

650.4 Measurement

Each Impact Attenuator specified, complete in place and accepted at its location, will be measured by the unit for each type indicated on the plans and detailed in Subsection 650.3.04, "Fabrication". Each unit measured includes all components, hardware, anchors, back-ups, platforms, concrete pads, incidentals, and labor for each installation shown on the plans.

Portable units will be measured for payment only once, regardless of how often they are moved.

650.4.01 Limits

General Provisions 101 through 150.

650.5 Payment

Impact Attenuator Units will be paid for per each type specified. Payment is full compensation for all materials, labor, and incidentals necessary to complete the Item including installing, moving, reinstalling and maintaining Temporary Units as required.

Payment will also include the back-up system and transitions where required.

Payment will be made under:

Item No. 650	Impact attenuator unit, (compression crash cushion) Type P-	Per each
Item No. 650	Impact attenuator unit, (compression crash cushion) Type T-	Per each

650.5.01 Adjustments

General Provisions 101 through 150.

Section 651—Raised Traffic Bars

651.1 General Description

This work includes furnishing and placing raised traffic bars according to the type, locations, and specifications in the Plans.

651.1.01 Definitions

General Provisions 101 through 150.

651.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 886—Adhesive (Epoxy Resin)

B. Referenced Documents

General Provisions 101 through 150.

651.1.03 Submittals

General Provisions 101 through 150.

651.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Adhesive (Epoxy Resin)	Section 886
Concrete, Class A, Air Entrained	Section 500

651.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

651.3 Construction Requirements

651.3.01 Personnel

General Provisions 101 through 150.

651.3.02 Equipment

General Provisions 101 through 150.

651.3.03 Preparation

General Provisions 101 through 150.

651.3.04 Fabrication

General Provisions 101 through 150.

651.3.05 Construction

A. Precasting

1. Concrete

Use concrete materials, and mix and place concrete, to comply with Section 500 for Class A, Air Entrained.

2. Forms

Use forms that meet the requirements of Section 500. Make the insides of forms accessible for tamping and vibrating the concrete.

3. Finish

Unless otherwise specified on the Plans, finish bars according to Subsection 500.3.05.AB. For unformed areas, use Type IV—Floated Surface Finish, unbroomed. For formed areas, use Type I—Ordinary Surface Finish.

4. Curing

Cure bars according to Subsection 500.3.05.Z, except do not use curing compound on the bottom surfaces.

B. Installation

Follow these steps to cement bars to the pavement:

1. Sandblast clean the highway surface of dirt, curing compound, grease, oil, moisture, loose or unsound layers, and other material that would prevent the bar adhesive from bonding.
2. Use epoxy resin type IR or IS adhesive as follows:
 - a. Use type IR when pavement temperature is between 50 ° to 60 °F (10 ° to 15 °C), or when traffic conditions require a rapid set.
 - b. Use type IS when pavement temperatures are above 60 °F (15 °C) and when traffic conditions permit.
 - c. Do not place bars when pavement temperatures drop below 50 °F (10 °C).
3. Place enough adhesive on the cleaned pavement, or on the bottom of the bar, to completely cover the area of contact with no voids. Allow a slight amount of adhesive to extrude from all sides of the bar after it has been pressed into place.
4. Position the bar and press it firmly into the pavement. Immediately and completely remove excess adhesive around the edge of the bar with a clean, absorbent cloth. Do not use thinners or solvents to remove the adhesive. Protect the bar from impact until the adhesive hardens to the degree designated by the Engineer.

C. Adhesive Qualities

Do not use a viscous or partially set batch of adhesive that does not extrude from under the bar edges when pressed to the pavement.

Do not heat any adhesive above 120 °F (49 °C).

Prepare adhesive as follows:

1. Before combining Package A and B, thoroughly stir each package. Reject material that cannot be readily redispersed.
2. After stirring, mix one volume from Package A with one volume from Package B until obtaining a uniform color with no visible streaks of either component.
3. Cement bars in place within 10 minutes of starting to mix the adhesive.

4. To prolong the pot life of the adhesive, either let it cool after mixing the components or spread out a thin layer on a board before applying it.
5. When an approved fast setting adhesive is used, mix the components using a 2-component type automatic mixing and extrusion apparatus. Place the bars immediately after the adhesive has been mixed and extruded.

651.3.06 Quality Acceptance

General Provisions 101 through 150.

651.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

651.4 Measurement

Complete and in-place raised traffic bars, of the type specified, are measured by the linear foot (meter) along the bottom front face of the bar.

651.4.01 Limits

General Provisions 101 through 150.

651.5 Payment

Raised traffic bars will be paid for at the Contract Unit Price per linear foot (meter). Payment is full compensation for furnishing and installing the bar.

Payment will be made under:

Item No. 651.	Raised traffic bars, type _____	Per linear foot (meter)
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651.5.01 Adjustments

General Provisions 101 through 150.

Section 652—Painting Traffic Stripe

652.1 General Description

This work includes furnishing and applying reflectorized traffic line paint according to the Plans and these Specifications.

This Item also includes applying words and symbols according to Plan details, Specifications, and the current Manual on Uniform Traffic Control Devices.

652.1.01 Definitions

Painted Stripes: Solid or broken (skip) lines. The location and color are designated on the Plans.

Skip Traffic Stripes: Painted segments between unpainted gaps as specified on the Plans. The location and color are designated on the Plans.

652.1.02 Related References

A. Standard Specifications

Section 656—Removal of Pavement Markings

Section 870—Paint

B. Referenced Documents

QPL 46

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652.1.03 Submittals

General Provisions 101 through 150.