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Department of Transportation

# GUARDRAIL & CABLE BARRIER INSPECTION AND MAINTENANCE

## PURPOSE:

To provide a method and direction for the inspection, repair, or replacement of guardrail and cable barrier on the state highway system.

## AUTHORITY:

Sections 20.23(3) (a)
334.048(3), Florida Statutes (F.S.)

## References:

FDOT Design Standards for Construction and Maintenance Operations on the State Highway System

Standard Specifications for Road and Bridge Construction, Section 536, Section 538 & Developmental Spec 540

Approved Products List (APL) – Manufacturer's Publications

Innovative Products List (IPL)

## SCOPE:

This procedure applies to personnel responsible for the inspection, repair, and replacement of guardrail and cable barriers.

## GENERAL:

Guardrail and cable barrier systems serve as protective devices to restrain and/or redirect vehicles away from potentially hazardous areas. A typical guardrail system consists of a guardrail length of need segment, end treatments (approach terminal, trailing anchorage, or both), and/or transition connections. A cable barrier system consists of cables, end terminal assemblies (anchorage foundations and terminal hardware), and line posts (posts and foundations). It is the Department's objective to maintain existing guardrail and cable barrier systems so they function as intended. Renovation of undamaged existing systems to current standards shall be accomplished through the Department's Work Program.

## 1. INSPECTION

To ensure proper performance and to maintain the integrity of each installation, perform one inspection per guardrail and cable barrier installation every two years. A record of each roadway section inspected shall be made utilizing **Form No. 850-050-03, Inspection Report**. The record shall have the name of the inspector, the date inspected, and be maintained at the inspecting unit. The record shall be filed within 15 days after completing the inspection. This inspection should ascertain whether the system is intact and able to function as designed and constructed. All deteriorated, missing, or damaged components shall be identified for corrective action. This inspection is not intended to preclude other inspections that may be deemed appropriate by local conditions.

### 1.1 General Consideration

**(A)** Ensure the system is installed and functioning in accordance with the Design Standards that were applicable at the time of installation.

**(B)** Determine if the system has deteriorated or been damaged to the extent that complete replacement is necessary.

**(C)** Notify the District Design Office of all obsolete end treatments such as but not limited to turndowns, type II, and breakaway cable terminal (BCT). Notify the District Design Office of any Modified Eccentric Loader Terminal (MELT) approach terminals on facilities with a posted speed greater than 45 mph.

### 1.2 Condition

**(A)** Check for deformities, corrosion, wood rot, tension, tightness, panels, bolts, fittings, support post, offset blocks, end shoes, end treatments, delineators, terminal foundations, and other specific requirements.

**(B)** Check the system for proper alignment, length, height, and approach slope.

**(C)** Check for debris, erosion, insect infestation, and vegetation around, under, or on the system.

**(D)** Check to ensure end treatments have been installed in accordance with the Design Standards or manufacturer's installation manual that were applicable at the time of installation.

# 2. REPAIR

## 2.1 Guardrail

**(A)** Repair damage due to impact within ten days after identification of the damage if the guardrail system will not function as designed.

**(B)** Repair damage due to impact within 30 days after identification of the damage if the guardrail system will function as designed.

**(C)** Repair deficiencies identified on ***Inspection Report, Form No. 850-050-03*** within 30 days after identification and document the repair of deficiencies on the inspection form.

Replacement components shall be on a like for like basis such as replace wood with wood, or steel with steel. Perform repairs in accordance with the Design Standards at the time of installation using the correct manufacturer replacement parts. Do not modify or omit hardware.

## 2.2 Cable Barrier

**(A)** Repair damage due to impact according to the following:

(a) If only line post replacement is required, repair within 24 hours of identification of damage.

(b) If end terminal assembly hardware, cable, or cables are damaged, repair within 72 hours of identification of damage.

(c) If end terminal assembly foundation or foundations are damaged, complete all repairs within 30 days of identification of damage.

**(B)** Repair deficiencies identified on ***Inspection Report, Form No. 850-050-03*** within 30 days after identification and document the repair of deficiencies on the inspection form.

Perform repairs in accordance with the manufacturer's installation manual using the correct manufacturer replacement parts. Do not modify or omit hardware.

### 2.3 Maintenance of Traffic

Secure systems damaged due to impact with proper temporary traffic control devices at the time of identification.

### 2.4 Notify the District Design Office if any of the following occurs:

(a) Vehicle penetrated the guardrail or cable barrier;
(b) Vehicle went over or under the guardrail or cable barrier;
(c) Vehicle did not remain upright following the impact; or,
(d) there was a serious injury or fatality.

## 3. REPLACEMENT CRITERIA

### 3.1 Guardrail Length of Need Segments

Replace damaged or deteriorated guardrail length of need segments, including the trailing anchorage, in accordance with the current Design Standards when more than 50% of the quantity of guardrail length of need components is damaged or deteriorated.

### 3.2 Guardrail Approach Terminals

Replace damaged or deteriorated guardrail approach terminals in accordance with the current Design Standards when more than 50% of the quantity of approach terminal components is damaged or deteriorated. If the length of guardrail including the approach terminal and trailing anchorage is less than or equal to 150 feet, replace the entire guardrail system in accordance with the current Design Standards. If the length of guardrail including the approach terminal and trailing anchorage is greater than 150 feet, replace the damaged or deteriorated approach terminal and transition to the existing guardrail system in accordance with the current Design standards.

### 3.3 Cable Barrier

Replace damaged or deteriorated cable barrier in accordance with the manufacturer's recommendations.

## 4. FORMS

The following form is available from the Department's Forms Library:

Form No. 850-050-03 Inspection Report

## 5. TRAINING

Department Maintenance personnel involved with inspections and repairs shall periodically review the appropriate Design Standards, Standard Specifications, and manufacturer’s details to ensure they are aware of applicable current design details and installation procedures.

Self-Study - CBT, BT-07-0002 Guardrail Inspection