Index 521-428 Traffic Railing (42" Single-Slope)

Design Criteria

AASHTO Manual for Assessing Safety Hardware (MASH) Test Level 5 Criteria; ***AASHTO LRFD Bridge Design Specifications***; ***Structures Design Guidelines (SDG)***

Design Assumptions and Limitations

The 42" Single-Slope Traffic Railing should be used where a railing with Test Level 5 crashworthiness is warranted. Use this railing in accordance with the requirements of ***SDG 6.7***.

The details as shown for installing 2" diameter conduits and associated Embedded Junction Boxes (EJBs) in traffic railings have been determined to be crashworthy in accordance with the requirements of ***AASHTO Manual for Assessing Safety Hardware (MASH)*** and the ***AASHTO LRFD Bridge Design Specifications***. To preserve the crashworthiness of traffic railings, no more than three 2" diameter conduits and associated EJBs, as shown on Index 630-010, may be installed within a traffic railing or concrete barrier/noise wall.

Reinforcing cover for Traffic Railings is shown as 2½", which accommodates new slip forming tolerances. For modified designs 2" minimum cover is usually adequate for stationary form construction.

Design bridge decks supporting 42" Single-Slope Traffic Railings in accordance with the requirements of SDG ***4.2***. For bridge decks up to a maximum thickness of 11", the two Bars 5S2 placed in the bridge deck may substitute for the longitudinal deck steel located within the limits of Bars 5V, provided that the total area of longitudinal deck steel beneath the railing, as required by calculation, is not reduced.

For treatment of 42" Single-Slope Traffic Railings on skewed bridges see Index 521-427.

When required to move water from travel lanes to sidewalks to reduce shoulder spread or to remove water from sidewalk to drainage structures, drainage slots 2” to 3” high and 6” to 12” in length may be added to the base of the traffic railing. Work with the Drainage Engineer for size and spacing requirements; for spacing limits and details see Index 521-427. Note: the 3” slot height will allow bottles and cans to pass through the slot.

See ***SDM 15.3*** when inverted T bent caps are utilized.

Plan Content Requirements

In the Structures Plans:

In the Materials Note on the General Notes Sheet, specify the concrete class in accordance with the superstructure environment classification. See ***SDG 1.4.***

Include the following Bridge Name Note on the General Notes Sheet:

Place the following bridge name on the traffic railing in accordance with the Traffic Railing Standard Plans:

[Use the name of the bridge or non-roadway facility crossed, or include the name of both facilities for roadway crossings, e.g.:

THOMASVILLE ROAD FLYOVER
TOMOKA RIVER
CSX RAILROAD
US 19 OVER EAST BAY DR

For multiple bridges, identify the associated bridge number, e.g.:

Bridge No.	Name
600103	CHOCTAWHATCHEE BAY
600104	CHOCTAWHATCHEE BAY RELIEF]

Show and label, by name or Index number, the 42" Single-Slope Traffic Railing on the Plan and Elevation, Typical Section, Superstructure, Approach Slab and Finish Grade Elevations Cross Section sheets, Retaining Wall Control Drawings, and other sheets as required. Indicate the number of conduits to be installed in each railing. Show limiting stations when transitioning to other types of traffic railings.

On the Superstructure section sheets, show the two Bars 5S2 placed in the bridge deck within the Bars 5V along with the rest of the deck steel.

When drainage slots are required, include drainage slot size (height and length) and slot locations in the plans, refer to Index 521-427 for details.

For approach or trailing end traffic railing or barrier transitions not shown in the Index, provide special end transition details to match the adjacent profile and height at the end of the Approach Slab. Transitions should be made over a 10'-0" length for the face profile and at 1:8 maximum slope for the height transition. To avoid widening the approach slab behind the transition, 2" concrete cover may be used.

When using transition from 42” traffic railing on the bridge to 36” or 38” concrete barriers on the approaches, add coping details at the bridge/approach slab interface. Note: Index 521-428 traffic railing has a base width of 1’-4” from gutterline to coping, and Index 521-427 base width is 1’-2”; the railings must be aligned at the gutterline. The outside coping line can be maintained or adjusted for the 2” reduction in width. All concrete and Bars 5P, 5S, 6S, 6T and 5V required to construct the traffic railing are included in the Estimated Traffic Railing Quantities. Do not include traffic railing concrete in the estimated concrete quantities, or Bars 5P, 5S, 6S, 6T and 5V in the reinforcing bar lists and estimated reinforcing steel quantities for supporting bridge decks, approach slabs or retaining walls.

Payment

Commentary: *For consistency, Conduit and EJB's are no longer included in the cost of the Traffic Railing or Concrete Barrier.*

Item number	Item Description	Unit Measure
521-5-14	Concrete Traffic Railing, Bridge 42" Single-Slope	LF
630-2-16	Conduit, Furnish & Install, Embedded	LF
635-3-13	Junction Box, Furnish & Install, Embedded	EA