

**544 CRASH CUSHIONS.**  
**(REV 8-6-13) (1-21)**

SECTION 544 is deleted and replaced with the following:

**SECTION 544**  
**CRASH CUSHIONS**

**544-1 Description.**

Work described in this section consists of five primary functions related to the maintenance and repair of crash cushions: Standard Periodic Inspections, Standard Maintenance, Damage Assessment, Hazard Neutralization, and Damage Restoration. Of these five functions, only the functions with corresponding pay items are to be performed by the Contractor. Functions without corresponding pay items are not a requirement of this contract.

**544-1.1 Standard Periodic Inspections:** Perform uniform and timely inspection of all crash cushions in order to identify and correct deficiencies. Standard inspections include Type I - cursory, and Type II - detailed.

**544-1.2 Standard Maintenance:** Correct deficiencies identified by Standard Periodic Inspections or other means of identification. Clean, adjust, and maintain as needed to keep the crash cushion functioning as designed.

**544-1.3 Damage Assessment:** Assess crash cushion damage by performing damage inspection. Damage Assessment inspection results will be used by the Department in determining the appropriate course of action required, either to repair or replace the existing crash cushion.

**544-1.4 Hazard Neutralization:** Neutralize the hazard created by a non-functioning crash cushion. Install traffic control devices to alert traffic of damaged crash cushion. Maintain such devices in place until temporary or permanent repairs have been completed.

**544-1.5 Damage Restoration:** Includes repair, reset or replacement of crash cushions in accordance the work document and the manufacturer's instructions. Perform total replacement of damaged crash cushions at locations specified by the Department. Total replacement is not limited to the type of crash cushion currently installed; the Department may direct installation of alternative types of crash cushions.

**544-2 General Requirements.**

Do not perform any work described in this Section unless directed via Work Document or other Department issued direction detailing the work to be performed by the Contractor. Prior to maintaining or installing any crash cushion, obtain the manufacturers' publications and possess these documents at the job site. Manufacturers' publications are required to ensure crash cushion maintenance and installation activities are properly accomplished enabling the crash cushion to perform to the intended design standard.

All work included on the work document must be initialed and dated as accepted by the Contractor and the Department.

If site conditions or other discrepancies require additional pay items be included on a work document, the Contractor shall request the work document be amended. The amended work document shall be verbally approved by the Department prior to work being performed,

with written documentation of the modifications and approval being completed within the following two days.

Failure to comply with any of the timeframes identified in this Section shall result in an assessment of liquidated damages in accordance with Subarticle 5-1.7.

#### **544-3 Standard Periodic Inspection.**

Perform a cursory inspection (Type I) of each crash cushion located within the contract limits during the month of April every year. Type I inspections are intended to determine if the crash cushion is intact and functions as designed.

Perform a detailed inspection (Type II) of each crash cushion located within the contract limits during the month of October every year. Type II inspections are intended to determine if crash cushions are serviceable and functioning as designed, identifying all deteriorating factors and deficiencies requiring repair.

**544-3.2 Inspection Reports and Classifications:** Document both Type I and Type II inspections on the Attenuator Inspection Report, Form # 850-055-12 (Attachment X). Ensure the responsible crash cushion inspector properly signs and dates the inspection report form in the appropriate fields on the date of inspection. In the inspection report, clearly detail all deficiencies, corrective actions, and the Condition Classification of each crash cushion as determined by the inspection. Provide each completed inspection report to the Department within two business days of the inspection for conditions rated as Good, Fair or Poor. Immediately (same day as inspection) report any crash cushions determined to be in Critical Condition to the Department.

Criteria to determine crash cushion classification are as follows:

Good – The unit contains minimal deterioration and will provide the desired or design level of performance under impact. Discoloration or other minor weathering effects that do not affect the function of the unit can be discounted when a unit is otherwise in good condition.

Fair – The unit contains deteriorated components, yet will provide the desired or design level of performance under impact.

Poor – The unit contains deteriorated components and/or deficiencies that effectively reduce the unit's potential performance capabilities.

Critical – The unit will not provide service protection under impact, irrespective of component condition.

#### **544-4 Standard Maintenance.**

Perform necessary crash cushion maintenance identified as a result of Standard Periodic Inspections or identified by any other means. Some limited examples of crash cushion maintenance may include correction of misalignment; replacement of cartridges, nose assemblies, cables, rails, chains, bolts, diaphragms, fender panels, and/or any other parts; cleaning, tightening and/or adjustment; repair of concrete pad; removal of debris and/or vegetation that may affect functionality; and rectifying acts of vandalism.

#### **544-5 Damage Assessment.**

Perform Damage Assessment inspection of damaged crash cushions within five hours of notification. If crash cushion damage is discovered, notify the Department immediately. Inspect damaged crash cushions to determine and document the extent of the damage, detailing the repair required. Submit the Damage Assessment inspection report to the Department within one

hour of completion of the damage assessment. The Damage Assessment inspection report shall provide the time of damage detection or notification, the time the Damage Assessment was completed, and details of the damage sufficient for the Department to prepare a work document to direct repair of the damaged cushion (pay items, quantities, instructional narrative, etc.).

#### **544-6 Hazard Neutralization.**

Install traffic control devices within four hours of notification or discovery of crash cushion damage to alert traffic of the hazard. Traffic control devices shall meet the Standard Index for maintenance of traffic applicable to the location of the damaged device. Maintain traffic control devices properly installed until temporary or permanent repair or replacement has been accomplished.

#### **544-7 Damage Restoration.**

Repair, reset or replace damaged crash cushions within seventy-two hours of Department notification or identification of damage assessment. If repairs cannot be properly completed within 72 hours of Department issued work document, install a temporary crash cushion at the Contractor's expense. Temporary crash cushions shall be replaced with appropriate permanent repairs or total replacement as specified, within three weeks of original damage assessment.

#### **544-8 Compensation.**

The summary of pay items listed in the bid price proposal shall dictate the work to be provided. If pay items for one or more of the given work functions are not included in the bid price proposal, those work functions are not included in this contract.

Crash cushion repair pay items will be used for repairs completed as a result of Standard Inspections or Damage Assessment Inspections; these pay items will be listed one time in the bid price proposal.

The Department may direct an alternate type of crash cushion for replacement be installed at a specific location. Crash cushion replacement pay items not included in the contract may be added to the contract by supplemental agreement.

**544-8.1 Standard Periodic Inspections:** Price and payment for Type I and Type II Inspections include all labor equipment and materials necessary to perform the inspections. Payment includes completing and submitting inspection reports to the Department as indicated within this specification.

**544-8.2 Standard Maintenance:** Price and payment to clean, adjust, and maintain crash cushions as directed will be full compensation for all labor, equipment, materials, and incidentals necessary for Standard Maintenance. Crash cushion reset will be for crash cushions that require straightening and/or re-adjustment to its original position only. Miscellaneous hardware and accessories, site preparation, clean up and proper disposal of debris are incidental to the work being performed to correct the deficiencies identified by inspections and/or other means.

**544-8.3 Hazard Neutralization:** Price and payment includes the installation and maintenance of traffic control devices and will be full compensation for all labor, equipment, materials, and incidentals necessary to install the devices needed or as directed. Miscellaneous hardware and accessories, site preparation, clean up and proper disposal of debris are incidental to the work being performed.

**544-8.4 Damage Assessment:** Price and payment for crash cushion Damage Assessment will include all labor, equipment and materials necessary to perform the assessments thoroughly

and accurately within the time frame specified in this specification. All required documentation shall be submitted to the Department within the time frames specified.

**544-8.5 Damage Restoration:** Price and payment to perform damage restoration or replacement of crash cushions will be full compensation for all labor, equipment, materials, and incidentals necessary to repair the crash cushion as directed. Miscellaneous hardware and accessories, site preparation, concrete work, clean up and proper disposal of debris are incidental to the work being performed to restore the damaged crash cushion.