

INTRODUCTION

As part of the Turnpike's continuing quality enhancement effort, the Turnpike Plans Preparation and Practices Handbook (TPPPH) that includes Volumes I, II, and the Turnpike Enterprise Guide Drawings, have been developed to provide Consultants, Reviewers and Management with a single source of additional Turnpike specific requirements that modify or add to the normal requirements included in the FDOT Plans Preparations Manual (PPM). These two sources will now include the normal criteria that govern our work and will help our work to better "conform to requirements", the official FDOT definition of quality.

A special effort has been made to identify and incorporate all of these special Turnpike requirements, including those that have been buried in numerous Design Memoranda and Directives that modify or add to the PPM requirements into the TPPPH. Head Reviewers' and Management have made a special effort to identify and document the differences (additions, revisions, deletions, or changes) that complicate the production process, and have incorporated them into the TPPPH, in an "easy to understand" addendum format.

The TPPPH Table of Contents for Volumes I and II show all of the PPM's Chapters and Sections and if any Turnpike specific modifications are applicable. If a section has been modified, the user can refer to the specific section in the TPPPH shown in the Table of Contents. Chapters/Sections with "No Changes" (to the PPM) are indicated in the Table of Contents ONLY and the "No Changes" sections are absent in the body of the TPPPH.

The TPPPH will be updated on a semi-annual basis (following the revisions to the PPM) to facilitate project production and reviews. We hope that you will find this document helps continue with the production of quality plans in an efficient manner.

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

This version of the TPPPH was posted to the website on March 9, 2012 and is effective as of that date.

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See Separate Attachment on FTE Website.

<http://design.floridasturnpike.com/>

Chapter 1

Design Controls

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

1.5 RRR Design

Add the following section

1.5.1 Turnpike Resurfacing, Restoration and Rehabilitation (RRR) Design

Florida's Turnpike Enterprise resurfacing design criteria shall follow the modifications shown in Chapter 25 of the TPPPH. It is FTE's preference to design all their facilities to new design criteria.

1.9.1 Design Speed Coordination and Approvals

Add the following to this section

All Turnpike Interstate Facilities will follow Table 1.9.2 (70 MPH minimum design speed) with the following exceptions.

- HEFT from Milepost 0 to Milepost 27.5 will have a design speed of 65 MPH.
- Veteran's Expressway from Milepost 1.54 to Milepost 13.57 will have a design speed of 60 MPH.

Add the following section

1.13 Turnpike Design Controls

1.13.1 Use of "Interstate" vs. "Freeway Other" vs. "Non Interstate" Criteria

The Turnpike System should be designed to "Interstate" Standards unless approved by the Turnpike Design Engineer.

Chapter 2

Design Geometrics and Criteria

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

2.1.5 Cross Slopes

Add the following paragraphs

For new or replacement bridges on six-lane roadways, or roads that have the potential to be widened to six or more lanes, the cross slope of the bridge should be designed at 0.03 if possible.

Median through-lane widening, turn lanes, tapered or parallel single lane ramps adjacent to two through-lanes do not automatically warrant a 3% cross slope. Surface drainage will be reviewed and used as the deciding factor. New two lane ramps, however, will be designed with 3% for both lanes through the gore area. It is understood that Figure 2.1.1 depicts through lanes, and that auxiliary lanes can be applied with a cross slope in the same direction as the adjacent through lane even if this causes more than three lanes to be sloped in the same direction. This approach does not require a Design Variation, but shall meet lane spread requirements for storm water runoff.

2.1.6 Roadway Pavement

Add the following paragraph

TPPPH Section 16.2.7.1 contains the minimum standards for pavement designs on the Turnpike System. At toll gantry locations, FTE's Flexible Pavement Design Guide for Toll Locations with Electronic Data Collection, January 2010, shall be applied

http://design.floridasturnpike.com/prod_design/roadway/bituminouspavementdesign.html

2.1.7.1 Pavement Thickness Transition Guidelines

Add the following Paragraph

At bridge and ramp toll plaza approaches that are rigid pavement, for a 150 foot length before and after the concrete slab, the ultimate pavement design asphalt thickness shall be placed flush with the concrete at the ultimate profile grade. The initial pavement section shall transition to the ultimate thickness at a rate of 0.08%, 1 inch/100 feet.

2.3 Shoulders

Add the following paragraphs

Where single lane ramps meet cross roads, additional ramp lanes are usually added for accel/decel or right or left turns. Unless these additional lanes are more than 500 feet long measured along the ramp baseline, single lane 6 feet ramp shoulders should be used throughout. A similar 500 feet length would apply to ramp plaza approaches and departures. Frequent short changes in ramp width should not warrant corresponding short changes in ramp shoulder width. The shoulder transitions may be longer than the multi-lane ramp segment.

Other shoulder requirements:

- Single lane ramps shall have 4' paved inside and outside shoulders.
- "2-Lane Ramp Interstate" within PPM Table 2.3.1 shall also be applied to ramps with more than 2-lanes, and thus have a 4' paved inside shoulder and a 10' paved outside shoulder.
- Though PPM Figure 2.0.1 only shows "2-Lanes" for multi-lane ramps, the shoulder configuration (6' inside shoulder and 10' outside shoulder) shall also be applied when more than two ramp lanes occur.
- Ramps shall have audible edge lines.
- Twelve foot inside and outside paved shoulders shall be provided for mainline sections that are 3-lanes or more in one direction, and that have a truck DDHV greater than 250. Additional stabilization and continuation of the shoulder cross slope beyond the twelve foot paved width are not required. This shoulder width requirement also needs to be applied to bridges when the above conditions occur.

Deviations to the above requirements will require an approved technical memorandum, similar in effort to preparing and processing a standard Design Variation.

2.3.1 Limits of Friction Course on Paved Shoulders

Add the following paragraph

Shoulder pavement on the high side where the shoulder slopes toward the travel lanes, the shoulder pavement will be flush with the adjacent travel way friction course to avoid trapping water on the shoulder.

http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html

2.3.2 Shoulder Warning Devices (Rumble Strips)

Add the following paragraph

The minimum thickness of structural asphalt on shoulders where ground-in rumbles strips are to be used is 1.5 inches. On existing shoulders without rumble strips that call for new rumble strips to be placed, the minimum thickness of existing structural asphalt and proposed asphalt shall be no less than 1.5 inches.

2.3.4 Shoulder Rocking

Add the following paragraphs

Cross slope for full width shoulders in a tangent section may be varied from 3% to a maximum of 6% . A minimum longitudinal gutter grade of 0.24% shall be met. The minimum distance between the low point and high point is 100'. This criterion applies to sections of the mainline where the profile grade line will require varying the inside or outside shoulder slope as a means of maintaining minimum spread criteria.

For the outside shoulder the Turnpike will allow one of three types of treatment in areas where the outside shoulder slope must be varied in order to meet minimum spread criteria.

1. Use concrete barrier wall with inlets. If the shoulder slope must be varied then the above criteria for varying the shoulder slope and longitudinal gutter grade must be met. Design shall include provisions to assure that the reveal of the concrete barrier is not compromised.
2. Use guardrail with shoulder gutter and inlets to collect storm water. If the shoulder slope must be varied then the above criteria for varying the shoulder slope and longitudinal gutter grade must be met.
3. Use guardrail in conjunction with a permanent erosion mat in fill sections with a front slope steeper than 1:4 and embankment height less than or equal to 10 feet. Storm water will be allowed to flow over the shoulder and the miscellaneous asphalt onto the sodded front slope

2.4 Roadside Slopes

Add the following paragraphs

Though a 1:4 front slope rate can be applied without restrictions per PPM Chapter 4, a 1:6 rate to the edge of a clear zone is required on widening and reconstruction projects. In addition, a 1:2 front slope rate with guardrail can be applied regardless of fill height when constrained conditions exist, which requires justification via an approved technical memorandum and coordination / concurrence with FTE Maintenance and FTE Drainage.

Sufficient space from face of guardrail to the beginning of the 1:2 slope shall be provided on all guardrail and 1:2 slope applications to allow for a 4' guardrail deflection. If a concrete barrier is used instead of guardrail and shoulder gutter, then a 4' wide level bench shall be constructed within the fill behind the barrier before proceeding with a 1:2 slope.

2.6 Grades

Table 2.6.2 Maximum Change in Grade Without Vertical Curves

Add following note

The minimum distance required between VPI's used to develop the Profile Grade Line (PGL) is $3 * \text{Design Speed}$.

2.8 Curves

2.8.2 Vertical Curves

Add as paragraphs 2 thru 4

The minimum vertical curve lengths and minimum K values listed in the notes in PPM Tables 2.8.5 and 2.8.6 require some clarifications and restrictions:

Service Interchanges Per AASHTO, it is intended that a "platform" about 200 feet in length be provided on the ramp in advance of the gore using the Freeway K values.

System Interchanges K values for the higher system ramp design speeds should be used except for the "platform" area.

2.9 Superelevation

Add the following note

For ramp design speeds less than 35 mph. See AASHTO *Exhibit 3-30 Maximum Relative Gradient* for superelevation transition rates.

2.10 Vertical Clearance

Change the following table

Table 2.10.2 Minimum Vertical Clearances for Signs and Toll Gantries

ELEMENTS	CLEARANCE ^{1, 2}
Overhead Sign Structures	18'-0" clearance over the entire width of the pavement and shoulder to the lowest Sign component
Overhead Toll Gantries	18'-6" clearance over the entire width of the pavement and shoulder to the lowest Toll Gantry component. See Chapter 34 for more information on vertical clearance at Toll Gantries.

1. For notes 1 and 2, see PPM.

2.11 Horizontal Clearance

Change the following figure title

Figure 2.11.1 Horizontal Clearance to Barriers"

2.14.5 Crossovers on Turnpike Facilities

Add the following section

Median u-turns throughout the Turnpike are used to accommodate turnarounds between interchanges for maintenance, service, and law enforcement personnel. The primary purpose of the u-turns is to alleviate adverse travel time for emergency vehicles by providing strategic u-turn locations along Florida's Turnpike.

Coordination efforts between Turnpike Production Design, Traffic Operations, FHP Troop K, and Service/Maintenance departments, helped provide the direction needed to identify and develop Turnpike specific criteria for the design and locations (sometimes relocation) of the official use u-turns on the system. Design guidelines from AASHTO's A Policy of Highway and Streets (2004), along with outcome of the internal coordination efforts, were used to develop Turnpike specific criteria during the time when the state was developing standards for crossovers on Limited Access Facilities.

The following is a summary of Florida's Turnpike crossover spacing criteria:

Criteria	Turnpike Requirement
U turn spacing	1 to 2 miles apart
Interchange Location	Not within 1 mile
Median width opening	≥ 20 feet (concrete barrier wall separated)

All crossovers within a project's limit are to be evaluated by the design consultant for the spacing criteria listed above and for sight distance deficiency. Findings are to be documented and submitted to the department for review and an internal decision will be made as to relocate or close the location.

Crossover Guide Drawings can be found at the following link:

http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html

Additional guide drawings are available within the PPM, Chapter 2.

2.17 Toll Plazas

Add the following sections

2.17.1 Horizontal Taper Rates

The desirable Horizontal Taper Rates at plazas are as follows:

Mainline Plazas -	Up to 8 total lanes	25:1
	10 to 14 total lanes	20:1
	16 plus total lanes	15:1
Ramp Plazas -	All types	20:1

Note: Tapers adjacent to dedicated or future dedicated SunPass lanes are to be designed for the highest anticipated travel speed.

There will need to be a parallel roadway lane section to accommodate storage queues on the approach side of the toll plazas after the approach flare.

2.17.2 Cross Slopes and Transitions

The normal cross slope for the concrete slab around all plazas is 0%. This serves as a standard datum for vertical clearance, which is constant to the canopy, canopy signs, toll booth slab, coin basket, tunnel, etc. The approach crowned roadway will need to be warped up and widened to meet the plaza slab. The grading for the plaza approaches and departures will be designed for the maximum number of lanes foreseeable with only the lateral limits reduced for the initial construction.

2.17.3 Profile Grades

For ramp plazas the approach grade shall be +1.00% with +0.50% minimum. Departure grades shall be -0.50% minimum and -1.00% desirable. It is desired that plazas be on a crest to keep water from sheet flowing through the plazas, however, straight through grades are commonly used where right of way, profile grade and earthwork act as constraints. For a straight grade through a small plaza, a 0.50% minimum or a 1.50% maximum grade may be used.

Mainline plazas have been built on flat grades, but it is desirable to have at least +0.50% approach and -0.50% departure grades.

Higher speed AVI (Automatic Vehicle Identification) or SunPass lanes may need vertical curves or staggered grade breaks so as not to exceed the "Maximum Change in Grade Without Vertical Curves" shown in the PPM Table, 2.6.2.

When setting the PGL elevation within 300 feet of a mainline toll plaza, the Designer must consider the 3 feet roadway base clearance above SHW (seasonal high water), the finished floor elevation at 1 foot (0.3 m) above the 100 year storm, the wide pavement cross slope, the plaza perimeter drainage ditches, and the possible expansion of the plaza in the future. As the SHW in Florida may be within 1 foot of natural ground, it is not unusual for the PGL at the plaza to be 5 or 6 feet (1.5 to 1.8 m) above natural ground.

An important location to check for roadway base vertical clearance to SHW is near the midway point on the plaza approach or departure taper. A uniform rise of cross slope from -2.00% to 0.00% times the increasing pavement width would yield calculated EOP (edge of pavement) elevations that would plot as a "sag" curve. To avoid this, a non-uniform cross slope transition rate or a "spline" can be used between a "straight" PGL and a straight, preset, ultimate EOP profile.

2.17.4 Toll Plaza Clear Zones/Horizontal Clearance

Clear zones are a function of design speed that would range from 70 mph (110 kph) to zero. In general, clear zones would be reduced from the basic mainline width up to the approach flare, to a decreasing ramp/auxiliary lane clear zone width in the flare, to a 4 foot clear zone for curb or a 10 foot clear zone for shoulder border where the outside EOP parallels the centerline. This "Use Good Engineering Judgment" approach is also relevant for ramp terminals near cross roads.

The current design practice for toll plazas include the design of toll island attenuators for the full design speed of the approach roadway. However, the Administration Building and other amenities are placed within 10 to 25 feet from the edge of pavement, with no barrier to shield the hazard. This is a design inconsistency. The developed clear zone criteria for the generic toll plaza designs are based on Turnpike site-adapt experience as well as AASHTO and FDOT Criteria on general highway safety. This criteria sets minimum values for clear zones. The

purpose of this criteria is to provide a consistent and rational design for toll plaza design. These values are reduced by 10 to 25 feet for ramps and auxiliary lanes so that the clear zone is offset by a near constant offset from the through-lanes. This method of clear zone development is applied to toll plazas and approaches.

Toll plaza approaches (the tapered area between the theoretical through or travel lanes and the edge of pavement) are considered as auxiliary lanes. Furthermore, because of the prolonged length of these tapers for mainline plazas (either one- or two-way), these approaches are considered as ramps with a design speed midway between a stop condition and the design speed of the approach roadway. The rationale for application of a lower design speed to the tapered approach assumes that vehicles traveling along the edge of pavement must have made a conscious controlled action to take this path and begin deceleration similar to an exit ramp. The similarities in the development of the clear zone between an exit ramp and a toll plaza are shown in **Figures 2-1** and **Figures 2-2**. At any plaza, a low speed clear zone similar to a low speed collector can be applied for decelerating vehicles depending on the border treatment. This “A” distance as shown on Fig. 2, should be either 5.5 feet from edge of pavement for curb and gutter borders or 10 feet for shoulder borders. Thus the clear zone at any point in a toll plaza or approaches can be defined as the widest offset, either “X” as measured from the projected through lanes; “Z” as measured from the toll plaza tapers; or “A” as measured from the edge of toll plaza.

It should be noted that if the “X” distance is beyond the edge of the toll plaza for a design speed of greater than 45 mph, curb and gutter should not be used as a border treatment.

This tiered classification should only be applied to tolled lanes. Mainline lanes near ramp plazas, AVI express lanes, or untolled lanes at one-way plazas, such as Alligator Alley should continue to maintain standard roadway clear zones or appropriate site barriers. The one apparent inconsistency in this development of safety criteria is the length of great attenuators at the toll islands.

Current practice includes the design of all attenuators for the full design speed of the approach roadway. Safety at the plaza is of utmost importance; therefore, “USE GOOD ENGINEERING JUDGEMENT” and design consistency. See Design Guide Line. Design decisions regarding this issue shall be included in the design documentation file. This practice is consistent with the use of a wider clear zone for the projected through-lanes.

DESIGN GUIDE LINE

Approach Roadway	Design Speed	Bays*
Main Line Plazas	All	9
Ramp Plaza Curved Approach	25-40, Including Sunpass	2
Ramp Plaza from Main Line	50, Including Sunpass	4
Ramp Plaza from Cross Road	25-40	2

*** Quadguard used as example only. The same approach applies to all QPL crash cushions.**

Clear Zone Development

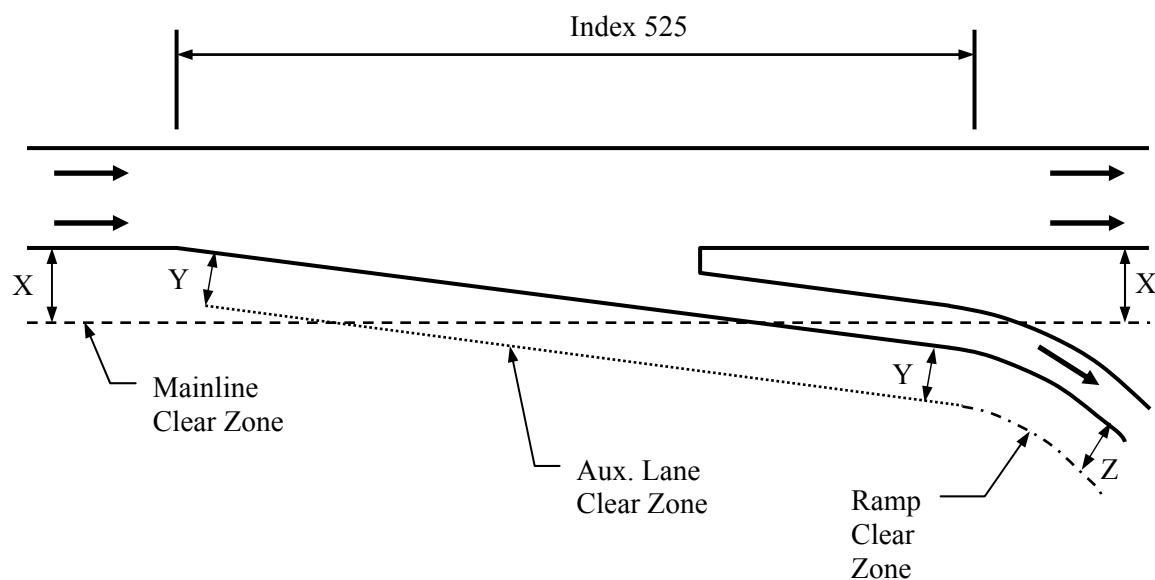


Figure 2-1
Clear Zones At An Exit Ramp

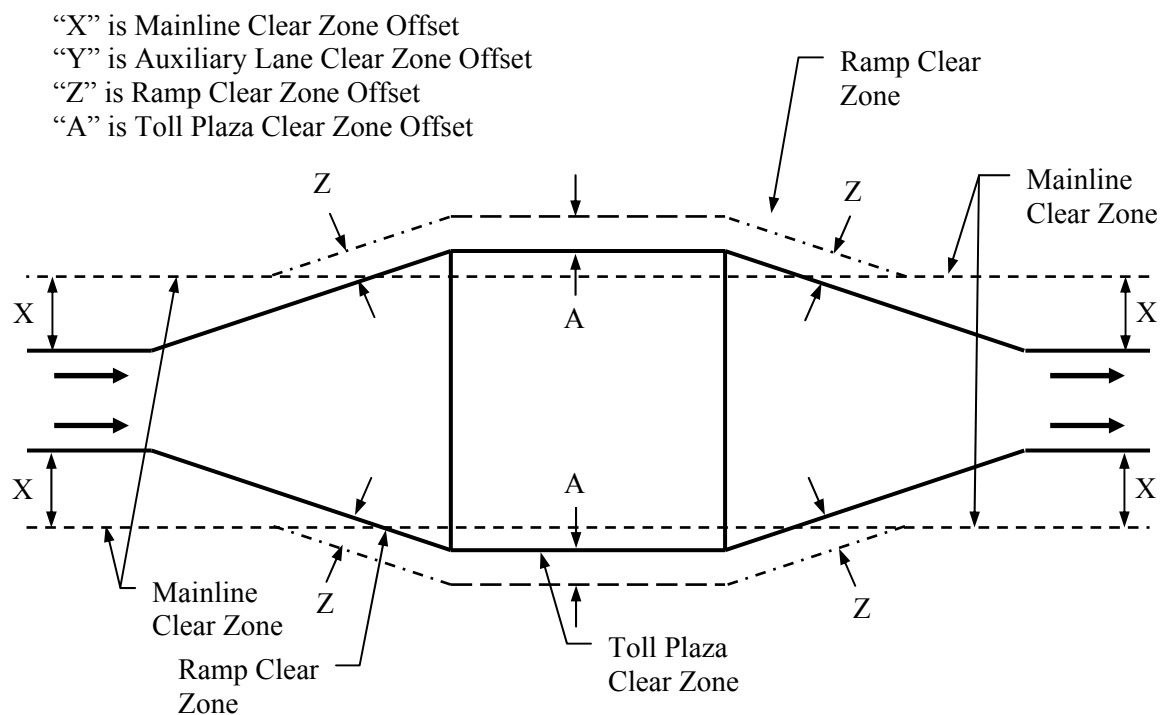


Figure 2-2
Clear Zone Development For A Mainline Toll Plaza

2.17.5 Queue Storage Criteria

The standard vehicle length used for queue storage analysis at toll plazas is 25 feet, which has a safety factor of 1.5. The maximum length of queue in a toll lane is 12 vehicles (300 feet) for mainline plazas and 6 vehicles (150 feet) for ramp plazas.

For ramp plaza booths, the minimum distance from the crossroad is 300 feet. However, where the same ramp plaza building takes tolls for both On-ramp movements or On and Off-ramp movements (such as at a “Par-Clo” or a “Trumpet”), the minimum distance will be increased to 500 feet. The distance is increased to provide additional vehicular weaving and storage space. When setting this distance, the possibility of future booth and cross road lane additions and their R/W impacts, a weave analysis, and toll-processing rates shall be considered. A weave analysis is not only important where multiple traffic directions are being accommodated, but also when designated AVI lanes are included.

2.18 Sodding

Add the following section

On resurfacing projects where there is more than 12 feet of travel lane pavement draining to the edge, the **minimum** sod dimension is 2 feet 8 inches. Where there is less than 12' of travel lane pavement draining to the edge, the **minimum** sod dimension is 1 foot 4 inches. Typically, the 2 feet 8 inches occurs on the outside shoulder and the 1 foot 4 inches on the inside shoulder.

For all slopes adjacent to new construction or widening, sodding shall be used throughout the entire limits of the project.

Chapter 3

Earthwork

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

3.5.9 Summary of Earthwork

Add the following paragraph

Specify and quantify material necessary to meet the drainage design requirements, such as select material beneath swales, on fill, designed to percolate runoff.

Chapter 4

Roadway Safety

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

4.2.1 Canal Hazards

Add the following paragraphs

Design Consultants shall request the Florida Turnpike Enterprise (FTE) 2009 Canal Protection Program Update to review and apply criteria on FTE projects.

Florida's Turnpike Enterprise defines a water body as a natural or manmade feature, such as a pond, lake, ditch or canal that has a depth of water of 3 feet or more for an extended period of time (24 hours or more), as measured from the seasonal high water level or control elevation, to the water feature's bottom elevation. All water bodies within Turnpike right of way, as well as canals that run along and may fall slightly outside of Turnpike right of way shall be evaluated for protection.

All water bodies within Turnpike right of way shall be protected.

4.3.1 Warrants

Add the following paragraph

Light pole foundations are not considered a hazard if built in accordance to Standard Index 17500, though the roadway slope may cause a portion of the foundations to protrude more than 4" in height.

4.3.2 Barrier Selection

Add the following paragraph

Though not detailed in the current Design Standards High Tension Cable Barrier, per Developmental Specification 540 is an acceptable barrier on the Turnpike System.

4.3.5 Placement

Add the following sections

The following criteria apply to the installation of high tension cable barrier and are supplement to Developmental Specification 540 High Tension Cable Barrier System (Rev 11-29-10).

1. The maximum slope a high tension cable barrier shall be placed on is 1V:6H, with preferred slope of 1V:10H.

2. High tension cable barrier cannot be placed between the front slope break point and 8' from the break point or median center when the approach slope is 1:6 or flatter; or 10' from the break point if the front slope is steeper than 1:6
3. Post spacing shall be installed such that the dynamic deflection is no more than a maximum of 8 feet.
4. Design drawings and calculations required by Developmental Specification 540 to be furnished to the Engineer shall also be submitted through FTE's shop drawing review process.
5. Design drawings and calculations for post foundations as described in Developmental Specification 540-1 (f) are required regardless of soil compaction. The design should be based on the soils described in Developmental Specification 540-1 (e), unless otherwise detailed in the plans.
6. A 16' clear area shall be provided between the barrier and any hazard.
7. Maintenance access points must be placed at a minimum of every half mile unless approved by the Turnpike Design Engineer.

Table 4.3.1

Add the following

Barrier Type	Offset (ft.)
High Tension Cable Barrier	8.0

4.4.2 Selection

Revise Sentence

The second sentence is revised in this section to the following:

Where deflection space is adequate, either a double face guardrail, high tension cable barrier, or single face guardrail on each side may be used.

4.4.4 Median Barrier Grading Requirements

Add the following paragraph

The most desirable median slope is one that is relatively flat with slopes at 1:10 or less in lieu of the standard 1:6 median typical section slopes. The slopes ahead and in front of guardrail installation are particularly critical on the older/narrow medians of 40 feet or less in width (see AASHTO Roadside Design Guide). In most cases, regrading will require the median ditch profile to be realigned horizontally and vertically. Therefore, drainage and earthwork in these areas need special attention in developing the typical sections and drainage profiles.

Chapter 5

Utilities

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 6

Railroad Crossing

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 7

Traffic and ITS Design

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

7.1 General

Add the following paragraphs

Florida's Turnpike Enterprise has developed Traffic Plans Guide Drawings to establish guidelines for traffic design and traffic engineering plan development. The Guide Drawings attempt to improve the quality of plans, provide system consistency, reduce plan development time and reduce plan review time. The Guide Drawings represent the compilation of engineering manuals, best practices and effective design experience on Florida's Turnpike. The Guide Drawings show layouts and details of an example condition.

It is the responsibility of the Design Engineer of Record using these Guide Drawings to exercise proper engineering judgment and prepare a safe and effective design that fits the specific conditions of a project. The inappropriate use of and adherence to these Guide Drawings does not exempt the engineer from the professional responsibility of developing an appropriate design. Design engineers and consultants are encouraged to become familiar with the information contained in the Guide Drawings and to discuss specific design details with Florida's Turnpike design staff.

The Guide Drawings are available as dgn and pdf versions on the Florida's Turnpike Enterprise Production Design website at the following URL:

- http://design.floridasturnpike.com/prod_design/traffic/trafficguidedrawings.html

7.2.1 Design Criteria

Add the following to paragraph 1

The placement of signs shall prevent subjecting motorists to too much information, not interfere with other traffic control devices, not impair the visibility of other signs and not violate minimum spacing distances listed in Table 2, Minimum Spacing Distances for Signs in Florida Administrative Code 14-51.014. The designer shall consider that Table 2 provides the minimum spacing requirements and the design should maximize the sign spreading concept in MUTCD 2E.10 when possible. In addition, the minimum sign spacing from Dynamic Message Signs (DMS) should be 1000 feet.

The designer shall consider the physical placement of sign supports as well as the visibility of the sign panel. The placement of sign supports shall not occur in the bottom of ditches.

Clearing and grubbing should be included if the visibility of the sign panel is blocked. Refer to the Traffic Plans Guide Drawings for guidance.

The design for sign location shall consider the cross section as to the placement of the sign structure foundation outside the clear zone. Signs located behind guardrail shall be located a minimum of four feet setback from the face of guardrail. This applies to the foundations on overhead signs and for the sign panel for ground mounted signs.

Add the following paragraphs

All advance guide signs should use the physical gore as the point of reference for distance messages. The only time this should not be done is if the physical gore and theoretical gore are separated by more than 500 feet.

Destination guide signs on ramps shall include destinations that repeat advance guide sign and supplemental guide sign information and provides route guidance to the driver.

Follow MUTCD Table 2C-5 and Figure 2C-3 for Advisory Speed Warning Signing at all Turnpike exit ramps.

For all post-interchange distance signs on the Turnpike, the maximum letter height used shall be 10" E or 10" EM.

For size of signs, lettering and plaques, Florida's Turnpike facilities shall follow the Freeway Classification in MUTCD Tables 2B-1, 2C-2, 2E-4 and 2E-5. The minimum sizes for regulatory and warning signs facing traffic on exit or entrance ramps to/from Turnpike facilities shall be as shown in the referenced MUTCD Tables corresponding to the Freeway column. Regulatory signs for Do Not Enter (R5-1) and Wrong Way (R5-1a) which face side street traffic shall also use the Freeway classification in the referenced MUTCD Tables.

7.2.8 Guidance on Use of Various Pavement Marking Materials

Add the following paragraphs

Florida's Turnpike lets separate contracts for thermoplastic applications. Include the preformed thermoplastic exit number message in the thermoplastic plan set.

On resurfacing projects, the main Signing and Pavement Marking plan set must include the replacement of RPM's on bridge decks, but exclude painted pavement markings. The separate thermoplastic plan should include refreshing the thermoplastic pavement markings on bridge decks unless specified by Turnpike design staff to exclude.

7.2.10 Overhead Sign Installations

Add the following sections

Mount advance guide signs and exit direction signs on overhead structures when the number of travel lanes in one direction is three or more. Supplemental guide signs shall remain ground mounted under sections of three or more travel lanes.

Overhead sign installations shall meet the vertical clearance requirements of TPPPH Section 2.10, Table 2.10.2.

7.2.11 Sign Background Sheeting

Background sheeting shall be ASTM D 4956 – 09 Type-XI retroreflective sheeting material for new signs on all projects. The design should specify the use of ASTM D 4956 – 09 Type-XI. The Type XI sheeting will allow the Turnpike to reduce power consumption on externally lit signs by using lower wattage light and increasing the retroreflectivity of the sign.

Do not increase text spacing for white text on colored background panels for overhead signs that use the minimum letter sizes specified in MUTCD Table 2E-3.

7.2.12 Toll Route Markers

Add the following section

The Florida's Turnpike mainline shall use the Turnpike Route Marker sign panel shown in the latest Guide Drawings. The panel sizes shall meet the following standards:

- To identify the Turnpike from a cross road or for trailblazing – 30" x 36"
- For all guide sign uses along a freeway and for Post Interchange signs – 40" x 48"
- For "special" applications – 50" x 60"

For all other Turnpike operated facilities the Toll Route Marker shall be used as shown in the Traffic Engineering Manual, Section 2.23. The size of this panel shall meet the standards in the TEM with the following exception:

- For identification along the mainline (i.e., Post Interchange Sign) – 36" x 48"

The width of the attached cardinal direction sign, directional arrow auxiliary sign, or other auxiliary sign shall match the width of the parent route marker sign.

On the Turnpike Mainline, use the Toll Auxiliary Sign (M4-15) in combination with the Turnpike route marker. On numbered routes, such as Toll Route 869, use the Toll Route Shield (FTP-79-06, FTP-80-06, or FTP-81-06) without the additional Toll Auxiliary Sign.

7.2.13 Toll Plazas

Add the following sections

7.2.13.1 Approach Signing for Mainline Toll Plazas

The sequence of the advance signs to a standard mainline toll plaza should include as a minimum “Toll Plaza, 1 Mile, Cars \$X/XX”, “Prepaid Tolls Only, SunPass (logo), (directional message)”, “Toll Plaza, ½ Mile, Reduce Speed”, “Exact Coins, Cars Only”/”Change Provided”/”Prepaid Tolls Only, SunPass (logo)” lane assignment signs, “Wide Lane Keep Right/Left” and the “Toll Schedule”. There are other approach signs that may be used such as a “Toll Plaza, 2 Miles, Cars \$X.XX” sign or various speed reduction signs. The use of these signs should be coordinated with the Turnpike prior to design. Signs should not include the toll amount for plazas located within the Ticket System of the Turnpike Mainline.

All of the standard mainline approach signing mentioned above has been designed by the Turnpike and is shown in the latest Guide Drawings. These signs should be placed along the mainline according to the distances shown in the Guide Drawings. Any deviation from this placement should be clearly justified by the Engineer.

7.2.13.2 Approach Signing for Ramp Toll Plazas

The sequence of the advance signs to a ramp plaza should include as a minimum “Toll Plaza Ahead, Cars \$X.XX”, “Prepaid Tolls Only, SunPass (logo), (directional message)”, “Toll Violations”, “Wide Lane Keep Right/Left” and the “Toll Schedule”. There are other approach signs that may be used such as various speed reduction signs. The use of these signs should be coordinated with the Turnpike prior to design. Signs should not include the toll amount for plazas located within the Ticket System of the Turnpike mainline. Advance directional signing should only be provided at locations where geometry will not permit adequate directional signing on the departure side of the plaza.

All of the standard ramp approach signing mentioned above has been designed by the Turnpike and are shown in the latest Guide Drawings. These signs should be placed along the ramps while maintaining the minimum 200 feet spacing necessary for sign legibility. When geometry on the ramp plaza does not allow enough room for proper sign spacing, the Designer should look to remove the “Prepaid Tolls Only, SunPass (logo), (directional message)” sign and/or locate signs opposite each other along the ramp. When the distance from an intersecting roadway to the toll plaza is less than 400 feet, the “Prepaid Tolls Only, SunPass (logo), (directional message)” sign should be removed from the signing scheme.

7.2.13.3 Canopy Signing

All canopy-mounted signs shall be included in the plans as shown in the latest Guide Drawings. These panels shall be included as standard sized panels. The designer shall

begin the design with the largest panels first and proceed smaller only if an existing canopy cannot accommodate the larger panel. All canopy signs should be the same height when placed along the same approach fascia for a Toll Plaza. When a Changeable Message Sign (CMS) is used on a canopy, all static signs on that same fascia shall be 5 ft. in height to match the display height of the CMS panel.

Associated with all canopy-mounted signs should be a Lane Use Control Signal. Information about this signal is mentioned in Section 7.4.1.1, Lane Use Signals.

7.2.13.4 Pavement Markings

All pavement marking details and descriptions are shown in the latest Guide Drawings. The designer should refer to these Drawings as a guide for striping design. Deviation from these Drawings may be necessary at times and should be coordinated with the Turnpike Traffic Plans Engineer.

Mainline plaza approach striping shall be designed and placed in a way that directs the driver to a segment of the plaza from the mainline travel lanes. This is accomplished by segregating the plaza into sections based upon the number of toll lanes and the number of mainline travel lanes. This type of design is used to try and eliminate high-speed weaving and last minute lane changes. A detail showing this is included in the latest Guide Drawings.

7.2.13.5 SunPass

Add the following sections

7.2.13.5.1 Signing

Island signing for SunPass shall consist of the following as a minimum:

1. A 25 mph speed limit sign with a 45 degree arrow (M6-2) shall be added to the left of the dedicated lane to provide liability protection and speed enforcement.
2. A toll collector warning sign shall be added on the island on each side of the dedicated lane. This sign is installed curbside near the sidewalk between the administration building and the first lane of a mainline plaza. At locations with dedicated lanes on the outside of the plaza, the toll collector warning sign shall also be placed on the shoulder. Layouts for these signs and others are shown in the latest Guide Drawings.

7.2.13.5.2 Pavement Markings

All SunPass equipped lanes shall have toll attendant/collector warning symbols placed in any walkway across adjacent islands, in the doorways of booths on the adjacent islands, and on the sidewalk between the administration building and the first lane on the plaza. A

note shall be added to the plans as follows: “The Attendant Pavement Warning Symbols shall be 3M Sidewalk Graphic Image as distributed by Ad Graphics, Inc., of Pompano, Florida, or an approved equal.” These symbols are intended to warn toll attendants of the danger in crossing the SunPass lanes, since vehicles are not required to stop as part of a dedicated SunPass lane electronic toll transaction. Dedicated SunPass lanes shall have approach and departure channelization with pavement messages as shown in the latest Guide Drawings. The dedicated SunPass markings shall be supplemented with RPMs and flexible delineators as shown in these Guide Drawings. For dedicated SunPass lanes that are 12 feet wide or greater, the lane shall be narrowed to 10 feet through the plaza area. Details for the toll attendant signs and marking symbols are shown in the latest Guide Drawings.

7.2.14 Truck Lane Restrictions

Add the following paragraph

The design engineer shall include truck lane restriction signs on corridors that have three or more lanes in each direction of travel. The restriction prohibits heavy trucks from traveling in the left lane. This measure is implemented to improve safety and mobility by increasing passing opportunities and reducing negative interactions between slow-moving trucks and other vehicles.

Sample panel designs for the restriction are included in the Guide Drawings. The design engineer should implement the signs similar to a post-interchange sign so that drivers entering the system are informed at each entry point. If installation of the truck lane restriction sign is not possible on the mainline due to sign clutter, the truck lane restriction sign can be implemented on the entrance ramp after the toll plaza to maintain proper sign spacing.

7.2.15 All Electronic Toll Header Panels

Add the following paragraph

The SunPass or Toll-By-Plate header panel, as shown in the Guide Drawings, shall be included on all guide signs at entrances to Turnpike facilities / corridors that are all electronic toll (AET) collection. This includes tolled and non-tolled entrances to Turnpike facilities.

The SunPass or Toll-By-Plate header panel shall also be included on guide signs at major system to system interchanges that are entering a corridor that is AET. Include the AET header panel on system to system guide signs facing drivers regardless if they are leaving one AET corridor and entering another AET corridor. The inclusion of the header panel at these locations will remind Turnpike customers at these major interchanges that they are still on an AET system even though they may have entered a different facility name (e.g., Sawgrass Expressway interchange to Turnpike Mainline, etc.).

7.3 Lighting

Add the following references

Federal Aviation Regulation, Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, USDOT/FAA. This regulation sets the requirements to follow on projects near airports.

Federal Aviation Administration Advisory Circular AC 70/7460-1, Obstruction Marking and Lighting, FAA. This advisory circular defines the requirements to follow to identify objects that require special lighting near airports.

Federal Aviation Administration Advisory Circular AC 150/5345-43, Specification for Obstruction Lighting Equipment, FAA. This advisory circular contains the FAA specification for obstruction lighting equipment.

Manual on Uniform Traffic Studies (January 2000) Chapter 15 Highway Lighting Justification Procedure, FDOT.

Recommended Practice for Roadway Lighting IES RP- 8-00, ANSI/IESNA.

7.3.1 Design Criteria

Add the following paragraphs

Lighting pole layout and design shall employ practices, where possible, to reduce the risk of light poles in high crash and high risk locations. Some of these design considerations are, but not limited to: lane drop and intersection locations, sections of roadway where the paved shoulder narrows, and curve/vehicle departure directions. These design considerations shall be documented in the Lighting Design Analysis Report (LDAR).

Conventional lighting should be used for all Florida Turnpike roads unless high mast lighting is proven to be the better and more cost efficient alternative. Lighting designers shall consult with the Turnpike Electrical Engineer before proposing new high mast light poles.

The preferred conventional lighting fixture is the Mongoose for style consistency throughout.

High mast lighting at interchanges may be used provided that the surrounding area is not an urban residential area. Lighting designers shall investigate future development plans of the area and obtain approval from the Turnpike Electrical Engineer and Project Manager before considering high mast lighting.

High mast lighting shall not be located in the following locations and shall meet horizontal clearance requirements specified in PPM, Vol. 1 Chapter 2:

- a. Steep Embankments
- b. Steep Slopes in Slope Pavement
- c. Adjacent to Slope Embankment Cut-Outs
- d. With Buried Pole Bases
- e. In areas not accessible to a crane for aerial basket work.

Underdeck lighting shall be mounted to pier caps. If pendant hung fixtures are required to meet criteria, special attention should be given to locate fixtures over shoulders, gore areas, other separations from traffic. If pendant hung fixtures are required over live traffic lanes, the fixture locations shall be coordinated with the Turnpike Electrical Engineer and Turnpike Maintenance. All pendant hung fixtures shall have a redundant method of support.

Projects with conventional lighting along the roadside shall be designed for an average initial illumination as indicated in Table 7.3.1. Toll Plaza approaches and departures shall be designed for an average initial illumination as indicated in Tables 7.3.1 and 7.3.2 Refer to TPPPH Lighting Guide Drawings 204 and 205 for more information on Toll Plaza approach and departure lighting. Projects with high mast lighting shall be designed for an average initial illumination as indicated in Table 7.3.2 Rest areas and Service Plazas shall be designed for an average initial illumination as indicated in Table 7.3.5. This includes the ramps to and from the Service Plazas.

If the adjoining mainline roads are not illuminated, then the lighting design shall include mainline transition lighting to allow a driver a reasonable reduction in lighting levels from a lighted roadway to an unlit road. The mainline transition lighting shall extend beyond the project lighting limits by approximately four-to six- pole spacing. The mainline transition illumination levels shall be 1.0 foot candles average initial intensity (horizontal foot candles) with the same uniformity ratios specified in Table 7.3.1.

If the length of the mainline between any two lighted areas (roadway sections, interchanges, service plazas, and/ or tolls plaza) is 0.5 mile or less, then that section of the mainline shall be lighted regardless of what the Lighting Justification Report indicates.

All widening and resurfacing projects shall be reviewed for compliance with current lighting criteria. All deficiencies within the project scope shall be addressed and corrected. Deficiencies outside the project scope shall be brought to the attention of the Turnpike Project Manager and Electrical Engineer.

Projects with highway speed tolling gantries are not required to have roadside lighting unless dictated by another section of the TPPPH and/or a Lighting Justification Report. Where roadside lighting exists, the roadway lighting shall remain and shall be reviewed for compliance with current lighting criteria. Light poles shall not be located within the tolling loop pavement of the tolling gantries. All deficiencies within the project scope shall be addressed and corrected. Deficiencies outside the project scope shall be brought to the attention of the Turnpike Project Manager and Electrical Engineer.

Where new poles and luminaries are being proposed for the majority of a project, all poles and luminaries shall be new.

Table 7.3.1 Conventional Lighting - Roadways

ROADWAY CLASSIFICATIONS	ILLUMINATION LEVEL AVERAGE INITIAL (H.F.C)	UNIFORMITY RATIOS		VEILING LUMINANCE RATIO
		AVG/MIN	MAX/MIN	L _v (max)/L _{avg}
INTERSTATE, EXPRESSWAY, FREEWAY, MAJOR ARTERIALS & HIGHWAY SPEED TOLLING GANTRIES	1.7	4:1 or Less	10:1 or Less	0.3:1 or Less
ALL OTHER ROADWAYS	1.0	4:1 or Less	10:1 or Less	0.3:1 or Less
*PEDESTRIAN WAYS AND BICYCLE LANES	2.5	4:1 or Less	10:1 or Less	0.3:1 or Less
TOLL PLAZA APPROACH AND DEPARTURE AREAS	2.0	4:1 or Less	10:1 or Less	0.3:1 or Less

Note: These average illumination values should be considered standard, but should be increased if necessary to maintain an acceptable uniformity ratio. The maximum illumination level average initial horizontal foot-candle value shall be 2.25 FC for Interstate, Expressway, Freeway, Major Arterials, Highway Speed Tolling Gantries and Toll Plaza Approach and Departure Areas. The maximum illumination level average initial horizontal foot-candle values shall be one and one-half values for All Other Roadways, Pedestrian Ways, and Bicycle Lanes.

* This assumes a separate facility. Facilities adjacent to a vehicular roadway should use the levels for that roadway.

Table 7.3.2 Highmast Lighting – Roadways

ROADWAY CLASSIFICATIONS	ILLUMINATION LEVEL AVERAGE INITIAL (H.F.C)	UNIFORMITY RATIOS	
		AVG/MIN	MAX/MIN
INTERSTATE, EXPRESSWAY, FREEWAY, MAJOR ARTERIALS & HIGHWAY SPEED TOLLING GANTRIES	1.0	3:1 or Less	10:1 or Less
ALL OTHER ROADWAYS	1.0	3:1 or Less	10:1 or Less
TOLL PLAZA APPROACH AND DEPARTURE AREAS	2.0	3:1 or Less	10:1 or Less

Note: These average illumination values should be considered standard, but should be increased if necessary to maintain an acceptable uniformity ratio. The maximum illumination level average initial horizontal foot-candle values shall be one and one-half values for Interstate, Expressway, Freeway, Major Arterials, Highway Speed Tolling Gantries, and All Other Roadways. The maximum illumination level average initial horizontal foot-candle value shall be 2.25 for Toll Plaza Approach and Departure Areas.

Table 7.3.3 Sign Lighting

AMBIENT LUMINANCE*	ILLUMINATION LEVEL AVERAGE INITIAL (H.F.C)	UNIFORMITY RATIOS
		MAX/MIN
LOW	5.0 to 10.0	6:1
MEDIUM	10.0 to 20.0	6:1
HIGH	20.0 to 40.0	6:1

* Ambient luminance classifications are defined in Section 10.3 of the AASHTO Roadway Lighting Design Guide (2005). Refer to the Traffic Plans Guide Drawings for information on sign panel sheeting used on Turnpike projects.

Table 7.3.5 Rest Area and Service Plaza Lighting

AREA ILLUMINATED	ILLUMINATION LEVEL AVERAGE INITIAL (H.F.C)	UNIFORMITY RATIOS	
		AVG/MIN	MAX/MIN
ENTRANCE AND EXIT	1.7	4:1 or Less	10:1 or Less
INTERIOR ROADWAYS	1.5	4:1 or Less	10:1 or Less
PARKING AREAS	1.5	4:1 or Less	10:1 or Less

Note: These average illumination values should be considered standard, but should be increased if necessary to maintain an acceptable uniformity ratio. The maximum illumination level average initial horizontal foot-candle values shall be one and one-half values.

7.3.1.1 Box Girder Maintenance Lighting and Power

Add this section

No welding or burning of the structure will be allowed. All fasteners shall be approved mechanical devices. The electrical work associated with the box girders involves working in confined space areas. All precautions and rules according to "confined spaces" of the Code of Federal Regulations, 29 CFR 1910.146 shall apply. Emergency lighting shall be provided within each box girder per NFPA 101.

The minimum conductor size shall be No. 10 AWG. A green insulated conductor shall be installed in each conduit run. The minimum conduit size shall be 1 inch. All interior conduits within a box girder shall be PVC Schedule 80.

The six-hour timers shall control the lighting contactors. Timers shall be provided at each hatch entrance and mid span.

The light fixtures shall be connected to separate branch circuit breakers from the receptacle branch circuit breakers.

The service voltage for the box girders shall be 240/480 volts, single-phase, three-wires and then step down to the 120/240 volts through the mini power centers. A main disconnect switch shall be provided immediately adjacent to the hatch door of each girder. The 240/480 volt-feeder shall terminate in a distribution panelboard. The distribution panelboard shall provide 480 volt power to each mini power center.

The number of mini power centers within each box girder shall be determined based on the number of lights and receptacles. The maximum number of lights and receptacles within a mini power center shall be as indicated on Structural Index NO. 21240.

7.3.1.2 Photometric Analysis

Add this section

A point-by-point, computerized photometric analysis shall be performed for all roadway areas being illuminated throughout the project. A 5 foot by 5 foot maximum point spacing shall be used for the point by point photometric analysis on the mainline, and major arterials, ramps and all other roadways. Alternatively, the photometric grid may consist of longitudinal points spaced up to 16 feet apart with two transverse points per lane at each longitudinal point spaced $\frac{1}{4}$ of the lane width from the edges of the lane. A copy of the results of this analysis shall be included in the LDAR and submitted to the Turnpike Electrical Engineer for review. The photometric analysis shall identify and evaluate each roadway classification and area of illumination, as defined by the section 7.3.1, within the project scope. The analysis shall also identify distinct area/sections of roadway within the project scope. Some of these distinct areas may include: Mainline, Ramps, and Roadway Directions. Results shall indicate foot-candle values displayed on plan view on 11' x 17' pages. Where solid objects, such as bridges, block light fixture contributions, a 3D graphic representation shall be included to ascertain that solids were accounted for.

A point-by-point, computerized photometric analysis shall be performed for all signs being illuminated throughout the project. A 1 foot by 1 foot maximum point spacing shall be used for the point by point photometric for the entire area of the sign panel. A copy of the results of this analysis shall be included in the LDAR and submitted to the Turnpike Electrical Engineer for review. Results shall indicate foot-candle values displayed on each sign panel.

A photometric analysis is required for projects where the relocation of light poles is included in the scope of work.

Provide an angle convention detail, if any tilting is required, to clearly depict fixture tilt orientation. A detail is required for each type of fixture being used (fixture on pole, sign luminaire, etc.). The detail(s) shall be provided in the LDAR and the plan sheets.

7.3.1.3 Load Center and Wiring Criteria

Add this section

The service voltage for the roadway lighting load centers shall be 240/480 volts, single-phase, three-wires.

Roadway lighting load centers shall be coordinated with utility provider prior to Phase III Plan Submittal. Utility transformers shall be sized for connected and spare loads.

FDOT Design Standard Index No. 17504 (Service Point Details) shall be coordinated with the utility provider's requirements for electrical service (or electrical service standards). The electrical service point shall be designed to and meet all utility provider's requirements.

The load center location and surrounding area shall have a minimum of 1'-0" between the load center and the designer's high water elevation.

Where a Load Center is being replaced and existing poles, equipment, etc. are being re-fed, all equipment and identification labels shall be replaced to include the new load center designation and circuit.

The voltage for the roadway luminaires shall be 480 volts, single-phase, two-wires.

Roadway lighting circuit conductors shall not be larger than #1 AWG. Circuits requiring conductors larger than #1 AWG shall be coordinated with the Turnpike Electrical Engineer and Turnpike Maintenance.

Where existing conductors within a circuit are being replaced, the size of the new conductors shall not be smaller than the existing conductors.

For light pole to light pole power runs, two different circuits shall be ran where reasonable; alternating the circuits between each luminaire in the run.

The maximum distance between pull boxes in long conduit runs shall be 300 feet.

For multiple (more than 3) branch circuits, provide two conduits from the load center to a pull box adjacent to the load center and split the branch circuit conductors into each conduit such that not all circuits are installed in one conduit.

The pull box required at each sign structure for sign lighting power (FDOT Design Standard Index No. 17505, shall be installed adjacent to the sign structure. Per the FDOT Design Standard Index No. 17505, a dedicated pull box and ground rod are required for sign structure lighting protection.

7.3.2 Pole Design Criteria

7.3.2.1 General

Add the following paragraphs

It is desirable not to locate any light poles on highway bridges. Spacing shall be adjusted, if possible, to keep light poles off bridge structures including the approach slabs. If light poles are required on bridges, their location shall be closely coordinated with the Bridge Structural Designer. Bridge-mounted poles shall be provided with vibration dampers inside the pole and with vibration pads at the base (this requirement applies for all bridges and fly-over ramps even if they are not over open bodies of water or on causeway sections). Bridge-mounted poles shall have pull box as specified in FDOT Standard Index No. 21210.

Nominal mounting heights for conventional poles shall be 40 and 50 feet as specified in FDOT Standard Index No. 17515. Nominal mounting heights for highmast poles shall be between 80 and 120 feet as specified in FDOT Standard Index No. 17502. In cases where lower or higher mounting heights are required to meet minimum lighting design criteria, the designer shall contact the Turnpike Electrical Engineer for approval and coordination. Technical special provisions and details shall be provided in those cases where special designs are required. Technical special provisions shall be signed and sealed by a Professional Engineer, licensed in the State of Florida. Vibration dampers and pads shall be provided for all shoulder-mounted poles with pole-top mounted luminaires having mounting heights over 40 feet. All conventional light poles shall be provided with breakaway transformer-type bases except when mounted on bridge traffic railing barriers or on barrier walls. Conventional light poles in parking lots shall not be provided with frangible bases.

Conventional light poles shall be aluminum and shall not be painted. High mast light poles shall be galvanized steel only.

7.3.3 Foundations Criteria

Add the following paragraphs

Screw type foundations may be used only when they are needed due to the complexity and location of underground utilities and only under the approval of the Turnpike Structural Engineer. The Roadway Lighting Design Documentation shall include the proper Technical Special Provisions since the Standard Specifications may not apply.

A concrete slab is not required in those instances when the poles are located behind sidewalks. The pull box shall be located flush with the sidewalk in front of the light pole, and is paid for as "roadside".

A combination pole and pull box concrete slab is not required where the grade is 1:2 or greater and protected by guardrail.

All foundations shall be coordinated with current and future grading to ensure that no foundations are below grade. In addition, foundations shall not be located in ditch bottoms or other locations where water and debris may accumulate.

All light pole steel base plates shall be 2" above grade.

7.3.5 Lighting Project Coordination

Add the following paragraphs

Per PPM, Vol. 1, 2.10.4 and PPM, Vol. 1, 13.5.1, all projects shall be reviewed to determine if notification and/or permitting is required to the Federal Aviation Administration (FAA), Florida Department of Transportation (FDOT), and any local jurisdictions.

The Turnpike Project Manager and Turnpike Electrical Engineer shall be provided copies of all notifications and permits for review. If none are required, written notification shall be given to that effect.

The airport manager of any possibly affected airport and/or heliport shall be contacted and provided project scope, drawings, etc. and be met with to fully coordinate the airspace aspects of the project.

Turnpike ITS and Tolls – When the locations of light poles are established, they should be checked with the ITS layout and the Toll Equipment layout for any conflicts with the light poles, the light pole pull boxes, and the roadway lighting circuits.

7.3.6 Voltage Drop Criteria

Replace with the following paragraph

When determining conductor sizes for lighting branch circuits, the maximum allowable voltage drop shall be 6 percent. It shall include a combination of both feeder and branch circuit runs from the power company service point to the last luminaire within a circuit.

7.3.6.1 Pole Cable Distribution System

Add this section

The pole cable distribution system shall be installed in the pull box adjacent to each light pole. A pole cable distribution system that is installed inside the pole base may only be used when specific project conditions deem its installation inside the pull box impractical, and only after obtaining the approval of the Turnpike Electrical Engineer. All components of the pole cable distribution system shall be listed by a Nationally Recognized Testing Laboratory

7.3.9 Mainline Toll Plaza

Add this section

Power for the mainline toll plaza approach roadway lighting shall come from the mainline plaza lighting panel and be backed up by the standby generator. This circuit(s) shall include a minimum of 6 conventional luminaires on each side of the plaza for each roadway direction and the conventional light poles on the express lanes. The roadway contractor shall terminate the branch circuit wiring in a pull box for extension into the lighting panel. The light poles are to be symmetrically placed. Conventional lighting shall be used for the mainline toll plaza approach and departure areas.

Lighting branch circuit conduits interconnecting light poles through the mainline toll plaza building shall be installed in such a manner as to avoid the tunnel located at the toll plaza centerline and to avoid the plaza concrete apron. The roadway lighting plans shall show the proper lighting branch circuit conduits and the associated mainline roadway conduit crossings and pull boxes on either side of the toll plaza Administration Building. The

wiring of the luminaires to be fed from the plaza generator shall be terminated in a pull box near the mainline toll plaza Administration Building by the roadway contractor for completion of roadway lighting wiring to the plaza lighting panel by the toll plaza contractor. Close coordination between the Toll Plaza Designer and the Roadway Designer is necessary. Separate conduits, wiring and pull boxes are required for those luminaires fed from the plaza generator.

A note shall be provided in the roadway lighting plans for the roadway contractor to provide the necessary equipment to test the luminaires fed from the plaza generator.

If the limits of the roadway contract fall within the limits of the toll plaza roadway lighting, adjacent section Designers shall coordinate new limits for the lighting portion of the contracts.

7.4 Traffic Signals

7.4.1 Design Criteria

Add the following paragraph

The Designer shall make every reasonable effort to incorporate the design preferences of the local maintaining agency. These preferences may include but are not limited to pole types, detector loop strategies, conduit routing, specific equipment, signal timing methods, etc. It is the responsibility of the design consultant to meet with the maintaining agency to ascertain their preferences and obtain all other pertinent information. The findings of the design consultant shall be reported to the Turnpike's project manager before proceeding with design.

7.4.1.1 Lane Use Control Signals

Add the following section

The Designer should include Lane Use Control Signals as part of any Toll Plaza Canopy revision or design. These signals shall display either a red "X" or a green "downward arrow" as specified in the MUTCD. The type of signal display should be a Lighting Emitting Diode (LED) or an approved equal. Sizes of these displays will vary depending upon the lanes that they are placed above. Coordination should be done prior to design with the Turnpike Project Manager to ensure proper size and placement.

7.4.2 Certification and Specialty Items

Replace the last paragraph with the following

The design of traffic signals compatible with local signal systems may require the use of materials for which there are no Department approved Standard Specifications or Supplemental Specifications. In those cases, the design consultant will be required to develop project specific Technical Special Provisions (TSPs) for inclusion in the contract document. The design consultant is encouraged to get samples of similar TSPs from the local and maintaining agency. The Turnpike Traffic Operations and plans review staff are

available to assist or guide this endeavor. All traffic control products for signals shall be on the Qualified Products List (QPL) as maintained by the FDOT Specification Department.

7.4.13 Traffic Signal Project Coordination

Add the following as paragraphs 7, 8 & 9

In general, the Turnpike will actively work with the local and local maintaining agencies for coordination of design and maintenance issues.

Signal Systems - At the request of the local or the local maintaining agency any signals designed by the Turnpike will include features and equipment typically used for their signals and signal systems. This will include time base, closed loop, UTCS or other technologies. The communications medium shall match that already in place.

Legal Authorization and Maintenance Agreements - The Turnpike must secure legal authorization and execute a maintenance agreement with the local maintaining agency. This will be accomplished through the assistance of the local Traffic Engineer. It is in the Turnpike's interest to make an effort to cooperate with the local and maintaining agency to expedite this process.

7.5 Intelligent Transportation System (ITS) Components

Add as last paragraph of 7.5.8.2

When prestressed concrete poles are specified for ITS Poles, the Design Consultant should provide design and details based on the proposed attachments. Symmetrically placed prestressing should be considered where applicable.

7.7 Electrical Analysis

Add the following section

The following electrical analysis shall be performed for new projects and any major modifications or renovations. These analyses shall be submitted with a plan sheet showing electrical service point location and major distribution equipment, power distribution riser diagram, conductor ampacities, circuit interrupting devices, location and characteristics of surge protective devices, etc. These analyses shall be prepared, signed and sealed by a Professional Engineer with a license in the State of Florida. The Professional Engineer shall be competent in electrical engineering through training and/or experience.

7.7.1 Voltage Drop

Voltage drop calculations shall be submitted for any circuits, feeders, services, etc. Voltage drop shall be limited to the percentages shown in the TPPPH and/or TPPPH Guide Drawings. If no criteria exist within the TPPPH and/or TPPPH Guide Drawings, the standards set forth in the FDOT PPM, FDOT Design Standards, and FDOT Standard Specifications for Road and Bridge Construction shall be used. If no Turnpike or FDOT

criteria exist, the consultant shall use the guidelines set forth in the National Electric Code (NEC).

7.7.2 Load Analysis

A complete load analysis shall be submitted. This analysis shall include, but is not limited to: calculation of individual circuits, major distribution equipment, and service points. All calculations shall verify all interrupting ratings and conductor sizing.

For any major modifications or renovations, calculations shall consist of providing the existing load (prior to modification), the load being removed, the load being added, and new total load. All existing loads shall be field verified by metering or calculated based on existing conditions.

New service points and major distribution equipment shall be provided with a minimum of 20-percent spare capacity.

7.7.3 Arc Flash Hazard Analysis

Provide an Arc Flash Hazard Analysis for new electrical distribution equipment (panelboards, transformers, load centers, disconnects, etc.), per the latest version of the Standard for Electrical Safety in the Workplace, NFPA 70E. An arc flash hazard analysis shall determine the Arc Flash Protection Boundary and the personal protective equipment that people within the Arc Flash Boundary shall use. The arc flash hazard analysis shall be updated when a major modification or renovation takes place. Field install Arc Flash and Shock Warning labels on each piece of new electrical distribution equipment. The labels will indicate the flash hazard boundary, the flash hazard at 18 inches, the PPE level requirements, and the approach restrictions.

7.7.4 Short Circuit Analysis and Device Coordination

A short circuit analysis shall determine maximum fault current on each piece of new electrical distribution equipment and proper fault current interrupting capacity. Provide documentation from the utility provider on the maximum available fault current at the utility transformer. This value shall be used in the short circuit analysis. The short circuit analysis shall be updated when a major modification or renovation takes place.

Electrical distribution equipment shall be designed as fully rated and selectively coordinated systems. The protective features of the electrical distribution system shall automatically and selectively isolate a faulted or overloaded circuit from the remainder of the electrical system. Only the closest protective device to the fault shall operate to isolate the fault without affecting other parts of the system.

Chapter 8

Pedestrian and Bicycle Facilities

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

8.7 Bridges, Overpasses and Underpasses

8.7.1 Design Criteria

6. Fencing/Railing

Replace b with the following

- b. Provide full screening in conformance with Standard Index drawings on pedestrian bridges and on vehicular bridges with pedestrian facilities crossing Turnpike right of way in order to reduce the likelihood of objects being dropped or thrown onto the roadway below. See **Figure 8.1** for example of full screening.

Chapter 9

Landscaping

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

9.1 General

Add the following paragraph

All Landscape Plans will include, at a minimum, the following General Notes and/or Specifications:

1. Construction documents shall include a provision that the Contractor shall restore all landscaped areas to roadway plan grading specification and cross section.
2. Landscaping shall be located such that drainage ditches and swales are not blocked or flows impeded. Landscaping location shall also consider maintenance access along/across ditches and around storm water management facilities. Maintenance access should be provided at the top of the slope and bottom of the slope so that maintenance forces may gain access to side slopes.
3. All planting details for beds on 2:1 (1:2) slopes shall include the use of weed control and permanent erosion control fabrics, anchored or toed so that stormwater cannot run underneath the mat.

Add as item 15 in paragraph 6

15. Grades and Standards for Nursery Plants, 2nd Edition, Florida Department of Agriculture and Consumer Services, Division of Plant Industry.

9.2 Maintenance Plan

Add the following

9.2.1 Maintenance Plan through Warranty Period

A maintenance plan through the warranty period for all proposed landscape improvements must be included in the landscape plans. Maintenance of all plants begins immediately after each planting and continues through the plant establishment period. The maintenance plan should be project specific to the plant materials utilized in the design. The maintenance plan will establish the minimum requirements to assure the specified minimum grade of Florida No. 1 throughout the durations of the project construction period and establishment period. The established minimum requirement does not alleviate the Contractor's responsibility to ensure that the plants are maintained so they are healthy, vigorous, and undamaged throughout the construction and

establishment period. A Registered Landscape Architect will be acting as the Contractor's Landscape Quality Control representative and will oversee the establishment period. The maintenance plan for the establishment period shall define the limits of the maintenance activities that will be performed. The maintenance plan must also include a schedule of activities, frequency of activities, and performance requirements necessary to maintain and manage the following:

1. Watering
2. Mowing
3. Litter removal
4. Edging
5. Chemical applications
6. Water Saucers, stakes and guys
7. Fertilization
8. Mulch
9. Pruning of trees, shrubs and ornamental grasses
10. Reporting
11. Quality Control
12. Correction of deficiencies

9.2.2 Maintenance Plan after Warranty Period

A performance based maintenance plan after the warranty period for all proposed landscape improvements must accompany the landscape plans. This may be done on separate plan sheets or written documents. This maintenance plan will not be part of the construction documents and does not affect the contractor's responsibility for plant establishment during the warranty period. The maintenance plan after the plants are established is intended to make sure that the landscape architect and the agency responsible for maintenance understand what resources and practices will be necessary to maintain the landscape in a safe and vigorous condition that meets the project objectives many years after construction is completed. The intent of the design elements, such as to screen a view, maintain a clear sight distance, or assist with the water retention, must be included in a description of the project, accompanied by a written or graphic guide describing the performance requirements of the maintaining agency. The maintenance plan shall define the limits of the maintenance activities that will be performed. The maintenance plan must also include performance requirements necessary to maintain and manage the following:

1. Sight distances
2. Horizontal and vertical clearance
3. Accessibility
4. Plant health, form, height and spread
5. Turf (mowing)
6. Mulch thickness and cover
7. Edges
8. Weeds and litter
9. Irrigation system(s)

10. Erosion control
11. Irrigation
12. Hardscape, lighting, benches, and site amenities
13. Other requirements necessary for the design intent to be fulfilled

When necessary, the maintenance plan must include a temporary traffic control plan.

When the landscaping project is to be maintained by the Department, a maintenance plan cost estimate based on anticipated maintenance activities must be attached to the plans.

When the landscaping project is to be maintained by a local governmental entity, the maintenance plan will become an exhibit to the maintenance agreement. The local government should participate during development of the maintenance plan.

For Landscape Plan contents refer to **Chapter 26 of Volume 2**.

Chapter 10

Transportation Management Plan

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM) - for use on Turnpike projects only:

10.2 References

Add the following as #7

7. FDOT, Drainage Manual

10.3.1.1 Temporary Traffic Control Plans (TTC) *Add the following to item 4*

“Temporary drainage concepts and maintenance of drainage concepts.”

Add the following paragraphs

Several issues associated with milling and resurfacing requires the designer to develop project specific notes for the plans. Generally these notes are part of the TCP.

It is the Turnpike’s policy that traffic **shall not** be allowed on any milled surfaces and all milled surfaces **shall** be paved within the same work period. It is also the Turnpike’s policy **not** to allow ponding conditions during the milling and resurfacing. The Traffic Control Plan may require alternate stages/notes within a milling and resurfacing phase to meet this requirement.

The plan may require the contractor to alternate stages or pave multiple lifts during the same work period to comply with ponding avoidance and drop off restrictions.

It is the designer’s responsibility to evaluate his/her plans and to incorporate notes or phasing such that the contractor clearly understands the conditions associated with milling and resurfacing in order to adhere to the Turnpike’s policy.

10.3.1.1.1 TTC Plan Development *Add the following as # 10 to end of Step # 2*

10. Maintain drainage conveyance and spread.

Add the following as # 4 to the end of Step #5

4. Identify which areas do not meet drainage conveyance and spread objectives.

Add the following as # 13 to end of Step # 6

13. Detail temporary drainage and maintenance of offsite drainage plans.

10.4 Coordination

Add the following paragraph

Refer to TPPPH Volume 1, section 16.2.6.1, for specific coordination and preliminary traffic control plan requirements.

10.7 Signs

Add the following as paragraph 2

The Designer shall prepare details for nonstandard TTC signs that do not have a standard MUTCD or FTP number. Provide the details on guide sign worksheets in the plans.

10.7.3 Project Information Sign & Work Zone Signs

Add the following paragraph

Project Information Signs and Toll Dollars At Work Signs are required for all projects with more than 90 days of contract time. Placement of the Project Information Sign and Toll Dollars At Work Sign should be in advance of the first advance warning sign or as close to the beginning of the project as practice on each mainline approach. Ensure proper sign spacing criteria is maintained as described in section 7.2.1. The Project Information Sign should precede the Toll Dollars At Work Sign. See Index 600 and the Guide Drawings for sign layout details.

10.10 Pavement Markings

Add the following paragraph

All proposed, temporary, or pavement markings to be removed shall be detailed completely in the plans for a proper layout. This includes either dimensions to physical features or stations and offsets.

10.10.1 Removing Pavement Markings

Add the following paragraphs

The PPM and the Design Standards present positive options to control conflicting and misleading pavement scars created from water blasting as well as multiple pavement markings associated with multiple phase contracts.

The Turnpike is advising all consultants that overlays or milling with overlays will be the only acceptable method(s) to achieve a positive means for the obliteration of existing pavement markings in areas such as long term crossovers, diversions and in some cases tangent sections that provide a rough riding pavement.

High pressure water blasting is the only acceptable method for the removal of conflicting pavement markings in those areas not mentioned above. When removing pavement messages via water blasting, the entire area within the pavement message, including the interior of the message that is not painted or have thermoplastic, shall be water blasted so that the message

outline is completely obliterated and drivers are not able to read or see the scar outlining the former message.

10.12 Temporary Traffic Control Plan Details

Add item 11

11. Temporary pavement and drainage maintenance details.

10.12.5 Superelevation

Add the following as paragraph 2 after table

The transition from existing to temporary pavements is a critical area. These areas are prone to flooding since all of the permanent construction features do not exist. These incomplete features include final pavement elevations and drainage facilities. Frequently, these temporary pavement transitions are superelevated with almost flat profiles. Elevations and grades with all superelevation data are required to be shown to ensure the intended design is constructed.

10.12.6 Lane & Shoulder Widths

Add the following as paragraph 2

Excluding issues to accommodate spread, shoulder widths associated with the travel lanes shall be designed to achieve a minimum of 2ft. in width (paved). Any deviation from the 2 ft. shall be justified to and approved by FTE staff.

Milling and resurfacing of Turnpike's mainline and maintained facilities (SR 417, Veterans Expressway, Sawgrass Expressway, etc.) should utilize a minimum offset of 4 feet from Turnpike Traffic and the milling operation or the resurfacing operation. Where a 4 foot shoulder (buffer) cannot be maintained, an acceptable buffer space must be justified to and approved by FTE staff.

10.12.6.1 Emergency Pull Off Area

Add the following section

All capacity improvement (widening, reconstruction, etc.) or interchange projects that are greater than one mile in length along the mainline, and reduce the outside mainline shoulder width less than 8 feet wide, shall include provisions for an emergency pull off area. The emergency pull off area shall be located to the right of the outside travel lane for use by patrons and emergency management personnel. The emergency pull off area shall be a minimum of 12 feet wide and 500 feet long located every 1/2 to 1 mile and no closer than 1/2 mile from an interchange. The emergency pull off area should maintain the adjacent lane or paved shoulder cross slope and be paved with chevron pavement markings at 60 foot spacing. The emergency pull off area should not be designated as an ingress/egress location for the contractor.

10.12.7 Lane Closure Analysis

Add the following after paragraph 6

The Turnpike System is a major intrastate facility that is vital in the case of evacuations due to weather and other disasters. The Turnpike also serves as a diversion route for various Interstates, including I-95 and I-4. It is essential that the Turnpike be able to reopen its facilities to all lanes even within construction zones. The development of a traffic control plan shall not include prolonged lane reductions. The staging of a particular construction project shall permit the roadway to be restored to its original number of lanes within 24 hours. If necessary the use of temporary bridges shall be included in the traffic control plans to avoid prolonged lane closures due to work on the bridge.

Turnpike lane closure traffic data shall be obtained from Turnpike Traffic and Planning Departments including a growth rate factor and peak seasonal factor for all production design projects. See Florida's Turnpike Lane Closure Policy for additional information and guidance for non production projects (Permit and Maintenance). The design consultant will be responsible for developing analysis for both the begin construction year and the end construction year for projects twenty four months and longer. Lane closure analyses are to be submitted for review in electronic format and include traffic data as attachment for reference. If a detour is proposed for the project the lane closure analysis should also include a traffic analysis of the affected ramps for the proposed detour route. Once reviewed and approval is provided, a signed and sealed Lane Closure Analysis will be requested by Project Manager for filing in the project folder.

The use of **daytime lane closures** cannot be incorporated into the design plans without an official request by the designer and approval by the Turnpike as outlined in Florida's Turnpike Lane Closure Policy. Even though the lane closure analysis may support a daytime closure, approval must be obtained.

Daytime closures will be considered/allowed if the EOR for the design makes a recommendation to the Project Manager that a closure is more beneficial to the Turnpike, its customers and adjacent property owners. For example, driving guardrail posts at night adjacent to homes is not as desirable as daytime closures which would support the work during the day and minimize the noise pollution and complaints from the adjacent property owners.

In addition to daytime lane closures, Florida's Turnpike prohibits lane closures from sunup Friday until sundown Sunday (weekend). Weekend lane closures will also be considered/allowed if the EOR for the design makes a recommendation to the Project Manager that a closure is more beneficial to the Turnpike, its customers and adjacent property owners. A weekend lane closure request shall follow the same process as a daytime lane closure request.

The day time lane closure process starts with the Project Manager and the EOR for the design. The EOR for the design will be required to provide all supporting documentation including, but not limited to, lane closure analysis and the specific reasons why the request is being made to the Project Manager. On certain projects, daytime lane closures may not be applicable throughout the entire project. This aspect has to be considered by the EOR for the design when making his

recommendation. The EOR for the design shall evaluate adjacent projects for their closure hours and provide that information along with their analysis and recommendation.

10.12.7.1 Exit Ramp Lane Closure

Add the following section

Work in the vicinity of an exit ramp shall follow the latest MUTCD requirements with the following modification;

Minimum Ramp Opening of 200’.

10.12.8.1 Traffic Pacing

Add the following Section

Index 655 also includes a design table applicable to most work times of 20 minutes or less. The table is based on a pacing speed of 20 mph. Slower pacing speeds are not recommended but can be selected by the designer when necessary to shorten the pacing distance. See section IV Traffic Pacing of the Florida’s Turnpike Enterprise Lane Closure Policy for additional guidelines on Traffic Pacing.

Site specific conditions will dictate whether a pacing operation can be implemented; therefore, it is necessary that the designer coordinate with Florida’s Turnpike Enterprise at the time the Traffic Control Plan is being developed. The type of work will determine the construction equipment and required staging areas the contractor will need, particularly for placing bridge beams. Review of these issues with Florida’s Turnpike Enterprise will determine if lane closures will need to be used along with the pacing operation, or if the traffic will have to be detoured instead of paced. If it is determined that a pacing operation will be used, the designer should obtain concurrence from the Captain of the Florida Highway Patrol troop (Troop K) who will assist in the operation.

Exhibit 10-B and 10-C will not be applicable. See Florida’s Turnpike Enterprise Lane Closure Policy for allowable hours of Traffic Pacing.

10.12.12 Narrow Bridges and Roadways

Add the following paragraph

In the development of the detailed traffic control plan, any existing guardrail and barrier wall end treatments shall be compared with standards to ensure the current standards are met. If the traffic control plan impacts these end treatments, then protective device upgrades will be necessary.

10.12.18 Temporary Drainage

Add this new section

The Designer is responsible for designing the temporary drainage facilities necessary during construction. This would include pipe sizes, lengths, inlets and their related quantities.

The presence of temporary barrier walls in construction zones can be both a positive and negative for temporary drainage. The barrier wall can trap water on its uphill side resulting in a flooded roadway or the barrier wall can prevent water from crossing the roadway. The Designer shall note in the plans if temporary barrier walls with drainage slots will be used to address these conditions.

10.12.19 Friction Course on Temporary Pavement

Add this new section

New structural asphalt has similar friction factors as friction course. The use of friction course asphalt on temporary pavement during construction will be used on a case by case basis and consider the duration of the construction phase, drainage, cross slope, operating speed and horizontal curvature.

10.12.20 Temporary Barrier Wall Tape

Add this new section

During the development of traffic control plans on major projects it is not unusual for traffic phasing to require the implementation of traffic crossovers / transitions. Typically, the design requires the installation of concrete barrier wall on both sides of the travel way including minimum shoulder width through the transitions. Transitions of this type require the designer to evaluate a multiple of measures and provide as much delineation through the transition area as possible. These measures are extremely important to guide the driver during low light and or adverse weather conditions.

One such temporary measure is the application of yellow tape to the face of the barrier wall. The purpose of the tape is to high light the face of the wall through the transition areas. The **yellow tape** is applied as a warning device on the upper reaches of the barrier (either side of the travel way), warning the drivers they are in a transition or lane shift area and to assist in guiding the drivers. The tape is not to be placed near the bottom of the wall indicating the tape serves as a substitute for line striping. It is the designer's responsibility to evaluate the need for temporary tape on temporary concrete barrier wall at transition locations within their TCP and include the appropriate notes, pay items, call outs and details in the plans.

For temporary barrier wall tape guide, refer to Turnpike Design website, under TPPPH manual, Roadway guide drawings:

http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html

10.12.21 Reflective Pavement Markers

Add this new section

Reflective Pavement Markers (RPM) used to delineate traffic control lane lines shall be installed in conjunction with lane stripes. The use of RMP's independent of pavement stripes must be approved by the Turnpike Design Engineer.

10.12.22 Standard MOT General Notes

Add this section

See Roadway Guide Drawings for standard MOT General Notes that shall be shown on traffic control plans as applicable. Roadway Guide Drawings are at the following link on the Turnpike Design Website:

http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html

10.13.1 Regulatory Speeds in Work Zones

Add the following as paragraph 12

All transitions and tapers for work zones shall be based upon the preconstruction speed limits. For any locations incorporating speed reductions, speed limit signs shall be installed departing the work zone to "restore" the speed limit to its preconstruction limit. During non-construction periods the speed limits shall be restored to preconstruction limits.

10.14.2 Use of Traffic Control Officer

Add the following

The designer needs to coordinate the use of additional Traffic Control Officers with FTE Construction at the preliminary TCP submittal, or at a minimum, prior to the Phase II submittal. This should be an item of discussion at the 45% Traffic Control Meeting.

The locations and/or need for additional traffic control, must be outside of the four conditions called out in the Specification 102-7 and shall be brought to the Turnpike's attention by memo identifying the additional locations and the corresponding considerations of a safety issue to the motorist and workers.

A matrix indicating the estimated hours for traffic control should be developed and provided to FTE Construction during coordination of law enforcement personnel. Coordination with FTE Construction should include discussion on placement of the matrix within the plans and/or the Computation Book.

FHP TRAFFIC CONTROL OFFICER ESTIMATE				
Direction/Phase	Number Work Periods	Hours/Work Period	No. Troopers Required	Total FHP Hours
NB Phase I	2	8	1	16
NB Phase II	2	8	1	16
SB Phase I	2	8	1	16
SB Phase II	2	8	1	16
Total FHP				64

This matrix is an example and shall be modified as required for each project.

Upon concurrence with the designer's recommendation for the use of additional traffic control officers on the project, the following notes should be provided in the plans: :

Note 1. FHP Troop K is the official law enforcement troop for the Florida's Turnpike Enterprise. FHP shall serve as the point of contact and scheduling for **all** law enforcement needs on the Turnpike System. The contractor shall make provisions for a law enforcement officer for traffic control at the specific locations called out in the plans, by contacting the regional district (*The designer is required to insert the appropriate District and remove all other references*).

The District Contacts are as follows:

- All Turnpike roads in Palm Beach, Martin, St. Lucie, Okeechobee and Indian River Counties: 561-683-4646.
- All Turnpike roads in Broward and Miami-Dade Counties: 305-252-4433.
- All Turnpike roads in Osceola, Orange, Lake, Sumter, Seminole, Hillsborough, Polk and Hernando Counties: 407- 532-6797.

Note 2. Make provisions for a law enforcement officer (FHP Troop K) for all lane closures and/or as directed by the Engineer. All costs are included in 102-14. If the Contractor elects to use officers for any other activity, include the cost in lump sum MOT, pay item 102-1.

10.15 Motorist Awareness System

Add the following section

All lane closures on an FTE mainline facility require the use of Index 670 – Motorist Awareness System.

Chapter 11

Stormwater Pollution Prevention Plan

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 12

Right of Way

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

12.1 General

Add the following definition to the end of section

Non-monetary Benefit is when an attorney represents a property owner, and the attorney secures a benefit for his client such as improved access, drainage or a re-design. When this benefit can be quantified in dollars, the attorney may add the value of this benefit to the acquisition price of the property when determining his statutory fee, which is based on the benefit achieved.

12.2.3 Access Management

Add at end of paragraph 1

Access management criteria often affect the access to property after construction. These criteria should be discussed during the field review to lessen potential impacts. These issues can result in a non-monetary benefit for the property owner's attorney if they are not resolved during negotiations.

12.4 Property Owner Contacts

Add the following section

All property owners should be contacted and given notice prior to entering their property for any reason. In many cases the design consultant's survey crew makes the first contact with an owner. The Department has received complaints from owners where survey crews were on the property unbeknownst to the owner. In some cases, school age children were home alone; in others, the crews were disturbing livestock or cutting trees. When contacted, the company's response has been "we have the legal right to be there". While true, the Turnpike expects a more diplomatic and sensitive approach. A bad experience on the part of the property owner early in the process can sour the whole acquisition process.

Property owners often contact project managers by phone or at public hearings. There is a tendency to try to accommodate the needs of an owner, which can lead the property owner to believe they have a commitment from the Department. This is especially true with the initial design, access, and drainage. The Engineer/Surveyor should avoid conjecture and speculating on possible changes to avoid misunderstanding. The Turnpike Right of Way Office will be the point of contact with the property owner to discuss right of way impacts to the property. The Turnpike Right of Way Office and Turnpike Project Manager should receive copies of any responses sent to property owners.

Throughout the life of a project, the project manager should refer any contact by the property owner to the right of way project manager. Concessions made to a property owner may result in a non-monetary benefit to the owner's attorney. Right of way should be included in all discussions when a design change affects the land required or access to adjoining property.

12.5 Construction Issues

Add the following section

Fencing and encroachments are two issues that are repeated concerns upon letting a project to construction. The Department routinely pays for fencing in the right of way and for replacement fencing as a “cost to cure.” However, the property owner does not have to implement a “cost to cure” and therefore the contractor often finds a fence in place during clearing and grubbing. Construction may be concerned that if they take the fence down they will incur some liability for damages, like cattle roaming free or trespassing.

Right of Way routinely notifies the property owner in writing that a fence will be removed by construction and that the owner is responsible for replacing the fence. Often though, the owner's inaction requires the Department's legal staff to contact the owner's attorney to get the new fence erected. Providing for temporary fencing in the construction contract can help avoid any delays caused by fencing.

Other encroachments such as mailboxes and signs are found from time to time and the Property Management Office in Right of Way is charged with facilitating their removal.

Chapter 13

Initial Engineering Design Process

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

13.2 Initial Engineering Design (Phase I)

Add the following as items 12 & 13

12. Identify seasonal high water and design high water (not peak design stage) elevation and check base clearance (PPM, Chapter 2).
13. Identify applicable project drainage criteria and constraints. Determine impacts to project design and schedule.

13.5 Support Services

Add the following as items 21 through 27

21. Toll Operations
22. Environmental Permitting
23. ITS
24. Lighting/Electrical
25. Concepts
26. Architecture
27. Materials (pavement)

13.5.2.2 Projects Involving Bridges with Asbestos Containing Materials

Add the following after item 10

For Turnpike Policy and Procedures as it pertains to asbestos on bridges, please refer to Chapter 26, Section 26.9.2, Item #14.

13.6 Preliminary Geometry, Grades, and Cross Sections

Add the following sentence at the end of 3rd paragraph

Refer to TPPPH Volume 1, Section 16.2.5.1, for specific submittal and coordination requirements of the preliminary line and grade.

Chapter 14

Final Engineering Design Process

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

14.5 Pay Items and Summaries of Quantities

Last sentence revised

The Control Estimating System (CES) for Class I projects and TRANSPORT for Class 7 projects are updated as quantities are determined and summarized.

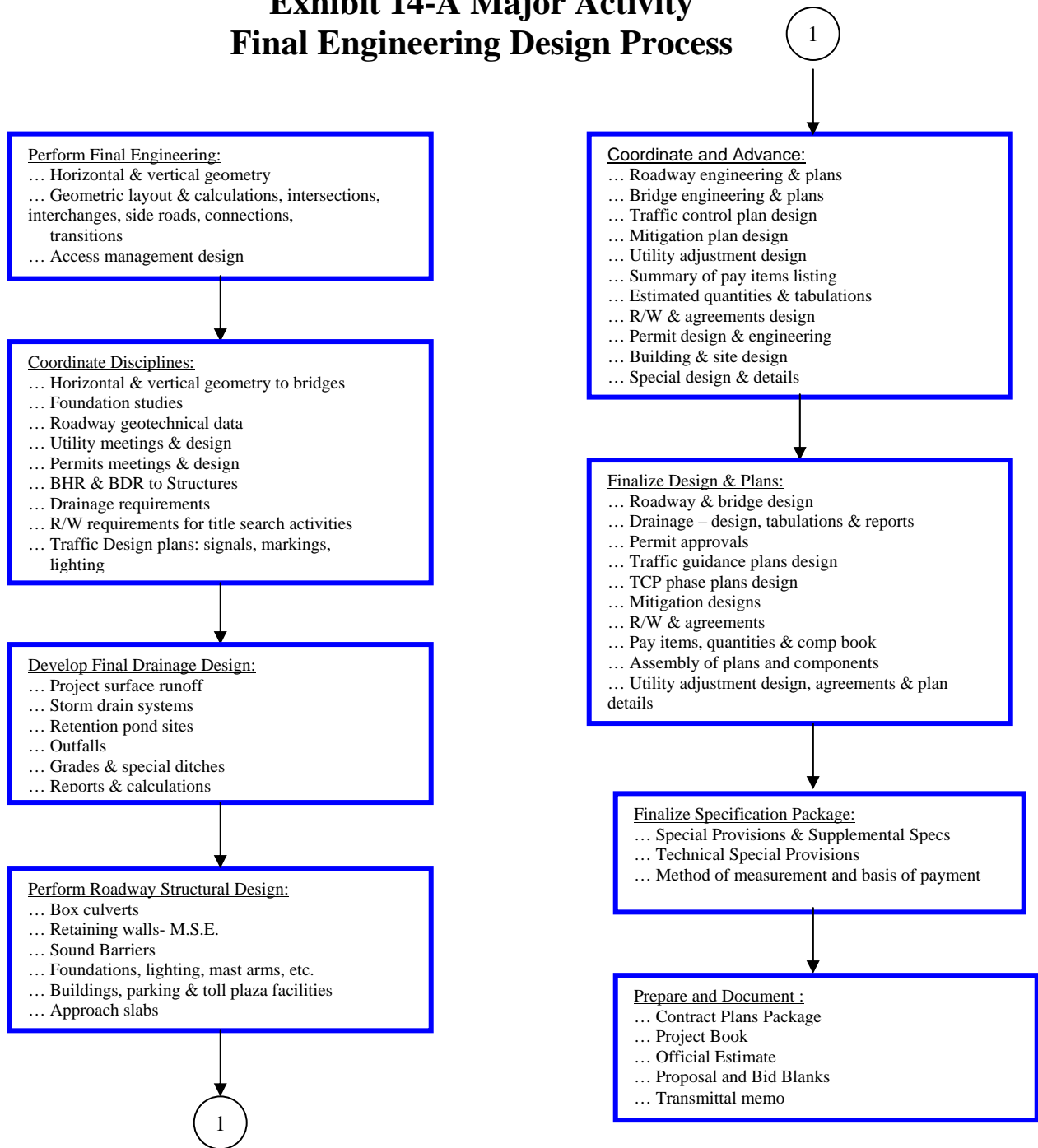
14.6 Assemble Contract Plans Package

Add the following paragraphs

All Turnpike plans packages are assembled by the Project Manager and the PS&E Coordinator. Once assembled and ready for Turnpike Contracts processing, the Turnpike Project Manager certifies the Contract Plans Package and support documents. The Contract Plans Package, with the Transmittal memo are submitted to the Plans Processing Engineer for final review, procuring the Turnpike Design Engineer's signature, and transmittal to Turnpike Contracts.

All Turnpike projects are Let at the Turnpike's Headquarters, unless otherwise agreed with Central Office.

Exhibit 14-A Major Activity Final Engineering Design Process



Chapter 15

Update Engineering Design Process

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 16

Design Submittals

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

16.2.3 Typical Section Package

Add item e. to “1. Shall be required if:”

- e. If there are realigned local roads, frontage roads, cul-de-sacs, railroads, canals, aerial transmission lines, etc. as applicable.

Add after paragraph 3

When cross roads or other facilities are maintained by another agency, they should sign and date their approval on the typical itself before Turnpike concurrence. If this is not possible, a letter will be written to the agency confirming their concurrence and requesting a concurrence signature. In that case, the design documentation will include a copy of the local agency standard to document design conformance. (The maintaining agency does not need to upgrade their typicals to meet higher FDOT or Turnpike criteria.)

Add to list for “Proposed Roadway Typical Section Drawing”

- 17. Future lane widths (types and locations).
- 18. AADT
- 19. Clear zone
- 20. Vertical and Horizontal Clearances @ crossing roads

Add to list for “Proposed Structure Typical Section Drawing”

- 13. Minimum vertical clearance

16.2.3.1 FTE Processing

Add the following section

If major changes will be made after initial construction, a separate future typical should be prepared. Future lanes on proposed crossroad typicals should be dashed and labeled "Future, By Others". Future typicals may be urban while proposed or may be rural with different design speeds. (See TPPPH Chapter 2 on future lanes and Profile Grade Lines, PGLs.)

Typical Section Package will be submitted to the Turnpike Project Manager for review through the ERC process. Upon acceptance by FTE staff, the Turnpike Roadway Engineer (TRE) will advise the Project Manager to instruct the Consultant to submit 2 signed and sealed bound

originals to the TRE who will forward the typical section package to the TDE with a recommendation of approval. After receiving concurrence by the TDE, a signed copy will be returned to the Consultant. FTE is currently developing an electronic signature process and will advise Design Consultants of the new procedures when it is implemented.

16.2.4 Preliminary Drainage Design

Add the following paragraph

Complex projects may require a preliminary 45% (Red Line) drainage submittal. The intention of this submittal is to verify the design methodology adequately documents compliance with FDOT, Turnpike, and Regulatory Stormwater Management Criteria.

16.2.5 Preliminary Geometry and Grades

Add the following section

16.2.5.1 Turnpike Preliminary Line and Grade Submittal

The Design Consultant shall submit preliminary (approximately 15%) alignment and grade sketches/computer plots depicting the proposed geometric design. The submittal shall include horizontal geometry for all mainline roadways, ramps, cross streets and side roads. As a minimum, vertical geometry shall be provided for all mainline roadways and cross streets. Vertical geometry for ramps and side roads will be provided where critical to the project. The sketches or computer plots can be in sheet or roll form and will be at a reasonable and useable scale.

Supporting calculations/computer printouts shall also be submitted. Specific elements which should be addressed in the supporting documentation include but are not limited to design speed, lane widths, shoulder widths, bridge widths, horizontal and vertical clearances, stopping sight distance, intersection sight distance, aesthetics, access management and base clearance. The various elements should be developed to a level of detail consistent with the objectives of the preliminary (15%) submittal as described below. Continued development and refinement of the geometric elements for subsequent Phase submittals is anticipated.

The primary objectives of the Preliminary (15%) Geometric Submittal are to:

- Check consistency with the intent and scope of the Project Concept Report.
- Evaluate the impacts of changes to the Project Concept, resulting from the normal design development process as well as those due to changes in scope, identification of adverse site conditions, etc.
- Verify the geometric viability of the project for the desired design speed and traffic volumes.

- Provide a basis for early coordination with other disciplines (drainage, structures, etc.) and for early identification of design constraints or problems.
- Document off-site and pavement drainage constraints; such as flood plain elevations and seasonal high water table.
- Design Criteria specific to the project
- Anticipated variations and exceptions that are associated with horizontal and vertical alignment

16.2.6 Preliminary Traffic Control Plan

Add the following section

16.2.6.1 Turnpike Preliminary Traffic Control Plan

The Turnpike is a unique facility in that there are variable site conditions and traffic volumes requiring a detailed analysis to determine the appropriate Traffic Control Plan (TCP). The Turnpike has heavy holiday and seasonal traffic flows that will impact the solution based on the time of year, location of the project to tourist destinations and other varying conditions. Traffic Control impacts to the traveling public on an FTE facility can severely limit or prohibit construction operations using lane closures. Due to these impacts, a preliminary TCP design (45%) should be submitted for review. A comment resolution meeting between the design consultant and FTE production and Construction staff should be scheduled following the review. This submittal will be required, but not limited, to the following items:

1. Traffic Pacing
2. Traffic Detours, including lengths and impacts on toll revenue
3. Traffic Crossovers

The preliminary submittal should be on Roll Plots, in electronic format, and should include, but not limited to:

1. Documentation of off-site and pavement drainage constraints
2. Critical Cross Sections at temporary traffic shifts
3. Typical Sections for each proposed phase
4. Traffic Pacing and Detour analysis as appropriate for the project

It is recommended that coordination occur with FTE Consultants for an appropriate speed to use in the pacing analysis.

16.2.7 Pavement Selection and Design

Add the following section

16.2.7.1 Turnpike Pavement Design Submittals

Pavement designs on Florida's Turnpike System shall be done to the following minimum standards, variations from these standards require concurrence by FTE roadway staff prior to submittal of the final pavement design for concurrence by the TDE.

1. All pavement designs on new construction shall be calculated using a minimum reliability (%R) of 95%.
2. All pavement designs on rehabilitation projects shall be calculated using a minimum Reliability (%R) of 99%.
3. All pavement designs shall be calculated for a 20 year design life.
4. Table 5.5 of the Flexible Pavement Design Manual shall be the required minimum thickness for new construction and resurfacing projects.
5. All travel lanes pavement shall include PG 76-22 in the top structural lift and friction course regardless of traffic level.
6. The designer shall coordinate the use of FC 12.5 or FC 9.5 with FTE Production, Construction and Material departments at any ramp crossroad terminus that shows extensive failure of the existing Friction Course. Department approval shall be obtained prior to submitting signed and sealed pavement designs.

Pavement Design Reports shall be submitted to the Turnpike Project Manager for review in electronic format through the ERC submittal process. Upon acceptance by FTE staff, submit two signed and sealed bound originals. The TRE will forward the report to the TDE for concurrence and signature. A signed copy will be returned to the consultant with second original copy to be placed in the project file. FTE is currently developing an electronic signature process and will advise Design Consultants of new procedures when it is implemented.

A sample Table of Contents for the Pavement Design Report and also the Pavement Coring and Evaluations Report are available at the following link:

http://design.floridasturnpike.com/prod_design/roadway/resourcesandchecklist.html

16.2.7. 2 Cross Slope Analysis Report

Add the following section

Existing cross-slopes shall be analyzed and a separate cross slope analysis report should be submitted concurrently with the project pavement design prior to the Phase II project submittal. The cross slope analysis report shall be submitted to the Turnpike Project Manager for review in electronic format through the ERC submittal process.

Upon acceptance by FTE staff, submit two signed and sealed bound originals. The TRE will forward to the STM for concurrence and signature. A signed copy will be returned to the consultant with second original copy to be placed in the project file. FTE is currently developing an electronic signature process and will advise Design Consultants of new procedures when it is implemented.

16.2.9. Roadway Design Documentation

Add the following section

Roadway design documentation shall be provided at Phase I, II, III and IV plans submittals. The design documentation shall include, but is not limited, to the following information as applicable:

I. Section 1

- A. Narrative
 - a. Summary of existing and proposed design

II. Section 2 – Design Documentation

- A. Location Map
- B. Roadway Design Criteria (Table Format)
- C. Horizontal and Vertical Alignments (Geopak Output)
- D. Design Calculations
 - a. Superelevation
 - b. Horizontal and Vertical Stopping Sight Distance
 - c. Vertical Clearance
 - d. Barrier – Length of Need
- E. Typical Section Package (Final Signed and Sealed)
- F. Pavement Design Report (Final Signed and Sealed)
- G. MOT
 - a. Lane Closure Analysis (Final Signed and Sealed)
 - b. Pacing Analysis
 - c. Detour Analysis
 - d. Impact to Toll Facilities
- H. Existing Roadway Conditions Assessment Report (ERCAR)
- I. Meeting Minutes/Project Correspondence (Related to Roadway Elements)
- J. Comments and Responses (Related to Roadway Elements)

EXHIBIT 16-C**12. BUILDING**

1. Availability of temporary power, water, sewer and telephone.
2. Sufficiency of conduits for future wiring, size, number, and correct location.
3. Access for construction equipment.
4. Presence of hazardous materials.
5. Time allocations for outside contractors to perform their work are adequate and shown in the plans if appropriate.
6. Provisions for microwave and radio communications.
7. Traffic Control Plan are to keep traffic outside of the footprint of the building and canopy until tolls are collectable.
8. State Fire Marshall and Department of Management review of construction documents.

Item No.	Description of Change
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Designer's
Name

Item No.	Description of Change
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Designer's
Name

Item No.	Description of Change
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Designer's
Name

EXHIBIT 16-D**Date**

William F. Sloup, P.E.
Director of Planning & Production
Florida's Turnpike Enterprise
Florida Department of Transportation
P.O. Box 613069
Ocoee, Florida 34761

Re: Certification of Plans, Specifications and Quantities
Financial Project ID: 408694-1-52-01
County: Martin
Description: Drainage and Safety Improvements at Stuart Interchange

Dear Mr. Sloup:

The undersigned John Doe, P.E. hereby certifies that the plans, specifications and estimates for the above referenced project are free from design errors or omissions, and are ready to process for contract Letting. Further:

- All work has been prepared in accordance with this project Scope of Services.
- Engineering design conforms to the current Florida Department of Transportation (FDOT) Plans Preparation Manual and Design Standards.
- All plans components are complete, accurate, and up to date.
- The Specifications Package has been prepared in accordance with FDOT Specifications Package Preparation Procedure. Included are any necessary Technical Special Provisions.
- All applicable general notes and pay item footnotes are included. All notes are clear and free of ambiguities and contradictions.
- Pay item numbers and quantities are consistent with related pay item notes. The Summary of Pay Items agrees with work called for in the plans.
- Required construction operations will not conflict with each other.

William F. Sloup, P.E.

Date

Page 2

- The project is constructible and traffic can be maintained efficiently.
- All conditions included in permits issued to the Department have been addressed.
- Public Involvement requirements have been met and are documented in the project file.

If you should have any questions, please feel free to give me a call.

Sincerely,
HOWARD, BRACKINS & ASSOCIATES, INC.

John Doe, P.E.
Principal-in-Charge

cc: Project Manager w/ attachments
Matt Lamb
Louis G. Reis

Chapter 17

Engineering Design Estimate Process

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

17.4.1 Computation Book and Summary of Quantities

Add the following paragraph

Design Consultants are required to completely fill out a table as illustrated below for 90% and 100% plan submittals showing all pay items utilized. The table shall be reviewed by the Design Consultant's Reviewer(s) and signed indicating that a thorough Quality Control review was performed. If this table form is not completely filled out with quantities from TRNS*PORT, Computation Book and Plans, then the Florida Department of Transportation reserves the right to immediately reject the submittal.

ITEM NUMBER	UNIT	TRANSPORT QUANTITY	PLANS QUANTITY	COMP BOOK QUANTITY

When calculating asphalt quantities, the thickness of the asphalt should be used rather than the spread rate. Base all bid quantities on 110 lbs/sy/in. In doing this, the following note should be added to each sheet that applies: "Spread rate used for obtaining quantities is based on the directive from Central Office to use the 110 lbs/sy/in".

The computation book shall be an electronic deliverable at Production. Provide PDF file format as part of the Production Electronic Delivery.

17.6 Alternative Contracting Practices

Add the following sentence

The Project Manager shall obtain, from the construction office, recommendations for Alternative Contracting Practices.

Chapter 18

Quality Assurance & Quality Control

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

18.4 Turnpike Quality Control and Assurance Process

Add the following Sections

18.4.1 Quality Goals and General Requirements

The Turnpike's definition of Quality is "**Conformance to Requirements**". The Turnpike's primary quality goal is that construction documents and reports be complete, orderly, correct, and appropriate for the intended purposes, so that they do not impose potential liability, or require supplemental agreements that increase construction time or cost, or require an inappropriate review effort on the part of the Turnpike. The preparation of the work shall meet or exceed normal, legally acceptable, "**Due Diligence**" ("**Due or Ordinary Care**") requirements that have been established by the following criteria, the standard of practice generally provided on Turnpike work.

The following is the general quality control and assurance process criteria that is required by each project Scope of Services, including - initiation, production, review and audit procedures.

- Designate the appropriate project staffing for each element of the work in the Project Staffing List form included at the end of this section. Also provide the required organization, planning, scheduling and project initiation. If the work produced is to comply with the quality requirements and goals, it will be imperative that the work **be prepared and checked by qualified professionals that know the Department and Project requirements**, and that they use and document the "Due or Ordinary Care" production and review quality control and assurance requirements stipulated in the Standard Project Scope of Services performance criteria. Designated Project Team personnel include - the qualified Responsible Professionals and associated project staff to produce the work, and Reviewers with professional qualifications necessary to be the Responsible Professional to review and confirm that the work is accurate and complete. Also, Reviewers shall be independent of activities that take place during design and plans production for the Project.
- Focus on the prevention of rework and production errors by the use of quality oriented Responsible Professionals and production procedures (including self and documented Responsible Professional checking) to produce high quality work. Production quality is achieved through the careful development of the work and the continuous checking, concurrence (back checking) and verification of changes on all work and documents during their preparation and review.

- Provide and document the required Coordination, Field and Biddability Reviews as provided in the Scope of Services to prevent production rework, errors and omissions.
- Support Value Engineering Studies and provide special supplemental Independent Peer, Constructibility, and/or Maintainability Reviews on designated projects.
- Provide and document, as required, the Submittal and Biddability Reviews by qualified and experienced Reviewers to confirm that the work produced is appropriate, complete, and correct. As a minimum, checking shall be required for each document before it is used for further development or before a required Phase Submittal.
- Utilize a standard check and back check procedure that meets the Standard Project Scope of Services performance criteria to document the thoroughness of the checking and review process and to provide the documentation of the agreement between two qualified (licensed if required) professionals in a given field that the work produced and reviewed conforms to all requirements, is appropriate, complete, accurate and correct. The checking process shall take place in accordance with the requirements of the Scope of Services and the established project schedule.
- Utilize Submittal Sufficiency and Quality Assurance Reviews to confirm completion and validate each submittal Certificate of Compliance.

The Standard Project Scope of Services performance criteria requires that a Standard Check and Back Checking Procedure shall be used to document all checking and reviews. Project production and review team members shall also utilize the Completion Checklists, Quality Control Tracking Stamp and Quality Process Logs, (blank copy included at the end of this Chapter), to document the production and review checking of all work. Project production and review quality control procedures are to be performed in compliance with the Scope of Services.

The Standard Project Scope of Services performance criteria requires that the review documentation, which is developed during the production and review of the work, shall be retained in the project files, according to requirements of the Scope of Services, for Quality Assurance Review and audit purposes, and to demonstrate that the Project quality control requirements have been met.

If, under some extenuating circumstance an information printout or document must be sent to the Turnpike before the required Submittal Review has been performed, this procedure is to be followed:

- The Principal or Officer-In-Charge approves the release of the documents.
- The documents are stamped "Advance Copy - For Information Only".
- The Turnpike is notified in the transmittal letter that the Submittal Review process has not been completed on the documents and that the Turnpike personnel should not review the documents until the Project Quality Control Process is complete.

The Turnpike will provide compliance and Biddability Reviews, PM Monitoring, and Quality Process Audits to complete the process.

The process required forms - Quality Control Tracking Stamp, Project Staffing List, Quality Process Log, and Certificate of Compliance are located at the end of this chapter. A Sample Project Quality Control Plan that meets the requirements of the Standard Project Scope of Services performance criteria is available through Turnpike Project Managers.

Definitions of terms utilized in the Standard Project Scope of Services performance criteria and explanations of these requirements are included in the following section.

18.4.2 Quality Control Procedure Requirements

18.4.2.1 Completion Checklists Requirements

The Standard Project Scope of Services performance criteria requires that the Design Consultant use appropriate Completion Checklists to document the thoroughness of their production and review efforts and to reduce rework on each work element. Design Consultant will include copies of their Completion Checklists as an appendix to their Project Quality Control Plan.

18.4.2.2 Quality Control Tracking Stamp Requirements

The Standard Project Scope of Services performance criteria requires that the Design Consultant use the standard Quality Control Tracking Stamp or an equivalent CADD cell, with an acceptable version of the production certification shown in the stamp below, to document and track the completion of the check and balance checking procedure on all types of checking and reviews. The stamp is applied by the Responsible Professional to the cover of a bound set of documents or to individual sheets, if unbound or uses different project personnel. The stamp is designed to track, guide, and document the quality review process and the Standard Checking Procedure described herein. The person responsible for each step of the Submittal Review procedure is required to "sign-off" and to date the document being reviewed on the Quality Control Tracking Stamp as a record that their part of the procedure has been carried out. The Responsible Professional (RP) and Reviewer (R) that produce the work and conduct the Submittal Review will be those designated in the Project Staffing List. The Project Manager must secure the Department approval of any changes of designated project staff prior to the revised staff beginning work on the project.

QUALITY CONTROL TRACKING STAMP PHASE ____ SUBMITTAL REVIEW		
Responsible Professional (RP) Reviewer (R)	Initials	Date
PRODUCTION CHECKING COMPLETE READY FOR SUBMITTAL REVIEW (RP)		
CHECKED (R) Correct (Yellow) Change (Red)		
CONCURRENCE (RP) (Red Check OK or X-Out for Disagree)		
CHANGE INCORPORATION (RP) (Yellow Highlighter)		
VERIFICATION (R) (Green Check or Circle & Remark Incorrect)		

18.4.2.3 Quality Process Log Requirements

The Standard Project Scope of Services performance criteria requires that the Design Consultant utilize the standard Quality Process Log form (see attached) to monitor, track and document the production and review process for each deliverable and support documentation. Quality Process Logs provide a record of the progress of the project and document the completion of each major phase of the submittal production and review process. In addition, the Project Team members are to utilize their Completion Checklists, as well as the Quality Control Tracking Stamp to promote the thoroughness of the checking process and to eliminate oversights and omissions.

18.4.2.4 Standard Documentation Procedure

The Standard Project Scope of Services performance criteria requires that the Design Consultant utilize the standard forms (Completion Checklists, Quality Process Logs, Quality Control Tracking Stamp, Certificate of Compliance) included in this section.

18.4.3 Definitions

Biddability Review - A review of construction contract documents, prior to bidding, which seeks to identify errors, omissions, conflicts, ambiguities, inaccuracies, and deficiencies in and among the construction documents. Biddability Reviews are made in addition to Quality Control (QC) reviews and focus on pay items and uniformity between the plan quantities, the computation book, and the TRNS*PORT input forms.

Constructibility Review - A supplemental and specialized review of construction plans and specifications which seeks to identify construction requirements that are impractical, unnecessarily costly, or difficult to build. Constructibility Reviews are made in addition to Quality Control reviews, and considers such items as contractor access, site constraints and relationship to other project work.

Coordination Review - A review of combined work elements to identify and resolve any conflicts that may exist among the elements such as lighting and drainage (i.e. foundation conflicts with pipe runs).

Deliverable - A professional service product that is to be furnished to the Department or others.

Field Review - Mandatory visits to the project site to verify compatibility of the design with the field conditions to be encountered during construction.

Kick-Off Meeting - A meeting held before any work begins on a project in which the Project Work Plan and quality control requirements are discussed by the Consultant's Project Manager, the Responsible Professionals, the Reviewers, and others as appropriate.

Independent Peer Review - A supplemental Quality Control review performed on selected projects, or portions of a project, by an independent team of qualified reviewers. This review is performed in addition to the regular Submittal Reviews and is conducted under the direction of the Consultant's Project Manager. Normally, members of the Independent Peer Review team are not assigned to the same organizational unit or location that managed and produced the project. The Independent Peer Review is a comprehensive examination of the technical aspects of the project design that is made in addition to Submittal Reviews.

Project Work Plan (PWP) - A document that programs the assignment from the Kick-Off Meeting through production, submittal review, coordination, delivery of the product, and archiving of the project records.

Quality Assurance (QA) Review - The Principal or Officer-In-Charge review and certification procedure to determine whether or not production and review quality control procedures have been performed effectively and appropriately.

Quality Control (QC) Process - Prescribed production and review on procedures by which deliverables are produced, reviewed and brought into compliance with Department and project requirements, professional standards, contractual obligations, and commitments.

Standard Checking Procedure - A color-coded check and back check process for reviewing and correcting work products before they are released for use by the Turnpike or otherwise released as a final work product.

Submittal Review - Review of submittal documents by the designated Reviewer, a qualified professional other than the Responsible Professional for each element of the work, to see that the work is accurate, conforms to the project requirements, and is free of errors and omissions. The Reviewer checks concepts, methods of preparation, and presentation.

Project Staffing List *(Expand or reduce list to include all Sub consultants, and deliverables)*

The following key Project Team members are dedicated to the production and review of the project deliverables shown below. Resumes of the Principal or Officer-In-Charge, Project

Manager, Responsible Professionals and Reviewers for all deliverables are attached. The Project Manager shall revise the Project Staffing List and secure the approval of any changes in key Project Team personnel during the production and review of the project. Show Professional Registration.

Principal or Officer-In-Charge (*Oversees Project & provides QA Review*): Name

Project Manager (*Oversees Quality Control & Coordination, provides part of the QA Review*): Name

ELEMENT / TASK	Deliverable	Responsible Professional (RP)	Reviewer (R)
ROADWAY Engineer of Record			
Typical Sections	Package		
Pavement Design	Package		
Existing Roadway Conditions Report	Report		
Geometry & Alignment	Roadway Plans		
Design Documentation	Calculation Book		
Traffic Control Plans	Roadway Plans		
Utility Adjustments	Roadway Plans		
Drainage Design	Roadway Plans		
Geotechnical	Report		
Drainage Report	Report		
Quantity Computation	Computation Book		
Specifications	Package		
Mitigation Plans	Roadway Plans		
SURVEY / RIGHT OF WAY			
Design Survey	Field Notes		
Right of way Survey	Field Notes		
Right of way Control Survey	Plans		
Right of way Maps	Maps		
Legal Descriptions	Descriptions		

Exhibit 18-A, Page 1 of 4

Project Staffing List (Cont.)

ELEMENT / TASK	Deliverable	Responsible Professional	Reviewer
SIGNING & MARKING			
Engineer of Record			
Signing Plans	Signing & Marking Plans		
Signing - Summary of Quantities	Signing & Marking Plans		
Pavement Marking	Signing & Marking Plans		
Quantity Computation	Computation book		
Specifications	Package		
SIGNALIZATION			
Engineer of Record			
Signal Design	Signalization Plans		
Phasing & Timing Design	Signalization Plans		
Summary of Quantities	Computation Book		
Pole Calculations	Computation Book		
Specifications	Package		
LIGHTING			
Engineer of Record			
Lighting / Electrical	Lighting Plans		
Quantity Computation	Lighting Plans		
Intensity & Voltage Calcs.	Computation Book		
ENVIRONMENTAL			
Mitigation Report	Report		
Permits	Report		
Wetland Assessment	Report		

Exhibit 18-A, Page 2 of 4

Project Staffing List (Cont.)

ELEMENT / TASK	Deliverable	Responsible Professional (RP)	Reviewer (R)
STRUCTURES			
Engineer of Record			
Bridge Development Report (BDR)	Report		
Bridge Hydraulics Report (BHR)	Report		
Geotechnical	Report		
Structures Plans	Structures Plans		
Design Documentation	Computation Book		
Specification	Package		
Quantity Computation	Computation Book		
TOLL PLAZA(S)			
Roadway	Toll Plaza Plans		
Civil Site including utilities	Toll Plaza Plans		
Signing & Pavement Markings	Toll Plaza Plans		
Traffic Control Plan	Toll Plaza Plans		
Landscape & Irrigation	Toll Plaza Plans		
Architectural	Toll Plaza Plans		
Structural	Toll Plaza Plans		
Electrical, Lighting & Toll Equipment Conduit	Toll Plaza Plans		
Mechanical / Plumbing & HVAC	Toll Plaza Plans		
Demolition	Toll Plaza Plans		
Design Documentation	Calculation Book		
Specifications	Package		
Quantities	Computation Book		

Exhibit 18-A, Page 3 of 4

PROJECT STAFFING LIST (Cont., for PD&E projects, list all elements & deliverables, including those provided by sub consultants)

Element / Task	Deliverable	Responsible Professional (RP)	Reviewer (R)
PD&E			
State Environmental Impact Report	Reports - Draft & Final		
Type 2 Categorical Exclusion	Reports - Draft & Final		
Environmental Assessment	Reports - Draft & Final		
Finding Of No Significant Impact (FONSI)	Reports - Draft & Final		
Environmental Impact Statement	Reports - Draft & Final		
Preliminary Engineering Report	Reports - Draft & Final		
Noise Impact Study	Reports - Draft & Final		
Air Quality Report	Reports - Draft & Final		
Wetlands Evaluation Report	Reports - Draft & Final		
Biological Assessment	Reports - Draft & Final		
Conceptual Stage Relocation Plan	Reports - Draft & Final		
Contamination Screening Evaluation Report	Reports - Draft & Final		
Cultural Resources Assessment Report	Reports - Draft & Final		
Traffic Report	Reports - Draft & Final		
Location Hydraulics Report	Reports - Draft & Final		
Geotechnical Report	Reports - Draft & Final		
Bridge Development Analysis	Reports - Draft & Final		

Exhibit 18-A, Page 4 of 4

CERTIFICATE OF COMPLIANCE (Complete and Submit on Consultant's Letterhead)

TO: William F. Sloup, P.E., Turnpike, Director of Planning and Production
 Louis G. Reis, P.E., Turnpike Design Engineer
 Matthew T. Lamb, P.E., Program Manager, Project Management
 Robert C. Alderman, P.E., Design Program Manager
 _____, P.E., Production Project Manager
 Steve Nichols, P.E., Turnpike Quality Initiatives Manager

DATE: _____

RE: **QUALITY ASSURANCE (QA) REVIEW - PHASE ____ SUBMITTAL**

FPID: _____

DESCRIPTION: _____

COUNTY: _____

COMPONENT SETS: _____

CONSULTANT: _____

 _____ (____) _____

SUBCONSULTANTS: _____

 _____ (____) _____

This is to certify that we have monitored the quality control (QC) process during production and review of the above submittal. That I have completed and signed the attached QC Checklists for each element of the project. That I have completed and documented (in the Quality Process Log) the required QA Review of the production and review quality control documentation for all component sets (elements) of the above phase submittal. This QA Review was conducted at the above office on (day, month, year), after all QC procedures were complete. Submittal plans, associated production and review check prints, and quality control documents for the referenced elements (including those of the Sub consultants) have been evaluated, initialed, and are available for review upon request.

This certificate is issued to document our reviews and to confirm that "due or ordinary care" processes were followed in producing the submittal documents. In our professional opinions, these documents meet the standards of the Turnpike and the Florida Department of Transportation, and are ready for review. These requirements include those stipulated in the Project Scope of Services performance criteria and Florida Department of Transportation requirements.

SIGNED: _____, P.E.
 Consultant Principal or Officer –In-Charge

PRINTED: _____, P.E.
 Consultant Principal or Officer-In-Charge

SIGNED: _____, P.E.
 Consultant Project Manager

PRINTED: _____, P.E.
 Consultant Project Manager

Exhibit 18-B

Project: _____ FPID No.: _____

[illegible]

Chapter 19

Sealing Design Documents

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

19.3 Sealing Other Engineering Documents

Add the following as item #15 & 16

- 15. Lane Closure Analysis on Turnpike Facilities
- 16. Cross Slope Analysis Report

Chapter 20

Plans Processing and Revisions

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

20.1 General

Add the following language

Nearly all FTE Plans, Specifications and Estimates (PS&E) packages are advertised and awarded by FTE's Contracts Administration Office. Meaning, FTE does not follow the majority of the plans processing procedures relating to Central Office lettings and subsequent revisions. For detailed information about the FTE plans processing activities see the FTE Electronic Plans Processing flowcharts for Pre-Production, Production to PS&E Transmittal, Advertisement and Addendums, and Letting and Construction at the end of this chapter.

20.3 Plans Processing

Add the following language

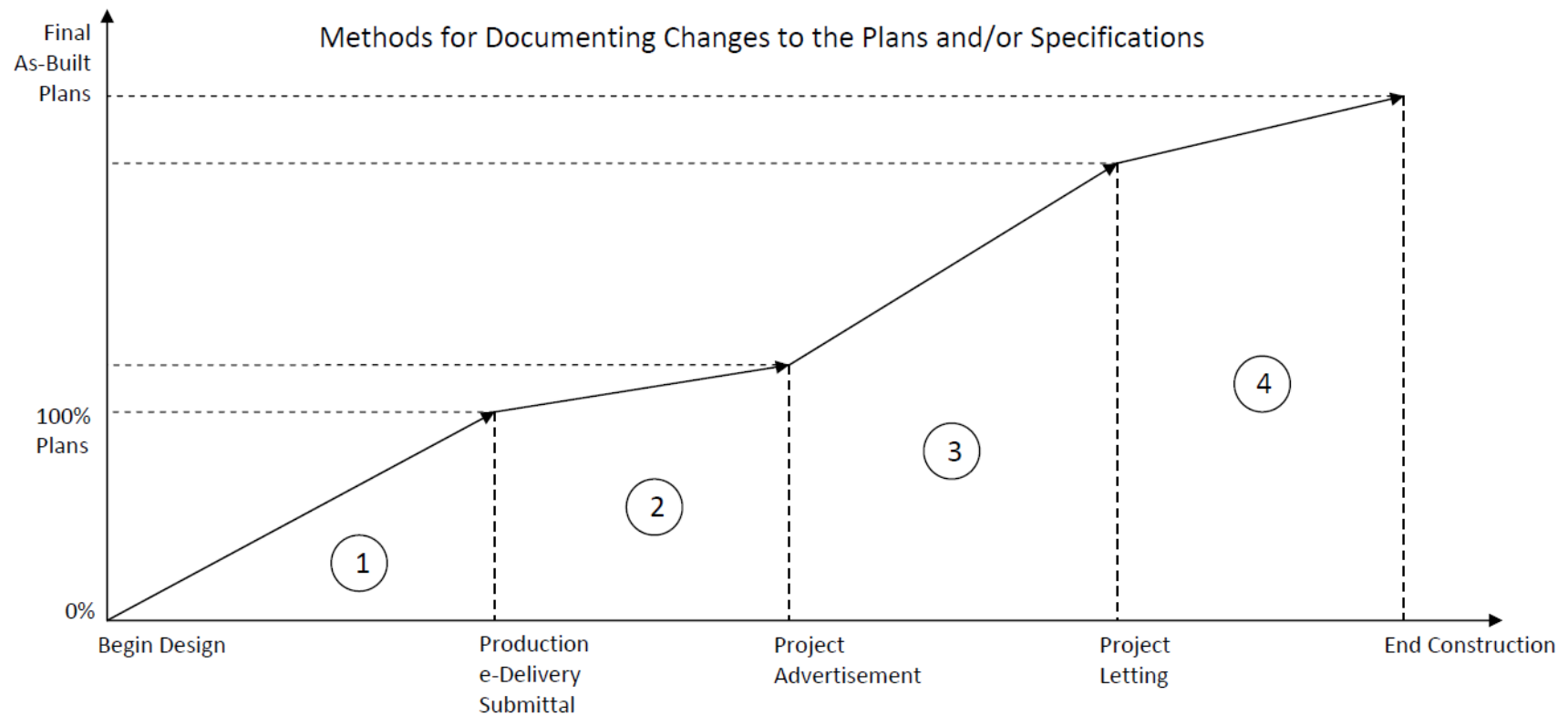
Once the PS&E package has been reviewed and accepted, the Plans Processing Manager will extract the sealed PostScript image files that represent the plan sheets and the sealed Specifications Package PDF file from the secured electronic delivery. Using the SetMaker application, a PEDDS Sub-set Manifest Document is generated and signed by the Plans Processing Manager. Together with the PEDDS Delivery Manifest and Signature Documents, the Sub-set Manifest details the project files contained in the PS&E data sub-set. The original PEDDS Documents are scanned to one PDF file. The PS&E data sub-set and scanned PDF of PEDDS Documents are provided electronically to FTE's Contracts Administration Office via a file share on our network server. FTE's Contracts Administration Office uploads the files to a secure FTP site where approved/interested bidders can download the construction contract bid documents.

20.4 Revisions to the Contract Package

Add the following

See both the TPPPH and PPM Volume 2 Chapter 3.11 for additional information on formatting the Lead Key Sheet for revisions.

Refer to the following chart to determine how to document changes to the PS&E package.



- ① Changes to the plans and/or specifications are ongoing with no tracking required.
- ② Necessary changes to the plans and/or specifications are made without tracking. However, to incorporate the changes, an updated Project CD/DVD and related PEDDS Documents shall be submitted.
- ③ Necessary changes to the plans and/or specifications are documented by means of an addendum to the Plans & Specs CD. To incorporate the changes, a Revised Project CD/DVD and related PEDDS Documents as well as Page 2 of the Contract Addendum Transmittal Memo shall be submitted. See Exhibit 20.4-A for an example of the memo.
- ④ Necessary changes to the plans and/or specifications are documented by means of a construction revision. To incorporate the changes, a Revised Project CD/DVD and related PEDDS Documents shall be submitted.

Exhibit 20.4-A

Example Page 2 of Contract Addendum Transmittal Memo



*Operates the statewide
Turnpike System as
part of the Florida
Department of
Transportation*

RICK SCOTT
Governor

ANANTH PRASAD, P.E.
Secretary of Transportation

DIANE GUTIERREZ-SCACCETTI
Executive Director and
Chief Executive Officer

Turnpike Headquarters:
Milepost 263, Bldg. 5315
Turkey Lake Service Plaza
Ocoee, FL 34761

Mailing Address:
P.O. Box 613069
Ocoee, FL 34761

Tel: 407.532.3999

www.floridasturnpike.com

CONTRACT E8L46 MODIFICATIONS SUMMARY:

PLAN REVISIONS

SHEET	DESCRIPTION OF MODIFICATION
1	Modified index of roadway plans
2	Added pay items
3	Added / revised pay items
13	Revised quantity
14	Added summary box
15	Added / revised pay item notes
17	Revised notes
44A	Added new sheet

PAY ITEMS + QUANTITIES (TRNS*PORT) 123456-1-52-01

PAY ITEM	SHEET	ADD / MOD / DEL	OLD QUANTITY	NEW QUANTITY
0327-70-7	2	ADD	N/A	1915.000

PAY ITEMS + QUANTITIES (TRNS*PORT) 123456-3-52-01

PAY ITEM	SHEET	ADD / MOD / DEL	OLD QUANTITY	NEW QUANTITY
0162-1-11	2	ADD	N/A	2054.000
0400-143	3	ADD	N/A	360.000
0401-70-4	3	MOD	26.700	52.300
0570-1-2	3	MOD	12571.000	14747.000

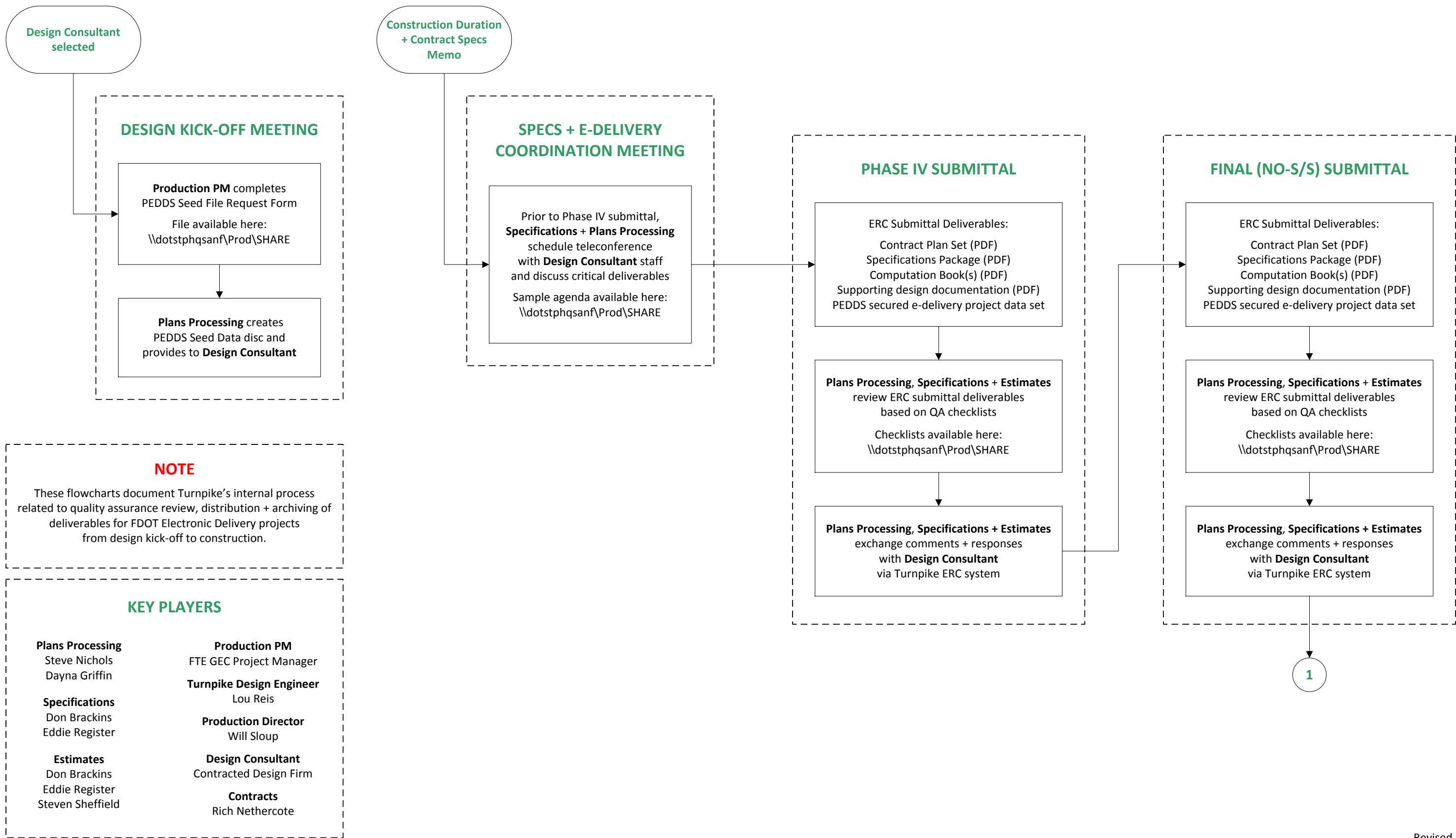
SUPPLEMENTAL SPECIFICATIONS

SECTION	DESCRIPTION OF MODIFICATION
975	Section 975 Structural Coating Materials is deleted and substituted

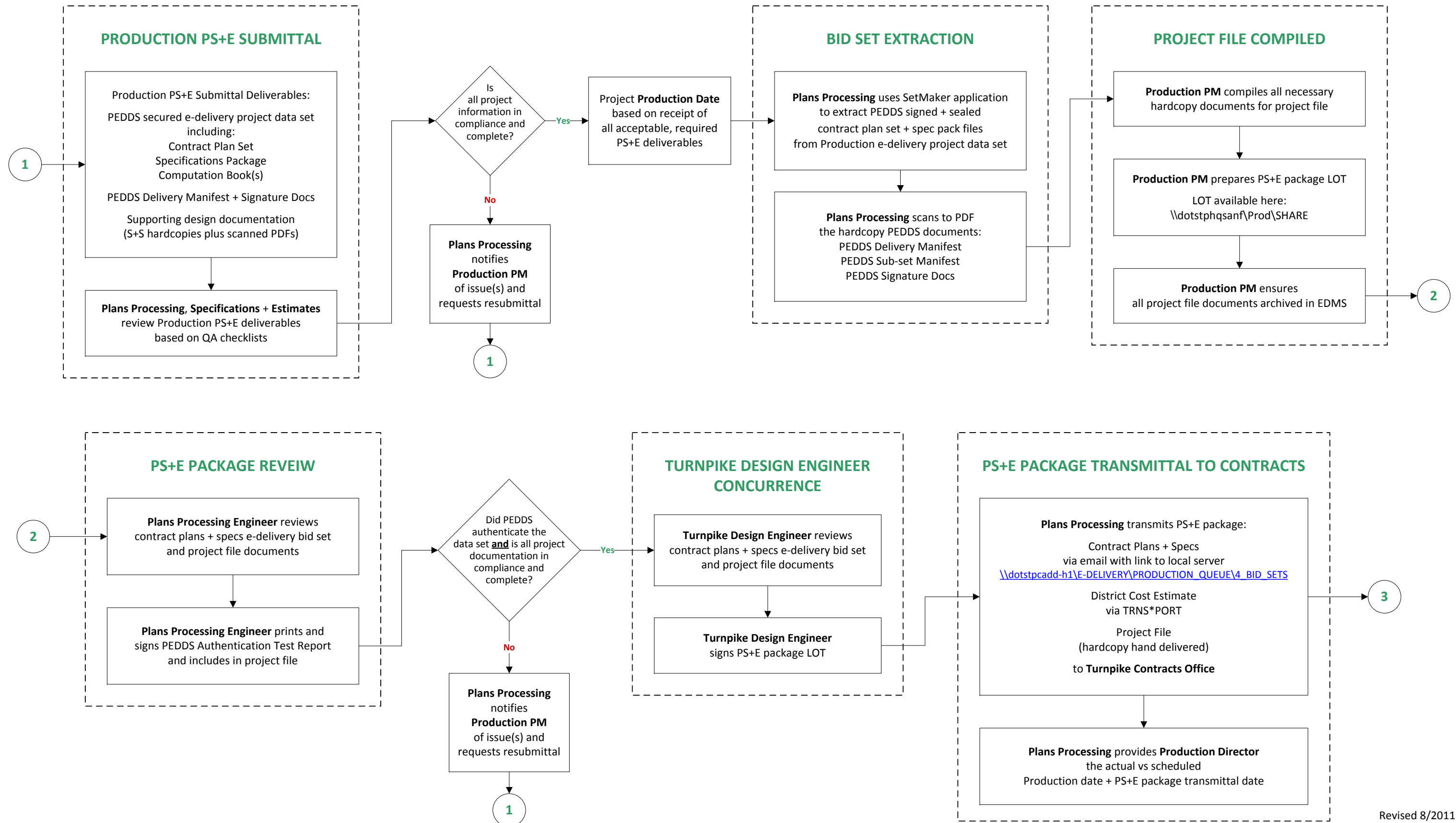
CONTRACT E8L46 MODIFICATIONS NARRATIVE:

Provide a brief description of modifications.

TURNPIKE DESIGN-BID-BUILD E-DELIVERY ACTIVITIES – PRE-PRODUCTION

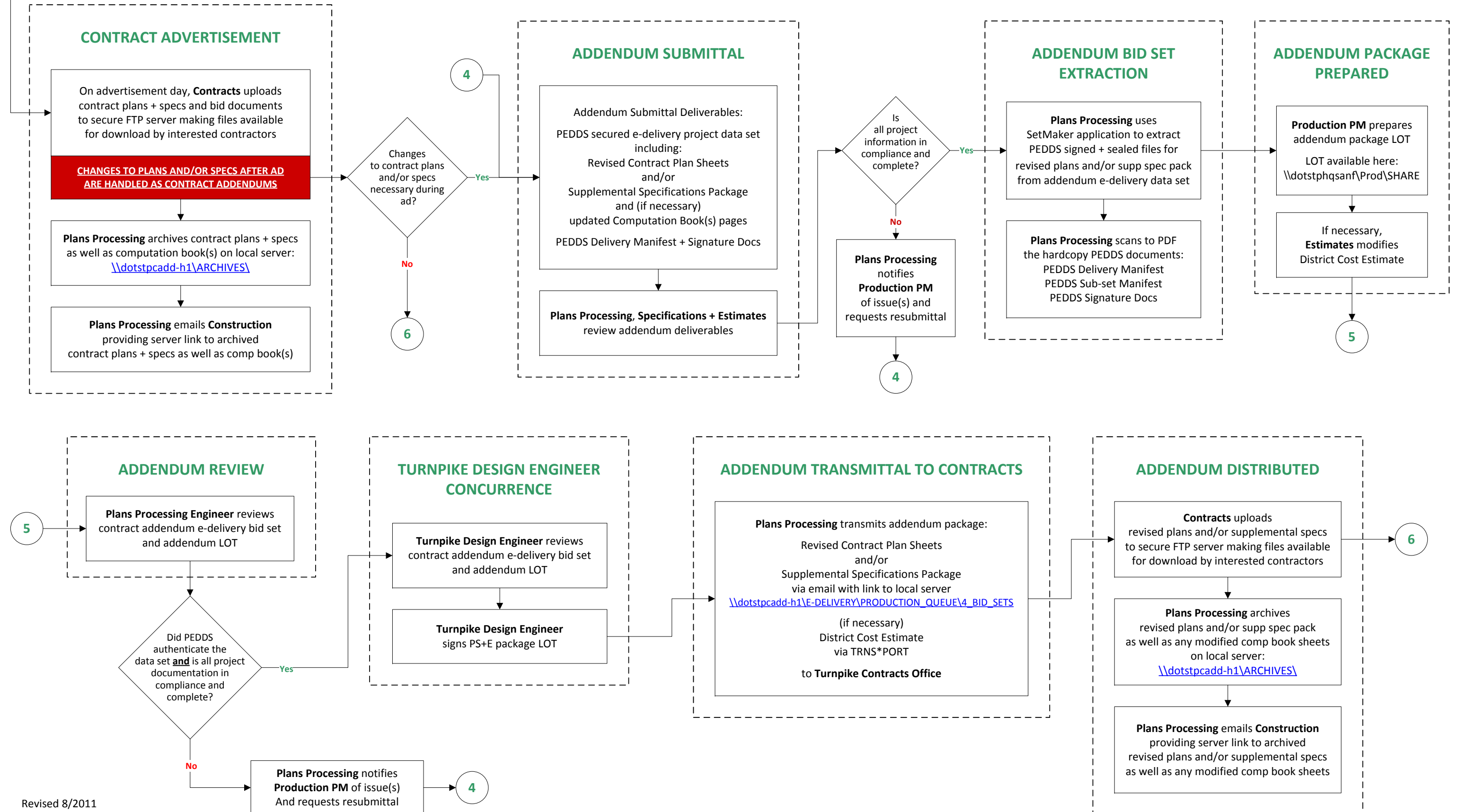


TURNPIKE DESIGN-BID-BUILD E-DELIVERY ACTIVITIES – PRODUCTION TO PS+E TRANSMITTAL

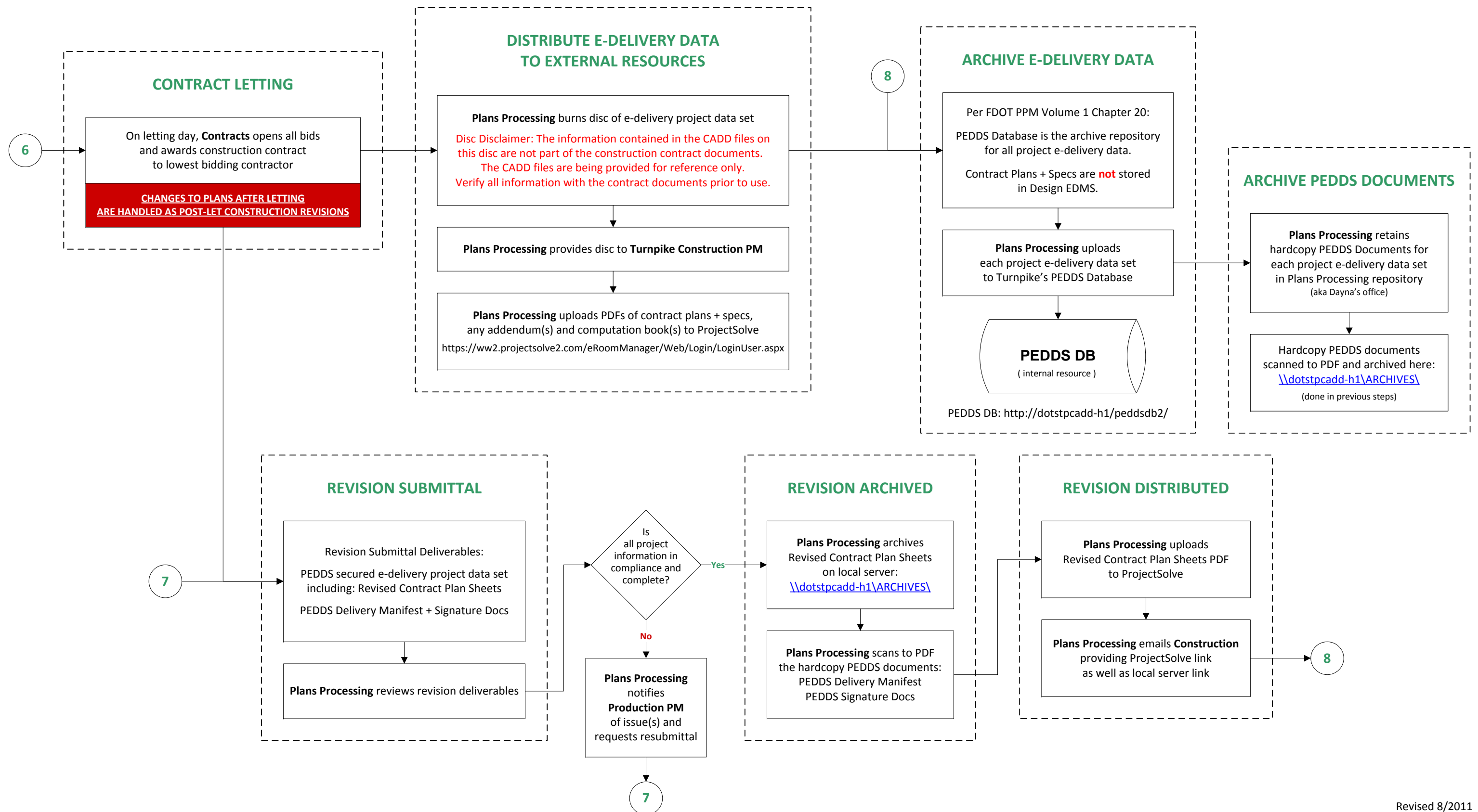


3

TURNPIKE DESIGN-BID-BUILD E-DELIVERY ACTIVITIES – ADVERTISEMENT + ADDENDUMS



TURNPIKE DESIGN-BID-BUILD E-DELIVERY ACTIVITIES – LETTING + CONSTRUCTION



Chapter 21

Transportation Design for Livable Communities

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike District projects only:

No changes to the entire chapter

Chapter 22

Lump Sum Project Guidelines

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 23

Design Exceptions and Design Variations

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

23.3 Approval

Add the following Sections

23.3.1 Turnpike Design Exceptions

It is desired that all FDOT design criteria be met. When an exception is found to be necessary, the Consultant shall submit a Design Exception electronically. The Consultant shall submit all draft exceptions to the Turnpike Project Manager for review through the ERC process.

Once all comments are completed in ERC and FTE staff accepts the submittal, the TRE will forward the final draft to the Turnpike Design Engineer (TDE) for final approval. Upon final approval by the TDE, the Consultant will submit two (2) signed and sealed bound copies of the approved exception(s), including all attachments, to the TRE. FTE is currently developing an electronic signature process and will advise Design Consultants of the new procedures when it is implemented.

The TRE will forward all exceptions (for all disciplines) to the TDE and Central Office with a recommendation for approval.

The originals will be sent to the Turnpike's Project Manager for distribution in the following manner: Consultant (original) and Project Files (original), and applicable Discipline Heads and FTE staff (electronic copy).

23.3.2 Turnpike Design Variations

It is desired that all FDOT criteria be met. When variations are found necessary, the same procedure(s) described for exceptions will be followed. All variations will require that the FTE variations checklist be completed with the submittal.

For examples of Turnpike exceptions and variations document format, refer to Design website, Roadway discipline, and Design Exceptions and Variations link:

http://design.floridasturnpike.com/prod_design/roadway/designexceptionsandvariations.html

Chapter 24

Federal Aid Project Certification

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to entire chapter

Chapter 25

Florida's Design Criteria for Resurfacing, Restoration and Rehabilitation (RRR) of Streets and Highways

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

25.1.2 Application

Revise 3rd Paragraph

Existing median crossovers on Interstate highway and freeways shall be evaluated for conformance to the criteria in section 2.14.4, Crossovers on Limited Access Facilities, and as modified in TPPPH section 2.14.4. Crossovers that do not meet those criteria shall be presented to FTE staff for internal review. FTE staff will provide direction to either remove or relocate the crossover.

25.3.6 Document the Design Process

Revise 1st Paragraph

The designer shall include in the design an Existing Roadway Conditions Assessment Report (ERCAR) that substantiates the design process, evaluates all existing conditions against criteria, provides recommendation, and documents decisions made. It should including the following information:

Add the following Items

7. The Turnpike will evaluate the ERCAR and determine what elements will require a design variation/exception and/or the enhancement work to be included into the current project or a separate FPID. The consultant will be directed by the FTE Project Manager on how to proceed.

8. ERCAR guidelines can be found at the following link:

http://design.floridasturnpike.com/prod_design/roadway/resourcesandchecklist.html

Add the following

25.4.26.2 Existing Structures with Planned Additional Loading

Design exceptions will not be permitted. Structures should be strengthened or replaced.

Chapter 25.5 Design Exceptions and Variations**Revise the following section**

Every effort should be made to adhere to new construction criteria. However, it may be necessary and appropriate to use values that are less than the minimum FTE preferred values. Application of lesser values shall be identified and coordinated with FTE. The necessary evaluation, coordination, approval, and concurrence shall be obtained at the earliest possible time, but not later than Phase II, so that the denial of any such request will not alter the project letting date.

Design Exceptions and Variations on resurfacing projects will be processed as follows:

- If a design exception is identified under the ERCAR, the element should then be evaluated against Chapter 25 for final determination of a design exception. If the element meets Chapter 25 design criteria, a technical memo will be submitted for approval by the Turnpike Design Engineer documenting that the element meets Chapter 25 criteria and a design exception is not required.
- If a design exception is identified under the ERCAR and also does not meet Chapter 25 criteria, then a design exception will be processed against current new construction criteria.
- All design variations identified under the ERCAR will be processed against PPM and TPPPH new construction criteria.

Chapter 26

Bridge Project Development

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

26.9.2 Contents

Add the following item after item 15

16. ASBESTOS ON BRIDGES

All projects that require partial or complete existing bridge demolition shall have a Licensed Asbestos Consultant on the project team.

During the BDR phase for these projects, the Consultant Bridge Engineer shall initiate the Licensed Asbestos Consultant to prepare an asbestos assessment survey and report for the bridges requiring bridge demolition. If Asbestos Containing Materials (ACM's) are determined to be present, an abatement plan shall be developed by the Licensed Asbestos Consultant. The abatement plan to remove the ACM shall be prepared in consultation with the National Institute of Building Sciences (NBIS) - "**Asbestos Abatement and Management in Buildings- Model Guide Specifications.**" The abatement plan must be communicated within the Contract Documents for the bridge replacement or widening and be done in concert with the activities that may disturb the ACM.

The Contractor is required to notify the Florida Department of Environmental Protection (DEP) at least 10 days in advance of the activities that may disturb the ACM's. These notification requirements are communicated to the Contractor within the "Removal of Existing Structures" section of the Standard Specifications. The Contractor is instructed to notify DEP even in the absence of ACM's. Therefore, it imperative that the Contract documents communicate the results of the asbestos survey clearly.

Add the following item after item2

26.9.4 Aesthetics

3. The color scheme for Turnpike bridges is:
 - Light Tan: FC23717 for retaining walls
 - Dark Tan: FC20475 for barriers, copings and slab overhangs
 - FTE Green: FC34090 for beams

The general aesthetic theme (color, textures, finishes, etc.) for bridges, retaining walls and sound barrier walls should be coordinated with the Turnpike Project Manager and Turnpike Architecture.

4. The color scheme for Turnpike gantries is:

Multi-chord and Mainline Accessible Gantries:

- Hot-Dipped Galvanized

Ramp and Mainline Signature Gantries:

- Structural Steel: FC36373
- Aluminum Equipment Arms: FC36373
- Aluminum Panels: FC24227

For coating TSP's refer to:

- Section 09960 – High Performance Fluoropolymer Coating System for Steel Substrates
- Section 09980 – High Performance Fluoropolymer Coating System for Aluminum Substrates

For more information on gantry types, refer to Chapter 34 – Tolling Infrastructure Requirements.

26.10 Bridge Development Report (BDR) Submittal Checklist

Add the following to item 4

Bridge deck spread shall be evaluated for all bridges. The Bridge Development Report (BDR) shall include preliminary spread calculations for the bridge deck in order to determine whether additional drainage conveyance is required. Typical drainage conveyance costs may include, but are not limited to, additional shoulder width during construction, cross slope adjustment, bridge deck drains and conveyance systems. Costs for the bridge deck drainage may be significant when comparing alternative bridge designs. See Section 2.1.5 for bridge deck cross slope requirements.

26.19 Deviations from Structures Manual

Add the following section

26.19.1 Deck Thickness Determination

Add the following section

Structures Manual – Volume 1: Structures Design Guidelines - Section 4.2.2.D shall be modified as follows:

The thickness of CIP bridge decks on beams or girders for minor widening will be 8” minimum unless otherwise approved by the Turnpike Structures Design Engineer.

26.19.2 Miscellaneous Structures Splice

Add the following section

Full penetration welded shop splices are not allowed for uprights or chord members.

26.19.3 Bridge Deck Grooving

Add the following paragraphs

Structures Manual – Volume 1: Structures Design Guidelines – Section 7.7.A shall be modified as follows:

For widened superstructures where at least one traffic lane is to be added, add a note to the plans specifying that the new bridge floor finish match that of the existing bridge deck surface. If the existing deck is not grooved, and there is a history of crashes at that location, grooving shall be investigated during the design process.

26.19.4 GRS Walls

Add the following section

Structures Manual – Volume 1: Structures Design Guidelines Section 3.12.12 shall be modified as follows:

GRS walls shall not be used at bridge ends bents.

Chapter 27

Hydraulic Data and U.S. Coast Guard Permits

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 28

Shop and Erection Drawings

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Florida's Turnpike Enterprise projects only:

28.1 Introduction

Add the following paragraph

Typically Florida's Turnpike Enterprise Shop Drawing Administration Office will provide the Contractor with the Shop Drawing Routing Chart (Exhibit 28.6-A) and Shop Drawing Procedures information package at the Preconstruction Meeting. This information addresses requirements for the submission of Shop Drawings and an overview of the review and approval process. It may also include additional procedures to facilitate expeditious processing.

28.3 Contractor Information Required

Paragraph 3, delete 2nd sentence and replace with the following

The Contractor shall stamped in blue or black, and initial each drawing, page, cut sheet, etc. of the submittal, giving specific written indication of compliance with the above described specific responsibilities with respect to review of the submission.

Add the following paragraphs

Prior to submission of the shop drawing electronically, the Contractor shall consecutively number each sheet of the submittal and indicate the total number of sheets in the series (i.e., 1 of 12, 2 of 12.....12 of 12). Include on each sheet the following items as minimum requirement: FPID, Bridge Numbers(s), identify the Toll Gantry Structure (i.e. SG TES1, SG TES 2A, SG TES 2B, etc.), drawing title and number, title block showing the names of the fabricator or producer and the Contractor for which the work is being done, initials of the persons(s) responsible for the drawing, the date on which the drawing was prepared, the location of the item(s) within the project, the Contractor's approval stamp with date and initials, and when applicable, the signature and engineering seal of the Specialty Engineer. A resubmittal will be requested when any of the required information is not included.

Any comments or markings provided by the Contractor shall be in blue or black ink. In the case there is no place for the stamp on the front, please stamp the back side of each sheet, indicating the page number (i.e., back of Page 1 of 6). Ensure that this page is also scanned in Portable Data Format (.pdf).

Submit Shop Drawings/Submittals electronically utilizing Florida's Turnpike Enterprise Construction Management's internet website, **ProjectSolve**. Assign a unique submittal number to Shop Drawing.

Shop drawings shall be in Portable Data Format (pdf), scanned using 300 dpi resolution and in 8-bit up to 24-bit color. Once the Contractor has uploaded the shop drawing to **ProjectSolve**, the Architect of Record and/or Engineer of Record will be notified via email that a shop drawing has been submitted for their review. The CEI is copied on this email notification.

Shop drawings shall be no larger than 11" x 17" (plotted in 11" x 17" format), in order to facilitate electronic filing. For plotting requirements, please refer to *FDOT CADD Production Criteria Handbook*, Chapter 3 and Chapter 6. Website is located at:

<http://www.dot.state.fl.us/ecso/downloads/publications/CriteriaHandBook>

If the shop drawings consist of samples, the Contractor shall submit three (3) samples for proper processing, in addition to the number of samples needed by the Contractor. The Contractor is required to stamp the samples and initiate the shop drawing review process through **ProjectSolve**, by uploading their transmittal letter and indicating in the "Comment" area on the shop drawing module page, that they have forwarded the samples to the Architect of Record and/or Engineer of Record via Overnight Courier Service. The Architect of Record and/or Engineer of Record shall confirm in the "Comment" area in **ProjectSolve** that they are in receipt of samples.

Once the shop drawing has been processed, Florida's Turnpike Enterprise Shop Drawing Administration Office will provide, if allotted number of samples are provided, one (1) sample original to Architect of Record and/or Engineer of Record, one (1) to CEI and Florida's Turnpike Enterprise Shop Drawing Administration Office will retain one (1) for their files. Any remaining samples will be provided to the Contractor.

If samples include Manufacturer, Product Name and Product Number, it is acceptable for the Contractor to scan the data and upload to **ProjectSolve**. These pages need to be stamped. It will be at the discretion of the Department, if submissions of original samples are required.

The Contractor shall coordinate with the Florida's Turnpike Enterprise Architectural Department prior to submission.

28.4 Submittals Requiring a Specialty Engineer

Replace 1st sentence, 1st paragraph with the following paragraph

In general and when so permitted in the Specifications, if a Shop/Erection Drawing submittal reflects any changes in the design and/or details of the Contract Plans, the Contractor shall have a Specialty Engineer. The Specialty Engineer must sign and seal each drawing, affected as well as the cover sheet of any design calculations.

Add the following paragraph

Prior to Contractor scanning and uploading shop drawing to **ProjectSolve** ensure that the seal (rubber ink stamped or embossed) is legible in the scanned image. Failure to do so will constitute the submission as incomplete and shop drawing will be routed back to Contractor, Not Reviewed, and resubmittal will be required. It is acceptable for the Contractor and the Architect of Record and/or Engineer of Record to stamp the cover page of the calculations only and stamp each sheet of the shop drawing. Stamp in accordance with the Florida Board of Professional Engineers regulations.

Replace last paragraph with the following

When a submittal requires a Specialty Engineer, the sealed prints and calculations will ultimately be retained by the Department electronically, as the official record Shop Drawing.

28.6 Transmittal of Submittals

Delete sentences 6 and 7 in paragraph 1, replace with the following

Exhibits 28-A through 28-C shall be supplemented with the following Exhibits. These Exhibits are shown at the end of this chapter.

Exhibit 28-A **Florida's Turnpike Enterprise Shop Drawing Routing Chart**

Exhibit 28-B **Florida's Turnpike Enterprise Shop Drawing Administration Office -
Department's Review Staff Distribution Chart**

Replace 2nd paragraph with the following

The Special Provisions for the project may denote the procedure to be followed. Furthermore, the website URL the Contractor shall utilize to electronically submit shop drawings and the procedure to be followed may also be defined during the preconstruction conference for the project. In the absence of such instructions as outlined within this Chapter generally applies.

28.6.1 General Submittal Requirements

Replace this section with the following

On projects where the Architect of Record and/or Engineer of Record is a Consultant to the Department, and unless otherwise directed at the project's preconstruction conference, the Contractor shall submit shop drawings directly to the Consultant utilizing **ProjectSolve**. On projects where the Department is the Architect of Record and/or Engineer of Record, the Contractor shall submit shop drawings directly to the Department utilizing **ProjectSolve**. All drawings shall be on sheets not larger than 11" x 17".

28.6.2 Requirements for Department EOR

Replace title with the following

28.6.2 Requirements for Department Architect of Record and/or Engineer of Record

Replace 1st sentence with the following

On projects where the Architect of Record and/or Engineer of Record is the Department in-house staff, submittals shall have been submitted to the appropriate Department Review Office as directed at the project's preconstruction conference.

28.6.3 Requirements for Consultant EOR (Full Services)

Replace title with the following

28.6.3 Requirements for Consultant Architect of Record and/or Engineer of Record (Full Services)

Add the following

Architect of Record and/or Engineer of Record receives the shop drawing from the Contractor, electronically, through Construction management's website, **ProjectSolve**. It is the responsibility of the Architect of Record and/or Engineer of Record to verify that the Contractor's shop drawing submission has been submitted in complete format as outlined in Sections 28.3 and 28.4.

If the shop drawing is not submitted in complete format, the Architect of Record and/or Engineer of Record shall coordinate with the CEI and/or Contractor accordingly. Architect of Record and/or Engineer of Record to make determination based on coordination with CEI/Contractor, if shop drawing is incomplete and shall be routed back to the Contractor for resubmission. Architect of Record and/or Engineer of Record shall coordinate with Florida's Turnpike Enterprise's Shop Drawing Administration Office accordingly, to close out shop drawing.

As the Architect of Record and/or Engineer of Record, when reviewing signed and sealed calculations and shop drawings, it is acceptable to incorporate the disposition stamp on the cover sheet of the calculations. Each sheet of the shop drawings must be stamped by the Architect of Record and/or Engineer of Record.

If submittal includes samples, Architect of Record and/or Engineer of Record incorporates disposition stamp and forwards all original samples to Florida's Turnpike Enterprise Administration Office, via overnight courier.

Architect of Record and/or Engineer of Record shall notify the Florida's Turnpike Enterprise Production Project Manager if the shop drawing deviates from contract requirements.

Architect of Record and/or Engineer of Record submits the shop drawing submission through **ProjectSolve** to Florida's Turnpike Enterprise Shop Drawing Administration Staff for final processing back to the Contractor. The CEI, Construction Project Manager, Project Manager and the Architect of Record and/or Engineer of Record are also notified, via email when shop drawing has been final processed.

28.6.3.1 Review by Engineer of Record/Architect of Record Only

Replace title with the following

28.6.3.1 Review by Architect of Record and/or Engineer of Record Only

Replace this section with the following

Refer to Section 28.6.3 for Architect of Record and/or Engineer of Record's requirements. On projects where the Architect of Record and/or Engineer of Record is a Consultant to the Department and has been retained by the Department to review construction items without follow-up review by the Department, the Consultant will assume the responsibility of the owner's agent. The reviewing consultant is encouraged to communicate with fabricators, contractors, specialty engineers and the Department's Review Office to clarify concerns before returning the submittal to the Contractor. The reviewing Consultant shall also contact the Department's Review Office if unsure of the Department's position on certain issues during the review. Submittals should not be stamped "resubmit" if "approved as noted" will suffice. Submittals (unless otherwise noted below) shall have been submitted by the Contractor directly to the Consultant. Upon receipt of the submittal, the Consultant shall perform the review, note any comments on the sheets, indicate disposition by stamping the sheets as described hereinafter and electronically submit shop drawings back to the Florida's Turnpike Enterprise Shop Drawing Administration Office through **ProjectSolve**, for final processing back to Contractor.

28.6.3.2 Review by Engineer of Record and the Department

Replace title with the following

28.6.3.2 Review by Architect of Record and/or Engineer of Record and the Department

Replace this section with the following paragraphs

On projects where the Architect of Record and/or Engineer of Record is a Consultant to the Department and has been retained by the Department to review construction items, submittals (unless otherwise noted below) shall have been submitted by the Contractor directly to the Consultant. Upon receipt of the submittal, the Consultant shall perform the review as outlined in Section 28.6.3, note any comments directly on the sheets, indicate the disposition by stamping the sheets and, submit to Florida's Turnpikes Shop Drawing Administration Office via **ProjectSolve** for review and distribution.

The Department will continue to overview those shop drawings deemed "Critical". A project specific list of "Critical" shop drawings will be developed by FTE Staff. Upon review of these shop drawings, the Department's reviewer will indicate the disposition by stamping the sheets, sign and date shop drawing.

28.6.5 Requirements for Architectural or Building Structures

Replace this section with the following

Shop drawings/submittals related to architectural or building structures shall follow the standard Florida's Turnpike Enterprise Shop Drawing Process as required within this chapter.

28.6.6 Requirements for Roadway Submittal Items

Replace with the following paragraph

Shop drawings/submittals related to Roadway plans such as lighting, attenuators, retained earth wall systems, etc. (except bridge items such as poles, bracket arms, or as noted below)) shall be distributed in accordance to the Construction Project Administration Manual, (Topic No. 700-000-00 for the component involved or as otherwise directed at the preconstruction conference. Submittals related to bridge items shall have been submitted as required within this chapter.

28.6.7 Requirements for Overhead Sign Structures and Nonstandard Miscellaneous Structures

Replace with the following

Shop Drawings/Submittals concerning overhead sign structures shall be submitted in accordance within this chapter.

28.6.8 Miscellaneous Requirements and Assistance

Replace with the following

For items not specified above or for which questions may arise as to submittal requirements, the Contractor should be advised to contact the CEI or the appropriate Department Review Office.

28.7 Disposition of Submittals

Insert after 2nd sentence, 3rd paragraph

When the Consultant is the Architect of Record and/or Engineer of Record any comments provided, must be indicated in red. The Department's assigned commercial inspection agency and/or the Department personnel provides any comments, must be indicated in green.

Replace 3rd sentence, 3rd paragraph with the following

Consultant must declare any limitations to the extent of their review and approval by the terminology of their standard stamp and/or by additional written and "ballooned" notes on the submittal items, indicated in red.

Replace the 4th paragraph with the following

When a shop drawing contains deviations from the contract plans and specifications, the consultant shall contact Florida's Turnpike Enterprise Project Manager, who will coordinate with the Construction Shop and Erection Drawings

Project Manager to determine as to whether or not a Supplemental Agreement or Cost Savings Initiative Proposal (CSIP) is required. If either procedure is required to be initiated, the shop drawing shall not be reviewed until a decision is finalized.

Replace 5th paragraph with the following

When the Architect of Record and/or Engineer of Record receives a submittal which is not in accordance with the requirements of this chapter, the submittal will be returned to the Contractor, as “REVISE/RESUBMIT”, the Contractor shall be advised to resubmit immediately with the corrections or additions necessary.

Replace 14th paragraph with the following

Exhibit 28-A depicts the submittal distributional flow of a shop drawing through ***ProjectSolve***. On those shop drawings which the Department reviews, when the Department concurs with the Consultant’s review and disposition, the Department will stamp and distribute the shop drawing. Should the Department’s review and/or disposition of the submittal differ from that of the Consultant, the final disposition will be resolved in accordance with the procedures outlined in Section 28.7.1.

28.9 Distribution of Submittals

Replace 1st paragraph and Table 28.3 with the following

Refer to Exhibit 28-A for routing of a Shop Drawing with the use of ***ProjectSolve***.

Replace 2nd paragraph with the following

When precast/prestressed concrete components are involved, the Department’s District Prestress Engineer is furnished an electronic copy. When structural steel components are involved, the Department’s Assigned Commercial Inspection Agency (ACIA) is furnished an electronic copy. When mechanical/electrical components of movable bridges are involved, the Mechanical/Electrical Section of the State Structures Design Office (SSDO) is furnished an electronic copy.

Replace 4th paragraph with the following

When approval of a submittal is denied (“Resubmit” or “Not Approved”), distribution of the submittal shall be processed through ***ProjectSolve***.

28.10 Review of Welding Procedures Specifications

Replace 2nd sentence, 1st paragraph with the following

A list of welding procedures to be used on any individual project will be forwarded to the Architect of Record and/or Engineer of Record, outside of the ***ProjectSolve*** Shop Drawing Module, prior to the start of fabrication.

28.11 Submittal Activity Record (Logbook)

Replace 1st paragraph with the following

Florida's Turnpike Enterprise Shop Drawing Administration Office is the Final Review Office and maintains the Submittal Activity Record (Logbook), through Construction Management's website **ProjectSolve**. A log is maintained for each project where shop drawings are submitted and maintained on a daily basis.

The following minimum data shall be entered on the Shop Drawing Module Page in **ProjectSolve**:

Financial Project ID

Contract Number

Roadway Division/Specification Section

Description of Shop Drawing Entry

Date Submitted by Contractor to the Architect of Record and/or Engineer of Record

Date Submitted by Architect of Record and/or Engineer of Record to the Turnpike Enterprise Shop Drawing Administration Office

Date Distributed by the Final Review Office to the Contractor

Architect of Record and/or Engineer of Record Disposition

Turnpike Enterprise Disposition (if reviewed, if not reviewed, the disposition on the shop drawing module page will be "Not Reviewed")

28.11.1 Shop Drawing Website

Add the following paragraphs

Shop Drawings can be tracked daily by utilizing **ProjectSolve**. The purpose of **ProjectSolve** is to provide the Contractor, CEI, AOR/EOR, Project Managers, Construction Managers and Turnpike Management with up-to-date information/latest status of the Construction Project, whether it be related to shop drawings, RFIs, correspondence or MOT Lane Closure Notifications for every ongoing/active construction contract. It will serve as a tracking tool for project related documents and assist in expediting the construction process.

Visit the following website for Florida's Turnpike Enterprise general shop drawing requirements, guidelines and other helpful data.

http://design.floridasturnpike.com/prod_design/shopdrawings/shopdrawings.html

28.12 Archiving Record Shop Drawings

Replace this section with the following paragraphs

Prior to project completion, Florida's Turnpike Enterprise Shop Drawing Administration Staff will coordinate with the CEI to ensure all shop drawings have obtained resolution. If not, the Shop Drawing Administration Staff will request the CEI to provide clarification of resolution.

Upon completion and acceptance of the construction project by the Department (usually by receipt of a written Notice of Acceptance), Florida's Turnpike Enterprise Shop Drawing Administration Staff imports the shop drawings into the EDMS System. The Submittal Activity Record Logbook (Shop Drawing Status Report) and the Final Acceptance Letter is also imported into the system.

Insert the following

Exhibit 28-C Not Used

Exhibit 28-D Not Used

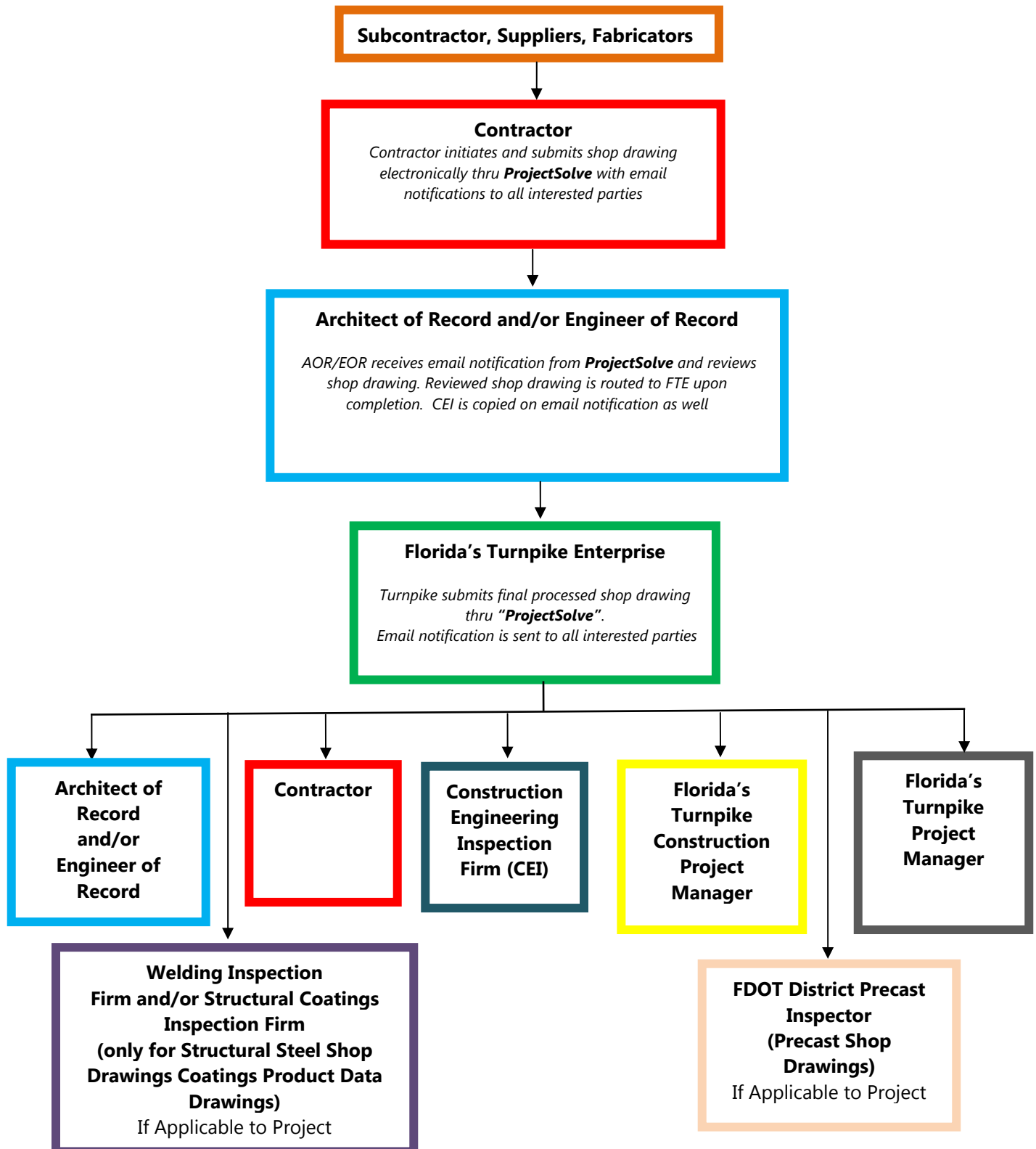
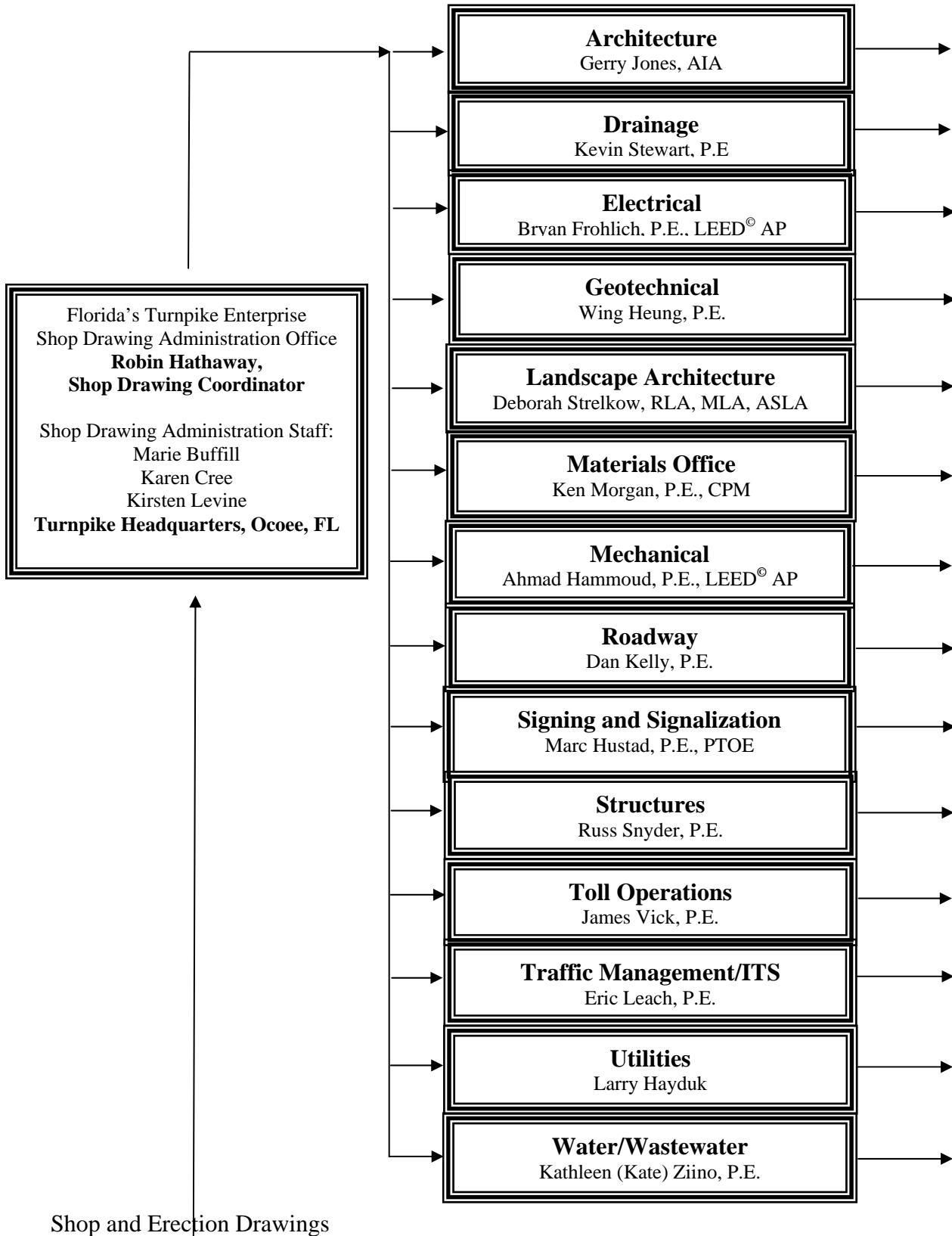
EXHIBIT 28-A***FLORIDA'S TURNPIKE ENTERPRISE SHOP DRAWING ROUTING CHART***

EXHIBIT 28-B
FLORIDA'S TURNPIKE ENTERPRISE SHOP DRAWING ADMINISTRATION OFFICE
DEPARTMENT'S REVIEW STAFF DISTRIBUTION CHART



Chapter 29

Structural Supports for Signs, Luminaires and Traffic Signals

The following are changes, additions or deletions to the January 2012, Topic #625-000-7 Plans Preparation Manual (PPM), for use on Turnpike projects only:

29.1 General

Add the following paragraphs

For projects that involve the re-use of existing miscellaneous structures, the provisions of Section 25.4.26 applies, even if the project is not a RRR.

During the design process, the Design Consultant should coordinate with FTE Maintenance to secure structure numbers for overhead cantilever and span sign structures. These structure numbers should be used in the Signing and Pavement Markings plan set.

Typically if a drilled shaft supporting a sign structure is deemed unacceptable in construction, a replacement shaft can be constructed nearby. The Consultant shall identify any sign structure foundation locations that are critical (cannot be moved nearby), and follow the construction requirements of gantry drilled shafts in Section 29.2.8 for those foundations

29.2.4 and 29.2.5 Standard Overhead Span/Cantilever Sign Structures

Add the following paragraphs

All overhead sign structures including those carrying DMS, shall be designed to accommodate 25% extra sign area than what is called for in the plans. Sign structures shall be designed for a minimum sign panel weight of 5 lbs/sf for conventional sign panels and 25% extra dead load for DMS. The requirements for minimum and future sign panels in Structures Manual Volume 9 also apply. Refer to TPPPH Section 2.10 for the requirements of minimum vertical clearance.

Minimum vertical clearance requirements are measured to the proposed plan sign panel.

The designer is responsible to determine the dimensions of the 125% panel that will create the worst case loading scenario. For historical documentation, a note shall be added to each sign structure cross-section and to the structural Table of Variable notes that the design accounts for the 25% increase in area.

Application of the 25% extra area and weight is not required when analyzing existing sign structures for re-use.

The designer should verify that the sign panel size conforms to the FDOT Standard Index drawings with regards to vertical hangers, wind beams and luminaire arms. If not, special design and details should be provided in the S&PM plans.

29.2.6 Custom Designs

Add the following paragraph

For bridge mounted sign structures, connection to the traffic railing barrier should be avoided where possible. If it is absolutely necessary to connect to the barrier, the point of connection should be no more than one (1) foot above the top of deck.

29.2.7 Dynamic Message Sign (DMS) Structures

Add the following paragraph

For projects that involve the re-use of existing sign structures carrying DMS signs, at a minimum, existing U-bolts which connect the truss chords to the upright shall be replaced with high-strength U-bolts. Also refer to 29.2.4 and 29.2.5 for additional TPPPH requirements.

29.2.8 Toll Equipment Structures (Gantry Structures)

Add the following paragraphs

Refer to Chapter 34 Tolling Infrastructure Requirements for more information.

See Section 26.9.4 Aesthetics for more information on gantry coatings. Gantry type and aesthetics shall be coordinated on a project-specific basis with the Turnpike Project Manager, Architecture and Structures.

Staff hour estimates for Toll Equipment should be included on Tab 18 Line 22 – Other Structures. The work estimated on this line should include the design and detailing effort for the Toll Equipment and Foundations provide a detailed breakdown of the tasks, sheets and hours in the ‘comments’ section. All other associated tasks should be included on Tab 31 – Architecture. Gantry plan sheets should be numbered with the letter “G”.

All gantries, except for tri-chord style gantries, shall be designed for the highest Florida wind speed (150 mph) without regard for the actual location of the gantry. The foundation design for all gantries may be based on the actual wind speed.

Gantry designs should include a fatigue analysis per LTS-5 and Volume 9 of the FDOT Structures Manual.

The attachment of overhead roadway signs to gantry structures is not permissible without consent of the Turnpike Structures Design Engineer.

Upright gantries shall be filled with concrete 8' above the top of the foundation regardless of roadside protection devices. Details/notes shall be provided in the structural plans. This requirement does not typically apply to ramp gantries, but should be evaluated at ramps for upright in medians, ect.

Tri-Chord style gantries shall meet the span-to depth requirements for DMS Structures as specified in Volume 9 of the FDOT Structures Manual.

Toll equipment structures shall be supported by deep foundations. Lateral deflection shall be limited to less than 1 inch at top of pile or drilled shaft under service design load. Requirements of Soils and Foundations Handbook Appendix B shall be followed for selection of soil and rock design properties and design water table. Where the foundation is located at close proximity to sloping ground, include the portion of the foundation with less than 2.5D horizontal soil cover (face-of-foundation to face-of-slope) in the unsupported length, and design the portion of the foundation with more than 2.5D horizontal soil cover as though founded in level ground (D is foundation width). After foundation length is determined based on design analyses, 2 feet shall be added to the required foundation length when subsurface soil and rock are modeled as non-cohesive material and 4 feet shall be added to the required foundation length when any soil or rock is modeled as cohesive material in design. Foundation design with multiple piles/shafts under each supporting column shall be coordinated with Turnpike Geotechnical Engineer. A minimum safety factor of 2.5 shall be provided for axial capacity of the deep foundations service load. Preformed pile holes installed in rock shall be grouted following Section 455 of the specifications to restore lateral stability of the foundation unless the rock is modeled as non-cohesive soil in design.

In addition, the following construction requirements shall be included. These requirements shall be included in the Design Plans:

Driven Piles: At least one test pile per toll equipment structure shall be dynamically monitored with a Pile Driving Analyzer (PDA) or Embedded Data Collector. (EDC). All preformed pile holes installed through rock shall be grouted following Section 455 of the specifications to restore lateral stability of the foundation unless the rock is modeled as non-cohesive soil in design and sand backfill is used following the Specification requirements.

Drilled Shafts: Drilled shaft supporting a toll equipment structure shall be installed using a temporary casing extending to the drilled shaft tip elevation. Design of the drilled shaft shall include reduction of skin friction in limestone associated with the use of temporary casing.

29.4.2 Mast Arm Signal Structures

Add the following paragraph

Adjust the mast arm length in the plans data table, using variable FAA, such that the mast arm extends no more than four (4) feet beyond the last signal/sign, or the future signal/sign. As per the Index instructions, adjust the tip diameter, using variable FBA, based on the adjusted arm length.

Chapter 30

Retaining Walls

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

No changes to the entire chapter

Chapter 31

Geosynthetic Design

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

31.5.2 Requirements

Revise Section as follows

2. Allowable Tension

T_{ult} = Ultimate wide-width tensile strength of a geosynthetic per ASTM D 4595

T_{creep} = Serviceability state reinforcement tensile load based on minimum 10,000-hour creep tests per ASTM D 5262

3. Soil Reinforcement Interaction

The Coefficient of Interaction, C_i , is also known as the “Soil-Geosynthetic Friction” on the Standard Index 501.

Chapter 32

Sound Barriers

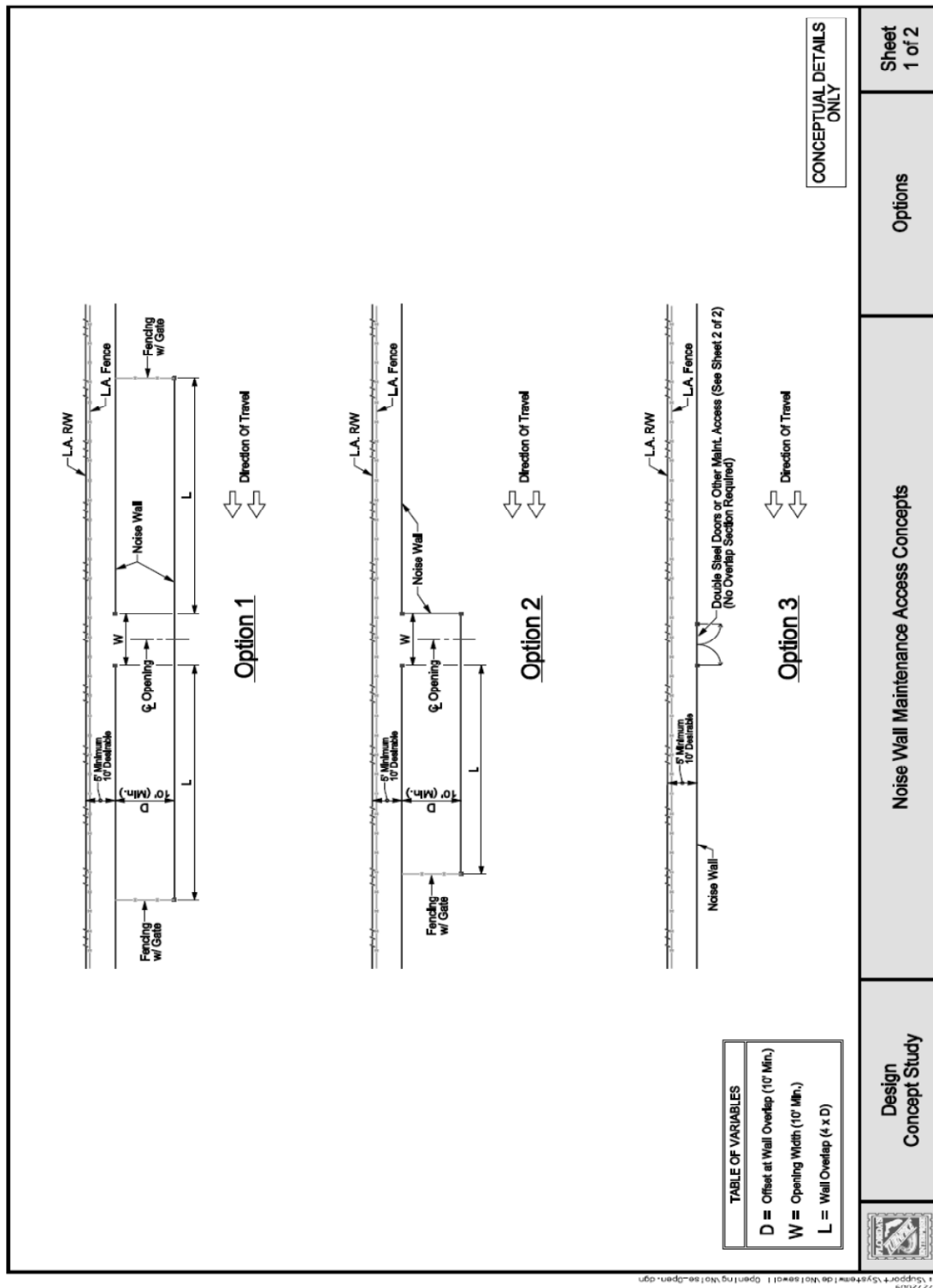
The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only:

32.3 Noise Abatement Criteria

Add the following

Maintenance access and clear zone must be considered when selecting barrier termini details.

Florida's Turnpike Enterprise would like to see the inclusion of specific maintenance access points along sound barrier walls that are constructed along the Turnpike. The ideal spacing would be one-half mile between openings or the ends of the wall. Consultants shall coordinate the possible maintenance openings with the FTE Project Manager and the FTE Maintenance Department. FTE has developed several options for maintenance openings that could be utilized along either existing or proposed sound walls. The potential access openings are shown on the attached drawing. Please note: the Consultant will be responsible for the final Control Drawings and the Detail Drawings. All details for the openings will become the responsibility of the Consultant.

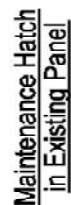


Design
Concept Study

Noise Wall Maintenance Access Concepts

Options

Sheet
1 of 2



CONCEPTUAL DETAILS ONLY

Chapter 33

Reinforced Concrete Box and Three-Sided Culverts

The following are changes, additions or deletions to the January 2012, Topic #625-000-007, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

33.2.3 Three Sided Concrete Culverts

Delete Section 33.2.3 and add the following

Three-sided concrete culverts shall not be used on Turnpike projects.

33.3.3 Three Sided Culvert Foundation Design

Delete Section 33.3.3 and add the following

Three-sided concrete culverts shall not be used on Turnpike projects.