SECTION 13: RAILINGS

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13.1 SCOPE

Bridge railing design shall be consistent with AASHTO LRFD Specifications Section 13. The design engineer is encouraged to use ADOT Bridge Group structure detail drawings wherever appropriate. Bridge Group website maintains the latest versions of these standard drawings. For convenience, links are provided in subsection 13.4 to all available ADOT railings structure detail drawings.

13.4 GENERAL

Bridge railing design for new bridges should be based on the current AASHTO LRFD Bridge Design Specifications for the selected Test Level.

All new bridge railings installed on the State Highway System should have a minimum of TL-4 rating. The preferred TL-4 bridge railing is the 34-inch F-shape bridge concrete barrier; and preferred TL-5 bridge railing is the 44-inch F-shape bridge concrete barrier. Other acceptable TL-4 and TL-5 bridge railings are available from ADOT Bridge Group.

44-inch F-shape bridge concrete barriers shall be used on directional ramps for freeway-to-freeway interchanges where ramps cross traffic lanes or highly occupied areas.

Bridge railings currently in use that have been found acceptable under the crash testing and acceptance criteria specified in NCHRP Report 230 will be considered as meeting the requirements of NCHRP Report 350 without the need of further testing.

For bridge modification considerations, existing bridge railings will normally be evaluated using AASHTO Standard Specifications for Highway Bridges and bridge railings replacements should be designed to either the AASHTO Standard Specifications or to the AASHTO LRFD Bridge Design Specifications, as appropriate on a case-by-case basis.

When sound walls are needed on a bridge, they should be placed behind bridge railings to maintain the intent of the design and to ensure that the railings will perform according to their crash test levels. A minimum gap of 2 inches should be maintained between the railings and the sound walls.

The following is a list of ADOT's railings structure detail drawings, method of measurement, and bid item numbers:

Structure Detail Drawing		Method of measurement	Bid Item Number
SD 1.01: 34-inch F-shape Bridge Concrete Barrier and Transition		Linear Foot	6011140
SD 1.02: 44-inch F-shape Bridge Concrete Barrier and Transition		Linear Foot	6011141
D 1.03: Thrie Beam Guard Rail Transition System		Each	9050430
SD 1.04: Combination Pedestrian – Traffic Bridge Railing		Linear Foot	6011132
SD 1.05: Pedestrian Fence for Bridge Railing SD 1.04		Linear Foot	6011133
SD 1.06: Two Tube Bridge Rail (4 sheets)		Linear Foot	6011134
SD 1.11: Barrier Junction Box	Type I	Each	7320475
	Type II	Each	7320476

Structure Detail Drawings are available on the Bridge Group website (click here).

Bridge concrete barriers and parapets shall not be constructed using slip forms. Painting the inside of bridge barriers should be avoided due to long-term maintenance concerns.

Rustication on the exterior of bridge barriers and parapets shall be limited to a thickness of 1 ½ in. Rustication may extend the full height of the barrier and parapet, excluding the 44-inch (nominal) F-shape bridge concrete barrier. The rustication height for 44-inch (nominal) F-shape barriers shall be limited to the bottom 32 inches, measured from the top of deck.