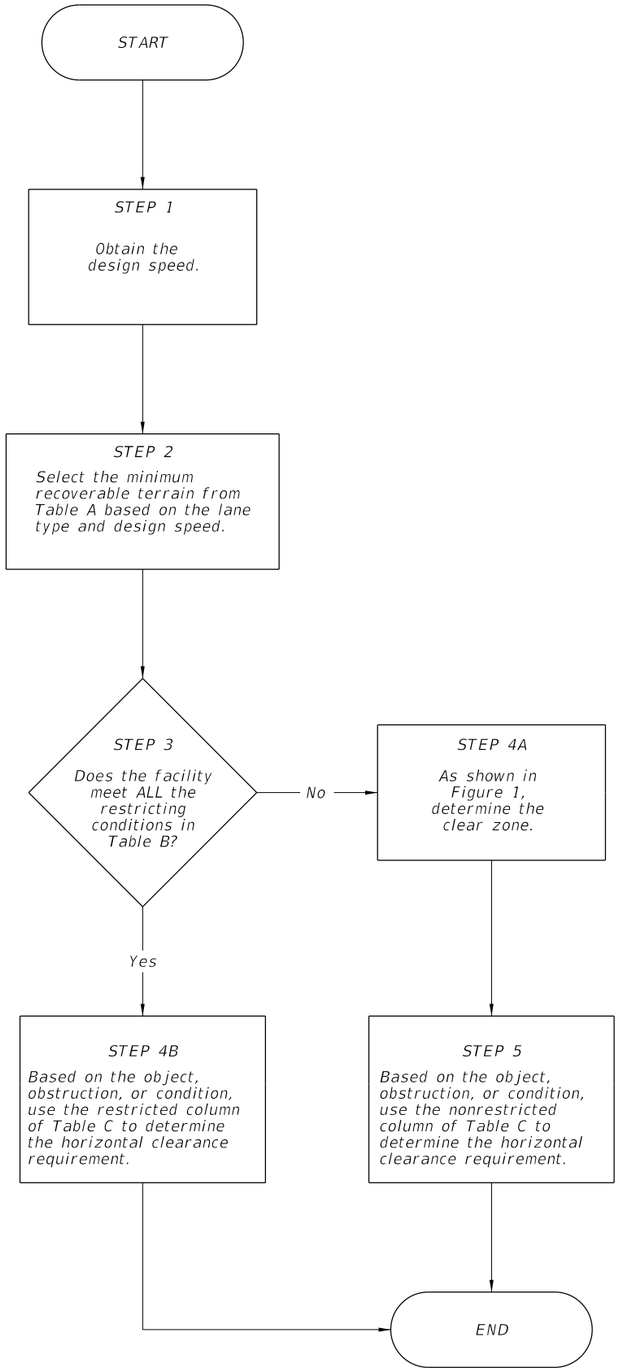
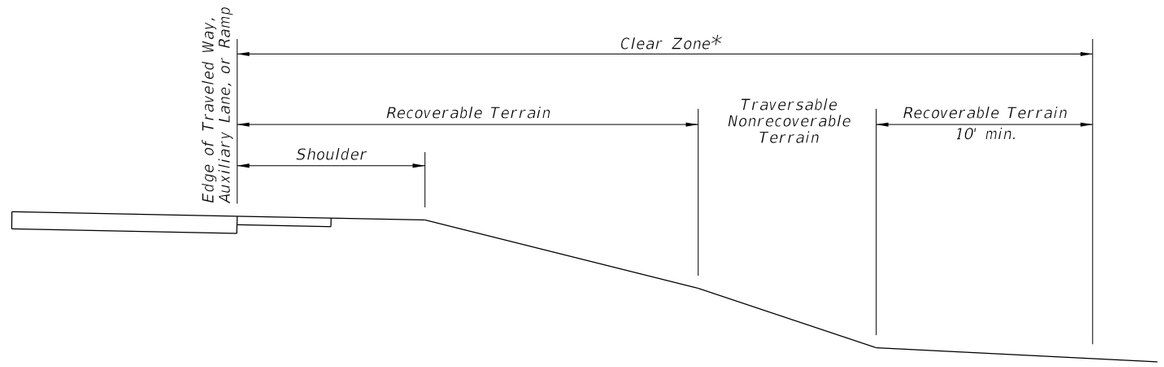



PROCESS FOR DETERMINING HORIZONTAL CLEARANCE




ROADSIDE TERRAIN
FIGURE 1

* Roadside Slopes shown in Figure 1 are for Maintenance and Permitting purposes when establishing Clear Zone requirements. For FDOT Standard Roadside Slopes, refer to PPM, Volume 1, Chapter 4.

TABLE A
MINIMUM RECOVERABLE TERRAIN (ft)

| Design Speed (mph) | Travel Lanes & Multilane Ramps | Auxiliary Lanes & Single Lane Ramps |
|---|---|---|
| <45 | 18 | 10 |
| 45 | 24 | 14 |
| 50 | 24 | 14 |
| 55 | 30 | 18 |
| >55 | 36 | 24 |

TABLE B
RESTRICTING CONDITIONS

1. The facility is an urban facility.
2. The facility's design speed is 45 mph or less.
3. The facility is predominantly a curbed facility.
4. The distance from the traveled way to the R/W line is less than the value obtained in STEP 2.

## DEFINITIONS

Roadside Terrain includes all surfaces along the roadway adjacent to the traveled way. For the purpose of establishing clear zones and horizontal clearance requirements, roadside terrain is defined as recoverable, traversable, traversable nonrecoverable, nontraversable, and hazardous as follows:

Clear Zone is the relatively flat unobstructed area that is to be provided for safe use by errant vehicles, and must be wide enough so that the sum of all the recoverable terrain within is equal to or greater than the value obtained in STEP 2. Recoverable terrain provided beyond nonrecoverable terrain must be a minimum of 10 feet. Areas beyond nontraversable and hazardous terrain cannot be used as recoverable or traversable nonrecoverable terrain.

Horizontal Clearance Requirements are shown in Table C and are the required offsets to an object from a specified point on the roadway.

Recoverable when it is safely traversable and on a slope that is 1v:4h or flatter.

Traversable when the slope is 1v:3h or flatter.

Traversable Nonrecoverable when it is safely traversable and on a slope that is steeper than 1v:4h but not steeper than 1v:3h.

Nontraversable when it is not safely traversable or on a slope that is steeper than 1v:3h.

Hazardous when a slope is steeper than 1v:3h and deeper than 6 feet as shown in Figure 2.

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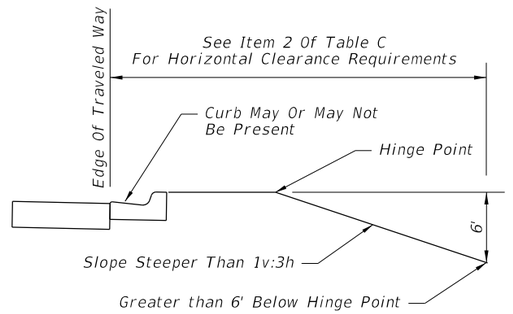
| LAST REVISION | REVISION | DESCRIPTION: | FY 2016-17 DESIGN STANDARDS | ROADSIDE OFFSETS | INDEX NO. | SHEET NO. |
|---|---|---|---|---|---|---|
| 01/01/16 | | | | | 700 | 1 of 2 |

## TABLE C

| CATEGORY | Item No. | OBJECTS, OBSTRUCTIONS OR CONDITIONS | | HORIZONTAL CLEARANCE REQUIREMENTS | |
|---|---|---|---|---|---|
| | | | | Restricted (See Table B) | Nonrestricted |
| GENERAL | 1 | Above ground fixed hazards: All roadside objects, obstructions or conditions other than those listed below that exceed 4 inches in height and pose a hazard to errant vehicles and vehicle occupants. | | Locate as close to the Right Of Way as practical and not less than 4 feet from face of curb. | Locate outside the clear zone as close to the Right Of Way as practical. |
| | 2 | Drop-off hazards: Any point along a roadside slope steeper than 1v:3h that is deeper than 6 feet below the hinge point. See Figure 2. | | Locate the point that is 6 feet below the hinge point no less than 22 feet from the edge of traveled way. | Treat as roadside slopes in accordance with Design Standard, Index 400. |
| ROADWAY | 3 | All FDOT approved guardrails, guardrail end terminals, crash cushions, and concrete barriers (temporary or permanent). | | Locate as shown in the Design Standards. | |
| | 4 | Mailboxes | Design Standard, Index 532 | Locate in accordance with Design Standard, Index 532. | |
| | 5 | | Not Shown in Design Standard, Index 532 | Not to be used. | |
| | 6 | Trees | Expected to become greater than 4 inches in diameter (measured 6 inches above the ground). | Outside roadways: Locate no less than 4 feet from face of curb in accordance with Design Standard, Index 546.<br>Inside medians: Locate no less than 6 feet from the edge of traffic lane and in accordance with Design Standard, Index 546. | Locate outside the clear zone as close to the Right Of Way as practical and in accordance with Design Standard, index 546. |
| | 7 | | Not expected to become greater than 4 inches in diameter (measured 6 inches above the ground). | Locate in accordance with Design Standard, Index 546. | |
| | 8 | Canals | Behind guardrail. | Locate no less than 5 feet from the back of the guardrail post. | |
| | 9 | | Unshielded | Locate as close to the Right Of Way as practical and not less than 40 feet from the edge of traveled way. | Design Speeds of 50 mph and greater: Locate as close to the Right Of Way as practical and not less than 60 feet from the edge of traveled way.<br>Design speeds less than 50mph: Locate as close to the Right of Way as practical and not less than 50 feet from the edge of traveled way. |
| DRAINAGE | 10 | Culvert wing walls, endwalls, retaining walls and flared end sections | less than or equal 6 feet deep. | Locate no less than 4 feet from face of curb. | Locate outside the clear zone. |
| | 11 | | greater than 6 feet deep. | Treat as drop-off hazard; See Item No. 2. | |
| | 12 | Mitered end sections. | | Locate as shown in Design Standard, Index 273 and Index 273. | |
| TRAFFIC CONTROL DEVICES | 13 | Frangible or breakaway sign supports. | | Locate in accordance with Design Standard, Index 17302. | |
| | 14 | Overhead sign supports and other nonfrangible signs. | | Locate no less than 4 feet from face of curb. | Locate outside the clear zone |
| | 15 | Traffic infraction detectors, signal controller cabinets, signal poles, strain poles and mast arms | | Locate no less than 4 feet from face of curb and not in medians. | Locate outside the clear zone and not in medians. |
| LIGHTING | 16 | Conventional lighting (frangible). | | Locate no less than 4 feet from face of curb and only on barrier walls in medians. | Locate 20 feet from travel lanes or 14 feet from auxiliary lanes. Not in medians. May be clear zone width when the clear zone is less than 20 feet. |
| | 17 | Highmast lighting | | Not applicable | Locate outside the clear zone. |
| STRUCTURES | 18 | Bridge piers and abutments: Above ground vertical structures. | | Locate not less than 16 feet from edge of traveled way. | Locate outside the clear zone. |
| UTILITIES | 19 | Fire hydrants with bases no higher than 4 inches above ground. | | Locate not less than 2 feet from face of curb. | Locate as close to the Right Of Way as practical. |
| | 20 | Aboveground fixed Utilities (AFUs). | | New AFUs placed no closer than 4 feet from the face of curb and as close to the R/W as practical. | New AFUs are to be outside the Clear Zones established using Table A Recoverable Terrain and as close to the R/W line as practical. |
| RAILROADS | 21 | Railroad crossing traffic control devices. | | Locate in accordance with Design Standard, Index 17882. | |

## GENERAL NOTES

1. When shielding an object and sidewalks are present, an unobstructed sidewalk width of at least 4 feet must be provided.
2. When site specific conditions prohibit meeting the lateral offset requirements in TABLE C, the object, obstruction or condition must be crashworthy or mitigated, possibly by shielding. Otherwise, see the PPM, Volume 1, Chapter 4.




DROP-OFF HAZARDS

FIGURE 2

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| LAST REVISION | REVISION | DESCRIPTION: | | | | |
|---|---|---|---|---|---|---|
| 01/01/16 | | | FDOT FY 2016-17 DESIGN STANDARDS | ROADSIDE OFFSETS | INDEX NO. 700 | SHEET NO. 2 of 2 |