

TURNPIKE PLANS PREPARATION AND PRACTICES HANDBOOK (TPPPH)

VOLUME I



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

OCOEE, FL

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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

Chapter 1

Design Controls

The following are changes, additions or deletions to the January 2014, 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. All facilities shall be designed 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

Unless approved by the Turnpike Design Engineer, the Turnpike System should be designed to "Interstate" Standards with the following exceptions.

1. Veteran's Expressway from Milepost 1.54 to Milepost 13.57 is classified as an Urbanized Principal Arterial – Other Freeways and Expressways.

Chapter 2

Design Geometrics and Criteria

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

2.0 General

Add the following paragraph

The width of all bridges shall equal the paved width of the approach roadway including the paved width of shoulders. Section 2.3 of this volume provides criteria for design of shoulders.

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. However, a hydroplaning analysis will be required if number of lanes sloped in one direction is greater than the maximum allowed of 3 lanes.

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

2.1.6.3 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

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

On ramps, the left and right shoulder widths may be reversed or adjusted if needed to provide additional sight distance on the inside of a curve. However, the sum of the right and left shoulder widths shall be greater than or equal to the sum of the standard shoulder widths and in no instance will the shoulder width on the outside of the curve be less than 4 ft. Even though this is an acceptable practice for mitigating sight distance per AASHTO Chapter 10.9.6, a Design Variation for shoulder width will be required.

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.
5. A minimum median paved shoulder width of twelve feet is required for delineator separated Express Lanes.

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

2.3.1 Limits of Friction Course on Paved Shoulders

Add the following paragraph

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

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

2.3.2 Shoulder Warning Devices (Rumble Strips)

Add the following paragraph

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

Add the following section

2.3.4 Shoulder Rocking

Cross slope for full width shoulders in a tangent section may be varied from 3% to a maximum of 6%. A minimum longitudinal gutter grade of 0.24% shall be met. The minimum distance between the low point and high point is 100 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. Design shall include provisions to assure that the reveal of the concrete barrier is not compromised.

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. Options 1 and 2 must be shown as not feasible or workable before Option 3 can be considered.

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.
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 turf reinforcement 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. Shear stress calculations will be required for the design/selection of the permanent turf reinforcement mat.

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 approval from FTE Roadway, Drainage and Maintenance.

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 5 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.

2.5.1 Limited Access Facilities

Add the following paragraphs

On Turnpike resurfacing and widening projects where additional R/W will not be acquired, the minimum border width will be based on the following criteria:

1. The border width accommodates (1) roadside design components such as signing, drainage features, guardrail, fencing and clear zone, (2) the construction and maintenance of the facility and (3) permitted public utilities.
2. Along ramps and mainline lanes where roadside barriers are used and thus clear zone is not applicable, the minimum border width from the back of a barrier or retaining wall shall be 10' if maintenance vehicles have sufficient access from public right-of-way that is contiguous and unimpeded to the Turnpike facility.
3. If the maintenance access is not continuous along a barrier or wall, and thus maintenance vehicles and equipment would need to turn around, then a sufficient turnaround area shall be provided that is acceptable and approved by FTE Maintenance.
4. Maintenance accessibility includes the ability for equipment and vehicles to maneuver around obstacles including fences, lights, signs, side slopes and ponds.

This approach does not require a Design Variation.

2.6 Grades

Table 2.6.2 Maximum Change in Grade Without Vertical Curves

Add following note

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

2.8.1 Horizontal Curves

Add the following section

2.8.1.4 Express Lane Separation in Horizontal Curves

On Turnpike facilities, Express Lanes will be either barrier separated or buffer separated with delineators. Minimum stopping sight distances requirements per PPM Table 2.7.1 and AASHTO apply. If barrier or delineators impede required sightlines around horizontal curves, then a formal Design Exception or Variation is required.

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

Replace paragraph 2 with the following

The standard superelevation transition places 80% of the transition on the tangent and 20% on the curve. In transition sections where the cross slope is less than 1.5%, a minimum longitudinal grade of 0.5% shall be maintained for new and reconstructed alignments. For widening projects where MOT is shown to be cost prohibitive, the inside and outside edge of pavement shall maintain a minimum grade of 0.3%.

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

Replace the first sentence of paragraph 2 with the following

For any construction affecting existing bridge clearances (e.g., bridge widenings or resurfacing), vertical clearances less than 16'-6" shall be maintained or increased, unless otherwise approved by the Turnpike Structures Design Engineer.

Table 2.10.2 Minimum Vertical Clearances for Signs

Change the following table

ELEMENTS	CLEARANCE
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Overhead Sign Structures	18'-0"
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2.11 Horizontal Clearance

Figure 2.11.1 Horizontal Clearance to Guardrail

Replace title with the following

Figure 2.11.1 Horizontal Clearance to Flexible 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
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 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. In the special case of managed lanes with buffers separating the managed lanes from general purpose lanes, crossovers will be prohibited. The design consultant will evaluate alternative crossing locations such as bridge abutments or emergency routes through interchanges.

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

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

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

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 2014, 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, and ponds designed to percolate runoff.

Chapter 4

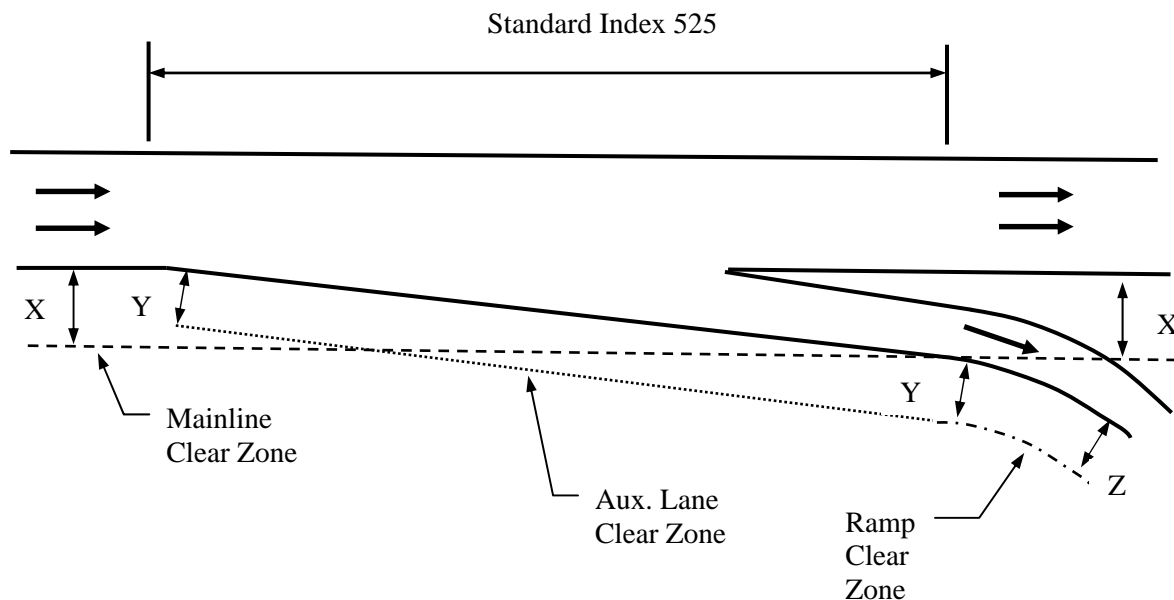
Roadside Safety

The following are changes, additions or deletions to the January 2014, 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.

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.

PPM criteria for Canal Hazard shielding shall be followed with the exception of water bodies within interchange areas. Design Consultants shall use engineering judgment regarding water bodies in interchanges and within the right of way that fall outside the PPM limits of shielding. Crash history, alignment, slopes and other existing features shall be taken into account, leading to substantiated recommendations as needed for the project.

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

Currently FDOT has suspended any new installations of High Tension Cable Barrier. However, High Tension Cable Barrier exists on Turnpike Facilities. Therefore, the following guidance is provided to address design and maintenance guidelines for existing cable barrier segments that will remain in place on resurfacing and widening projects. NCHRP Report 711 titled "Guidance for the Selection, Use, and Maintenance of Cable Barrier Systems" provides a summary of recommended guidelines in Appendix E which shall be considered in design along with the criteria below in Section 4.3.5 Placement.

4.3.5 Placement

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"

Add the following section

4.3.5.1 Access Openings

On projects that add roadside barrier to existing facilities (e.g. canal protection, spot/system wide safety improvement projects) the designer must strategically locate access points such that maintenance and operation crews can conveniently access existing infrastructure, particularly facilities that may already be placed outside the clear zone and would not be accessible from the shoulder. In addition, the maximum continuous length of a guardrail run along the outside of the roadway is 2,500 between end terminals. When long guardrail runs need to be broken up or an opening provided to access roadside facilities an access opening shall be provided. The Designer shall coordinate with FTE Maintenance and ITS on the final access location points to ensure these locations meet the needs for maintenance & operations.

The preferred typical detail for roadside guardrail access openings along Turnpike facilities can be found on the Turnpike Design website, under TPPPH manual, Roadway guide drawings.

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

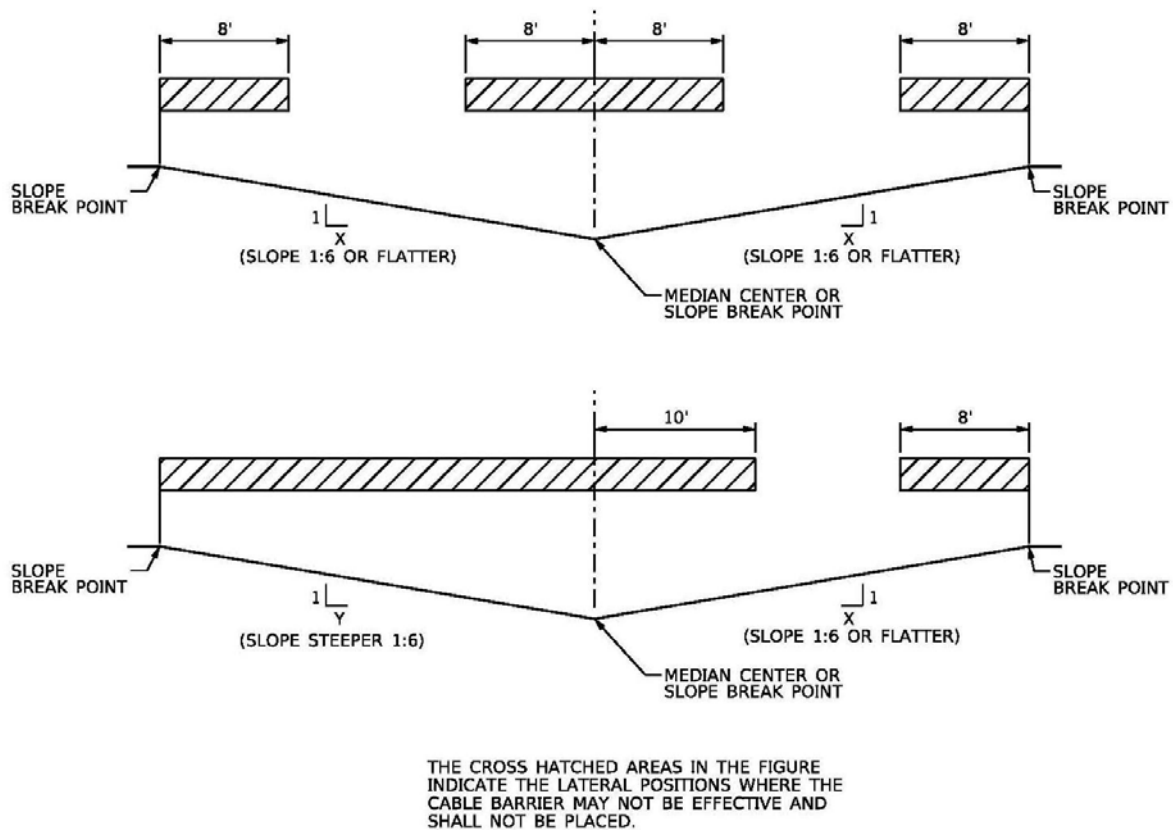
Add the following section

4.3.5.2 Cable Barrier Placement

Currently FDOT has suspended any new installations of High Tension Cable Barrier. However, High Tension Cable Barrier exists on Turnpike Facilities. Therefore, the following guidance is provided to address design and maintenance guidelines for existing cable barrier segments that will remain in place on resurfacing and widening projects.

The following criteria apply to the placement/location of high tension cable barrier.

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. See figure below for clarification.
3. Post spacing shall be installed such that the dynamic deflection is no more than a maximum of 8 feet.
4. End anchors shall be protected from vehicle impact with rigid barrier, guardrail, or overlapping cable barrier to avoid collapse of the cable barrier thereby losing median crossover protection.

Figure 4.3.2 Cable Barrier Placement

4.3.6 Upgrading Existing Barrier Systems

Add the following paragraphs

For added capacity and reconstruction projects, existing guardrail sections that do not meet current mounting height design standards must be replaced or upgraded to meet current standards. If the run of guardrail extends beyond the project limits, then a 25 foot transition detail will be used to connect to the existing guardrail.

For resurfacing and spot or system wide safety improvement projects, existing guardrail sections that do not meet current mounting height design standards AND are impacted by project improvements must be replaced or upgraded such that the entire run of guardrail is upgraded/replaced to meet current standards. If the run of guardrail extends beyond the project limits, then a 25 foot transition detail will be used to connect to the existing guardrail. Existing guardrail not impacted by the design of the project improvements, is not required to be upgraded or replaced.

4.4 Median Barriers

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 2014, 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 2014, 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 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

7.1 General

Add the following paragraphs

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

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

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

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

7.1.2.2 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 between a Dynamic Message Sign (DMS) and guide signs/directional signs should be 1000 feet.

Add the following to paragraph 2

The designer shall consider the physical placement of sign supports as well as the visibility of the sign panel. The placement of sign supports shall not occur in the bottom of ditches. Clearing and grubbing should be included if the visibility of the sign panel is blocked. Refer to the Traffic Plans Guide Drawings for guidance.

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

Add the following paragraphs

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

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

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

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

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

7.2.3 Use of Overhead Signs on Freeways and Expressways

Replace item 3 under paragraph 2 as follows

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.

Add the following paragraph

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

7.2.5 External Lighting of Overhead Signs

Add the following item

4. If a sign panel on an existing structure is being replaced, all signs on the structure should be consistent. For example, if a structure has three existing signs with lights, and we are replacing one panel, the plans should call for either A) lights on the new panel or B) the other two panels replaced with Type XI sheeting and removal of the lights.

7.2.8 Delineators and Object Markers

Add the following to paragraph

On Turnpike facilities, Express Lanes will be either barrier separated or buffer separated with delineators. Standard specifications for the delineators used in this application have not yet been developed. Therefore, a Modified Special Provision is required and shall be included in the contract to define requirements for color, height, retroreflectivity, spacing, and mounting technique. The Turnpike Traffic Engineer shall be consulted on this item.

Modification for Non-Conventional Project:
Delete the last sentence of the above paragraph and see RFP for delineator requirements on Turnpike Express Lane projects.

Add the following section

7.2.11 Sign Background Sheeting

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 side streets, leading to 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.

Modification for Non-Conventional Project:
--

Conventional lighting shall be used unless directed otherwise in the RFP.

The conventional roadway lighting luminaire shall be the Holophane Mongoose. This requirement is based on aesthetic and logistical synchronization with existing facilities.

Modification for Non-Conventional Project:
--

The Holophane Mongoose shall be used unless directed otherwise in the RFP.
--

Conventional lighting shall be shoulder mounted. Median mounted poles are not allowed. If a geometric or safety concern exists related to shoulder mounting, median mounted poles will be considered. In these cases, approval is required by the Turnpike Project Manager, Turnpike Electrical Engineer, and Turnpike Maintenance. Median mounted poles shall be limited to the area of geometric or safety concern.

Modification for Non-Conventional Project:
--

Shoulder mounted poles shall be used unless directed otherwise in the RFP.
--

High mast lighting may be considered when shown as a cost efficient alternative and the surrounding area is not residential or environmentally sensitive. The consultant shall obtain approval from the Turnpike Electrical Engineer and Project Manager before considering high mast lighting.

Modification for Non-Conventional Project:
--

High mast lighting shall not be used unless directed otherwise in the RFP.
--

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, end bents, or walls. 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 luminaires are being proposed, all poles and luminaires within the project scope shall be new.

Modification for Non-Conventional Project:
All poles and luminaires shall be new unless directed otherwise in the RFP.

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 _v (max)/L _{avg}
INTERSTATE, EXPRESSWAY, FREEWAY, MAJOR ARTERIALS & HIGHWAY SPEED TOLLING GANTRIES	1.7	4:1 or Less	10:1 or Less	0.3:1 or Less
ALL OTHER ROADWAYS	1.0	4:1 or Less	10:1 or Less	0.3:1 or Less
*PEDESTRIAN WAYS AND BICYCLE LANES	2.5	4:1 or Less	10:1 or Less	0.3:1 or Less

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 1/100th 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 1/100th 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.

Load centers shall not be connected to or located within any facilities buildings unless there is a requirement for the load center to have emergency power from the toll plaza's generator.

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.

Roadway lighting shall be connected to alternate circuits to prevent a total blackout of any section of the highway in the event a circuit is out of service. Minor replacements shall be evaluated on a case by case basis.

Modification for Non-Conventional Project:
Roadway lighting shall be connected to alternate circuits unless directed otherwise in the RFP.

The maximum distance between pull boxes and/or splice boxes in long conduit runs shall be 300 feet.

A special power distribution design is required when new poles and luminaires are being proposed behind Noise Barriers (Sound Walls). Conduit, junction boxes, and pull boxes shall not be installed Noise Barriers (Sound Walls). Provide conduit, junction boxes, and pull boxes in front of Noise Barriers (Sound Walls) on the roadside.

There shall be no more than three circuits in a single conduit. Provide multiple conduits as needed.

All roadway crossings shall be provided with a spare conduit and provided with a pull box at each end of the crossing road.

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

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.

7.3.2.1 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.

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 and pull boxes shall be coordinated with current and future grading to ensure that no foundations or pull boxes are below grade. In addition, foundations and pull boxes 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.

Modification for Non-Conventional Project:
The Roadway Lighting Engineer of Record is responsible for all necessary coordination.

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

All components of the pole cable distribution system shall be listed by a Nationally Recognized Testing Laboratory.

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.

For poles that are median barrier mounted or pedestal mounted, the light poles shall not be provided with frangible bases, strain relief fittings, or breakaway fuseholders.

For poles with (2) luminaires, a single TC cable shall be run from the adjacent pull box to the pole's handhole. From the pole's handhole, a pole cable distribution system is required for each luminaire.

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.

7.4.12 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 paragraphs

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

The design and construction of all ITS electrical conductor splicing inside power pull boxes shall comply with the requirements specified in the Highway Lighting Systems and Highway Lighting Materials sections of the FDOT Standard Specifications for Road and Bridge Construction.

7.5.2 ITS Device Approval and Compatibility

Add the following paragraph

Wireless and network equipment requirements shall be coordinated at time of final RFP development or specification development with the Florida Turnpike Enterprise Technology Team to ensure the most appropriate manufactures and models at the time.

7.5.4.1 Dynamic Message Sign (DMS)

Add the following paragraphs

When general purpose mainline DMS are proposed, a travel time sensor compatible with the existing travel time system (TTS) shall be installed at the site. Placement of mainline and arterial DMS shall be in accordance with the PPM.

New walk-in DMS installed on the mainline shall be full-color. Half-span or Full Span supporting truss structure is the preferred mounting style.

Arterial DMS (also known as "ADMS" or "Front Access DMS") shall be full-color. The ADMS are typically mounted on cantilevered structures.

Toll Plaza Approach DMS (TDMS) are typically mounted to cantilevered structures and shall be full-color. TDMS shall be located 1-mile to 2-miles from the toll plaza being considered, and shall be located to provide adequate perception-reaction distance for the approaching motorists.

When general purpose mainline DMS are proposed, generator, transfer switch and auxiliary power connection shall be installed. A leveled concrete pad of minimum eight feet (8') by ten feet (10') and six-inch (6") thickness shall be installed to support the DMS controller cabinet and generator.

7.5.4.2 Highway Advisory Radio

Add the following paragraphs

The deployment of new HAR systems is currently on-hold, pending on-going research through FDOT Central Office. Existing HAR Transmitter (HART) and HAR Beacon (HARB) locations impacted by project work shall be relocated to maintain system effectiveness, in accordance with FCC licensing requirements.

A typical HAR deployment consists of one (1) HART and two (2) HARB signs. One HARB is installed in each direction approaching the HART. A frequency study should be performed prior to locating HARB and HART to ensure adequate signal strength and to limit potential interference of the radio signal between HARB and HART locations, however a practical spacing of 3 miles is recommended between the HART and HARB location to ensure adequate signal strength at the beacon locations.

Coordinate relocations with Central Office Telecommunications, who maintains FCC licensing information for each HART. The Radio Frequency (RF) output is power adjustable up to the FCC maximum of 10 watts, but shall be in accordance with the requirements of the FCC License.

The existing and desired radio frequency is established at 1640 AM (1640 KHz), as licensed by the FCC on the Turnpike system.

7.5.5.1 Closed-circuit Television Cameras

Add the following paragraphs

Provide IP-addressable CCTV cameras with, Power over Ethernet (PoE) and Built-in encoder utilizing H.264. Provide camera capable of providing 1080p resolution.

Provide CCTV Poles in accordance with Index 18113.

All new CCTV deployments shall utilize a camera lowering device to facilitate maintenance.

7.5.5.2 Video Display Equipment

Add the following paragraph

Video wall and video management system requirements shall be coordinated at time of final RFP development or specification development with the Florida Turnpike Traffic Operations Unit and Florida Turnpike Enterprise Technology Team to ensure the most appropriate manufactures and models at the time.

7.5.6 Network Devices

Add the following paragraph

All device requirements shall be coordinated at time of final RFP development or specification development with the Florida Turnpike Enterprise Technology Team to ensure the most appropriate manufactures and models at the time.

7.5.7.1 Fiber Optic Cable

Add the following paragraphs

Integrate metal sheath inside the molding to allow tone locates without a separate tone wire.

Rigid metallic conduit shall be used under new structures, including but not limited to ramp crossings and bridge abutments to provide necessary protection from service disruptions.

For new systems, the FOC backbone should utilize 144 single-mode fibers as a minimum (Minimum FOC 144 fibers mainline).

Lateral connections shall utilize 48 fibers as a minimum (Minimum 48 fibers on laterals).

Label splice boots, exiting conduits, and FOC entering the boot with weatherproof laser printed tags (no sharpie or marker). Label patch panels inside of building installations. Use a permanent laser printed tag, waterproof labels, with a printout indicating the department, number of strands, stations upstream and downstream to the next hub. For example:

Department: TP-ITS Strands: 144
Install Date: 07/07/2013 Project: 420735-1-A
Current MP: 152.6
Upstream MP: 153.4
Downstream MP: 151.9

7.5.7.2 Fiber Optic Conduit

Add the following paragraphs

The fiber optic conduit system shall consist of four (4) 1-1/4" HDPE conduits. One (1) of the conduits shall contain the fiber optic cable (FOC) backbone. The other three (3) conduits are spares.

7.5.7.3 Fiber Optic Splices and Terminations

Add the following paragraphs

Terminate all fibers that enter a structure inside the rack.

Do not locate splice vaults outside of buildings; bring the trunk and laterals inside the building.

Do not use multimode fiber or copper in any underground backbone or lateral locations.

When the project work necessitates a break in the fiber cable, include provisions regarding allowable downtime. Temporary fusion splices may be used provisioned to temporarily reconnect any broken fibers. Mechanical splices are not permitted. After any temporary splices are added to the system and prior to final acceptance of the project permanent repair and subsequent testing of the ITS fiber optic cable shall be completed in accordance with Section 633.

Further, permanent repair for fiber optic cable shall include replacement of the entire cable from the nearest existing termination point (butt end splice) to the next existing termination point (butt end splice) removing all temporary splices, unless otherwise directed by the Engineer. The butt end splice is defined as a color to color splice of all fibers of the cable. All temporary and permanent splicing shall be performed in accordance with the provisions of FDOT Specifications 633.

Include requirements to submit an ITS repair plan to the Engineer at the pre-construction conference. The plan shall outline the procedures, resources and points of contact for a step-by-step guideline in the event the Contractor damages or disrupts normal operation.

Provide detailed plans to the Engineer which show how damage to any ITS facility will be remedied. These details will become part of the as-built plans package. Remediation plans must follow the same guidelines for development and presentation of the as-built plans. In addition, the remediation plans must be approved by the Engineer before any remediation work proceeds.

7.5.7.4 Fiber Optic Cable Designating System

Add the following paragraphs

In addition to the Sunshine One Call number (800-432-4770) provided on each route marker, the following contact information shall be shown:

1. Florida's Turnpike Enterprise, Traffic Management Center (Orlando) 407-264-3363
2. Florida's Turnpike Enterprise, Traffic Management Center (Pompano) 954-934-1370

The labeling on the Fiber Route Marker shall be:

BEFORE DIGGING IN THIS AREA CALL
Florida's Turnpike Enterprise
407-264-3363
954-934-1370

AND
SUNSHINE ONE CALL
1-800-432-4770

7.5.7.5 Fiber Optic Access Points

Add the following paragraph

Provide requirements for splice vault wire management such as non-metallic cable supports to allow the slack cable to be positioned without resting on the ground. The railing system shall provide at least 3 inches of separation from the cabling to the bottom of vault. Maintain manufacturers recommended bend radius during and after installation. Provide concrete apron as indicated in the standard index, ensuring appropriate compaction to reduce the possibility of washouts.

7.5.8 Infrastructure

Add the following paragraphs

Electrical pull boxes shall be spaced at a maximum distance of 500 feet for the entire length of new projects.

FTE preference is the use of gel-cap splices. No wire nut or electrical tape splicing is acceptable.

7.5.8.2 ITS Pole and Lowering Device

Add the following to the first paragraph

The CCTV camera shall be mounted at approximately 45 feet above the road.

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.

7.5.8.4 Equipment Shelter

Add the following paragraph

The design layout shall include necessary master hub locations to minimize network traffic with an optimum spacing, however, shall be supported by a network layout and analysis with appropriate design loss calculations to meet the intent and requirements of this section and all applicable FTE and FDOT standards.

7.5.9 Vehicle Detection and Data Collection

Add the following paragraphs

Except for vehicle detectors used to capture information in the Express Lanes, new vehicle detectors (Vehicle Detection Systems or Microwave Vehicle Detection Systems) shall be installed every one-mile. The VDS should be installed at CCTV Camera locations to minimize costs, where conflicts between the VDS and CCTV lower device can be avoided. The use of roadway lighting poles or sign structures for the installation of CCTV cameras and MVDS sites is not allowed.

For travel time data collection, consideration should be given to Bluetooth technologies as an alternative to the toll tag reader technologies. Travel Time System (TTS) equipment shall be installed at each DMS and every interchange, with a maximum spacing at approximately 3 to 5 miles for blue tooth based technology, 10 miles for transponder based technology, and in accordance with the manufacturer's requirements. Where Bluetooth technology is deployed adjacent to a section which currently utilizes toll transponder tags, the alternating technologies shall have at least one link which overlaps the existing technology at the corridor beginning and end points.

Regardless of the technology selection, the designer shall provide a Travel Time Origin-Destination and link development submittal. This submittal shall be coordinated with the Florida Turnpike Traffic Operations Unit, ensuring adequate link and site design / selection to provide adequate read and matches to provide a reliable travel time. This submittal will clearly identify each TTS location, message origin & destination, segment length, and anticipated DMS travel time message. In addition, this submittal will identify the links and messages for the FL 511 designation, which will be provided for critical segments from interchange to interchange.

7.6 Pavement Markings

Add the following reference

TPPPH Guide Drawings - These drawings contain details of pavement markings at toll plazas.

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, etc.) 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. The design analyses shall be submitted with each plan submittal as part of the Lighting Design Analysis Report or a separate Power Design Analysis Report.

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 (PPE) 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 2014, 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 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

9.1 General

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

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.

9.3 Maintenance Plan

Add the following section

9.3.1 Maintenance Plan after Establishment Period

A performance based maintenance plan after the establishment period for all proposed landscape improvements must accompany the landscape plans. This plan shall be done on separate plan sheets and shall be a written and graphic plan. 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 and graphic guide describing the performance requirements of the maintaining agency. The maintenance plan shall define the limits and tabulate the quantities (i.e., square feet of mulch, number of palms to be pruned/fertilized, etc.) 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 provided with 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 2014, 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 sentence to item 9

9. Consideration should take into account all affected lanes, i.e., mainline, auxiliary lanes, acceleration/deceleration, ramps, etc.

Add the following paragraphs

Project specific conditions associated with milling and resurfacing require the designer to develop project specific notes for the plans. Generally these notes are part of the TCP.

It is 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 bullets to the end of Step #2

10. Maintain drainage conveyance and spread.
11. Maintaining traffic at interchange locations, ie. need for auxiliary lane(s), lengths of acceleration and deceleration lane(s).

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 paragraphs

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.

On Turnpike Facilities, diversions with construction speeds of 50 mph or greater are considered high speed facilities. Curvature and superelevation criteria for open highway conditions apply and shall meet superelevation criteria described in the PPM Volume 1, Chapter 2.9.

10.12.6 Lane Widths

Add the following paragraph

Shoulder widths associated with the travel lanes shall be designed to achieve a minimum of two feet in width (paved). Spread must be checked to verify that the provided shoulder width complies with the criteria in Chapter 3.9.1 of the Drainage Manual. Any deviation from the two feet shall be justified to and approved by the Turnpike Design Engineer.

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 approved by the Turnpike Design Engineer.

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

Replaced paragraph 4 with the following

Closing a traffic lane on Interstate or Limited Access facilities can have a significant operational impact in terms of reduced capacity and delay. Operational impact can occur when lane closure(s) of any of the following occur; mainline, interchange ramp(s), auxiliary lane(s), acceleration or deceleration lane(s). There will be no daytime lane closures allowed on Florida's Turnpike unless it is approved in writing by the Deputy Executive Director and Chief Operating Officer. Other districts have adopted similar policy for Interstate daytime lane closures; therefore, it is recommended the Designer verify the District's lane closure policy at the beginning of the design process.

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 on mainline, ramps, auxiliary lanes, etc. 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 and/or a prolonged closure is proposed on a project, the lane closure analysis should also include traffic analysis of the affected ramps. In terms of prolonged closure, include analysis and effect of closure(s) on the capacity and operations at the interchange. 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 includes designing temporary ditches, the size and length of pipes, placement of inlets and where necessary calculating spread where water may pool along temporary barrier wall or curbing adjacent to an inside lane. All quantities associated with temporary drainage shall be quantified.

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

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

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.

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

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

Upon concurrence with the designer's recommendation for the use of additional traffic control officers on the project, 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

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 traffic control 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 | 561-357-4294 |
| 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 traffic control officer (FHP Troop K) for all lane closures and/or as directed by the Engineer. All costs are included in 102-14. If the Contractor elects to use officers for any other activity, include the cost in lump sum MOT, pay item 102-1.

10.15 Motorist Awareness System

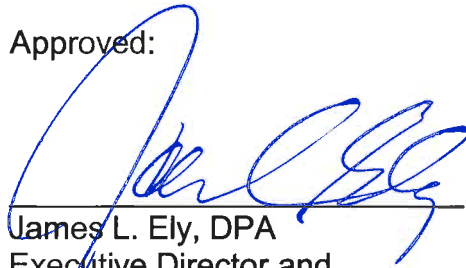
Add the following paragraph

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



FLORIDA'S TURNPIKE ENTERPRISE Lane Closure Policy

Approved:


James L. Ely, DPA
Executive Director and
Chief Executive Officer

Effective: March 6, 2009
Office: Traffic Operations

PURPOSE:

To establish guidelines to minimize the disruption of the flow of traffic in conjunction with any activity that requires roadway lane closures, including toll plaza lanes, interchange ramp closures, or traffic pacing on Florida's Turnpike System.

AUTHORITY:

Sections 334.046, 335.15, Florida Statutes

DEFINITIONS:

ADT:	Average Daily Traffic Volumes.
Department:	Florida Department of Transportation, Florida's Turnpike Enterprise.
Emergency:	Any occurrence, or threat thereof, whether accidental, natural, technological, or manmade, in war or in peace, which results or may result in substantial injury or harm to the population or substantial damage to or loss of property [F.S. 252.34(3)].
Engineer:	The Department's Engineer(s) authorized to monitor and control activities on the State Turnpike System, [F.S. 334.141].
Indexes:	FDOT Design Standard indexes (600 series), current edition.
Lane Closure:	Temporary closure of one (1) or more through traffic lane(s), auxiliary lane(s), toll lane(s), ramp lane(s), moving operations, or traffic pacing.
Moving Operations:	Some temporary work operations such as pothole patching and striping operations can be performed using moving vehicles in accordance with Standard Index 600 and the MUTCD.
MUTCD:	Manual on Uniform Traffic Control Devices, current edition.

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<i>Other Roadways:</i>	Includes Turnpike System roadways such as S.R. 528 Beachline Expressway, S.R. 429 Western Beltway, S.R. 417 Seminole Expressway and Southern Connector, S.R. 869 Sawgrass Expressway, S.R. 589 Veterans Expressway, S.R. 589 Suncoast Parkway, and S.R. 570 Polk Parkway.
<i>PPM:</i>	Florida Department of Transportation Plans Preparation Manual, current edition.
<i>TMC:</i>	Traffic Management Centers for Florida's Turnpike, located at Pompano Beach and Turkey Lake (Orlando).
<i>Traffic Pacing:</i>	Traffic pacing is the slowing of traffic to provide a maximum of 30 minutes of clear travel way for the contractor to work over existing travel lanes.
<i>TPPPH:</i>	Turnpike Plans Preparation and Practices Handbook, current edition.
<i>Turnpike Mainline:</i>	Homestead Extension of Florida's Turnpike (HEFT), Southern Coin System, Ticket System, Northern Coin System, and the Golden Glades Spur.
<i>Turnpike System:</i>	Includes the Turnpike Mainline and Other Roadways owned and operated by the Turnpike.

GENERAL POLICY:

The policy of Florida's Turnpike Enterprise is to limit lane closures as described below. With the exception of emergencies, the responsible party will plan and coordinate the lane closure in advance with notice given to Turnpike Enterprise customers.

Unless specified differently in the remainder of this policy, if lane closures are required, a lane closure request will need to be submitted a minimum of two (2) weeks in advance of the proposed closure. The Turnpike's preferred method is for lane closure requests to be submitted electronically. Turnpike Traffic Operations publishes a separate Lane Closure Procedure document that describes the specific process that should be followed when requesting lane closures. This document can also be obtained from Turnpike Traffic Operations at the following:

Turnpike Traffic Operations
(954) 975-4855
PO Box 9828
Fort Lauderdale, FL 33310

Personnel involved in the approval process will accommodate any emergency requests that do not meet the two (2) weeks criteria and will address each request on a case-by-case basis.

For all lane closures on the Turnpike System, notification via phone call must be provided to the Turnpike Traffic Management Center (TMC) at the beginning and end of each lane closure activity. Contact information for the TMC will be provided in a

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separate document (Lane Closure Procedure) that is published by Turnpike Traffic Operations and is available upon request.

Daytime Lane Closures:

The highest restriction for lane closures shall occur on the Turnpike System during daytime hours, generally defined as the period between the locally published sunup and sundown. Lane closures will only be allowed after all other possible alternatives have been explored and found to be impossible, impractical, or unsafe, with the closure reasons being warranted and documented. Lane closures will not be allowed merely for the convenience of the contractor, permittee, or other requesting party. Providing premium service and safety to Turnpike customers are two of the Turnpike Enterprise's most important priorities; lane closures that infringe on these priorities will not be permitted.

The lane closure can only occur during specified hours and lane closure requests must be submitted at least 2 weeks prior to the proposed closure. Approval must be obtained from the Department at least 48 hours in advance of the proposed closure by the Turnpike Deputy Executive Director / Chief Operating Officer and the Director of Operations or designee.

Weekend Lane Closures:

As Florida's Turnpike provides an important transportation link to and from north/central Florida and south Florida for weekend and holiday travelers, closing travel lanes, ramp lanes, or auxiliary lanes during the weekend is a restricted activity. Weekend lane closures will only be allowed after all other possible alternatives have been explored and found to be impossible, impractical, or unsafe, with the closure reasons being warranted and documented. A weekend lane closure is defined as the period beginning Sunup Friday through 10:00 p.m. Sunday.

The lane closure can only occur during specified hours and lane closure requests must be submitted at least 2 weeks prior to the proposed closure. Approval must be obtained from the Department at least 48 hours in advance of the proposed closure by the Turnpike Deputy Executive Director / Chief Operating Officer and the Director of Operations or designee.

Holiday Lane Closures:

As holiday traffic increases on Florida's Turnpike, and providing all possible travel lanes and toll plaza lanes increases customer satisfaction and safety, no daytime or nighttime lane closures will be permitted during certain holidays throughout the year. Holidays are subject to the same restrictions as Daytime and Weekend lane closures.

A Holiday Calendar will be developed by Turnpike Traffic Operations each year for coordination with other stakeholders in the Turnpike. This Holiday Calendar will be

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reviewed each year during the Annual Holiday Traffic Meeting. Holiday Calendar information will be provided in a separate document (Lane Closure Procedure) that is published by Turnpike Traffic Operations and is available upon request.

Other Lane Closure Time Considerations:

During special events of regional significance, no lane closures will be permitted 2 days before the event to 24 hours after the event. These events will be determined by the Director of Communications and Marketing each year and provided to the Turnpike Traffic Operations Office by January 30th for use in approving lane closure requests. Examples of special events of regional significance are Spring Break, College and Professional sporting events (for example, NASCAR) or local cultural events.

Maintenance and Permit Projects:

To facilitate lane closure requests by permitting agencies and Maintenance, the Turnpike Traffic Operations Office will provide lane closure hours concurrent with its Traffic Count Program or as needed on a case-by-case basis.

During Permit and Maintenance plans production the appropriate lane closure hour restrictions shall be inserted into the Traffic Control Plan. During construction, lane closures shall fall within the hours indicated on the plans and shall be allowed after following the appropriate notification process without additional approval. During plans production or construction, an expansion of the allowable lane closure hours will be considered by following these steps:

The Director of Communications and Marketing must concur with all written requests for exceptions to the general policy listed above for daytime, weekend and special event lane closures prior to submitting a daytime or weekend/holiday lane closure as stated in the general policy.

All lane closure requests shall be submitted at least 2 weeks in advance of the proposed lane closure. The Director of Highway Operations or a designee shall have the authority to approve nighttime lane closures. All daytime and weekend lane closure requests shall be approved as stated in the general policy.

I. Operations Activities (Excluding Department Work Program Construction Projects)

1. See general policy. When lane closures are allowed, every possible effort must be made to minimize the length of time of closure.
2. All lane closure requests should be accompanied by a Traffic Control Plan (TCP) that is in compliance with the Department's Design Standards and the MUTCD. If the proposed TCP is not a Standard Index, a separate signed and sealed plan, by an engineer registered in the State of Florida, shall be

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provided for the anticipated work activity. The lane closure request shall be submitted through the regional Turnpike Enterprise Office in charge of the corresponding project.

3. Lane closures will not be allowed on the Turnpike during daytime or weekend hours as specified in the General Policy unless site specific conditions dictate otherwise. The requestor shall provide supporting evidence of "site specific conditions" to be approved as stated in the general policy.
4. The basis for establishing time of closure limits, other than above, will be the consideration of ADT, seven (7) consecutive days of peak hour volumes, site specific conditions, available lane capacity, annual growth rate, peak seasonal factor, regional special events, other projects within vicinity, and roadway conditions.
5. Allowable lane closure time for all activities authorized by the Department will be specified by the Department.
6. The Department reserves the right to modify previously approved or specified time of closure when, if in the opinion of the engineer, it becomes necessary to do so in the interest of public safety.
7. The Department may require construction of lane shifts or additional (temporary) pavement to maintain the same number of traffic lanes as in the pre-activity condition.
8. Prior to any lane closure, the Engineer must approve in writing, any Exceptions to the criteria established herein.

II. Department Work Program Construction Projects

Design:

1. Lane closure requirements within the limits of individual Department construction projects will be established during the development of Traffic Control Plans (TCP) for each project (or during the PD&E phase for large, complex projects). These will be developed using seven consecutive days of twenty-four (24) hour counts to determine peak hour restrictions and will comply with the limitations of the other categories of work. Traffic counts may be provided by Florida's Turnpike Traffic Planning and/or Traffic Operations staff or may be provided by a qualified Consulting Traffic Engineer. Twenty-four (24) hour traffic counts must be taken within the project limits and upstream and downstream traffic flow impacts such as interchanges and mainline toll plazas must be taken into account. Accurate traffic counts are necessary to provide lane closure times that will provide the least disturbance to through traffic. In addition to traffic counts, the design consultant must

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request the peak seasonal factor, truck percentage and annual growth factor to be used for each Turnpike production project from Turnpike's Traffic Planning Staff.

2. If daytime or weekend lane closures are specified in the design plans, the Designer must obtain approval of these closures prior to final plans processing. This approval process shall begin between the Phase II and Phase III plan submittals via a written request for the lane closure to the Turnpike Production Project Manager. This request shall include all supporting documentation including, but not limited to, lane closure analyses (Plans Preparation Manual Volume I - Chapter 10), and traffic operations simulation, signed and sealed by the Engineer of Record. Specific reasons for the lane closure and any backup information must be included with the request. This written request must be processed through the Turnpike Roadway Engineer, Turnpike Design Manager, and Turnpike Construction Engineer, for approval as stated in the general policy above.

Construction:

1. See general policy.
2. The Contractor shall comply with all the provisions outlined in the Traffic Control Plans.
3. The Maintenance-of-Traffic (MOT) implementation phase involving lane closures will not be allowed until the construction work requiring the lane closure is ready to begin and it will not be allowed to remain in place for longer than the work's duration.
4. If, in the opinion of the engineer and the Turnpike Construction Project Manager, the lane closures are unsafe, unnecessary, create undue traffic delay and congestion, or if field conditions have changed, he/she may suspend the contract or modify the MOT plans. This includes maintenance, permits, utilities, and other work within the limits of an active construction project.

III. Toll Plaza Lane Closure

1. See general policy.
2. All projects requiring a lane closure within the merge/diverge area of a mainline or ramp toll plaza must receive concurrence from the State Toll Facilities Engineer (STFE) and the Toll Plaza Manager.
3. Toll lane closures must be coordinated and approved by the STFE and the Toll Plaza Manager prior to final traffic control plans.

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4. Projects not requiring Traffic Control Plans must obtain approval for a toll lane closure. Approval by the STFE and Toll Plaza Manager must be obtained two (2) weeks prior to implementing the toll lane closure.

IV. Traffic Pacing

1. See general policy.
2. Traffic pacing procedures shall comply with the following:
 - Traffic pacing procedures are not allowed during daytime hours.
 - Unless specific hours are included in the plans, traffic pacing activities will only be allowed from 12:30 a.m. through 4:30 a.m., Monday through Thursday.
 - Hours of traffic pacing shall be the lowest volume weeknight hours as determined by traffic data or as directed by Florida's Turnpike Traffic Operations and/or Production staff.
 - TPPPH, Section 10.12.8.1 Traffic Pacing
 - TPPPH, Section 10.14.2 Additional Use of Traffic Control Officer Law Enforcement
 - PPM Section 10.14 Law Enforcement Services
 - PPM Section 10.14.1 Speed and Law Enforcement Officer
 - Florida's Turnpike Traffic Pacing Guide Drawings (1&2)

V. Emergency Conditions

1. Restricted hours of lane closures are waived under emergency conditions as defined under Florida Statute 252.34 (2).
2. Unless otherwise approved by the Engineer, work is to be performed on a continuous round-the-clock basis to minimize time of closures.
3. The Turnpike Public Information and Traffic Operations Offices are to be notified of any emergency lane closure that exceeds or is expected to exceed two (2) hours.

VI. Moving Operations

1. See general policy.
2. Includes testing and sampling procedures.

Chapter 11

Stormwater Pollution Prevention Plan

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

No changes to the entire chapter

Chapter 12

Right of Way

The following are changes, additions or deletions to the January 2014, 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 2014, 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 base clearance 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 3rd paragraph

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

Chapter 14

Final Engineering Design Process

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

No changes to the entire chapter

Chapter 15

Update Engineering Design Process

The following are changes, additions or deletions to the January 2014, 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 2014, 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. 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.
- 20. When shoulder widths are wider than standard widths (e.g. to mitigate/accommodate SSD or high truck traffic), provide a note on each typical section drawing to explain the reason for the additional shoulder width.
- 21. Denote elements that require a design exception/variation.

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.

14. When shoulder widths are wider than standard widths (e.g. to mitigate/accommodate SSD or high truck traffic), provide a note on each typical section drawing to explain the reason for the additional shoulder width.
15. Denote elements that require a design exception/variation.

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.)

The draft 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 the signed and sealed Typical Section Package to the TRE who will forward the typical section package to the Turnpike Design Engineer (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 require a preliminary 45% 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. Base clearance water, seasonal high groundwater, and flood plain elevations shall be shown in profile view.

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 base clearance/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 Turnpike Roadway Engineer 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 temporary pavement designs for use during construction shall be calculated using a minimum Reliability (%R) of 80 percent.
4. All pavement designs, with the exception of temporary pavement, shall be calculated for a 20 year design life. The minimum design life and traffic (ESAL_d) for temporary pavements shall be no less than the construction period for the project.
5. Table 5.5 of the Flexible Pavement Design Manual shall be the required minimum thickness for new construction and resurfacing projects, as well as, for temporary pavements during construction.
6. All travel lanes pavement shall include PG 76-22 (PMA) in the top structural lift and friction course regardless of traffic level.

7. 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.
8. Using a much higher traffic level mix than traffic requires can cause premature deterioration and cracking of the pavement. Therefore, the designer should not increase the traffic level mix in the pavement design documents or plans to anticipate optimization of contractor operations. The FDOT specifications 334-1.2 provides the Contractor this flexibility within the realms of required criteria.

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 the signed and sealed Pavement Design Reports. The TRE will forward the report to the TDE for concurrence and signature. A signed copy will be returned to the consultant.

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

Add the following section

16.2.7.2 Cross Slope Analysis Report – Design

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. A sample Table of Contents for the cross slope analysis report is available at the following link:

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

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

16.2.7.3 Cross Slope Analysis Report – Post Design

When a project includes cross slope correction, verification of the newly constructed corrected cross slopes is required. Typically, profilograph data will be collected and provided to the EOR for analysis. The EOR will submit a design memorandum to the Turnpike Roadway Engineer indicating if the newly constructed cross slope correction meets the requirements detailed in the plans and in PPM Chapter 25.4.6 and 25.4.7.

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 1/2" x 11" sheets, fully titled, numbered, dated, indexed and signed by the designer and the checker. Computer output forms and other oversized sheets are allowed. All documentation shall be submitted electronically to the FTE Project Manager.

Chapter 17

Engineering Design Estimate Process

The following are changes, additions or deletions to the January 2014, 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, Summary of Quantities, 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".

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 2014, 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, Constructability, 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 require 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:
 - a. The Principal or Officer-In-Charge approves the release of the documents.
 - b. The documents are stamped "Advance Copy - For Information Only".

- c. 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.
- 11. The Turnpike will provide compliance and Biddability Reviews, PM Monitoring, and Quality Process Audits to complete the process.
- 12. The process required forms - Quality Control Tracking Stamp, Project Staffing List, Quality Process Log, Certificate of Compliance and Certification of Plans, Specifications and Quantities 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.
- 13. 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.

Constructability 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. Constructability 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

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

Exhibit 18-A, Page 2 of 4
Project Staffing List (Cont.)

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

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

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

Exhibit 18-A, Page 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)
PD&E			
State Environmental Impact Report	Reports - Draft & Final		
Type 2 Categorical Exclusion	Reports - Draft & Final		
Environmental Assessment	Reports - Draft & Final		
Finding Of No Significant Impact (FONSI)	Reports - Draft & Final		
Environmental Impact Statement	Reports - Draft & Final		
Preliminary Engineering Report	Reports - Draft & Final		
Noise Impact Study	Reports - Draft & Final		
Air Quality Report	Reports - Draft & Final		
Wetlands Evaluation Report	Reports - Draft & Final		
Biological Assessment	Reports - Draft & Final		
Conceptual Stage Relocation Plan	Reports - Draft & Final		
Contamination Screening Evaluation Report	Reports - Draft & Final		
Cultural Resources Assessment Report	Reports - Draft & Final		
Traffic Report	Reports - Draft & Final		
Location Hydraulics Report	Reports - Draft & Final		
Geotechnical Report	Reports - Draft & Final		
Bridge Development Analysis	Reports - Draft & Final		
Pond Siting Report	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 we have completed and signed the attached QC Checklists for each element of the project, and that we 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

*Add the following exhibit***Exhibit 18-D**

Date

_____, P.E.
Turnpike 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.
- 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

Chapter 19

Sealing Design Documents

The following are changes, additions or deletions to the January 2014, 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

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

Chapter 20

Plans Processing and Revisions

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

20.4 Revisions to the Bid Set

Add the following language

Changes to plans and/or specifications after advertisement require the Design Consultant to submit **Exhibit 20.4-A Contract Addendum Transmittal Memo**, along with the Plans Revision and/or Supplemental Specifications Package.

Exhibit 20.4-A

Contract Addendum Transmittal Memo



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

RICK SCOTT
Governor

ANANTH PRASAD, P.E.
Secretary of Transportation

DIANE GUTIERREZ-SCACCETTI
Executive Director and
Chief Executive Officer

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

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

Tel: 407.532.3999

www.floridasturnpike.com

CONTRACT E8L46 MODIFICATIONS SUMMARY:

PLAN REVISIONS

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

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

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

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

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

SUPPLEMENTAL SPECIFICATIONS

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

CONTRACT E8L46 MODIFICATIONS NARRATIVE:

Provide a brief description of modifications.

Chapter 21

Transportation Design for Livable Communities

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

21.5.10 Landscaping

Replace the last sentence in the second paragraph with the following

Landscaping shall also comply with the horizontal clearance and horizontal sight distance requirements found in Section 21.5.6 of this chapter, and Chapters 2, 4, and 25 of this volume. Sight distance limits are measured from the edge of traveled way to the outside edge of the mature growth. In addition, it shall be ensured that future growth will not obstruct sight distance.

Chapter 22

Lump Sum Project Guidelines

The following are changes, additions or deletions to the January 2014, 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 2014, 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 the signed and sealed Exceptions and Variations 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

23.8 Design Variation Approval

Add the following section

23.8.1 Turnpike Design Variations

Design Variations that are approved solely by the Turnpike, do not impact the 13 Controlling Design Elements and do not impact clear zones, sight distance, or Americans with Disabilities Act (ADA), may be submitted to the Turnpike as a signed and sealed Design Memorandum.

Chapter 24

Federal Aid Project Certification

The following are changes, additions or deletions to the January 2014, 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 2014, 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

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 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

26.9.4 Aesthetics

Add the following items

3. FTE offers the following guidance as to the implementation of Structures Design Guidelines 1.4.5 and 7.3.1.c “Concrete Surface Finishes”. Smooth uncoated surfaces are preferred for all concrete structures; however project specific conditions may dictate that enhanced aesthetics are required. For projects that involve coatings, textures, colors or graphics on any concrete structures, please see the guidance below, request the appropriate approvals as necessary and coordinate with the FTE Project Manager. “Coating” refers to coatings, colors, tints, or stains. “Structures” include bridges, retaining walls, noise barriers and traffic railings/parapets on bridges and roadway.

Projects with	Treatment
New Structures	No coating.
New Structures Adjacent to Existing Structures / Bridge Widening	No coating. If project specific conditions warrant (ex: existing coating on an adjacent structure), then coat new structure to match the existing scheme and clean the existing structure. If cleaning alone is insufficient, then clean and recoat the existing structure. In all cases, avoid where possible (re)coating areas that require Chief Engineer approval (ex: traffic face of traffic railing). If the Class 5 coating on an existing bridge has degraded to resemble unfinished concrete, the bridge should be considered to "not have a Class 5 coating" for the purposes of SDG 7.3.1.c.
Painted Steel Girders	No (re)coating of concrete. Cleaning of the existing concrete may be considered where warranted.
Aesthetic Commitments	Meet aesthetic commitments.
Other Agencies	No (re)coating. If a Local Maintaining Agency requests (re)coatings then follow SDG 1.4.5.D (as revised by SDB 13-03).
Anti-Graffiti Coating	Do not use.
Textures/Graphics	Use of textures and graphics is acceptable. Get approval if texture/graphic is not from the Standard Index drawings.

The Approval Letter for Concrete Surface Finishes can be found at:

http://design.floridasturnpike.com/prod_design/struct/structures.html

4. For projects with steel girders that require painting, coordinate the girder color with the FTE Project Manager. Typically steel girders are painted FTE Green (FC34090).
5. For historical documentation, the following are the colors that were previously used on FTE structures:
 - a) Light Tan: FC23717 for retaining walls
 - b) Dark Tan: FC20475 for traffic railings, copings and slab overhangs
 - c) FTE Green: FC34090 for beams

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.

26.19.4 Barrier Retrofit

Substandard TL-3 barriers with round aluminum railing may be candidates for upgrades using a steel elliptical railing retrofit. Contact the Turnpike Structures Design Engineer for details.

Chapter 27

Hydraulic Data and Agency Permits

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

27.5 Debris Accumulation

Replace paragraph 2 with the following

Debris clearance criterion is specified in the FDOT PPM Volume 1, Chapter 2, Section 2.10.1.

Chapter 28

Shop and Erection Drawings

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

Replace within whole chapter

Where stated in the Plans Preparation Manual (PPM), Volume 1, Chapter 28, any reference to Engineer of Record, shall read as follows: Architect of Record and/or Engineer of Record.

28.1 Introduction

Add the following paragraph

Typically Florida's Turnpike Enterprise Shop Drawing Review Office (Department) 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 electronically and provides an overview of the review and approval process.

Modification for Non-Conventional Project:
In 1 st sentence, delete reference to Exhibit 28-A and replace with Exhibit 28-C .

28.2 Drawing Submittals Required

Delete paragraph 4 and add the following

Material certifications, welding procedures and concrete mix designs are typically submitted by the Contractor to the Resident Engineer who forwards the certifications to the State Materials Engineers in Gainesville. These items do not need to be reviewed and approved by Architect of Record and/or Engineer of Record. They are submitted through the ProjectSolve system as Pre-Qualified submittals within the shop drawing module, which are routed directly to the Resident Engineer for review. For non-standards items, the Resident Engineer will typically request approval by the Architect of Record and/or Engineer of Record 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 thru ProjectSolve. This procedure will be defined during the preconstruction conference.

28.3 Contractor Information Required

Replace last sentence of paragraph 2 with the following

Other documents such as trade literature, catalogue information, calculations and manuals must be submitted electronically with a Table of Contents.

Add the following after the last sentence, paragraph 2

Identify Toll Gantry Structures by site location.

Replace the following (Modification for Non-Conventional Project) after paragraph 3

Modification for Non-Conventional Project:
Delete the above paragraph and replace with the following:
<p>The Design-Build Firm shall be responsible for the preparation and approval of all shop drawings and calculations. Once the shop drawings have been reviewed and approved by the Contractor and Architect of Record and/or Engineer of Record, submit Shop Drawings and Calculations to the Department for review and approval. Before submission, the Contractor and Architect of Record and/or Engineer of Record shall determine and verify all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog number and similar data with respect thereto, and shall review and coordinate each drawing with other Shop Drawings and with the requirements of the Contract Plans and Specifications. Both the Contractor and the Architect of Record and/or Engineer of Record shall stamp and initial each sheet indicating that the shop drawing review and approval is for conformance with the design concept of the project and for conformance with information given in the Contract Plans and Specifications (including Supplemental Specifications and Special Provisions).</p> <p>Only shop drawings stamped “APPROVED” or “APPROVED AS NOTED” shall be forwarded to the Department for review. Shop drawings submitted without the stamps of the Contractor and the Architect of Record and/or Engineer of Record, shall be returned for re-submittal. When the Department requires a resubmittal, the drawings shall be modified by the Contractor, resubmitted to the Architect of Record and/or Engineer of Record for approval, and then resubmitted to the Department for review. In the case where the Architect of Record and/or Engineer of Record generates the shop drawings for the project, another Engineer with the Architect of Record’s and/or Engineer of Record’s firm, not involved in the production of the shop drawing, shall review and stamp the drawings per the requirements stated herein.</p>

Replace first sentence of paragraph 5 with the following

At the time of each submission, the Contractor shall have given specific written notice, along with an itemized list of all deviations/variations from the Contract Plans and Specifications, in a transmittal letter along with the Shop Erection Drawing submission. In addition, the drawings shall contain a specific notation which explicitly and prominently calls out any deviations. 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 indicated as such and noted on the shop drawing, by the Architect of Record and/or Engineer of Record and/or the Department’s approval comments as returned with the shop drawing to the Contractor.

Contractor's request for contract change in time, scope, cost, design, material or product type, specification requirements and/or remedial design for correction construction/fabrication deficiencies, shall not be submitted as a shop drawing, but shall be submitted in proper format to the Resident Engineer for further handling and processing.

Add the following paragraphs

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 scanned in Portable Data Format (pdf), 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 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>

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).

If the shop drawings consist of samples, as outlined in the Contractor's shop drawing item list, 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, include the FPID and their Shop Drawing submittal number. Initiate the shop drawing review process through ProjectSolve, by uploading their transmittal letter and indicate in the "Comment" area on the shop drawing module page, samples have been forwarded 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, the Department's Shop Drawing Review Office will provide, if allotted samples are provided: one (1) sample original to Architect of Record and/or Engineer of Record, one (1) to Resident Engineer and Department's 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 as well. 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

Replace paragraph 1 with the following

Prior to the submission of any shop drawings/submittals, the Contractor shall submit a Shop Drawing/Submittal Item List to the Resident Engineer within 60 days of the start of construction operations. The list is to be submitted in electronic format (excel spreadsheet, which will be provided by the Resident Engineer 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. Adherence to the Shop Drawing schedule is intended to allow for the planning of resources and to reduce the possibility of a large number of submittals being forwarded for review concurrently. 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.

28.6 Transmittal of Submittals

Replace paragraph 2 with the following

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

Exhibit 28-A **Florida's Turnpike Enterprise Shop Drawing/Submittal Routing Chart for Design Bid Build (Conventional) Projects**

Exhibit 28-B **Flow Chart for Shop Drawing/Submittal Item List – Review Coordination for Design Bid Build (Conventional) Projects**

Exhibit 28-C	Shop Drawing/Submittal Routing Chart for Design Build (Non-Conventional) Projects
Exhibit 28-D	Shop Drawing Review Office - Department's Review Office Distribution Chart
Exhibit 28-E	Not Used

Replace the following (Modification for Non-Conventional Project) after paragraph 2

Modification for Non-Conventional Project:
<i>Exhibit 28-C</i> shows the distribution flow of submittals during the review process, through ProjectSolve.

Replace paragraph 3 with the following

The Special Provisions for the project may denote the procedure to be followed. Furthermore, the procedural requirements for shop drawings submissions electronically and the website URL will be provided at the preconstruction conference for the project. In the absence of such instructions, the following, 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 electronically 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 electronically to the Department utilizing ProjectSolve. All drawings shall be on sheets not larger than 11" x 17". The Contractor's letter of transmittal shall accompany the drawings. The Resident Engineer will be notified, through ProjectSolve.

Delete the Modification for Non-Conventional Project after paragraph 1

28.6.2 Requirements for Department EOR

Replace this section with the following

On projects where the Architect of Record/Engineer of Record is Department's in-house staff, submittals shall be transmitted to the Department's Shop Drawing Review Office or as directed at the project's preconstruction conference. The Department's Shop Drawing Review Office is the principal contact group and "clearing house" for all construction submittals and information desired by the Contractor regarding structural, mechanical, electrical items and/or vertical elements.

28.6.3 Requirements for Consultant EOR (Full Services)

Replace paragraph 1 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 be submitted by the Contractor directly to the Consultant. Upon receipt of the submittal, the Consultant shall perform the review, note any comments directly on the sheets utilizing Adobe Professional indicate his dispositions by electronically stamping the sheets as described hereinafter and, finally route the shop drawing, electronically to the Department's Shop Drawing Review Office for review and distribution.

When submittals require a Specialty Engineer, Architect of Record/Engineer of Record shall verify the Contractor has properly scanned the shop drawing and the seal is legible in the image. As the Architect of Record/Engineer of Record, when reviewing signed and sealed calculations and shop drawings, it is acceptable to incorporate the code 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.

Add the following paragraphs

Architect of Record and/or Engineer of Record is responsible for reviewing the Contractor's Shop Drawing/Submittal Item List, to ensure verification for its technical components per the Design Plans. Reference ***Exhibit 28-B***.

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 ensure that the Contractor has submitted the shop drawing/submittal as outlined herewith in this chapter. If the shop drawing/submittals have not been submitted in complete format, the Architect of Record and/or Engineer of Record shall coordinate with the Resident Engineer and/or Contractor. Architect of Record and/or Engineer of Record to make determination, based on coordination, if Contractor needs to resubmit. Architect of Record and/or Engineer of Record shall coordinate with Department's Shop Drawing Review Office, to close out shop drawing and request resubmittal.

If it is determined that a submittal is a Pre-Qualified item, a QPL item or product that that should be reviewed by the Resident Engineer, Architect of Record and/or Engineer of Record shall coordinate with the Resident Engineer. If it is determined that submission requires Resident Engineer review, Architect of Record and/or Engineer of Record shall contact the Department's Shop Drawing Review Office in order to modify the ProjectSolve System for proper routing electronically.

Architect of Record and/or Engineer of Record reviews the shop drawing and implements their comments in red, stamps every sheet of the submitted with their disposition; "APPROVED", "APPROVED AS NOTED", "RESUBMIT" OR "NOT APPROVED", include initials and date.

Any additional comments may be added where they apply, under the stamp or in an attached Memorandum.

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. In addition, Architect of Record and/or Engineer of Record shall verify the Contractor has properly scanned the drawing and the seal is legible in the image. If not, Architect of Record and/or Engineer of Record shall coordinate accordingly with the Contractor and determine if the submission requires to be resubmitted, if Contractor cannot acquire legible copy in reasonable amount of time. Architect of Record and/or Engineer of Record shall coordinate with the Department as to their decision.

If shop drawing/submittal consists of samples, Architect of Record and/or Engineer of Record incorporates their disposition stamp. If physical samples are provided by the Contractor, once Architect of Record and/or Engineer of Record has reviewed and stamped, all original samples shall be provided to the Department's Shop Drawing Review Office (via overnight courier), unless specific instructions have been provided. Color should be either to match existing, or if the Architect of Record and/or Engineer of Record is responsible for choosing the color, it should be noted.

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

Once the Architect of Record and/or Engineer of Record has completed their review, it submitted through ProjectSolve to the Department's Shop Drawing Review Office for final processing back to the Contractor. (Refer to *Exhibit 28-A*).

28.6.3.1 Review by Engineer of Record 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 Responsible Lead Reviewer (refer to *Exhibit 28-D*) 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 Department's 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 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 through 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 the Department's Shop Drawing Review Office via ProjectSolve.

The Department will continue to overview those shop drawings which are deemed "Critical" (ADA or Life Safety elements). A project specific list of "Critical" shop drawings will be developed by the Department. Upon review of these shop drawings, the Department's reviewer will indicate the disposition by stamping the sheets, sign and date shop drawing. (Refer to *Exhibit 28-B*).

Modification for Non-Conventional Project:

Delete the above paragraph and replace with the following:
--

The Department will overview all shop drawings. Upon review of these shop drawings, the Department's reviewer will indicate the disposition by stamping the sheets, sign and date shop drawing.

28.6.5 Requirements for Architectural or Building Structures

Replace this section with the following

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

28.6.6 Requirements for Roadway Submittal Items

Replace with the following paragraph

Shop drawings/submittals related to roadway plans such as lighting, attenuators, non-standard drainage structures, 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. 700-000-000 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 or the appropriate Department Review Office.

28.7 Disposition of Submittals

Replace paragraph 1 with the following

The approval or disapproval of submittals by the Architect of Record and/or Engineer of Record shall be indicated by one of the following designations: “APPROVED” (no further action required), “APPROVED AS NOTED”, (make corrections noted – not further submittal required), “RESUBMIT”, (make corrections noted and resubmit for approval), or “NOT APPROVED” (rejected – do not resubmit the concept or component as submitted).

Add the following after paragraph 1

The approval or disapproval of submittals by the Department shall be indicated by one of the following designations: “REVIEWED”, (approved - no further action required), “FURNISH AS NOTED”, (approved as noted – make corrections noted – no further action required), “FURNISH AS NOTED/SUBMIT SPECIFIC ITEM”, (approved as noted – approval is contingent upon submission of additional information for review and approval), “REJECTED”, (not approved – do not resubmit the concept or component as submitted), “REJECTED/SUBMIT SPECIFIC ITEM”, (not approved – submit additional information for review and approval), “REVISE/RESUBMIT”, (resubmit with corrections), “NOT REVIEWED”, (no review required), “SUBMIT SPECIFIC ITEM”, (submit additional information for review and approval), “NOT REVIEWED/SUBMIT SPECIFIC ITEM”, (not reviewed, submit additional information for proper review and approval).

Replace the following (Modification for Non-Conventional Project) after paragraph 2

Modification for Non-Conventional Project:
Delete the above paragraph and replace with the following:
<p>The approval or disapproval of submittals by the Architect of Record and/or Engineer of Record shall be indicated by one of the following designations: “APPROVED” (no further action required), “APPROVED AS NOTED” (make corrections noted – no further submittal required), “RESUBMIT” (make corrections and resubmit for approval), or “NOT APPROVED” (Rejected – Do not resubmit the concept or component as submitted). Only shop drawings that have been “APPROVED”, or “APPROVED AS NOTED” shall be submitted to the Department, for review.</p> <p>Upon completion of the Department’s review, the Department submits the shop drawing to the Resident Engineer who shall stamp the drawings, electronically, “RELEASE FOR CONSTRUCTION”, “RELEASE FOR CONSTRUCTION AS NOTED”. Shop drawings which are stamped “RESUBMIT”, by the Architect of Record and/or Engineer of Record, will not be routed to the Resident Engineer for stamping.</p>

Replace paragraph 4 with the following

When a submittal contains deviations from the Contract Plans and Specifications, the consultant shall contact Florida's Turnpike Enterprise Project Manager, who will coordinate with the Construction Project Manager and shall 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 paragraph 13 with the following

When the Department concurs with Architect of Record's and/or Engineer of Record's review and disposition of the submittal, the Department will stamp and process the submittal back to the Contractor. Should the Department's review and/or disposition of the submittal differ from that of the Architect of Record and/or Engineer of Record, the final disposition of the submittal will be resolved in accordance with the following procedures:

Replace the following (Modification for Non-Conventional Project) after paragraph 13

Modification for Non-Conventional Project:

Delete the above paragraph and replace with the following:

Exhibit 28-C shows the submittal and distributional flow of a shop drawing. When the Department concurs with the Design-Build Firm's Architect of Record/Engineer of Record review and disposition of the submittal, the Department will stamp and distribute the submittal. Should the Department's review and/or disposition of the submittal differ from that of the Design-Build Firm's Architect of Record/Engineer of Record, the final disposition of the submittal will be resolved in accordance with the following procedures:

28.9 Distribution of Submittals

Replace paragraph 1 and Table 28.3 with the following

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

Replace paragraph 2 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 paragraph 4 with the following

When approval of a submittal is denied (“Resubmit” or “Not Approved”), distribution of the submittal from the Contractor, shall be made to the Department’s Shop Drawing Review Office and processed through ProjectSolve, when only the Department is reviewing shop drawings. Shop Drawing is processed back to Contractor, Resident Engineer is also notified through ProjectSolve.

Modification for Non-Conventional Project:
Delete the above paragraph and replace with the following:
Refer to <i>Exhibit 28-C</i> which shows the submittal and shop drawing flow diagram for Design-Build Projects.

Add the following after last paragraph

The Contractor shall be responsible for transmitting a copy of the returned submittal to the appropriate subcontractor, specialty engineer or fabricator.

28.11 Submittal Activity Record (Logbook)

Replace paragraph 1 with the following

The Department’s 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. Florida’s Turnpike Enterprise Shop Drawing Number
5. Description of Shop Drawing Entry
6. Architect of Record and/or Engineer of Record Submittal Number
7. Contractor Submittal Number
8. Date Submitted by Contractor to the Architect of Record and/or Engineer of Record
9. Date Submitted by Architect of Record and/or Engineer of Record to the Department’s Shop Drawing Review Office
10. Date Distributed by the Final Review Office to the Contractor
11. Architect of Record and/or Engineer of Record Disposition
12. Florida’s Turnpike Enterprise Disposition

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, Architect of Record and/or Engineer of Record, 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.

In addition, shop drawings will assist Florida's Turnpike Enterprise Maintenance Department in future repair and/or replacement of equipment.

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

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

28.12 Archiving Record Shop Drawings

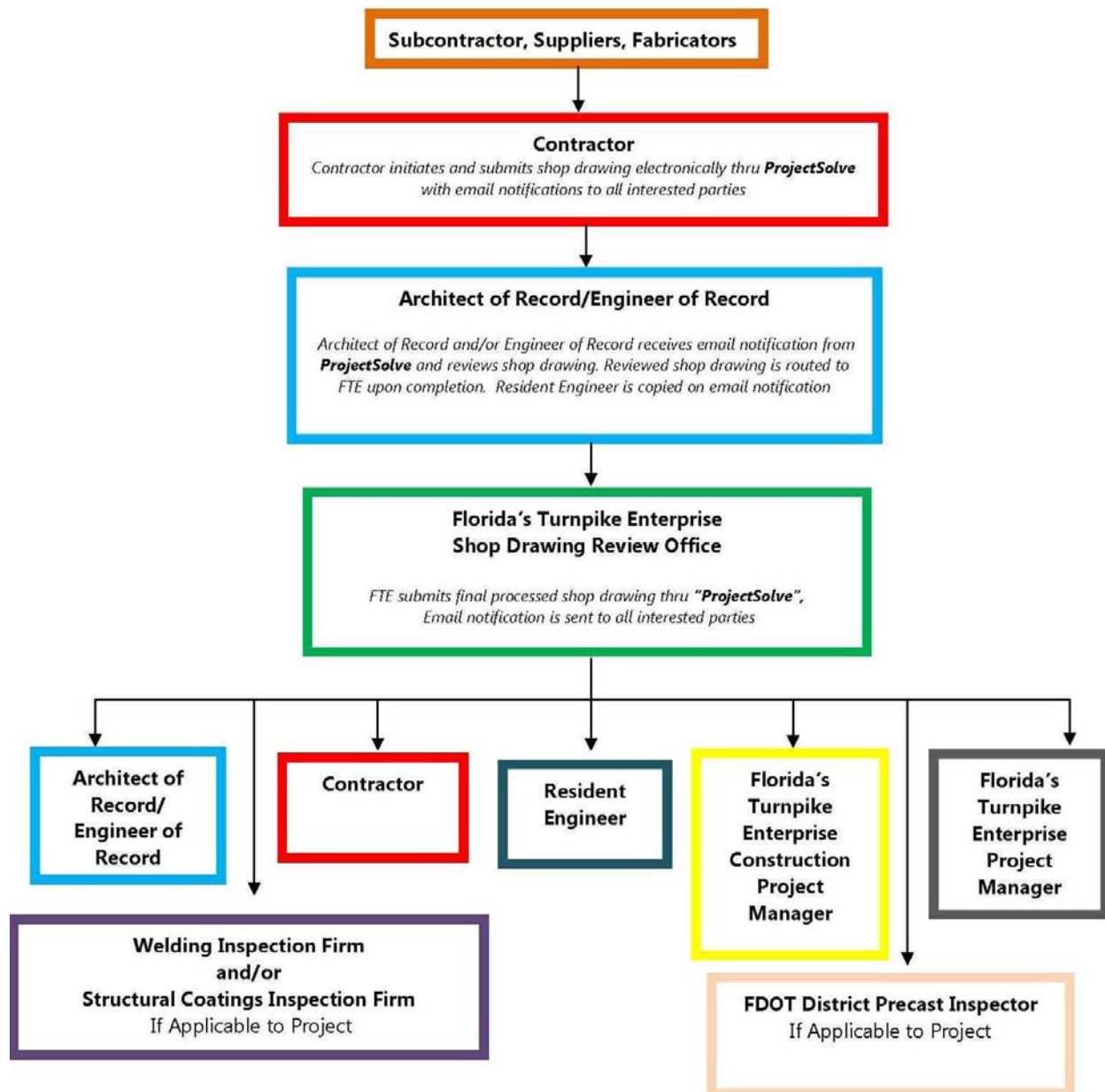
Replace this section with the following paragraphs

Prior to project completion, the Resident Engineer shall coordinate with the Department's Shop Drawing Review Office to coordinate and/or verify resolution to all shop drawing submissions. If not, the Shop Drawing Review Office will request the Resident Engineer 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), the Department's Shop Drawing Review Office imports the shop drawings into the EDMS System. The Submittal Activity Record Logbook (Shop Drawing Status Report generated by ProjectSolve) and the Final Acceptance Letter is also imported into the system.

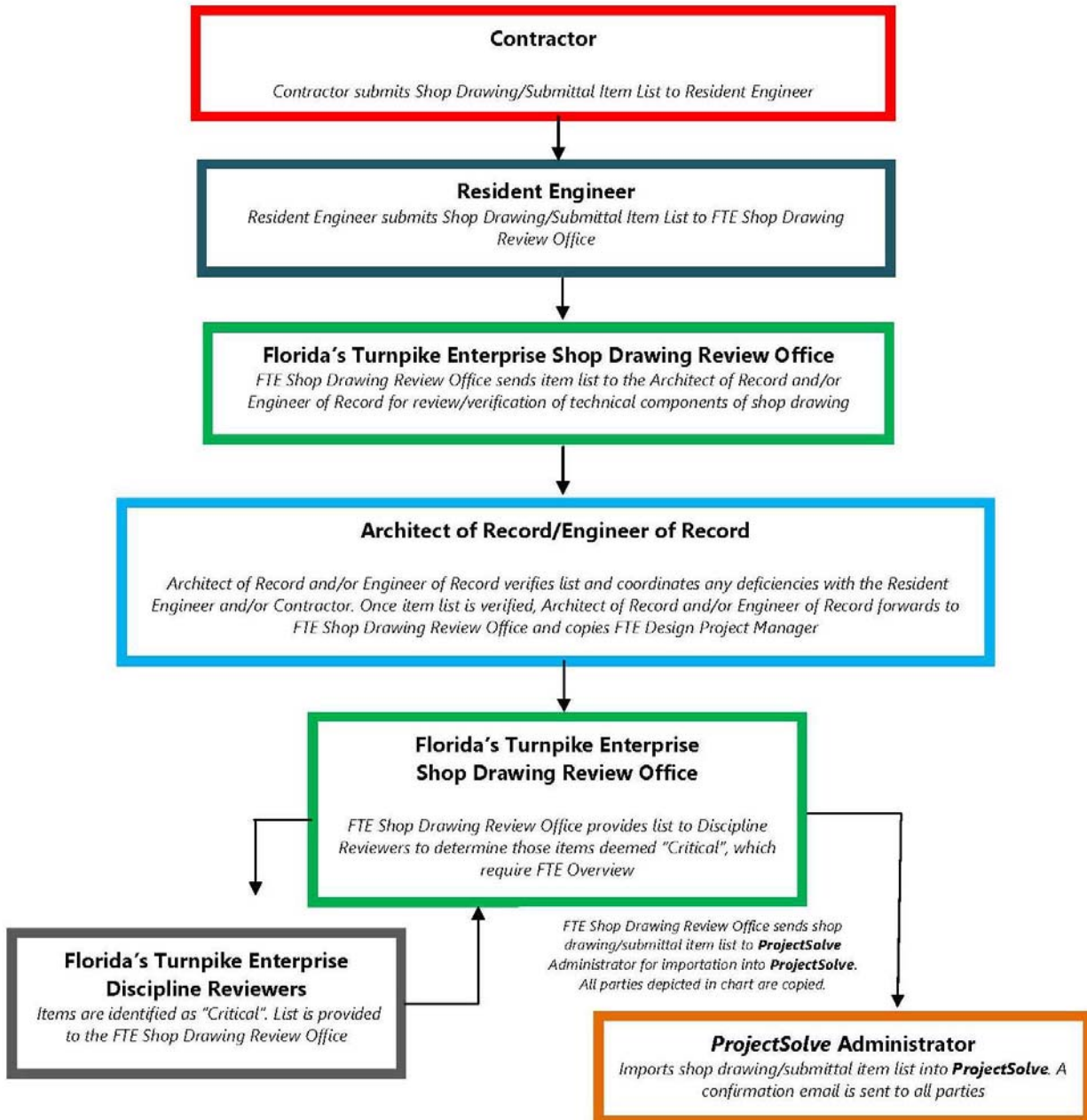
Replace the following exhibit

Exhibit 28-A
Florida's Turnpike Enterprise Shop Drawing/Submittal
Routing Chart for Design Bid Build (Conventional) Projects



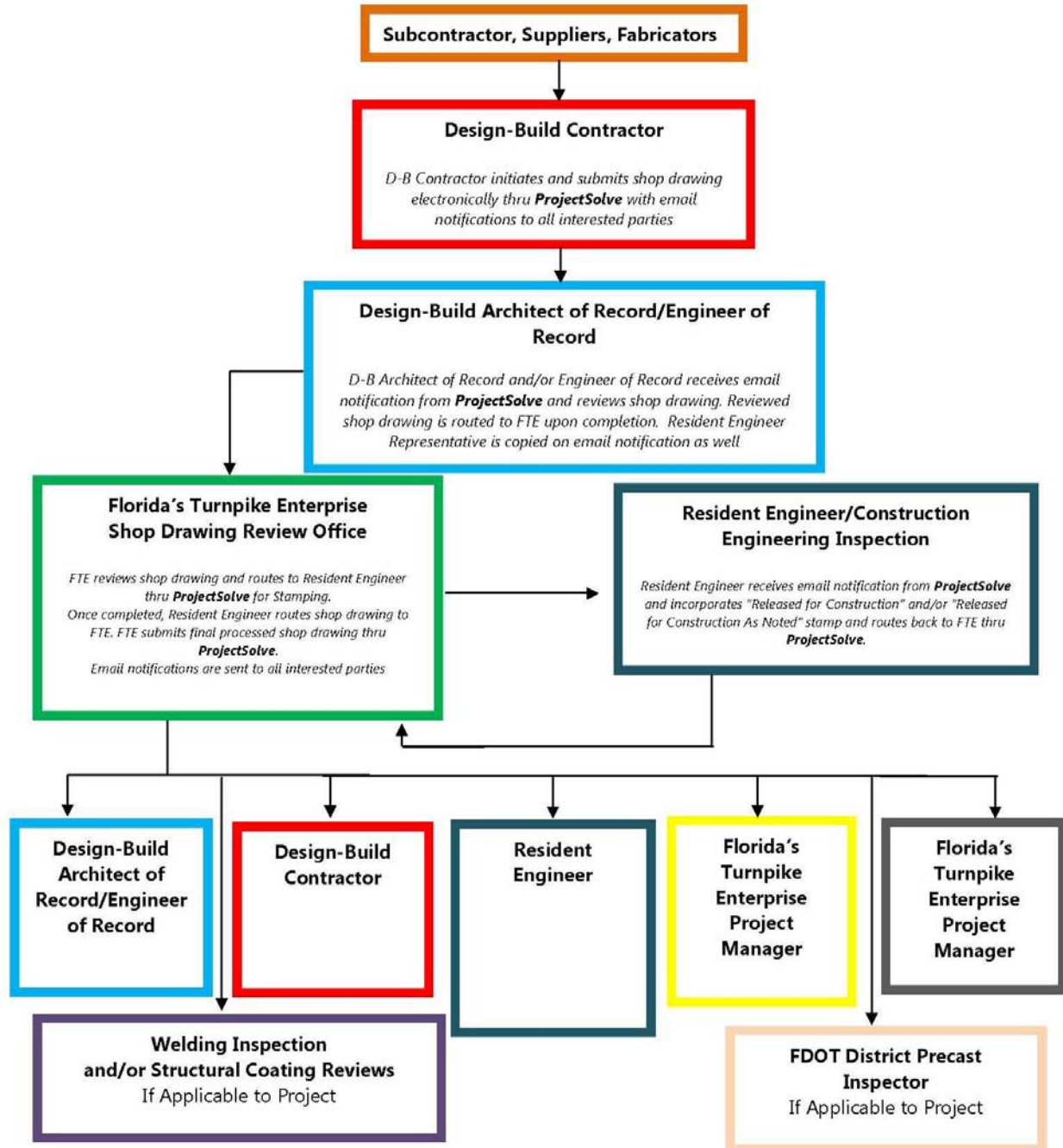
Replace the following exhibit

Exhibit 28-B
Flow Chart for Shop Drawing/Submittal Item List – Review
Coordination for Design Bid Build (Conventional) Projects



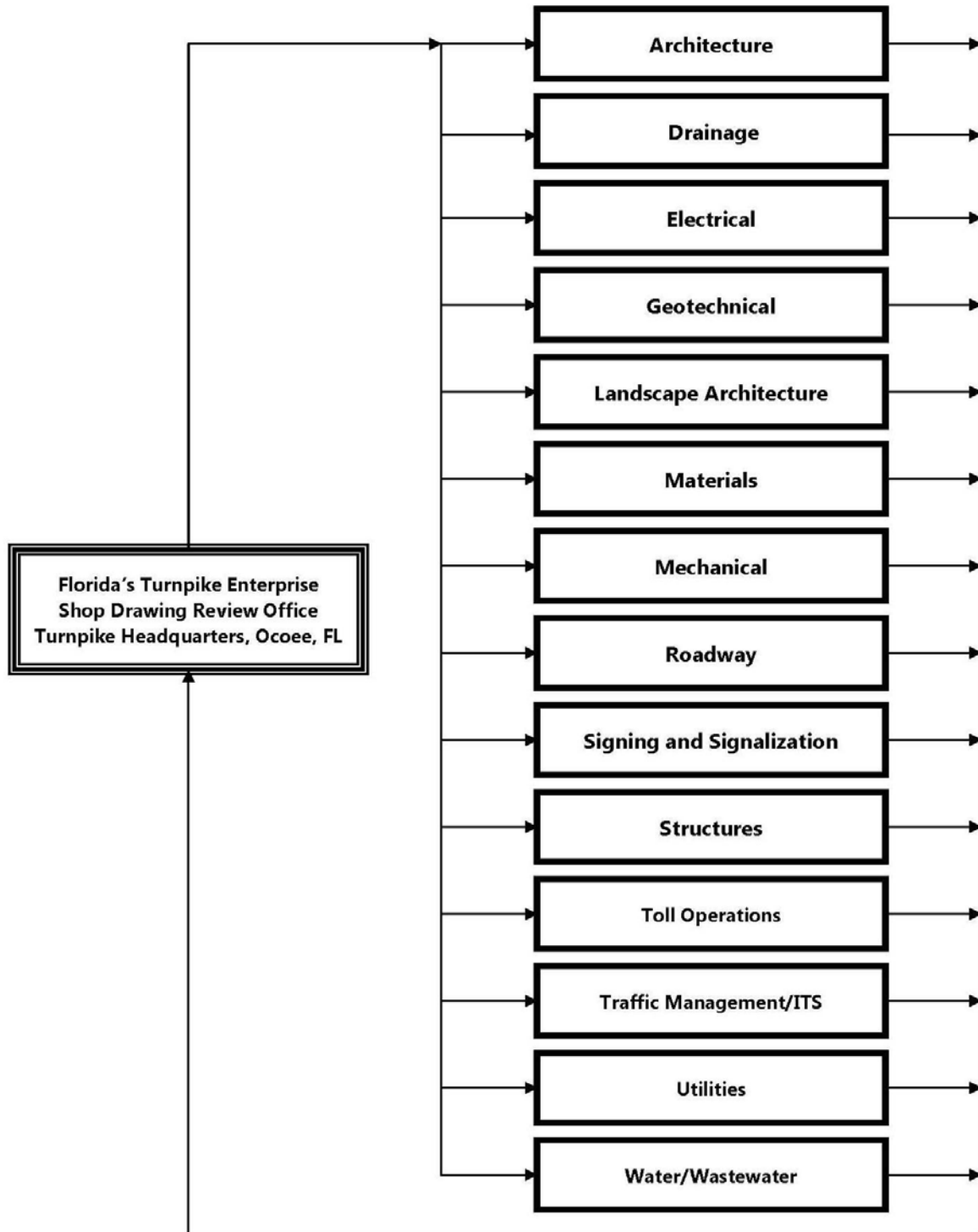
Replace the following exhibit

**Exhibit 28-C
Shop Drawing/Submittal Routing Chart for
Design Build (Non-Conventional) Projects**



Replace the following exhibit

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



Delete the following exhibit

Exhibit 28-E

Chapter 29

Structural Supports for Signs, Luminaires, and Traffic Signals

The following are changes, additions or deletions to the January 2014, 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 3 also apply. If 125% of the proposed panel area is less than the Volume 3 minimum area, the Volume 3 minimum area should be used. If signs are not present over lanes, the Volume 3 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.

When possible, avoid truss depths greater than 8-ft (96"). Deep trusses pose additional inspection issues.

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 2014, 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 2014, 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

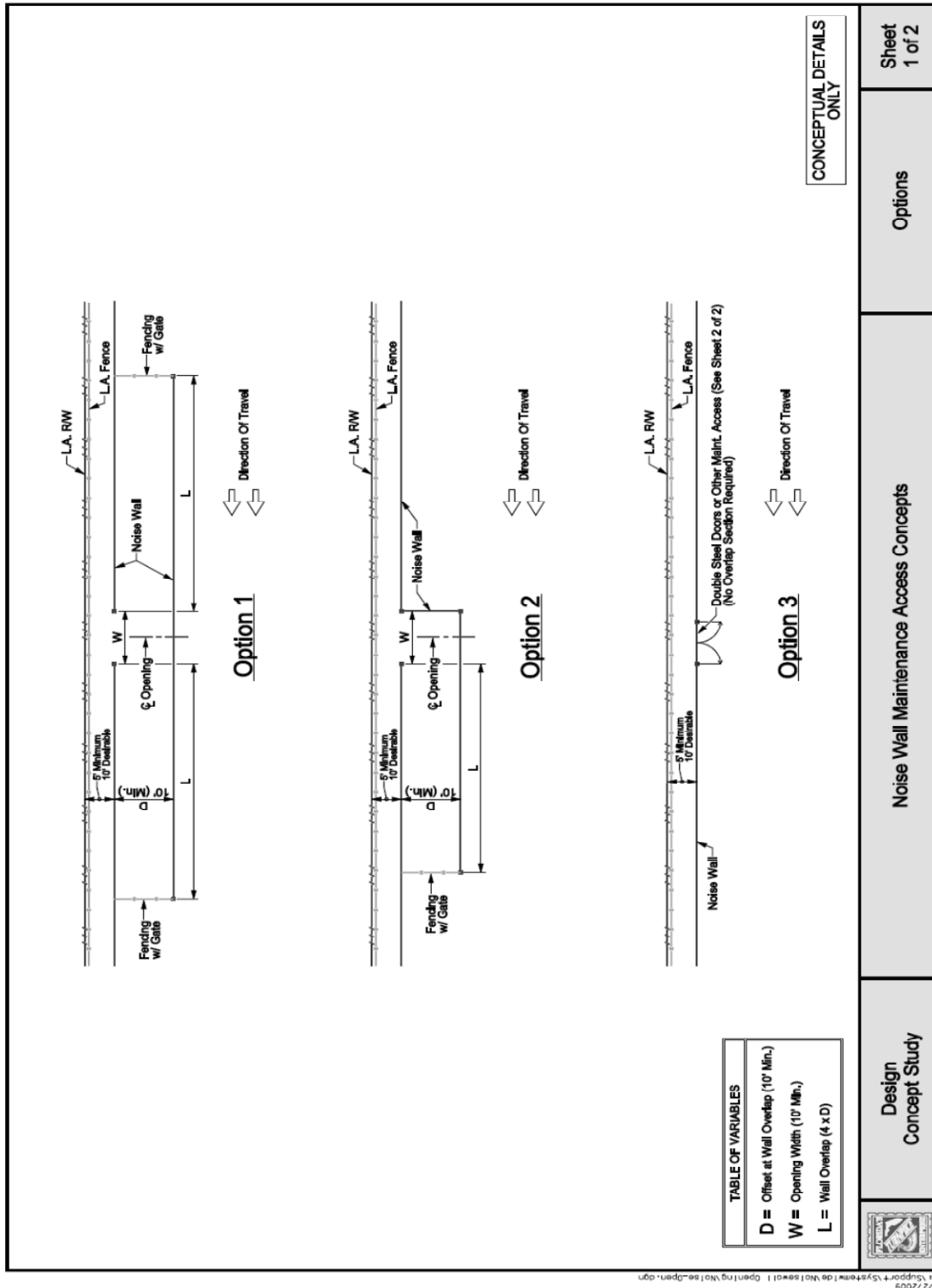
Noise Barriers

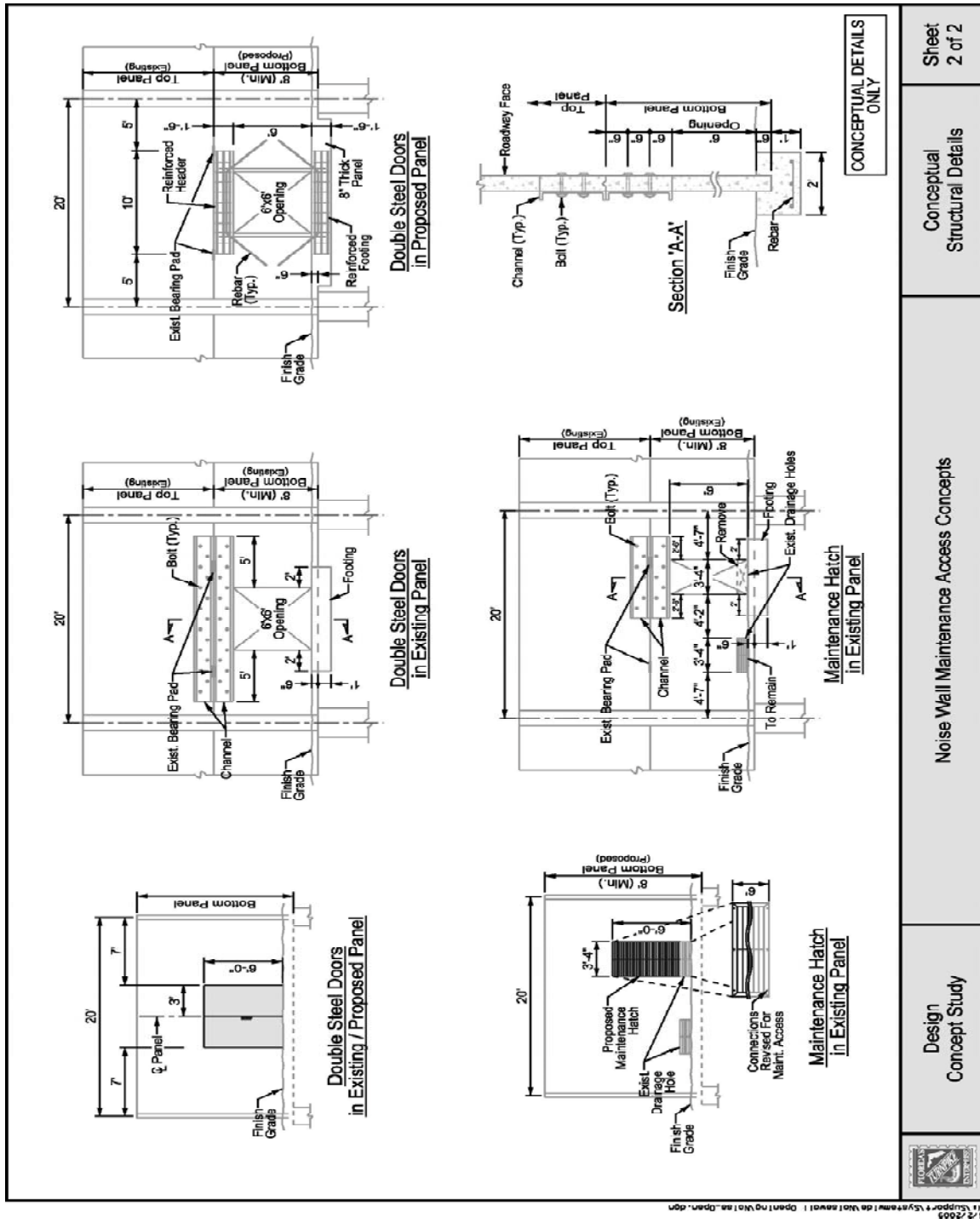
The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

32.3 Noise Abatement Criteria

Add the following paragraph

Maintenance access points shall be provided for noise 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.





Chapter 33

Reinforced Concrete Box and Three-Sided Culverts

The following are changes, additions or deletions to the January 2014, Topic #625-000-007, Plans Preparation Manual (PPM), for use on Turnpike projects only.

No changes to the entire chapter