SECTION 713 - STRUCTURAL STEEL AND RELATED MATERIALS

Make the following amendment to said Section:

(I) Amend **713.04 High-Strength Bolts** to read as follows:

"**713.04 High-Strength Bolts and Studs.**

(A) Bolts, Studs, Nuts, and Washers. Bolts, nuts, and washers shall conform to AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS Section 6.4.3 Bolts, Nuts, and Washers under the Standard Specification for Structural Bolts, Steel, Heat-Treated, 120/105 KSI Minimum Tensile Strength with a required minimum tensile strength of 120 KSI for diameters 0.5-inch through 1.0-inch and 105 KSI for diameters 1.125-inches through 1.5 inches AASHTO M 164 (ASTM A 325 as modified), Type 1. Anchor bolts shown on the plans in the form of studs with no bolt heads and bolts in the diameters 1.75-inches to 3.0-inches designated as high-strength studs or bolts shall conform to ASTM A 449, Type 1. Hot-dip zinc-coat the bolts, studs, nuts, and washers.

(B) Installation. AASHTO LRFD Bridge Construction Specifications, Section 11.5.6.4 and as modified herein applies when installing high-strength bolts in the field or shop. Install the bolts according to AASHTO LRFD Bridge Construction Specifications - Section 11.5.6.4.7 Direct Tension Indicator Installation Method. Anchor bolts for railing posts base plates may also be installed using the Turn-of-Nut Method and the Calibrated 'Wrench Method."

(II) Amend **713.11(C) Square Tube Posts** to read as follows:

"**(C) Square Tube Posts.** Square tube posts shall conform to ASTM A 446 for Cold-Rolled Carbon Steel Sheet, commercial quality or ASTM A 570-90 for Hot-Rolled Carbon Steel Sheet, structural quality. The tube shall have a hot-dip zinc-coating according to ASTM A 525, Designation D-90.

Make the corner welds by high frequency resistance welding, externally scarfed, and zinc-coated after scarfing. Four sides of the square tube post shall have seven-sixteenths inch diameter holes spaced one inch on centers along the entire length of the post. Permissible tolerances are shown in Table 713-IV. Square tube posts shall be crash-worthy and acceptable to FHWA for use in both strong soil (S-1) and weak soil (S-2) as defined in NCHRP Report 230.

Single square tube post used to support signs shall have an accepted device to resist turning after installation. Attach this device to the post and embed this device below finish grade.

TABLE 713 - IVA - SQUARE TUBE POST TOLERANCE			
Physical Property	**Nominal Outside Size, Inch**		
	1.75 Square	**2 Square**	**2.25 Square**
U.S. Standard Gage`	14		
Wall Thickness - Inch	0.083, +0.002, -0.008		
Minimum Yield Strength - Psi	60,000		
Minimum Weight - Pounds/Foot	1.8	2.1	2.4
Outside Dimension - Inch	±0.010	±0.010	±0.010
Side Squareness - Inch	±0.010	±0.012	±0.014
Twist Permitted - Inch/Foot	0.062/3	0.062/3	0.062/3
Straightness	1/16 Inch in 3 Feet		
Telescoping	Consecutive Size Tubes Shall Telescope Freely For 10 Feet		
Hole Size - Inch	±1/64		
Hole Spacing	±1/8 in 20 Feet		

TABLE 713 - IVB - SQUARE TUBE POST TOLERANCE					
Physical Property	**Nominal Outside Size, Inch**				
	1.5 Square	**1.25 Square**	**2 Square**	**2.25 Square**	**2.5 Square**
U.S. Standard	12				
Wall Thickness, Inch	0.105, +0.011, -0.008				
Minimum Yield Strength, Psi	40,000				
Minimum Weight, Pounds/Foot	1.7	2.0	2.4	2.7	3.1
Outside Dimension, Inch	±0.008	±0.008	±0.008	±0.010	±0.010
Side Squareness, Inch	±0.008	±0.010	±0.012	±0.014	±0.016
Twist Permitted, Inch/Foot	0.062/3	0.062/3	0.062/3	0.062/3	0.062/3
Straightness	1/16 Inch in 3 Feet				
Telescoping	Consecutive Size Tubes Shall Telescope Freely For 10 Feet				
Hole Size, Inch	±1/64				
Hole Spacing, Inch	±1/8 in 20 Feet				

TABLE 713 - IVC - SQUARE TUBE POST TOLERANCE		
Physical Property	**Nominal Outside Size, Inch**	
	2.187 Square	**2.5 Square**
U.S. Standard	10	
Wall Thickness, Inch	0.135, +0.011, -0.008	
Minimum Yield Strength, Psi	40,000	
Minimum Weight, Pounds/Foot	3.4	4.0
Outside Dimension, Inch	±0.010	±0.010
Side Squareness, Inch	±0.014	±0.015
Twist Permitted, Inch/Foot	0.062/3	0.075/3
Straightness	1/16 Inch in 3 Feet	
Telescoping	Consecutive Size Tubes Shall Telescope Freely For 10 Feet	
Hole size, Inch	±1/64	
Hole Spacing, Inch	±1/8 In 20 Feet	

(III) Amend **713.12(A)** to read as follows:

"**(A)** Secure the regulatory signs, warning signs, and route marker assemblies, mounted on pipe posts, in position by using zinc-coated flat washer with nylon washer. Install them between the post and sign and under the bolt head on the sign surface. Bolts and other metal washers shall be wrought iron zinc-coated by the hot-dip process according to ASTM A 153."

(IV) Amend **713.14(A)(1) Tapered Posts And Cross Arms** by revising the sixth paragraph to read as follows:

"Gages shall be of the following thicknesses:

No. 7 gage	0.1793 inch
No. 3 gage	0.2500 inch
No. 0 gage	0.3125 inch"

END OF SECTION