

Index 544-001 Crash Cushion Details

Design Criteria

AASHTO Roadside Design Guide 4th Edition 2011; **FDOT Design Manual (FDM)**, **FDM 215**; **National Cooperative Highway Research Program (NCHRP) Report 350**; **AASHTO Manual for Assessing Safety Hardware, MASH 2016**

Design Assumptions and Limitations

See **FDM 215**, notes on **Index 544-001**, and limiting conditions as shown on the Approved Products List (APL) webpage and the approved crash cushion drawings posted on the APL.

Index 544-001 is applicable for permanent crash cushion installations which shield the ends of Concrete Barrier Walls and Guardrail, only. Height

Standard crash cushion design is based on shielding the ends of either concrete barrier wall or guardrail. The design length of a crash cushion is established by a given design speed and the shortest crash cushion option available for that design speed. The design length of the crash cushion is included within the limits of the Length of Need (see the Length of Need requirements in the **Standard Plans Instruction** for **Index 536-001**).

The design length for concrete barrier installations is measured from the Beginning of Length of Need to the end of the crash cushion concrete foundation. The design length for guardrail installations is measured from the Beginning of Length of Need to the downstream end of the manufacturer's transition, which is at the center of Post 1 for the Standard Guardrail Transition. All Crash Cushions are located by the station of their downstream ends.

Establish the location station for crash cushions and barrier ends based on the design lengths provided on **Index 544-001**.

For limited access roadway off-ramps, design for crash cushions based on the design speed of the mainline facility.

For additional design information on the selection and location of temporary crash cushions see **FDM 215**.

Plan Content Requirements

Summary Boxes:

Summarize the following information in the *Summary of Permanent Crash Cushions*, see **BOE**, Chapter 8:

1. Location (Station and Side),
2. Barrier System (either Concrete Barrier or Guardrail),
3. Design Length (selected from **Index 544-001**),

4. Design Speed (based on facility type and designation),
5. Crash Test Level (see NCHRP Report 350 or AASHTO's MASH),
6. Hazard Width, and
7. Length Restriction (based on site specific space constraints).

Note: Length Restrictions that limit the selection of proprietary products from the APL to only one device (i.e. sole sourcing) is not permitted without approval from the District Design Engineer. Submissions for approval must be completed using the Proprietary Product Certification form (Form: 630-020-07), which can be obtained on the [FDOT Forms & Procedures](#) website.

Payment

Item number	Item Description	Unit Measure
544-75-1	Crash Cushion, Optional	EA

See the [BOE](#) and [Specification 544](#) for additional information on payment, pay item use and compensation.