

# **TURNPIKE PLANS PREPARATION AND PRACTICES HANDBOOK (TPPPH)**

## **VOLUME I**



**FLORIDA'S TURNPIKE ENTERPRISE  
PRODUCTION DESIGN DEPARTMENT**

**OCOEE, FL**

**JULY 1, 2013 EDITION**

## **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, has 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 include the normal criteria that govern our work and help our projects to better "conform to requirements", the official FDOT definition of quality.

For Turnpike requirements related to tolling, please see the General Toll Requirements which is a separate document.

The TPPPH Table of Contents for Volumes I and II show the PPM's Chapters and Sections that have been modified. If a section has been modified, the user can refer to the specific section in the TPPPH shown in the Table of Contents.

The TPPPH is updated on an annual basis (following the revisions to the PPM). We hope that you will find this document helps with the efficient production of quality plans.

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

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*No changes to the entire chapter*

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*No changes to the entire chapter*

# Chapter 1

## Design Controls

The following are changes, additions or deletions to the January 2013, 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 paragraph*

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

1. HEFT from Milepost 0 to Milepost 27.5 is classified as an Urbanized Freeway and will have a design speed of 65 MPH in accordance to AASHTO design criteria, for horizontal and vertical curve length and stopping sight distance, with the exception of K-Values for crest vertical curves that shall meet or exceed the more stringent FDOT 60 MPH criteria. All other design elements shall conform to FDOT criteria.
2. Veteran's Expressway from Milepost 1.54 to Milepost 13.57 will have a design speed of 60 MPH.
3. Polk Parkway from Milepost 0 to Milepost 12.7 will have a design speed of 65 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 2.1.5 Cross Slopes

*Add the following paragraph*

Median through-lane widening, turn lanes, tapered or parallel single lane ramps adjacent to two through-lanes do not automatically warrant a 3 percent cross slope. Surface drainage will be reviewed and used as the deciding factor. New two lane ramps, however, will be designed with 3 percent 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.

*Add the following section*

##### 2.1.6.1 Longitudinal Pavement

Whenever new pavement is proposed to be joined to existing pavement such as widening, auxiliary lanes, ramps, etc., a minimum 6" wide shelf will be created by milling to receive the final lift(s) of structural course(s) in the new pavement structure.

For plan detail guidance, refer to Turnpike Design website, under TPPPH manual, Roadway guide drawings:

[http://design.floridasturnpike.com/prod\\_design/roadway/roadwayguidedrawings.html](http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html)

#### 2.1.7 Transitions of Pavement Widths

*Add the following paragraph*

At bridge approach slabs, for a 150 foot length before or after the concrete approach 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 percent (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 acceleration/deceleration of right or left turns. Unless these additional lanes are more than 500 feet long measured along the ramp baseline, single lane six foot 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:

1. Four feet paved inside shoulders on one lane ramps and audible edge lines on both sides of the travel way for all ramps shall be evaluated at each ramp location within a project before implementation. The evaluation should consider horizontal and vertical geometry, sight distance, crash data, and other site specific factors to compare safety benefits to constructability and cost considerations.
2. “Two Lane Ramp Interstate” within PPM Table 2.3.1 shall also be applied to ramps with more than two lanes, and thus have a four feet paved inside shoulder and a ten feet paved outside shoulder.
3. Though PPM Figure 2.0.1 only shows “two lanes” for multi-lane ramps, the shoulder configuration (six feet inside shoulder and ten feet outside shoulder) shall also be applied when more than two ramp lanes occur.
4. Twelve feet inside and outside paved shoulders shall be provided for mainline sections that are three lanes or more in one direction, and that have greater than 250 DDHV trucks. Additional stabilization and continuation of the shoulder cross slope beyond the twelve feet 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](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.

*Add the following section*

### **2.3.4 Shoulder Rocking**

Cross slope for full width shoulders in a tangent section may be varied from three percent to a maximum of 6 percent. A minimum longitudinal gutter grade of 0.24 percent shall be met. The minimum distance between the low point and high point is 100 feet. 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 feet guardrail deflection. If a concrete barrier is used instead of guardrail and shoulder gutter, then a 4 feet 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 \* Design Speed.

## 2.8.2 Vertical Curves

*Add the following paragraphs*

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 paragraph*

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

## 2.10 Vertical Clearance

**Table 2.10.2 Minimum Vertical Clearances for Signs***Change the following table*

ELEMENTS	CLEARANCE <sup>1, 2</sup>
<b>Overhead Sign Structures</b>	18'-0" clearance over the entire width of the pavement and shoulder to the lowest sign component

1. For notes 1 and 2, see PPM.

## 2.11 Horizontal Clearance

**Figure 2.11.1 Horizontal Clearance to Guardrail***Replace title with the following***Figure 2.11.1 Horizontal Clearance to Barriers**

## 2.14 Interchanges and Medians Openings/Crossovers

*Add the following section*

### 2.14.5 Crossovers on Turnpike Facilities

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.

Emergency Crossover Design Guide Drawings can be found at the following link:

[http://design.floridasturnpike.com/prod\\_design/roadway/roadwayguidedrawings.html](http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html)

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

*Add the following section*

### 2.17 Sodding

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 feet 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 2013, 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

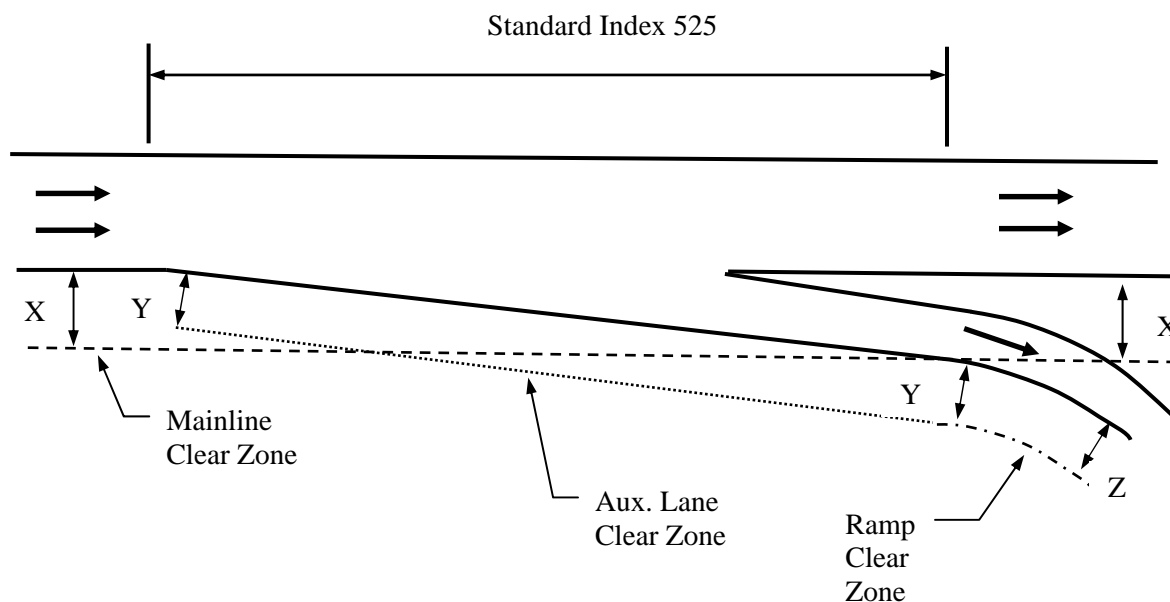
### Roadside Safety

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 4.1.2 Clear Zone Criteria

*Add the following figure*

**Figure 4.1.2.3 Clear Zones at a Ramp**



#### 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 Recommendations

*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 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 paragraph*

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 Minimum Offset of Barriers**  
(Measured from the face of the barrier)

*Add the following to the table*

BARRIER TYPE	OFFSET
High Tension Cable Barrier	8'-0"

## 4.4 Median Barriers

### 4.4.2 Selection

*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.

*Add the following section*

### 4.4.4 Median Barrier Grading Requirements

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 2013, 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 2013, 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 2013, 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](http://design.floridasturnpike.com/prod_design/traffic/trafficguidedrawings.html)

##### 7.1.2.2 Median Traffic Railings

*Modify paragraph 1*

Add Do Not Stop (TPK-7) to the list of permanent signs critical to safety.

#### 7.2 Signing

##### 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.

*Add the following section*

## **7.2.10 Overhead Sign Installations**

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.

*Add the following section*

### **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.

*Add the following section*

### **7.2.12 Toll Route Markers**

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:

1. To identify the Turnpike from a cross road or for trailblazing – 30" x 36"
2. For all guide sign uses along a freeway and for Post Interchange signs – 40" x 48"
3. 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:

1. 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.

*Add the following section*

### **7.2.13 Truck Lane Restrictions**

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.

## 7.3 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 (R2005)***, ANSI/IESNA.

***American National Standard Practice for Tunnel Lighting IES RP-22-11***, 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.

Where there is continuous roadway lighting, roadways under bridges structures shall be lighted to the same level (or criteria) of the adjacent roadway. If the adjacent roadway is not lighted, lighting under bridges structures is still required where there is frequent nighttime pedestrian traffic; or where unusual or critical roadway geometry occurs adjacent to or under the bridge structure. Daytime lighting is required when the bridge structure limits natural sunlight penetration and limits a driver's visibility under the structure. Other factors to consider in evaluating the need for daytime lighting are specific roadway geometry and conditions, including pedestrian and vehicular activity. These requirements include not only Turnpike facilities, but any roadway crossing under a Turnpike facility.

Projects with conventional lighting along the roadside shall be designed for an average initial illumination as indicated in Table 7.3.1. 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. 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**

*Replace the following table*

ROADWAY CLASSIFICATIONS	ILLUMINATION LEVEL AVERAGE INITIAL (H.F.C)	UNIFORMITY RATIOS		VEILING LUMINANCE RATIO
		AVG/MIN	MAX/MIN	L <sub>v</sub> (max)/L <sub>avg</sub>
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

**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, and Highway Speed Tolling Gantries. 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***Replace the following table*

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

**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.

**Table 7.3.3 Sign Lighting***Replace the following table*

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***Replace the following table*

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.

*Add the following section*

### **7.3.1.1 Box Girder Maintenance Lighting and Power**

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.

*Add the following section*

### **7.3.1.2 Photometric Analysis**

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 with 1/100<sup>th</sup> accuracy (0.XX foot-candles). Where solid objects, such as bridges, block light fixture contributions, a 3D graphic representation shall be included to ascertain that solids were accounted for. Typical section photometric analysis are not considered a complete or through photometric analysis.

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(s). 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 with 1/100<sup>th</sup> accuracy (0.XX) foot-candles).

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.

*Add the following section*

### **7.3.1.3 Lighting Load Center and Wiring Criteria**

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 is required for sign structure lighting protection.

*Add the following section*

### **7.3.1.4 Temporary Lighting Criteria**

The design of temporary lighting shall meet the criteria shown in section 7.3.1. If this criteria cannot be met based on various factors of construction, the Design Engineer of Record shall submit a safe and effective design, using proper engineering judgment to the Turnpike Project Manager and Turnpike Electrical Engineer for review and approval.

## **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.

*Add the following section*

#### **7.3.2.4 Temporary Lighting on Temporary Barriers**

Designers should be aware that several historical details for connection of temporary light poles to temporary barriers exist, but are no longer considered acceptable for use on current projects. The connection details should be investigated for projects in design and also for review of shop drawings of projects in construction.

The design of temporary light poles attached to temporary barriers shall conform to the following:

1. Poles shall only be connected to bolted-down or stacked-down Type K temporary barriers.
2. The pole shall be connected to the barrier with a V-shaped bracket that provides two points of connection to the back of the barrier.
3. The pole setback from the barrier shall meet the requirements of PPM 7.1.2.
4. The V-shaped bracket shall not protrude above the top of the barrier.
5. The pole and V-shaped bracket shall be located at the longitudinal center of the barrier segment.
6. Connections to the barrier shall not damage the barrier reinforcing steel.
7. The electrical connections shall be of the “quick-disconnect” type.
8. The pole, bracket and connections shall be designed by a structural engineer to PPM Chapter 29 and FDOT Structures Manual Volume 9 requirements.
9. The lighting and electrical shall be designed by an electrical engineer.

If temporary lighting attachment to temporary barriers is to be designed by the Contractor, then these requirements should be provided in a plan note, which shall also require a shop drawing submittal.

#### **7.3.3 Foundation Criteria**

*Add the following paragraphs*

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

*Replace the last paragraph with the following*

Per PPM, Vol. 1, 2.10.4 and PPM, Vol. 1, 13.5.1, all projects shall be reviewed and coordinated with the FDOT Aviation Office to determine if notification and/or permitting are 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.

*Add the following paragraph*

**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.

*Add the following section*

#### 7.3.6.1 Pole Cable Distribution System

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.

### 7.4.1 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.

### 7.4.2 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.

## 7.5.1 Design Criteria

*Add the following paragraph*

All pull boxes and splice boxes shall be H-20 or HS-20 load rated.

### 7.5.4.1 Dynamic Message Sign (DMS)

*Add the following paragraph*

When general purpose mainline DMS are proposed, a travel time sensor compatible with the existing system shall be installed at the site.

### 7.5.8.2 ITS Pole and Lowering Device

*Replace the first paragraph with the following*

CCTV cameras shall be installed on ITS poles without lowering devices unless there are issues with maintenance and access to the camera, or other circumstances requiring a lowering device. The ITS pole for CCTV camera shall be designed as a square type pole mounted at approximately 45 feet.

*Add the following paragraph*

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.

## 7.6.1 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.

*Add the following section*

## 7.8 Electrical Systems Design and Analysis

The design of all electrical systems (Lighting, Traffic Signals, ITS) shall comply with Florida Administrative Code (FAC) 61G15-33, Responsibility Rules of Professional Engineers Concerning the Design of Electrical Systems. These responsibilities are applicable for all new projects and any major modifications or renovations. In addition, the following analyses are also required. These designs and analyses shall be prepared, reviewed, and 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.

## **7.8.1 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).

## **7.8.2 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.

## **7.8.3 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.

## **7.8.4 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, Bicycle and Public Transit Facilities

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 8.7.1 Design Criteria

*Replace the following paragraph*

6. Fencing/Railing

- b. Provide full screening in conformance with Standard Index drawings on pedestrian bridges and 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

### Landscape and Community Features

The following are changes, additions or deletions to the January 2013, 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 to original grade or grades acceptable to the Engineer.
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 unless the plant types being used can successfully compete with the weeds or be a plant type that would be difficult to maintain, such as thorns, etc. Consider spacing plants closer together and/or installing in large container sizes to fill in more rapidly. Should weed control be used, it shall be biodegradable with a 3 years maximum life expectancy. Permanent erosion control fabrics are not preferred.

#### 9.1.1 References

*Add the following reference*

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

#### 9.2.1 Maintenance Plan

*Add the following paragraph*

All FTE landscape designs shall comply with the “Florida Turnpike Enterprise Landscape BRAND Guidelines” most current issue. This document can be found at:

[http://design.floridasturnpike.com/prod\\_design/architecture/architecture.html](http://design.floridasturnpike.com/prod_design/architecture/architecture.html)

*Add the following section*

### **9.2.1.1 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

*Add the following section*

### **9.2.1.2 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) as applicable
10. Erosion control as applicable
11. Fertilization program
12. Hardscape, lighting, benches, and site amenities as applicable
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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 10.2 References

*Add the following reference*

7. FDOT, Drainage Manual

#### 10.3.1.1 Temporary Traffic Control (TTC) Plans

*Add the following to bullet #4*

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 bullet #10 to end of Step #2*

10. Maintain drainage conveyance and spread.

*Add the following as bullet #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 paragraph*

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

*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 the following as bullet #11*

11. Temporary pavement and drainage maintenance details.

### **10.12.5 Superelevation**

*Add the following paragraph*

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 Widths**

*Add the following paragraph*

Excluding issues to accommodate spread, shoulder widths associated with the travel lanes shall be designed to achieve a minimum of two feet in width (paved). Any deviation from the two feet 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 four feet from Turnpike Traffic and the milling operation or the resurfacing operation. Where a four feet shoulder (buffer) cannot be maintained, an acceptable buffer space must be justified to and approved by FTE staff.

*Add the following section*

#### **10.12.6.1 Emergency Pull Off Area**

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 eight 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 twelve feet wide and 500 feet long located every one-half to one mile and no closer than one-half 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 paragraphs*



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.

*Add the following section*

### **10.12.7.1 Exit Ramp Lane Closure**

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

1. Minimum Ramp Opening of 200 feet.

### **10.12.8 Traffic Pacing Design**

*Add the following paragraphs*

*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-C, sheets 5 - 12* 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.

### **10.12.13 Existing Highway Lighting**

*Replace the first paragraph with the following*

Temporary lighting systems are required for all roadways where existing lighting is being replaced or new lighting is being constructed. The designer shall prepare a specification that completely describes what is to be done during all phases of construction. Give detailed information on poles, conduit, and/or conductors that would have to be installed. A field survey

should be conducted to establish the condition of any existing system(s) and what responsibility the contractor will have in bringing the existing lighting system(s) back to an acceptable condition.

*Add the following section*

### **10.12.18 Temporary Drainage**

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

*Add the following section*

### **10.12.19 Friction Course on Temporary Pavement**

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.

*Add the following section*

### **10.12.20 Temporary Barrier Wall Tape**

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](http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html)

*Add the following section*

### **10.12.21 Reflective Pavement Markers**

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.

*Add the following section*

## **10.12.22 Standard MOT General Notes**

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](http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html)

## **10.13.1 Regulatory Speeds in Work Zones**

*Add the following paragraph*

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 paragraphs*

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.

<b>FHP TRAFFIC CONTROL OFFICER ESTIMATE</b>				
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, review MOT General Notes and incorporate in plans the applicable traffic control officer notes and Regional contact information:

[http://design.floridasturnpike.com/prod\\_design/roadway/roadwayguidedrawings.html](http://design.floridasturnpike.com/prod_design/roadway/roadwayguidedrawings.html)

**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 for all Turnpike roads are as follows:

- |    |   |              |
|----|---|--------------|
| 1. | Palm Beach County                                 | 561-357-4284 |
| 2. | St. Lucie/Okeechobee/Indian River/Martin Counties | 772-873-6541 |
| 3. | Broward County                                    | 954-321-2713 |
| 4. | Miami-Dade County                                 | 305-378-4235 |
| 5. | Osceola/Orange/Lake/Sumter/Seminole Counties      | 407-264-3222 |
| 6. | Pasco/Hillsborough/Hernando/Polk Counties         | 813-558-1117 |

**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.

## **Chapter 11**

### **Stormwater Pollution Prevention Plan**

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### **11.1 General**

*Add the following after paragraph 7*

The limits of construction and silt fence installation must be indicated at the same location on the plans.

## Chapter 12

### Right of Way

The following are changes, additions or deletions to the January 2013, 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

*Add the following section*

#### 12.4 Property Owner Contacts

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.

*Add the following section*

## **12.5 Construction Issues**

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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### **13.2 Initial Engineering Design (Phase I)**

*Add the following items*

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 items*

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

#### **13.6 Preliminary Geometry, Grades, and Cross Sections**

*Add the following sentence at the end of 3<sup>rd</sup> 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### **14.5 Pay Items and Summaries of Quantities**

*Modify the last sentence as follows*

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

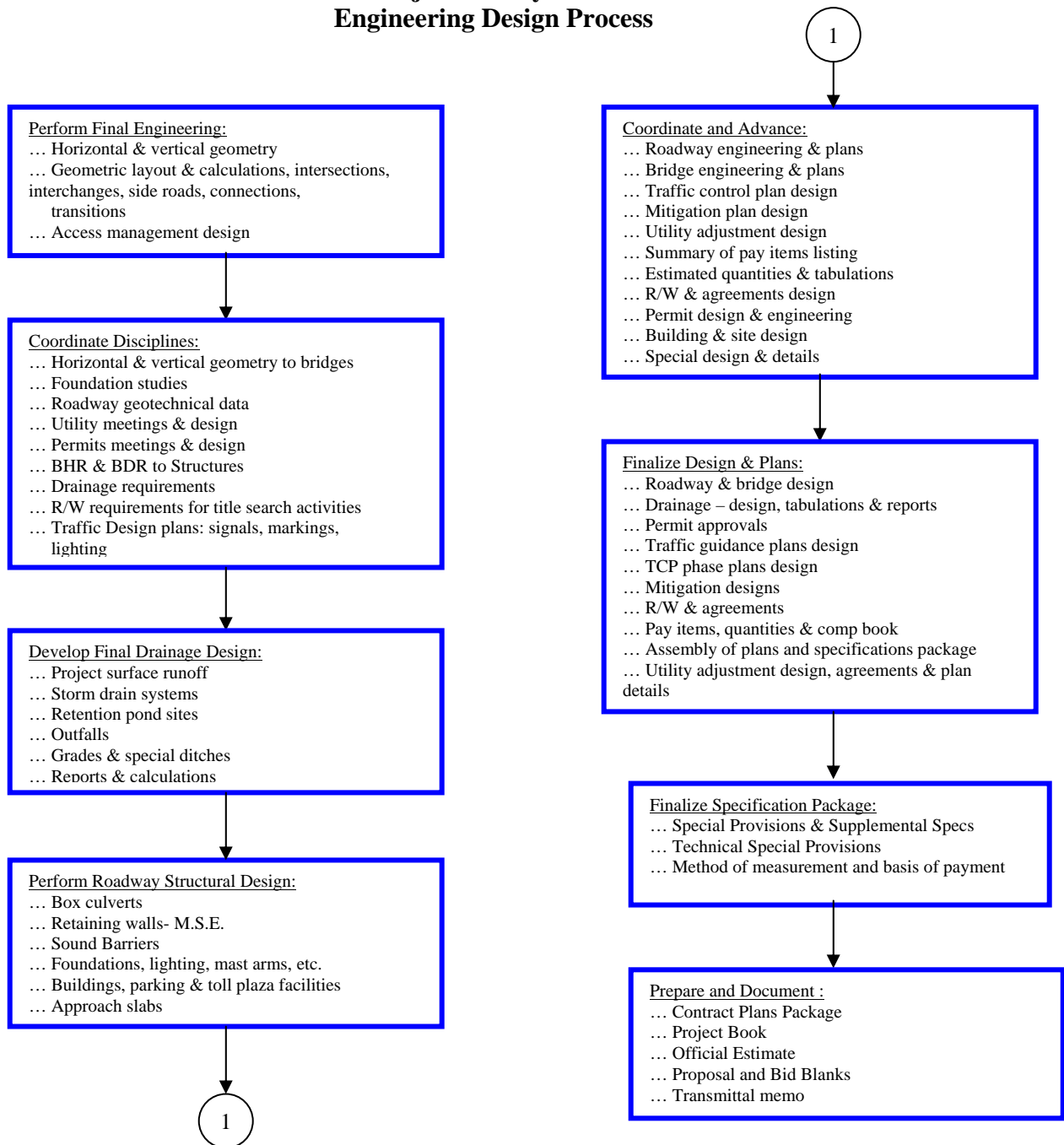
#### **14.6 Assemble Contract Plans Package**

*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 2013, 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 16.2 Design Documentation Submittals

##### 16.2.3 Typical Section Package

*Add item e. to Bullet #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 the following 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. Clear zone.
- 19. Vertical and Horizontal Clearances at crossing roads if project includes work within bridge limits.

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.)

*Add to list for “Proposed Structure Typical Section Drawing”*

- 13. Minimum vertical clearance.

*Add the following section*

### 16.2.3.1 FTE Processing

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.

### 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 percent) 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 percent) 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 percent) Geometric Submittal are to:

1. Check consistency with the intent and scope of the Project Concept Report.

2. 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.
3. Verify the geometric viability of the project for the desired design speed and traffic volumes.
4. Provide a basis for early coordination with other disciplines (drainage, structures, etc.) and for early identification of design constraints or problems.
5. Document off-site and pavement drainage constraints; such as flood plain elevations and seasonal high water table.
6. Design criteria specific to the project.
7. 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 percent) 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.
4. Paving approach and sequence, including proposed cross slope correction.
5. Lane Closure Analysis and restrictions, and daytime/weekend consideration.

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 percent.
2. All pavement designs on rehabilitation projects shall be calculated using a minimum Reliability (%R) of 99 percent.
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 (PMA) 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](http://design.floridasturnpike.com/prod_design/roadway/resourcesandchecklist.html)

*Add the following section*

### **16.2.7.2 Cross Slope Analysis Report**

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.

Section 25.4.6 of PPM Volume 1 requires tabulating existing cross slopes in the plans at 100 feet intervals, and preparing cross sections for the plans 50 feet before and after PC's and PT's and at 300 feet intervals along curves, for superelevation correction.

FTE experience is that simplifying the cross slope correction design and providing greater plan clarity is necessary to accomplish cross slope correction in the field. Typically, profilograph data is collected and significant coordination occurs as to the best paving approach and how it should be shown in the plans, with a preference to show milling at specific cross slopes between stations and from single control points, followed by constant depth resurfacing. This approach minimizes the amount of the data shown in tabular format.

Therefore, the new PPM requirements for cross slope correction design and plan presentation, as described above should be evaluated on a project by project basis and waived unless deemed beneficial.

*Add the following section*

### **16.2.9 Roadway Design Documentation**

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)

The design documentation shall include all design notes, data, and calculations to document the design conclusions reached during the development of the contract plans. The design notes, data, and computations shall be recorded on size 8 ½” x 11” sheets, fully titled, numbered, dated, indexed and signed by the designer and the checker. Computer output forms and other oversized sheets shall be folded in 8 ½” x 11” size. The data shall be in a hardback folder for submittal to FTE Project Manager.

*Add the following exhibit***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.

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Item No.	Description of Change
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Designer's  
Name

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Item No.	Description of Change
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Designer's  
Name

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Item No.	Description of Change
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Designer's  
Name

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*Add the following exhibit***EXHIBIT 16-D****Date**

\_\_\_\_\_, P.E.  
District Design Engineer  
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. \_\_\_\_\_:

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.

\_\_\_\_\_, 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

## Chapter 17

### Engineering Design Estimate Process

The following are changes, additions or deletions to the January 2013, 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 and Quality Control

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

*Add the following section*

#### 18.4 Turnpike Quality Control and Assurance Process

##### 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.

1. 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.
2. 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.
3. Provide and document the required Coordination, Field and Biddability Reviews as provided in the Scope of Services to prevent production rework, errors and omissions.
  4. Support Value Engineering Studies and provide special supplemental Independent Peer, Constructibility, and/or Maintainability Reviews on designated projects.
  5. 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.
  6. 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.
  7. Utilize Submittal Sufficiency and Quality Assurance Reviews to confirm completion and validate each submittal Certificate of Compliance.
  8. 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.
  9. 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.
  10. 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:
  11. The Principal or Officer-In-Charge approves the release of the documents.
  12. The documents are stamped "Advance Copy - For Information Only".



13. 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.
14. The Turnpike will provide compliance and Biddability Reviews, PM Monitoring, and Quality Process Audits to complete the process.
15. 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.
16. 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 back check 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.

*Add the following exhibit***Exhibit 18-A, Page 1 of 4****Principal or Officer-In-Charge** (*Oversees Project & provides QA Review*): Name**Project Manager** (*Oversees Quality Control & Coordination, provides part of the QA Review*): Name

<b>ELEMENT / TASK</b>	<b>Deliverable</b>	<b>Responsible Professional (RP)</b>	<b>Reviewer (R)</b>
<b>ROADWAY</b>			
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		
<b>SURVEY / RIGHT OF WAY</b>			
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 2 of 4**  
**Project Staffing List (Cont.)**

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

**Exhibit 18-A, Page 3 of 4**  
**Project Staffing List (Cont.)**

<b>ELEMENT / TASK</b>	<b>Deliverable</b>	<b>Responsible Professional (RP)</b>	<b>Reviewer (R)</b>
<b>STRUCTURES</b>			
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		
<b>TOLL PLAZA(S)</b>			
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 4 of 4**  
**Project Staffing List (Cont.)**

**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)
<b>PD&amp;E</b>			
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		



*Add the following exhibit***Exhibit 18-B****CERTIFICATE OF COMPLIANCE** (Complete and Submit on Consultant's Letterhead)

**TO:** \_\_\_\_\_, P.E., Turnpike Director of Transportation Development  
 \_\_\_\_\_, P.E., Turnpike Design Engineer  
 \_\_\_\_\_, P.E., Design Program Manager  
 \_\_\_\_\_, P.E., Production Project Manager  
 \_\_\_\_\_, 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-C**

Project: \_\_\_\_\_ FPID No.: \_\_\_\_\_

[illegible]

## **Chapter 19**

### **Sealing Design Documents**

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### **19.3 Sealing Other Design Documents**

*Add the following as items #15 and # 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 20.1 General

*Add the following paragraph*

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.

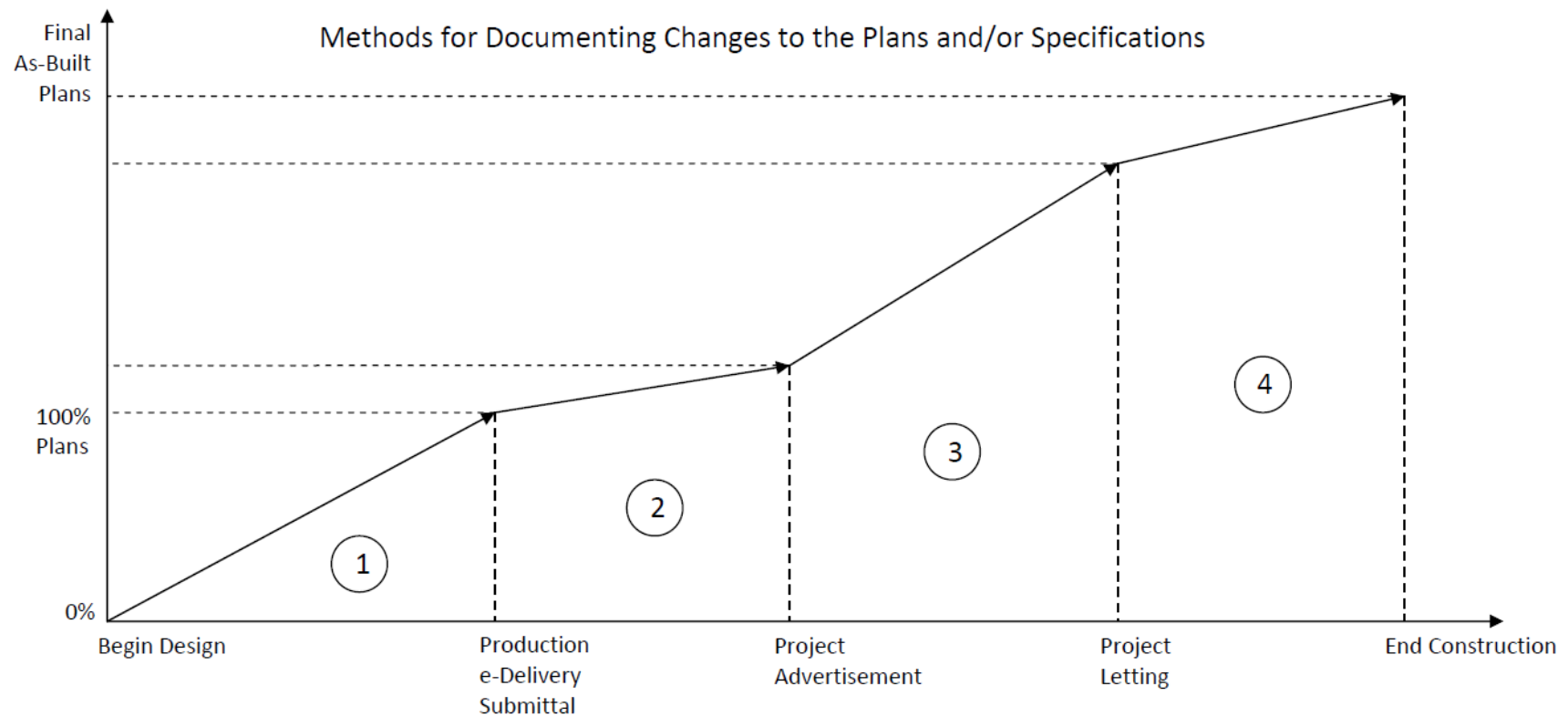
In lieu of using the PEDDS process described above, the Engineer is encouraged to use the Digital Signature Method to deliver the PS&E package electronically. Any questions regarding this process can be forwarded to the Turnpike Plans Processing Engineer.

#### 20.4 Revisions to the Bid Set

*Add the following language*

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](http://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

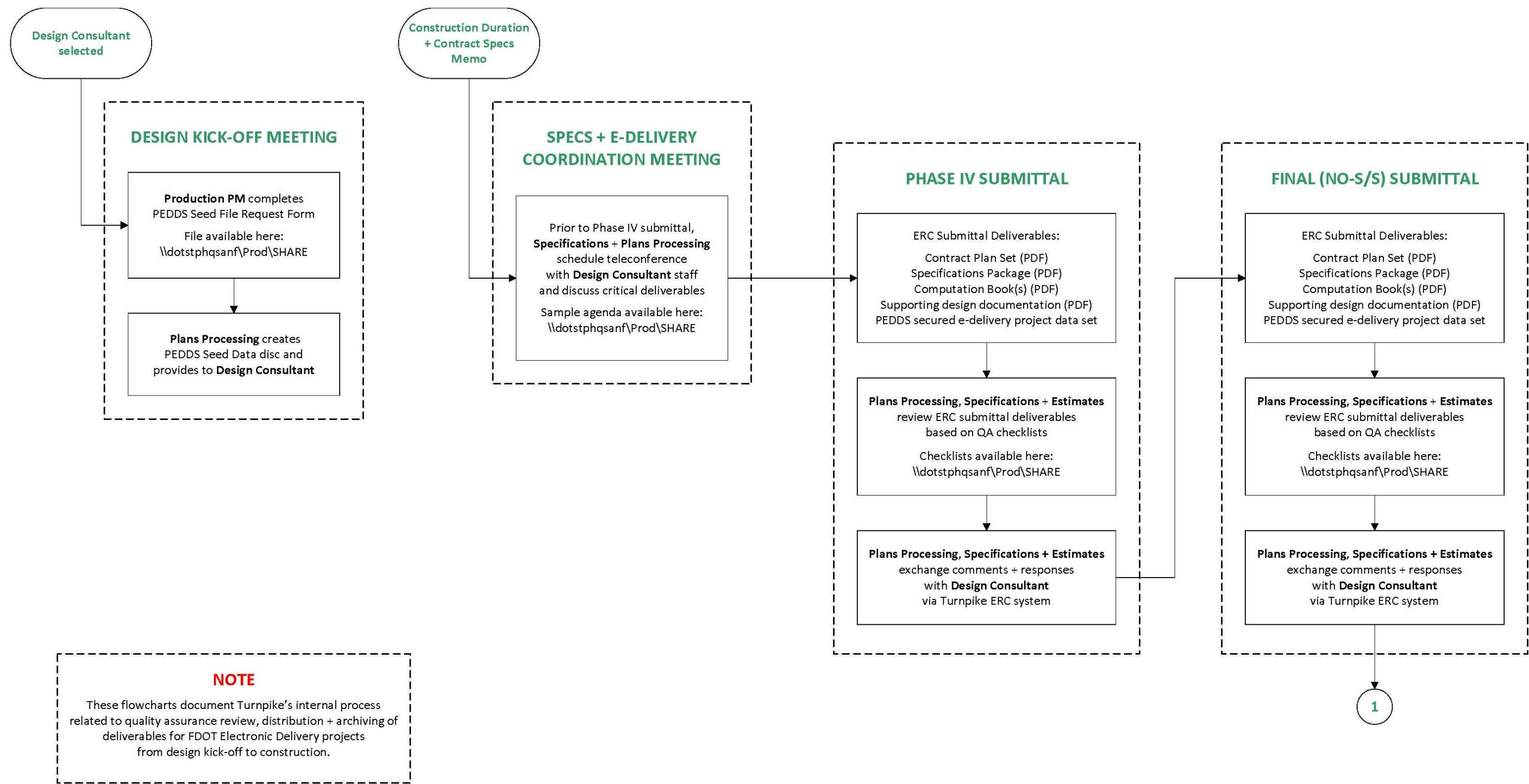
**SUPPLEMENTAL SPECIFICATIONS**

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

**CONTRACT E8L46 MODIFICATIONS NARRATIVE:**

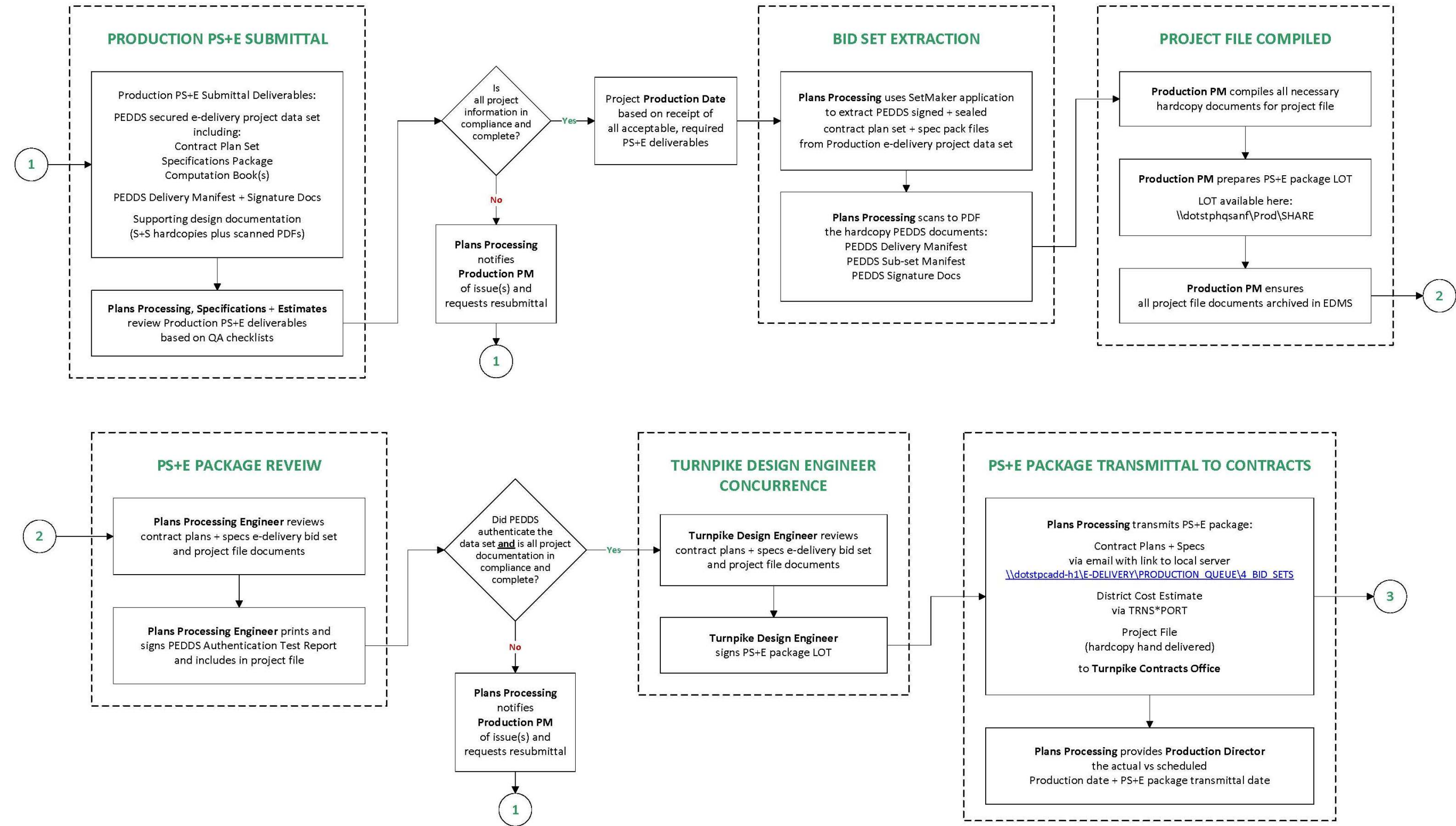
Provide a brief description of modifications.

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

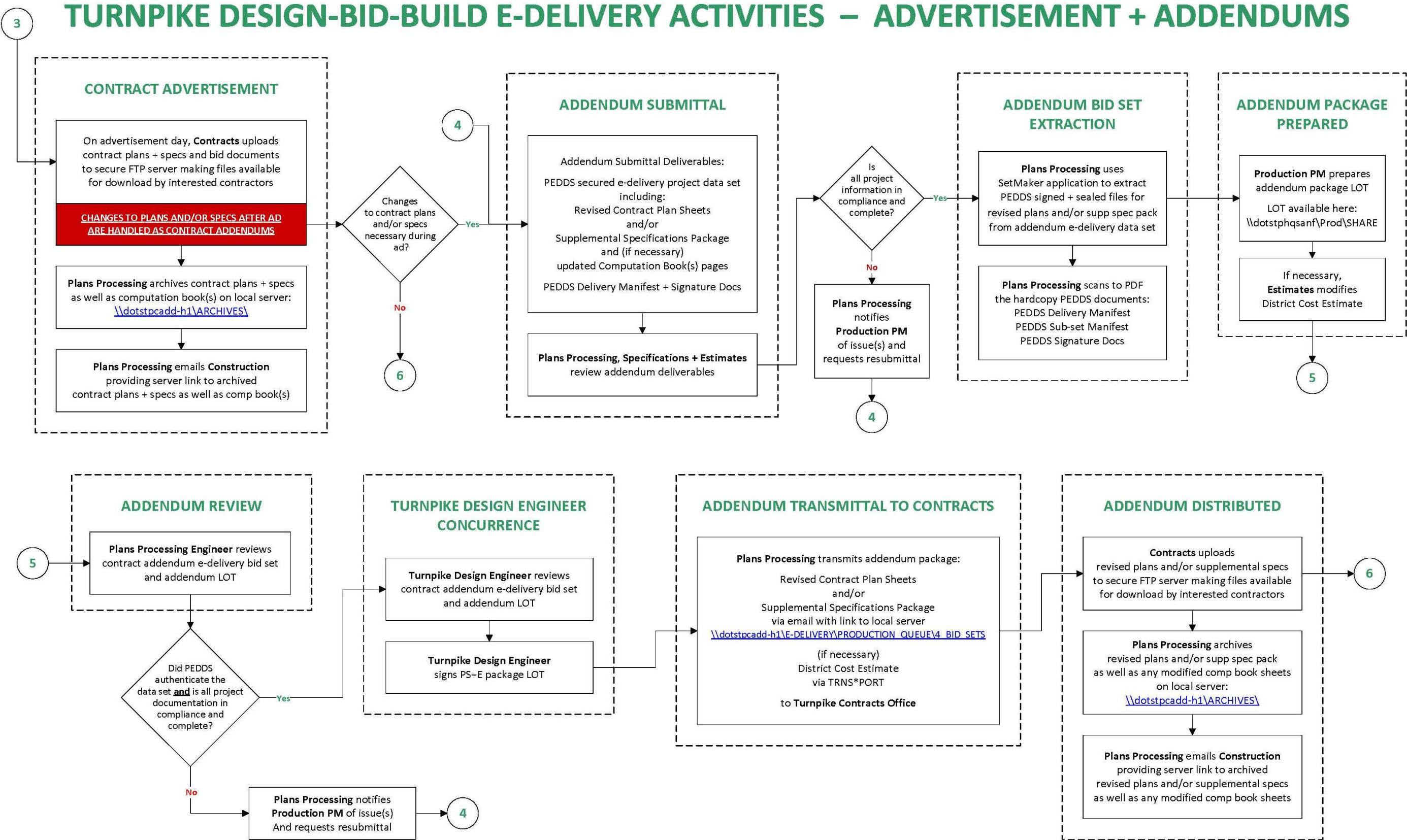




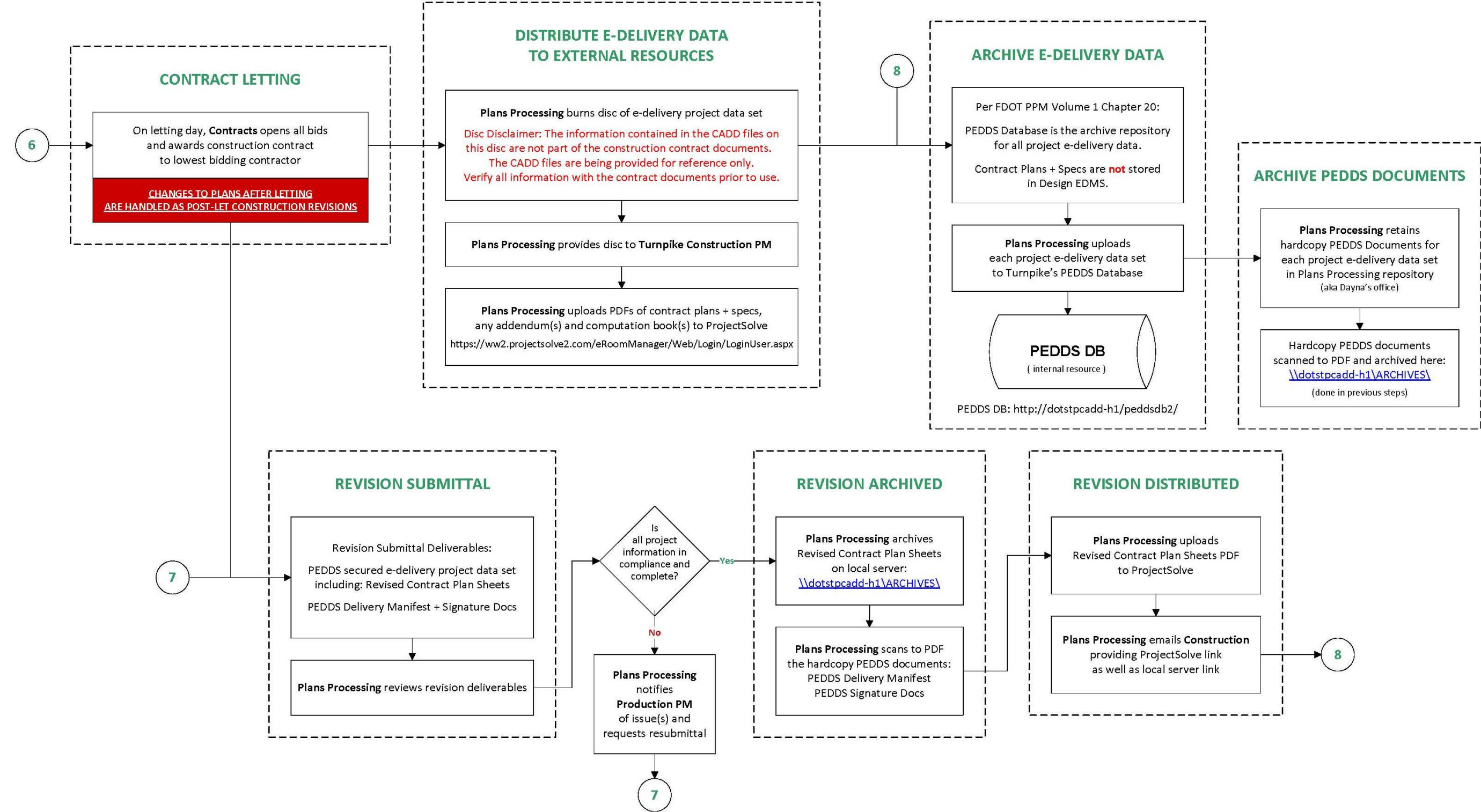
TURNPIKE DESIGN-BID-BUILD E-DELIVERY ACTIVITIES – PRODUCTION TO PS+E TRANSMITTAL







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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

*No changes to the entire chapter*

## **Chapter 22**

### **Lump Sum Project Guidelines**

The following are changes, additions or deletions to the January 2013, 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 23.3 Approval

*Add the following section*

##### 23.3.1 Turnpike Design Exceptions and Variations

The Consultant shall submit all design variations and exceptions electronically 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 approved documents to the TDE with a recommendation of approval. After receiving concurrence by the TDE, a signed copy will be returned to the Consultant.

All exceptions and variations will require that the appropriate 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](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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

*No changes to the 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 2013, 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 2.14.5. 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](http://design.floridasturnpike.com/prod_design/roadway/resourcesandchecklist.html)

#### 25.4.3 Pavement Design

*Add the following sentence*

See section 16.2.7.1 for additional FTE pavement design requirements.

#### 25.4.26.2 Existing Structures - With Planned Additional Loading

*Replace the last sentence*

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

## **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:

1. 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.
2. 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.
3. 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 26.9.4 Aesthetics

*Add the following item*

3. 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.

#### 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.

*Add the following section*

#### 26.19 Deviations from Structures Manual

##### 26.19.1 Deck Thickness Determination

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

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

##### 26.19.3 Bridge Deck Grooving

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.

## **Chapter 27**

### **Hydraulic Data and U.S. Coast Guard Permits**

The following are changes, additions or deletions to the January 2013, 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 28.1 Introduction

*Add the following paragraph*

Typically FDOT Florida's Turnpike Enterprise Shop Drawing Review Office will provide the Contractor with the Shop Drawing Routing Chart (Exhibit 28-A) and Shop Drawing Procedures information package at the Preconstruction Conference. 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.

#### 28.2 Drawing Submittals Required

*Delete 4<sup>th</sup> paragraph and add the following*

Material certifications, welding procedures and concrete mix designs are typically submitted by the Contractor to the Resident Engineer (CEI) who forwards the certifications to the State Materials Engineers in Gainesville. These items do not need to be submitted to the FDOT Shop Drawing Review Office for review and approval. For non-standards items, the Resident Engineer (CEI) will typically request approval by the EOR regarding applicability. Material certifications for items on the Qualified Product List (QPL) and/or Approved Product List (APL) is typically submitted by the Contractor to the Resident Engineer (CEI) thru **ProjectSolve**. This procedure will be defined during the preconstruction conference.

#### 28.3 Contractor Information Required

*Add the following to last sentence, paragraph 2*

Identify Toll Gantry Structures by site location.

*Delete last sentence of paragraph 5 and add the following*

Approval of Shop/Erection Drawing will not constitute nor be considered grounds approval of a variation in which the project requirements are affected unless specifically so noted in the Engineer of Record and/or Department's approval comments as returned with the drawing submittal. This shall be incorporated by the Contractor on the shop drawing module page in **ProjectSolve** within the "Comment" area.

*Add the following paragraphs*

Contractor shall document as such on the shop drawing module page in **ProjectSolve** within the “Comment” area. Approval of Shop/Erection Drawings will not constitute nor be considered grounds for approval of a variation in which the project requirements are affected unless specifically so noted in the Engineer of Record and/or Department’s approval comments as returned with the drawing.

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 Resident Engineer (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*. 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, FDOT Florida’s Turnpike Enterprise Shop Drawing Review 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 Resident Engineer (CEI) and FDOT Florida’s Turnpike Enterprise Shop Drawing Review 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 the submission.

## 28.4 Submittals Requiring a Specialty Engineer

*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.

*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.

## 28.5 Scheduling of Submittals

*Add to following paragraph*

Prior to the submission of any shop drawings, the Contractor shall submit a Shop Drawing/Submittal Item List. The list is to be submitted in electronic format (excel spreadsheet, which will be provided by the Resident Engineer (CEI) to General Contractor). For each planned submittal, define the following; description of item, structure identification number, bridge number, location, specification section numbers and roadway divisions. Reference Exhibit 28-B which depicts the review coordination of the shop drawing/submittal item list. The Contractor shall submit the list to the Resident Engineer (CEI).

## 28.6 Transmittal of Submittals

*Delete sentences 5 and 6 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            Shop Drawing Routing Chart**

**Exhibit 28-B            Flow Chart for Shop Drawing/Submittal Item List Coordination for Design Bid Build Projects**

**Exhibit 28-C            Shop Drawing Review Office - Department's Review Office Distribution Chart**

*Replace 2<sup>nd</sup> 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**

### **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 paragraphs*

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.

If the shop drawing is not submitted in complete format, the Architect of Record and/or Engineer of Record shall coordinate with the Resident Engineer (CEI) and/or Contractor accordingly. Architect of Record and/or Engineer of Record to make determination based on coordination with Resident Engineer (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 FDOT Florida's Turnpike Enterprise's Shop Drawing Review 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 FDOT Florida's Turnpike Enterprise Review Office, via overnight courier.

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

Shop Drawings shall bear Architect of Record/Engineer of Record's code disposition stamp. The Department will continue to overview those shop drawings deemed "Critical". A project specific list of "Critical" shop drawings will be developed by FDOT Florida's Turnpike Enterprise Staff. Upon review of these shop drawings, the Department's reviewer will stamp, sign and date shop drawings.

Architect of Record and/or Engineer of Record submits the shop drawing submission through **ProjectSolve** to FDOT Florida's Turnpike Enterprise Shop Drawing Review Office for final processing back to the Contractor. The Resident Engineer (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 FDOT Florida's Turnpike Enterprise Shop Drawing Review 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 the whole section with the following*

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 thru *ProjectSolve*. Upon receipt of the submittal, the Consultant shall perform the review, note any comments directly on the sheets, indicate the disposition by stamping the sheets and, submit to FDOT Florida's Turnpike Shop Drawing Review Office via *ProjectSolve*.

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 FDOT 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.

### **28.6.8 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 Resident Engineer (CEI) or the appropriate Department Review Office.

## 28.7 Disposition of Submittals

**NOTE: Where stated in the PPM, Engineer of Record, Replace with the following: Architect of Record and/or Engineer of Record.**

*Replace 3<sup>rd</sup> sentence, 2<sup>nd</sup> paragraph with the following*

Stamps shall identify the approving groups, such as the Architect of Record/Engineer of Record – Consultant, the Department’s assigned commercial inspection agency and/or Department personnel, and the date.

*Insert after 2<sup>nd</sup> sentence, 3<sup>rd</sup> 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. Any comments provided must be indicated in green.

*Replace 2<sup>nd</sup> sentence, 3<sup>rd</sup> 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 4<sup>th</sup> paragraph with the following*

The consultant shall contact FDOT Florida’s Turnpike Enterprise Project Manager, who will coordinate with the Construction 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 5<sup>th</sup> 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 1<sup>st</sup> sentence in 13<sup>th</sup> paragraph with the following*

Exhibit 28-A depicts the submittal distribution flow of a shop drawing through *ProjectSolve*.

## 28.9 Distribution of Submittals

***Replace 1<sup>st</sup> 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 2<sup>nd</sup> 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 4<sup>th</sup> paragraph with the following***

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

## **28.11 Submittal Activity Record (Logbook)**

***Replace 1<sup>st</sup> paragraph with the following***

FDOT Florida's Turnpike Enterprise Shop Drawing Review 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***:

1. Financial Project ID
2. Contract Number
3. Roadway Division/Specification Section
4. Description of Shop Drawing Entry
5. Date Submitted by Contractor to the Architect of Record and/or Engineer of Record
6. Date Submitted by Architect of Record and/or Engineer of Record to the FDOT Florida's Turnpike Enterprise Shop Drawing Review Office
7. Date Distributed by the Final Review Office to the Contractor
8. Architect of Record and/or Engineer of Record Disposition
9. FDOT Florida's Turnpike Enterprise Disposition (if reviewed, if not reviewed, the disposition on the shop drawing module page will be "Not Reviewed")

***Add the following section***

### **28.11.1 Shop Drawing Website**

Shop Drawings can be tracked daily by utilizing ***ProjectSolve***. The purpose of ***ProjectSolve*** is to provide the Contractor, Resident Engineer (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](http://design.floridasturnpike.com/prod_design/shopdrawings/shopdrawings.html)

## **28.12 Archiving Record Shop Drawings**

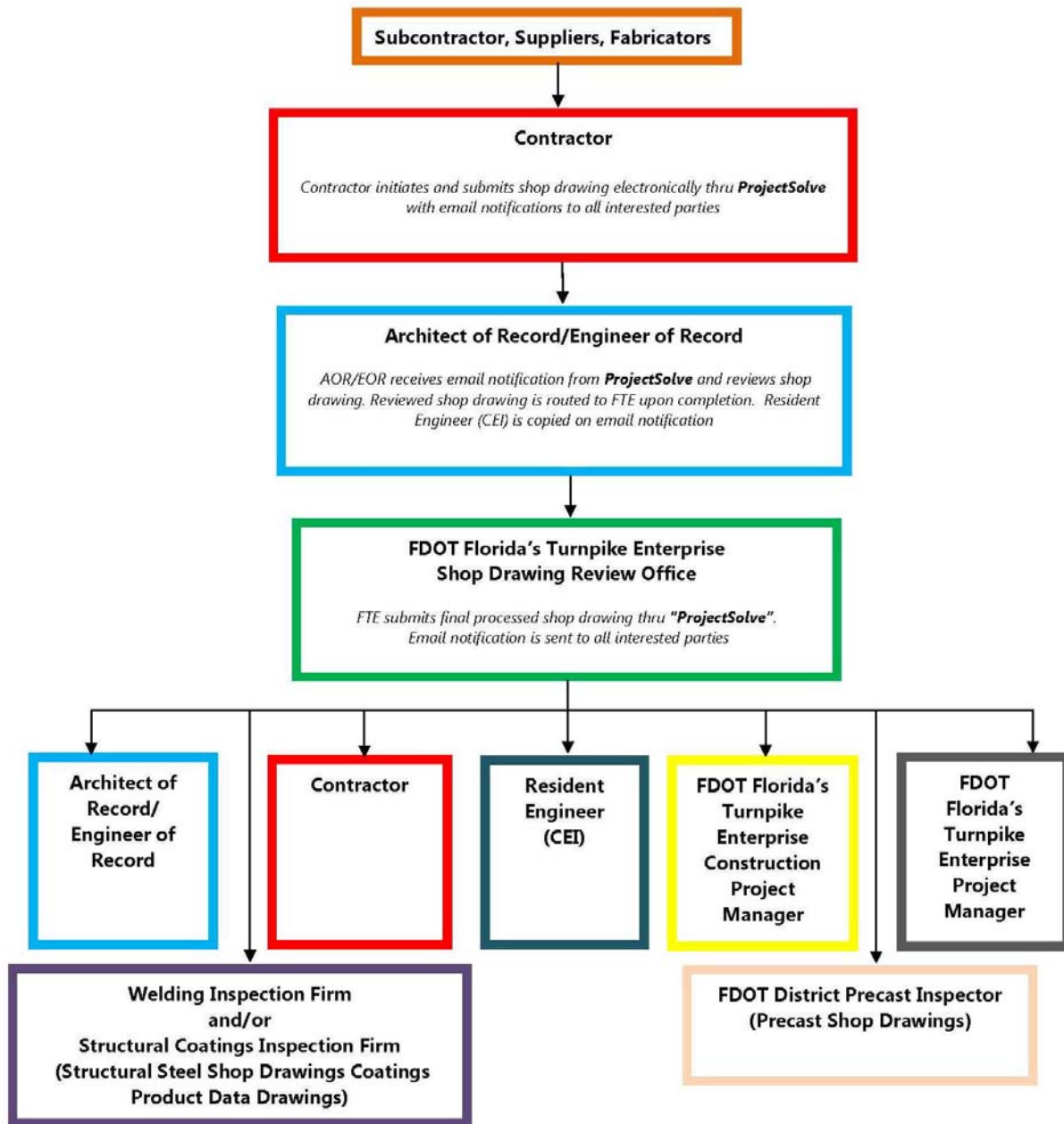
*Replace this section with the following paragraphs*

Prior to project completion, Florida's Turnpike Enterprise Shop Drawing Review Office will coordinate with the Resident Engineer (CEI) to ensure all shop drawings have obtained resolution. If not, the Shop Drawing Review Office will request the Resident Engineer (CEI) to provide clarification of resolution.

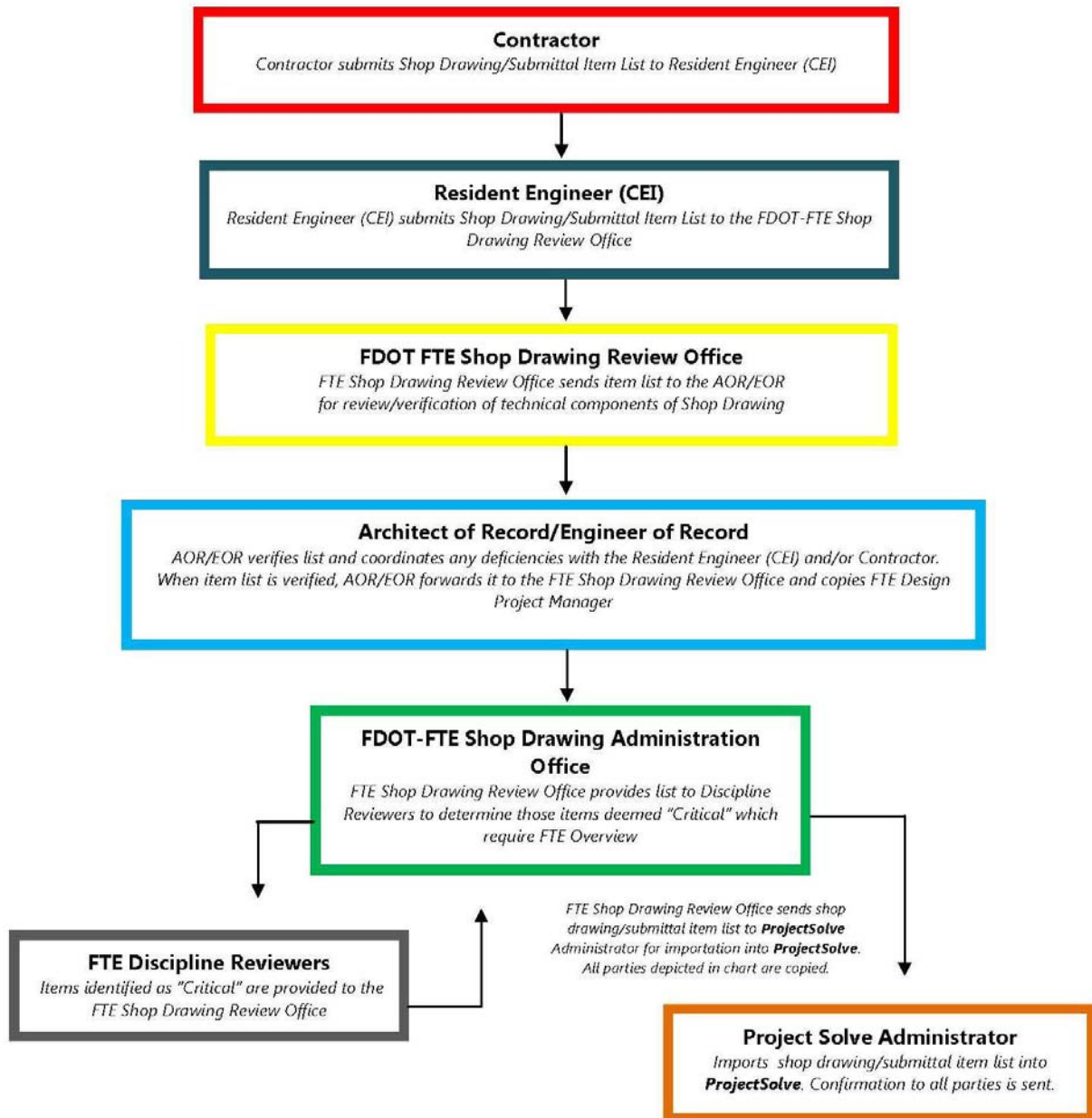
Upon completion and acceptance of the construction project by the Department (usually by receipt of a written Notice of Acceptance), FDOT Florida's Turnpike Enterprise Shop Drawing Review Office imports the shop drawings into the EDMS System. The Submittal Activity Record Logbook (Shop Drawing Status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

*Replace the following exhibit*

**Exhibit 28-A**  
**Shop Drawing Routing Chart**

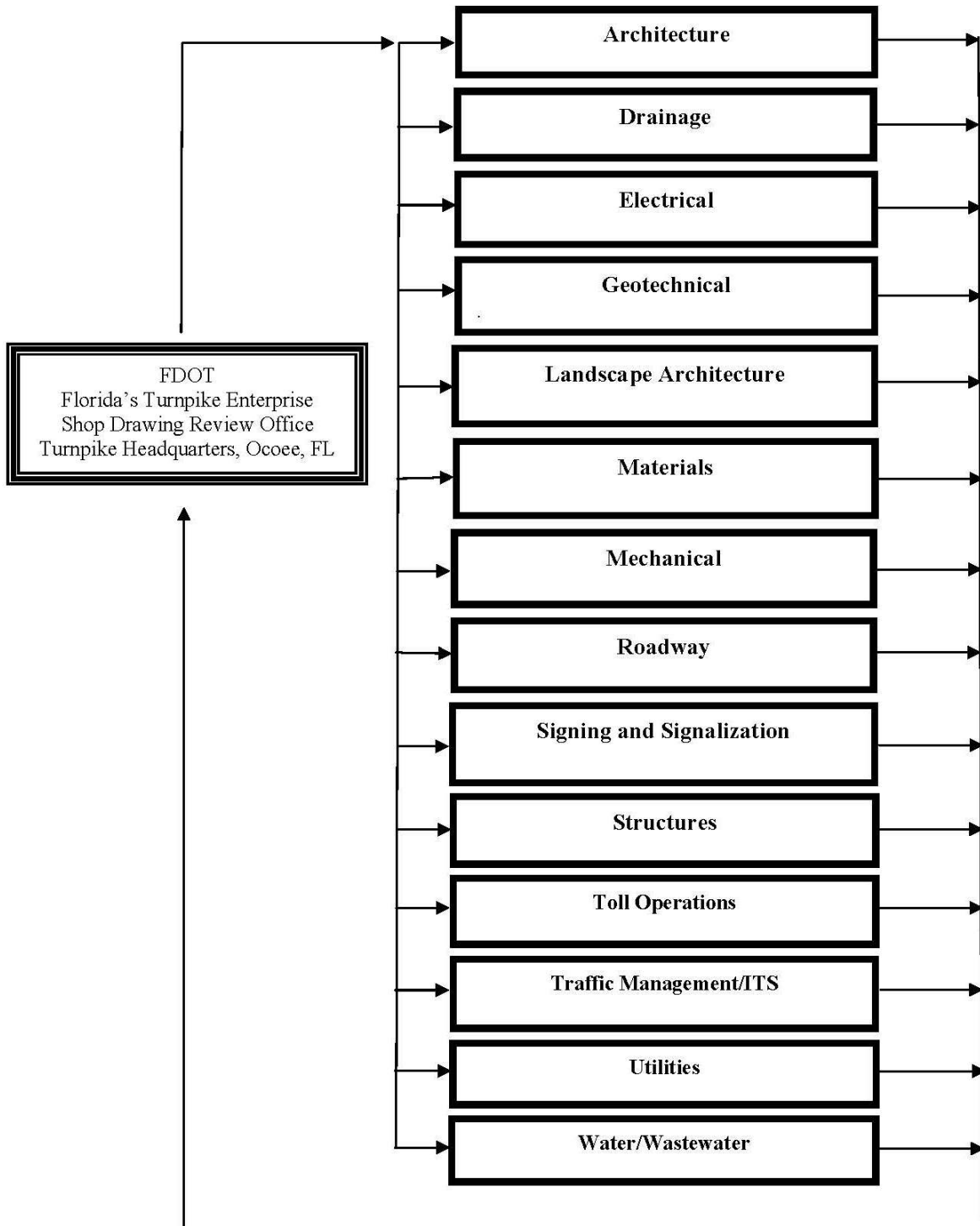


**Exhibit 28-B**  
**Flow Chart for Shop Drawing/Submittal Item List**  
**Coordination for Design Bid Build Projects**



*Replace the following exhibit*

**Exhibit 28-C**  
**Shop Drawing Review Office -**  
**Department's Review Office Distribution Chart**



*Delete the following exhibit*

**Exhibit 28-D**  
**Record Shop Drawing Transmittal**



## Chapter 29

### Structural Supports for Signs, Luminaires, and Traffic Signals

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, 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.

Miscellaneous Structures (sign structures, mast arms, etc.) shall use a galvanized coating per the applicable Standards. Do not paint or otherwise coat these structures without consent of FTE. Coordinate with the Turnpike Project Manager as necessary.

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 the General Toll Requirements for those foundations

#### 29.2.4 Standard Overhead Span Sign Structures

#### 29.2.5 Standard Overhead 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. If 125% of the proposed panel area is less than the Volume 9 minimum area, the Volume 9 minimum area should be used. If signs are not present over lanes, the Volume 9 minimum area should be used. 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.

At the time of editing the 2013 edition, FDOT Structures Design Office was beta testing a MathCad version of a sign structure design spreadsheet. When used, the 125% area and dead load increases can be ignored, however the maximum acceptable CSR shall be set to 0.80 (rather than 1.00) for all components in the spreadsheet.

### **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.

### **29.4.2 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 2013, 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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### 31.4.2 Requirements

*Replace the follow variables*

**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

*Replace the follow sentence*

**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 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

#### **32.3 Noise Abatement Criteria**

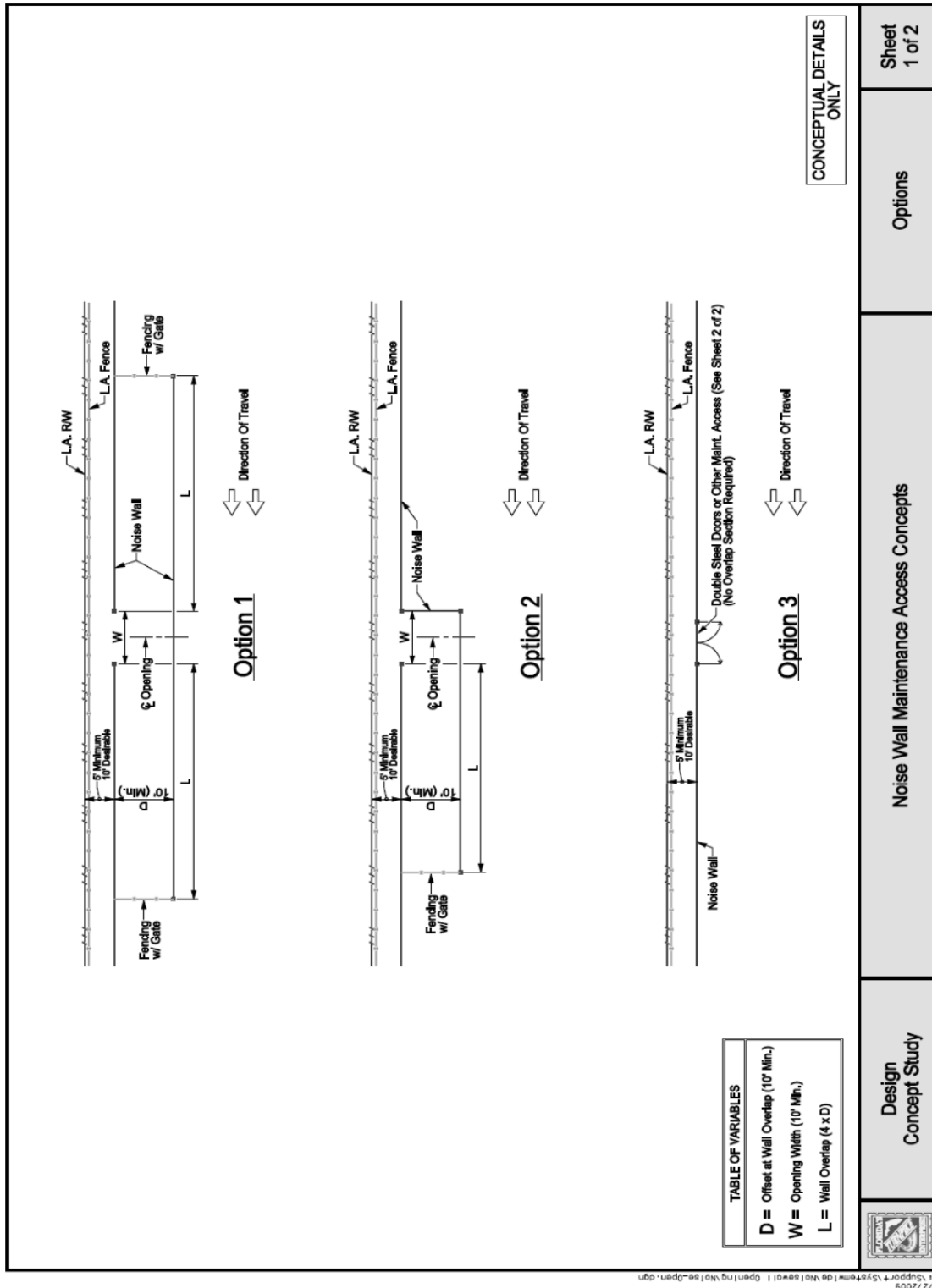
*Add the following paragraph*

Maintenance access points shall be provided for sound barrier walls constructed along the Turnpike. The preferred spacing between openings or the ends of the wall is one-half mile. Consultants shall coordinate all maintenance openings with the FTE Project Manager and the FTE Maintenance Department. See the attached drawings for examples of potential access opening types. Please note that the Design 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.

#### **32.9 Detail Drawings**

*Add the following paragraph*

FTE does not require the use of street names for fire access holes. (See the IDS for Index 5200 - Sound Walls).





## **Chapter 33**

### **Reinforced Concrete Box and Three-Sided Culverts**

The following are changes, additions or deletions to the January 2013, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

*No changes to the entire chapter*