

## Chapter 4

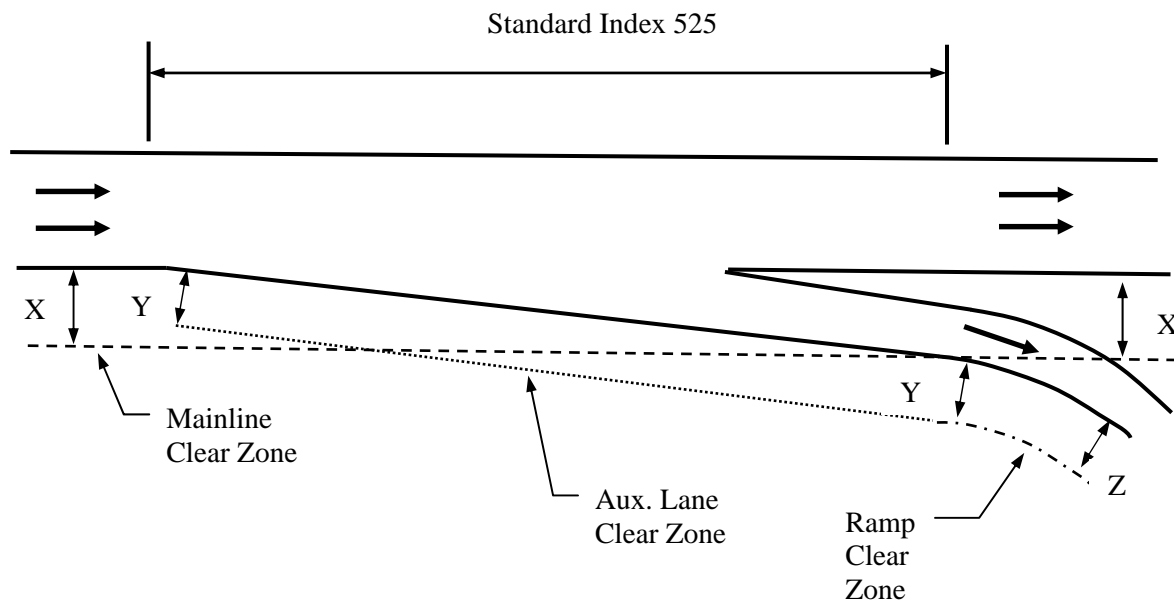
### Roadside Safety

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

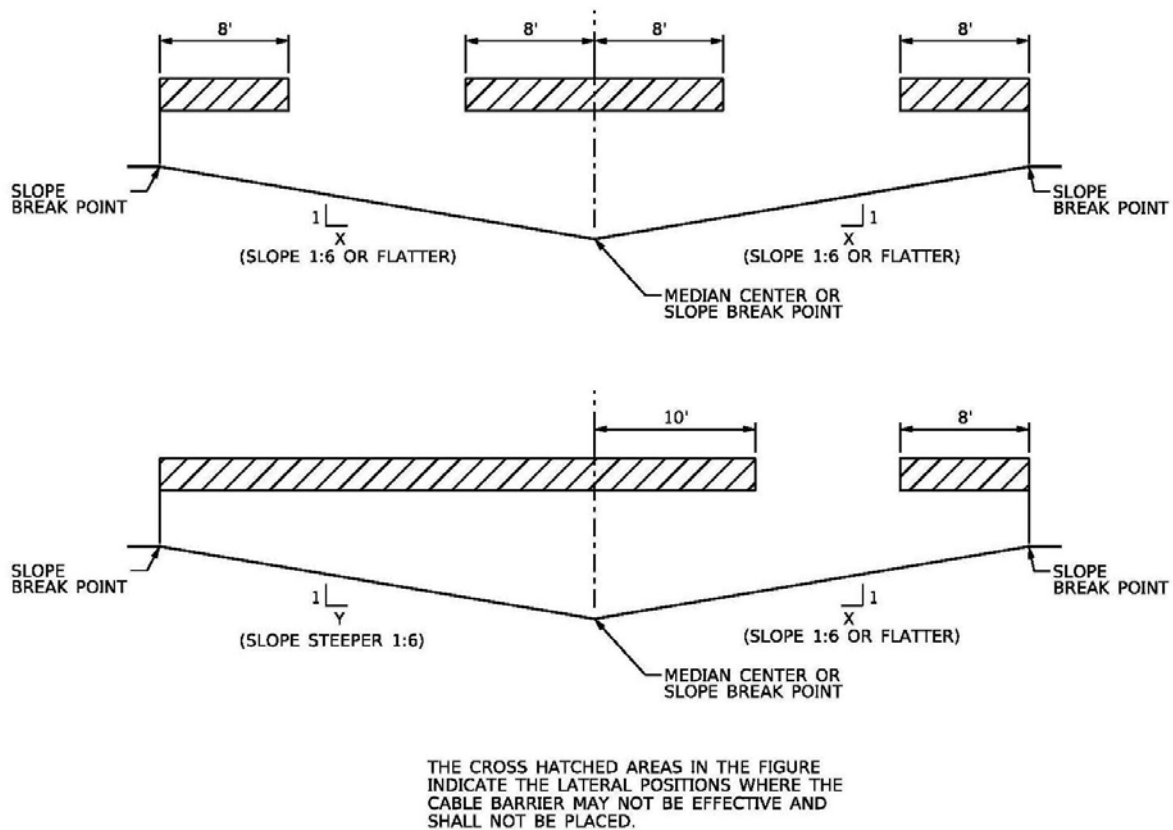
*Add the following section*

#### **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.