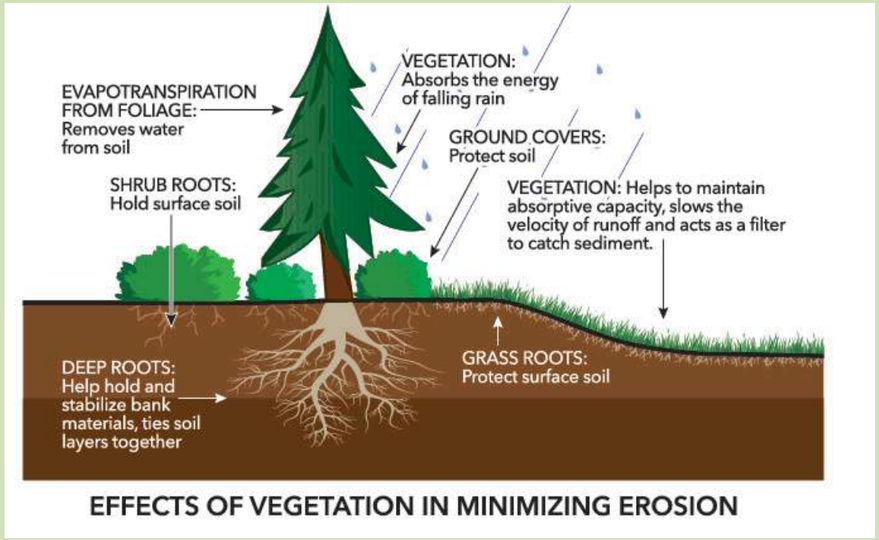
Landscape projects provide considerable, measurable monetary contributions to Florida's economy along with providing the less tangible benefit of enhanced aesthetics. Enhanced aesthetics support one of the top three contributors to Florida's Gross Domestic Product for tourism.

A department commissioned study in 2014 determined that FDOT landscape projects contributed $3.10 per every $1 invested. Accordingly, each new landscape project will be required to calculate this monetary contribution. These costs are summarized on an annual basis.

STORMWATER MANAGEMENT

The goal of managing stormwater is to treat water pollution at the source allowing water to infiltrate back into the ground and keeping pollutants in managed basins where they can be collected rather than flowing downstream and polluting water bodies. The FTE roadway system utilized a combination of closed and open systems to manage stormwater. By planting slopes and bottoms of basins with appropriate plant material, more water is able to infliltrate on site. Additionally, larger quantities of carbon and nutrients can improve the quality of soil at the source of pollution.

Benefits include an increased quanity of water infiltrated on site, reducing stormwater runoff by 5%, improved water quality downstream, and reduced maintenance costs.



EFFECTS OF VEGETATION IN MINIMIZING EROSION

DRY STORMWATER MANAGEMENT AREAS

Rains can wash exposed soil, landscape debris, fertilizers, and pesticides off the landscape becoming part of the stormwater runoff. Stormwater runoff makes its way to rivers, lakes and canals and, ultimately connects to Florida's groundwater supplies. Groundwater comes from the aquifer, which is the source of almost all of the water we use in our daily lives.

Transitional areas describe areas that function to collect, temporary hold and filter stormwater. These transitional areas can provide many ecological benefits in filtering stormwater and also require very little to no maintenance when planted with the appropriate native material. It should be noted that exotic, non-native plant material generally require large amounts of fertilizer to maintain their health. Inevitably, this fertilizer finds its way into our surface and ground water supplies.

DRY STORMWATER MANAGEMENT AREAS

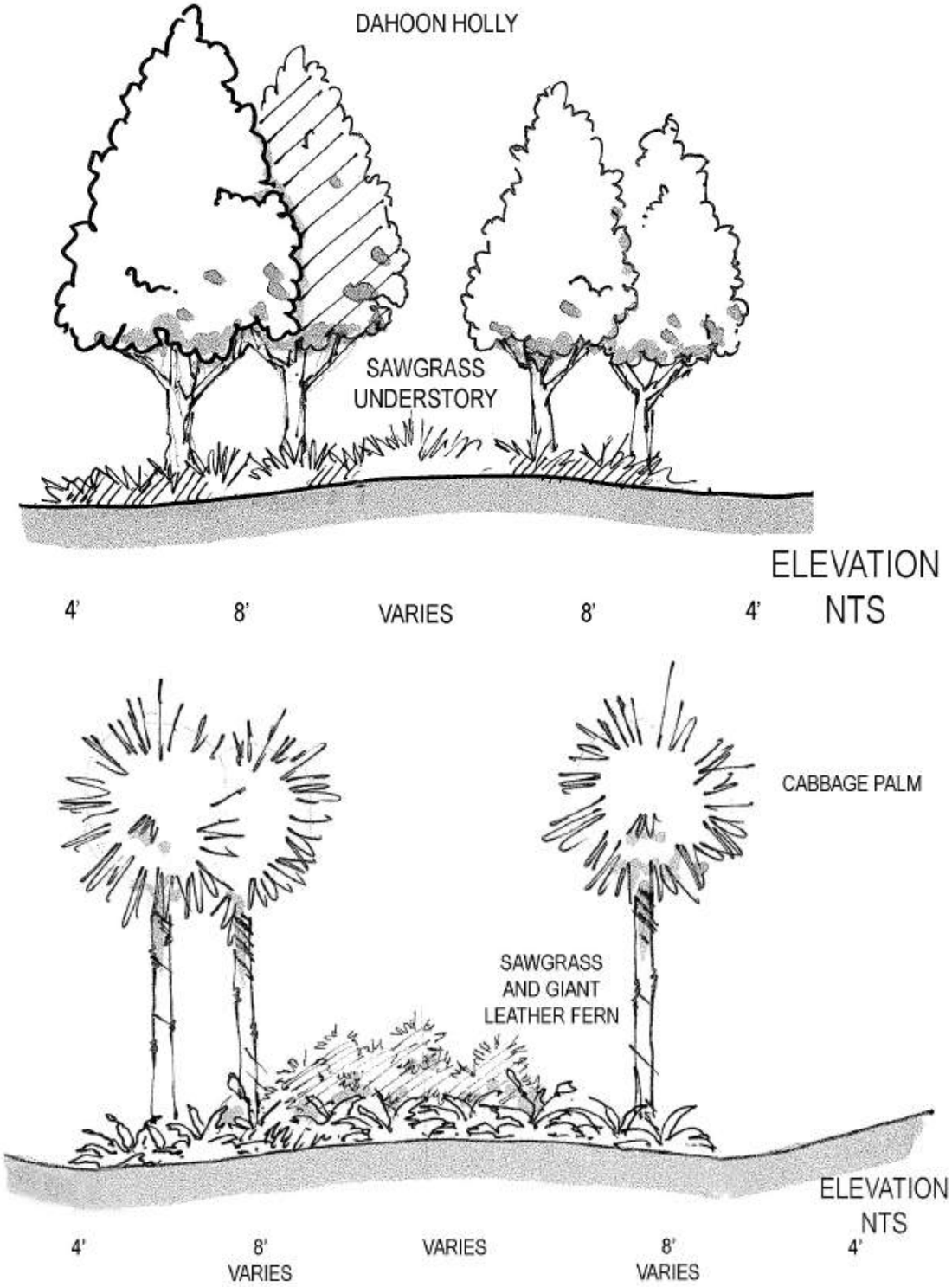
Detention areas and other low-lying areas can be opportunities for plantings that reduce and filter stormwater runoff. Planting these areas with Florida native plant material means that constant trimming (producing debris), fertilizing, and pesticide treatment is unnecessary. Shallow areas can be planted with grasses and other plants to filter water before letting it flow naturally into the ground. Water kept within a landscape this way return to the aquifer, helping to replenish Florida's water supplies with cleaner water.

For more information on planting within Transitional Areas, visit:

- » https://ffl.ifas.ufl.edu/handbook/Protect_the_Waterfront_vSept09.pdf
- » https://ffl.ifas.ufl.edu/handbook/Reduce_Stormwater_Runoff_vSept09.pdf.

For more information on native plant choices for Transitional Areas, visit:

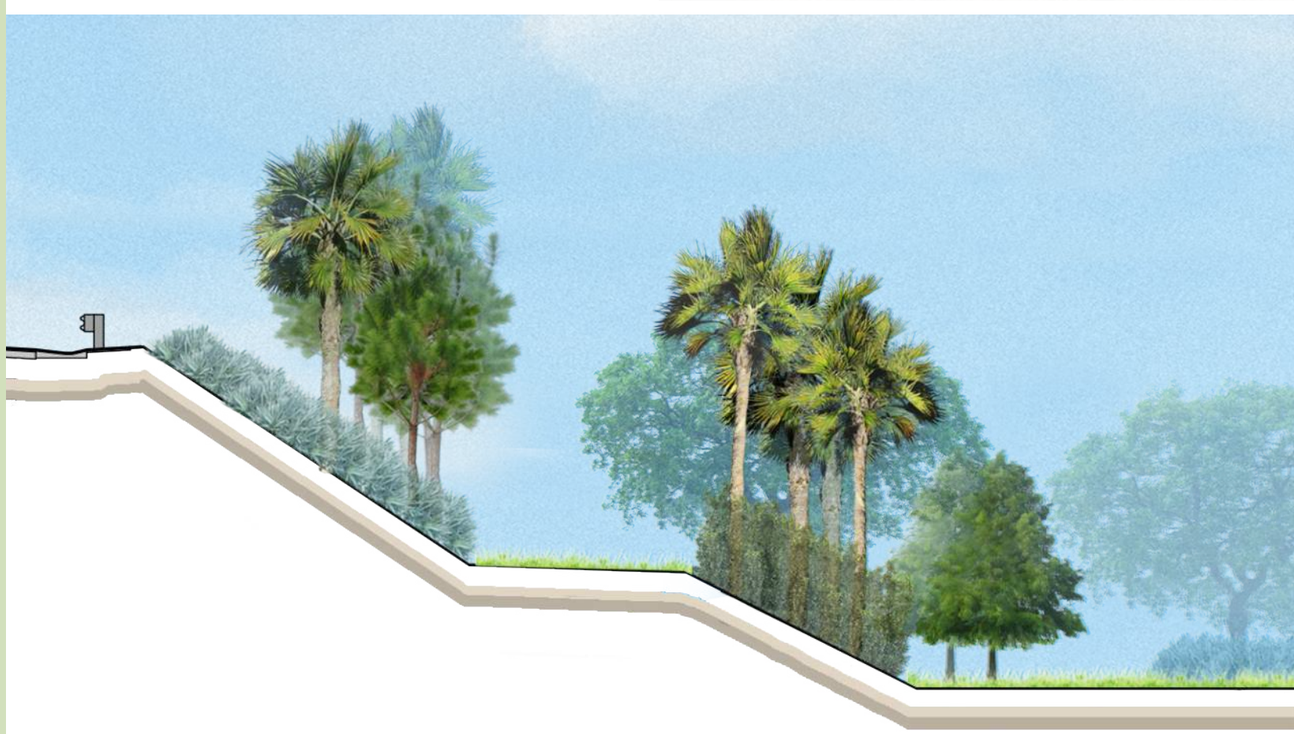
- » http://publicserver2.sjrwmd.com/waterwise/search.jsp
- » http://www.floridayards.org/fyplants/index.php



SLOPE ANALYSIS

A common issue associated with FTE landscape projects is the presence of steep slopes. Steep slopes are dangerous to mow, difficult or impractical to plant on and often suffer severe erosion. Accordingly, designers must assess slopes for these conditions and recommend suitable solutions. Preferred methods include planting tree species that require little if any maintenance, under-planting trees with shrubs to eliminate mowing and help stabilize soils, the use of erosion control fabric or providing terrace walls. Some erosion issues will require more than the installation of plant material to resolve.

- Slopes 4:1 or less are considered mild to moderate
- Slopes 3:1 or greater are considered moderate to extreme and are the upper limit of what is considered mowable.
- Slopes 2:1 or greater are considered extreme and may require the introduction of retaining walls to create areas suitable for planting.



HARDSCAPE

Due to the increasing widening of FTE facilities, right of way is becoming more constrained. This limits the use of landscape plantings to achieve enhanced aesthetics. Accordingly, the use of hardscape, paint applications and graphics are often times the only way to beautify the corridor.

Roadway structural elements such as bridge columns and support elements, retaining walls, noise abatement walls and stand alone hardscape structures should be considered as an opportunity to provide required roadway aesthetics.

For more information:

- » Noise walls and Perimeter walls: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/roadway/fdm/2020/2020fdm264noiseperimwalls.pdf?sfvrsn=3962e82a_2
- » Retaining walls: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/roadway/fdm/2020/2020fdm262retwalls.pdf?sfvrsn=6e1e0804_2
- » Form Liners: https://www.concretenetwork.com/architectural-form-liners

COMMUNITY AESTHETIC FEATURES

Community Aesthetic Features (CAF) are an opportunity for a local governmental entity to convey the culture, identity and values of the community through a stand-alone structure or an element affixed to an existing structure in the LA R/W. These features are categorized as Public Art or Local ID Marker. The Local government must enter into a CAF agreement by adopting a resolution to design, construct and maintain the feature. In addition, the CAF agreement requires a bond for the removal of the feature, if this becomes necessary.

The process also involves a review by the Roadway Aesthetics Community of Practice, with representatives from FDOT Central Office, FTE and other Districts who will offer verbal comments. Once the design is approved; and the CAF agreement is executed the CAF can be constructed. Stand alone features could be a statue, monument or sign-wall. Affixed features can be medallions, plaques or other art elements.

For more information:

- Community Aesthetic Features:
  FDM 127: https://www.fdot.gov/roadway/fdm/default.shtm
- Manual of Uniform Traffic Control Devices:
  https://mutcd.fhwa.dot.gov/htm/2009r1r2/html_index.htm

ADDITIONAL DESIGN CONSIDERATIONS

- » Emphasize naturalistic design, staggered heights, and groupings rather than straight lines.
- » Emphasize large groupings to provide a high intensity and immediate visual impact.
- » Minimize use of shrubs except in specific applications.
- » Utilize indigenous and hardy non-native plant species suitable to the project site's environmental conditions.
- » Reinforce native canopy when possible.
- » Respect adjacent land uses and their rural, urban or suburban characteristics.
- » Utilize Xeriscape (Florida-friendly) planting principles.
- » Use low maintenance and sustainable plant materials.
- » Provide a lasting and memorable visual statement with the use of seasonal flower or foliage color and unique and contrasting plant types that reflecting Florida's climate.
- » Promote large displays of wildflowers or meadow in large dry retention areas as an alternative to sod.
- » Remove Category 1 Invasive exotic plant material threatening our native plant communities. Refer to www.fleppc.org for current listings.
- » No category I invasive exotic plants shall be proposed on a FTE system. Category II invasive exotics are considered on a case by case basis subject to FTE approval.

SHRUB UTILIZATION

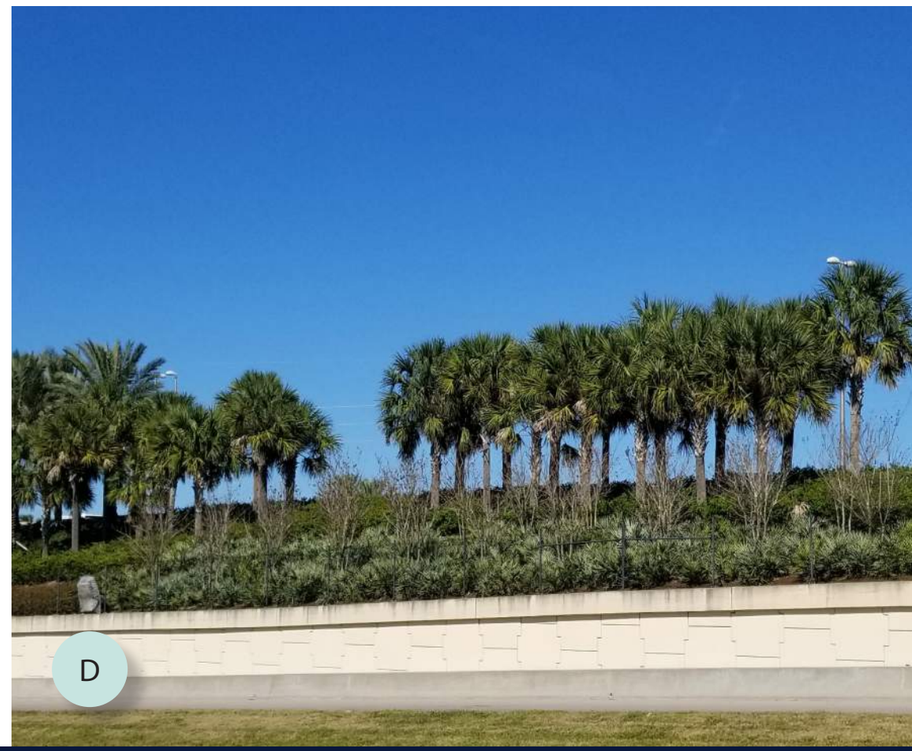
Shrub utilization may be utilized under the following circumstances:

A. Screen gantry equipment from travel ways.
B. Shrub beds beneath trees and palms to protect from mower damage.
C. Placement on steep slope conditions to minimize mowing maintenance efforts (i.e. inter-change, overpasses or cross road embankments).
D. Reduce maintenance efforts in isolated areas where it is difficult or dangerous to access.

A


B


C


D

SHRUB UTILIZATION

E. To provide color and visual interest.
F. Screening undesirable views, such as industrial areas, where no noise walls are present.
G. Soften or accent noise walls.

WILDFLOWERS

Wildflower areas are intensively managed areas designed for maximum aesthetic value.

Wildflowers along Florida's Turnpike roadway are an important element that are enjoyed by millions of residents and visitors every day. To comply with Florida's Wildflower Program, FTE has planted approximately 80 acres along Florida's Turnpike.

WILDFLOWERS

Using the guiding principles of protection, establishment and management, FTE identified the following wildflower planting designations:

- Natural Stands – Extensions or remnants of neighboring areas that contain wildflowers.
- Roadside Meadows – Long blooming areas with a species mix that is best suited for a site.
- High Impact – Presenting an intense visual statement for high profile locations.

The Landscape Architect of Record (LAOR) shall consider potential and future wildflower sites within their projects. Contact the FTE Roadway Maintenance Department to coordinate appropriate wildflower seed species, locations and installation/ establishment techniques.

SECTION 4: PROJECT PLANNING & DESIGN

SECTION 4: PROJECT PLANNING & DESIGN

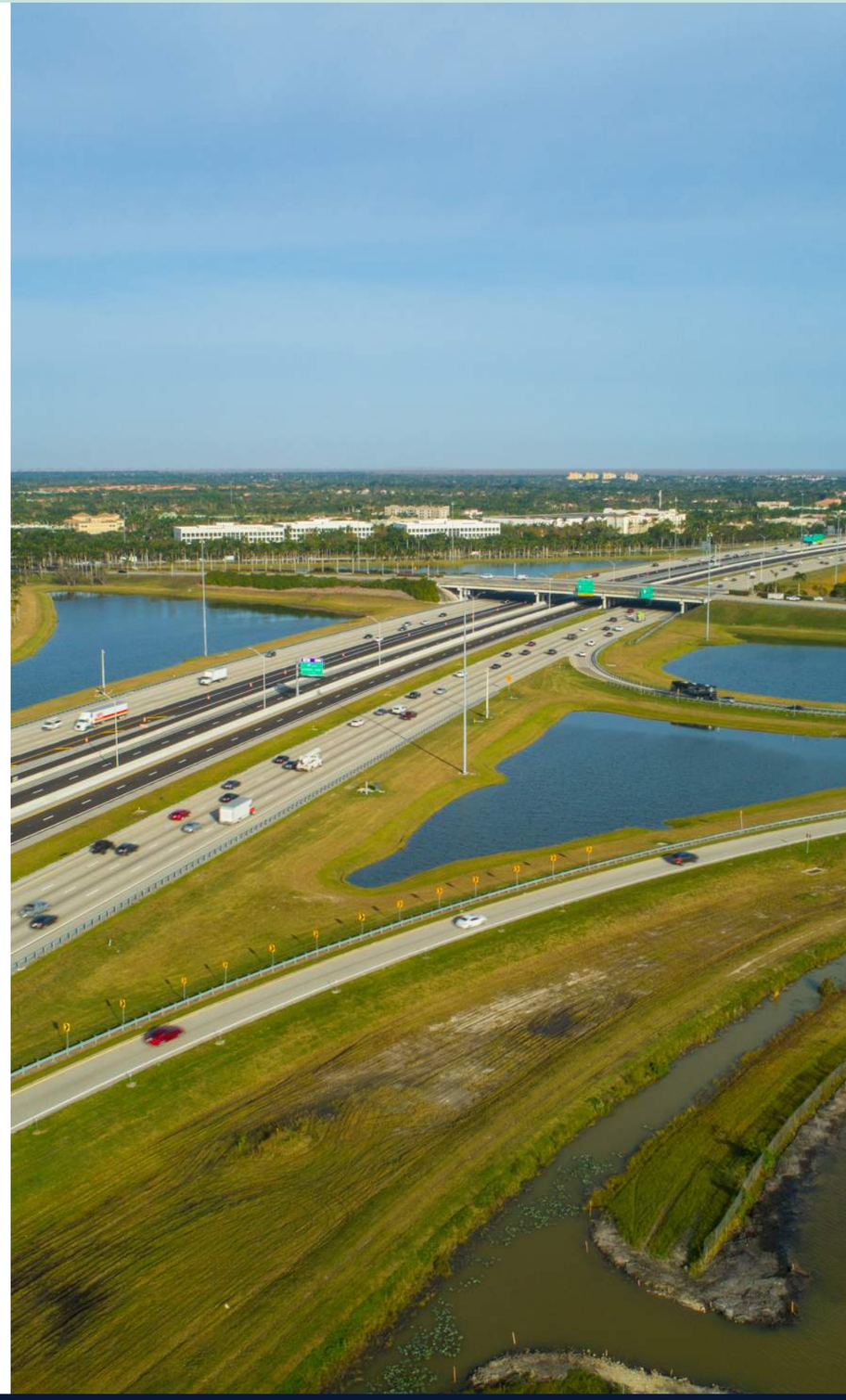
Landscape plan development within FTE requires processes and procedures unique to FTE. Designers must be fully knowledgeable of the FDOT Design Manual in addition to their scope document in order to meet these requirements.

» FDOT Design Manual:
https://www.fdot.gov/roadway/fdm/default.shtm

The process begins with Existing Roadway Conditions Assessment Report (ERCAR). In most instances this document will be supplied to the design consultant. This is followed by the development of a concept plan Long Range Estimate of construction cost (also know as a budget). In most instances these will also be provided to the consultant by the district.

The concept plan is followed by the Vegetation Assessment/Disposition Plans and Landscape Construction Plans. The consultant will be required to refine the cost estimate through all submittal phases of plan development.

If the consultant is developing Landscape Opportunity Plans for a roadway project with no landscape component they will be expected to do a thorough analysis of the project (to be shown on the LOP or as a stand alone document). Refer to FDM chapter 904.



COMMON CRITICAL ISSUES

ROADSIDE SAFETY AND FDOT DESIGN STANDARDS

Safety is the most spoken word within FTE. Understanding the roadway components and the regulations that control them is paramount. Designers should be familiar with the FDM and the AASHTO Green Book and apply the requirements found within to their projects. Typical elements that apply to every project include the identification of clear zones, lateral offsets, and sight distances. If designers have specific questions, they should work with their FTE Project Manager to connect with the proper staff to get the answers needed.

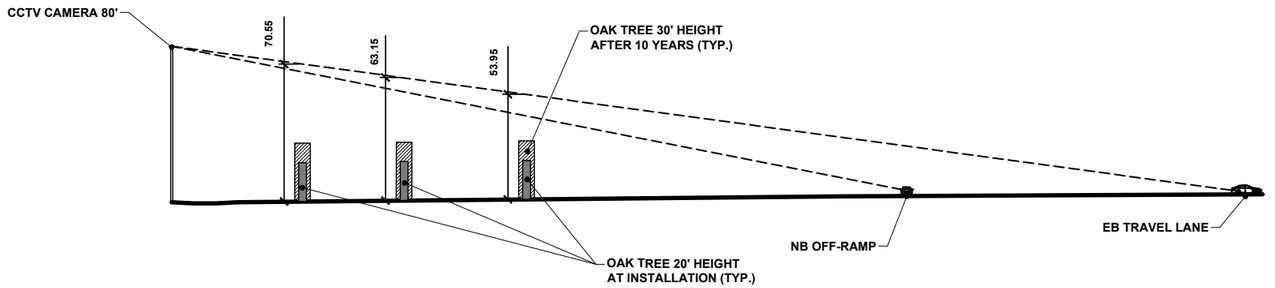
» FDOT Design Manual
» AASHTO Green Book

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

FTE's ITS facilities are managed by Traffic Engineering and Operations and are one of the most critical facilities within the Limited Access Right of Way (LARW) that can affect landscape projects. The main function of the ITS facilities are to provide video feeds through a network of Closed-Circuit Television (CCTV) cameras, and to provide drivers with information through digital message signs.

When planning a landscape project, ITS should be on the top of the designers list of coordination items, for both camera view zones and associated below ground infrastructure. Coordinate with the DLA and ITS Manager to schedule a meeting to review camera locations (including mounting heights) and camera view zones.

ITS SIGHTLINE ANALYSIS

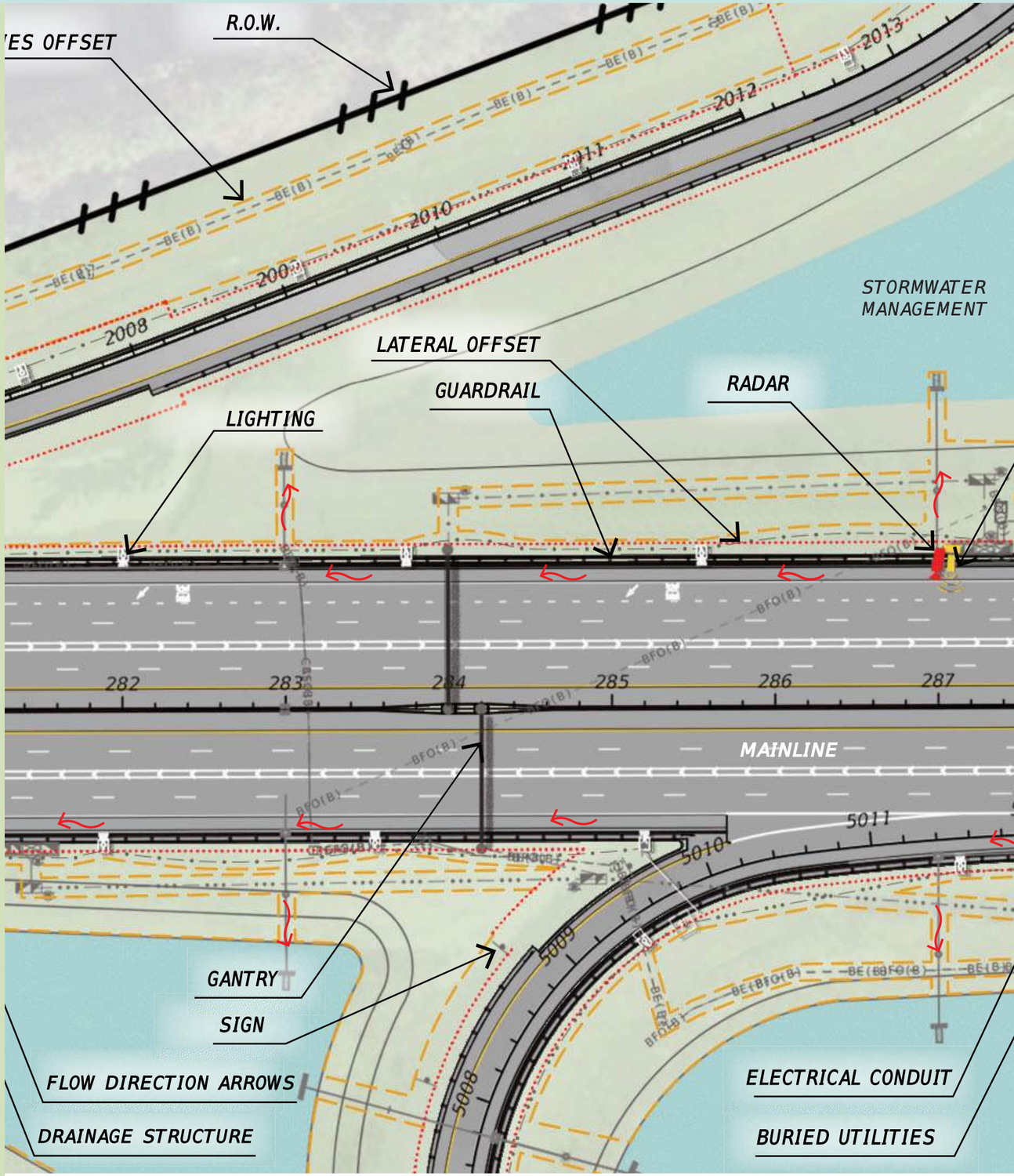


UTILITY COORDINATION

Utility coordination for landscape projects is a critical task. The location of existing utilities plays a significant role in identifying plantable areas within your project limits. FTE maintains a setback chart identifying minimum setbacks requirements for different vegetation types relating to utilities/ facilities. Referring to the ***Utility Setback Chart***, show utilities on the plan with the respected minimum setback requirements set forth by the Turnpike.

Most FTE landscape projects do not provide for utility designation or survey. Utility locations, if shown on the plans, are usually obtained from historical drawings and may not be current or accurate. Accordingly, utility designation and location is delegated to the contractor by means of plan notes.

Utilities will also impact the design of irrigation for your project. Early coordination and documentation with the power service provider when planning for an irrigation system is critical. Designers need to know the location and type of available power for specifying the proper irrigation equipment and establishing service. This will be discussed further under Irrigation Feasibility Report.



OUTDOOR ADVERTISING (ODA)

ODA owners have view zone rights. These view zones need to be shown on the plans and cannot be impacted by proposed or existing landscape. When planning the landscape design, give consideration to a plant's future growth and ensure it does not impact the ODA view zone.

"The Outdoor Advertising regulatory program is based on federal law and regulations as well as state statute and rule. Federal law is set forth in the Highway Beautification Act while federal regulations can be found at 23 C.F.R., Section 750. State laws are found in Chapter 479, Florida Statutes. In addition to the state statutes, the Department writes administrative rules to interpret the intent of the statute for the general public. Chapter 14-10, Florida Administrative Code, is the Department's rule chapter which governs outdoor advertising. Copies of the complete rule chapter may be obtained from the Outdoor Advertising Office. Local governments often have their own ordinances which regulate outdoor advertising in their community. The Department cannot issue a permit for an outdoor advertising sign which is not allowed by local ordinances."

The process of working with ODA owners to ensure that their rights are preserved is well documented and described on FDOT's website.

» https://www.fdot.gov/rightofway/OutdoorAdvertising.shtm

AVIATION IMPACTS

Federal, state, and local regulations exist to protect the national airspace system and must be considered when a project is within 10 nautical miles (11.5 statute miles) of an airport or spaceport. For additional information refer to FDM 110.5.1:

» FDM 110: https://www.fdot.gov/roadway/fdm/default.shtm

PROJECT AVIATION REQUIREMENTS (FDM 110.5.1)

Step 1: Federal aviation requirements must be met when the project is within 10 nautical miles (11.5 statute miles) of a facility.

» Contact the District Aviation Coordinator if you are within the 10 nautical miles (11.5 statute miles).

Step 2: Utilize Notice Criteria Tool to input coordinates of any proposed construction or alteration of structures (including natural growth, vegetation, and landscaping) if within the 10 nautical miles.

» Determine if necessary to file "Notice of Proposed Construction or Alteration."
» Document structures requiring notice.

Step 3: If notice is required, use FAA Form 7560-1 to file a "Notice of Proposed Construction or Alteration."

» 45 to 60 days advance filing to accommodate the review process and issue the FAA determination letter.
» "Determination" valid 180 days for construction.
» FAA will grant only one extension to a determination for 180 days.

SITE ANALYSIS

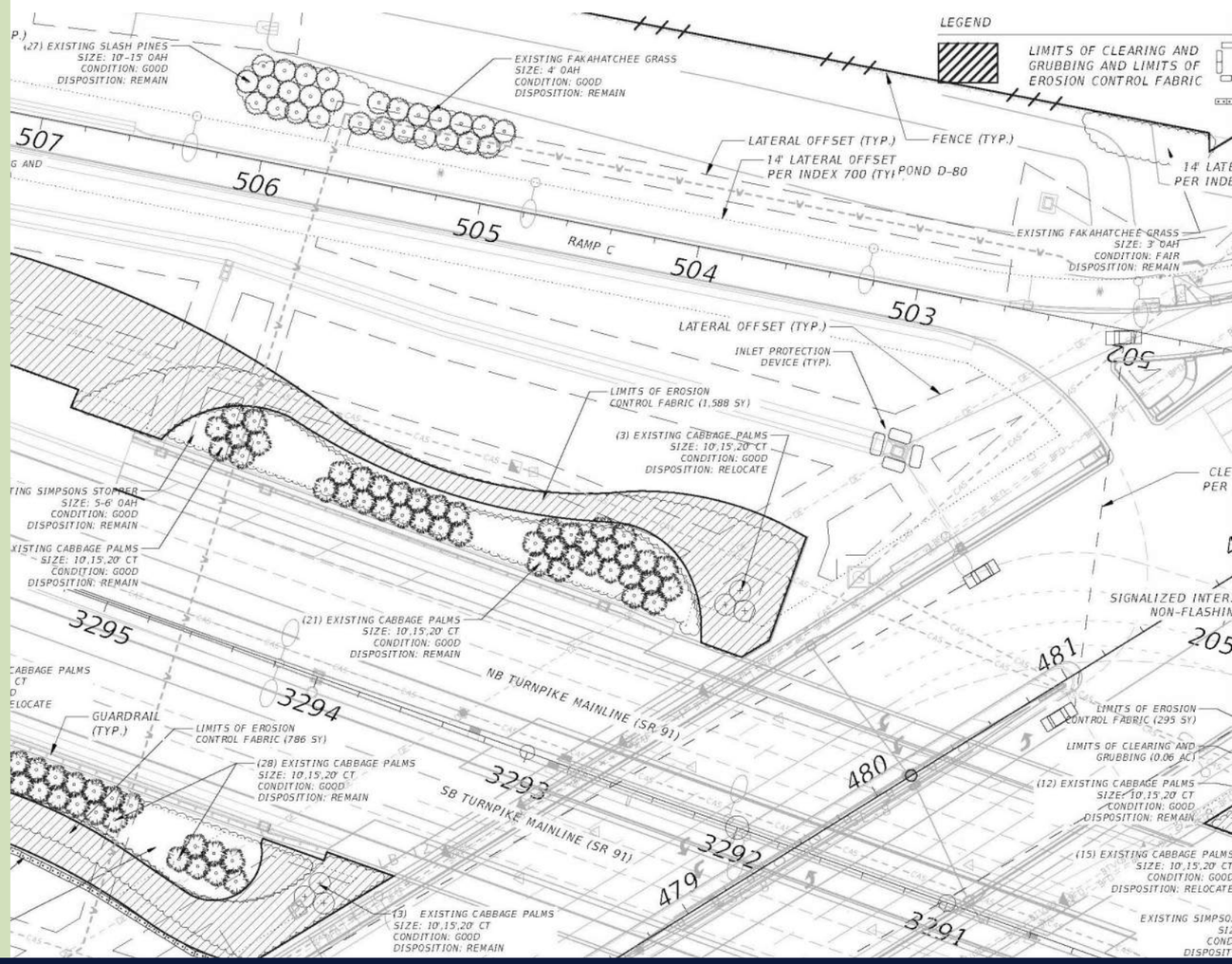
Most sites contain other existing site features critical for further identifying both opportunities and constraints. Examples of these are the following:

EXISTING VEGETATION

Vegetation preservation is the most cost effective way to provide highway beautification. State Statute and Departmental Policy require that we conserve existing landscape to the greatest extent possible. Consistent with Departmental Policy, each project must include an evaluation of the existing vegetation and a recommendation for its protection, relocation or removal. Documents included in the Resources section of this manual provide further guidance for vegetation assessment as part of the Existing Roadway Condition Report (ERCAR) process.

Also, refer to FDM chapter 229. Selective Clearing and Grubbing.

» https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/roadway/fdm/2020/2020fdm229selcleargrubdsn.pdf?sfvrsn=3370acb0_2



SOIL ANALYSIS

Soil analysis must include identification and understanding of the benefits or impacts created by existing environmental conditions. Soils must be analyzed to determine the most suitable plant materials or remediation that may be required for a successful landscape planting.

Sites must be analyzed for the presence of threatened or endangered species and the appropriate measures taken if present. Storm water facilities, surface waters and wetlands must be identified and accommodated within the landscape design either as elements to be avoided or enhanced in accordance with current environmental laws.

SITE ANALYSIS PLANS (SAP)

A Site Analysis Plan is a comprehensive assessment of a site's physical, biological, and cultural characteristics. It serves as the foundation for designing funciotnal and aesthetic landscapes.

The purpose of the site analysis is to understand the existing conditions, opportunities, and constraints of a site to inform the design process. The analysis ensures that the final design is well integratged with the surrounding environment and meets the needs of its intended users (motorists, pedestrians, etc.)

Graphics on a Site Analysis Plan should be clear, detailed, and visually engaging to effectively communicate the site's characteristics and analysis findings. The plan should include a well-organized base map that accurately represents the site's boundaries and context. Key elements such as topography, vegetation, hydrology, and structures should be depicted using distinct symbols, lines, and color codes. Contour lines should illustrate elevation changes, while different shades and textures can represent various vegeation types and soil conditions. Water features like streams, ponds, and draingage patterns should be clearly makred.

Annotation and labels are essential for identifying significant features, constraints, and opportunities. Use of diagrams, charts, and legends can enhance understanding, providing a quick reference to the symbols and color codes used. Overall, the the graphics should be designed to be easily interpretable, allowing stakeholders to grasp the site's complexities at a glance.

SITE ANAYLSIS PLAN (SAP)

TRANSIT FACILITY
GOLF COURSE
LAKE
R.O.W.
MAINTENANCE BERM
OUTDOOR ADVERTISING
UTILITIES OFFSET
LATERAL OFFSET
WET SOIL
GUARDRAIL
ITS
GANTRY
STORMWATER MANAGEMENT
CROSS ROAD
SIGN
MAINLINE
SIDEWALK
LIGHTING
EROSION PRESENT
PROJECT CENTER LINE
EDGE OF PAVEMENT
DRAINAGE STRUCTURE
DIRECTION OF FLOW
RESIDENTIAL
MAINTENANCE BERM
MAINTENANCE BERM
BURIED UTILITIES
CURB AND GUTTER
CROSSWALK
RESIDENTIAL

OVERHEAD UTILITIES
OVERHEAD ELECTRIC
CONDUIT
BURIED ELECTRIC
FIBER OPTICS CABLE
CABLE TV CONDUIT
TELEPHONE CABLE
LATERAL OFFSET
R.O.W.
DIRECTION OF FLOW

N

0 250 500 1000

SCALE: 1" = 500'

DRAINAGE STRUCTURE
GUARDRAIL
LIGHTING
LIMITS OF CLEAR SIGHT

UNRESTRICTED
AVAILABLE UNIMPEDED LANDSCAPE AREA FREE OF REGULATORY CONSTRAINTS AND UTILITIES.

MODERATELY UNRESTRICTED
OPEN SPACE AVAILABLE FOR LANDSCAPE WITH LIMITED CONSTRAINTS. FOR EXAMPLE, A UTILITY AND ITS OFFSET DIVIDING THE AVAILABLE LANDSCAPE AREA INTO TWO AREAS.

RESTRICTED
OPEN SPACE IMPACTED BY SIGNIFICANT REGULATORY CONSTRAINTS SUCH AS LATERAL OFFSETS, ITS VIEW ZONES, AND/OR UTILITIES, STORM STRUCTURES, AND OTHER PERMANENT OBJECTS PREVENTING THE PLANTING OF LANDSCAPE MATERIALS OTHER THAN SOD.

BUFFER
AN AREA ON SITE OR OFF SITE TO BE VISUALLY SCREENED THROUGH THE USE OF LANDSCAPE MATERIAL OR HARDSCAPE SUCH AS A SOUNDWALL TO PROVIDE VISUAL PRIVACY.

VIEW OPPORTUNITIES
EXISTING VEGETATION
ITS CAMERAS
CROSSWALK
EROSION PRESENT
SIDEWALK
STEEP SLOPES

LANDSCAPE OPPORTUNITY PLANS (LOP)

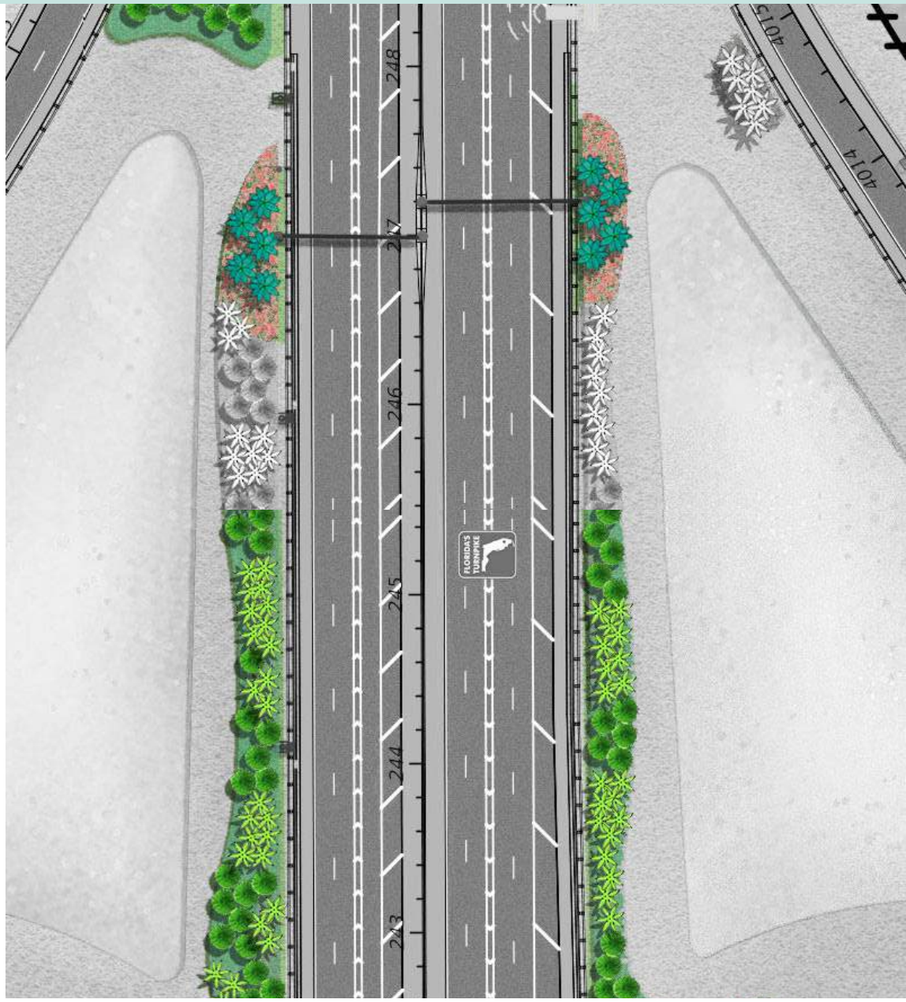
Landscape Opportunity Plans are developed for PD&E design projects and roadway design projects with no landscape component. The intent is for the landscape designer to work closely with the roadway design team to preserve existing vegetation and areas for future landscape plantings. The design approach must be consistent with the philosophy and directives already outlined.

1. GOALS AND EXPECTATIONS

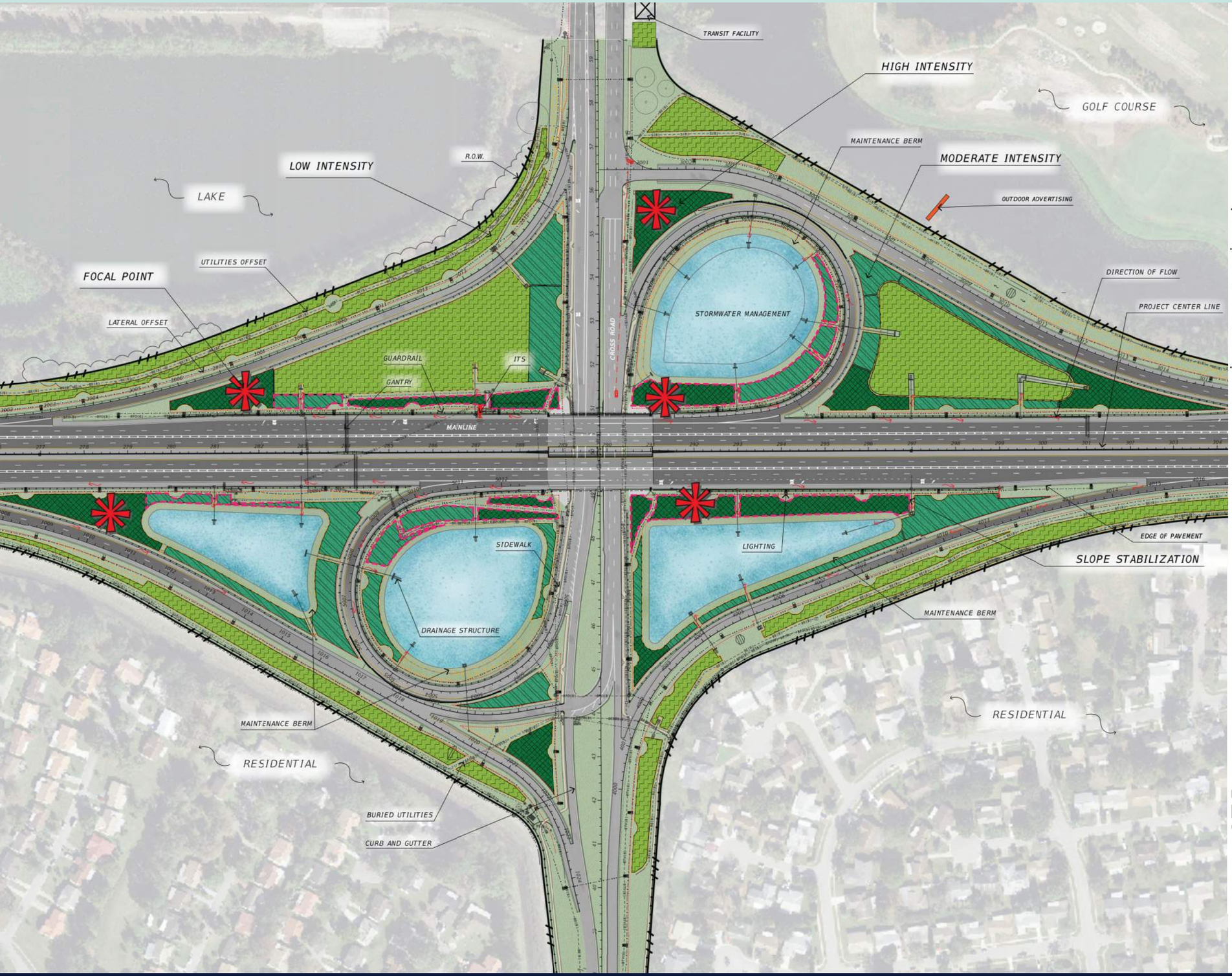
- The designer should begin by establishing goals for the project through coordination with the FTE Project Manager and determining if there are any commitments that have been made to the impacted community regarding landscape enhancement.
- Goals should be developed based on specific project conditions. Examples include slope stabilization, the enhancement of favorable views, buffering of roadway impact on residential neighborhoods.

2. IDENTIFYING LANDSCAPE

- Intensity Zones: After identifying site constraints and defining goals for the project, the designer should develop a landscape concept to be depicted on the LOP. Designers should identify landscape intensity for the project site based on the definitions found in **Section 2 Design Philosophy**. These include, but are not limited to, Level 1 – Low Intensity, Level 2 – Moderate Intensity, Level 3 – High Intensity, Level 4 – Meadow Condition



LANDSCAPE OPPORTUNITY PLAN (LOP)



N

0 250 500 1000

SCALE: 1" = 500'

- OVERHEAD UTILITIES
- OVERHEAD ELECTRIC
- CONDUIT
- BURIED ELECTRIC
- FIBER OPTICS CABLE
- CABLE TV CONDUIT
- TELEPHONE CABLE
- LATERAL OFFSET
- R.O.W.
- DIRECTION OF FLOW
- DRAINAGE STRUCTURE
- GUARDRAIL
- LIGHTING
- LIMITS OF CLEAR SIGHT
- UTILITIES OFFSET

PROPOSED PLANTING AREA

LOW INTENSITY
AREAS DESIGNATED FOR LOW LANDSCAPE MAINTENANCE SUCH AS MEADOW CONDITIONS, TRANSITIONAL NATIVE PLANTINGS, REFORESTATION, AND NATIVE PLANTINGS THAT ARE EASILY ESTABLISHED.

MODERATE INTENSITY
AREAS DESIGNATED FOR MODERATE LANDSCAPE MAINTENANCE SUCH AS SECONDARY FOCAL POINTS AND GATEWAYS COMBINING NATIVE PLANTINGS AND NON-NATIVE FLORIDA FRIENDLY PLANTINGS.

HIGH INTENSITY
AREAS DESIGNATED FOR HIGH INTENSITY LANDSCAPING REQUIRING A HIGHER LEVEL OF LANDSCAPE MAINTENANCE SUCH AS MAJOR FOCAL POINTS, GATEWAYS AND HIGH VISIBILITY AREAS SUITABLE FOR HIGH IMPACT LANDSCAPING TYPICALLY ALONG THE MAINLINE IN VERY VISIBLE AREAS.

OPEN LANDSCAPE
LIMITED TO TURF ONLY, CONSTRAINED BY LATERAL OFFSETS, SIGN VIEW ZONES, ITS EQUIPMENT, UTILITIES, MAINTENANCE BERMS AND UTILITY OFFSETS. TURF SPECIES VARY DEPENDING ON CONDITION.

SLOPE STABILIZATION
MEASURES TAKEN TO REDUCE OR ELIMINATE EROSION FOR EMBANKMENTS AND SLOPES WITH 3:1 SLOPE RATIO OR GREATER; CAN INCLUDE PHYSICAL STRUCTURES SUCH AS RETAINING WALLS TO ASSIST IN CREATING PLANTABLE AREAS OR PLANTINGS TO SLOW AND REDUCE STORMWATER RUNOFF.

STORMWATER MANAGEMENT
WET RETENTION AREAS; DESIGNATED STORMWATER MANAGEMENT AREAS THAT HOLD AND RETAIN STORMWATER.

FOCAL POINT

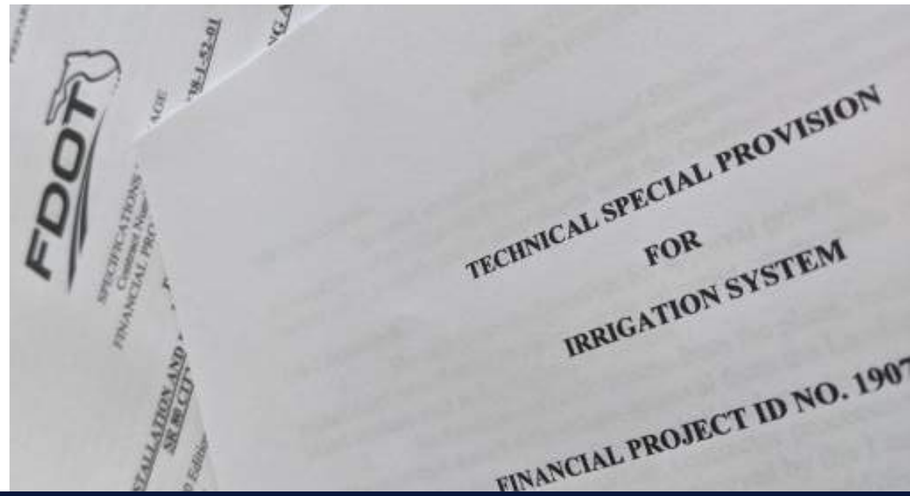
LANDSCAPE IRRIGATION

Roadsides are a difficult environment for plant materials to survive. Less than desirable soils, drainage patterns, heat-island effect and wind make plant survival difficult. Even the most drought-tolerant plants require supplemental watering particularly during the establishment period.

While it is generally not feasible for Florida's Turnpike Enterprise (FTE) to maintain irrigation systems for extended periods, it has been determined that the design and installation of an underground irrigation system can be in the best interest of FTE. Providing a resilient and well-designed underground irrigation system for use during the establishment period provides several advantages, including:

- Ensuring FTE's significant investment in plant materials is successful. Lack of adequate water during the contractor's establishment period may result in deficiencies in expensive plant materials, particularly palms, which will not be manifested until well after the contractor's obligations for establishment have expired. This results in FTE inheriting many substandard plants that will not perform well or die during their anticipated lifetime.
- Confirming contractors' bids are comparable. Experience has demonstrated that if an irrigation system is not included in the bid documents, many contractors will not include sufficient funds in their bids to cover the minimum water requirements for successful plant establishment. They will rely on manual watering or worse, rainfall. These methods have proven unsuccessful on for the majority of projects on which they have been used.
- Enhancing roadside safety and protection of the right of way (ROW). Relying on heavy water tanker trucks entering and leaving the highway at uncontrolled points and traveling over buried utilities and drainage structures or over soft ground creates safety and maintenance concerns.

Accordingly, FTE has required, under most circumstances, irrigation systems to be installed with the landscape projects.



IRRIGATION FEASIBILITY STUDY

The purpose of the Feasibility Report will be to document the design process that may be used to complete irrigation system design documents, determine availability of a reliable water and power source, and to determine the financial feasibility of installing the irrigation system. The consultant shall prepare a Feasibility Report including an analysis of the water sources, power sources, permitting requirements, watering methods, materials and operational costs associated with a proposed irrigation system design. The Feasibility Report shall include an overall map of the project limits showing preliminary locations of major system components, including water sources, controllers, electrical connections, and sleeves.

WATER SOURCES

The consultant shall determine the appropriate water sources, selected to meet the intent of the project on the basis of durability, cost, water conservation and efficiency, and compatibility with existing Turnpike operations and facilities. FTE encourages the use of a well and manufactured pump system or reclaimed water where available.

WELL WATER

A pump system utilizing a well will provide a very reliable water source for both a permanent and temporary irrigation system installation. There are high initial installation costs for constructing and permitting a well with a pump, however the costs for maintaining an efficient system are low compared to other sources.

The installation of pump system will be dependent on the availability of establishing an electrical service if not already available within the project limits. The well sources may be utilized during construction and during establishment by water trucks as an on-site water source, or utilized by a more permanent installation with an automated irrigation controller.

SURFACE WATER

Pump systems similar to the well source may be used to utilize surface water from retention areas. Retention areas could provide water for a plant establishment period, but may be an unreliable long term solution due to seasonal fluctuations in water levels. In addition, fluctuations in surface water levels caused by withdrawal could have a potential impact to any nearby wetlands.

The installation of a pump system will require an electrical service establishment near the water source. The associated costs of a surface water pump system include the initial installation costs for construction and permitting.

RECLAIMED WATER

Reclaimed water is a reliable water source where available, however pressure conditions may vary with demand. It is an ideal solution where concerns for environmentally sensitive wetlands may be impacted from well or surface water withdrawal.

The water source would not require an electrical connection to operate a pump system or controller. Other benefits of reclaimed water include low installation costs for construction with low impact fees, as well as low ongoing costs for water usage for life of system.

POTABLE WATER

A potable water connection is the most reliable water source with low installation costs for construction. However, potable water has potential high impact fees and high ongoing costs for water usage for life of system.

This water source would not require an electrical connection to operate a pump system or controller.

WATER TRUCK

Another potential irrigation source is manual hand watering with the use of water trucks, hose spraying, and tree water bags. This can be ideal for isolated areas where temporary or permanent irrigation system could not be installed due to location or lack of availability of a reliable power source. In addition, water trucks could utilize any of the above water sources to eliminate the cost for delivering water to the site.

Manual irrigation will require additional costs of labor, safety, and mobilization for the length of plant establishment, however there will be no continuing maintenance costs after plant establishment.

POWER SOURCES

Coordination with the appropriate electrical utility provider on the availability and type of electrical source will be a critical step to establishing the feasibility of installing an irrigation system. The consultant must pull a design ticket to identify utility providers within the project limits. Proposed irrigation system utilizing a power source will require an independent electrical meter account that will be established and owned by the contractor throughout the installation and establishment period.

HARDWIRED (UTILITY)

A hardwired power source utilizing a utility will be required for use with well or surface water source to power a pump system. While this configuration is the most reliable, a new power service will have a moderate installation cost with continuing usage costs for the life of the system, with the potential for an impact fee from the utility service provider.

SOLAR

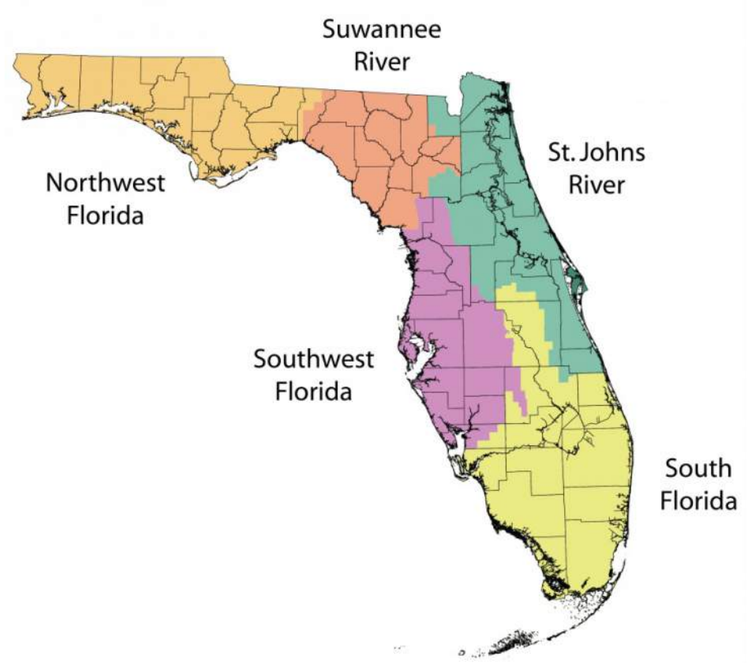
Solar power could be utilized to operate automated controllers on systems utilizing reclaimed or potable water that do not require a pump system. Solar power can have higher installation costs with little to no ongoing costs for life of system and is ideal for isolated areas where power is not available or accessible.

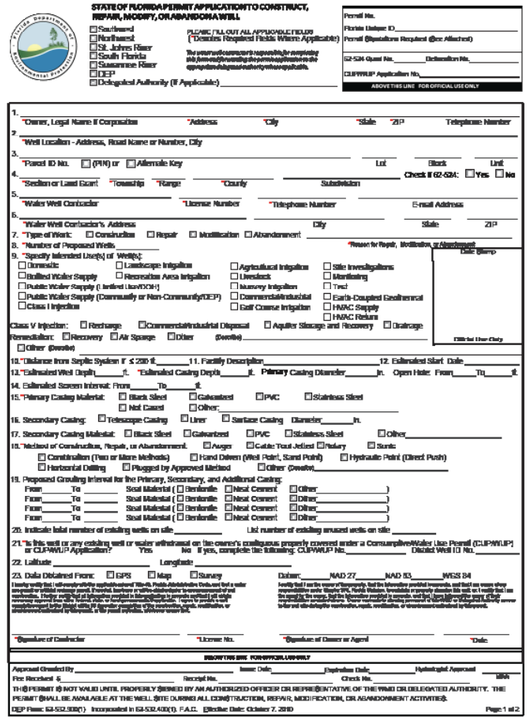
BATTERY

Similar to solar, battery-powered controllers may be utilized to operate automated irrigation controllers on systems utilizing reclaimed or potable water that do not require a pump system. Battery-powered controllers are the most affordable option with low installation costs, however battery-operated controllers will require a maintenance plan for battery replacement. In addition, a typical battery-operated controller lacks features available to traditionally hardwired controllers.

PERMITTING

Water use permits, well construction permits, applications and payment of associated fees should be documented in the Feasibility Report. The consultant shall provide coordination with the appropriate water management district, health department, and local municipalities to determine permit fees and procedures. Permitting, where required, will become the responsibility of the contractor.





STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

IRRIGATION METHODS

If an irrigation system installation is recommended in the Feasibility Report, the consultant shall determine the following:

- Types of irrigation strategies to be utilized throughout the project.
- Preliminary calculations of water use to size the water source.
- Electrical requirements and potential sources.

OVERHEAD

Overhead application of water is the primary application method for landscape and turf irrigation systems due to water efficiency, automation, and cost effectiveness.

Overhead irrigation offers flexibility with water sources. The products commercially available are designed to utilize a variety of water sources including wells, surface water, reclaimed, or potable water. In addition, equipment designs focus on applying water efficiently by maximizing distribution uniformity for various weather and soil conditions. A well-designed system will take into account equipment performance, head spacing, and distribution uniformity to effectively provide supplemental water to landscapes.

Different types of overhead application nozzles include sprays, rotary, and rotor type irrigation application devices.

Rotary nozzles, a type of multi-trajectory rotating stream nozzle, are the most efficient product for overhead type irrigation with a distribution uniformity of 80%. Rotary nozzles distribute water uniformly onto landscape at a slower application rate to allow the soil to intake water without runoff. The low precipitation application is beneficial on slopes and roadway embankments to establish stabilization plantings. Increased efficiency results in 30% less water use when compared to traditional sprays and significantly reduces wasteful runoff.

Water conservation can be improved when utilizing more traditional rotors and sprays through the use of water saving features such as check valves, matched precipitation, and pressure regulation.

MICRO IRRIGATION

Micro irrigation is considered to be the most efficient form of water application when designed and maintained properly. Micro irrigation utilizes slow and frequent application of water to the soil, delivering water efficiently to the base of each plant through a system of flexible irrigation tubing, drip emitters, bubblers, and micro sprays.

Due to the small diameter of pipe tubing and emitters, micro irrigation is prone to clogging where low-quality water is being utilized. A system with a well or surface water source will be dependent on the use of filtration to remove inorganic particles and control the organic material that may enter the system.

MANUAL WATERING

Supplemental water for establishing landscape plantings can be provided to landscape that are isolated from a viable water or power source through the use of a combination of water trucks, hose spraying, and tree watering bags.

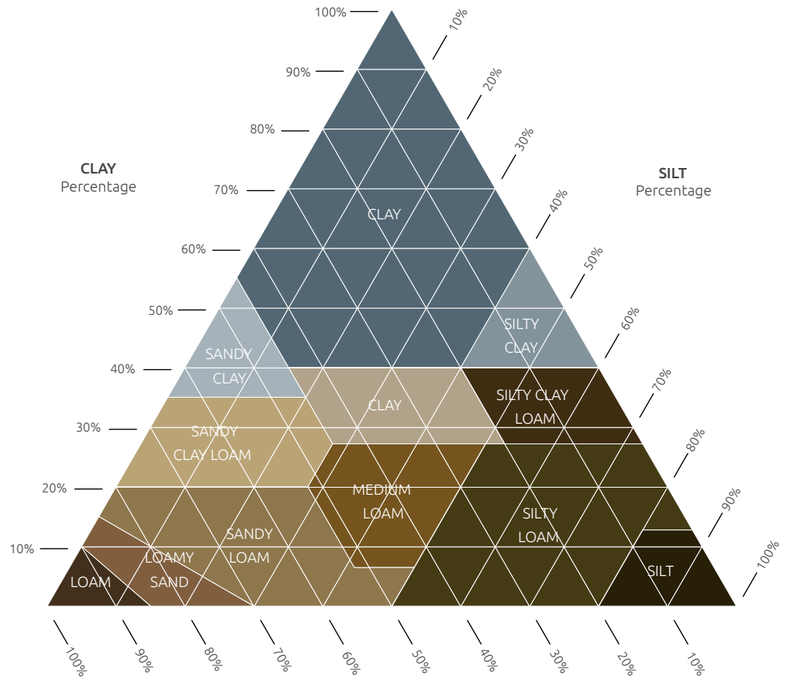
Manual watering requires additional cost for labor, safety, and mobilization. Ensuring the safety of landscape crews and the accessibility of the site will be especially important to consider when selecting suitable areas to receive this method of watering; specifically along high speed areas, pull off areas, and steep embankments.

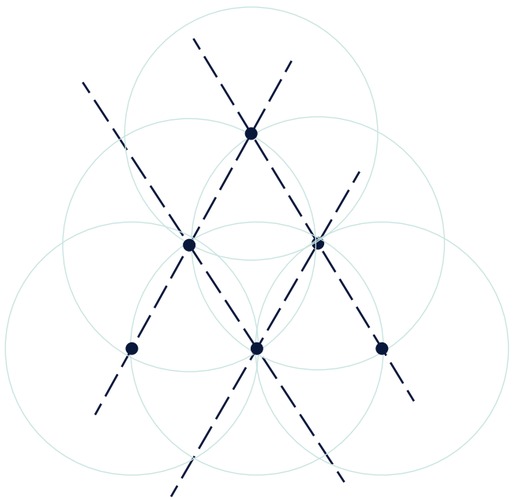
While a sprinkler or drip emitter can be designed to efficiently distribute water automatically, manual watering relies on the expertise of the operator to ensure plant material receives water and can be an inefficient application of water to turf and ornamental landscape. Watering bags for tree establishment provide a slow release of water directly to the root system, but are susceptible to damage.

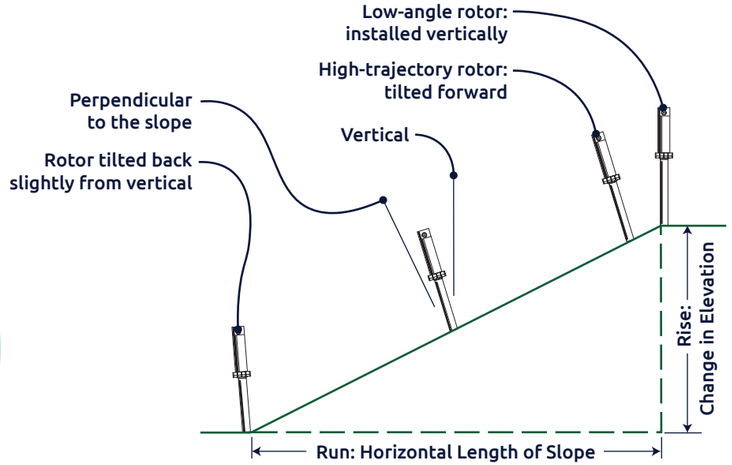
IRRIGATION DESIGN STRATEGIES

The following irrigation strategies are recommended to encourage consistency between irrigation designs along the FTE system. The strategies have been developed from best practices and lessons learned from previous FTE landscape projects, and are intended to serve as a guide to encourage the design of irrigation systems that help to ensure successful landscape installations, are resilient to harsh conditions, and do not significantly increase project maintenance requirements.

In addition to the design strategies, the irrigation design shall incorporate standards defined in the Florida Building Code, Appendix F. The design shall also incorporate recommendations from the Florida Irrigation Society Standards and Specifications for Turf and Landscape Irrigation Systems, Fourth Edition.







TURF AREAS

Irrigation of turf areas along the FTE is generally discouraged due to the high watering requirement and increased maintenance and mowing of large areas. Turf areas adjacent to heavy pedestrian activity such as parking areas and rest stops may benefit from an irrigation system. High visibility areas, gateways, and areas susceptible to soil erosion where shrubs or groundcovers cannot be utilized may also benefit from irrigation and add to beautification. The use of irrigation for establishing turf areas may be approved on a case-by-case basis.

- Spray nozzles with matched precipitation installed on a 6" pop-up are recommended for areas 4' wide up to 18'. Factory-installed pressure regulation is recommended to reduce misting and overspray on to roadways and hardscape areas.
- Low-volume rotary type nozzles installed on a 6" pop-up are recommended for areas 4' wide up to 35', especially where low application rates are desired for embankments and poor soil intake rates.
- Pop-up rotors may be utilized for irrigating large areas, 25' and greater.

GROUNDCOVERS, SHRUBS, AND ORNAMENTAL GRASSES

Where groundcovers and shrubs are used for screening, embankment stabilization, or beautification, overhead irrigation is encouraged for the duration of the establishment period. The design should consider plant watering requirements, mirco-climate factors, and soil intake rates when zoning a system and selecting the appropriate irrigation products.

- » Drip irrigation is only recommended to eliminate overspray onto buildings where hard water or iron deposits are present in the water source. Drip irrigation may also be recommended in areas smaller than 4' wide.
- » Spray nozzles with matched precipitation installed on a fixed shrub riser are recommended for areas 4' wide up to 18'. Factory-installed pressure regulation is recommended to reduce misting and overspray on to roadways and hardscape areas.
- » Low-volume rotary type nozzles installed on a fixed shrub riser are recommended for areas 4' wide up to 35', especially where low application rates are desired for embankments and poor soil intake rates.
- » Rotors installed on a riser may be utilized for irrigating large areas, 25' and greater.

TREES AND PALMS

Trees and palms along the FTE contribute the greatest visual impact in a landscape project. Many of these plantings located in harsh micro-climates and artificially created planting areas are susceptible to stress, making supplemental watering essential to proper establishment. When roadway conditions make these areas inaccessible to maintenance vehicles or water trucks, a well designed irrigation system will ensure proper watering has occurred.

- » Fixed flow rate pressure compensating bubbers on a flex hose riser, installed inside of mulch watering ring. Size flow rate and quantity of bubblers to provide the proper amount of water for each planting. Design to consider planting size, location, elevation, and soil type.
- » Fixed flow rate pressure compensating bubbers installed below grade inside a preferred pipe, ideal for areas with compacted soils or plaza areas with tree planting pits. Size flow rate and quantity of bubblers to provide the proper amount of water for each planting. Design to consider planting size, location, elevation, and soil type.

WILDFLOWERS AND NATIVE PLANTINGS

When necessary for the establishment of native area infill plantings and wildflower areas, manual watering with quick-coupler valves installed on nearby irrigation systems can provide a reliable water source without the need to transport water to the site.

- » Quick-coupler valves installed below grade on a swing-type riser. Valve boxes with SCTE Tier 8 load ratings are recommended in grassed areas for protection from landscape equipment and light trucks.

AUTOMATIC IRRIGATION CONTROLLER

Automated scheduling adjustments based on weather or accumulated rainfall promote water conservation and help to ensure landscape material is not over-watered. Irrigation controllers or pump monitoring systems that feature remote water management will help to ensure the landscape has received irrigation and alerts maintenance of issues in the field.

Decoder controllers allow for future system expansion and can reduce the complexity of an irrigation system on very long or large projects.

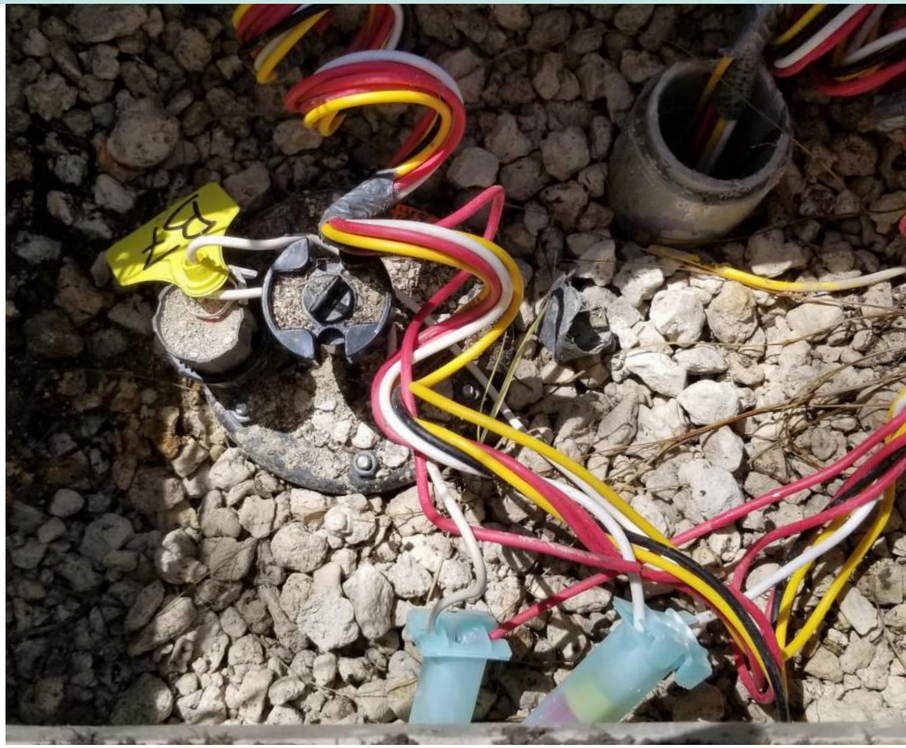
DIRECTIONAL BORING

Limit the number of directional bores. Design ticket and utility coordination is critical during the installation. May be used to extend irrigation water sources, electrical service, and automated irrigation control across interchanges, into medians, and other isolated areas that may not have direct access to water or power.

IRRIGATION EQUIPMENT

Valve boxes for irrigation valves installed within grassed areas are more susceptible to damage from incidental traffic and maintenance activity. Where valve boxes cannot be installed in shrub beds, a valve box with SCTE Tier 8 load ratings are recommended to protect irrigation equipment from landscape maintenance equipment and light trucks.

Waterproof irrigation wiring connections.

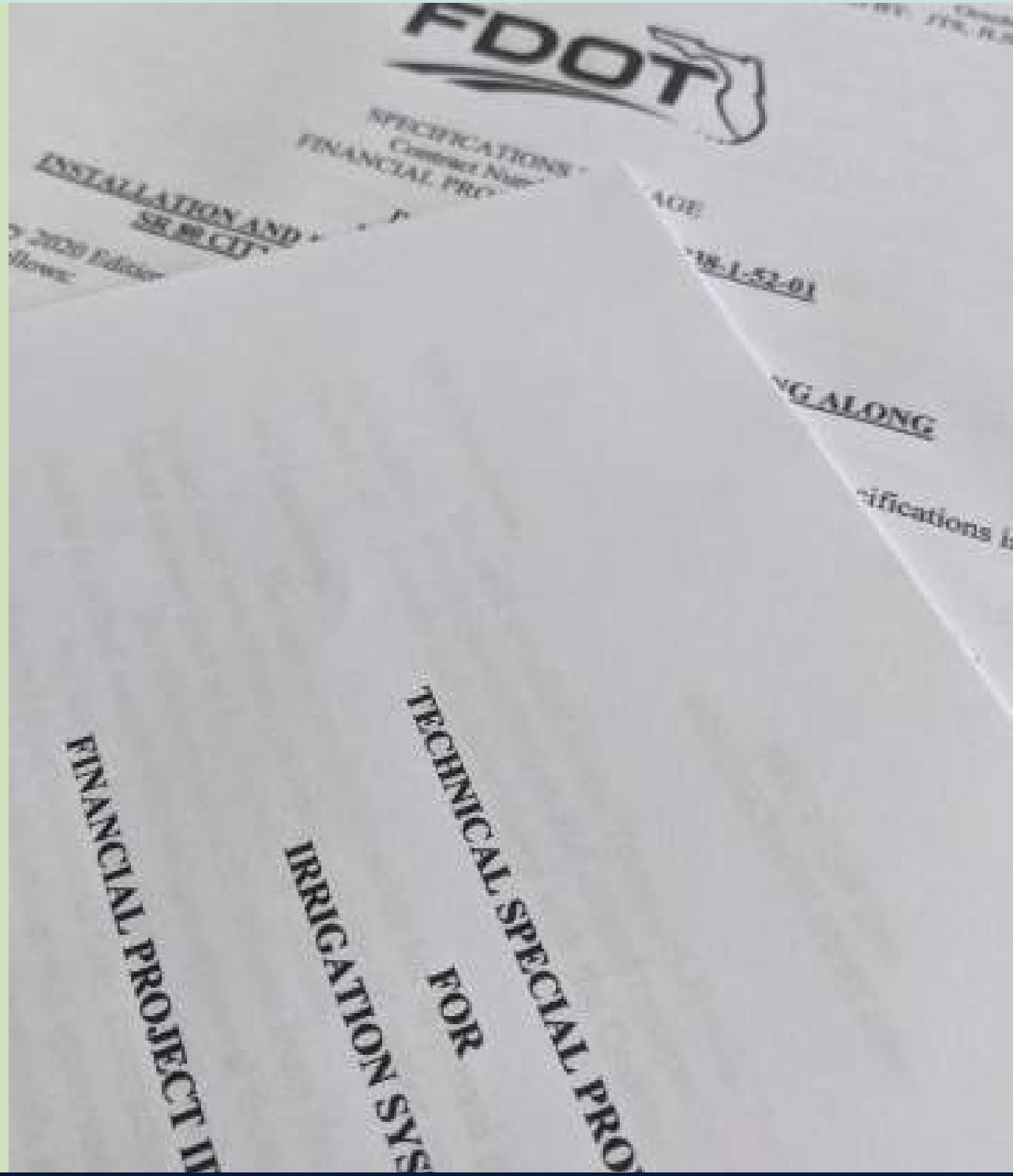


IRRIGATION TECHNICAL SPECIAL PROVISIONS

When specifying an irrigation system design, the consultant shall comply with the FDOT Specifications Handbook for developing the Irrigation Technical Special Provisions (TSP) package. The Irrigation TSP must complement the Irrigation Plans and incorporate all recommendations developed in the Irrigation Feasibility Study.

Additional information on preparing a Specification Package and a Technical Special Provision can be found on the FDOT Program Management website:

» https://www.fdot.gov/programmanagement/packagepreparation/default.shtm



SECTION 5: LANDSCAPE WORK PROGRAM

SECTION 5: LANDSCAPE WORK PROGRAM

PROGRAMMATIC CONSIDERATIONS

Like many programs within FDOT, cost and budget are major factors that help to determine which landscape projects should be developed. Policy dictates that 1.5% of the roadway development program be allocated to the purchase of large plant material on a yearly basis.

To achieve balance, FTE has created a system for ranking potential landscape projects across all three regions (North, South and West). The hierarchy created as part of FTE's approach places the highest priority and budgets on those areas with the greatest traffic volumes and maximum opportunities for attracting business and tourism.

The landscape Program follows the standard FDOT process of developing a 5 year work program based on the ranking criteria described herein.

ADOPTED FIVE-YEAR WORK PROGRAM

The adopted program begins with the current fiscal year and also includes the next four fiscal years.

WORK PROGRAM ANNUAL UPDATE

During annual update planning, fiscal year 1 is dropped. A new fiscal year 5 is added after the previous four years. The new five-year plan must be adopted by the secretary of transportation by July 1.

TENTATIVE FIVE-YEAR WORK PROGRAM

This plan outlines future system improvements for the next five fiscal years following the current fiscal year.

PROJECT RANKING CRITERIA

FTE has developed a system of project prioritization which informs the development of the five (5) year work program. Project sites are ranked in accordance with their volume of traffic, proximity to major commercial, cultural or recreational features, level of existing landscape treatments and other factors. Each year the work program will be updated to address completed projects, changing demographics or system needs.

The Landscape Master Plan Ranking Spreadsheet is a planning tool that is used to assist in organizing and prioritizing interchanges on the system for the upcoming fiscal year(s). The categories in which the interchanges are scored are described as follows:

Traffic Volumes Ranking: The primary ranking utilizes traffic volume count in increments of 25,000 into a representative numerical score with the most highly traveled interchanges given priority.

Secondary Ranking: The top scoring projects from the Primary screen are further analyzed in accordance with the following values to determine eligible projects for the Five (5) year Tentative Work Plan:

- Landmark Destination
- Available Landscape Area
- Existing Vegetation Quality
- Adherence to Design Principles
- Ecosystem Services

A weighted numerical score is assigned to each ranking category for an interchange. The interchange with the highest scores in the region are considered for further investigation based on interchange design and construction completion dates. The further investigation is based on reported projects associated with the interchange and final selection of the interchanges are based on the professional judgment of the District Landscape Architect and presented to Management for approval. The majority of landscape projects for FTE occur at interchanges. The occasional mainline roadside plantings can be addressed in association with an interchange project. There are also eight (8) rest areas which will be programmed independently.

RANKING SPREADSHEET MATRIX

Primary Ranking

Traffic Volumes Rank

Score	Description
1	0 ≤ 25,000
2	25,000 ≤ 50,000
3	50,000 ≤ 75,000
4	75,000 ≤ 100,000
5	100,000 ≤ 125,000
6	125,000 ≤ 150,000
7	150,000 ≤ 175,000
8	175,000 ≤ 200,000
9	200,000 ≤ 225,000
10	225,000 ≤ 250,000

Description: Traffic Volumes Ranking converts that total Traffic Volume into a bracketed ranking.

Construction Complete Ranking

Score	Description
10	0 ≤ 1
8	1 ≤ 2
4	2 ≤ 3
2	3 ≤ 4
1	4 ≤ 5
6	5+

Description: Construction Completion Year Ranking converts the construction completion year into a bracketed ranking. It is assumed that anything under a year will be completed before the landscape design will be let.

Primary Ranking Score

Description: The higher the number in relation to the data set, the higher priority the interchange is. There is not set maximum or minimum values nor is the priority based on set data ranges. The numbers displayed in the column are used to order the interchanged based on the primary ranking criteria.

Secondary Ranking

Landmark Destination

Score	Description
2	Low Population Local (< 30,000 persons)
4	Moderate Population Local (30,000 < > 60,000 persons)
6	High Population Local (> 60,000)
8	Regional: Hospital, Mall
10	National: Major Tourist Destination

Description: Landmark Destination refers to the typical destination type associated with an interchange. The descriptions used to describe the ranking category are merely suggestions and are not all inclusive. If the interchange is one of the only interchanges to reach a specific destination, then the appropriate ranking would be assigned to that intersection regardless of the distance of the destination.

Available LS Opportunity

Score	Description
1	0-25% LS Area Available
2	25%-50% LS Area Available
3	50%-75% LS Area Available
4	75%-100% LS Area Available

Description: The Available Landscape Opportunity ranking is related to the percentage of the plantable area of the interchange that is available for Landscaping. This includes areas that do not have landscape, either natural or planted, but does not include scrub vegetation.

Existing Vegetation Quality

Score	Description
0	Excellent (high hierarchy to 'planted' and/or native landscape, healthy plant material, no cleanup needed.
1	Good (medium hierarchy to 'planted' and or native landscape, supplemental plantings would fill-in/strengthen design, healthy plant material, low level of cleanup needed)
2	Average (low hierarchy to 'planted' and/or native landscape, mixture of healthy/unhealthy/dead plant material, medium level of cleanup needed)
3	Fair (no hierarchy to 'planted' and/or native landscape, more unhealthy/dead plant material than healthy, medium-high level of cleanup needed)
4	Poor (no hierarchy to planted and/or native landscape, majority plant material is dead, dying or damaged, high level of cleanup needed)
5	Little to no landscape

Description: The existing vegetation quality refers to the type of vegetation at the site without regards to design quality.

LS Redesign

Score	Description
0	No Redesign
5	Yes Redesign

Description: This ranking refers to how the existing landscape needs to be redesigned.

Ecosystem Services

Score	Description

Secondary Ranking Score

Description: Similar to Primary Ranking, the higher the number is in this column to the rest of the numbers in this column the higher priority the interchange is. This should not be compared to the primary score in relation to each other. It is a secondary ranking system that builds on the primary ranking system.

RESOURCES

GLOSSARY DEFINITIONS

Analysis Plan – Plan which denotes existing site conditions including steep slopes, areas susceptible to erosion, existing vegetation, existing views to screen or enhance, utility clearances, roadway clearances or setback distances, etc.

Clear Sight – See "Sight Distance"

Bubble Diagram – Conceptual plan showing site context, landscape opportunity areas, and areas for proposed planting.

Clear Zone – Designated area offset from edge of pavement that should remain clear and free from plantings or other objects; should be plotted or noted on each plan set.

Clearance Pruning – Selective pruning performed by systematically cutting and reducing branches (by performing reduction cuts) on the sides of a tree to provide clearance from buildings, lighting, signage and more.

District Landscape Architect – Landscape Architect for Florida's Turnpike or other district of FDOT who reviews Final Plans and performs back checks. A list of District Landscape Architects and contact information can be found here: https://www.fdot.gov/designsupport/highwaybeautification/contacts.shtm

Drainage Systems/Structures – Any underground or at grade structures, piping, sleeving, or other equipment for controlling and managing storm water.

Elevation Clearance – Raising or lifting the canopy done by selectively removing branches to provide vertical clearance underneath the canopy. Removal of the lower branches can provide clearance for buildings, signs, vehicle circulation, pedestrian circulation or visual clearance beneath a tree's canopy.

ERCAR – Existing Roadway Condition Assessment Report; evaluation of all elements against new in construction. http://www.floridasturnpike.com/design/Documents/Docs-Publications/ERCAR%20Sample%20Outline%2020180418.pdf

FDOT – Florida Department of Transportation; a decentralized agency charged with the establishment, maintenance, and regulation of public transportation in the state of Florida.

Florida Grade #1 – Standard of tree aesthetics that require the trunk branches (forks) into two nearly equal-diameter trunks in the upper half of the tree. (If one trunk is two-thirds of less than the diameter of the other trunk, they do not have equal diameters, making the trunk Florida Fancy.) A noticeable but small void will be left in the crown after removing the top portion of one of the trunks. If there is one trunk, but it has a 5- to 15-degree bow, its grade is Florida #1. Refer to current version of Florida Grades and Standards available from Florida Department of Agriculture and Consumer Services for further detail. https://www.fdacs.gov/ezs3download/download/60817/1267268/Media/Files/Plant-Industry-Files/Grades-and-Standards/Grades%20and%20Standards%20FEB17%202017.1.pdf

FTE – Florida's Turnpike Enterprise; a unit of the Florida Department of Transportation employing private sector business practices to operate its 461-mile system of limited-access toll highways for the benefit of Florida's traveling public.

FTE Project Manager – The design consultant must report to the Turnpike's Project Manger throughout the design process and perform and deliver plan sets as directed by the Project Manager. https://www.fdot.gov/designsupport/pm/default.shtm

Gantry – An overhead structure, bridging over an area or roadway, with a platform supporting equipment such as signage, signals, lights or cameras.

Guardrail – protective guarding structures along roadway.

Guardrail Setback Line – distance from which objects can be placed behind (non-roadway side) of guardrail.

Horizontal Clearance – lateral offset distance from the edge of pavement or travel lane to a vertical roadside element or object.

High Intensity Maintenance Zone – The highest level of expected quality and utilization with a high degree of stress on plant material and wear and tear on pavements and site furnishings.

IFAS – University of Florida, Institute of Food and Agricultural Sciences

Intelligent Transportation Systems (ITS) – technology that advances transportation safety and mobility by integrating advance communications technologies into transportation infrastructure and into vehicles. This technology includes electronic toll collection, meters, radar and cameras. https://www.its.dot.gov/factsheets/benefits_factsheet.htm

Intensity (Low) – areas designated for low landscape maintenance such as meadow conditions, transitional native plantings, reforestation, and native plantings that are easily established.

Intensity (Moderate) – areas designated for moderate landscape maintenance such as secondary focal points and gateways combining native plantings and non-native Florida Friendly plantings.

Intensity (High) – areas designated for high intensity landscaping requiring a higher level of landscape maintenance such as major focal points, gateways and high visibility areas suitable for high impact landscaping typically along the mainline in very visible areas.

Landscape Architect – licensed professional in environmental design; the discipline includes the analysis, planning, design, management and stewardship of the natural and built environments and the application of ecological design in development and restoration projects.

Landscape Intensity Zone – varying levels of landscape intensity or density identified per opportunities along a roadway. Levels include Low Intensity, Moderate Intensity, and High Intensity.

Landscape Opportunity Plan (LOP) – a plan typically prepared after the site analysis phase and during the roadway concept plan development or the roadway final design phase. A LOP identifies areas that can be planted and planted at which Level.

Lateral Offset – setback distance from the edge of the pavement or travel lane to a vertical roadside element or object.

Open Landscape – limited to turf only, constrained by lateral offsets, sign view zones, ITS equipment, utilities, maintenance berms and utility offsets. Turf species vary depending on condition.

Outdoor Advertising (ODA) – a regulatory program based on federal law and regulations as well as state statute and rules. Federal law is set forth in the Highway Beautification Act. Local governments often have their own ordinances which regulate outdoor advertising in their community. The Department (FDOT) cannot issue a permit for an outdoor advertising sign which is not allowed by local ordinances. For ODA, such as billboards, ODA owners have view zone rights.

Pruning – A method of cutting and removing parts of a tree or plant to control size, health and appearance.

Radar – Radar detection associated with ITS facilities to track speed of vehicles.

Reduction Pruning – Reduction is the selective removal of branches and stems to decrease the height and/or spread of a tree. This type of pruning is used to make the entire tree or portions of the tree smaller and should be accomplished with reduction cuts, not heading cuts. (A heading cut is a type of cut that prunes a shoot no more than 2 years old back to a bid.) No more than 20%-25% percent of live foliage should be removed from a mature tree in a single pruning.

Reforestation – Low maintenance landscape areas which are planted with indigenous trees in order to reestablish the native tree canopy.

Sight Distance/Clear Sight Distance – length of roadway visible to a driver; distances in which unobstructed views shall be maintained to allow for safe flow of travel.

Slope Stabilization – measures taken to reduce or eliminate erosion for embankments and slopes with 3:1 slope ratio or greater; can include physical structures such as retaining walls to assist in creating plantable areas or plantings to slow and reduce storm water runoff.

Stormwater Management Areas – wet retention areas; designated stormwater management areas that hold and retain stormwater.

Structural Pruning – The removal of live branches and stems to influence the orientation, spacing, growth rate, strength of attachment, and ultimate size of branches and stems. Structural pruning is used on young and medium-aged trees to help engineer a sustainable trunk and branch arrangement. If young trees are trained early, they will be more likely to remain healthy in the landscape longer than trees left unpruned prior to maturity. Canopy growth can be cleaned, thinned, reduced, raised, or restored to manage risk.

Sustainable Landscape Management Areas – Low maintenance landscape areas which are maintained to support healthy herbaceous plant materials other than turfgrass.

Transitional Native Plantings – Plantings that occur in areas that are neither aquatic nor upland plantings; these species are native to Florida and can be planted in low areas as they can tolerate the fluctuation between periods of extreme moisture or dry conditions. These native plantings typically require little to no maintenance.

UF/IFAS - University of Florida, Institute of Food and Agricultural Sciences

Utilities Offset – landscape setbacks for trees, palms and narrow trees, shrubs and grasses from various utilities including various underground utilities, overhead wire, gas lines, light poles, and ITS utilities.

FTE SETBACKS

LANDSCAPE SETBACK GUIDE

08/01/23

GENERAL NOTES:

A. THIS CHART PROVIDES SETBACK DIMENSIONS FROM ROADWAY AND OTHER RELATED LA ROW FEATURES TO PROPOSED LANDSCAPE MATERIALS IN COMMON LANDSCAPE SITUATIONS.

B. IT IS THE RESPONSIBILITY OF THE LAOR TO FULLY CONFIRM AND COMPLY WITH THE CURRENT VERSIONS OF THE FLORIDA DESIGN MANUAL. THIS INCLUDES DESIGN STANDARD PLANS, SIGHT DISTANCES AT INTERSECTIONS AND ROADSIDE OFFSETS INCLUDED IN THE FDM. THE LAOR WILL BE RESPONSIBLE FOR OBTAINING APPROVAL FOR DEVIATIONS TO DIMENSIONS NOTED.

C. DIMENSIONS THAT ARE NOT INCLUDED IN THE FDOT STANDARD PLANS ARE THOSE ASSIGNED BY THE TURNPIKE. THESE DIMENSIONS MAY BE REDUCED IN THE SPECIAL CONDITIONS NOTED BELOW SUBJECT TO TURNPIKE REVIEW AND APPROVAL ONLY.

D. ROADWAY RELATED SETBACKS ARE MEASURED FROM THE EDGE OF TRAVEL LANE.

E. THE CHART LISTS "MINIMUM" (M) AND "PREFERRED" (P) STANDARDS. MINIMUMS, IN MOST CASES, MAY BE OPTED FOR IN DESIGNS THAT HAVE LIMITED AVAILABLE LANDSCAPE OPPORTUNITIES. THE INTENT OF THE PREFERRED DIMENSION IS TO INDICATE USE OF A LARGER SETBACK IF POSSIBLE.

F. NO LANDSCAPE MATERIAL IS TO BE PLACED WITHIN THE CLEAR ZONE OF SETBACKS THAT INTERFER WITH LINES OF SIGHT.

G. NO PLANTINGS BELOW THE DESIGN HIGH WATER OF CONVEYANCE DITCHES.

MINIMUM & PREFERRED LANDSCAPE SETBACK STANDARDS FOR INSTALLATION AND MAINTENANCE OPERATIONS

PLANT TYPE	Mainline Travel Lane (No Guardrail)		Multi-lane Ramp (No Curb and No Guardrail)		Auxiliary Lanes & Single Lane Ramp (No Curb and No Guardrail)		Side Road Travel Lane (With "F" Curb)		Back of Guardrail		M.S.E. And Noise Walls (9)		R/W Fence		Drainage Structures		Dry Stormwater Facilities (from pond bottom contour)		Wetlands, Open Water Bodies and Wet Stormwater Facilities (from seasonal high water line)		Miscellaneous Underground Utilities		Overhead Wires (6)		Gas		Light and Signage Poles (7) (8)		ITS Poles (7)		ITS Duct, Conduit Bank and Lighting Conduit (10)	
	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
CANOPY TREES	40'	36'	24'	18' (1a)	15'	10' (1a)	10'	6'	15'	10' (2)	15'	10'	15'	10'	20'	15'					15'	10'	30'	medium-20' large-30'	25'	20'	30'	20'	30'	25'	10'	7'
			30'	24' (1b)	20'	14' (1b)																										
			36'	30' (1c)	24'	18' (1c)																										
			40'	36' (1d)	30'	24' (1d)																										
PALMS & NARROW TREES	40'	36'	24'	18' (1a)	15'	10' (1a)	10'	6'	10'	6'	10'	6' (5)	10'	6' (5)	15'	10'	0' (3)		0' (4)		10'	5'	20'	10' or max. palm frond length + 3' 8' around transformers	20'	15'	20'	10'	30'	20'	10'	5'
			30'	24' (1b)	20'	14' (1b)																										
			36'	30' (1c)	24'	18' (1c)																										
			40'	36' (1d)	30'	24' (1d)																										
SHRUBS & ORNAMENTAL GRASSES	36'	20'	10'	4'	10'	4'	10'	4'	6'	6'	10'	4' (5)	10'	4' (5)	10'	5'					N/A	N/A	N/A	N/A	N/A	N/A	10'	4'	10'	6'	N/A	N/A

LEGEND: P=PREFERRED, M=MINIMUM

NOTES:

1a) LESS THAN 45 MPH SPEED LIMIT.

1b) 45-50 MPH SPEED LIMIT.

1c) 55 MPH SPEED LIMIT.

1d) GREATER THAN 55 MPH SPEED LIMIT.

2) DISTANCES MAY BE GREATER DEPENDING ON THE MAINTAINED TREE SPECIES CANOPY WIDTH AND HEIGHT. LAOR WILL VERIFY WITH TURNPIKE FOR CONFIRMATION OF DIMENSIONS AS APPLICABLE.

3) PLANTING ON SLOPES OF DRY STORMWATER FACILITIES AND SWALES IS PERMITTED. PLANTING IN THE BOTTOM OF DRY STORMWATER MANAGEMENT FACILITIES WILL NOT BE PERMITTED. NO OBLIGATE AND FACULTATIVE WETLAND SPECIES ARE PERMITTED WITHIN 25' HORIZONTALLY FROM OR WITHIN 5' VERTICALLY ABOVE THE BOTTOM CONTOUR OF A DRY STORMWATER FACILITY. ONLY PINE STRAW MULCH MAY BE USED AT PROPOSED PLANTING LOCATIONS. WILDFLOWERS MAY ALSO BE CONSIDERED ON A SITE BY SITE BASIS BUT WILL BE SUBJECT TO TURNPIKE APPROVAL.

4) PLANTING ON SLOPES OF WET STORMWATER FACILITIES IS PERMITTED. NO OBLIGATE AND FACULTATIVE WETLAND SPECIES ARE PERMITTED WITHIN 25' HORIZONTALLY OR WITHIN 5' VERTICALLY ABOVE THE SEASONAL HIGH WATER LINE/CONTROL ELEVATION OF THE STORMWATER FACILITY, OTHER SURFACE WATERS, OR WETLANDS. ONLY PINE STRAW MULCH MAY BE USED AT PROPOSED PLANTING LOCATIONS.

5) DEPENDENT ON AVAILABLE LANDSCAPE AREA.

6) COMPLY WITH UTILITY COMPANY GUIDELINES AS APPLICABLE PERTAINING TO UNDERGROUND AND OVERHEAD UTILITIES AND TRANSFORMER SETBACKS.

7) DIMENSIONS SHOWN ARE FROM LIGHT AND SIGN STRUCTURES. NO TREES OR PALMS WILL BLOCK LINES OF SIGHT.

8) SIGNAGE SETBACKS TO ADDRESS OUT FROM FACE(S) ONLY. ITS SETBACK TO ADDRESS VIEW TO ROADWAY ONLY.

9) FOR MSE WALLS, NO LANDSCAPE WILL BE INSTALLED ON THE FILL SIDE OF MSE WALLS WHERE STRAPS ARE PLACED. VERIFY ALL STRAP LOCATIONS. SETBACKS SHOWN ARE TO END OF STRAPS.

10) DURING THE DESIGN PHASE, COORDINATE THE LOCATION OF ALL CONDUITS WITH APPLICABLE DISCIPLINES TO PRESERVE LANDSCAPE OPPORTUNITY AREAS TO GREATEST EXTENT POSSIBLE.

https://fdotenv.sharepoint.com/personal/daniel_bostelic_dot_state_fl_us/Documents/Mig2021/LS-Design Guidelines/LS Setback Guidelines/Landscape Setback Guide-080123

PREFERRED PLANT LIST - CENTRAL FLORIDA

TREES - LARGE

- American Elm, Ulmus Americana
- American Sycamore, Platanus occidentalis
- Live Oak, Quercus virginiana
- Loblolly Pine, Pinus taeda
- Longleaf Pine, Pinus palustris
- Northern Slash Pine, Pinus elliottii
- Pond Cypress, Taxodium spp.
- Red Maple, Acer rubrum
- River Birch, Betula nigra
- Shumard Oak, Quercus shumardii
- Southern Magnolia, Magnolia grandiflora
- Southern Red Oak, Quercus falcata
- Southern Slash Pine, Pinus elliottii var. densa
- Sweet Bay Magnolia, Magnolia virginiana
- Winged Elm, Ulmas alata

TREES - MEDIUM

- American Holly, Ilex opaca
- Crape Myrtle, Lagerstroemia indica
- Dahoon Holly, Ilex cassine
- East Palatka Holly, Ilex x attenuate
- Japanese Blueberry, Elaeocarpus decipens
- Southern Red Cedar, Juniperus silicola

TREES - SMALL

- Buttonbush, Cephalanthus occidentalis
- Florida Privet, Forestiera segregate
- Ligustrum, Ligustrum japonicum
- Nellie R. Stevens Holly, Ilex x 'Nellie R. Stevens'
- Wax Myrtle, Myrica cerifera
- Yaupon Holly, Ilex vomitoria

PALMS

- Bismarck Palm, Bismarckia nobilis
- Cabbage Palm, Sabal Palmetto
- Chinese Fan Palm, Livistonia spp.
- Date Palms, Phoenix spp.
- European Fan Palm, Chamaerops humilis
- Pindo Palm, Butia capitata
- Washingtonia Palm, Washingtonia robusta

SHRUBS - LARGE

- Buttonbush, Cephalanthus occidentalis
- Bottlebrush, Callistemon spp.
- Florida Privet, Forestiera segregate
- Glossy Abelia, Abelia x grandiflora
- Golden Dewdrop, Duranta erecta
- Lady Palm, Rhapis excelsa
- Loropetalum, Loropetalum chinense
- Needle Palm, Rhapidophyllum hystrix
- Podocarpus, Podocarpus macropjyllus
- Saw Palmetto, Serenoa repens
- Stoppers, Eugenia spp.
- Thryallis, Galphimia glauca
- Wax Myrtle, Myrica cerifera
- Wild Coffee, Psychotria nervosa
- Wild Olive, Osmanthus americanus
- Yaupon Holly, Ilex vomitoria

SHRUBS - SMALL

- Coontie, Zamia pumila
- Fetterbush, Lyonia lucida
- Rosemary, Rosmarinus spp.
- Scrub Palmetto, Sabal etonia
- Texas Sage, Leucophyllum frutescens
- Weeping Lantana, Lantana depressa

GRASSES

- Cordgrass, Spartina spp.
- Fakahatchee Grass, Tripsacum dactyloides
- Florida Gama Grass, Tripsacum floridana
- Muhly Grass, Muhlenbergia capillaris

PREFERRED PLANT LIST - SOUTH FLORIDA

TREES - LARGE

- Buttonwood, Conocarpus erectus
- Live Oak, Quercus virginiana
- Pond Cypress, Taxodium spp.
- Southern Slash Pine, Pinus elliottii var. densa
- West Indian Mahogany, Swietenia mahagoni
- Wild Tamarind, Lysiloma latisiliquum

TREES - MEDIUM

- American Holly, Ilex opaca
- Crape Myrtle, Lagerstroemia indica
- Dahoon Holly, Ilex cassine
- East Palatka Holly, Ilex x attenuate
- Geiger Tree, Cordina sebestena
- Japanese Blueberry, Elaeocarpus decipens
- Pigeonplum, Coccoloba diversifolia
- Purple Trumpet Tree, Tabebuia impetiginosa
- Royal poinciana, Delonix regia

TREES - SMALL

- Bottlebrush, Callistemon spp.
- Buttonbush, Cephalanthus occidentalis
- Florida Privet, Forestiera segregata
- Ligustrum, Ligustrum japonicum
- Seagrape, Coccoloba uvifera
- Simpson's Stopper, Myrcianthes fragrans
- Stoppers, Eugenia spp.
- Wax Myrtle, Myrica cerifera
- White Geiger, Cordia boissieri
- Yaupon Holly, Ilex vomitoria

PALMS

- Alexander Palm, Ptychosperma elegans
- Bismarck Palm, Bismarckia nobilis
- Brittle Thatch Palm/Key Thatch Palm, Thrinax morrisii
- Buccaneer Palm, Pseudophoenix sargentii
- Cabbage Palm, Sabal Palmetto
- Carpentaria Palm, Carpentaria acuminate
- Chinese Fan Palm, Livistonia spp.
- Date Palms, Phoenix spp.
- European Fan Palm, Chamaerops humilis
- Florida Thatch Palm, Thrinax radiata
- Foxtail Palm, Wodyetia bifurcate
- Macarthur Palm, Ptychosperma macarthurii
- Paurotis Palm, Acolorrhaphe wrightii
- Pindo Palm, Butia capitata
- Royal Palm, Roystonea regia
- Washington Palm, Washingtonia robusta

SHRUBS - LARGE

- Beautyberry, Callicarpa Americana
- Buttonbush, Cephalanthus occidentalis
- Cardboard Plant, Zamia fufuracea
- Cocoplum, Chrysobalanus icaco
- Firebush, Hamelia patens
- Florida Privet, Forestiera segregate
- Golden Dewdrop, Duranta erecta
- Lady Palm, Rhapis excelsa
- Loropetalum, Loropetalum chinense
- Needle Palm, Rhapidophyllum hystrix
- Pittosporum, Pittosporum tobira
- Podocarpus, Podocarpus macrophyllus
- Rusty Lyonia, Lyonia ferruginea
- Saw Palmetto, Serenoa repens
- Seagrape, Coccoloba uvifera
- Simpson's Stopper, Myrcianthes fragrans
- Sparkleberry, Vaccinium arboretum
- Stoppers, Eugenia spp.
- Thryallis, Galphimia glauca
- Wax Myrtle, Myrica cerifera
- Wild Coffee, Psychotria nervosa
- Yaupon Holly, Ilex vomitoria

SHRUBS - SMALL

- Coontie, Zamia pumila
- Fetterbush, Lyonia lucida
- Firecracker Plant, Russelia sarmentosa
- Natal Plum, Carissa macrocarpa
- Scrub Palmetto, Sabal etonia
- Texas Sage, Leucophyllum frutescens
- Weeping Lantana, Lantana depressa

GRASSES

- Cordgrass, Spartina spp.
- Fakahatchee Grass, Tripsacum dactyloides
- Florida Gama Grass, Tripsacum floridana
- Muhly Grass, Muhlenbergia capillaris