

TURNPIKE DESIGN HANDBOOK (TDH)

PLANS PRODUCTION – PART 3



FLORIDA'S TURNPIKE ENTERPRISE PRODUCTION DESIGN DEPARTMENT

OCOEE, FL

January 2022

Introduction

As part of the Florida's Turnpike Enterprise (Turnpike) continuing quality enhancement efforts, the ***Turnpike Design Handbook (TDH)*** has been developed to provide consultants, reviewers and management with a single source of additional Turnpike-specific requirements that modify or add to the requirements included in the ***Florida Department of Transportation (FDOT) Design Manual (FDM)***.

The ***FDM*** and the ***TDH*** are both four-part documents:

- Development and Processes – Part 1
- Design Criteria – Part 2
- Plans Production – Part 3
- NexGen Plans Production – Part 9

The ***TDH*** also includes the [***Turnpike Guide Drawings***](#), which are available electronically on the Turnpike Design website. Review and become familiar with the [***Turnpike Guide Drawings***](#), including the Guide Drawings Introduction document which provides a general description and overview of the Guide Drawings development and their use.

For Turnpike requirements related to tolling, please see the [***General Tolling Requirements \(GTR\)***](#) which is a separate document.

The ***TDH*** is updated on an annual basis, following the official revision of the ***FDM***. Interim updates to the ***TDH*** will be issued as Addenda to the annual revision.

Should you have any comments or suggestions for this ***TDH*** document, please contact the Turnpike Design Engineer.

300 Production of Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

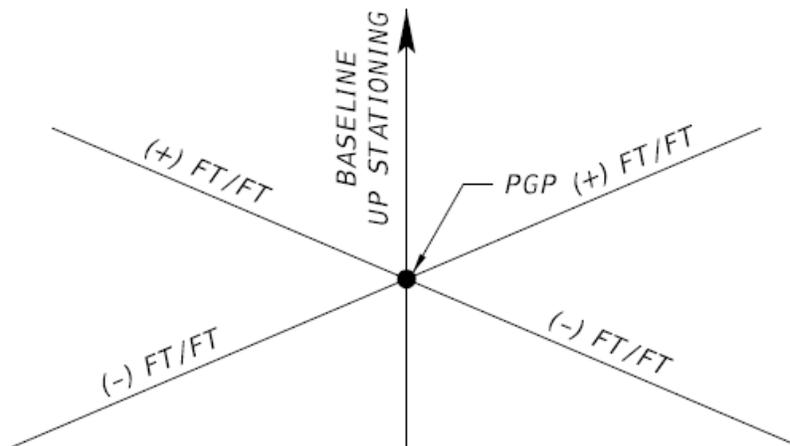
300.2 Displaying Information and Data

Add the following subsection

300.2.1 Cross Slope Sign Convention

The sign convention for roadway cross slopes as detailed in the roadway plans must be as follows:

- (1) Any cross slope which slopes away from the PGP is considered a negative (-) cross slope.
- (2) Any cross slope which slopes towards the PGP is considered a positive (+) cross slope.



301 Sequence of Plans Preparation

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

301.1 General

Add the following paragraphs

If the plans are for a stand-alone landscape project the landscape plans are the lead project. Any other sheets incidental to the project typically found in the roadway plans or other component plans (i.e., drainage, traffic control, etc.) are included in the plans and numbered consecutively.

Review and become familiar with the August 21, 2013 Agreement and Global Settlement between FDOT and Florida Gas Transmission (FGT) which describes the dimensions of the FGT Specified Width associated with FGT facilities within the Turnpike's right of way. For all design submittals up to and including Phase IV, show, label, and dimension the FGT Specified Width on applicable sheets in the component plan sets. Applicable sheets include roadway, signing, lighting, ITS, architecture, structures, and toll facility plans including, plan sheets, roll plots, typical sections, details, cross sections, drainage structures, and utility adjustment sheets. Do not include the FGT Specified Width on the final signed and sealed contract plans. This paragraph does not apply to landscaping plans.

Minor projects, such as milling and resurfacing, may not require a full set of plan sheets. When directed by the Turnpike Project Manager, develop a full set of plan sheets on aerial background, to be used in gathering utility data. The scale should typically be 1"=200'. When available, aerial photographs will be supplied by the Turnpike.

Landscape projects may not require a full design survey. When directed by the Turnpike Project Manager, develop a full set of plan sheets on aerial background, to be used in gathering project and utility data utilizing best available data. The scale should not be less than 1"=100'. When available, aerial photographs and project data will be supplied by the Turnpike.

301.2 Phase Submittals

Add the following paragraphs

All phase and interim submittals will include an additional plan sheet(s) titled 'Notes for Reviewers'. To ensure completeness, the 'Notes to Reviewers' sheet(s) must be

submitted to the Turnpike Project Manager two weeks prior to the regular phase submittals. Each note is not meant to be more than one or two sentences long. It must locate and define the issue's impact. Full details are not needed.

Phase I (30%) Plans or the first submittal in the case of a project with reduced submittal requirements must show all existing underground and overhead utilities, regardless of size or type.

Stand-alone landscape projects must have three phase submittals as follows, two of which must be accompanied by a full review:

- (1) Phase I Submittal (30% plans) (Limited Review)
- (2) Phase III Submittal (100% plans) (Full Review)
- (3) Phase IV Submittal (Final Plans) (Full Review)

Table 301.2.2 Summary of Phase Submittals**Replace Table 301.2.2 with the following table***Provide the sheets listed as applicable*

ITEM	PHASE I	45%	PHASE II*	PHASE III	PHASE IV
Key Sheet	P	P	P	C	F
Signature Sheet			P	C	F
Drainage Map	P	P	C	C	F
Interchange Drainage Map	P	P	C	C	F
Typical Section	P	P	C	C	F
Optional Materials Tabulation			P	C	F
Project Layout	P	P	C	C	F
Project Control	P		C	C	F
Roadway Plan and Profile	P	P	P	C	F
Traffic Monitoring Site			P	C	F
Special Profile	P	P	P	C	F
Back-of-Sidewalk Profile	P	P	C	C	F
Interchange Layout	P	P	P	C	F
Ramp Terminal Details			P	C	F
Intersection Layout/Detail	P	P	P	C	F
Drainage Structures			P	C	F
Outfall/Lateral Ditch Plan-Profile		P	P	C	F
Outfall/Lateral Ditch Cross Section		P	P	C	F
Retention/Detention Ponds		P	C	C	F
Cross Section Pattern			P	C	F
Roadway Soil Survey		P	P	C	F
Cross Sections	P	P	P	C	F
Stormwater Pollution Prevention Plan		P	C	C	F
Temporary Traffic Control Plans	P	P	P	C	F
Utility Adjustments			P	C	F
Selective Clearing and Grubbing	P	P	P	C	F
Mitigation Plans		P	C	C	F
Miscellaneous Structures Plans		P	P	C	F
Signing and Pavement Marking Plans			P	C	F
Signalization Plans			P	C	F
Intelligent Transportation System (ITS) Plans			P	C	F
Lighting Plans			P	C	F
Landscape Opportunity Plans	P	P	C	C	F
Landscape Plans	P	P	P	C	F
Tree Disposition Plans	P	P	P	C	F
Utility Work by Highway Contractor Agreement Plans				C	F
Developmental Standard Plans			C	C	F
3D Model Files	P	P	P	C	F
KMZ Files		P	P	C	F
Toll Facility Plans**					

Status Key: P - Preliminary C - Complete but subject to change F - Final

* Projects with structures plans component must submit the latest set with the 60% roadway submittal.

** For toll facilities plan sheet status for each phase submittal see the General Toll Requirements (GTR).

301.2.1 Phase I Submittal

Add the following plan set element

NOTES TO REVIEWERS

- Special directives and project details
(Note the source and date of directives)
- List Design Exceptions, Design Variations, Design Variation Memorandums
(Examples could say, "The ramp 'A' crest K value of 8 falls below FDM value of 9 due to proximity of right of way and CR 44 (Draft Submitted dd/mm/yyyy).")
- List Deviation Memorandums

Add the following item to the list under PLAN AND PROFILE – PLAN VIEW

- Shoulder gutter, guardrail, and barrier wall limits

Add the following paragraph

During the scoping and estimating of the project, determine if a conceptual master signing plan is required. When required, the conceptual master signing plan must be submitted concurrently with the Phase I Submittal. Prepare a signing roll plot at a legible scale and include the following:

- Existing regulatory, warning, and guide signs on the mainline, ramps, and cross street approaches
- Proposed regulatory, warning and guide signs
- Route markers
- Service and logo signs
- Post-interchange signs
- Call box locations
- Mile markers
- Dynamic message signs (DMS)
- Toll signs
- Destination signs
- Lane control signs
- Proposed pavement markings

- Proposed roadway geometry

The conceptual master signing plan must use symbols to represent overhead cantilevers, overhead truss spans, bridge mounts, single post and multi post ground mount sign structure types. Include basic notes to indicate sign removals and relocates. The intent of conceptual master signing plan is to confirm overall traffic operations, sign spacing and sign messages.

301.2.2 Phase II Submittal

Add the following plan set elements

NOTES TO REVIEWERS

- Special directives and project details
(Note the source and date of directives)
- List Design Exceptions, Design Variations, Design Variation Memorandums
(Examples could say, "The ramp 'A' crest K value of 8 falls below FDM value of 9 due to proximity of right of way and CR 44 (Approved dd/mm/yyyy).")
- List Design Memorandums

301.2.3 Phase III Submittal

Add the following sentence

Phase III Landscape plans submittals must include the Landscape Maintenance Plan.

301.2.5 PS&E Phase Submittals

Add the following sentence to the end of the second paragraph

While subject to changes, the first PS&E submittal should be signed and sealed so that the digital signatures can be verified before the second PS&E submittal.

301.3 Design-Build Phase Submittals

Add the following paragraph

The Design-Build Team has the option to adopt the Landscape Opportunity Plan (LOP) that was provided as a reference document in the RFP or create their own LOP as part of the Technical Proposal.

Table 301.3.1 Summary of Design-Build Phase Submittals

Add the following sheet requirements

<u>ITEM</u>	<u>TECHNICAL PROPOSAL</u>	<u>90% PLANS</u>	<u>FINAL PLANS</u>
Landscape Plans	LOP	C	F

Status Key: LOP – Landscape Opportunity Plan

301.3.2 Technical Proposal Submittal Requirements

Add the following

VEGETATION DISPOSITION PLANS

Vegetation Disposition Plans are intended to be included in the Roadway Plans set as details for selective clearing and grubbing and include detailed plans showing existing vegetation to be removed, preserved or relocated.

302 Key Sheet

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

302.4 Project Location Map and North Arrow

Add the following paragraph

When applicable, the county milepost as well as the Turnpike system milepost must be shown correct to three decimal places under the begin and end project stations.

302.6 Index of Roadway Plans

Add the following paragraph

Each sheet in the plan set must have a unique sheet number. Do not duplicate sheet numbers within the plan set.

302.10 Revisions

Add the following paragraphs

If the “REVISIONS” area becomes so large that a new sheet is required to allow for the additional text, include the lead Key Sheet in the revision for reference. Place a numbered revision triangle as well as “See Sheet 1A” note under the “REVISIONS” header on the lead Key Sheet.

If new sheets are being introduced as a part of the revision, identify those added sheets under the “REVISIONS” header, as shown in the example below:

REVISIONS

FPID 406096-1-52-01

Roadway 1, 2A, 4 THRU 22, 120, 121, 285 (REVISED 2017-10-24)

Roadway 285A THRU 285C (ADDED 2017-10-24)

Structures B-1, B-2A, BW-1 THRU BW-5 (REVISED 2017-10-24)

Structures BW-6 (DELETED 2017-10-24)

If new sheets are being introduced as a part of the revision, identify those added sheets in the Index of Plans for each plan component set.

See **TDH 132** for additional information on formatting the plan sheets for revisions.

303 Signature Sheet

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

303.7 Index

Add the following paragraph

List the Signature Sheet under each professional listed on the sheet.

304 Summary of Pay Items

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

305 Drainage Map and Bridge Hydraulic Recommendation Sheet

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

305.1 Drainage Map

Replace the second sentence in the first paragraph with the following sentence

Drainage maps must be developed using an aerial base map and must be included in the construction plans.

305.1.1 Plan View

Add the following sentence to item (4) on the list in the first paragraph

- (4) Show and label (in acres) pond/treatment swale drainage basins on maps and include pond/treatment swale basin names.

Add the following items to the list in the first paragraph

- (8) Identify and label the general location of landfills and contamination sites.
- (9) Identify and label Wellfield Protection areas and include the wellfield name and associated regulatory agency.
- (10) Identify and label FDEP impaired water body basin boundaries and include the impaired water body name.
- (11) Include the datum conversion from NAVD to NGVD. For example, NAVD 88 EL. 1.00 = NGVD 29 EL. 2.50.

306 Typical Sections

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

306.1 General

Add the following paragraph

Include typical sections for each proposed electronic toll point. These typical sections must represent the required 100 feet of loop pavement underneath the toll gantry. Include these typical sections in contract plans and the typical section package.

306.3 Typical Section Information

Add the following items to the list in the first paragraph

- (13) Clear zone.
- (14) Lane buffer widths.
- (15) Vertical and horizontal clearances at crossing roads if project includes work within bridge limits.
- (16) If shoulder widths are wider than standard widths (e.g. to accommodate SSD or high truck traffic), provide a note on each typical section to explain the reason for the additional shoulder width.
- (17) If FGT facilities are a primary design constraint, show the FGT Specified Width.

306.4 Required Data

Add the following under item (1) on the list in the first paragraph

- (g) Truck DDHV

307 Summary of Quantities

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

308 Summary of Drainage Structures and Optional Materials Tabulation

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

308.2 Optional Materials Tabulation

Replace the blue box with the following

Modification for Non-Conventional Projects:

Delete **FDM 308.2** and see **Chapter 6** of the [FDOT Drainage Manual](#) for Optional Material requirements. Designate installed material on the Optional Materials Sheet or on the plan sheets.

309 Project Layout

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

310 Project Control

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

311 General Notes

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

311.2 Writing General Notes

311.2.1 Required General Notes

Add the following item to the list in the first paragraph

- (7) If a concrete collar/jacket is required in the plans to join a new pipe to an existing pipe, the existing pipe must be removed to the nearest joint to begin the placement of the new pipe; unless it would require encroachment into the adjacent lane. The concrete must be cured and inspected to confirm the integrity of the collar prior to placement of fill material.

Note: With the above comment, an additional 8' length of pipe must be added to the quantities for each tie in site where a concrete collar would have been used. A mechanical type collar is preferable to the concrete collar/jacket, if the site conditions permit.

312 Roadway Plan-Profile

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

312.1 General

Add the following subsection

312.1.1 Format and Scale

The following are recommended scales for plans.

Plan Sheet (RRR Projects Only)

Mainline and Ramp

1:200 Scale (2,800' per sheet) - show 500' station callout with 100' minor ticks

Plan Sheet (including Traffic Control)

Mainline

1:100 Scale (1,400' per sheet) - show 500' station callouts with 100' minor ticks

Ramp

1:50 Scale (700' per sheet) - show 100' station callouts

1:100 Scale (1,400' per sheet) - Traffic Control - show 100' station callouts

Profile Sheets (including Traffic Control)

Mainline

1:100 Scale horizontal (1,400' per sheet) - Show 100' station on standard 2x2 grid

1:5 Scale vertical (50' vertical) – Show 2' elevations on standard 2x2 grid

Ramp

1:50 Scale horizontal (700' per sheet) - Show 100' station on standard 2x2 grid

1:5 Scale vertical (50' vertical) - Show 2' elevations on standard 2x2 grid

Ramp Terminal

Plan

1:50 Scale – 100' stations

Profile

1:50 Scale – Horizontal – Show 100' station on standard 2x2 grid sheet

1:5 Scale – Vertical – Show 2' elevations on standard 2x2 grid sheet

312.2 Roadway Plan Portion

312.2.2 Horizontal Curves

Replace the first two sentences in the second paragraph with the following

If applicable, horizontal curve information must be shown on their own individual sheets known as “Coordinate and Curve Data” and must contain all horizontal curve information as identified in the ***FDM*** and the ***TDH*** as well providing the “Northing/Easting” information for the PC, PI, PT, and CC of the curves.

Add the following item to list in the second paragraph

DS (Design Speed)

313 Special Profile and Back-of-Sidewalk Profile

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

Add the following section

313.4 Treatment/Attenuation Swales

The following labels must be used to locate and identify treatment swales in the profile view of the plans:

Begin Treatment/Attenuation Swale Sta. 99+99 LT (or RT)

End Treatment/Attenuation Swale Sta. 108+46 LT (or RT)

Construct Ditch Block Sta. 99+99 LT (or RR); Top Elevation 10.30

Begin Treatment/Attenuation Berm Sta. 99+99 LT (or RT); Top Elevation 10.50

End Treatment/Attenuation Berm Sta. 108+46 LT (or RT); Top Elevation 10.50

For plan sets that do not have a profile view, the stations and elevations above must be summarized in a table that uses the same naming convention. Suggested formats are shown below.

Summary of Treatment/Attenuation Swale Locations				
Begin Station	Begin DPI	End Station	End DPI	Side
99+99	10.30	108+46	10.30	LT
103+02	10.70	106+53	10.20	RT
107+98	9.45	110+78	9.00	RT

Summary of Ditch Blocks		
Station	Side	Top Elev.
99+99	LT	10.30
100+02	RT	11.25
123+56	LT	9.70

Summary of Treatment/Attenuation Berm Locations				
Begin Station	Begin Top Elev.	End Station	End Top Elev.	Side
99+99	12.30	108+46	12.30	LT
103+02	13.00	106+53	12.50	RT

Note that treatment/attenuation berm locations need to be specified only if a special longitudinal berm is constructed above natural ground to increase storage in the swale. If the outside boundary of the treatment/attenuation swale is the intersection between the backslope and natural ground, confirm that the design high water does not exceed 0.5 foot below the elevation of the intersection point and no special berm information is necessary in the plans.

314 Intersection and Interchange Layout and Details

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

314.1 General

Replace the first paragraph with the following paragraph

These sheets provide layouts and details for intersections and interchanges, with consideration for turning and weaving movements of vehicular traffic. For a safe and efficient roadway system (including provisions for bicycles, pedestrians, and landscaping), these areas must be designed with special attention to channelization, turning movements, signalization, drainage, vertical alignment, and aesthetics.

315 Drainage Structures

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

315.2 Required Information

Add the following sentence to the tenth paragraph

If the existing abandoned structure conflicts with the proposed drainage structure, show the portion to be removed in the drainage structure section.

Add the following paragraph

Show all wall zones and label all wall zone pipes in cross sections. Refer to **Appendix D** of the [FDOT Drainage Manual](#).

316 Stormwater Facilities

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

317 Special Details

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

318 Soil Survey

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

318.3 Other Soil Surveys

Add the following paragraphs

Soil surveys for stand-alone landscape projects will include selective sampling of soils and testing in key areas within the project limits for purposes of implementing Florida-friendly landscaping principles and to aide in successful implementation of the ***FDOT Highway Beautification Policy***.

Complete hand auger borings to a depth typical for the root zone of trees and palms (not less than a 4-foot depth). Perform percolation tests (using an agreed upon method) and take hand auger samples of existing soils in proposed planting areas as depicted on the Landscape Plans. Prepare soil samples for shipment and lab testing for organic content, pH, soluble salts, macro and micro nutrients. Test results will be used in the final determination of proposed plant species to support the landscape design. The results of this analysis will form the basis of any specifications or notes needed on the plans to assure maximum planting performance.

319 Cross Sections

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

319.2 Required Information

Add the following paragraphs

Add side slope labels in all cross sections. Proposed ditches, swales, and linear retention areas must also include proposed slope labels.

If applicable, show a gray shade for the Florida Gas Transmission (FGT) specified width.

Critical cross sections must be provided on all projects containing new bridges, widening of existing bridges, new toll gantries, and existing toll gantries if the roadway pavement underneath the gantry is being modified. Critical cross sections must be provided at the beginning and end of all bridges, at the beginning and end of the toll loop pavement area and at the center line of the toll gantries. Critical cross sections must be included in all temporary traffic control plan phases affecting the design elements mentioned in this paragraph. Additionally, label the proposed pavement cross slopes for any temporary pavement areas.

320 Stormwater Pollution Prevention Plan (SWPPP)

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

320.3 Site Map

Add the following item to the list in the first paragraph

- (9) The limits of construction, traffic control plan work zones, and silt fence installation must be indicated at the same location.

321 Temporary Traffic Control Plan

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

321.3 Required Information

Add the following items to the list in the second paragraph

- Add the following note to all Phase Typical Sections that are along an ESU route:

This project is located on an Emergency Shoulder Use (ESU) evacuation route. The Contractor must maintain a useable shoulder for ESU during every phase of construction and for the duration of the entire project as shown in the plans.
- Dimension the ESU shoulder
- Dimension the overall width of the proposed work zone

322 Utility Adjustments

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

322.2 Required Information

Replace the second paragraph with the following paragraph

Clearly show and label all proposed and relocated utilities (overhead and buried) on the plans using line types and standard utility symbols (see the [FDOT CADD Manual](#)). Clearly indicate the disposition of existing utilities; e.g., "To Remain", "To Be Removed", "To Be Adjusted", "To Be Relocated". For existing FTE and utility facilities that are to be removed (water, sewer, power, communications, ITS, etc.), add a line type and symbols which include x's to indicate the extent of the removal; e.g., ----x----W(B)----x-----.

Add the following sentence to the end of the third paragraph

Show utility line height where overhead lines to remain may impact proposed construction.

Add the following paragraphs after the third paragraph

Where there are multiple overhead utility lines at locations within or adjacent to the project area, accurately locate and show each of the utility lines. Survey may be required to accurately locate each of the overhead lines.

Information about the type and material of the utility facility, the owner of the utility facility, the proposed disposition of the utility facility, and the method of placement, relocation, or removal of the utility facility (e.g., by others employed or contracted by the utility owner, by the Contractor through a UWHC, etc.) should be shown on the plans in the following manner:

Type of Utility/Proposed Disposition of Utility
Utility Owner/Method of Placement, Relocation, or Removal

Examples:

1. 18" DIP WM / Proposed
Broward County / By others

2. 4" PE GM / To Remain
TECO-Peoples Gas

3. 8" PVC FM / To be lowered
City of Hialeah / By others

4. (4) 4" Conduit (PVC) / To Be Removed
City of Homestead / UWHC

5. 59 KV OE / To Remain
FPL

323 Selective Clearing and Grubbing Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

323.2 Selective Clearing and Grubbing Plan Sheet

Add the following item to the list in the first paragraph

- Trees and palms to be relocated

324 Miscellaneous Structures Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter

325 Signing and Pavement Marking Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

325.7 Guide Sign Worksheet

Add the following paragraph

The use of **Transoft GuidSign Program (GuidSign)** is encouraged. This software includes numerous user options that must be set as follows to obtain acceptable output.

- (1) Do not use coordinate settings (i.e., x and y).
- (2) Do not use code names for symbols, shields and arrows in the spacing table.
- (3) All elements (shields, symbols, arrows, etc.) must be properly dimensioned within the sign layout area.
- (4) Do not include the size of the exit number panel in the panel dimensions in the summary table.

325.8 Multi-Post Sign Supports

Add the following paragraph

Multi-post cross-sections are to be provided for all Toll Schedule signs and must be as follows:

- (1) The cross sections must include the location of ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities, and lane lines for proper location of the signs.
- (2) Sign cross sections must be drawn as viewed by approaching traffic.
- (3) The edge of travel elevation of the roadway and all references to this point must be clearly labeled.
- (4) These cross sections do not require full roadway coverage.
- (5) The recommended scale for the cross section is 1" = 10' horizontally and vertically.
- (6) A graphic representation of each sign panel legend must be shown on the cross section sheet.

325.9 Overhead Sign Cross Section and Support Structure

Add the following paragraph

All proposed overhead truss span, overhead cantilever, and bridge-mounted signs require cross sections as follows:

- (1) Sign panel replacements on overhead structures require cross sections.
- (2) The cross sections must include the location of ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities, and lane lines for proper location of the signs.
- (3) Sign cross sections must be drawn as viewed by approaching traffic.
- (4) The grade elevation at the top of the sign foundation and location, the elevation at the highpoint of the roadway directly beneath the structure and the vertical clearance from the high point of the roadway directly beneath the structure to the bottom of the sign luminaries must be clearly labeled.
- (5) A graphic representation of each sign panel legend must be shown on the cross section sheet.
- (6) For overhead signs with down arrows, up arrows at 45 degrees, or other lane specific legends, for which lateral placement is critical, that portion of the legend must be shown over the corresponding lane for correct placement relative to the roadway.
- (7) Any arrows, including down arrows and up arrows (straight or at 45 degrees), that designate lane assignments must be located within the center 1/3 of the associated lane.
- (8) For overhead signs with down or up arrows, show the lane lines on the sign cross section so that the down arrow is centered over the appropriate lane.
- (9) Where applicable, for historical documentation, a note must be added to each sign structure cross section and to the sign structure table of variables that the design accounts for the 25 percent increase in area.
- (10) Show overhead structure identification numbers no later than the Phase III (90%) submittal. The overhead structure identification numbers are also required to be shown on the structure table of variables. Refer to **TDH 261.2** for more information.

326 Lighting Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

326.2 Key Sheet

Replace the items on the list in the first paragraph with the following items

- (1) Key Sheet
- (2) Lighting General Notes
- (3) Legend Sheet *
- (4) Pole Data *
- (5) Underdeck Luminaire Data *
- (6) Sign Luminaire Data *
- (7) Layout Sheets (as applicable)
- (8) Plans Sheets
- (9) Underdeck Lighting Plan Sheets
- (10) Underdeck Lighting Section/Details Sheet
- (11) Load Center Schematic One-Line Diagram, Power Riser Diagram, Service Point Details, Panelboard Schedules, and Grounding Details Sheet(s)
- (12) Power Riser Diagram and Panelboard Schedules (for projects with box girders) Sheet(s)
- (13) Miscellaneous Details Sheet (as applicable)
- (14) Foundation Details - High Mast (if required)
- (15) Boring Data Sheets - High Mast (if required)

Note: * - Sheets may be combined based on project size.

326.5 General Notes Sheet

Add the following paragraph

A lighting General Notes sheet must be provided (see the [Lighting Guide Drawings](#)). All notes must be modified as necessary to make them project specific and to describe

any special considerations and directions to the Contractor. Remove general notes that do not apply. A note indicating “not all notes are applicable” or similar is not acceptable.

326.6 Lighting Data Table and Legend Sheet

Add the following items to the list in the first paragraph

- (9) Pole number - Pole numbering must be coordinated and follow the maintenance scheme
- (10) Tilt angle (in degrees) for pole-top luminaires
- (11) Aiming angle and direction/orientation for each luminaire on high mast poles

Add the following paragraphs

When a pole has two arms, then the number "t2" must be placed under the respective arm and luminaires column.

Pole numbering must be coordinated and follow the maintenance scheme.

Provide a tilt angle convention detail for all fixtures types that are tilted.

Add the following subsections

326.6.1 Legend

The Legend section of this sheet should include the following information:

- (1) Provide a separate and unique symbol for each condition. Basically, a separate symbol is needed for each pay item number used on the tabulation of quantities. Do not use the same light pole luminaires symbol for two different mounting heights or two different mounting types.
- (2) Provide symbol with proper description for the conduit and pull boxes that are embedded in the bridge structures or traffic barrier walls.
- (3) Remove any symbols that are not applicable. A note indicating “not all symbols are applicable” or similar is not acceptable.
- (4) For existing lighting conduits, pull boxes, and lighting system components that are to be removed, add a line type and symbols which include x's to indicate removal; e.g., ----x----BE----x-----, ~~Li~~ ~~Li~~.

326.6.2 Sign Luminaire

The following information must be given for each sign luminaire:

- (1) Sign panel
- (2) Circuit number
- (3) Roadway station and offset
- (4) Arm length
- (5) Tilt angle (in degrees)
- (6) Luminaire wattage
- (7) Luminaire placement (configuration, sign size, spacing dimensions)

326.6.3 Underdeck Luminaire

The following information must be given for each underdeck luminaire:

- (1) Luminaire name
- (2) Circuit number
- (3) Roadway station and offset
- (4) Luminaire wattage
- (5) Mounting height
- (6) Pay item number

326.7 Lighting Plan Sheets

326.7.1 Required Information

Replace item (2) on the list in the second paragraph with the following item

- (2) Show the lighting layout in plan format using symbols which represent poles, conduits, service points, underdeck luminaires, pull boxes and all necessary light fixtures and electrical devices to be part of the project design.

Add the following items to the list in the second paragraph

- (8) All widening, resurfacing, and All Electronic Tolling (AET) projects must show existing light fixture locations.

- (9) For existing lighting conduits, pull boxes, and lighting system components that are to be removed, add a line type and symbols which include x's to indicate the extent of the removal; e.g., ----x----BE----x-----.

Add the following subsections

326.7.1.1 Lighting Plan

The load center details on the Lighting Plan sheet must show the following:

- (1) Label and identify the power company point of service.
- (2) The plan must show the routing of the service feeder from the power company service pole to the load center.
- (3) The plan must show the branch circuit conduit runs from the last light pole to the load center with a wiring call-out identifying the circuit designations in addition to the conductor sizes and quantities (in cross section).
- (4) The phase, neutral, and ground conductors must be clearly identified.
- (5) Provide a detailed description of the load center to include the following information:
 - (a) Load center designation
 - (b) Station and offset of the load center
 - (c) Full description of the service voltage
 - (d) Service type (overhead or underground)
- (6) Specifics for grounding must be shown in equipment details in the plans. Notes must not be solely relied upon for grounding.

326.7.1.2 Underdeck Lighting Plan

An underdeck lighting plan sheet must be prepared for each underdeck lighting location.

- (1) The plan must be drawn to scale with the scale used clearly identified.
- (2) The plan must use the bridge plan as background with the intensity reduced.
- (3) The plan must indicate the electrical work associated with bridge mounted signs if applicable.
- (4) The plan must show the location of the embedded junction boxes, conduits and associated electrical work with standard notation to indicate the items that are incidental to the bridge.

- (5) A separate section/detail sheet must be prepared to show all necessary mounting details and associated hardware needed for the installation of the underdeck luminaires.

Add the following sections

326.11 Box Girder Maintenance Lighting and Power Plan Sheet

FDOT Standard Plans, Index 715-240 Maintenance Lighting for Box Girders must be used as a guide in the preparation of the box girder lighting/power plans. The Box Girder Maintenance Lighting Notes are minimum requirements except as revised hereafter.

- (1) A sheet must be prepared for each box girder.
- (2) This sheet must show the internal lighting, receptacles, switches, load centers, life safety devices, and wiring needed for maintenance.
- (3) The sheet must be drawn to scale and must provide a list or table identifying the quantity of each electrical item within each box girder.
- (4) A panelboard schedule must be provided for the distribution panelboard and for each mini power center.

326.12 Load Center Schematic One-Line Diagram, Power Riser Diagram, Service Point Details, Panelboard Schedules, and Grounding Details Sheet

Provide a detailed design of the load center that includes the following information:

- (1) Load center designation
- (2) Station and offset of the load center
- (3) Full description of the service voltage
- (4) Service type (overhead or underground)
- (5) Indicate whether the enclosure will be pole mounted or pedestal mounted
- (6) Indicate the enclosure NEMA rating
- (7) Requirements for a photocell
- (8) Power distribution riser diagram with short circuit values
- (9) Conductor ampacities (sizes) and insulation type
- (10) Circuit interrupting devices and fault current interrupting capability

- (11) Location and characteristics of surge protective devices
- (12) Main and distribution equipment, control devices, locations, and sizes
- (13) Load computations
- (14) Grounding and bonding must indicate the following:
 - (a) Type and location of grounding electrodes
 - (b) Bonding requirements
 - (c) Testing requirements
 - (d) Conductor material type, size, and protection requirements
 - (e) Connections of separate grounding systems, bonded, and use requirements
- (15) A note requiring shop drawings for all the electrical equipment associated with the load center. The load connected to each branch circuit breaker and the overall total load connected.
- (16) If future luminaires are included in the branch circuit conductor size, the affected lighting plans must be provided with a note defining the number of future luminaires included.

327 Signalization Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

327.2 Key Sheet

Add the following items to the list in the first paragraph

- (9) Temporary Signalization Sheets (if required)
- (10) Internally Illuminated Street Name Signs Detail(s) (if required)
- (11) Electrical Power Service Detail (if required)

327.5 General Notes Sheet

Add the following paragraph

Coordinate with the maintaining agency of the traffic signal and include the appropriate notes that comply with maintaining agency requirements.

327.6 Signalization Plan Sheet

327.6.1 Required Information

Replace items (7) and (8) on the list in the second paragraph

- (7) Electrical service location and proposed electrical service routing.
- (8) Location of signal poles and span wires, include ground and roadway crown elevations and bearing data.

Add the following item to the list in the second paragraph

- (17) For existing signal conduits, pull boxes, and signal system components that are to be removed, add a line type and symbols which include x's to indicate the extent of the removal; e.g., -----x-----x-----. Include the "to be removed" line type and symbols in the signalization legend if one is included.

327.7 Interconnect/Communication Plan Sheet

Add the following paragraph

Coordinate with the traffic signals maintaining agency and verify if proposed interconnect cables and conduits are required.

328 Intelligent Transportation Systems Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

328.5 General Notes

Add the following paragraph

The FTE contact information is as follows: *General ITS Coordination: 954-934-1400.*

328.6 ITS Plan Sheets

328.6.1 Required Information

Add the following items to the list in the third paragraph

- (6) Service voltage.
- (7) Circuit numbers with load center identification.
- (8) Number and size of ungrounded conductors, neutral conductors, and equipment grounding conductors on all ITS power conduit call-outs.
- (9) Directional drill details under canals, wetlands, and other surface waters, as appropriate.
- (10) Every ITS infrastructure element, including pull/splice box, device, hub, and service point, must be identified by a unique ID. Refer to the Standard Naming Convention per the [FDOT Intelligent Transportation System Facilities Management \(ITSFM\) Standards](#). . Example of IDs include CCTV-SR91-126.2-NB-A; EPB-SR528-4.8-SB-B; FSV-SR417-52.2-WB-A.
- (11) For existing ITS conduits, pull boxes, and ITS system components that are to be removed, add a line type and symbols which include x's to indicate the extent of the removal; e.g., -----x-----x----- . Include the "to be removed" line type and symbols in the ITS legend.

328.6.1.5 Fiber Optic Cable and Interconnect

Add the following paragraph

A detail must be included for the design of the ITS splice box. The splice box must be a concrete drainage style manhole.

328.6.1.6 Vehicle Detection and Data Collection

Add the following item to the list in the first paragraph

- (4) Depict detection zones on respective lanes.

Add the following paragraph

For managed lane projects, include cross sections at every non-intrusive managed lane detector location showing detector pole, detector mounting, detector cabinet and detection zones.

Add the following subsections

328.6.1.7 Power Service Details

Provide service point details with one-line diagrams and panel schedules. Panel schedules must include the following:

- (1) Panel ratings: voltage, phases, capacity (main lugs or main circuit breaker) and short circuit current rating
- (2) Enclosure type
- (3) Neutral bus and ground bus requirements
- (4) Capacity of the circuit breakers
- (5) Circuit loads
- (6) Total and demand loads

The panel schedules must match the load analysis submitted as part of the ITS Power Design Analysis Report (PDAR). Location of source points and ITS load centers must be stationed in the ITS plans. Specifics for grounding must be shown in equipment details in the plans. Notes must not be solely relied upon for grounding.

The ITS PDAR must include all items in **TDH 231.8** including the power company correspondence and maximum available fault current letters.

Technical special provisions (TSP) must be provided for automatic transfer switches (ATS), fuel tank and engine generators, where permanent ITS generators are required as part of the ITS scope of the project.

328.6.1.8 Closed-Circuit Television Systems

Provide a CCTV pole Cross Section sheet that shows the location of the pole. A standard profile format should be utilized. Show and fully dimension the cross section of the roadway at the pole location and mounting height of equipment as well as cabinet (if applicable). Include pull box elevations at the pole.

Add the following section

328.8 Project Layout Sheet

Show project layout on a separate Project Layout sheet for projects including an ITS Component set. If project includes layout sheet(s), all existing and proposed ITS devices, hubs, toll gantries, and toll buildings within the project limits must be labeled per [FDOT ITSFM Standards](#).

329 Landscape Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

329.5 General Notes

Add the following paragraphs

General notes must identify [FDOT Specifications](#) sections and included materials sections that are appropriate for the landscape project. If the [FDOT Specifications](#) do not exist or if they are not adequate for the landscape design, existing site conditions, or proposed plant materials, provide technical specification sections as required to include:

- Soil mixtures
- Fertilizer requirement for different plant materials
- Mulches
- Plant material
- Vegetation
- Irrigation systems
- Site amenities
- Hardscape elements
- Fences or lighting included in the project

For Maintenance-Let projects, add the following utility notes to the General Notes section:

- (1) Utility information shown in the drawings is schematic in nature and a graphic depiction only. The Contractor is responsible for utility designates and locates. No utility facilities will be relocated. If a utility conflicts with the proposed landscape, notify the Engineer immediately.
- (2) There is no separate compensation for performing this utility locate work. All costs must be included in the unit cost for plant materials.

For Maintenance-Let projects, add the following note to the General Notes section:

- (1) Determine if more than one acre of soil will be disturbed as a result of the construction activities. If more than one acre of soil is disturbed, the contractor is responsible for submittal of a Notice of Intent (NOI) to the Florida Department of

Environmental Protection (FDEP) for use of the NPDES permit, per [FDOT Specifications, Section 104](#). Use the provided erosion and sediment control plan and SWPPP within the plan set or develop independent documentation for submittal to the Florida Department of Environmental Protection (FDEP).

329.6 Landscape Plan Sheets

Add the following paragraphs

Contract Plan sheets must be prepared in a manner that is consistent with a set of construction documents rather than an illustrative plan. Plan sheets must utilize simplified symbols depicting the location of materials in a legible manner. Plan sets must employ a level of detail and clarity that allows the reviewer to assess the relationship between the proposed landscape design, the roadway plans, utilities, outdoor advertising signs, and adjoining land use.

Concept Plans and Landscape Opportunity Plans must be plotted on a roll plot and be of sufficient size and scale as to adequately depict the inventory, analysis, and concept design.

329.6.1 Required Information

Add the following to item (4) on the list in the first paragraph

(including existing and proposed storm sewer systems, cross drains, underdrain systems, french drain systems, ditches, retention and detention facilities, and floodplain compensation areas).

Add the following item to the list in the first paragraph

(21) All Turnpike owned utilities

Add the following sections

329.8 Landscape Opportunity Plan (LOP)

Landscape Opportunity Plans (LOP) must include the following basic information:

- Project Centerline
- Edge of pavement (edge of travel lanes)
- Curbs and gutter

- Drainage systems
- Guardrail
- Right of way and/or limited access fence line
- Sidewalls or other planned or existing structures
- Lighting, signs, and signal poles
- Intersections and driveways which are noted in the plans
- Existing and proposed overhead and underground utilities
- Clear zone/lateral offset (must be plotted or noted frequently on each plan sheet)
- Outdoor advertising signs and view zones for permitted signs
- Existing vegetation (to remain or be removed)
- Analysis of existing on and off-site features and conditions that affect or are affected by the project
- Fence and gate locations
- Setbacks from structural elements or drainage system
- Limits of clear sight
- Transit facilities
- Proposed planting areas (bubble diagram noted as association type: trees, shrubs, etc.)

329.9 Vegetation Disposition Plans

Vegetation Disposition Plans are intended to be included in the Roadway Plans set as details for selective clearing and grubbing and include detailed plans showing existing vegetation to be removed, preserved, or relocated. For stand-alone landscape projects the Vegetation Disposition Plans can be included in the set.

330 Utility Work by Highway Contractor Agreement Plans

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

No changes to this chapter