

TURNPIKE PLANS PREPARATION AND PRACTICES HANDBOOK (TPPPH)

VOLUME I



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

OCOEE, FL

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Chapter 2

Design Geometrics and Criteria

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

2.0 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.

2.1.6 Roadway Pavement

Add the following paragraph

TPPPH Section 16.2.7.1 contains the minimum standards for pavement designs on the Turnpike System.

Add the following section

2.1.6.1 Longitudinal Pavement

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

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

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

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
<u>U-turn spacing</u>	<u>1 to 2 miles apart</u>
<u>Interchange Location</u>	<u>Not within 1 mile</u>
Median width opening	≥ 20 feet (concrete barrier wall separated)

All crossovers within a project's limit are to be evaluated by the design consultant for the spacing criteria ~~listed above~~ and for sight distance deficiency. Findings are to be documented and submitted to the ~~department~~ 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

4.3.1 Recommendations

Add the following paragraph

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

4.3.2 Selection

Add the following paragraph

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

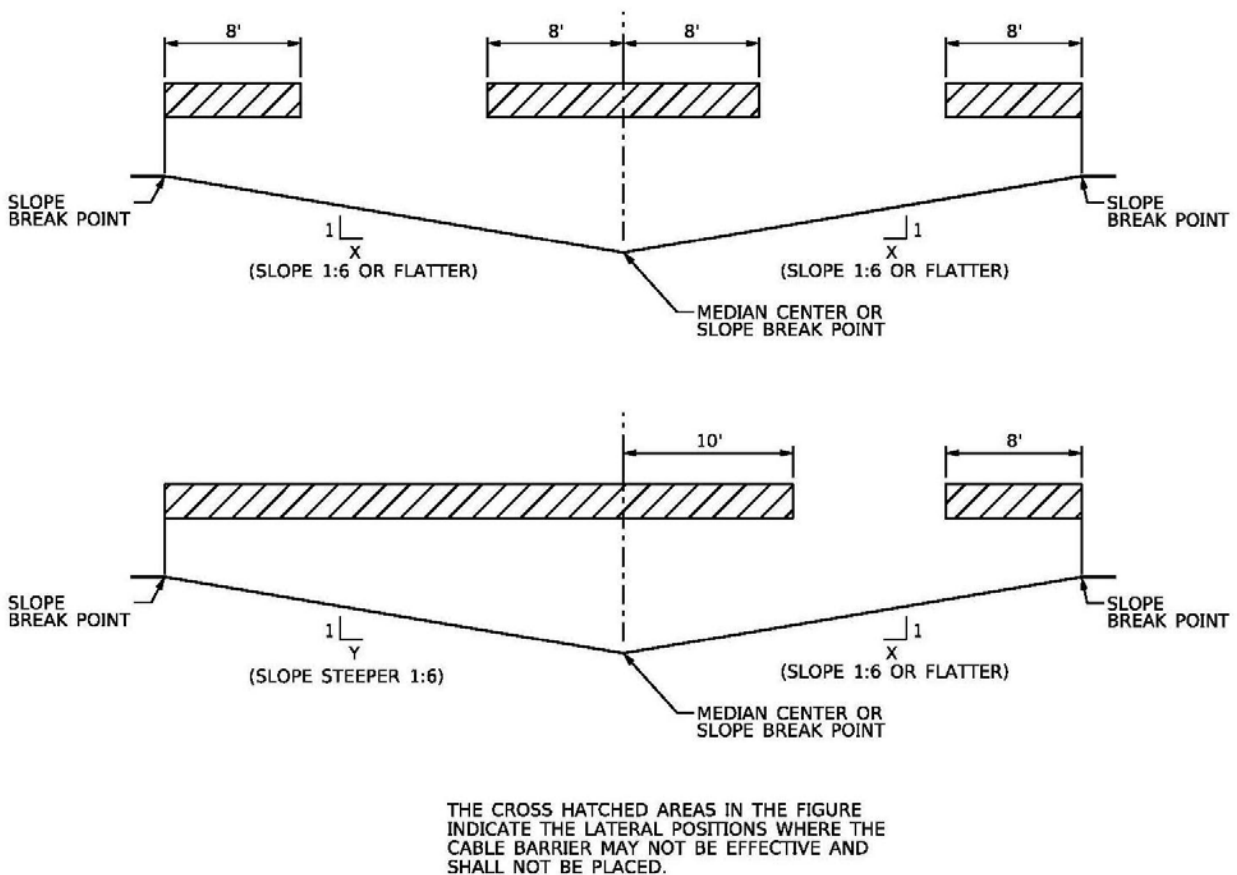
Add the following paragraph

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

1. The maximum slope a high tension cable barrier shall be placed on is 1V:6H, with preferred slope of 1V:10H.
2. High tension cable barrier cannot be placed between the front slope break point and 8' from the break point or median center when the approach slope is 1:6 or flatter; or 10' from the break point if the front slope is steeper than 1:6. See figure below for clarification.

Add the following figure

Figure 4.3.2 Cable Barrier Placement



3. Post spacing shall be installed such that the dynamic deflection is no more than a maximum of 8 feet.
4. Design drawings and calculations required by Developmental Specification 540 to be furnished to the Engineer shall also be submitted through FTE's shop drawing review process.
5. Design drawings and calculations for post foundations as described in Developmental Specification 540-1 ~~(f)~~ are required regardless of soil compaction. The design should be based on the soils described in Developmental Specification 540-1 ~~(e)~~, unless otherwise detailed in the plans.
6. ~~A 16' clear area shall be provided between the barrier and any hazard.~~
6. Maintenance access points must be placed at a minimum of every ~~half-mile~~ 3,280 feet unless approved by the Turnpike Design Engineer.

7. The offset deflection distance for cable barrier increases with increasing end anchor to end anchor spacing. Maximum length of cable run is 3,280 feet between end anchors unless approved by the Turnpike Design Engineer.
8. When long cable runs need to be broken up, overlapping terminals can be used with 8' minimum lateral separation and 50' minimum overlap. Downstream anchor will be on traffic side of overlap.
- 7.9. 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.

Table 4.3.1 Minimum Offset of Barriers
(Measured from the face of the barrier)

Add the following to the table

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

4.4 Median Barriers

4.4.2 Selection

The second sentence is revised in this section to the following

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

Add the following section

4.4.4 Median Barrier Grading Requirements

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

Chapter 21

Transportation Design for Livable Communities

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

~~No changes to the entire chapter~~

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.