DESIGN STANDARDS

FOR DESIGN, CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS ON THE STATE HIGHWAY SYSTEM

2010

TOPIC NO. 625-010-003

Approved For Use On Federal Aid Projects

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For Martin Knopp, Division Administrator

State of Florida, Department Of Transportation
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CERTIFICATION STATEMENT

I hereby certify that this Design Standard Book was compiled under my responsible charge from designs prepared, examined, adopted and implemented by the Florida Department of Transportation in accordance with established procedures, and as approved by the Federal Highway Administration.

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As To Planning
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17900

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As To ITS
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Index Number	Sheet Number	Description
001	1 thru 3	Added the following standard abbreviations: ℄ Base Line, Base Line Control ℄ Flow Line GRI Geosynthetic Research Institute HDPE High Density Polyethylene NPS Nominal Pipe Size
		Deleted the following standard abbreviations: Bbl Barrel FRCP Fiber Reinforced Concrete Pipe FRP Fiber Reinforced Pipe FS Far Side
002	2 of 3	Deleted Hand Drafting Symbols
102	2 of 3	NOTES FOR SYNTHETIC BALES OR BALE TYPE BARRIERS, Note 2, deleted the text "trenched 3" to 4" and" from the first sentence.
104	2 of 2	RURAL DIVIDED detail, changed "5' Shoulder Pavement" to "4' Shoulder Pavement".
105	1 of 1	TREATMENT I, Criteria for using Treatment I, replaced text of the last bullet with the following: "resurfacing build-up is less than 3" ".
200	1 of 5	TOP SLAB REINFORCING STEEL DIAGRAM (ALTERNATE B) to the notes "2 Additional Bars A @ 5" O.C." and "2 Additional Bars B @ 5" Max. O.C. Each Side Of Opening", added "(Minimum #4 Bars)".
	2 of 5	Note 9, Delete second sentence and substitute, "Additional bars used to restrain hole formers for precast structures with grouted pipe connections, may be left flush with the hole surface."
	4 of 5	SLAB AND WALL DESIGN TABLE NOTES, added the following to the end of Note 10: "See Index No. 201, Sheet 4 for allowable bar spacing adjustments when larger areas of reinforcing are substituted."
201	4 of 5	"Revised title of notes to ""NOTES FOR PRECAST OPTIONS AND EQUIVALENT REINFORCEMENT SUBSTITUTION"" and added the following to Note 4, ""When an increased area of reinforcing is provided, then the maximum bar spacing may be increased by the squared ratio of increased steel area, but not to exceed 12 inches: Max. Bar Spacing Provided < Max. Bar Spacing Required x (Steel Area Provided/Min. Steel Area Required)² "
205	1 of 6	Changed maximum size of allowed PVC pipe to 36".
	2 of 6	ROUND PIPE DIMENSIONS, deleted the column, "Wall Thickness (In.) Class III" and subcolumn "NRCHP" and heading "SRCP". Also deleted the ** note at the bottom of the table.
	3 of 6	NOTES: deleted note 4; table "PIPE ARCH: SPIRAL RIB: ¾" x¾" x 7½" RIB SPACING..." deleted references to note 4; table "ROUND PIPE - SPIRAL RIB", "Maximum Height of Fill (Ft.)", "Sheet Thickness In Inches (Gage)", "0.138 (10)" added measurements.
210	1 of 1	Delete General Note 4, and substitute the following: "For precast units the rear wall and apron may be precast as a separate piece from the top slab. Provide a minimum of 7 ~ #4 dowels in accordance with Index No. 201 "OPTIONAL CONSTRUCTION JOINTS".
211	1 thru 5	Revised index completely 3 sheets added, Reinforcing configuration and C.I.P. details revised; precast and WWR details added. Changed Note 4 to allow 4'-0" round risers.
213	1 of 1	In PLAN view changed "1/2" Exp. Joint (Typ)" to "1/2" Preformed Joint Filler (Typ)".
218	2 of 2	"STEEL GRATE", "TOP VIEW", for the overall dimension on the left side of the grate, inserted "44¼" ". For the small dimension at the upper left corner of the grate, inserted "3½" ".
219	1 of 2	In PLAN view and Section HH changed "Expansion Joint (Typ)" and "Expansion Material Joint" to "1/2" Preformed Joint Filler (Typ)".
220	1 of 3	"GUTTER INLET TYPE S", "SECTION BB", Changed the vertical dimension between the top of the inlet and the grate elevation from "5½" to "4½" ".
		"SECTION AA", at the top right corner, for precast thickness changed " 6" " to " 3" " (same as left side).
		"SECTION BB", at the top, changed "3'-11" Precast" to " 4'-3" Precast". "PLAN", at the top, changed " 3'-11" Precast to " 4'-3" Precast".
230	1 of 2	In "PLAN" view changed "1/2" Exp. Joint (typ)" to "1/2" Preformed Joint Filler (Typ)". Section E-E, Changed 4Z15.9 shape to built up section (3.5 x 3 x ½L + ½ x 3 Bar) for grating.
231	1 of 3	"DITCH BOTTOM INLET TYPE B", "SECTION BB", upper left side, deleted the dimension "2'-6" (Min.)" and replaced with "1'-10" (Min.)".
232	1 thru 7	Index was expanded due to font size change.
233	1 thru 2	Index was expanded due to font size change.
234	1 thru 2	Index was expanded due to font size change.
	2 of 2	Under Pavement & Sodding detail changed "1/2" Exp. Joint" to "1/2" Preformed Joint Filler".
235	1 of 2	"GENERAL NOTES", Note 3, deleted "Alternate B" replaced with "Index 200", Note 8 changed "Specification Section 962" to "Specification Section 975".
245	1 of 1	"GENERAL NOTES" Note 2, delete and replace with the following: "Concrete shall be Class I (Structural), except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Specifications. Box shall be reinforced with No. 3 bars (Grade 60) on 8" centers both ways, sides and bottom.
250	1 of 2	"GENERAL NOTES" Note 5, deleted and replaced with the following: "Concrete shall be Class I (Structural), except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Specifications."
251	1 of 2	"GENERAL NOTES" Note 4, deleted and replaced with the following: "Concrete shall be Class II, except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Specifications."
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260	1 of 1	"GENERAL NOTES" Note 3 changed "Specification Section 962" to "Specification Section 975".
261	1 of 3	"GENERAL NOTES" Note 4 changed "Specification Section 962" to "Specification Section 975".
264	1 thru 2	Index was expanded due to font size change. General note 3 changed.
270	1 of 1	"GENERAL NOTES" Note 2 changed "Specification Section 941-1.5" to "Specification Section 449". Changed Note 3.
272	6 of 6	Reordered "GENERAL NOTES" and changed "Class I concrete" to "Class NS concrete".
273	1 thru 7	Index was expanded due to font size change.
	7 of 7	"GENERAL NOTES", Note 8, deleted "Class I concrete" and substituted "Class NS concrete".
280	1 thru 3	Index was expanded due to font size change.
	1 of 3	"DISSIMILAR TYPES CONCRETE JACKET FOR CONNECTING DISSIMILAR TYPES OF PIPE AND CONCRETE PIPES WITH DISSIMILAR JOINTS" detail, added the note, "Alternate connection must be approved by the State Drainage Engineer."
282	1 thru 3	Index was expanded due to font size change.
	1 of 3	"FRONT ELEVATION" and "SECTION AA" details changed "1/2" Exp. Matl. " to "1/2" Preformed Joint Filler".
	2 of 3	"PLAN" and "SECTION AA" details changed "1/2" Exp. Matl. " to "1/2" Preformed Joint Filler".
284	1 of 1	Deleted note "1" and substituted the following: "1. Spillway to be paid for as Shoulder Gutter, LF." Deleted note "2", and substituted the following: "2. If spillway empties into an unpaved ditch the detail should be modified as necessary."
287	1 thru 4	Sheet 3 is new. Renumbered other sheets.
	1 of 4	Changed all 3 occurrences of "Class I concrete" to "Class NS concrete".
288	1 of 1	New Index added "DEEP WELL INJECTION BOX".
289	6 of 7	Changed "FLARED ENDWALL" to "FLARED WINGWALL" and "STRAIGHT ENDWALL" to "STRAIGHT WINGWALL".
291	1 of 5	Changed "Class I Concrete" to "Class NS".
	5 of 5	Changed "Bond Beam" to "Link Slab", and "Class I Concrete" to "Class NS".
292	2 of 14	"GENERAL NOTES" note 1, changed AASHTO LRFD Bridge Specifications, to "4th Edition"; added note 10.

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Index Number	Sheet Number	Description
295	1 of 1	"GENERAL NOTES" Note 2 changed "Specification Section 962" to "Specification Section 975".
300	1 thru 2	Index was expanded due to change in font.
304	6 of 6	Added alternate location of detectable warnings on linear ramps. Added note "On curb ramps, landings and flush transitions perpendicular to the curb line: Rows of domes shall be aligned with the centerline of the ramp. (See Pictorial View A)" at top of sheet. Added Rail Road Crossing PLAN view.
305	1 & 4 of 4	Deleted bar spacing table and revised notes (Sheet 1); Changed width of outside lanes (Sheet 4).
307	2 of 3	"UTILITY CONFLICT PIPES THRU STORM SEWER STRUCTURES" changed to "UTILITY CONFLICT PIPES THRU STORM DRAIN STRUCTURES"
310	1 of 2	"SIDEWALK WITH EDGE BEAM FOR SURFACE MOUNTED RAILINGS", "Clear Width", deleted "3' Min." and substituted "4' Min. *".
		"NOTES FOR CONCRETE SIDEWALK ON CURBED ROADWAYS", deleted "Note 1", and substituted the following: "1. Sidewalks shall be constructed in accordance with Section 522 of the FDOT Standard Specifications. Public sidewalk curb ramps shall include detectable warnings and be constructed in accordance with Index No. 304. Detectable warnings are not required where sidewalks intersect urban flared turnouts."
		"Note 3" , deleted.
	2 of 2	"NOTES FOR CONCRETE SIDEWALKS ON UNCURBED ROADWAYS", Changed Note 2 to "Provide detectable warnings that extend the full width of the sidewalk and 24" deep from the edge of pavement where sidewalks adjoin the following vehicular ways: side roads and streets driveways with signalized entrances driveways with entrance volumes greater than 600 vpd driveways with entrance speeds of 25 mph or greater right in – right out composite driveways.
400	1 thru 26	Index expanded by one sheet due to font size change and added new sheet 2, "APPROACH END ANCHORAGE DETAILS", Index renumbered.
	1 of 26	"GENERAL NOTES" Note 17 changed "Specification Section 971" to "Specification Section 975".
	2 of 26	New sheet added showing limits of pay for guardrail, details of shoulder treatment and miscellaneous asphalt for guardrail approach end treatments.
	3 of 26	Corrected spelling of guardrail in last paragraph.
	15 of 26	"LOCATIONS ON FRONT SLOPES", deleted the details for guardrail on slope and rubrail termination and the chart for lateral placement on slopes. (See sheet 26)
	16 of 26	Deleted "REFLECTORS- DETAIL M" (See sheet 17)
	26 of 26	Added "GUARDRAIL ON SLOPES", details for guardrail on slope and rubrail termination and the chart for lateral placement on slopes.
410	1 thru 25	Index completely revised and reorganized.
411	2 of 10	Changed tangent offsets In Detail 'A' to "2.49'-Design Speed ≤45 mph; 1.76' - Design Speed ≥50 mph".
	4 of 10	Changed tangent offsets In Detail 'B' to "2.49'-Design Speed ≤45 mph; 1.76' - Design Speed ≥50 mph".
414	1 of 15	Updated Specification reference Section 971 to 975; Added steel option to ALTERNATE DESIGN note.
	5 of 15	Added PTFE tape option to anchor bolt details.
415	4 of 10	"NOTES FOR WALL END SHIELDING", Note 1, changed the second sentence to: "Except where the plans designate a particular type crash cushion for a specific location, the contractor has the option to construct any of the redirective crash cushions listed on the Qualified Products List, subject to the uses and limitations described on their respective drawings."
		"ANCHOR PLATE BOLTS", upper note, changed "?" to "3/4"".
420	1 of 3	Added the following to the NAME, DATE AND BRIDGE NUMBER note: "The Name shall be as shown in the General Notes in the Structures Plans."; Changed REFLECTIVE RAILING MARKERS note.
		Changed REFLECTIVE RAILING MARKERS note, "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
421	1 of 3	Changed REFLECTIVE RAILING MARKERS note, "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing along the centerline at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
422	1 of 3	Added the following to the NAME, DATE AND BRIDGE NUMBER note: "The Name shall be as shown in the General Notes in the Structures Plans."; Changed REFLECTIVE RAILING MARKERS note.
		Changed REFLECTIVE RAILING MARKERS note, "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
423	1 of 3	Added the following to the NAME, DATE AND BRIDGE NUMBER note: "The Name shall be as shown in the General Notes in the Structures Plans."; Bicycle Railing to "Special Height Bicycle Railing" and Post "B" to Post "B1".
		"TRAFFIC RAILING-(32" VERTICAL SHAPE)", deleted the "REFLECTIVE RAILING MARKERS" note and substituted the following: "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
	2 of 3	Changed Bicycle Railing to "Special Height Bicycle Railing" and Post "B" to Post "B1".
	3 of 3	Changed 83 degrees to 93 degrees in CONVENTIONAL REINFORCING STEEL BENDING DIAGRAM Cross-slope table.
424	1 of 7	Added the following to the NAME, DATE AND BRIDGE NUMBER note: "The Name shall be as shown in the General Notes in the Structures Plans."
		"TRAFFIC RAILING - (CORRAL SHAPE)", deleted the "REFLECTIVE RAILING MARKERS" note and substituted the following: "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
425	1 of 3	Added the following to the NAME, DATE AND BRIDGE NUMBER note: "The Name shall be as shown in the General Notes in the Structures Plans."
		"TRAFFIC RAILING - (42" F SHAPE)", added the following note: "REFLECTIVE RAILING MARKERS: Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Traffic Railing."
470	1 of 3	Added Field testing proof loads to the ADHESIVE BONDED ANCHORS AND DOWELS note; "TRAFFIC RAILING-(THRIE BEAM RETROFIT) GENERAL NOTES & DETAILS", deleted the "BRIDGE NAME PLATE" note and substituted the following: "If a portion of the existing Traffic Railing is to be removed that carries the bridge name, number and or date, or if the installation of the Traffic Railing (Thrie Beam Retrofit) will obscure the bridge name, number and or date, then replace the information that has been removed or obscured, with 3" tall black lettering on white nonreflective sheeting applied to the top of the adjacent guardrail. The information must be clearly visible from the right side of the approaching travel lane. The sheeting and adhesive backing shall comply with Specification Section 994 and may comprise of individual decals of letters and numbers."
		Added the following note: "NEOPRENE PADS: Neoprene pads must be plain pads with a durometer hardness of 60 or 70 and meet the requirements of Specification Section 932, except that testing of the finished pad will not be required."
	3 of 3	Changed offset of 7/8" dia. anchor bolts to 2 3/4" from back edge of base plate in SECTION B-B.
471	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
472	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
473	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
474	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
	4 of 4	"SECTION C-C", changed "Resilient Pad" to "Neoprene Pad".

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Index Number	Sheet Number	Description
475	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
476	2 of 4	"SECTION A-A" and "SECTION B-B", changed "Resilient Pad" to "Neoprene Pad".
480	1 of 2	"TRAFFIC RAILING-(VERTICAL FACE RETROFIT) GENERAL NOTES & DETAILS", added the following to the "ADHESIVE-BONDED ANCHORS AND DOWELS" note, "The field testing proof loads required by Specification Section 416 shall be 23,800 lbs. for Dowel Bars 6D on the inside face (traffic side) of the railing (1'-0" embedment) and 18,500 lbs for Dowel Bars 6D along the outside face of the traffic railing (5" min. embedment)." Added NEOPRENE PADS note. Also deleted the "REFLECTIVE RAILING MARKERS" note and substituted the following: "Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table below. Reflector color (white or yellow) shall match the color of the near edgeline."
	2 of 2	CONVENTIONAL REINFORCING STEEL BENDING DIAGRAM, added Bars 5E, 5F and 4G for Index No. 484
484	1-10 of 10	New Index added TRAFFIC RAILING (VERTICAL FACE RETROFIT) SPREAD FOOTING APPROACH
500	2 of 2	"HALF SECTION" detail, deleted "Storm Sewer Mains" replaced with "Storm Drain Trunk Lines"
501	3-9 of 9	Changed the REQUIRED TEST METHOD for Burst Strength, Soil-Geosynthetic Friction, Creep Reduction Factor & Joint Overlap to ASTM D 6706.
	4 of 9	Updated values for COMTRAC 70.70; Deleted AMOCO 2006, 2016 & 2044; Added GEOTEX 315ST, 2x2HF, 4x4, 3x3HF, 4x4HF & 4x6 woven geogrids.
	5 of 9	Changed Joint Strength Overlap value to 1.2 for all Marafi products.
	6 of 9	Deleted Application Usage 3 & 4 for SYNTEEN SF 11 & SF 12.
	7 of 9	Added Fornir 20
	8 of 9	Changed Creep Resistance and Creep Reduction Factors for TENSAR BX 1120, BX 1200, BX 1220 & BX 1500
	9 of 9	Updated values for TENAX MS 220 & TENAX MS 330. Added Combigrid 30/30, Secugrid 20/20 & 30/30 extruded geogrids.
505	1-4 of 4	Sheet 3 is new. Renumbered other sheets.
515	5 of 7	In second symbolized note changed "Section 102-6" to "Section 102-8".
	6 of 7	"PAVEMENT STRUCTURE FOR TURNOUTS AND AUXILLIARY LANES TABLE 515-1", "NOTES", Note 5, Deleted "Class I concrete" substituted "Class NS concrete".
518	3 of 3	Revised width of rigid pavement outside travel lane and changed location of rumble strip.
520	1 of 1	"GENERAL NOTES", Note 7, Deleted "Class I Concrete (Retaining Walls)" and substituted "Class NS Concrete"
546	1 of 6	Added detail "PLAN", "PICTORIAL" and ** note. Index sheets reordered.
	5 of 6	Under "NOTES FOR 4-LANE DIVIDED ROADWAY", Note 1, changed reference from "Sheet 6" to "Sheet 2".
600	2 of 13	OVERHEAD WORK, deleted "OPTION 4 - - -" and substituted the following: OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA) Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities: (a) Beam, girder and segment placement. (b) Deck form placement and removal. (c) Concrete deck placement. (d) Railing construction located at edge of deck. (e) Structure demolition. DEFINITIONS, added the following after definition of TRAVEL WAY: a. Travel Lane: The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other lanes. b. Auxiliary Lane: The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic. CLEAR ZONE WIDTHS FOR WORK ZONES, deleted the text "travel" in the first sentence and substituted "traffic". Replaced chart "CLEAR ZONE WIDTHS FOR WORK ZONES".
600	3 of 13	LANE WIDTHS, in the second sentence, change the word "expected" to "excepted".
	5 of 13	Changed note under "SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING"; added information for the use of the new "PROJECT INFORMATION SIGN".
	6 of 13	GENERAL NOTES, deleted note 1, substituted the following: "1. All signs shall be post mounted when work operations exceed one day except for: a) Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the QPL. b) Pedestrian advanced warning or regulatory signs mounted on sign supports shown on the QPL." "2 POST SIGN SUPPORT MOUNTING DETAILS", updated text to include a tolerance between sign supports. Insert "+/- 3" " after "1'-6" "and insert "+/- 6" "after "2'-6" ". POST AND FOUNDATION TABLE FOR WORK ZONE SIGNS, expanded Note 2 by adding: "unless otherwise specified in the vendor drawing on the QPL." POST MOUNTED SIGN NOTES, added new notes 1 and 12.
	7 of 13	Added new sheet showing Project Information Sign and renumbered index.
605	1 of 1	"GENERAL NOTES", deleted the text of "Note 8" and substituted the following: "The two channelizing devices directly in front and directly at the end of the work area may be omitted provided vehicles in the work area have high intensity rotating, flashing, oscillating or strobe lights operating." Added new heading "DURATION NOTE" and placed the following note under this heading: 1. ROAD WORK AHEAD sign may be omitted if all of the following conditions are met: a) Work operations are 60 minutes or less. b) Speed is 45 mph or less. c) No sight obstructions to vehicles approaching the work area for a distance of 600 feet. d) Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating. e) Volume and complexity of the roadway has been considered.
625	1 of 1	New Index added "TEMPORARY ROAD CLOSURE- 5 MINUTES OR LESS".
655	1-3 of 3	New Index added "TRAFFIC PACING-LIMITED ACCESS".
667	1-6 of 6	New Index added "TOLL PLAZAS".
801	1 of 3	"GENERAL NOTES", Note 15 and 21, deleted "Class I" and substituted "Class NS".
802	1-3 of 3	Added tolerance to ground clearance; revised Notes 7a and 7b; rearranged sheets.
	1 of 3	"GENERAL NOTES", Note 6 and 13, deleted "Class I concrete" and substituted "Class NS concrete" for all occurrences.
803	1 of 1	"GENERAL NOTES", Note 4, deleted both occurrences of "Class I" and substituted "Class NS".
810	2 of 4	Deleted "Section 971" and substituted "Section 975" in ANCHOR RODS, NUTS AND WASHERS note.
811	3 of 3	Deleted "Section 971" and substituted "Section 975" in ANCHOR RODS, NUTS AND WASHERS note.
812	2 of 4	Deleted "Section 971" and substituted "Section 975" in ANCHOR RODS, NUTS AND WASHERS note.
820	1 of 1	Changed Top Rail to "Special Height Bicycle Railing" and added new Post "B2" for 3'-6" height Pedestrian/Bicycle Railing.
821	1 of 1	Changed designation of 4'-6" tall railing to "Special Height Bicycle Railing" and added 3'-6" tall Pedestrian/Bicycle Railing.
822	1 of 2	Changed designation of 4'-6" tall railing to "Special Height Bicycle Railing" and "Post B" to "Post B1"; Added "Post B2" details.
850	1 of 5	Changed "Pedestrian Railing" to "Pedestrian/Bicycle Railing" and "Bicycle Railing" to "Special Height Bicycle Railing"; Added anchor bolt requirements to SHOP DRAWINGS note.
	2 of 5	Added "DETAIL FOR NON-CONTINUOUS RAILING AT CORNERS" detail. Changed Pedestrain and Bicyle Railing designation; maximum ramp length for slopes less than 6.25%; and minimum clear picket opening at post to 3/4".
	3 of 5	Changed Pedestrain and Bicyle Railing designation.
	4 of 5	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAILS "D" & "E", option to notch post in SECTION G-G, and 1/4" joint tolerance in DETAIL "D".
	5 of 5	Added DETAIL "F" and note (*) to ANCHOR BOLT TABLE. Changed Pedestrain and Bicyle Railing designation. Corrected height dimension on steps to top of nosing.

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Index Number	Sheet Number	Description
851	1 of 2	Changed Pedestrain and Bicyle Railing designation.
	2 of 2	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAIL "B". Changed field splice joint tolerance to ¼" in DETAIL "B".
860	1 of 5	Changed "Pedestrian Railing" to "Pedestrian/Bicycle Railing" and "Bicycle Railing" to "Special Height Bicycle Railing"; Added anchor bolt requirements to SHOP DRAWINGS note. Added filler metal ER4043 to WELDING note.
	2 of 5	Added "DETAIL FOR NON-CONTINUOUS RAILING AT CORNERS" detail. Changed Pedestrain and Bicyle Railing designation; maximum ramp length for slopes less than 6.25%; and minimum clear picket opening at post to ¾".
	3 of 5	Changed Pedestrain and Bicyle Railing designation.
	4 of 5	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAILS "D" & "E"; option to notch post in SECTION G-G; ¼" joint tolerance in DETAIL "D"; Type B (Nonwelded) connection detail in SECTION A-A. Changed Expansion Joint sleeve embedded length to 10" in DETAIL "D" and picket fillet weld size to ⅛", handrail and top rail fillet weld size to ¼", and base plate fillet weld size to ⅜".
	5 of 5	Added DETAIL "F" and note (*) to ANCHOR BOLT TABLE. Changed Pedestrain and Bicyle Railing designation. Corrected height dimension on steps to top of nosing.
861	1 of 2	Changed designation of 54" tall railing to "Special Height Bicycle Railing".
	2 of 2	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAIL "B". Changed field splice joint tolerance to ¼" and "Steel Sleeve" to "Aluminum Sleeve" in DETAIL "B".
870	1 of 5	Deleted Pedestrian and Bicycle designations from DESIGN LIVE LOADS and ALTERNATE DESIGN notes.
	2 of 5	Deleted 4'-6" Bicycle Railing option and "**" note. Changed maximum ramp length for slopes less than 6.25%.
	3 of 5	Deleted 4'-6" Bicycle Railing option.
	4 of 5	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAILS "D" & "E"; and ¼" joint tolerance in DETAIL "D". Deleted Intermediate Rails from DETAILS "B" and "C".
	5 of 5	Added DETAIL "F". Deleted 4'-6" Bicycle Railing option. Corrected height dimension on steps to top of nosing.
880	1 of 5	Deleted Pedestrian and Bicycle designations from DESIGN LIVE LOADS and ALTERNATE DESIGN notes.
	2 of 5	Deleted 4'-6" Bicycle Railing option and "**" note. Changed maximum ramp length for slopes less than 6.25%.
	3 of 5	Deleted 4'-6" Bicycle Railing option.
	4 of 5	Added requirement for set screw to be set flush against outside face of rail and 18-8 Alloy option in DETAILS "D" & "E"; and ¼ joint tolerance in DETAIL "D". Deleted Intermediate Rails from DETAILS "B" and "C".
	5 of 5	Added DETAIL "F". Deleted 4'-6" Bicycle Railing option. Corrected height dimension on steps to top of nosing.
5100	2 of 2	Changed to plastic sleeve expansion joint and "Premoulded Expansion Material" to "Preformed Joint Filler". Changed wall and expansion joint key.
5200	1 of 1	Post caps added to note C.1.b; Changed note K.2 to allow 8 ft height panels. Added note K.11; Changed notes H.1, H.2 and O.2; Deleted note H.3.
5201	1 of 1	Texture Type "I" (Cut Coral Block) added.
5202	1 of 4	Added precast post cap; Changed clearance tolerance on stepped panel and Neoprene Pad options.
	3 of 4	Changed #4 Bar Mark to Bars P5 and P6 for Pile/Post Options A, B, & E; changed Texture Thickness to 1¼" Max.
5203	1 of 5	Added precast post cap; Changed clearance tolerance on stepped panel and Neoprene Pad options.
	3 of 5	Changed #4 Bar Mark to Bars P5 & P6 for Pile/Post Options A, B & E, and changed texture thickness dimension to ¼" Max.
	4 of 5	New sheet added for 45 degree corner post.
	5 of 5	Renumbered from Sheet 4 of 4.
5204	1 of 1	Changed "Ribbed" to "Slotted" in PLUG DETAIL.
5205	1, 3, 4 & 6 of 7	Added note in Elevation Views to 'Extend post 2" above high side wall panel when post caps are shown in the plans'.
	2 of 7	Added tolerance between Top of Precast Collar and Auger Cast Pile; Changed "Composite Bearing Pads" to "Fiber Reinforced Bearing Pads".
	5 of 7	Changed "Composite Bearing Pads" to "Fiber Reinforced Bearing Pads".
	7 of 7	Added "Octangonal Precast Collar" details and tolerance between Top of Precast Collar and Auger Cast Pile; Changed "Composite Bearing Pads" to "Fiber Reinforced Bearing Pads".
5206	1 of 1	Added "POST LENGTH WITH CAP" column, BARS D, P5 thru P8 to table and bar bending details for corner posts.
5207	1 of 1	New Index added "PRECAST SOUND BARRIERS-PRECAST POST CAPITAL".
5210	2 of 5	Changed NAME, DATE AND BRIDGE NUMBER note, and "Ribbed" to "Slotted" in NEOPRENE DIAPHRAGM PLUG DETAIL. Added REFLECTIVE RAILING MARKERS note and RELECTIVE RAILING MARKER SPACING table.
5211	3 of 3	Changed "Ribbed" to "Slotted" in NEOPRENE DIAPHRAGM PLUG DETAIL. Corrected Anchor Pin daimeter on FIRE HOSE ACCESS DETAIL.
5212	2 of 2	Added note for "Full Depth Structural Asphalt" above junction slab and changed coping dimension to 6" Min.
5300	3 of 19	Increased max. gap at back of precast coping and added timber blocking.
	6 of 19	Added note for "Full Depth Structural Asphalt" above junction slab and increased max. gap at back of precast coping.
	7 of 19	Added note for "Full Depth Structural Asphalt" above junction slab.
	12 & 15 of 19	Increased max. gap at back of precast coping. Corrected size of Bar 5U1 in BILL OF REINFORCING TABLE
11200	1-2 of 2	Deleted sheet 2
	1 of 2	Revised and rearranged notes, sheet renumbered to 1 of 2.
	2 of 2	Renumbered sheet 3 of 3 to sheet 2 of 2 revised and rearranged notes. Deleted "Class 1 (Special) Concrete" replaced with "Class 1 Concrete".
11300	1 of 1	Hanger table values revised; connection bolt size revised; sign depth for horizontal splice changed to 10'. U-Bolt material spec (A325) added to Typical Detail of Sign & Truss Connection.
11310	1 of 5	Deleted A307 bolts and Palnut (Note 4e). Changed foundation concrete (Note 7). Changed to ½" mesh (Note 9). Deleted grout pad and notes (former Notes 7c & 9). Added CSL tube note (Note 14).
	2 of 5	Changed foundation standoff distance and changed drilled shaft detail. Deleted grout pad and added wire screen. Added CSL tubes. Changed FC & FL reinforcing.
	5 of 5	Changed bolt spacing connection details.
11320	1 of 5	Deleted A307 bolts and Palnut (Note 4e). Changed foundation concrete (Note 7). Changed to ½" mesh (Note 9). Deleted grout pad and notes (former Notes 7c & 9). Added CSL tube note (Note 14).
	2 of 5	Changed foundation standoff distance. Deleted grout pad and added wire screen.
	4 of 5	Changed bolt spacing connection details.
	5 of 5	Changed drilled shaft detail. Added CSL tubes.
11860	1 of 8	Changed SINGLE COLUMN GROUND SIGN NOTES, Note 11, and GUIDE TO USE THIS STANDARD, Note 4 and example. Modified concrete classification. Modified "ALUMINUM COLUMN (POST) SELECTION TABLE".
	2 of 8	Changed maximum limits of sign cluster area and width in NOTE.
	3 of 8	Added Aluminum Soil Plate details and notes. Changed Post and Foundation Table depth values. Modified "ALUMINUM COLUMN (POST) SELECTION TABLE".
	4 of 8	Deleted "Signs at 90°" note. Added "*For" note. Changed number of Z-brackets for STOP and RECTANGULAR sign. Changed '1" Min.' to '0" Min.' and sign panel edge distance in VIEW A-A. Modified U-bolt size. Changed panel overhang length.
	5 of 8	Modified "DRIVEN POST DETAIL IN CONCRETE".
17302	1 of 1	CASE II, and CASE VIII dimensions and notes revised.
17328	1 of 1	Weigh Station and combination Weigh Station and Inspection Station signing details separated.

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Index Number	Sheet Number	Description
17344	2, 3, 4 & 6 of 6	SCHOOL SIGNS AND MARKINGS, on each sheet, in the Distance table at the bottom of the sheet, deleted the "A" column. Also deleted the "A" dimension from the detail drawings.
17345	2 of 4	NORMAL TAPERED ENTRANCE WITH ADDED LANE, note in lower left corner, arrow now points to the reflective markers on the LEFT side of the ramp.
	4 of 4	Deleted note 2
17346	1-14 of 14	Completely revised and renumbered.
17347	1-4 of 4	New Index BICYCLE MARKINGS added.
17349	1 of 1	Case I and Case II revised; 18" x 18" marker detail revised; notes at bottom right revised.
17355	1 of 11	Revised signs FTP-9A-06 & FTP-9B-06 and notes.
	7 of 11	For all signs with 1-800 phone number, deleted "1-800-998-RIDE" and substituted "1-8XX-XXX-XXXX" and below each sign added note: "Design Project Manager or Transit Administrator will supply correct 1-8XX number".
	8 of 11	Revised sign FTP-68A-06, bolt holes located outside of sign message, notes revised. Sign FTP-69-06 and FTP-68B-06 message and spacing revised.
	9 of 11	Revised sign FTP-82-08 and arrow detail. Added Sign FTP-83-08.
17356	1 of 1	Removed signal head from detail. Single point attachment details deleted from Index. (Deleted sheet 1.)
17359	1 of 2	Changed delineators to object markers; revised reference notes; sign W13-1 made optional. RURAL NARROW BRIDGE TREATMENT, changed the OM3L on the right side of the roadways to an OM3R.
	2 of 2	Notes revised; inserts reorganized
17500	1 of 3	Deleted concrete pole detail, added METAL POLE DETAIL AND WIRING DIAGRAM.
	2 of 3	Note 7, deleted "class I Concrete (Miscellaneous)" replaced with "Concrete and reinforcing for slabs around poles and pull boxes shall be included in the price for pull box or pole."
	3 of 3	Note 7, deleted "class I Concrete (Miscellaneous)" replaced with "Concrete and reinforcing for slabs around poles and pull boxes shall be included in the price for pull box or pole."
17501	1 of 1	Deleted note 28.
17502	3 of 7	Changed Note 9. Added Notes 10 & 11. Changed Notes 11 & 12. Deleted grout pad notes (former Notes 4 & 9). Added CSL tube note (Note 11).
	4 of 7	Added ID plate and changed base plate thickness. Deleted grout pad. Changed drilled shaft reinforcing.
	5 of 7	Changed Weld symbol in SECTION A-A. Added padlock tab to HANDHOLE RING. Added Section E-E detail and bottom baseplate washer to SECTION C-C. Deleted grout pad and added wire screen. Added CSL tubes.
	6 of 7	Grout notes and details removed, new wire screen.
	7 of 7	Note 3, changed "Concrete class" to "concrete NS"
17503	1 of 1	Index deleted.
17504	1 of 1	Dimensions 5'-6" added for height of meter base. Pole type changed from type "N" to type "P".
17505	1 of 2	Mercury Vapor Luminaires changed to Induction Luminaires. Luminaire chart deleted, dimensions revised on spacing detail note and added to structure detail.
17515	1 of 8	Added median barrier mounted light poles. Moved notes to sheet 2.
	2 of 8	New Sheet for Notes. Change Note 7 for QPL Criteria. Modified concrete classification. Added notes for median barrier mounted light pole and foundation.
	3 of 8	Sheet renumberd from 2 to 3. Added double arm configuration to ARM ELEVATION.
	4 of 8	Allowed fusion weld reinforcing cage (*) and changed foundation concrete note. Added 1" dimension to Double Nuts in FOUNDATION. Modified concrete classification. Renumbered sheet from 3 of 3 to 4 of 8.
	5-8 of 8	New Sheets for median barrier mounted light pole.
17600	2 of 3	Added detail for pole foundation to be used only behind guardrail.
	3 of 3	GENERAL NOTES, note 2, changed "Class II Concrete" to "Class I Concrete"; changed note 4.
17723	1 of 3	Changed Note 5i, 6 and 7. Added Note 8. Deleted grout pad and notes (former Notes 4d & 7). Added CSL tube note (Note 9).
	2 of 3	Changed number of bolts in VIEW B-B, number and size of foundation reinforcing bars, and TABLE OF STRAIN POLE VARIABLES. Added foundation standoff distance and washer for base plate. Deleted grout pad and added wire screen. Added CSL tubes. Changed drilled shaft reinforcing.
	3 of 3	Changed note in VIEW E-E; Added 1/4" and 3/8" cable clamps and changed weld criteria. Changed clevis size.
17725	1 of 2	Round pole note revised; pole height dimensions added to Type P-III through P-VIII; Copper Ground note changed.
	2 of 2	Notes revised and rearranged, D(feet) changed to H(feet) in both tables.
17727	1-2 of 2	Schedule 40 aluminum pipe (T6061) added as an alternate to stainless steel pipe in assembly details and signal head notes. Added backplates to signal head details.
17736	1 of 1	Added notes 5 & 6.
17743	1 of 3	Updated assembly dimensions. Changed drilled shaft reinforcing.
	2 of 3	Updated assembly dimensions. Changed drilled shaft reinforcing. Changed T3-BF.
	3 of 3	Updated assembly dimensions. Changed drilled shaft reinforcing.
17745	1 of 5	QPL requirements added in new note 17; added backplates to pole detail; Notes 6 & 14 revised, deleted note 19.
	2 of 5	Revised foundation reinforcing details, Section AA, Section DD and Foundation Plan details.
17748	1 of 1	Option 1 deleted and Options 2 and 3 renumbered; Note 1 revised. Added backplates to signal head displays.
17784	1 of 2	Dimensions revised on Figures A & B. Note 5 and Note to Designers revised.
	2 of 2	Revised details and spacing for signs FTP-68A-06 and FTP-68B-06, also located bolt holes outside of sign message.
17890	2-3 of 3	Added backplates to signal head displays.
17900	7 of 7	Changed pole type call outs, deleted "N-III" and substituted "P-III".
18111	1-2 of 2	Index totally revised.
18113	1-2 of 2	Index totally revised.
20110	1 of 1	Changed Insert Detail for Diaphragm Reinforcing.
20199	1 of 1	Changed BEAM CAMBER AND BUILD-UP NOTES.
20210	2 of 2	Added "Type Q" Epoxy to Note 9.
20299	1 of 1	Changed BEAM CAMBER AND BUILD-UP NOTES.
20500	1 of 1	Added Type C Pads for larger skew ranges. Changed specification of elastomer from "durometer" to "shear modulus".
20501	1 of 1	Changed Note 4.
20502	1 of 1	Changed Note 4.
20602	1 of 1	Changed EDC location to 1D from tip of pile.
20900	2 of 2	Changed coping width and End Bent lug from 6" to 5½" thickness.
20910	2 of 2	Changed coping width and End Bent lug from 6" to 5½" thickness.
21100	1 of 3	Deleted redundant notes from Specification Section 458.
	3 of 3	Changed Sidewalk Cover Plate edge treatment.
21110	1 of 2	Deleted redundant notes from Specification Section 458. Changed last line of title of bottom left detail to "DECK WITH SLOPES 2% OR GREATER".
	2 of 2	Changed Sidewalk Cover Plate edge treatment.
21200	1 of 2	Added "Anchor Plate (dashed lines) (provide Design) to ELEVATION VIEW and TYPICAL SECTION. Added design of anchor bolts and accessories.
	2 of 2	Added design of anchor bolts and accessories.
21600	1 of 7	Clarified INSTRUCTIONS TO DESIGNER for variable end span lengths.
	3 of 7	Added vertical dimensions between deck surface and underside of bearings, including depth of Truss Panel.
21802	1 of 1	Changed "Methyl Methacrylate" to "High Molecular Weight Methacrylate".
21803	1-2 of 3	Revised call-outs for Grout Outlets; Changed "Methyl Methacrylate" to "High Molecular Weight Methacrylate".
	3 of 3	Shrink wrap deleted from Duct Coupler Detail. Revised call-outs for Duct Couplers; Changed "Methyl Methacrylate" to "High Molecular Weight Methacrylate".

A	Area or Amperes
AAA	American Automobile Association
AADT	Annual Average Daily Traffic
AASHO	American Association Of State Highway Officials
AASHTO	American Association Of State Highway And Transportation Officials
ABC	Asphalt Base Course
Abd.	Abandoned
ABS	Acrylonitrite-Butadiene-Styrene Pipe
AC, Ac.	Acre
AC or Asph. Conc.	Asphaltic Concrete
Accel.	Acceleration
ACI	American Concrete Institute
Act.	Actuated
ADA	The Americans With Disabilities Act
Adh.	Adhesive
Adj.	Adjust
ADT	Average Daily Traffic
AFAD	Automatted Flagger Assistance Device
Agg.	Aggregate
Ah.	Ahead
AISC	American Institute Of Steel Construction
Alt.	Alternate
Al.	Aluminum
AM	12:00 Midnight Until 11:59 Noon
ANSI	American National Standards Institute
AOS	Apparent Opening Size
Appl..	Applied, Application
Apprh.	Approach
Approx.	Approximate
ARTBA	American Road & Transportation Builders Association
Artf.	Artificial
Asph.	Asphalt
Assem.	Assembly
Assn.	Association
Assoc.	Associate, Association
ASTM	American Society For Testing And Materials
ATPB	Asphalt Treated Permeable Base
Attn.	Attention
Attnuatr.	Attenuator
Aux. or Auxil.	Auxiliary
Ave.	Avenue
AWG	American Wire Gauge
AWS	American Welding Society
Az	Azimuth
B to B	Back to Back
Basc.	Bascule
Bd. or Bnd.	Bond or Bonded
BC	Bottle Cap or Bolt Circle
B/C, B.C.	Back Of Curb
BCCMP	Bituminous Coated Corrugated Metal Pipe Culvert
BCPA	Bituminous Coated Pipe Arch Culvert
BCPCMP	Bituminous Coated And Paved Corrugated Metal Pipe Culvert
BCPPA	Bituminous Coated And Paved Pipe Arch Culvert
BCT	Breakaway Cable Terminal
BCWE	Base Clearance Water Elevation
BE	Buried Electric
Beg.	Begin
Bit.	Bituminous
Bk.	Back
BL, BLC, or ℄	Base Line, Base Line Control
Bldg.	Building
Blkhd.	Bulkhead
BLON	Begin Length Of Need
Blvd.	Boulevard
BM	Bench Mark
Bndry.	Boundary
Bdr.	Border
Bot.	Bottom
BO	Basin Outlet
BOS	Beginning Of Survey
BP	Borrow Pit
Bq.	Becquerel

Br.	Bridge
Brg.	Bearing
Brkwy.	Breakaway
BT	Buried Telephone Cable or Duct
Btfly.	Butterfly
BW	Barbed Wire, Bottom Width or Both Ways
C	Cantilever Length, Cut, Colorless, Coulomb or Cycle Length
°C	Degree Celsius
C & G	Curb And Gutter
CA	Coarse Aggregate
Cap.	Capacity
CAP	Corrugated Aluminum Pipe
Caps.	Capital Letters
CASP	Corrugated Aluminized Steel Pipe
CATV	Cable Television
CB	Catch Basin
CBC	Concrete Box Culvert
CBS	Concrete Box Structure
CC, C/C, C to C, or C.C.	Center to Center, Crash Cushion
CCEW	Center to Center Each Way
CCTV	Closed-Circuit Television
CD	Cross Drain, Cross Direction (Geotextiles)
cd	Candela
Cem.	Cement or Cemetery
Cem'd.	Cemented
CFS	Cubic Feet Per Second
Ch.	Channel
Chchg.	Channel Change
Chg.	Changeable
CI	Cast Iron
CIP	Cast Iron Pipe
CIPL, C.I.P., C-I-P	Cast In Place
circ.	Circumference
Ckt.	Circuit
Cl. or Clear	Clearance
CL, C/L or ℄	Center Line
CM	Concrete Monument
CMB	Concrete Median Barrier
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
Co.	County or Company
Col.	Column
Com.	Commercial or Common
COMM	Committee or By Committee
Comp.	Composite
Con.	Connect or Connection
Conc.	Concrete
Const.	Construct or Construction
Contrl.	Controller
Cont.	Continuation
Contr.	Contractor
Coord.	Coordinate
Cor.	Corner
Corr.	Corrugated
CP	Concrete Pipe
CPE	Corrugated Polyethylene Pipe
CPT	Cone Penetration Test
CR	Control Radius or County Road
CRA	Clear Recovery Area
Crs. or Cse.	Course
CS	Curve To Spiral
CSP	Corrugated Steel Pipe
CT	Clear Trunk
CTPB	Cement Treated Permeable Base
Ctlvr.	Cantilever
Ctr., Ctrs.	Center
CU or Cu	Copper
Culv.	Culvert
Cwt.	Hundredweight
CY,Cu. Yd., CY, or C.Y.	Cubic Yard
Cyl.	Cylindrical

D	Degree Of Curvature, Depth, Density, Distance, Diameter or Directional Distribution
DA	Drainage Area or Deflection Angle
DBH	Diameter At Breast Height
DBI	Ditch Bottom Inlet
Dbl.	Double
DCS	Degree Of Curvature (Spiral)
DD	Dry Density
DDHV	Directional Design Hour Traffic
Decel.	Deceleration
Deg.	Degree
Delin.	Delineators
Demobl.	Demobilization
Dept.	Department
Det.	Detour, Detection, Detectable
DFE	Design Flood Elevation
DGN or Dgn.	Design
DHV	Design Hourly Volume
DHW	Design High Water
DT	Ditch
DI	Drop Inlet
Dia. or D	Diameter
Dim.	Dimension
Disp.	Disposal
Dist.	Distance
DLS	District Location Surveyor
DMM	Domestic Mail Manual
DOT	Department Of Transportation
DPI or D.P.I.	Ditch Point Intersection
Dr. or DR.	Drain, Drive or Design Review
DR	Design Review
Driv.	Driven
Drwy.	Driveway
DS	Design Speed
DSL	Design Service Life
Dwg.	Drawing
E	East or External Distance
e	Rate Of Superelevation
E to E	End to End
EA or Ea.	Each
EB	Eastbound
EIA	Electronic Industries Alliance
El. or Elev.	Elevation
Elast.	Elastomeric
Elec.	Electric
Ellip.	Elliptical
Embk.	Embankment
Emul.	Emulsified
Encl.	Enclosure
Engr.	Engineer
EOS	End Of Survey or Equivalent Opening Size
E.P. or EOP	Edge Of Pavement
EPDM	Ethylene Propylene Diene Monomer
Eq.	Equation or Equal
Equip.	Equipment
Esmt.	Easement
Est. or Estm.	Estimate
Est.	Establish or Established
Etc. or etc.	Et Cetera (And So Forth)
ETP	Electronic Tough Pitch
EW	Endwall
Ex.	Except, Example
Exc. or Excav.	Excavation
Exist.	Existing
Exp.	Expansion
Ext.	Extension
Exwy.	Expressway

The abbreviations listed are the standard for contract plans production. This list is not all inclusive. Other Department accepted abbreviations may be used when deemed more appropriate. Where special abbreviations are used a descriptive tabulation may be necessary in the plans.

F	Fill, Farad
F or Final	Final Quantity
F & I	Furnish & Install
F to F	Face to Face
FA	Federal Aid or Fine Aggregate
FAC	Florida Administrative Code
FAP	Federal Aid Project
FC	Friction Course
FD	French Drain
Fdn.	Foundation
FDOT	Florida Department Of Transportation
FE	Floor Elevation
Fed.	Federal
Fert.	Fertilizer
FES	Flared End Section
FETS	Flared End Terminal Section
FH	Fire Hydrant
FHWA	Federal Highway Administration
Fig.	Figure
Fin.	Finish
F.L., FL or ℄	Flow Line
FL, Fl. or Fla.	Florida
Flex.	Flexible
FNQ	Fuse (Type Slow Burn)
FOC	Fiber Optics Cable
FPM or fpm	Feet Per Minute
FPS or fps	Feet Per Second
FR or Fr.	Frame
Frang.	Frangible
Freq.	Frequency
F.S.	Florida Statutes
Ft.	Foot or Feet
FTB	Floating Turbidity Barrier
FTBA	Florida Transportation Builder Association
FTP	Florida Traffic Plans
Furn.	Furnish
G	Giga or Gauss
g	Gram or Gravity
Galv.	Galvanized
Ga.	Gauge or Gage
Ga. or Gal.	Gallon
Gar.	Garage
GD	Gutter Drain
GFI	Ground Fault Interrupter
GIP	Galvanized Iron Pipe
GM	Gas Main
GP	Grade Point
Gr.	Grade, Guardrail or Grate
Gr. or Gro.	Gross
GRC	Galvanized Rigid Steel Conduit
Grd.	Ground
GRI	Geosynthetic Research Institute
gross km	Gross Kilometer
Gr. Wt. or gr. wt.	Gross Weight
Gttr.	Gutter
H	Henry
h	Hour or Hecto
ha	Hectare
HAR	Highway Advisory Radio
HB	Hay Bales
HC	Horizontal Clearance
HD	High Density or Heavy Duty
HD or Hd.	Head
HDPE	High Density Polyethylene
Hdwl.	Headwall
HH	Heavy Hex
Hndrl	Handrail
HOA	Hand/Off/Automatic
Horiz. or Hor.	Horizontal
HP	High Pressure or Horsepower
Hr.	Hour
HS	High Strength
HSHV	High Strength Horizontal Vertical
Hse.	House
Ht.	Height
HW or H.W.	High Water or Hot Water
Hwy.	Highway
Hyd.	Hydraulic
Hz	Hertz
I	External Angle (Delta), Interstate
Intchg. or Ichg.	Interchange
IES	Illuminating Engineering Society
ID, I.D.	Inside Diameter or Identification
IMC	Intermediate Metal Conduit
In.	Inch or Inches
Inc.	Incorporated or Including
Incl. or Inc.	Included
Ind.	Industry or Industrial
INV. or Inv.	Invert
IP	Iron Pipe
Install.	Installed
Isect.	Intersection
Isl.	Island
IR	Iron Rod
ITE	Institute Of Transportation Engineers
ITS	Intelligent Transportation Systems
J	Joule
JB	Junction Box
Jct.	Junction
Jt.	Joint
K	Design Hour Factor or Kelvin
k	Kilo (prefix)
kg	Kilogram
kg/m	Kilogram Per Meter
kg/m²	Kilogram Per Square Meter
kg/m³	Kilogram Per Cubic Meter
Kilo	One Thousand
Kip	1000 Pounds
km	Kilometer
km/h	Kilometer Per Hour
kn	Knot
kN	Kilonewton
kPa	Kilopascal
ksi	Kips Per Square Inch
kV	Kilovolt
kVA	Kilovolt Ampere
kWh	Kilowatthour
L	Length, Length Of Curve, Liter, Left
2-L	Two-Lane
2L1W	Two-Lane One-Way
2L2W	Two-Lane Two-Way
LA or L/A	Limited Access
Lat.	Lateral or Latitude
Lb.	Pound
LBS.	Pounds
lb/sy	Pounds Per Square Yard
LBR	Limerock Bearing Ratio
LC	Long Chord
LEO	Law Enforcement With Flashing Lights And Radar
LFD	Load Factor Design
Lgth.	Length
Lin.	Linear
lm	Lumen
Lmrk.	Limerock
LOS	Limit Of Clear Sight
Loc., LO	Location
Long.	Longitude
LRFD	Load Resistance Factor Design
LS	Length Of Spiral
LT	Left Turn
Lt.	Left
Ltd.	Lighted or Limited
Lum.	Luminaire
L/W	Lightweight
lx	Lux
M	Mass, Middle Ordinate Length or Mega
m	Meter or Milli
m²	Square Meter or Meter Square
m³	Cubic Meter or Meter Cubed
m³ /m	Cubic Meter Per Meter
m/s	Meters Per Second
Mach.	Machine
Maint.	Maintenance
Matl.	Material
Max.	Maximum
MB	Median Barrier
MBM	Thousand (Feet) Board Measure
MD	Machine Direction (Geotextiles)
Med.	Median
Mega	One Million
Memb.	Member
MES	Mitered End Section
Mess.	Message
Mfg.	Manufactured or Manufacturer
MG	1000 Gallons
MH, M.H.	Manhole, Mounting Height
MHW	Mean High Water
µ	Micro
Mi.	Mile
Micro	One-Millionth
Mid.	Middle
Mil	One-Thousandth Of An Inch
Mil.	Military
Milli	One-Thousandth
Min.	Minimum or Minute
Misc.	Miscellaneous
mL	Milliliter
MLW	Mean Low Water
mm	Millimeter
Mobl.	Mobilization
Mod.	Modify or Modified
Mol	Mole
Mon.	Monument
MOT	Maintenance Of Traffic
MP	Mile Post
MPa	Megapascal
MPH or mph	Miles Per Hour
MSL	Mean Sea Level
MSTCSD	Minimum Specifications For Traffic Control Signal Devices
Mtd.	Mounted
MUTCD	Manual On Uniform Traffic Control Device
MUTS	Manual On Uniform Traffic Studies
N	North or Newton
N/m	Newtons Per Meter
N/m²	Newtons Per Square Meter
N/m³	Newtons Per Cubic Meter
N/mm²	Newtons Per Square Millimeter
NA or N/A	Not Available or Not Applicable
N & C	Nail & Cap
N & D	Nail & Disk
NAVD	National American Vertical Datum
NB	Northbound
NC	National Coarse or Normal Crown
NCHRP	National Cooperative Research Program
NDCBU	Neighborhood Delivery And Collection Box Unit
NE	Northeast
net km	Net Kilometer
NEMA	National Electrical Manufacturers Association
NGVD	National Geodetic Vertical Datum of 1929
NGS	National Geodetic Survey
NHS	National Highway System
NHW	Normal High Water
NIC	Not In Contract
NJ	New Jersey
N m	Newton Meter
No.	Number
Nom.	Nominal
Norm.	Normal
N.P.	Non Plastic
NPS	Nominal Pipe Size
NPT	National Pipe Thread
NRCP	Non-Reinforced Concrete Pipe
NS	Non Stress, Not Suitable or Near Side
NT, N&T	Non Traffic, Nail & Tin
NTS	Not To Scale
NW	Northwest
Opass	Overpass
O to O, o to o or O.O.	Out to Out
OA	Overall
O.B.G.	Optional Base Group
OC or O.C.	On Center
OD or O.D.	Outside Diameter
OE	Overhead Electric
OH, OHD or Ohd.	Overhead
Opt.	Option, Optional or Optically
OT	Overhead Telephone
Oz.	Ounce
Ω	Ohm
P	Passenger Car & Light Delivery Truck
P or Plan	Plan Quantity
Pa	Pascal
Par.	Parallel
Pa•s	Pascal Second
Part.	Participation or Partition
Pavt.	Pavement
PC	Point Of Curvature
PCBC	Precast Concrete Box Culvert
PCC	Point Of Compound Curvature or Plain Cement Concrete
PCE	Permanent Construction Easement
PE	Professional Engineer
Ped	Pedestrian or Pedestal
Pen.	Penetration
PG	Profile Grade
PGL	Profile Grade Line
Ph.	Phase
pH	Measure Of Acidity or Alkalinity
PI	Point Of Intersection
Pkg.	Parking
Pkwy.	Parkway
PL or ℄	Property Line or Plate
PM	12:00 Noon Until 11:59 Midnight
POC	Point On Curve
POST	Point On Semi-Tangent
POT	Point On Tangent
PP	Power Pole
PPB	Pier Protection Barrier
Pr.	Pair
PRC	Point Of Reverse Curvature
Prcst.	Precast
Prest.	Prestressed
Prob.	Probability
Prod.	Product, Production, Producer or Produced
Prog.	Program or Progression
Proj.	Project or Projection
PRM	Permanent Reference Monument
Prop.	Proposed
Prov.	Provisions
PRS	Portable Regulatory Sign
PS & E	Plans, Specifications And Estimates
PSF or psf	Pounds Per Square Foot
PSI or psi	Pounds Per Square Inch
PT	Point Of Tangency or Pressure Treated
PVC	Polyvinyl Chloride
PW	Pressure Water

The abbreviations listed are the standard for contract plans production. This list is not all inclusive. Other Department accepted abbreviations may be used when deemed more appropriate. Where special abbreviations are used a descriptive tabulation may be necessary in the plans.

Q	Peak Discharge or Flow Volume
QPL	Qualified Products List
R	Right
R or Rad.	Radius
R or Rng.	Range
rad	Radian
rad/s	Radian Per Second
RBAC	Rock Base Asphaltic Concrete
RBST	Rock Base Surface Treatment
RC	Reverse Crown
RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch
Rd.	Road or Round
Rdsd.	Roadside
Rdwy.	Roadway
Rec.	Recovery
Rect.	Reticuline or Rectangular
Ref.	Reference
Refl.	Reflective
Reg.	Region, Regular, Registered or Regulation
Reinf.	Reinforced or Reinforcing
Rejuv.	Rejuvenation
Reloc.	Relocated
Rem.	Removal
Repl.	Replace
Req. or Reqd.	Required
Res.	Residence or Residential
RGS	Rigid Galvanized Steel
RHW	Insulation (Moisture & Heat Resistant Rubber)
RM	Reference Monument
r/min	Revolution Per Minute
RP	Reference Point
rpm	Revolution Per Minute
RPM	Raised Reflective Pavement Markers
r/s	Revolution Per Second
RR	Railroad
RSDU	Radar Speed Display Unit
Rsf.	Resurface
Rt.	Right
RU	Rack Unit
R/W, ROW	Right Of Way
RX	Receive
S or s	Speed, South, Siemens, Or Second
SAHM	Sand-Asphalt Hot Mix
SAN or San.	Sanitary
SB	Southbound
SBAC	Shell Base Asphaltic Concrete
SBRM	Sand Bituminous Road Mix
SBST	Shell Base Surface Treatment
SC	Seal Coat or Spiral To Curve
Sch.	Schedule
SCST	Sand-Clay Surface Treatment
SD	Side Drain, Storm Drain
SE	Southeast
Sec.	Second
Sect.	Section
Sed.	Sediment
Sep.	Separator
Seq.	Sequential
Serv.	Service
SF	Adjustment Factor In Percent, Silt Fence
SG	Subgrade
SG	Specific Gravity
Sh. or Sht.	Sheet
Shldr.	Shoulder
SHW	Seasonal High Water
SIP	Stay In Place
SP	Superpave
Spa.	Space
Spcg. or Sp.	Spacing
Spec.	Specification
SPT	Standard Penetration Test
Sq. Ft., SF, or S.F.	Square Foot
Sq. In.	Square Inch
Sq. Yd., SY or S.Y.	Square Yard
SR or S.R.	State Road
SRAP	Spiral Rib Aluminum Pipe
SRASP	Spiral Rib Aluminized Steel Pipe
SRCP	Steel Reinforced Concrete Pipe
SRD	State Road Department
SRSP	Spiral Rib Steel Pipe
SS	Sanitary Sewer
SSMD	Solid State Modular Design
ST	Surface Treatment or Spiral To Tangent
St. or ST.	Street
Sta.	Station
Stab.	Stability or Stabilization
STB	Staked Turbidity Barrier
Std.	Standard
Stg.	Strong
Stge.	Storage
Stl.	Steel
Str.	Structure
Sty.	Story
SU	Single Unit Trucks
Sub. or Subs.	Subsoil
Sub. or Subst.	Substitute
Subgr.	Subgrade
Suppts.	Supports
SUR or Sur.	Survey
Surf.	Surface
SW	Southwest
SW or Swk.	Sidewalk
Sys. or Syst.	System
Sv	Sievert
Sym.	Symmetrical
T	Tangent, Length Of Curve, Percent Trucks, Tesla,
T, TWP or Twp.	Township
t	Metric Ton
tan.	Tangent
TBM	Temporary Bench Mark
TC	Tangent To Curve
TCB	Temporary Concrete Barrier
TCE	Temporary Construction Easement
TCP	Terra Cotta Pipe
TCZ	Traffic Control Zone
TDLC	Transportation Design For Livable Communities
Tel.	Telephone
Temp.	Temperature or Temporary
Theo.	Theoretical
THRMPLSTC	Thermoplastic
THW or THWN	Insulation (Flame Retardant, Moisture And Heat Resistant Thermoplastic)
Thick.	Thickness
Tk	Thick, Thickness or Truck
Tn.	Ton
Traf.	Traffic
Trans.	Transition, Transverse, Translate or Transportation
Treat.	Treatment
TS	Tangent To Spiral
TSC	Length Of Tangent (Spiral Curve)
TTC	Temporary Traffic Control
TVSS	Transient Voltage Surge Suppression
TX	Transmit
Typ.	Typical
Upass.	Underpass
UG	Underground
UL	Underwriters Laboratories
Ult.	Ultimate
Ultd.	Unlimited
Unddr.	Underdrains
Undrdwy.	Underroadway
UNL or Undl.	Unloaded
Untr.	Untreated
UPS	Uninterruptible Power Supply
USC & GS	US Coast and Geodetic Survey (now National Geodetic Survey)
USGS	US Geological Survey
USPS	United States Postal Service
Util.	Utilities
UV	Ultraviolet
V	Volt, Velocity, Volume or Hourly Volume
Var.	Varies, Variable or Variance
VC	Vertical Curve
VCP	Vitrified Clay Pipe
VECP	Value Engineering Change Proposal
Veh.	Vehicle
Vert.	Vertical
VF	Vertical Foot
Vh	Verified Horizontal Location
VMS	Variable Message Sign
Vol.	Volume
VP	Vertical Panel
VPD or Vpd.	Vehicles Per Day
VPH or Vph.	Vehicles Per Hour
VPHPL or Vphpl.	Vehicles Per Hour Per Lane
VRMS	Volts Root Mean Square
Vv	Verified Vertical Elevation
Vvh	Verified Vertical Elevation And Horizontal Location
VW	Variable Width
W	Width, Wide, West or Watt
W/C	Water-Cement Ratio
WB	Westbound
Wb.	Weber
WB40	Intermediate Semi Trailer
WB50	Large Semi Trailer
WB62	Interstate Semi Trailer
WB67D	Tandem Semi Trailer
WM	Water Main
W.P.I.	Work Program Item
WT	Water Table Or Weight
WWF	Welded Wire Fabric
WWR	Welded Wire Reinforcing
X	Coordinate Value (East-West Direction) or Extra
X Rd.	Cross Road
Xing.	Crossing
Xsec.	Cross Section
Y	Coordinate Value (North-South Direction)
Yd.	Yard
Yr.	Year

The abbreviations listed are the standard for contract plans production. This list is not all inclusive. Other Department accepted abbreviations may be used when deemed more appropriate. Where special abbreviations are used a descriptive tabulation may be necessary in the plans.

UNITS OF MEASURE

US MEASUREMENT

AC	Acre
AS	Assembly
BU	Bushel
CF	Cubic Foot
CO	Cleanout
CY	Cubic Yard
EA	Each
ED	Each Day
GA	Gallon
GM	Gross Mile
LB	Pound
LF	Linear Foot
LM	Lane Mile
LO	Per Location
LS	Lump Sum
LU	Luminaire
MB	Thousand Board Measure
MG	Thousand Gallons
MH	Man Hour
NM	Net Mile
PA	Per Analysis
PB	Per Building
PE	Pile
PI	Per Intersection
PL	Plant
PM	Per Mile
PS	Per Set
PW	Per Well
SI	Square Inch
SF	Square Foot
SY	Square Yard
TN	Ton

METRIC MEASUREMENT

AS	Assembly
CO	Cleanout
DA	Day
EA	Each
ED	Each Day
GK	Gross Kilometer
HA	Hectare
HR	Hour
KG	Kilogram
KL	Kiloliter
KM	Kilometer
LI	Liter
LK	Lane Kilometer
LO	Per Location
LS	Lump Sum
LS/AS	Lump Sum Per Assembly
LS/DA	Lump Sum Per Day
LS/EA	Lump Sum Per Each
LS/HA	Lump Sum Per Hectare
LS/KG	Lump Sum Per Kilogram
LS/LS	Lump Sum Per Lump Sum
LS/MT	Lump Sum Per Metric Ton
LS/MI	Lump Sum Per Linear Meter
LS/M2	Lump Sum Per Square Meter
LU	Luminaire
MH	Man Hour
MO	Month
MT	Metric Ton
MI	Meter
M2	Square Meter
M3	Cubic Meter
NK	Net Kilometer
PA	Per Analysis
PB	Per Building
PI	Per Intersection
PL	Plant
PW	Per Well

STANDARD SYMBOLS FOR KEY MAP

- Highway With Full Control of Access
- Highway With Frontage Roads
- Highway Interchange
- Proposed Controlled Access Highway
- Divided Highway
- Hard Surfaced Road
- Soil, Gravel Or Shell Surfaced Road
- Graded And Drained Road
- Unimproved Road
- Primitive Road
- P — Private Road
- Streets In Inset Or Delimited Areas
- Extension Of Local Roads Within Cities
- FAI — Federal Aid Interstate Highway
- FAU — Federal Aid Urban Highway
- FAP — Federal Aid Primary Highway
- FAS — Federal Aid Secondary Highway
- NFR — National Forest Road
- SFR — State Forest Road
- SPR — State Park Road
- Interstate Highway
- US Numbered Highway
- State Highway
- County Road

- Railroad
- Double Track Railroad
- Abandoned Railroad
- Railroad Station
- Grade Crossing
- Railroad Above
- Railroad Below
- Military Field
- Commercial Or Municipal Airport
- Landing Area Or Strip
- Runways

- FF — Free Ferry
- TF — Toll Ferry
- Canal Or Drainage Ditch
- Intracoastal Waterway
- Narrow Stream
- Wide Stream
- Dam
- Dam Or Spillway With Lock
- Dam With Road
- Flood Control Structure
- Lake, Reservoir Or Pond
- Intermittent Pond
- M — Meandered Lake
- Marsh Or Swamp
- Mangroves
- Levee Or Dike
- Levee Or Dike With Road
- Highway Bridge
- 3 — Small Bridges Closely Spaced
- Drawbridge
- Highway Grade Separation
- Tunnel
- State Boundary Line
- County Boundary Line
- Civil Township Boundary
- Extended Township Line
- Land Grant Line
- Land Section Line
- State Survey Section Line
- Survey By Others
- Location Of Inset Boundary Within Map
- Military Reservation Boundary
- College Or University Boundary
- Corporate Limits
- Delimited Area, Population Est.
- Reservation, Forest Or Park Boundary
  Wildlife Refuge Boundary

- Residential Area Under Development
- Lighthouse
- State Capital
- County Seat
- Other City Or Village
- Seminole Indian Village
- Welcome Station
- WP — Wayside Park Or Small Park
- WP — Park With Boat Ramp
- B — Boat Ramp
- Museum
- Recreational Area Or Historic Site
- Scenic Site
- Post Office
- School
- Church
- Cemetery
- Church And Cemetery
- Hospital, Health Center Or Rest Home
- Toll House, Port Of Entry Or Weight Station
- Fair Grounds, Race Course Or Rodeo Arena
- Mine Or Strip Mine
- Governmental Research Station

- Agricultural Inspection Station
- FM — Farmers Market
- Game Preserve
- Game Checking Station
- Bird Sanctuary
- Fire Control Headquarters
- Lookout Tower
- FS — Fire Station
- Patrol Or Police Station
- Correctional Institution Or Road Camp
- DOT — Department of Transportation Facility
- Coast Guard Station
- A — Armory
- J — Junkyard
- F — Sanitary Fill
- S — Sewage Disposal Plant
- I — Incinerator
- Power Plant
- Power Substation
- Communications Facility
- Locked Gate Or Fence
- WOOD — Triangulation Station

GENERAL NOTE

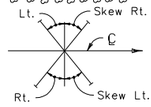
1. Symbols on this Index are intended for use on all Roadway, Signing And Marking, Signalization, and Lighting projects. For work zone traffic control symbols refer to Index 600. When additional or similar symbols are used, legends or notations may be required for clarity.

STANDARD SYMBOLS FOR PLAN SHEETS

GENERAL SYMBOLS

- State Line
- County Line
- Township Line
- Section Line
- City Line
- Base Or Survey Line
- Right-Of-Way
- Easement Line
- Limited Access Line
- Fence Line
- National Or State Park Or Forest
- Grant Line
- Railroad (Drainage Maps)
- Railroad (Detail Plans)
- Fence (Limited Access)
- Box Culvert
- Bridge
- Pipe Culvert-Mitered End Section
- Pipe Culvert-Straight Endwall
- Pipe Culvert-U-Type Endwall
- Pipe Culvert-Median Drain
- Pipe Culvert-Other End Treatments
- 18" SD — Storm Drain (Proposed)
- 18" SD - - - - Storm Drain (Existing)
- Inlet
- Manhole
- Tied Longitudinal Joint
- Keyed Longitudinal Joint
- Doweled Transverse Expansion Joint
- Doweled Transverse Contraction Joint
- Transverse Contraction Joint Without Dowels
- Survey Reference Point
- AL ACHUA — Triangulation Station
- B.M. NO. 112 — Bench Mark
- Point Of Intersection
- North Arrow
- TYP. TYPE PAV'T WALK — Edges Of Existing Pavement And Sidewalk
- Guardrail
- C. C. — Crash Cushion (Attenuator)
- Piling Pier Column
- Concrete Monument
- Base Line
- Centerline
- Flow Line
- Property Line
- Delta Angle
- Approximate
- Round Or Diameter

- Curb
- Curb And Gutter
- Water Well, Spring
- Levee
- MP 327 — Railroad Mile Post
- Railroad Signal With Gate
- Railroad Switch
- 12' — Gate
- Pump Island
- Storage Tank (Surface)
- Storage Tank (Underground)
- Mine Or Quarry
- B P — Borrow Pit
- Church
- S — Store
- RES — Residence
- B — Barn
- School
- Synthetic Bales
- Silt Fence
- Floating Turbidity Barrier
- Staked Turbidity Barrier
- Stream
- Shore Line
- Marsh
- Wetland Boundary (Proposed)
- Wetland Boundary (Existing)
- Hedge
- Trees
- Edge Of Wooded Area
- Shrubbery
- Grove Or Orchard



Definition Of Skew For Cross Drains And Barrels Of Conrete Box Culverts

- Concrete
- Wood
- e — Rate Of Superelevation

UTILITY ADJUSTMENT SYMBOLS

EXISTING	PROPOSED	
		Manhole
		Fire Hydrant
		Meter (Type)
		Valve (Type)
		Valve Box (Type)
		Valve Cover (Type)
		Vent (Type)
		Pump Station
		Sewage Pump Station
		Cleanout
		Cable TV Service Box
		Power Pole
		Telephone Pole
		Combination Pole
		Guy Wire And Anchor Pin
		Guy Pole Deadman
		Tower
		Light Pole
		Transformer

EXISTING	PROPOSED	
W - - - - 6" - - - - W	W W W W W W 6" M M M M M M	Water Main
NPW - - - 6" - - - NPW	NPW NPW 6" NPW NPW	Non Potable Water
S - - - - 8" - - - - S	S S S S S S 8" S S S S S	Sanitary Sewer
G - - - - 6" - - - - G	G G G G G G 6" G G G G G G	Gas
RD - - - - 4" - - - - RD	RD RD RD 4" RD RD	Roof Drain
PET - - - 8" - - - PET	PET PET 8" PET PET	Petroleum
STM - - - 12" - - - STM	STM STM 12" STM STM	Steam
CAS - - - 12" - - - CAS	CAS CAS 12" CAS CAS	Casing
DT - - - 4"x4" - - - DT	DT DT 4"x4" DT DT	Duct
BE - - (7.5 kV) - - BE	BE BE (7.5 kV) BE BE	Buried Electric
OE - - (7.5 kV) - - OE	OE OE (7.5 kV) OE OE	Overhead Electric
BTV - - - 3" - - - BTV	BTV BTV 3" BTV BTV	Buried Cable Television
OTV - - - -2" - - - OTV	OTV OTV 2" OTV OTV	Overhead Cable Television
BT - - - - 2" - - - - BT	BT BT BT 2" BT BT BT	Buried Telephone
OT - - - - 2" - - - - OT	OT OT OT 2" OT OT OT	Overhead Telephone
BFO - - - 2" - - - BFO	BFO BFO 2" BFO BFO	Buried Fiber Optic
OFO - - - -1" - - - - OFO	OFO OFO 1" OFO OFO	Overhead Fiber Optic

See General Note, Sheet 1 of 3

STANDARD SYMBOLS FOR PLAN SHEETS

TRAFFIC SIGNALS SYMBOLS

EXISTING	PROPOSED	
		Traffic Signal Head (Span Wire Mounted)
		Traffic Signal Head (Pedestal Mounted)
		Traffic Signal Head (Mast Arm Mounted)
		Traffic Signal Pole (Concrete, Wood, Metal)
		Vehicle Detector (Loop)
		Signal Cable (On Messenger Wire)
		Conduit
		Vehicle Detector (Points)
		Pedestrian Detector
		Pedestrian Signal Head (Pole Or Pedestal Mounted)
		Controller Cabinet (Base Mounted)
		Controller Cabinet (Pole Mounted)
W - D W		Walk - Dont Walk
FDW		Flashing Dont Walk
5		Signal Face Number
		Signal Lens
P		Programmed Signal Head
		Messenger Wire
3		Pole Tabulation Cross Reference
*3		Pole Tabulation Cross Reference (Joint Use Pole)
		Signal Phase

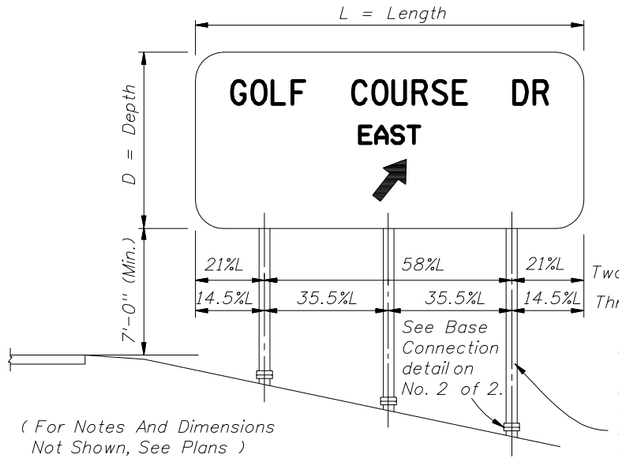
LIGHTING SYMBOLS

EXISTING	PROPOSED	
		Pole & Luminaire
		Existing Pole & Luminaire To Be Removed
		Final Position Of Relocated Or Adjusted Pole & Luminaire
		High Mast Lighting Tower
		City Or Utility Owned Luminaire & Pole
		PVC (Polyvinyl Chloride) Lighting Conduit And Conductors
		Rigid Galvanized Lighting Conduit And Conductors
		Lighting Pull-Box
		Light Distribution Point
		Joint Use Pole
		Pier Cap Underdeck Luminaire
		Pendant Hung Underdeck Luminaire

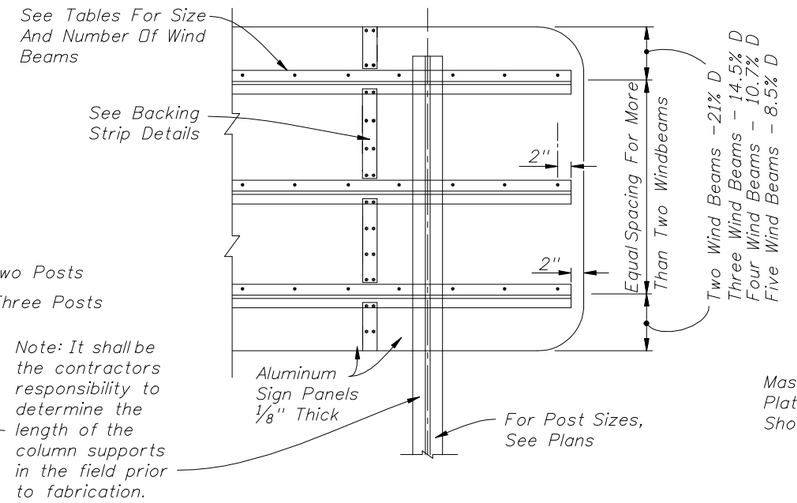
SIGNING AND PAVEMENT MARKING SYMBOLS

	Pavement Arrow
	Single Solid Line
	Double Solid Line
	Skip Line
	Stop Bar
	Traffic Sign (Post Mounted)
	Traffic Sign (Overhead)
13	Sign Number
700-83	Sign Item Number
	Traffic Flow Arrow

See General Note, Sheet 1 of 3



TYPICAL ELEVATION



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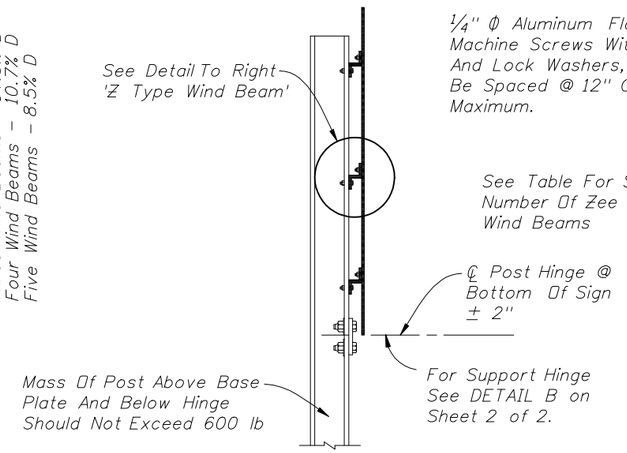
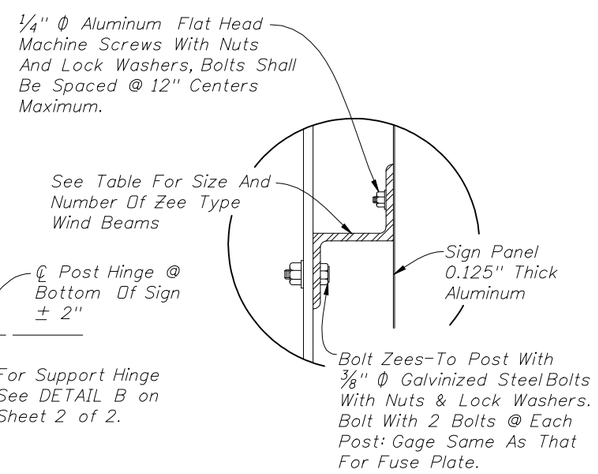


SIDE VIEW



Z TYPE WIND BEAM

Note: If the sign panels are deeper than 10', a Horizontal Panel Splice is allowed at an interior Z bar support, shop drawings shall be required. Minimum panel section width =2'-6".

BACKING STRIP DETAILS

NUMBER OF WIND BEAMS FOR GIVEN DEPTH & WIND					
Wind	No. Beams	Max. Depth	Wind	No. Beams	Max. Depth
110	2	7'-0"	150	2	6'-0"
110	3	12'-0"	150	3	10'-4"
110	4	16'-4"	150	4	14'-0"
110	5	20'-8"	150	5	17'-8"
130	2	6'-8"			
130	3	11'-4"			
130	4	15'-4"			
130	5	19'-0"			

SIZE OF WIND BEAMS		
Size Of Zee*	Length Of Sign (Feet)	
	2 Posts	3 Posts
Z 1.75 x 1.75 x 1.08	0 - 11'-0"	0 - 17'-4"
Z 3 x 2.69 x 2.33	11'-1"-19'-0"	17'-5"-29'-6"
Z 3 x 2.69 x 3.38	19'-1"- 20'-8"	29'-7"-31'-6"

*Note: Zees Are Aluminum - No Steel Equivalent Available Designation Gives (Member Depth) x (Flange=Width) x (lb/ft)

DESIGN WIND SPEEDS BY COUNTY

110 mph Alachua, Baker, Bradford, Clay, Columbia, Gadsden, Gilchrist, Hamilton, Hardee, Jackson, Jefferson, Lafayette, Lake, Leon, Madison, Marion, Polk, Putnam, Sumter, Suwannee, and Union Counties.

130 mph Bay, Brevard, Calhoun, Charlotte, Citrus, DeSoto, Dixie, Duval, Flagler, Franklin, Glades, Gulf, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lee, Levy, Liberty, Manatee, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Sarasota, Seminole, St. Johns, Taylor, Volusia, Wakulla, Walton, and Washington Counties.

150 mph Broward, Collier, Escambia, Indian River, Martin, Miami-Dade, Monroe, Palm Beach, Santa Rosa, and St.Lucie Counties.

GENERAL NOTES

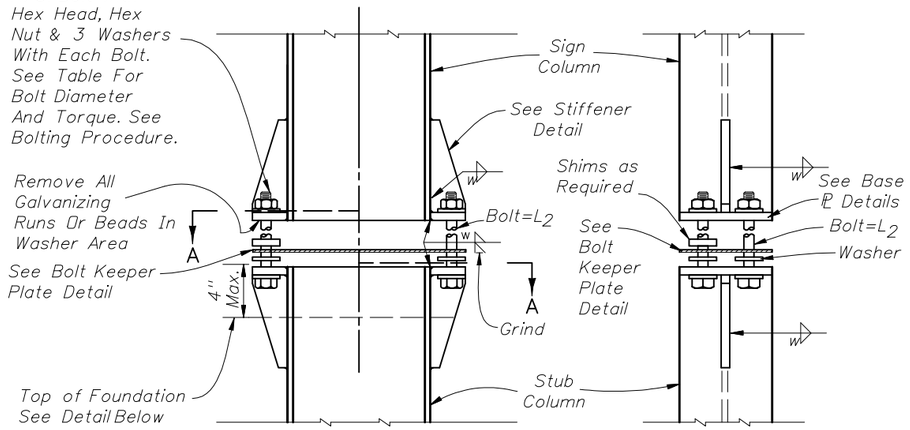
DESIGN SPECIFICATIONS: Design according to FDOT Structures Manual (current edition). Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals, AASHTO 2001.
WELDING: For welding refer to the latest editions of the AWS Structural Welding Codes for Steel and Aluminum, the AASHTO Standard Specifications for Welding Structural Steel Highway Bridges.
ALUMINUM MATERIALS: All aluminum materials shall meet the requirements of the Aluminum Association's Alloy 6061-T6 and also the following ASTM specifications: Sheets and plates, B209; extruded tube, bars, rods & shapes, B221; and standard structural shapes, B308. No stenciling permitted on sheets. Aluminum welding rods shall meet the requirements of Aluminum Association Alloy No. 5556 filler wire.
ALTERNATE MATERIAL: Material meeting the requirements of ASTM B209 or Aluminum Association Alloys 5154-H38 or 5052-H38 may be used for sheet and plate. Material meeting the requirements of Aluminum Association Alloy 6351-T5 and ASTM B221 may be used for extruded bars, rods, shapes and tubes.
STRUCTURAL STEEL: All structural steel shall meet the requirements of ASTM A36.
ALUMINUM BOLTS, NUTS, & LOCK WASHERS: Aluminum bolts shall meet the requirements of Aluminum Association Alloy 2024-T4 (ASTM F468). The bolts shall have an anodic coating at least 0.0002" thick and be Chromate sealed. Lock washers shall meet the requirements of Aluminum Association Alloy 7075-T6 (ASTM B221). Nuts shall meet the requirements of Aluminum Association Alloy 6061-T6 or 6262-T9 (ASTM F467).
STEEL BOLTS, NUTS, & WASHERS: All steel bolts, nuts and washers shall meet the requirements of ASTM A325.
TOLERANCES: All above materials shall be in accordance with the governing ASTM specifications.
GALVANIZED: All steel shapes, angles, tees, plates, bolts, nuts and washers shall be galvanized in accordance with Standard Specifications 962-9.
BASE CONNECTION: High strength bolts L_2 in the base connection shall be tightened only to the torque shown in the table on sheet 2 of 2. Overtightened base connections will not be accepted.
FUSE PLATE: All holes in fuse plates shall be drilled. All plate cuts shall, preferably, be saw cuts; however, flame cutting will be permitted provided all edges are round. Metal projecting beyond the plane of the plate face will not be allowed.
SIGN FACE: All sign face corners shall be rounded.
SHOP DRAWINGS: When ground sign supports are fabricated in accordance with these plans no shop drawings are required. Shop drawings will be required for approval when the column length exceeds the length shown in the plans by more than 2'-0". However, shop drawings for sign panels, messages, lettering and quantities shall be submitted to the Engineer of Record for approval.
FABRICATOR NOTE: All bolts, except L_2 bolts and zee to post bolts, shall be tightened in accordance with Section 700 of the Specifications.
FOUNDATION: Contractor may use precast foundations in pre-drilled holes a minimum of 12" larger than the foundation indicated on the plans in either wet or dry conditions. The holes shall be clean and without loose material. Temporary casing shall be required if the soil is unstable. Fill the void around the precast foundation with flowable fill meeting the requirements of Section 121 or clean sand placed using hydraulic methods. The cost of flowable fill, installing and removal of casing shall be included in the unit price of Sign Multi-Post.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2010 FDOT Design Standards

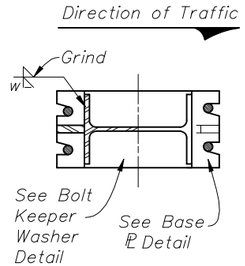
MULTI-COLUMN GROUND SIGN

Last Revision	Sheet No.
07/01/09	1 of 2
Index No.	
11200	

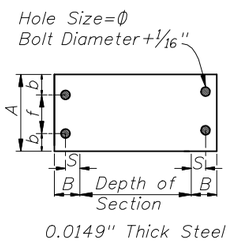


SIGN COLUMN & STUB COLUMN ELEVATION

BASE CONNECTION

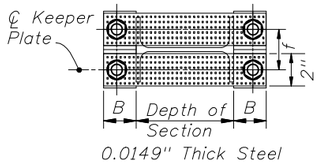


SECTION A-A



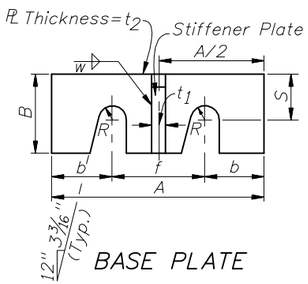
0.0149" Thick Steel

BOLT KEEPER PLATE

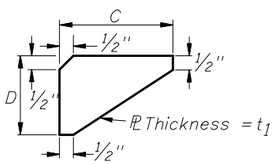


0.0149" Thick Steel

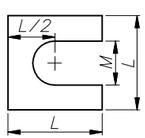
ALTERNATE BOLT KEEPER PLATE



BASE PLATE

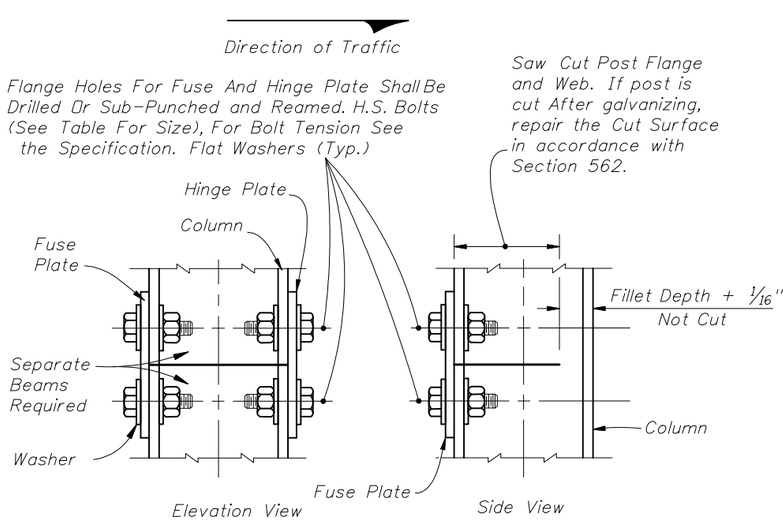


STIFFENER PLATE



Provide 2 - 0.0149" Thick and 2 - 0.0329" Thick Brass Shims (ASTM B36) Per Post

SHIM DETAIL

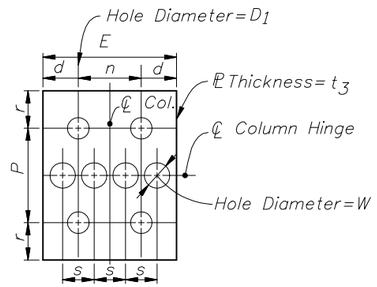


OPTIONAL HINGE TYPICAL HINGE

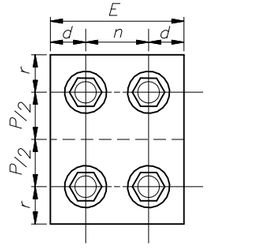
FUSE & HINGE PLATES

(See Fabricator Note on Sheet 1 of 2)

DETAIL B

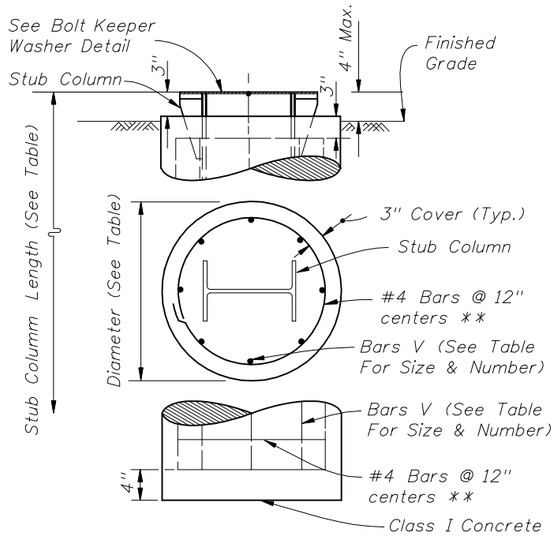


FUSE PLATE



(Match Post Flange Thickness)

HINGE PLATE



FOUNDATION ELEVATION

NOTE: All Reinforcing To Be Grade 60.

** At the Option of the Contractor, D10 Spiral Wire @ 6" Pitch, Three Flat Turns Top and One Flat Turn Bottom may be Utilized in Lieu of Specified.

Shop-weld assemblies of foundation stirrup reinforcing bars are permitted in reinforced concrete foundation provided that:

1. The reinforcing bars conform to ASTM Specification A706/706M.
2. The holding wires conform to ASTM Specification A82 or A496.
3. The Shop welding is performed by machines under a continuous, controlled process, approved by the Engineer.
4. Quality control test are preformed on shop-welded specimens and the test results are available, upon request, to the Engineer.

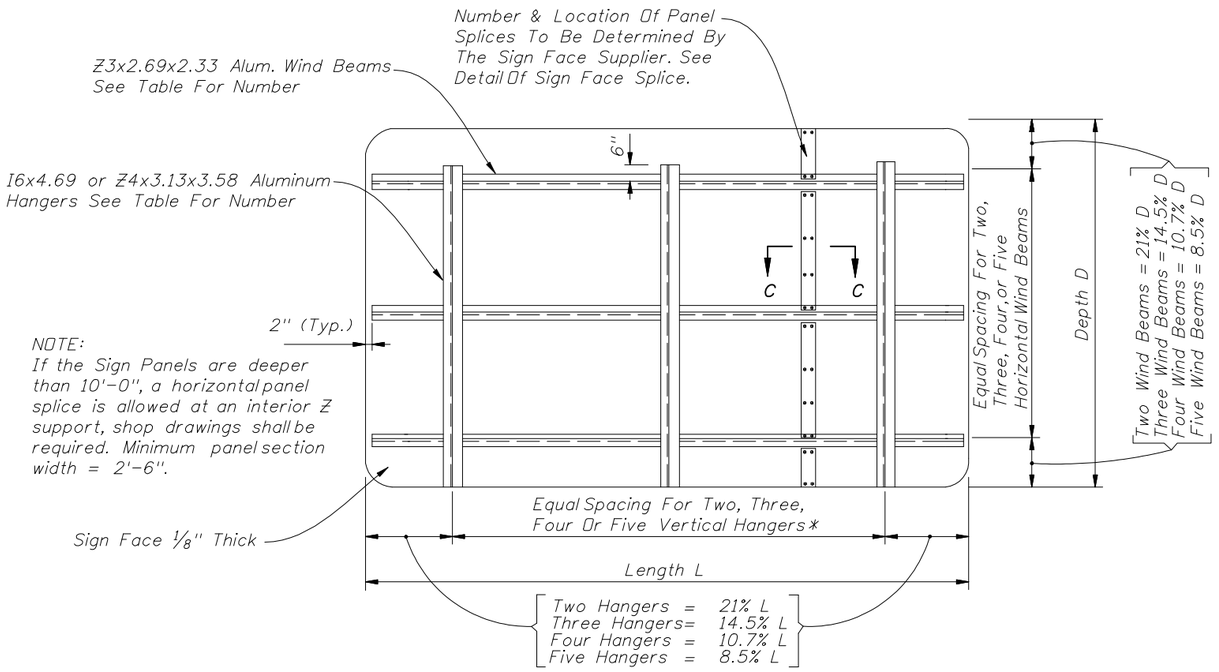
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. Assemble post to stub with bolts and with one flat washer on each bolt between plates.
2. Shim as required to plumb post (see shim detail).
3. Tighten all L_2 bolts the maximum possible with 1'-0" to 1'-3" wrench to bed washers and shims and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the torque specified in the table.
4. Burr threads at junction with nut using a center punch to prevent nut loosening.
5. Sections shown are for installation on right shoulder. For left shoulder plate slot bevels are opposite hand from that shown.

BASE CONNECTION DATA													SHIM		FUSE (HINGE) PLATE DATA										FOUNDATION DATA			
Section *	A	B	C	D	Bolt Size(L_2) &Torque(in-lb)	R	b	f	S	t_1	t_2	w	L	M	Bolt Size	E	P	D_1	d	n	r	s	t_3	W	Dia.	Depth	Stub Length	Reinf. Bars V
W 6x12	4 3/4"	2"	5 1/8"	2"	5/8" ∅ 345	3/8"	1 1/8"	2 1/2"	1 3/16"	1/2"	1/2"	1/4"	1 3/8"	1 1/16"	5/8"	4 1/4"	3"	1 1/16"	1 1/8"	2"	1 3/16"	1"	1/4"	1 13/16"	2'-0"	5'-6"	2'-4"	10-#6
W 8x18	5 3/4"	2 3/16"	6 1/4"	2 3/16"	3/4" ∅ 550	1/16"	1 1/2"	2 3/4"	1 3/8"	1/2"	5/8"	1/4"	1 3/4"	1 3/16"	7/8"	5 1/2"	3 3/4"	1 5/16"	1 1/2"	2 1/2"	1 3/8"	1 5/16"	3/8"	1 1/16"	2'-0"	7'-6"	2'-10"	10-#6
W 10x22	6 1/8"	2 3/8"	8"	2 3/8"	7/8" ∅ 640	1/2"	1 9/16"	3"	1 3/8"	1/2"	3/4"	5/16"	2"	1 5/16"	1"	6 3/8"	4 5/16"	1 1/16"	1 3/4"	2 7/8"	1 3/4"	1 1/2"	3/8"	1 3/16"	2'-4"	8'-6"	3'-4"	8-#8
W 10x33	8"	2 3/4"	8"	2 3/4"	1 1/8" ∅ 780	5/8"	2"	4"	1 9/16"	1/2"	3/4"	5/16"	2 3/8"	1 3/16"	1 1/8"	7 7/8"	5 5/16"	1 3/16"	2 1/4"	3 3/8"	2"	1 7/8"	1/2"	1 9/16"	2'-4"	10'-3"	4'-0"	8-#8
W 12x40	8"	3"	8"	3"	1 1/8" ∅ 780	5/8"	2"	4"	1 9/16"	1/2"	3/4"	5/16"	2 3/8"	1 3/16"	1 1/4"	8 3/8"	5 3/4"	1 5/16"	2 1/4"	3 7/8"	2 3/16"	2"	1/2"	1 11/16"	2'-8"	11'-3"	4'-8"	10-#8

* Designations: Normal Depth in inches and weight in pounds per linear foot.

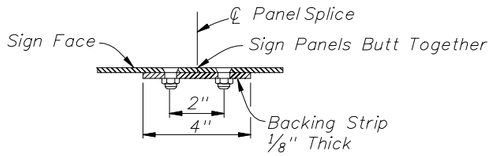
STEEL POST, BASE, FOUNDATION & FUSE PLATE DETAILS



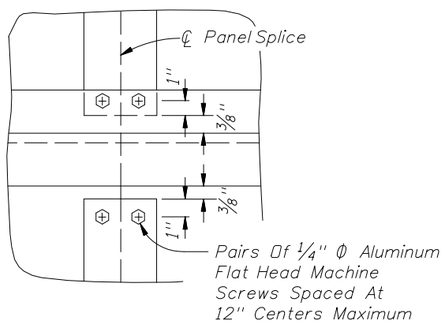
*Note: Spacing of vertical hangers may be varied slightly or as necessary to clear the truss struts and diagonals at panel points.

TYPICAL SIGN FACE ELEVATION FOR OVERHEAD TRUSS

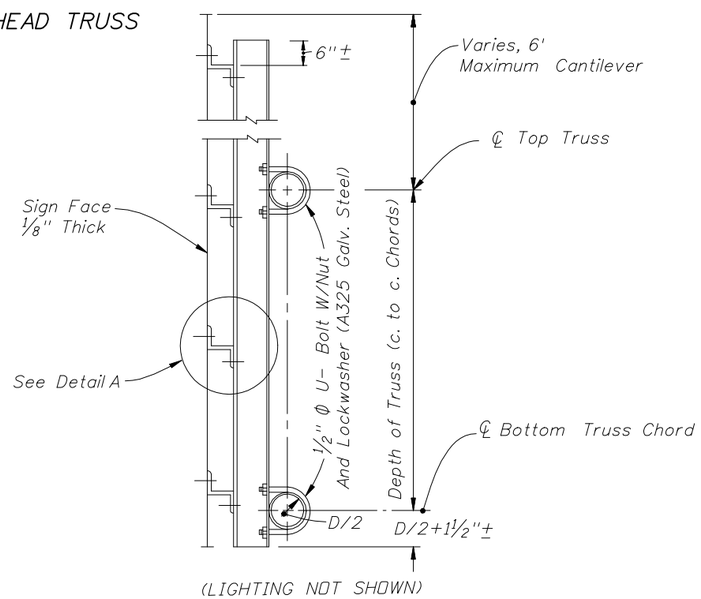
Number Of Z3x2.69x2.33 Horiz. Wind Beams For Sign Depth And Wind			Number Of I6x4.69 or Z4x3.13x3.58 Vertical Hanger Beams For Sign Length			
Wind M.P.H.	No. Beams	Max. Depth	2 Hangers	3 Hangers	4 Hangers	5 Hangers
			Sign Length	Sign Length	Sign Length	Sign Length
150	2	5'-0"	0 to 15'-0"	15'-1" to 30'-0"	30'-1" to 45'-0"	
150	3	8'-6"	0 to 15'-0"	15'-1" to 30'-0"	30'-1" to 45'-0"	
150	4	11'-6"	0 to 13'-0"	13'-1" to 18'-3"	18'-4" to 24'-9"	24'-10" to 31'-4"
150	5	14'-0"	0 to 13'-0"	13'-1" to 18'-3"	18'-4" to 24'-9"	24'-10" to 31'-4"
130	2	5'-3"	0 to 15'-0"	15'-1" to 30'-0"	30'-1" to 45'-0"	
130	3	8'-10"	0 to 15'-0"	15'-1" to 22'-3"	22'-4" to 30'-0"	30'-1" to 45'-0"
130	4	12'-0"	0 to 15'-0"	15'-1" to 22'-3"	22'-4" to 30'-0"	30'-1" to 38'-0"
130	5	15'-0"	0 to 11'-7"	11'-8" to 16'-4"	16'-5" to 22'-2"	22'-3" to 28'-0"
110	2	5'-6"	0 to 15'-0"	15'-1" to 30'-0"	30'-1" to 45'-0"	
110	3	9'-6"	0 to 15'-0"	15'-1" to 27'-3"	27'-4" to 37'-0"	37'-1" to 45'-0"
110	4	12'-9"	0 to 15'-0"	15'-1" to 27'-3"	27'-4" to 37'-0"	37'-1" to 45'-0"
110	5	16'-0"	0 to 14'-3"	14'-4" to 20'-0"	20'-1" to 27'-0"	27'-1" to 34'-3"



SECTION C-C

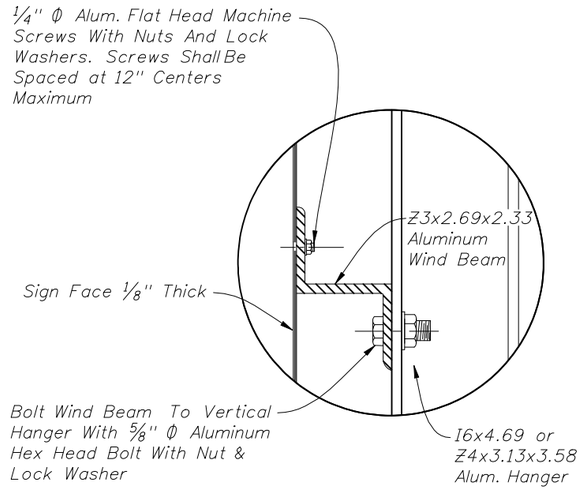


BACKING STRIP DETAIL



(LIGHTING NOT SHOWN)

TYPICAL DETAIL OF SIGN & TRUSS CONNECTION

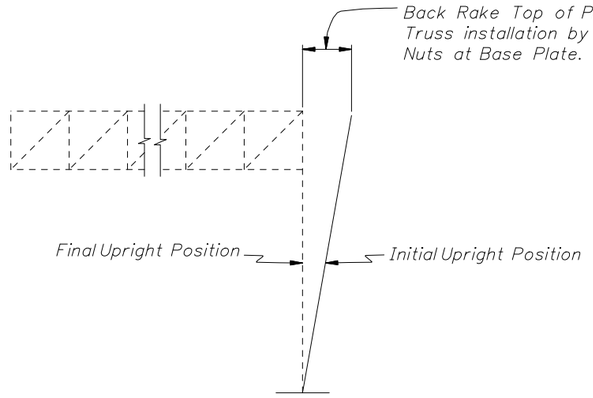


(SHOWING ATTACHMENT OF SIGN FACE PANEL TO VERTICAL HANGER SUPPORTS, VERTICAL I SHAPE HANGER AS SHOWN, Z SHAPE OPTIONAL)

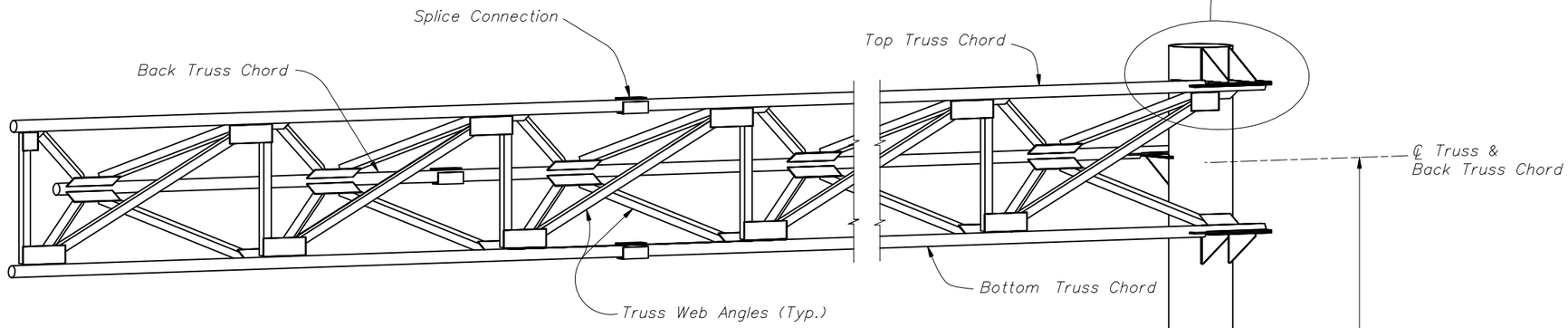
DETAIL A

GENERAL NOTES
(1) For "General Notes" covering Material Specifications see Index 11200.
(2) Design based on 32 ft. maximum height to centroid of sign panel.
(3) The Design Wind Speed shall conform to Wind Speed by County shown on Index 11200, Sheet 1 of 2.

DETAILS OF SIGN FACE & TRUSS CONNECTION

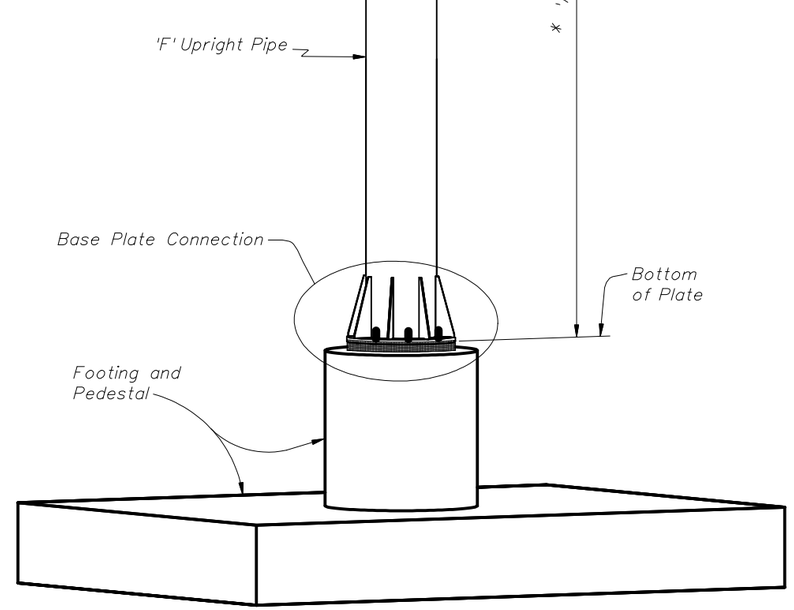


CAMBER DIAGRAM



CANTILEVER SIGN STRUCTURE NOTES

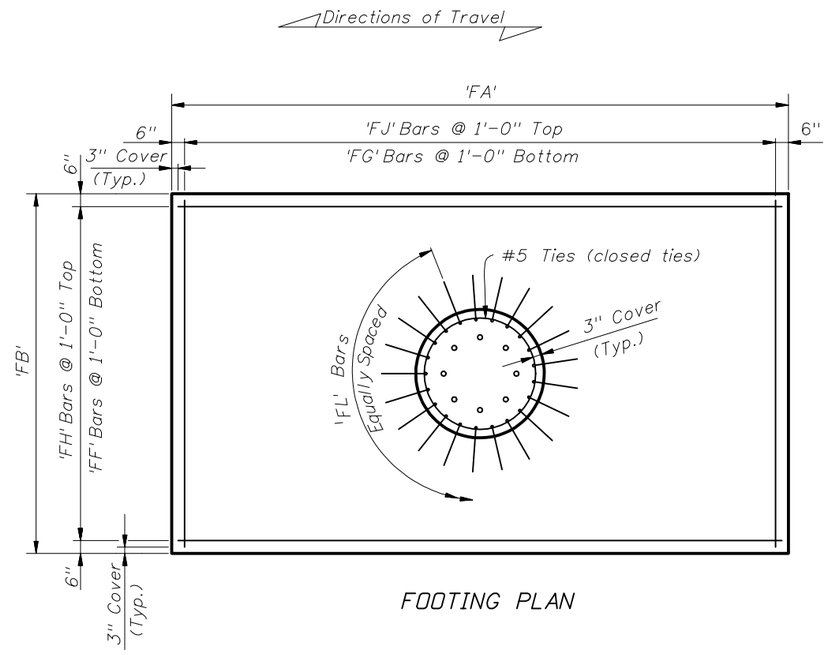
1) Design according to FDOT Structures Manual. Alternate Designs are not allowed.
2) Submit shop drawings for all work. Include:
   a. Field verification of all upright heights.
   b. Foundation elevations necessary to insure minimum vertical clearances as per traffic plans.
   c. Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
   d. Show chord splices a minimum distance of 2 truss panel lengths apart. "SD" Panel from upright is the closest panel in which a chord splice may be used. See plans for Cantilever Sign Structure Data Table. Upright splices are not allowed.
3) Shop Fabrication, Assembly, Handling and Shipping:
   a. Do not begin fabrication before receiving shop drawing approval.
   b. Welding: Conform to American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition).
   c. Shop assemble the entire structure after galvanizing and prior to shipment.
   d. If necessary, disassemble and secure components for shipment.
4) Sign Structure Materials:
   a. Upright and Chords (Steel Pipe): API -5L-X42 (42 ksi yield) or ASTM A500, Grade B.
   b. Steel Angles: ASTM A 709, Grade 36.
   c. Steel Plates: ASTM A 709, Grade 36.
   d. Weld Metal: E70XX.
   e. Bolts: ASTM A325 Type 1, (install per Specification Section 700) with single, self-locking nuts.
   f. Anchor Bolts: ASTM F1554, Grade 55 with ASTM A563 Grade A heavy-hex double nuts.
   g. Install all nuts per manufacturer's instructions.
   h. Bolt hole diameters: equal to the bolt diameter plus 1/16".
   i. Anchor bolt hole diameters: equal to the bolt diameter plus 1/2".
5) Galvanization: Nuts, bolts and washers: ASTM F2329. Other steel items: ASTM A123
6) Sign Panels: Aluminum. See Elevation drawing for sizes and locations.
7) Foundation Materials:
   a. Reinforcing Steel: ASTM A615, Grade 60.
   b. Concrete: Class IV, minimum 5.5 ksi compressive strength at 28-days for all environmental classifications for Spread Footing.
      Class IV (Drilled Shaft), minimum 4.0 ksi compressive strength at 28-days for all environmental classifications for Drilled Shaft.
8) Construct the Sign Structure foundation in accordance with FDOT Specification Section 455.
9) Prior to erection, record the as-built anchor locations and provide to the Engineer.
10) After placement of the upright and prior to installation of the truss, adjust the leveling nuts beneath the base plate to achieve the back rake shown on the Camber Diagram.
11) Place backfill above the footing prior to installation of the sign panels. Do not remove or reduce in height without prior approval of the Engineer.
12) Install sign panels as shown on the Elevation drawing.
13) Payment: All costs associated with the Sign Structure, Sign Panels, Foundation and all incidental items will be paid for under the Sign Structure pay item.
14) Verify CSL access tubes will not interfere with anchor bolt installation before excavating the shaft. When CSL access tube locations conflict with anchor bolt locations, move the CSL access tube location ± two inches along the inner circumference of the reinforcing cage. Notify the Engineer before excavating the shaft if the CSL access tube locations cannot be moved out of conflict with anchor bolt locations.



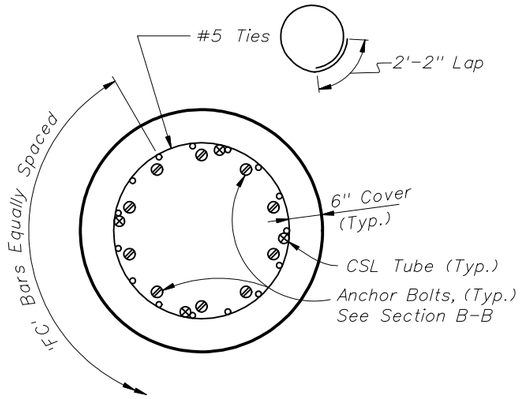
ISOMETRIC VIEW

*NOTE: Contractor shall verify these Dimensions prior to Fabrication of Upright.

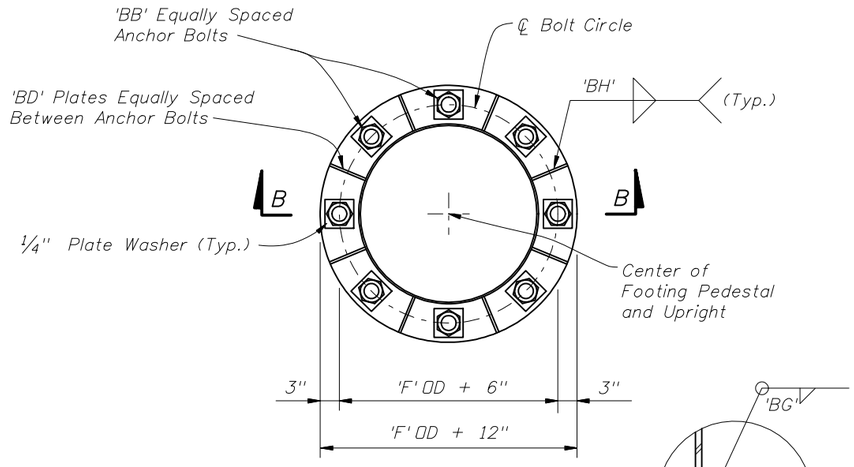
NOTE: See Plans for Cantilever Sign Structure Data Table.



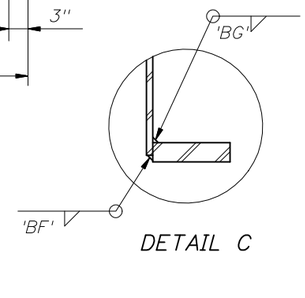
FOOTING PLAN



PLAN VIEW
DRILLED SHAFT

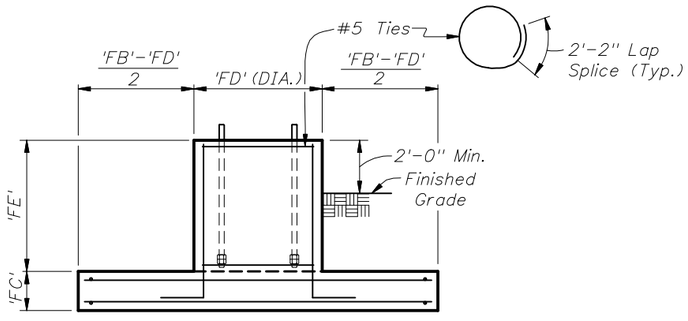


PLAN VIEW
(Base Plate)



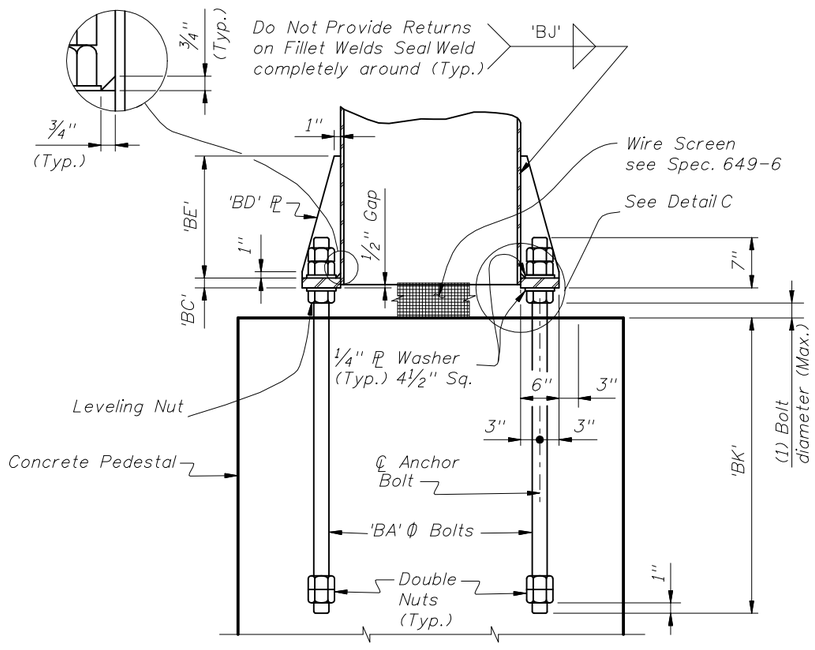
DETAIL C

FOOTING ELEVATION

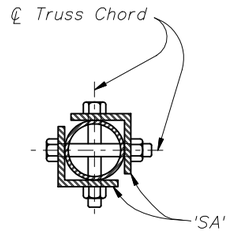


VIEW A-A

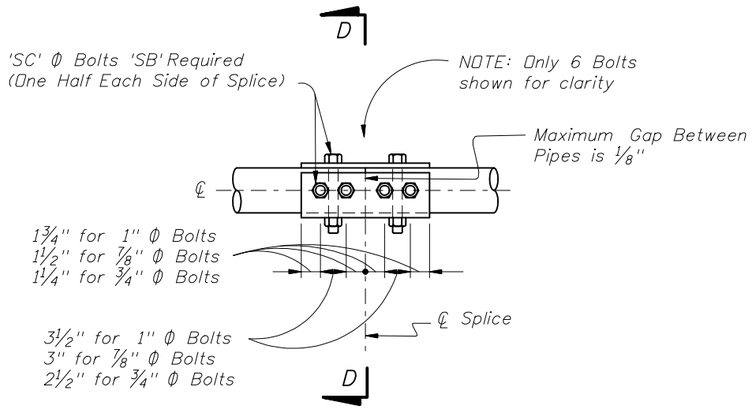
ELEVATION
DRILLED SHAFT
(Alternate Foundation)



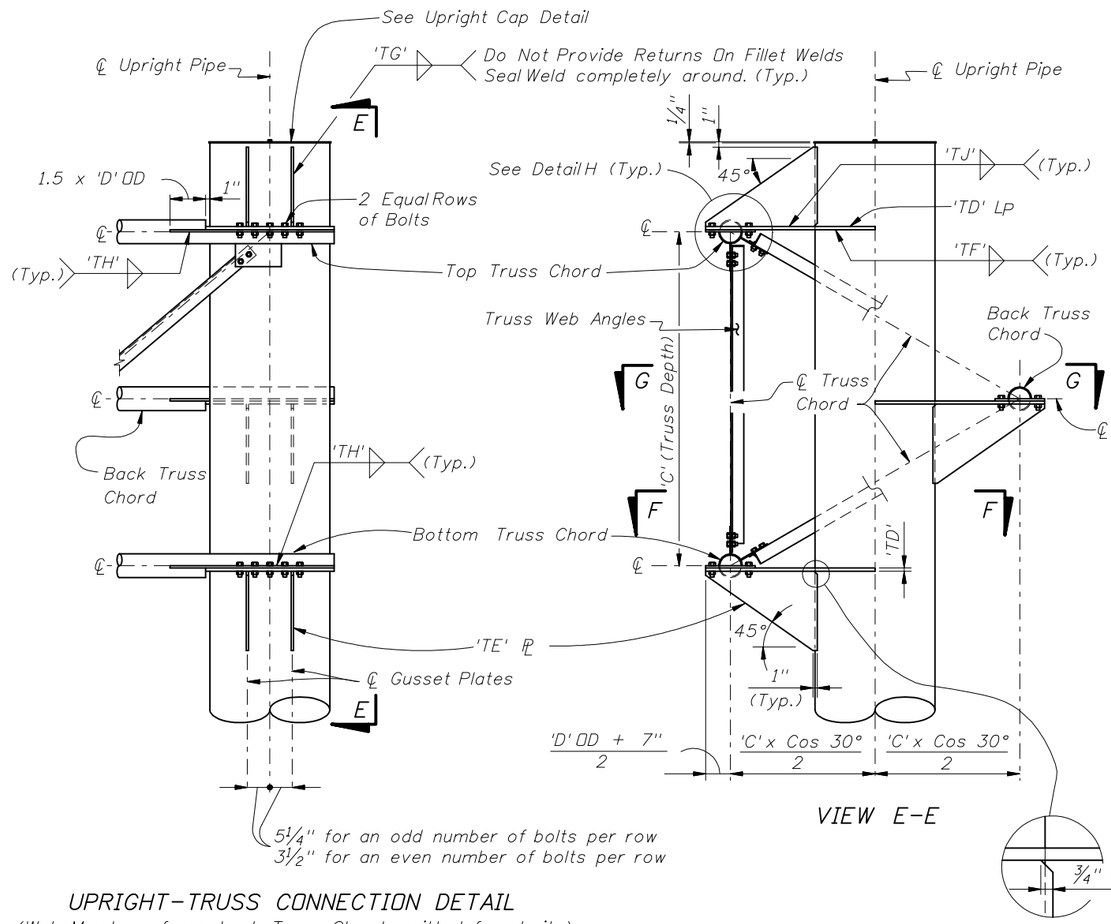
SECTION B-B



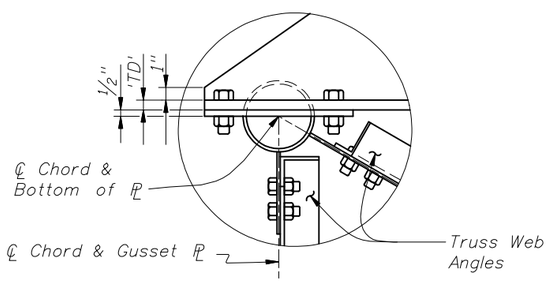
SECTION D-D



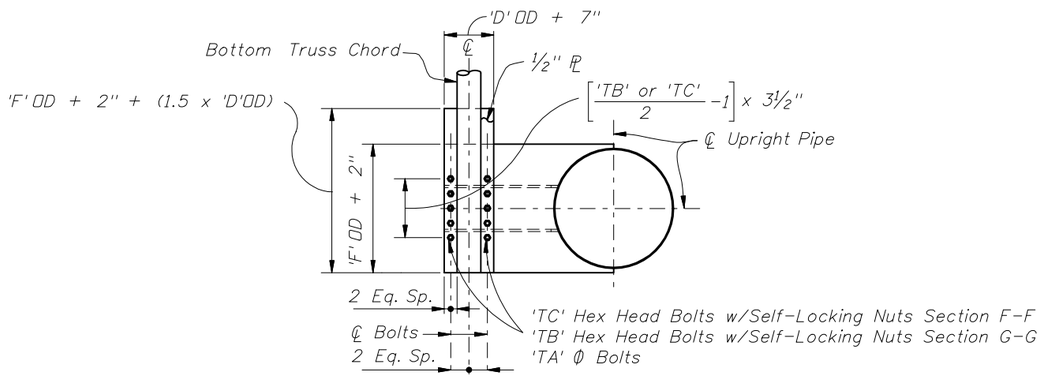
SPLICE CONNECTION DETAIL



UPRIGHT-TRUSS CONNECTION DETAIL
(Web Members from back Truss Chord omitted for clarity)

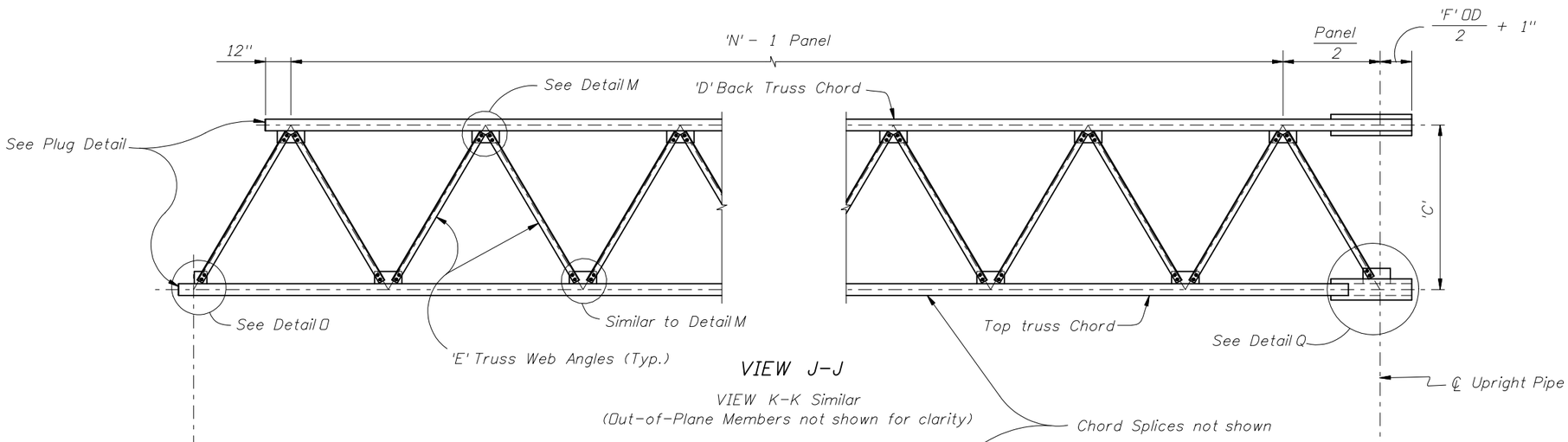


DETAIL H



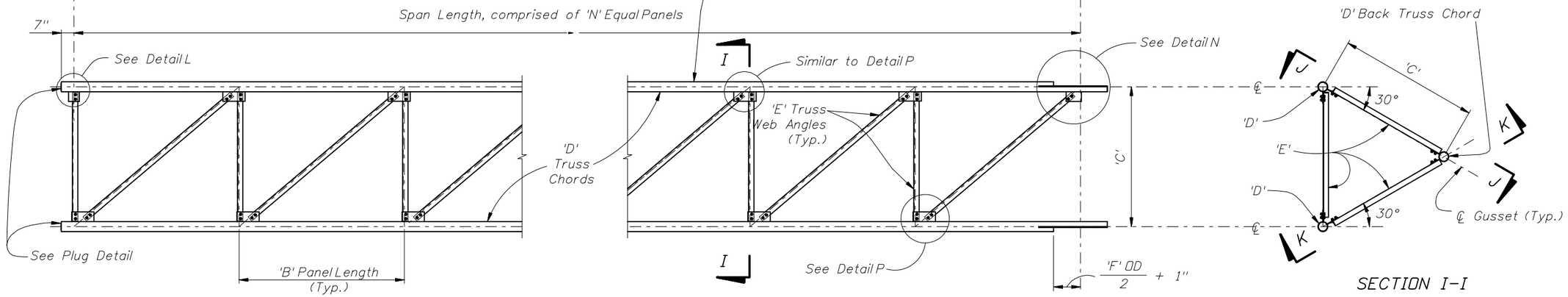
SECTION F-F, SECTION G-G SIMILAR
(With Gusset Plate & Angles omitted for clarity)

NOTE:
Abbreviation
OD ~ Outside Diameter



VIEW J–J

VIEW K–K Similar
(Out-of-Plane Members not shown for clarity)



FRONT OF TRUSS ELEVATION

(Back Truss Chord and attached Angles not shown for clarity)

SECTION I–I

NOTE:
Abbreviation
OD ~ Outside Diameter

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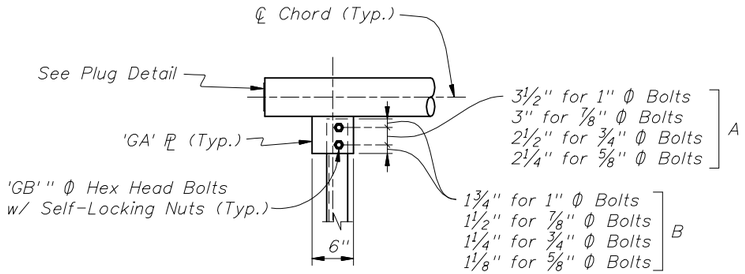
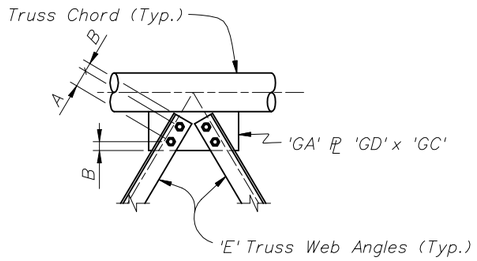
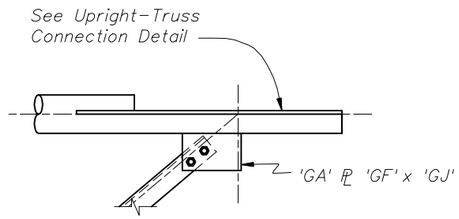


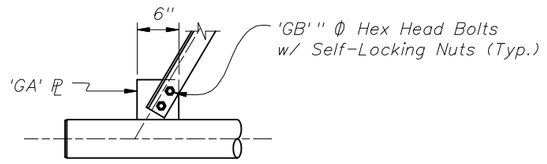
DETAIL L



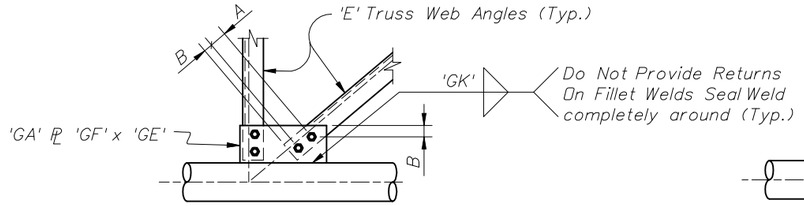
DETAIL M



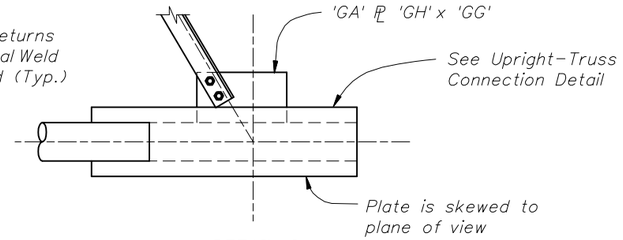
DETAIL N



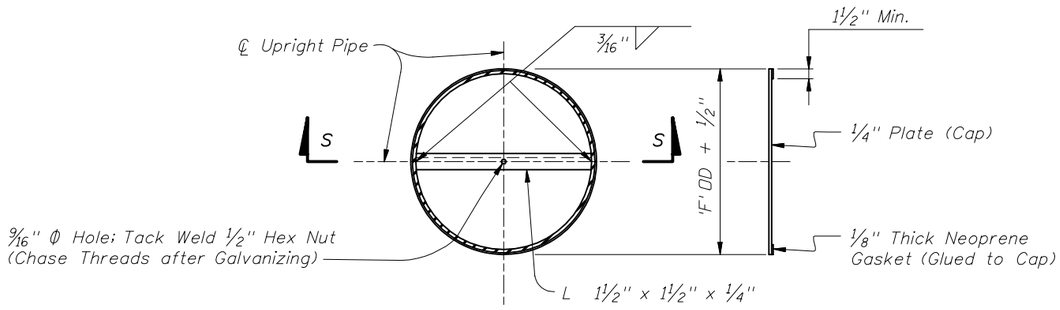
DETAIL O



DETAIL P

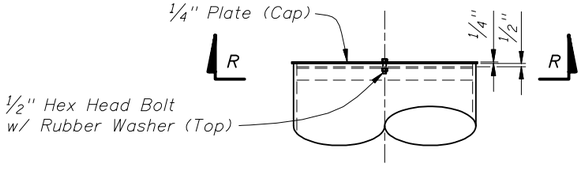


DETAIL Q

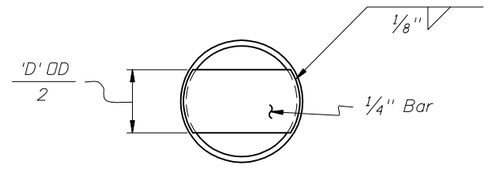


SECTION R-R

SECTION S-S
(Showing Cap plate only)



UPRIGHT CAP DETAIL



PLUG DETAIL

NOTE:
Abbreviation
OD ~ Outside Diameter

2010 FDOT Design Standards

CANTILEVER SIGN STRUCTURE

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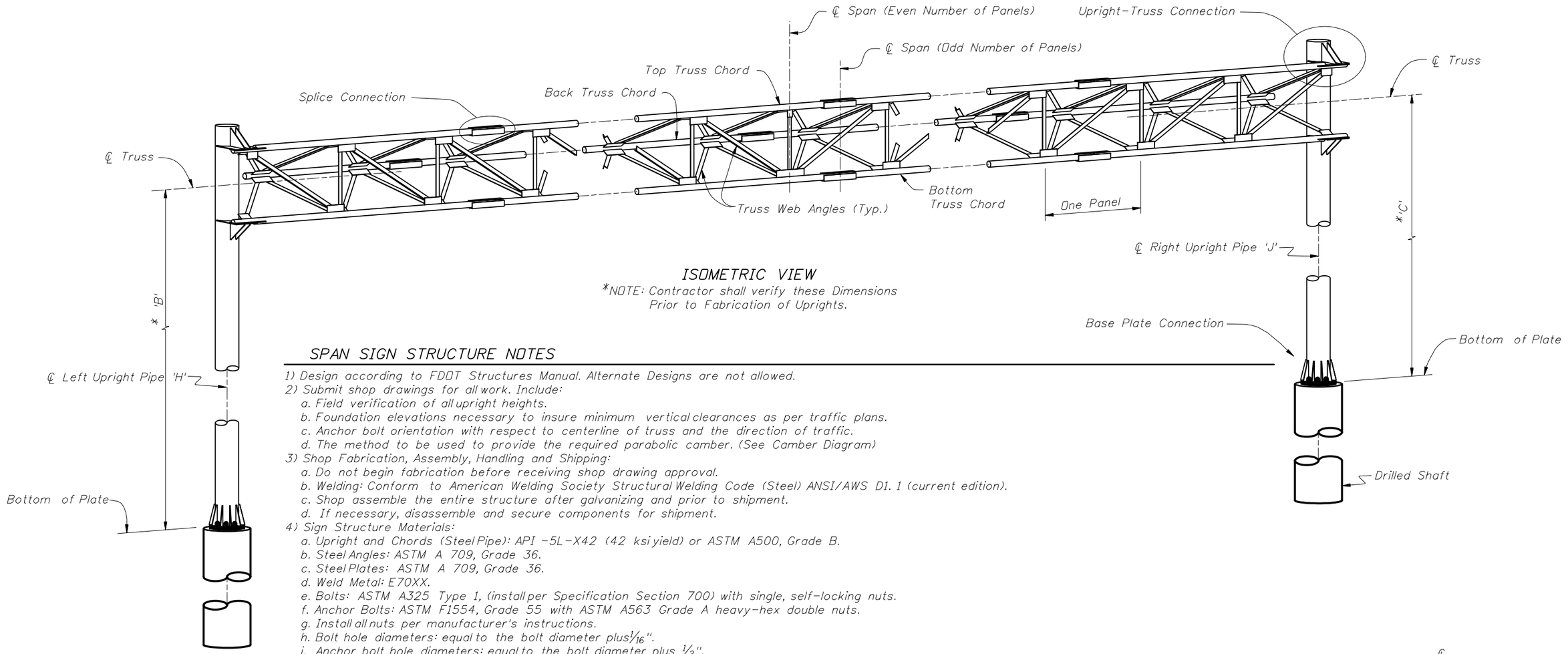


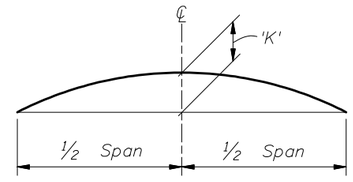
ISOMETRIC VIEW

*NOTE: Contractor shall verify these Dimensions Prior to Fabrication of Uprights.

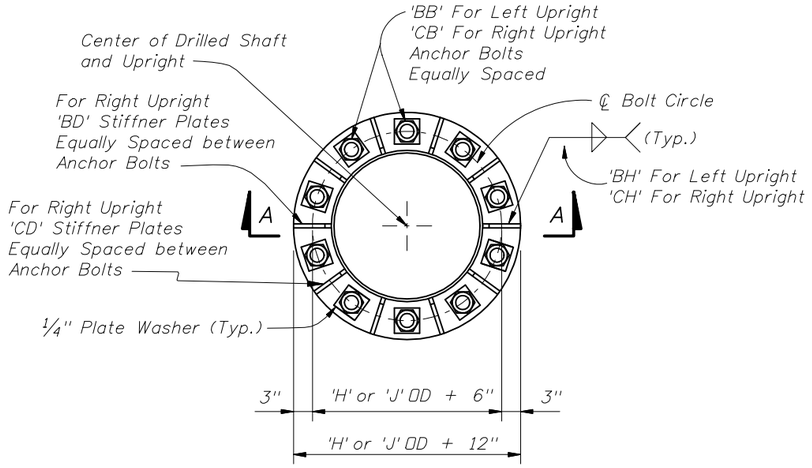
SPAN SIGN STRUCTURE NOTES

1) Design according to FDOT Structures Manual. Alternate Designs are not allowed.
2) Submit shop drawings for all work. Include:
   a. Field verification of all upright heights.
   b. Foundation elevations necessary to insure minimum vertical clearances as per traffic plans.
   c. Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
   d. The method to be used to provide the required parabolic camber. (See Camber Diagram)
3) Shop Fabrication, Assembly, Handling and Shipping:
   a. Do not begin fabrication before receiving shop drawing approval.
   b. Welding: Conform to American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition).
   c. Shop assemble the entire structure after galvanizing and prior to shipment.
   d. If necessary, disassemble and secure components for shipment.
4) Sign Structure Materials:
   a. Upright and Chords (Steel Pipe): API -5L-X42 (42 ksi yield) or ASTM A500, Grade B.
   b. Steel Angles: ASTM A 709, Grade 36.
   c. Steel Plates: ASTM A 709, Grade 36.
   d. Weld Metal: E70XX.
   e. Bolts: ASTM A325 Type 1, (install per Specification Section 700) with single, self-locking nuts.
   f. Anchor Bolts: ASTM F1554, Grade 55 with ASTM A563 Grade A heavy-hex double nuts.
   g. Install all nuts per manufacturer's instructions.
   h. Bolt hole diameters: equal to the bolt diameter plus $\frac{1}{16}$".
   i. Anchor bolt hole diameters: equal to the bolt diameter plus $\frac{1}{2}$".
5) Galvanization; Nuts, bolts and washers: ASTM F2329. Other steel items: ASTM A123
6) Sign Panels: Aluminum. See Elevation drawing for sizes and locations.
7) Foundation Materials:
   a. Reinforcing Steel: ASTM A615, Grade 60.
   b. Concrete: Class IV (Drilled Shaft), minimum 4.0 ksi compressive strength at 28-days for all environmental classifications.
8) Construct the Sign Structure foundation in accordance with FDOT Specification Section 455.
9) Prior to erection, record the as-built anchor locations and provide to the Engineer.
10) Provide a parabolic camber with the maximum upward deflection as shown on the Camber Diagram.
11) Locate Chord splices a minimum of 3 truss panel lengths apart. Chord splices may be either the Standard splice or the Alternate splice but not both on this structure. Upright splices are not allowed.
12) Install sign panels as shown on the Elevation drawing.
13) Payment: All costs associated with the Sign Structure, Sign Panels, Foundation and all incidental items will be paid for under the Sign Structure pay item.
14) Verify CSL access tubes will not interfere with anchor bolt installation before excavating the shaft. When CSL access tube locations conflict with anchor bolt locations, move the CSL access tube location $\pm$ two inches along the inner circumference of the reinforcing cage. Notify the Engineer before excavating the shaft if the CSL access tube locations cannot be moved out of conflict with anchor bolt locations

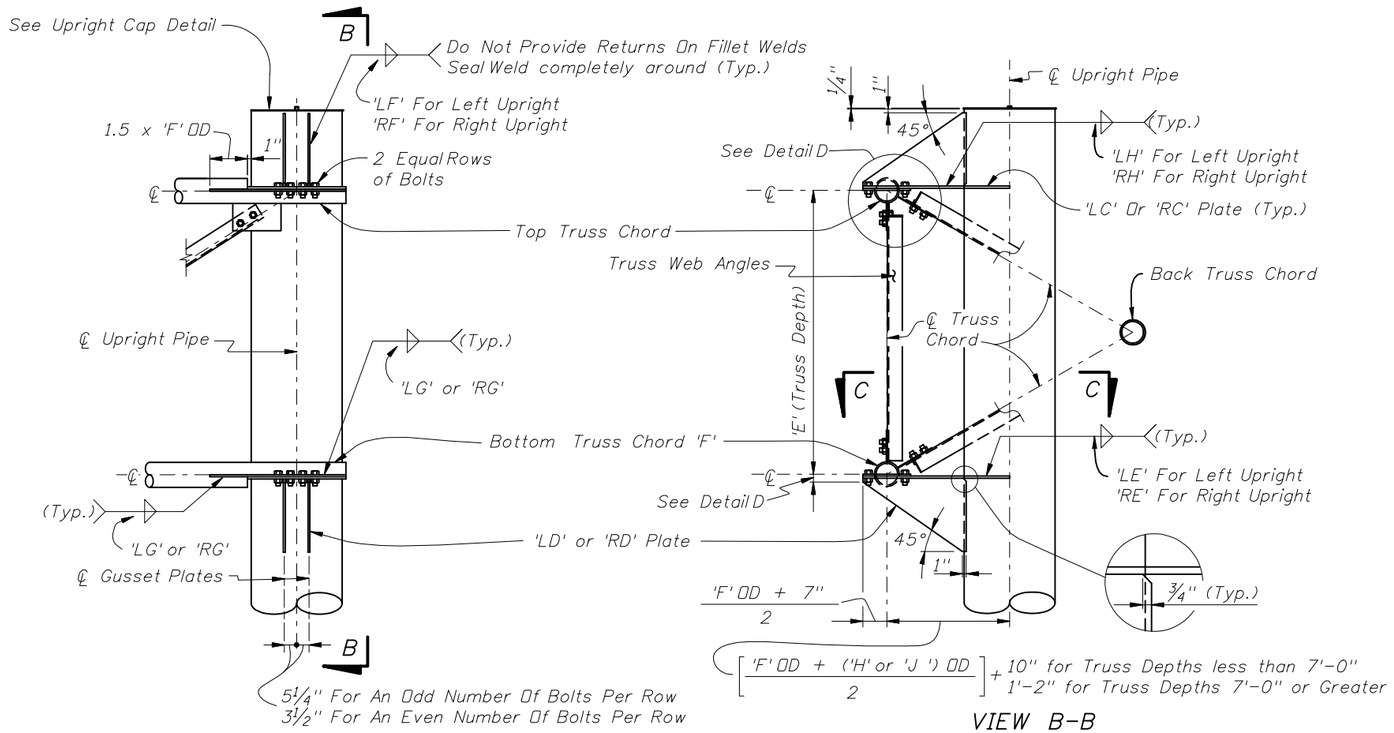
NOTE: See Plans for Span Sign Structure Data Table.



CAMBER DIAGRAM



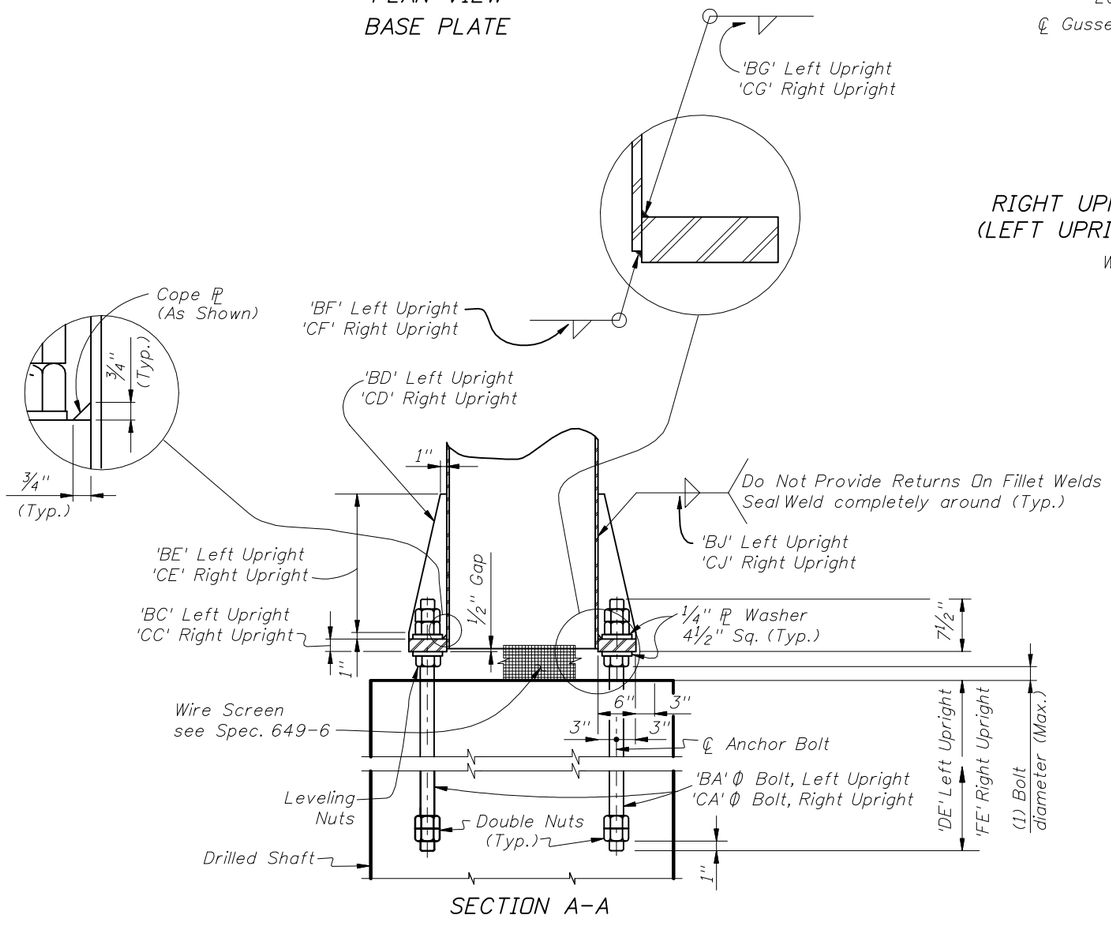
PLAN VIEW
BASE PLATE



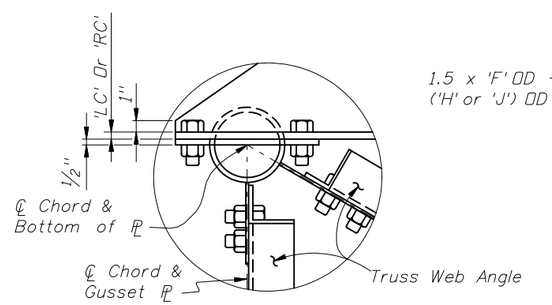
VIEW B-B

RIGHT UPRIGHT-TRUSS CONNECTION DETAIL
(LEFT UPRIGHT -TRUSS CONNECTION SIMILAR)

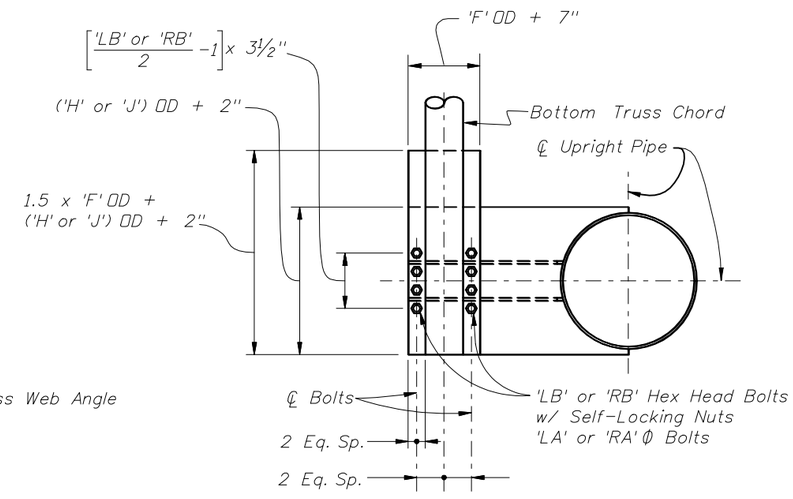
Web Members From Back Truss
Chord Omitted For Clarity



SECTION A-A

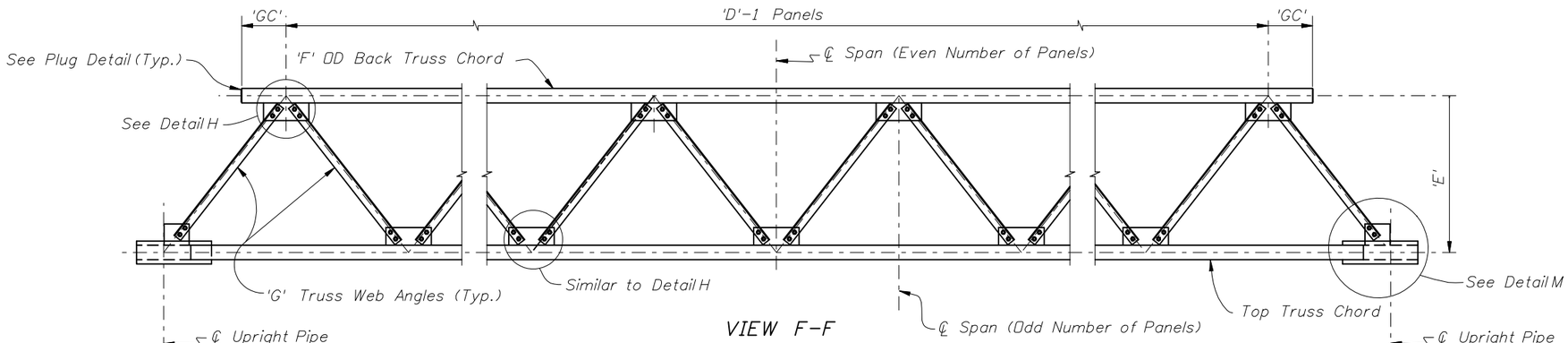


DETAIL D



SECTION C-C
(With Gusset Plate and
Angles omitted for clarity)

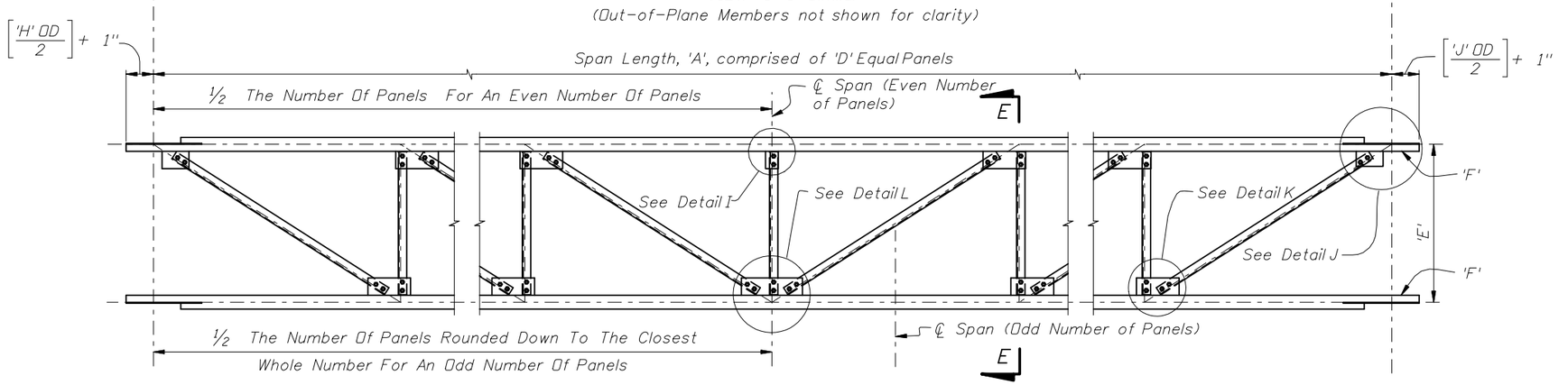
NOTE:
Abbreviation
OD ~ Outside Diameter



VIEW F-F

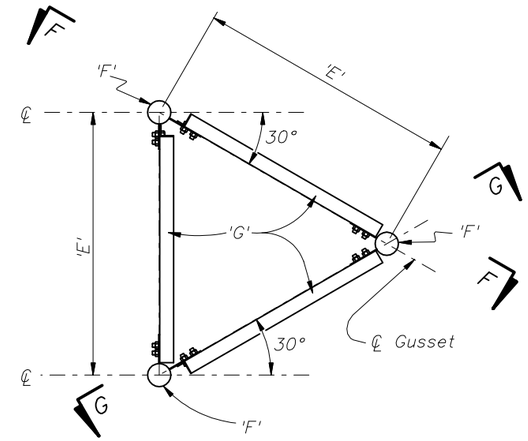
VIEW G-G Similar

(Out-of-Plane Members not shown for clarity)

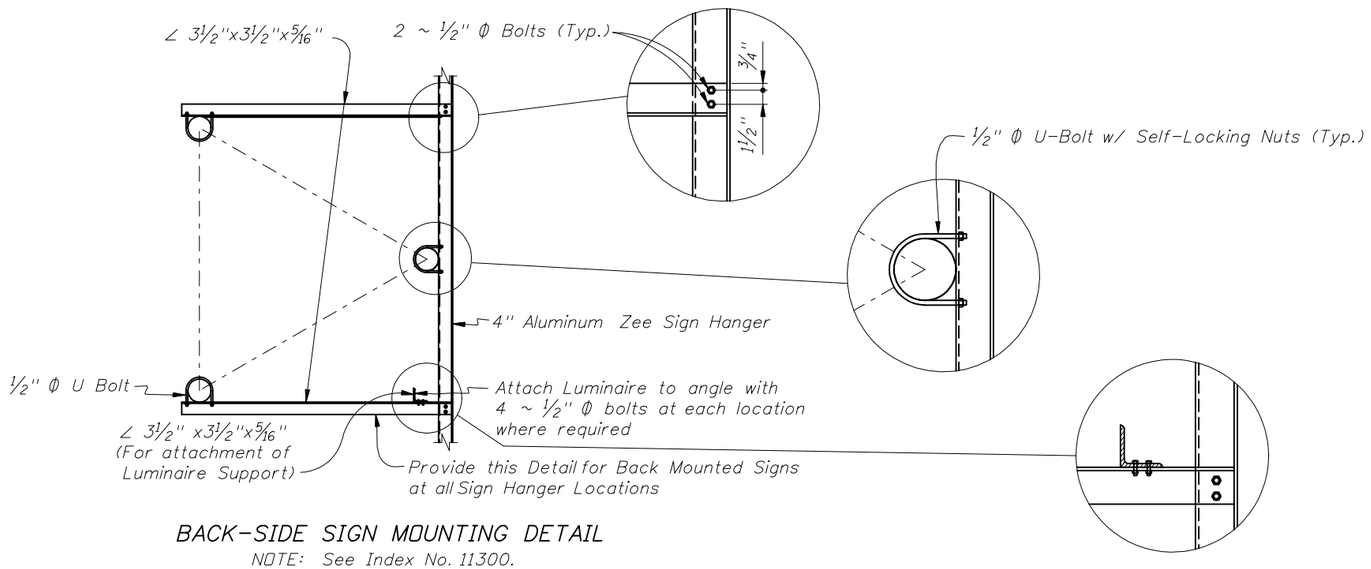


FRONT OF TRUSS ELEVATION

(Back Truss Chord and attached Angles not shown for clarity)



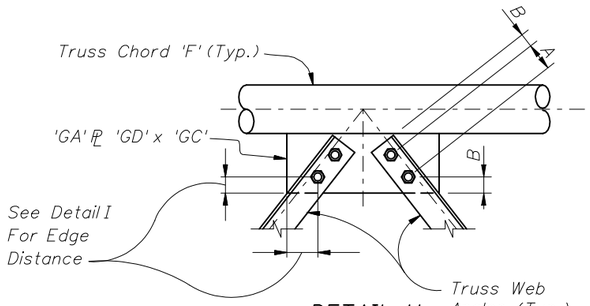
SECTION E-E



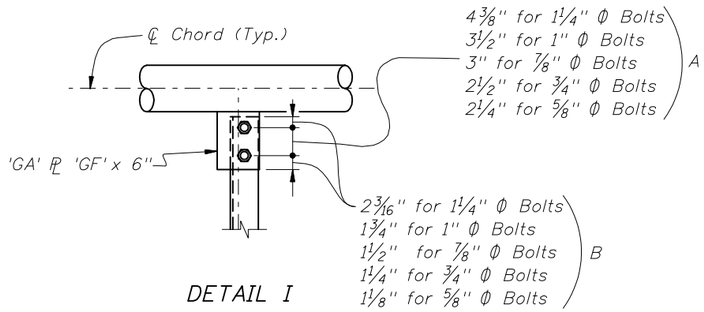
BACK-SIDE SIGN MOUNTING DETAIL

NOTE: See Index No. 11300.

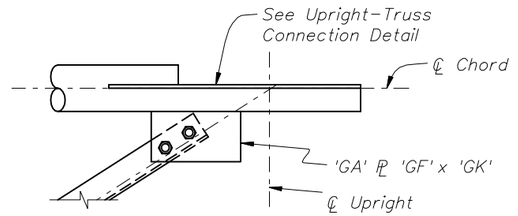
NOTE:
Abbreviation
OD ~ Outside Diameter



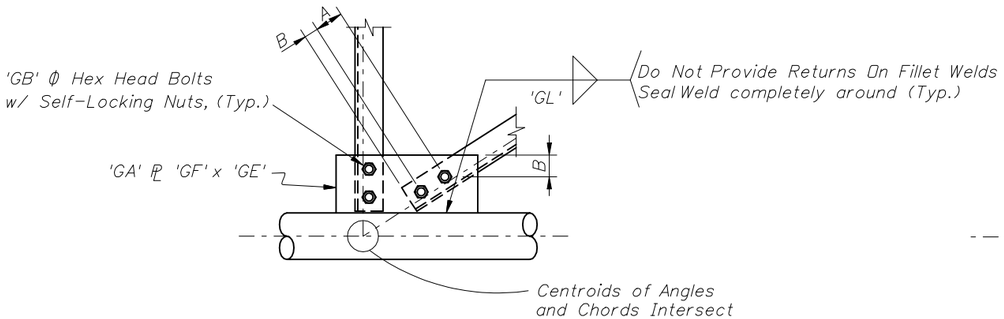
DETAIL H



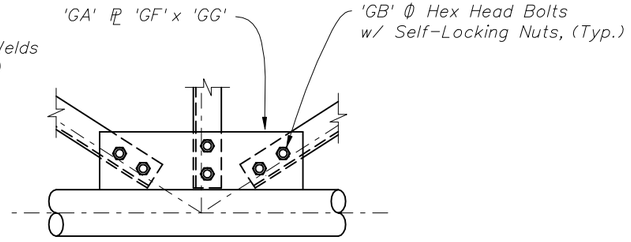
DETAIL I



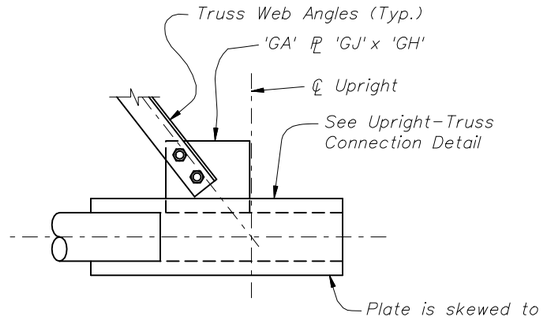
DETAIL J



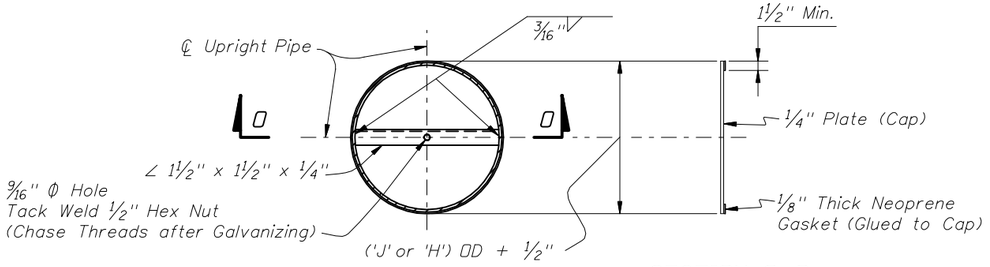
DETAIL K



DETAIL L

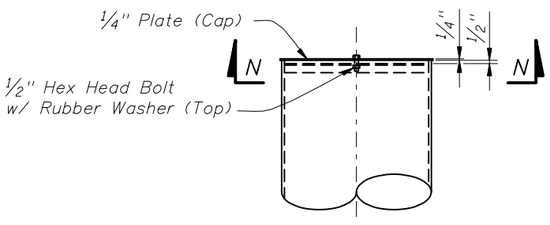


DETAIL M

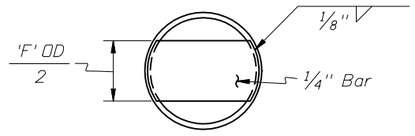


SECTION N-N

SECTION O-O
(Showing Cap plate only)



UPRIGHT CAP DETAIL



PLUG DETAIL
(Each end of Back Truss Chord)

NOTE:
Abbreviation
OD ~ Outside Diameter

2010 FDOT Design Standards

SPAN SIGN STRUCTURE

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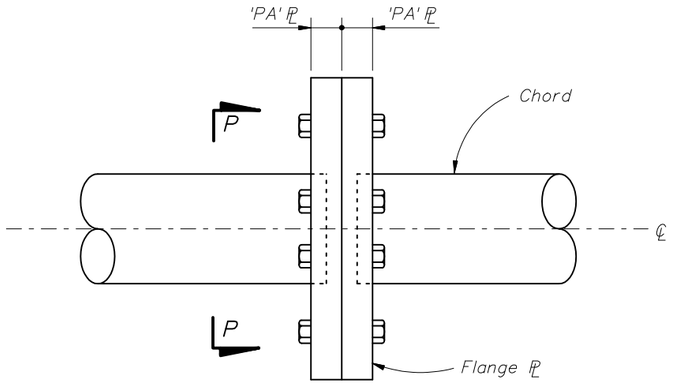
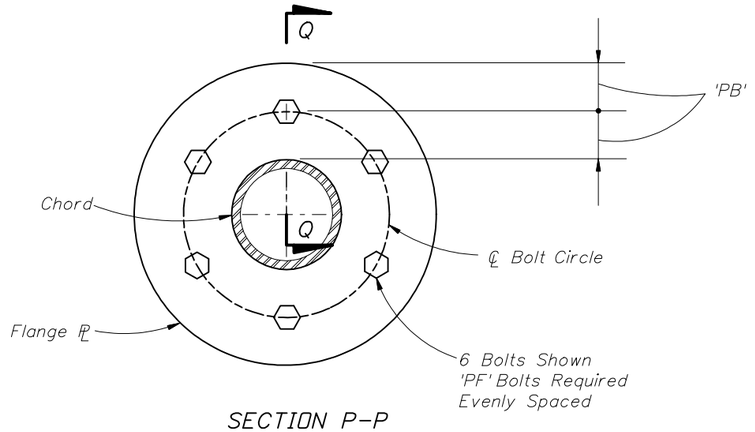
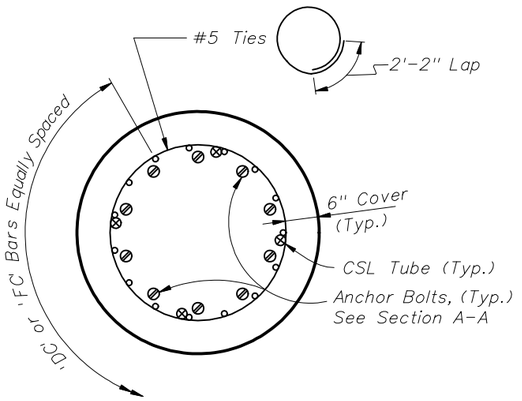


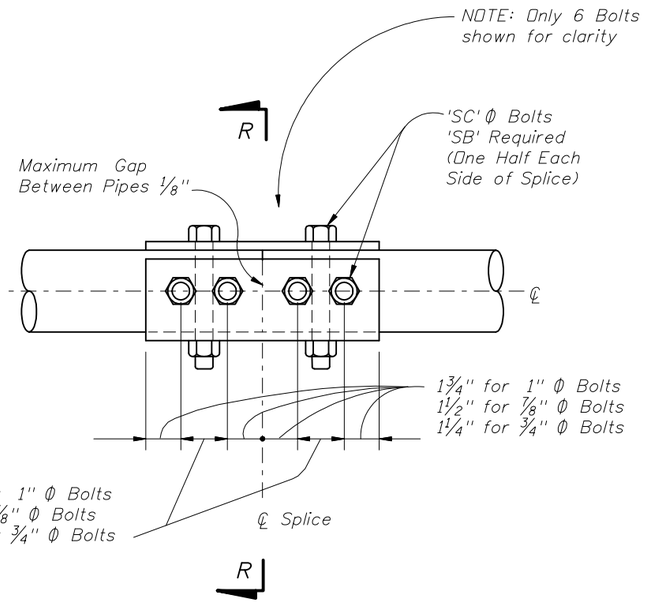
ELEVATION
ALTERNATE SPLICE CONNECTION



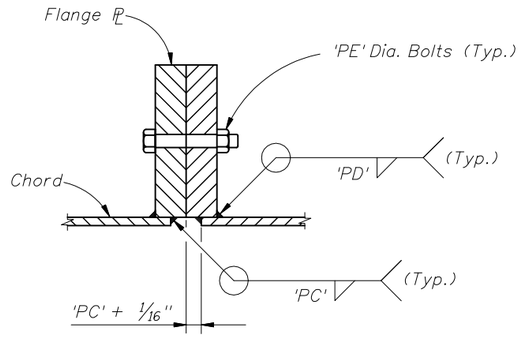
SECTION P-P



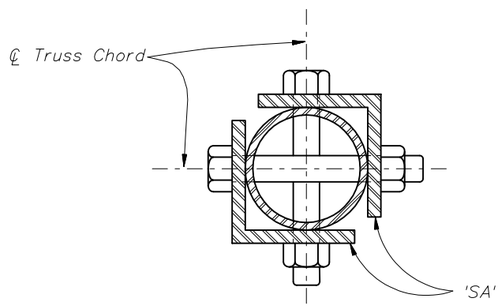
PLAN VIEW
DRILLED SHAFT



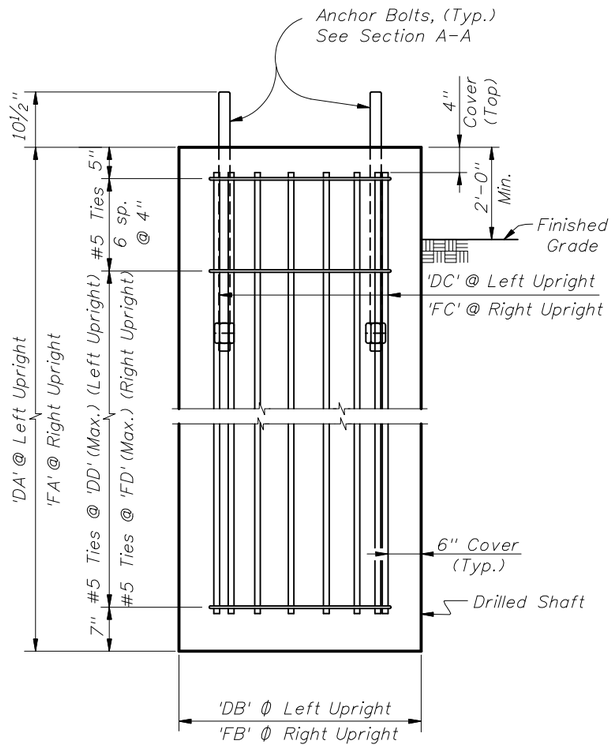
ELEVATION
SPLICE CONNECTION



SECTION Q-Q



SECTION R-R



ELEVATION
DRILLED SHAFT

SINGLE COLUMN GROUND SIGN NOTES:

1) DESIGN WIND SPEED: See Wind Speeds by County.

2) GENERAL SPECIFICATIONS: Current FDOT Standard Specifications for Road and Bridge Construction and supplements thereto.

3) DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, as modified by the FDOT Structures Manual.

4) ALUMINUM: Aluminum Materials shall meet the requirements of Aluminum Association Alloy 6061-T6 (ASTM B209, B221, or B308), except as noted below.

5) CONCRETE: Class I.

6) SIGN PANELS: 0.08 inches min. thick Aluminum Plate with all corners rounded.

7) ALUMINUM BOLTS, NUTS, AND LOCK WASHERS:
   a. Aluminum bolts: ASTM F468, Alloy 2042-T4 with at least 0.0002 inches thick anodic coating and chromate sealed.
   b. Nuts: ASTM F467, Alloy 6061-T6 or 6262-T9.
   c. Lockwashers: ASTM B221, Alloy 7075-T6.

8) STAINLESS STEEL BOLTS, NUTS, AND LOCKWASHERS:
   Stainless Steel Bolts, Nuts, and Lockwashers: ASTM F593 and ASTM F594, Alloy Group 2. Condition A, CW2, or SH4 may be provided in lieu of Aluminum Bolts, Nuts, and Washers.

9) U-BOLTS, NUTS, AND LOCKWASHERS:
   U-bolts, Nuts, and Lockwashers: ASTM A307, Grade A, galvanized in accordance with ASTM F2329.

10) BREAKAWAY SUPPORTS REQUIREMENTS: Install non-frangible aluminum column (post) (larger than 3½") with breakaway supports as shown on Sheet 5 of 8. Signs shielded by barrier wall or guardrail do not require breakaway support.

11) QPL: Manufacturers seeking approval of alternates to aluminum round tube, such as steel U-channel and steel square tube single post ground sign assemblies for inclusion on the Qualified Products List (QPL), must submit a QPL application, design calculations, detailed drawings and design tables showing the product meets all the requirements.

WIND SPEEDS BY COUNTY:

110 MPH
Alachua, Baker, Bradford, Clay, Columbia, Gadsden, Gilchrist, Hamilton, Hardee, Jackson, Jefferson, Lafayette, Lake, Leon, Madison, Marion, Polk, Putnam, Sumter, Suwannee and Union counties.

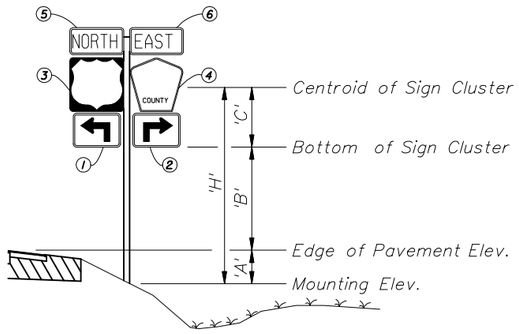
130 MPH
Bay, Brevard, Calhoun, Charlotte, Citrus, De Soto, Dixie, Duval, Flagler, Franklin, Glades, Gulf, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lee, Levy, Liberty, Manatee, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Sarasota, Seminole, St Johns, Taylor, Volusia, Wakulla, Walton and Washington counties.

150 MPH
Broward, Collier, Dade, Escambia, Indian River, Martin, Monroe, Palm Beach, Santa Rosa and St. Lucie counties.

GUIDE TO USE THIS STANDARD:

1. Calculate the area and the centroid for an individual sign or a sign cluster. Note that the centroid and areas have been calculated for frequently used sign clusters. These are shown on Sheet No. 6, 7 & 8 of 8.
2. Determine the height 'H' from groundline for the individual sign or the cluster.
3. Select the appropriate Column (Post) Selection Tables by Wind Speed and find the intersection point.
4. Design the post and the foundation according to the dark-bold lines or shaded area (if cantilever sign) in the Column (Post) Selection Tables and Post and Foundation Table. For sign posts with signs oriented in two directions, only the sign with the largest area should be analyzed to determine the post requirements.

EXAMPLE:



	Size H x V	Centroid: local $'Y_n'$	Centroid: global $'X_n'$	Centroid: global $'Y_n'$	$'A_n'$	$'X_n' \times 'A'_n$	$'Y_n' \times 'A'_n$	
	(IN x IN)	(IN)	(IN)	(IN)	(IN^2)	(IN^3)	(IN^3)	
①	21 x 15	7.5	-10.5-1.5-1.5 = -13.5	7.5	315	-4,252.5	2,362.5	
②	21 x 15	7.5	10.5+1.5+1.5 = 13.5	7.5	315	+4,252.5	2,362.5	
③	24 x 24	12	-12-1.5 = -13.5	15+1+12= 28	576	-7,776	16,128	
④	24 x 24	12	12+1.5 = 13.5	15+1+12= 28	436	5,886	12,208	
⑤	24 x 12	6	-12-1.5 = -13.5	15+1+24+ 1+6=47	288	-3,888	13,536	
⑥	24 x 12	6	12+1.5 = 13.5	15+1+24+ 1+6=47	288	3,888	13,536	
					2,218	-1,890	60,133	TOTALS

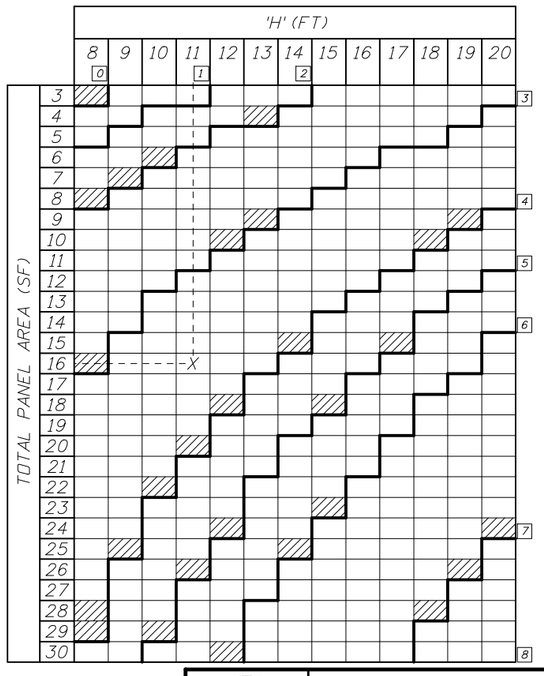
$\Sigma('A_n') = 2{,}218\ IN^2 = 15.4\ FT^2$ $\quad \Sigma('X_n' \times 'A_n') = -1{,}890\ IN^3 = -1.09\ FT^3$ $\quad \Sigma('Y_n' \times 'A_n') = 60{,}133\ IN^3 = 34.8\ FT^3$

$'X'_c = \frac{\Sigma('X'_n \times 'A'_n)}{\Sigma'A'_n} = -0.1\ FT$ $\quad 'Y'_c = \frac{\Sigma('Y'_n \times 'A'_n)}{\Sigma'A'_n} = 2.26\ FT$

Assume: Bay County, 'A' = 1 FT, 'B' = 7 FT
Calculated: $'X'_c = -0.1$ FT 'C' = $'Y'_c = 2.26$ FT
Since $'X'_c < 6''$, it is not a cantilever sign, only dark-bold lines in the table will be referenced to.

'H' = 'A'+'B'+'C' = 10.26 FT ==> USE 11 FT $\quad \Sigma('A_n') = 15.4\ FT^2$ ==> USE 16 FT^2

ALUMINUM COLUMN (POST) SELECTION TABLE (WIND SPEED = 130 MPH)

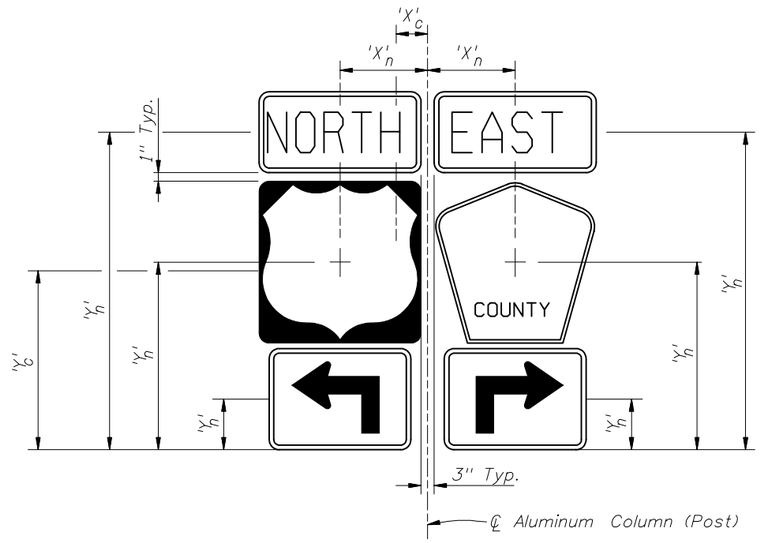


For WIND SPEED = 130 MPH,
'H' = 11 FT, Area = 16 FT^2

- Refer to the 130 mph Column (Post) Selection Table, as copied from Sheet 3 of 8 and shown here.
- Using the 16 ft^2 area on the left hand side of the table, go across to the 11 ft height and find the cell marked with X.
- find the symbol [4] which the dark-bold line under the X cell leads to.
- In the Post and Foundation Table, the symbol [4] concludes that the design requires a 4.0" diameter and 0.25" thick Aluminum Column (Post) and a 2.0' diameter and 4.0' deep Concrete Foundation.

▨ = If CANTILEVER SIGN configuration (see Cantilever Sign Details) falls in this region, use next larger post size than that indicated.

NOTES AND EXAMPLE



SIGN CLUSTER

CALCULATION OF SIGN CLUSTER CENTROID:

$$'X'_c = \frac{\Sigma('X'_n \times 'A'_n)}{\Sigma'A'_n}$$

$$'C' = 'Y'_c = \frac{\Sigma('Y'_n \times 'A'_n)}{\Sigma'A'_n}$$

'X'_c = Centroid horizontal location of sign or cluster from ℄ Column (post)

'Y_c' = Centroid height of sign or cluster from bottommost edge

'H' = Height of sign or cluster centroid from groundline

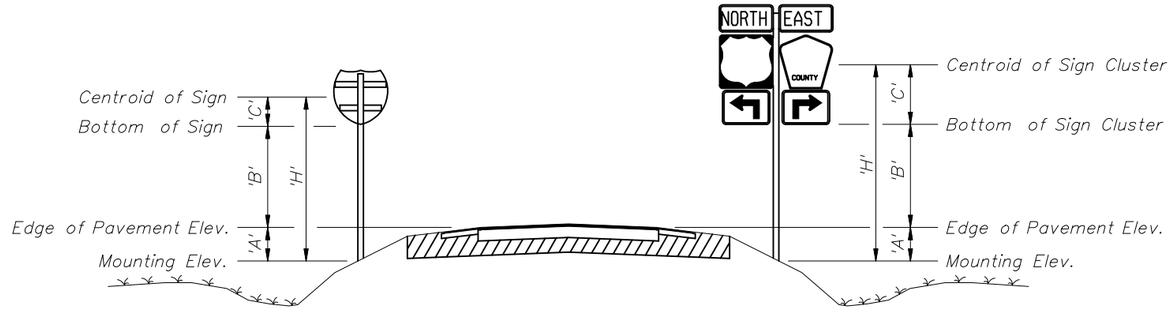
'X'_n = Individual sign centroid horizontal location from ℄ Column (post)

'Y'_n = Individual sign centroid height from bottommost edge

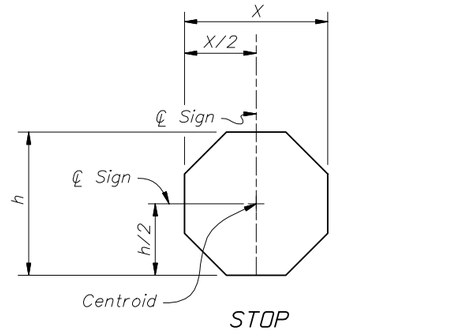
'A'_n = Area of individual sign

For 'A' & 'B' see Index No. 17302 and Roadway Plans.

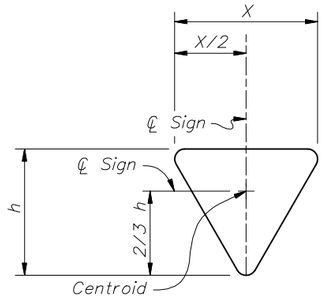
NOTE:
No sign or sign cluster area shall exceed 30 SF nor shall any sign or sign cluster have a total width exceeding 60 inches.



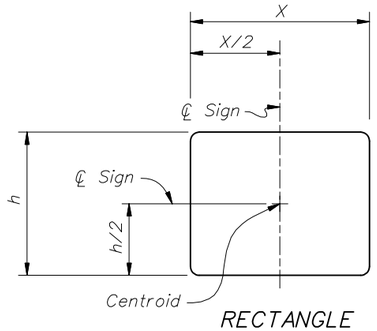
TYPICAL SECTION



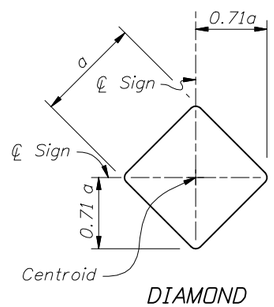
STOP



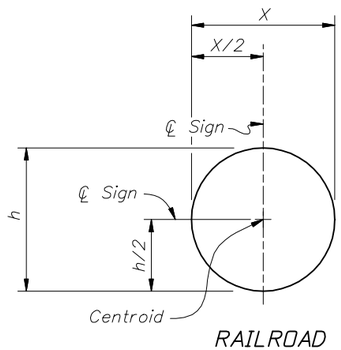
YIELD



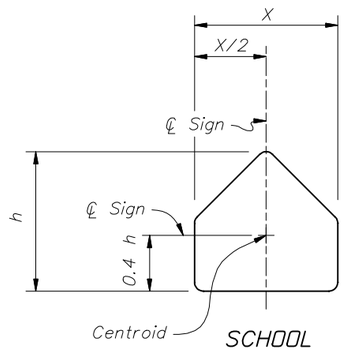
RECTANGLE



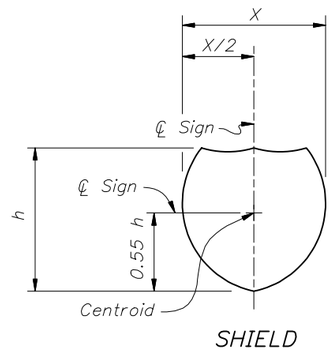
DIAMOND



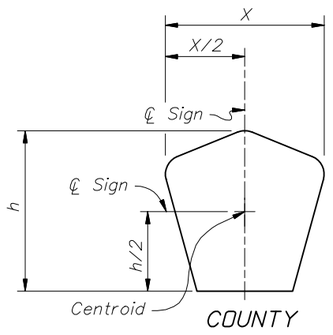
RAILROAD



SCHOOL



SHIELD



COUNTY

CENTROID AND HEIGHT

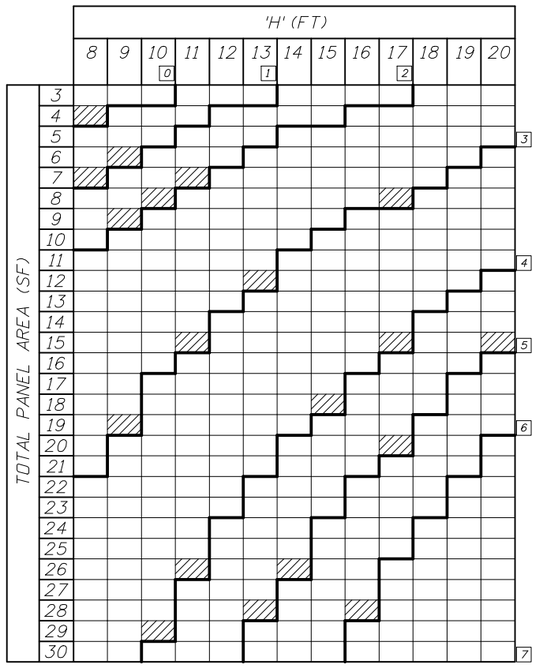
2010 FDOT Design Standards

SINGLE COLUMN GROUND SIGNS

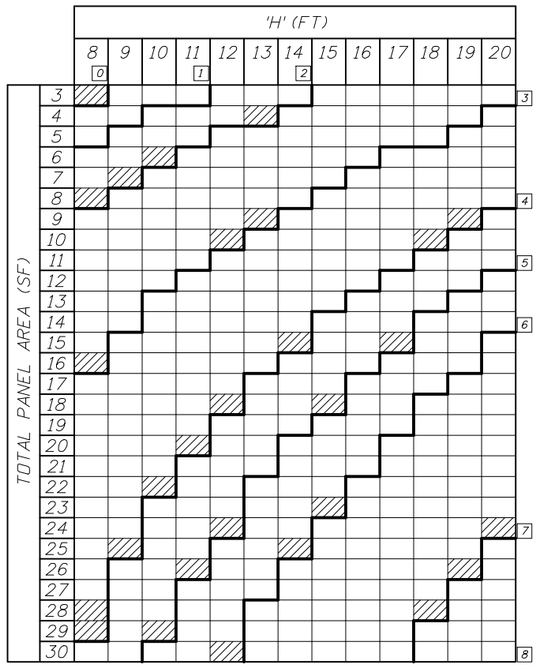
Last Revision 07/01/09

Index No. 11860

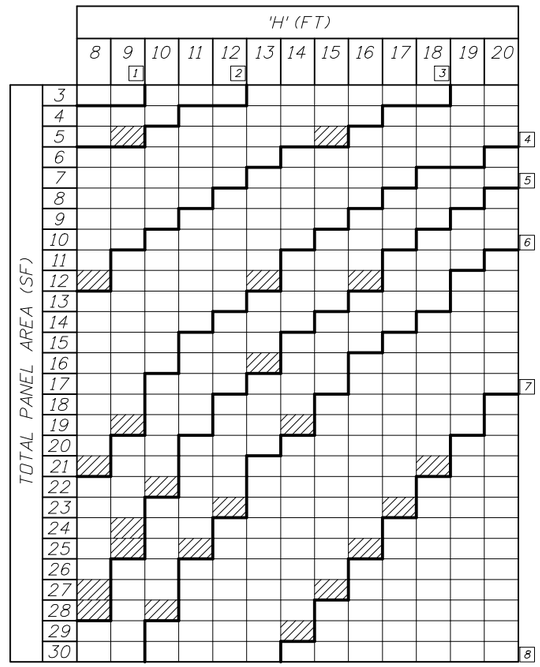
ALUMINUM COLUMN (POST) SELECTION TABLE (WIND SPEED = 110 MPH)

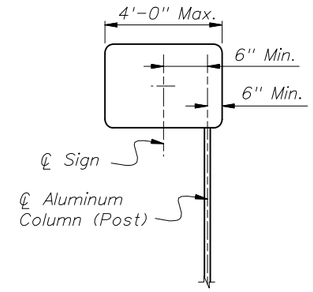


ALUMINUM COLUMN (POST) SELECTION TABLE (WIND SPEED = 130 MPH)



ALUMINUM COLUMN (POST) SELECTION TABLE (WIND SPEED = 150 MPH)





CANTILEVER SIGN

NOTE:
All cantilever sign installations shall comply with Standard Index 17302.

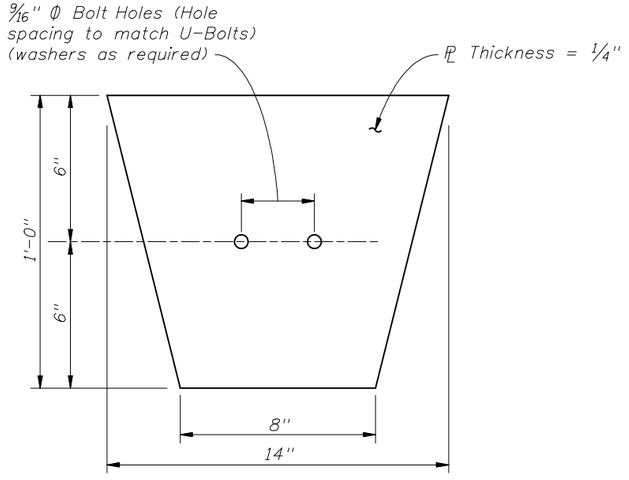
▨ = If CANTILEVER SIGN configuration (see Cantilever Sign Details) falls in this region, use next larger post size than that indicated.

POST AND FOUNDATION TABLE

	Post Size		Foundation Alternatives: Driven Post * Depth (FT)		Concrete **	
	Diameter (IN)	Wall (IN)	without Soil Plate	with Soil Plate	Diameter (FT)	Depth (FT)
0	2.0	1/8	4.5	2.5	2.0	2.0
1	2.5	1/8	5	3	2.0	2.0
2	3.0	1/8	5	3.5	2.0	2.5
3	3.5	3/16	6	4.5	2.0	3.0
4	4.0	1/4	---	---	2.0	4.0
5	4.5	1/4	---	---	2.0	4.0
6	5.0	1/4	---	---	2.0	4.5
7	6.0	1/4	---	---	2.0	5.0
8	8.0	5/16	---	---	2.0	5.5

* INSTALLING FRANGIBLE COLUMN SUPPORTS:
Columns (posts) may be installed by driving the columns in accordance with this Index, or as an alternate method, the columns (posts) may be set to the depth indicated in preformed holes backfilled with suitable material tamped in layers not thicker than 6" to provide adequate compaction or filled with flowable fill or bagged concrete.

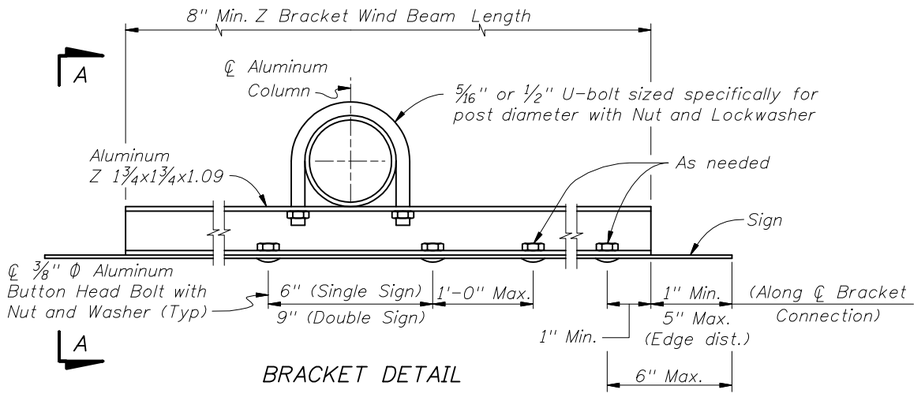
** See Note 5 on Sheet 1 of 8.



ALUMINUM SOIL PLATE DETAILS

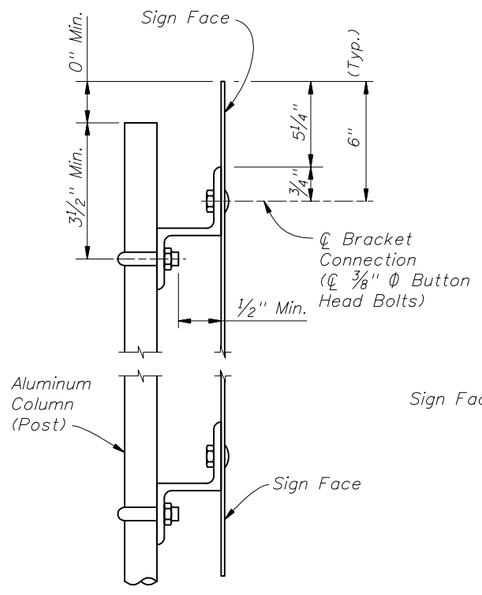
NOTES: 1. Align Soil Plate bottom at 2/3 of foundation depth.
2. Slot up to 15/16" long is allowed to accommodate various post sizes.

POST AND FOUNDATION TABLES

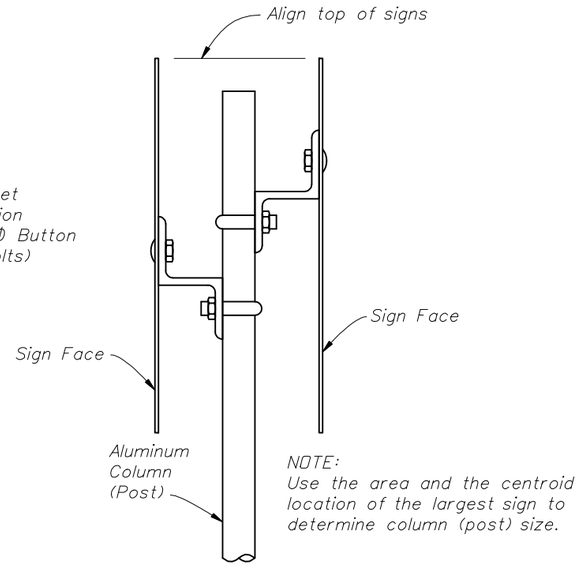


BRACKET DETAIL

NOTES:
1. 5/16" Ø Stainless Steel Hex Head Bolts with Flat Washer under Head and Lockwasher under Nut may be used in lieu of 3/8" Ø Aluminum Button Head Bolts.
2. Nylon washers provided by the sheeting supplier shall be used on all ground mounted signs. The washers shall be installed under the sign bolt head to protect the sheeting.
3. Vertical spacing of brackets shall not exceed 2'-6". Use additional brackets, spaced evenly, to maintain maximum spacing.

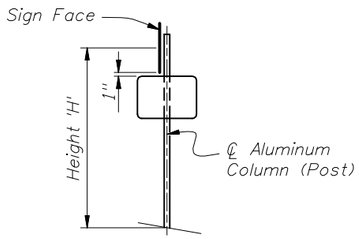


VIEW A-A



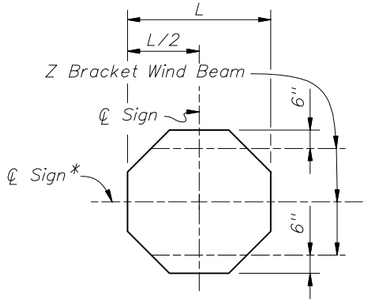
NOTE:
Use the area and the centroid location of the largest sign to determine column (post) size.

SIGNS BACK-TO-BACK

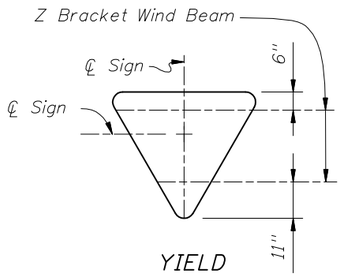


SIGNS AT 90°

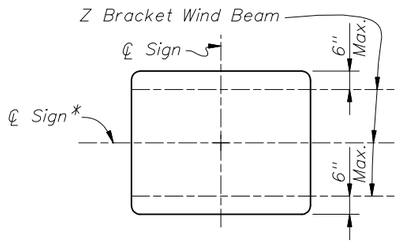
*For signs with either dimension of sign size greater than 30". (See Sheet No. 6 thru 8 of 8 for sign size)



STOP

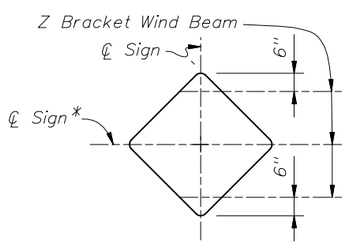


YIELD

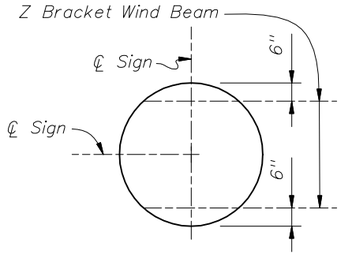


RECTANGLE

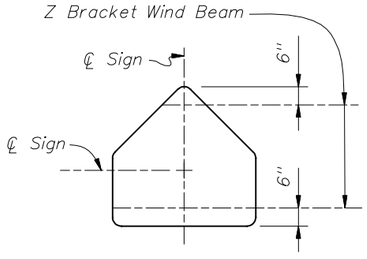
(Use only one Wind Beam at ℄ Sign for sign height up to 12")



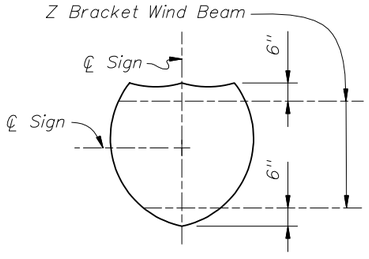
DIAMOND



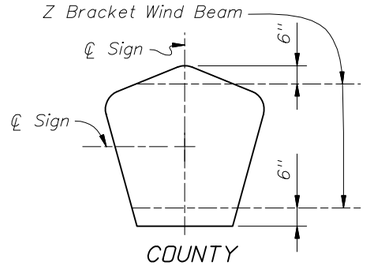
RAILROAD



SCHOOL



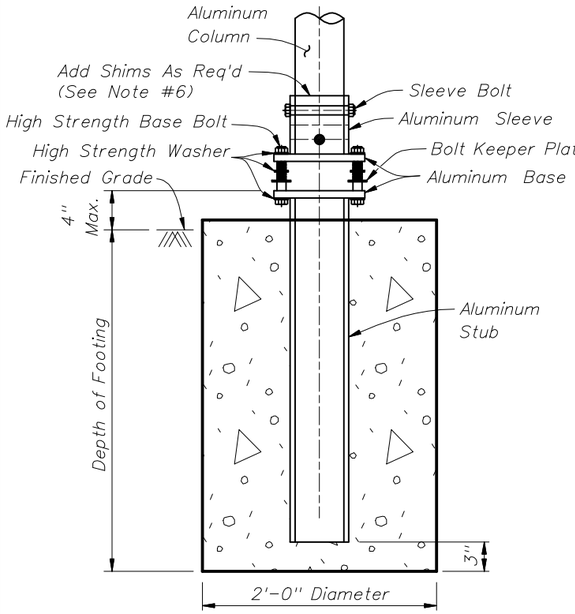
SHIELD



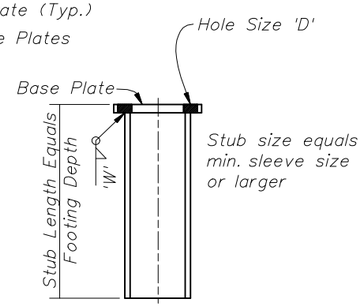
COUNTY

CONNECTION AND WIND BEAM

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	2010 FDOT Design Standards	Last Revision 01/01/09	Sheet No. 4 of 8
	SINGLE COLUMN GROUND SIGNS		Index No. 11860



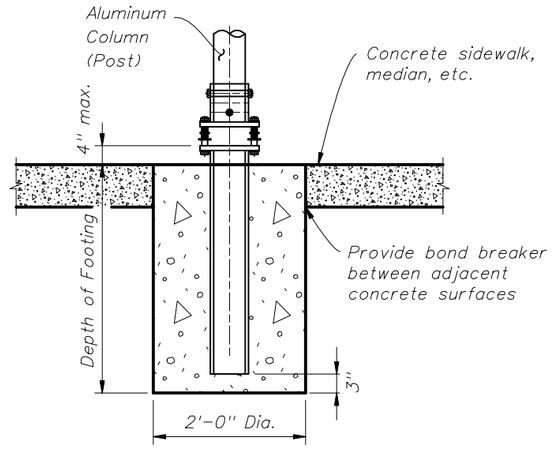
SLIP BASE AND FOOTING DETAIL
(non-frangible post)



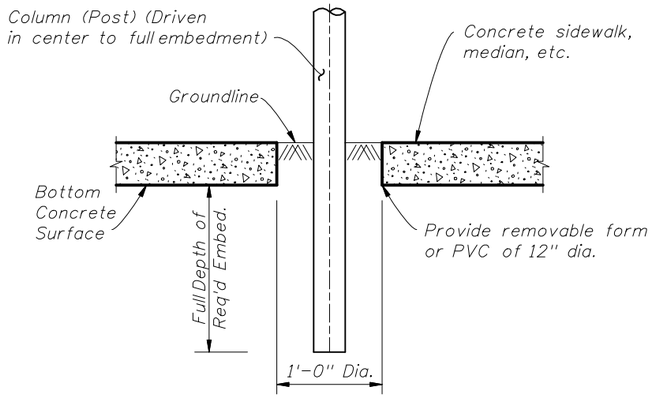
STUB DETAIL

SLIP BASE NOTES:

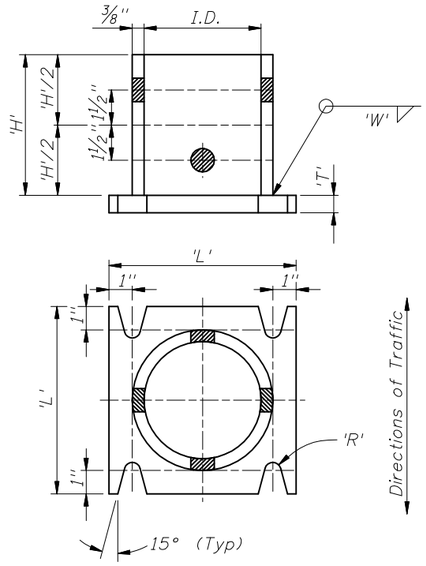
1. Use sleeves with an inside diameter (I.D.) no more than 1/16" larger than the outside diameter (O.D.) of the column.
2. Sleeve Bolts: ASTM A-307, 1/2" Ø galvanized steel bolt (with lock nuts) or Alloy 2024-T4 or 6061-T6 (ASTM B-211).
3. Base bolts, Nuts, and Washers: high strength ASTM A-325 with ASTM B633 SC3, Type II electroplated zinc coating.
4. Base plates may have either single or double beveled slots.
5. An alternate cast base plate of aluminum alloy 356 and T6 temper in lieu of the fabricated base plate may be submitted for approval. If a cast base plate is used, the stub will be the same size as the column and will be bolted to the casting.
6. Assemble the slip base connection in the following manner:
   a. Connect column to sleeve using two 1/2" Ø machine bolts.
   b. Assemble top base plate to stub base plate using high strength bolts with three hardened washers per bolt. One of the three washers per bolt and two bolt keeper plates go between the base plates.
   c. Use shim stock as required to plumb the column.
   d. Tighten all bolts to the maximum possible with a 12" to 15" wrench. (This will bed the washers and shims and clear the bolt threads.)
   e. Loosen each bolt one turn and using a calibrated wrench retighten to the prescribed torque (see table) under the supervision of the Project Engineer.
   f. Burr threads at junction with nut using a center punch to prevent nut loosening.
7. Use galvanized steel shims to obtain a tight fit between the column face and the sleeve. Place shims in all quadrants between the 1/2" Ø sleeve bolts. Use shims that are 1" shorter than the height of the sleeve.
8. Both fabricated and cast base assemblies were impact tested by the Texas Transportation Institute, College Station, TX on February 10, 2003, and both alternate assemblies were determined to be compliant with the performance recommendations of the National Cooperative Highway Research Program (NCHRP) report 350.



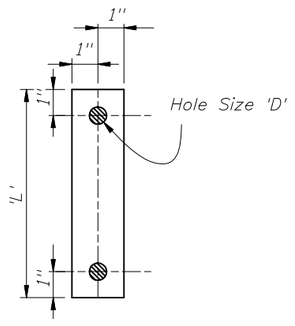
SLIP BASE AND FOOTING DETAIL IN CONCRETE
(non-frangible post in crossovers, medians, & sidewalks)



DRIVEN POST DETAIL IN CONCRETE
(frangible post in crossovers, medians, & sidewalks)



ALUMINUM SLEEVE & BASE PLATE DETAILS
(DOUBLE BEVELED SLOTS)



0.0149" Thick Alum. Strip - 2 Req'd Per Base

BOLT KEEPER PLATE DETAIL

SLIP BASE DETAILS

Column Size	Sleeve I.D. (Max)	Sleeve Height 'H'	Weld 'W'	Base Plate 'L'	Base Plate 'T'	Radius 'R'	Base Bolt Size	Base Bolt Length	Base Plate Torque Ft-lbs	Base Plate Torque In-lbs	Hole Size 'D'
4 x 1/4	4 1/16	6	5/8	8	3/4	11/32	5/8	3	29	345	11/16
4 1/2 x 1/4	4 9/16	6	5/8	8	1/8	11/32	5/8	3 1/4	29	345	11/16
5 x 1/4	5 1/16	7	5/8	8	1/8	11/32	5/8	3 1/4	29	345	11/16
6 x 1/4	6 1/16	8	11/16	9	1	13/32	3/4	3 1/2	46	554	13/16

Note: Unless notes otherwise, all dimensions are in inches.

BASE AND FOUNDATION DETAILS

	Size	Area	Total Area	Centroid
ONE WAY / STOP	36x12	3.00 SF	6.31 SF	1.75 Ft.
	24x24	3.31 SF		

	Size	Area	Total Area	Centroid
ONE WAY / STOP	36x12	3.00 SF	8.18 SF	1.92 Ft.
	30x30	5.18 SF		

	Size	Area	Total Area	Centroid
ONE WAY / STOP	36x12	3.00 SF	10.46 SF	2.10 Ft.
	36x36	7.46 SF		

	Size	Area	Total Area	Centroid
ONE WAY / STOP	36x12	3.00 SF	16.25 SF	2.48 Ft.
	48x48	13.25 SF		

	Size	Area	Total Area	Centroid
STOP / DIVIDED HIGHWAY	24x24	3.31 SF	6.31 SF	1.71 Ft.
	24x18	3.00 SF		

	Size	Area	Total Area	Centroid
STOP / DIVIDED HIGHWAY	30x30	5.18 SF	10.18 SF	2.19 Ft.
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
STOP / DIVIDED HIGHWAY	36x36	7.46 SF	12.46 SF	2.55 Ft.
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
ONE WAY / STOP / DIVIDED HIGHWAY	36x12	3.00 SF	13.18 SF	2.87 Ft.
	30x30	5.18 SF		
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
ONE WAY / STOP / DIVIDED HIGHWAY	36x12	3.00 SF	15.46 SF	3.15 Ft.
	36x36	7.46 SF		
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
JCT 27	21x15	2.19 SF	6.19 SF	1.60 Ft.
	24x24	4.00 SF		

	Size	Area	Total Area	Centroid
JCT 301	21x15	2.19 SF	7.19 SF	1.52 Ft.
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 27 27	24x12	2.00 SF	6.00 SF	1.53 Ft.
	24x24	4.00 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 301 301	24x12	2.00 SF	7.00 SF	1.45 Ft.
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 301 301	30x15	3.13 SF	8.13 SF	1.66 Ft.
	30x24	5.00 SF		

	Size	Area	Total Area	Centroid
27 / ↔	24x24	4.00 SF	6.19 SF	1.73 Ft.
	21x15	2.19 SF		

	Size	Area	Total Area	Centroid
27 / ↔	30x24	5.00 SF	7.19 SF	1.81 Ft.
	21x15	2.19 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 27 27 / → →	24x12	2.00 SF	8.19 SF	2.26 Ft.
	24x24	4.00 SF		
	21x15	2.19 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 301 301 / → →	24x12	2.00 SF	9.19 SF	2.27 Ft.
	30x24	5.00 SF		
	21x15	2.19 SF		

	Size	Area	Total Area	Centroid
BUSINESS OR EAST 301 301 / → →	30x15	3.13 SF	10.32 SF	2.49 Ft.
	30x24	5.00 SF		
	21x15	2.19 SF		

	Size	Area	Total Area	Centroid
EAST / BUSINESS / 27 / →	24x12	2.00 SF	10.19 SF	2.80 Ft.
	24x12	2.00 SF		
	24x24	4.00 SF		
	21x15	2.19 SF		

Size	Area	Total Area	Centroid
24x12	2.00 SF	11.19 SF	2.76 Ft.
24x12	2.00 SF		
30x24	5.00 SF		
21x15	2.19 SF		

Size	Area	Total Area	Centroid
30x15	3.13 SF	13.45 SF	3.16 Ft.
30x15	3.13 SF		
30x24	5.00 SF		
21x15	2.19 SF		

Size	Area	Total Area	Centroid
21x15	2.19 SF	3.90 SF	1.57 Ft.
18x18	1.71 SF		

Size	Area	Total Area	Centroid
21x15	2.19 SF	5.22 SF	1.72 Ft.
24x24	3.03 SF		

Size	Area	Total Area	Centroid
21x15	2.19 SF	6.95 SF	1.87 Ft.
30x30	4.76 SF		

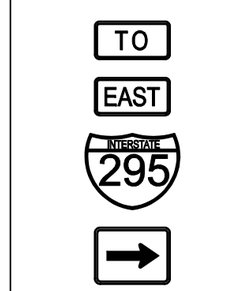
Size	Area	Total Area	Centroid
18x18	1.71 SF	3.90 SF	1.26 Ft.
21x15	2.19 SF		

Size	Area	Total Area	Centroid
24x24	3.03 SF	5.22 SF	1.62 Ft.
21x15	2.19 SF		

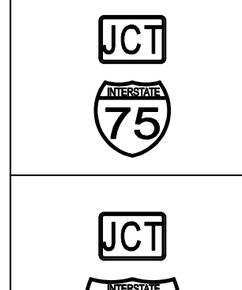
Size	Area	Total Area	Centroid
30x30	4.76 SF	6.95 SF	1.97 Ft.
21x15	2.19 SF		

Size	Area	Total Area	Centroid
24x12	2.00 SF	9.39 SF	2.87 Ft.
24x12	2.00 SF		
24x24	3.20 SF		
21x15	2.19 SF		

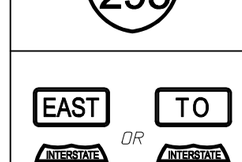
Size	Area	Total Area	Centroid
24x12	2.00 SF	10.18 SF	2.84 Ft.
24x12	2.00 SF		
30x24	3.99 SF		
21x15	2.19 SF		



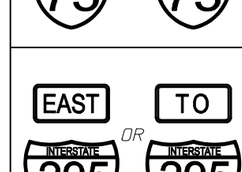
Size	Area	Total Area	Centroid
30x15	3.13 SF	12.44 SF	3.26 Ft.
30x15	3.13 SF		
30x24	3.99 SF		
21x15	2.19 SF		



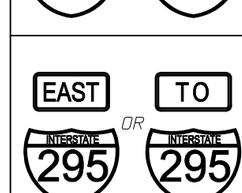
Size	Area	Total Area	Centroid
21x15	2.19 SF	5.39 SF	1.75 Ft.
24x24	3.20 SF		



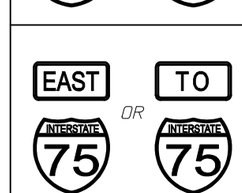
Size	Area	Total Area	Centroid
21x15	2.19 SF	6.18 SF	1.67 Ft.
30x24	3.99 SF		



Size	Area	Total Area	Centroid
24x12	2.00 SF	5.20 SF	1.67 Ft.
24x24	3.20 SF		



Size	Area	Total Area	Centroid
24x12	2.00 SF	5.99 SF	1.60 Ft.
30x24	3.99 SF		



Size	Area	Total Area	Centroid
30x15	3.13 SF	7.12 SF	1.81 Ft.
30x24	3.99 SF		

Size	Area	Total Area	Centroid
30x15	3.13 SF	10.33 SF	2.27 Ft.
36x36	7.20 SF		

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SINGLE COLUMN GROUND SIGNS

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Size	Area	Total Area	Centroid
30x15	3.13 SF	12.12 SF	2.18 Ft.
45x36	8.99 SF		

Size	Area	Total Area	Centroid
24x12	2.00 SF	7.39 SF	2.30 Ft.
24x24	3.20 SF		
21x15	2.19 SF		

Size	Area	Total Area	Centroid
24x12	2.00 SF	8.18 SF	2.31 Ft.
30x24	3.99 SF		
21x15	2.19 SF		

Size	Area	Total Area	Centroid
30x15	3.13 SF	9.31 SF	2.55 Ft.
30x24	3.99 SF		
21x15	2.19 SF		

Size	Area	Total Area	Centroid
30x30	4.69 SF	6.69 SF	1.61 Ft.
24x12	2.00 SF		

Size	Area	Total Area	Centroid
30x30	4.69 SF	8.44 SF	1.77 Ft.
30x18	3.75 SF		

Size	Area	Total Area	Centroid
36x36	6.75 SF	10.50 SF	2.06 Ft.
30x18	3.75 SF		

Size	Area	Total Area	Centroid
30X30	6.25 SF	8.25 SF	2.28 Ft.
24X12	2.00 SF		

Size	Area	Total Area	Centroid
36X36	9.00 SF	12.75 SF	2.84 Ft.
30X18	3.75 SF		

Size	Area	Total Area	Centroid
30X30	6.25 SF	10.25 SF	2.74 Ft.
24X24	4.00 SF		

Size	Area	Total Area	Centroid
36X36	9.00 SF	15.25 SF	3.29 Ft.
30X30	6.25 SF		

Size	Area	Total Area	Centroid
30X30	6.25 SF	9.25 SF	2.51 Ft.
24X18	3.00 SF		

Size	Area	Total Area	Centroid
36X36	9.00 SF	14.00 SF	3.06 Ft.
30X24	5.00 SF		

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SINGLE COLUMN GROUND SIGNS

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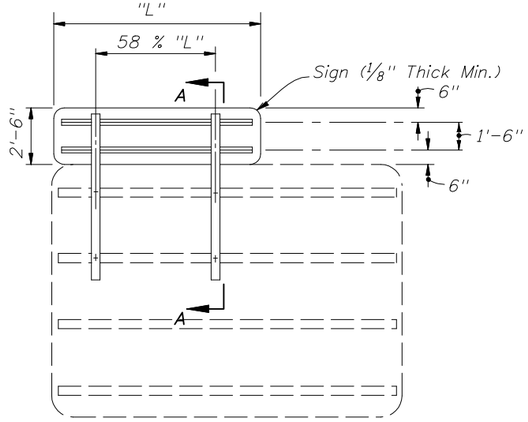
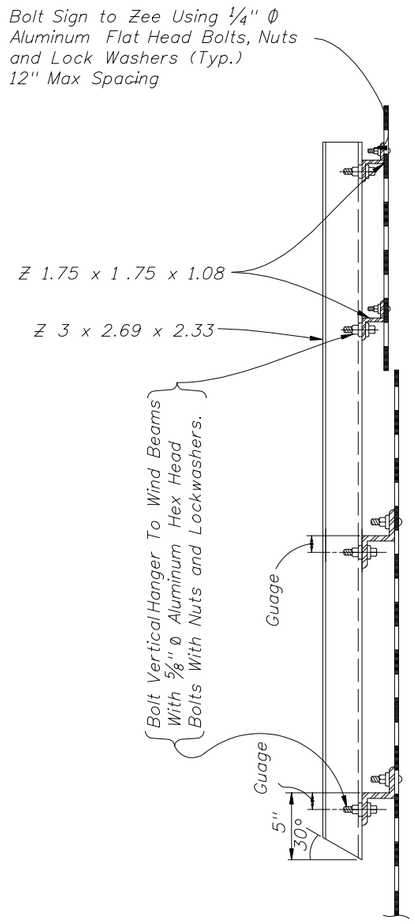


NOTE: Exit numbering panel shall be located to the right side for right exit and to the left for left exit.

Mounting of Exit Numbering Panels To Highway Signs

ELEVATION



SECTION AA

GENERAL NOTES

DESIGN SPECIFICATION: Design according to FDOT Structures Manual (current edition) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, AASHTO 2001.
SHEETS AND PLATES: Material used shall meet the requirements of Aluminum Association Alloy 6061-T6 and ASTM B209.
MATERIALS: All aluminum materials shall meet the requirements of the Aluminum Association Alloy 6061-T6 and also the following ASTM specifications for the following: Sheets and plates B209; extruded shapes B221 and standard structural shapes B308.
ALUMINUM BOLTS, NUTS & LOCK WASHERS: Aluminum bolts shall meet the requirements of the Aluminum Association Alloy 2024-T4 (ASTM F468). The bolts shall have an anodic coating of at least .0002" thick and be chromate sealed. Lockwashers shall meet the requirement of Aluminum Association Alloy 7075-T6 (ASTM B221). Nuts shall meet the requirement of Aluminum Association Alloy 6262-T9 (ASTM F467) or 6061-T6.
SIGN FACE: All sign face corners shall be rounded . See sign layout sheet for dimension "L" and sign face details.
For mounting details refer to Index No. 11300.

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MOUNTING EXIT NUMBERING PANELS TO HIGHWAY SIGNS

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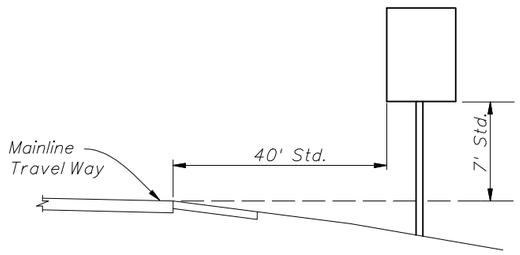
CASE I

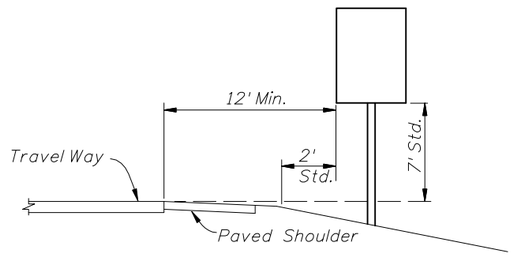
For Use On Freeway And
Expressway Systems For Signs On Mainline.



For Median Installation:
If Median Width Does Not Allow Std. Offset
From Both Roadways, Center Sign In Median.

CASE II

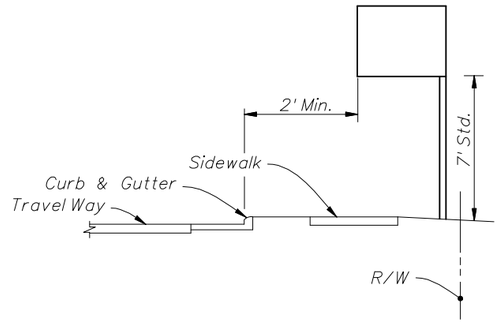
For Use In All Rural Roads And
On Freeway And Expressway Ramps.



14' Horizontal Clearance Standard On All Freeway And
Expressway Ramps.

CASE III

For Use On All Roads With
Signs Mounted Behind Sidewalk.

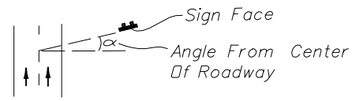


GENERAL NOTES:

1. The typical sections shown hereon serve as a guide for locating the traffic signs required under various roadside conditions. For size and details of sign construction and footing, refer to the appropriate standard index drawing for roadside sign.

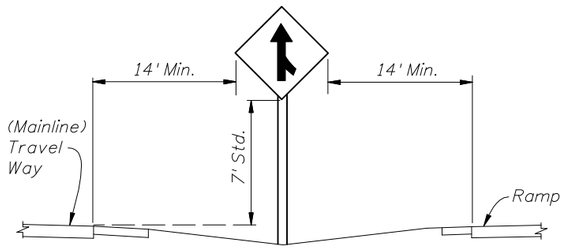
2. It shall be the CONTRACTORS responsibility to verify the length of sign supports in the field prior to fabrication.

3. Ground signs shall be installed at an angle of 1 to 4 degrees away from the traffic flow (see illustration). Shoulder mounted signs shall be rotated counterclockwise and median mounted signs rotated clockwise. Signs on curves shall be mounted as noted above from the perpendicular to the motorist line of sight.



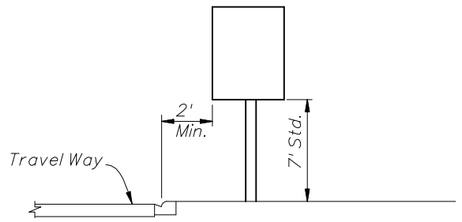
CASE IV (MERGE SIGN)

For Use On All Rural, Freeway And Expressway Systems.



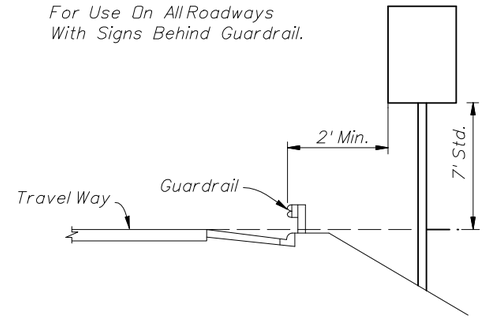
CASE V

For Use In Business Or Residential Areas Only.



CASE VI

For Use On All Roadways
With Signs Behind Guardrail.



4. The setback for stop and yield signs may be reduced to 3' minimum from the driving lane if required for visibility in business or residential sections with no curb and speeds of 30 MPH or less.

5. The mounting heights are measured from the bottom of the sign panel to a horizontal line extended from the edge of the driving lane. If the standard heights cannot be met, the minimum heights are as follows:

Expressway & Freeway Systems	7'
Other Roadway Systems	
Rural	5'
Urban (including residential with parking and /or pedestrian activity)	7'

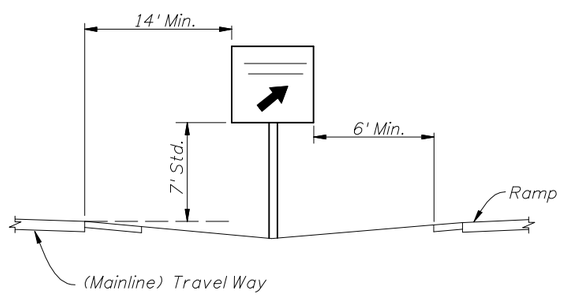
If a secondary sign is mounted below the major sign, the major sign shall be at least 8' and the secondary sign at least 5' for expressway & freeway systems and for other systems the height to the secondary sign shall be at least 5' for rural and 7' for urban sections.

6. Sign supports should never be placed in the bottom of ditches where erosion might affect the proper operation of the breakaway feature.

7. Sign supports shall not reduce the accessible route /continuous passage to less than 4' min. clear width as required by the Americans with Disabilities Act (ADA) Accessibility Guidelines.

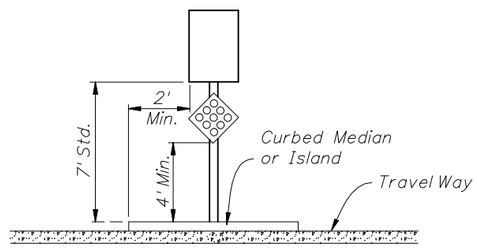
CASE VII (REST AREA & EXIT GORE SIGNS)

For Use On All Freeway And Expressway Systems



CASE VIII

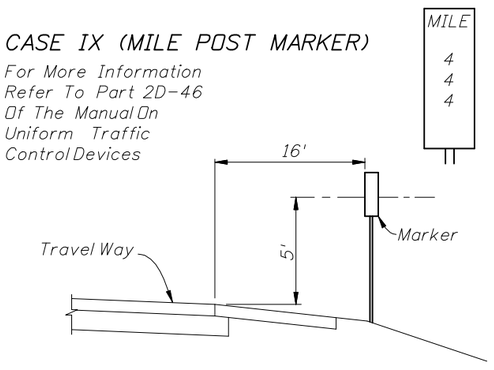
Sign On Island or Curbed Median



Center Sign Column On Island

CASE IX (MILE POST MARKER)

For More Information
Refer To Part 2D-46
Of The Manual On
Uniform Traffic
Control Devices



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TYPICAL SECTIONS FOR PLACEMENT OF SINGLE & MULTI-COLUMN SIGNS

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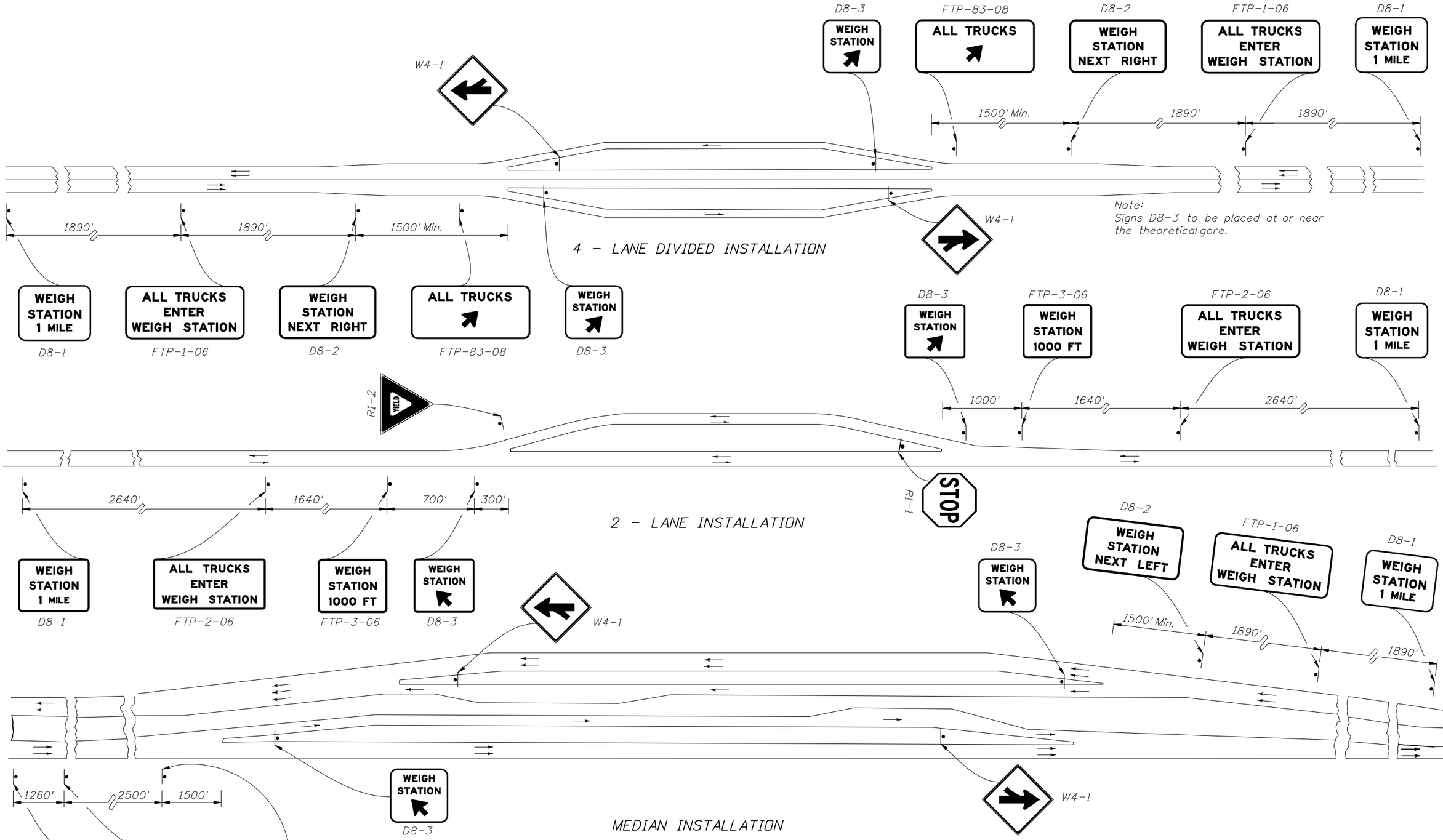

WEIGH STATION SIGNING

2010 FDOT Design Standards

TYPICAL SIGNING FOR TRUCK WEIGH AND INSPECTION STATIONS

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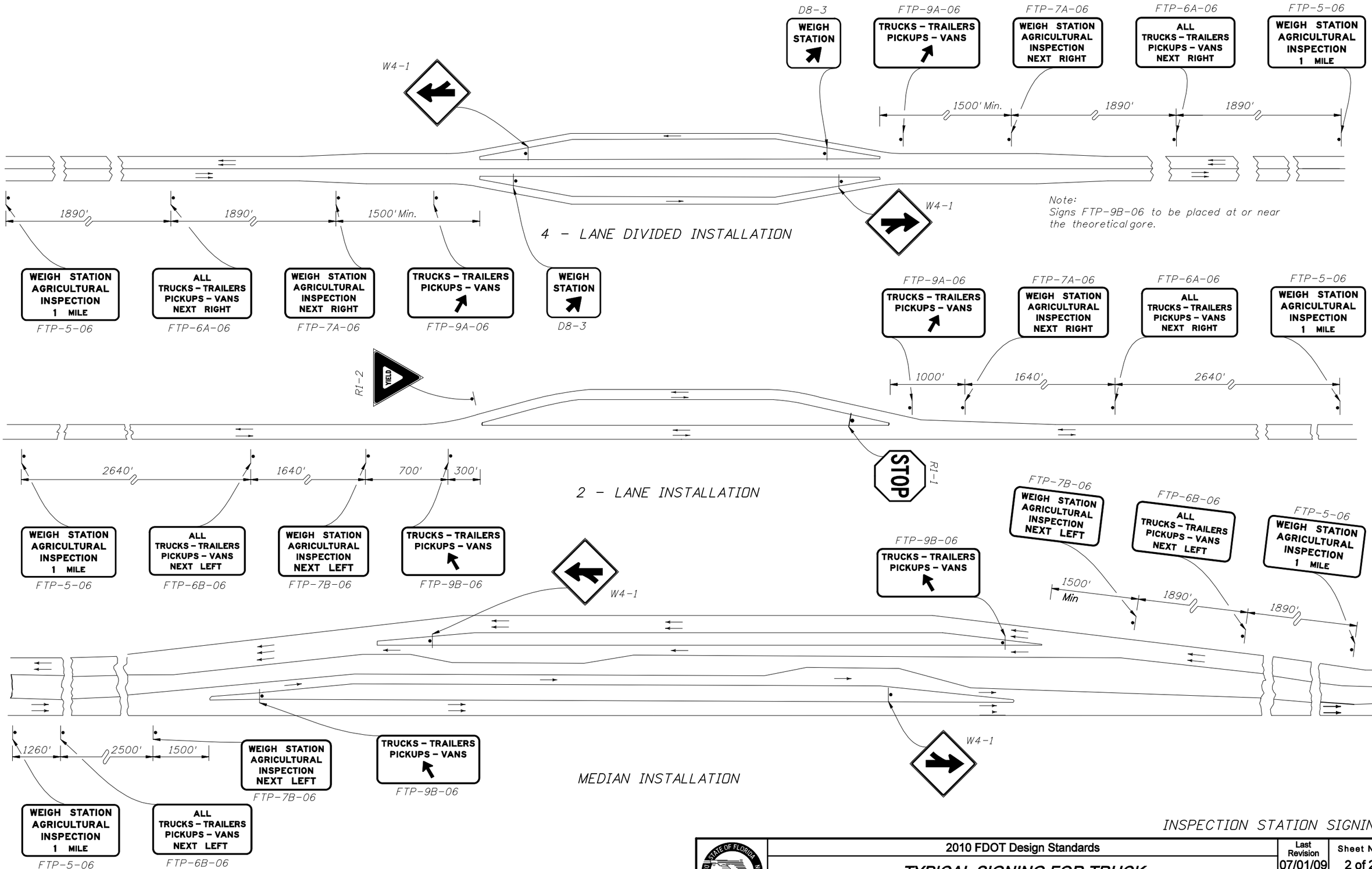

INSPECTION STATION SIGNING

2010 FDOT Design Standards

TYPICAL SIGNING FOR TRUCK WEIGH AND INSPECTION STATIONS

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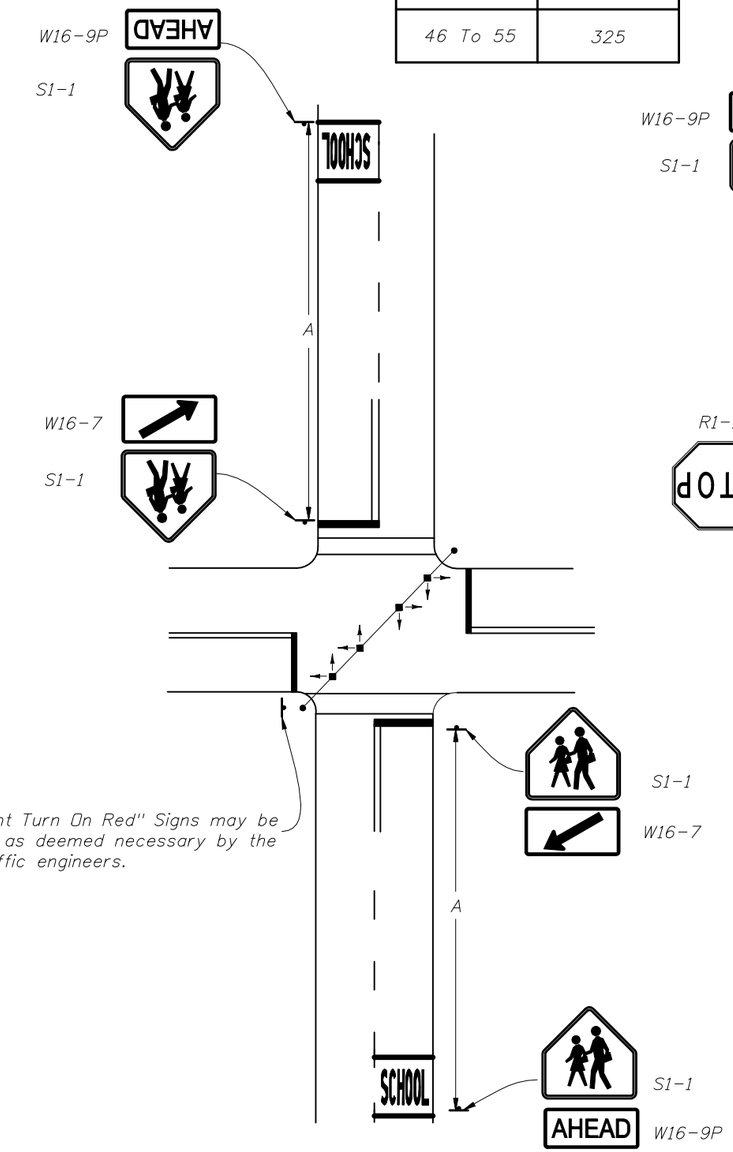
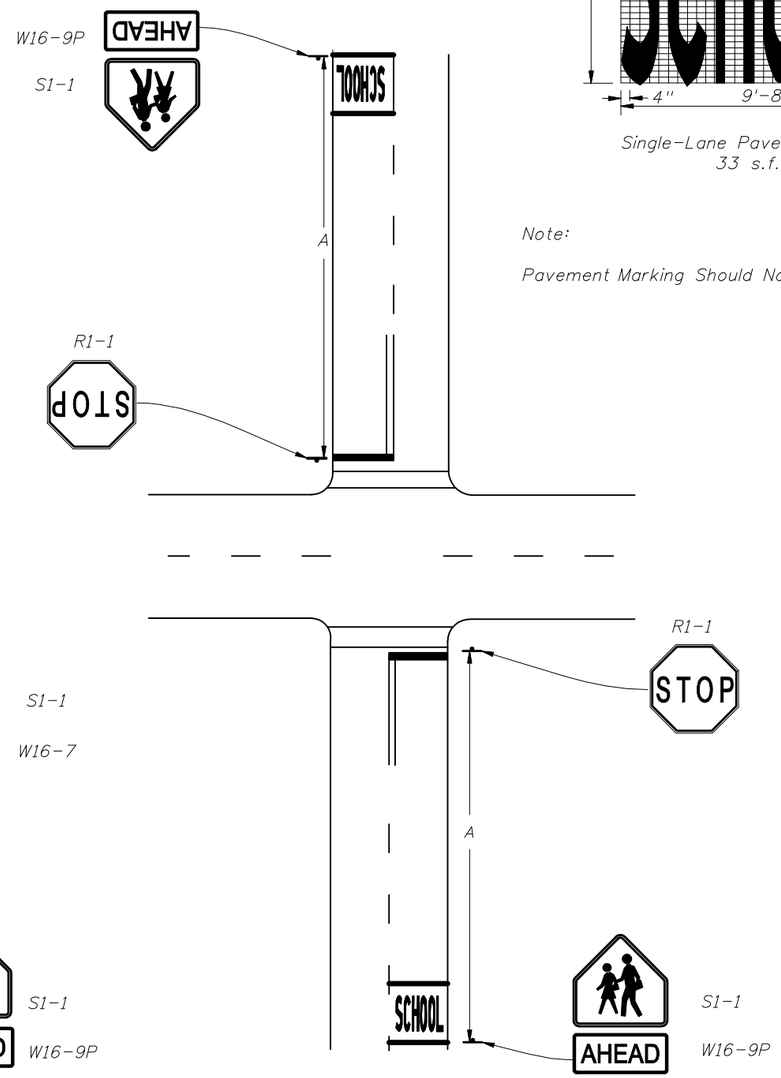
Approach Speed (MPH)	Distance A (FT.)
25 or Less	200
26 To 35	250
36 To 45	300
46 To 55	325



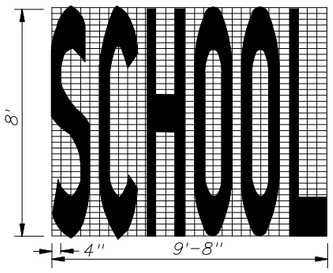
"No Right Turn On Red" Signs may be erected as deemed necessary by the local traffic engineers.

1. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A SIGNALIZED INTERSECTION



2. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A STOP CONTROLLED INTERSECTION

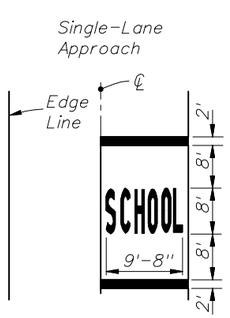
Note:
Special speed restrictions are not normally applicable to these two cases.

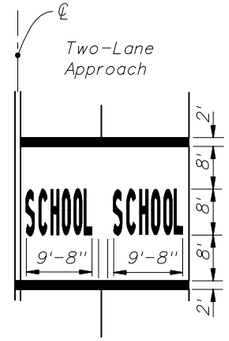


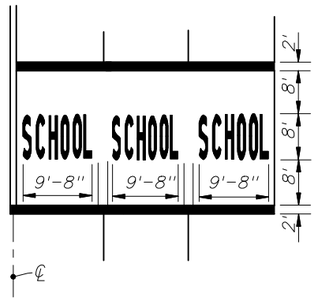
Single-Lane Pavement Marking
33 s.f.

Note:

Pavement Marking Should Not Extend Into Opposing Lane.







PAVEMENT MARKINGS

Notes:

Signs shall be erected in accordance with index No. 17302.

When computing pavement messages quantities do not include transverse lines.

School crosswalk widths at intersections shall be 6' minimum 10' standard without public sidewalk curb ramps 10' minimum with public sidewalk curb ramps.

For additional marking information, see Index 17346, Sheet 2.

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SCHOOL SIGNS & MARKINGS

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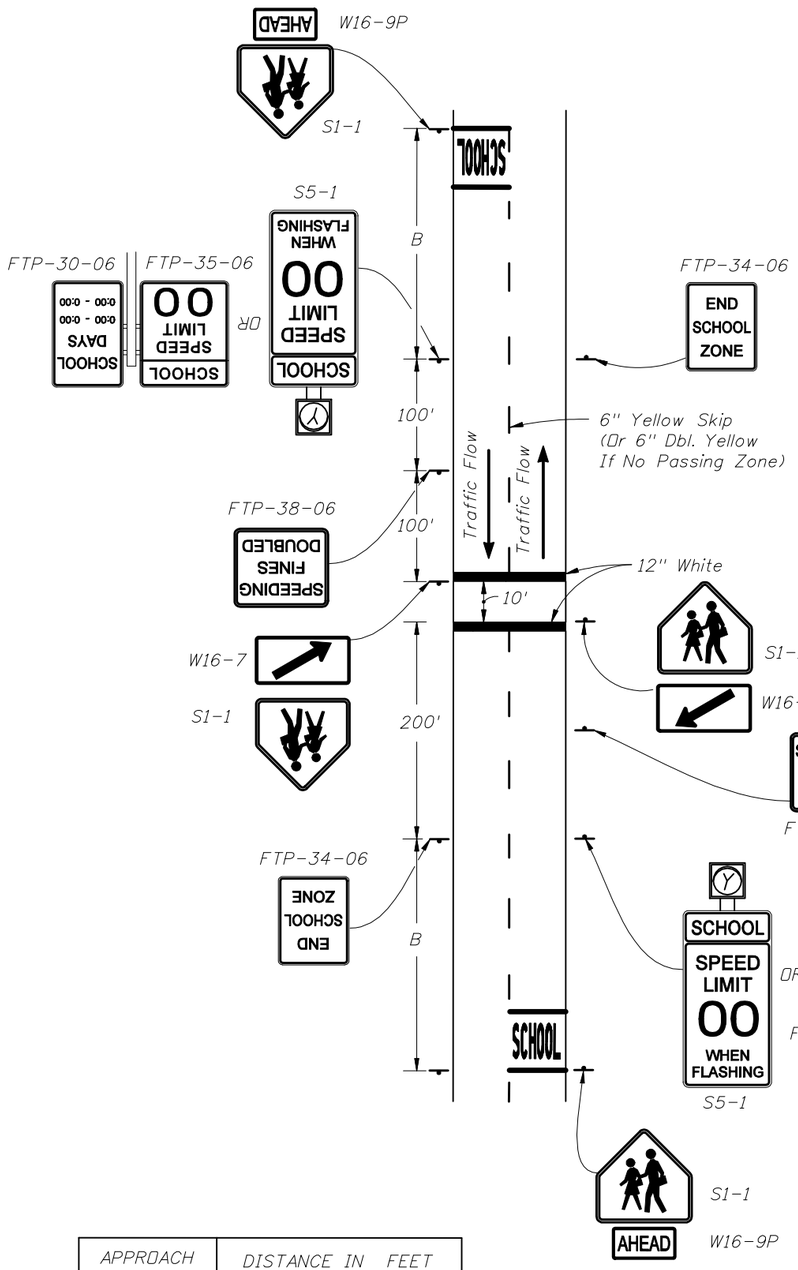
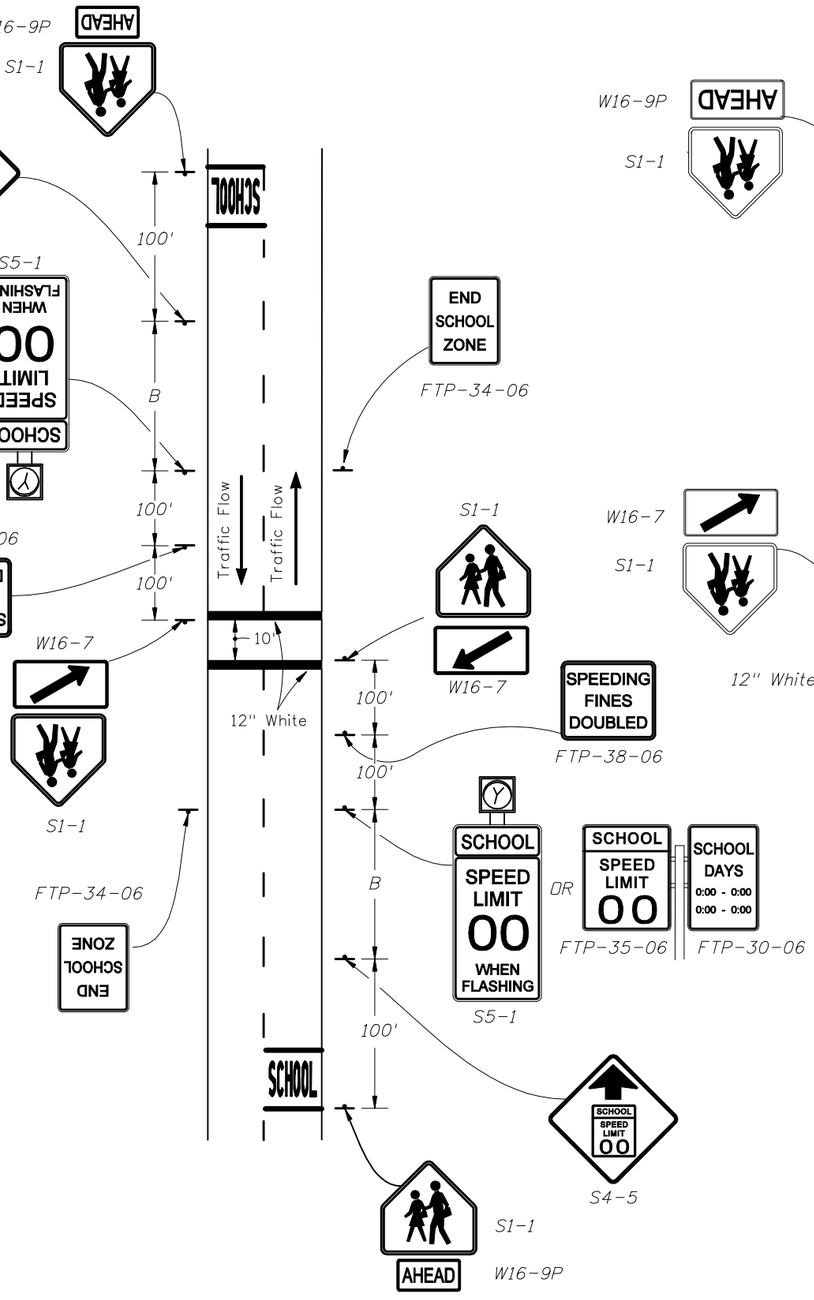
3. TRAFFIC CONTROL DEVICES FOR REDUCED SPEED ZONE AT A SCHOOL CROSSWALK 2 LANES-2 WAY TRAFFIC (40 MPH OR LESS) (MIDBLOCK OR ON THRU STREET AT AN INTERSECTION)



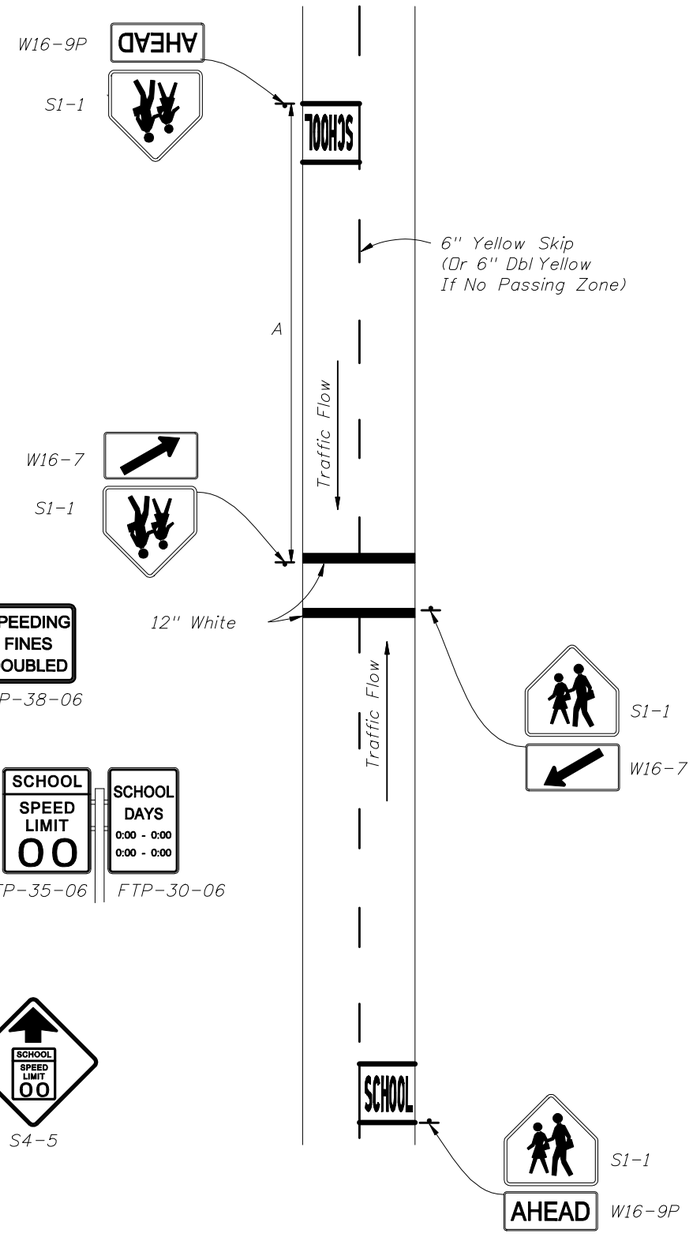
APPROACH SPEED MPH	DISTANCE IN FEET	
	A	B
25 or Less	200'	100' Min.
26 To 35	250'	100' Min.
36 To 45	300'	100'
46 To 55	325'	125'

SCHOOL CROSSWALK
Midblock crosswalks shall be a minimum of 10'.
See Index No. 17346 sheet 2 and 8.

4. TRAFFIC CONTROL DEVICES FOR REDUCED SPEED ZONE AT A SCHOOL CROSSWALK 2 LANES-2 WAY TRAFFIC (45 MPH OR GREATER) (MIDBLOCK OR ON THRU STREET AT AN INTERSECTION)



5. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK WITHOUT A SPEED REDUCTION (2 LANE-2 WAY TRAFFIC)



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SCHOOL SIGNS & MARKINGS

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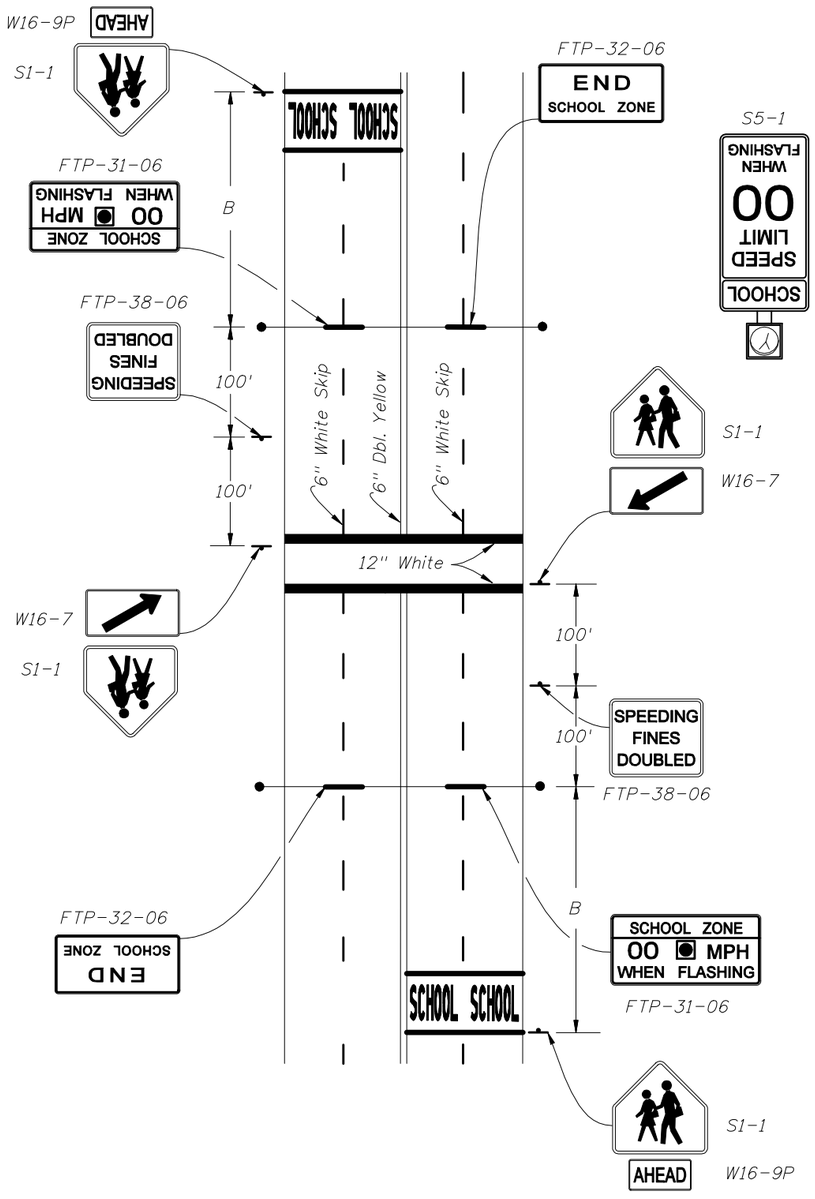
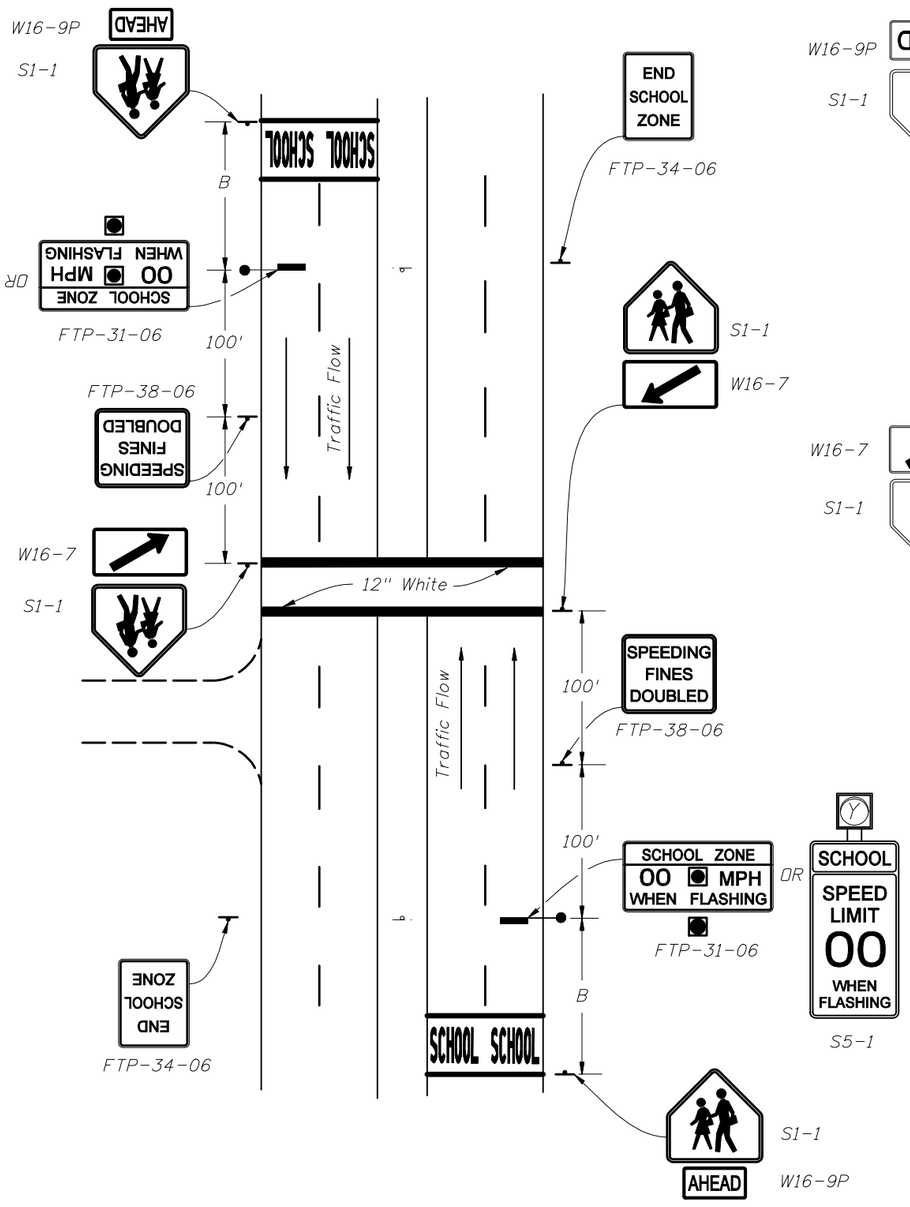
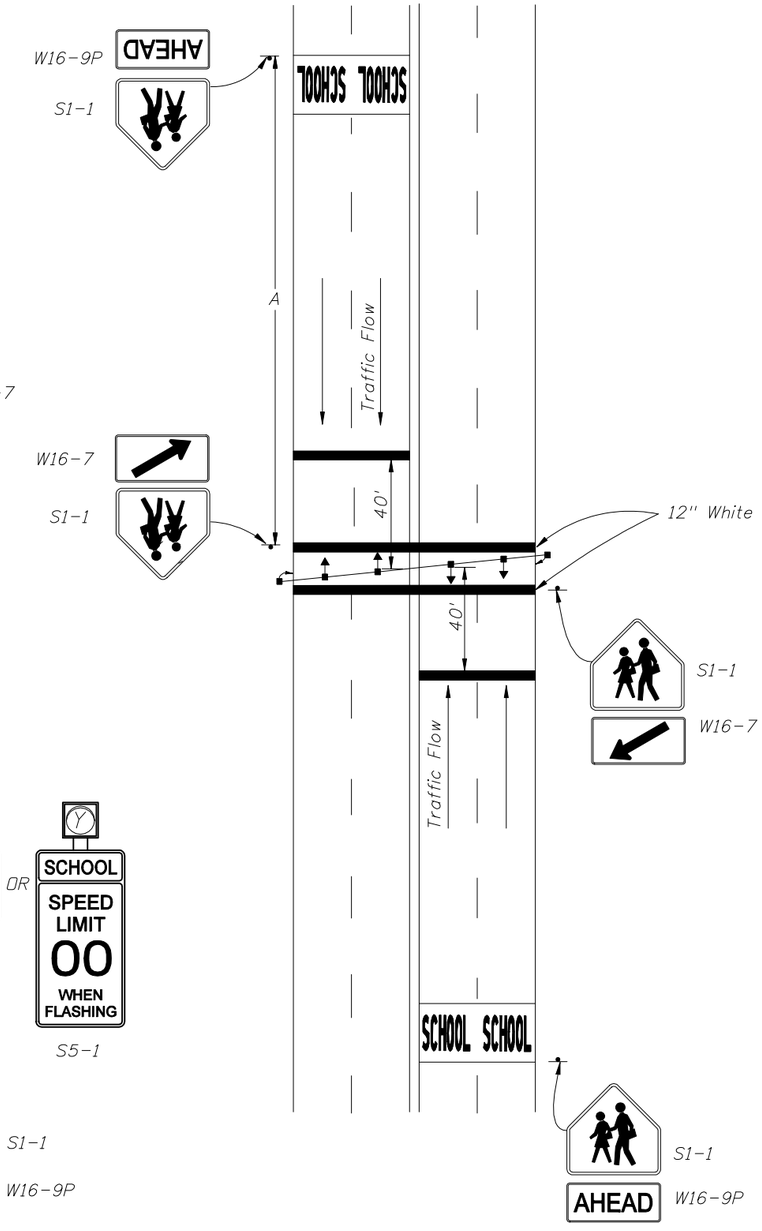
6. TRAFFIC CONTROL DEVICES FOR A REDUCED SPEED ZONE AT A SCHOOL CROSSWALK WITH OVERHEAD FLASHING BEACON SPEED LIMIT SIGNS (4 LANES UNDIVIDED-2 WAY TRAFFIC) (MIDBLOCK OR ON THRU STREET AT AN INTERSECTION)



7. TRAFFIC CONTROL DEVICES FOR A REDUCED SPEED ZONE AT A SCHOOL CROSSWALK WITH OVERHEAD OR GROUND MOUNTED FLASHING BEACON SPEED LIMIT SIGNS (4 LANES DIVIDED-2 WAY TRAFFIC)



8. TRAFFIC CONTROL DEVICES FOR SIGNALIZED MIDBLOCK SCHOOL CROSSWALK

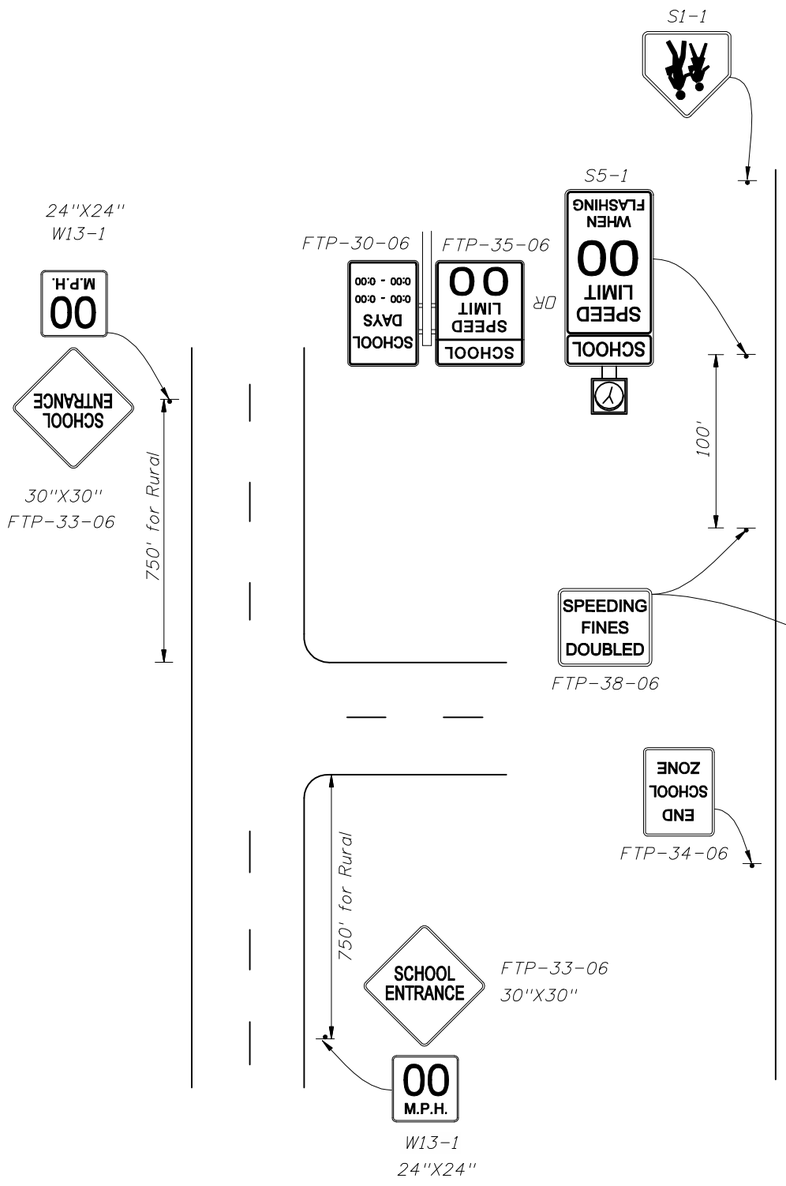


APPROACH SPEED MPH	DISTANCE IN FEET	
	A	B
25 or Less	200'	100' Min.
26 To 35	250'	100' Min.
36 To 45	300'	100'
46 To 55	325'	125'

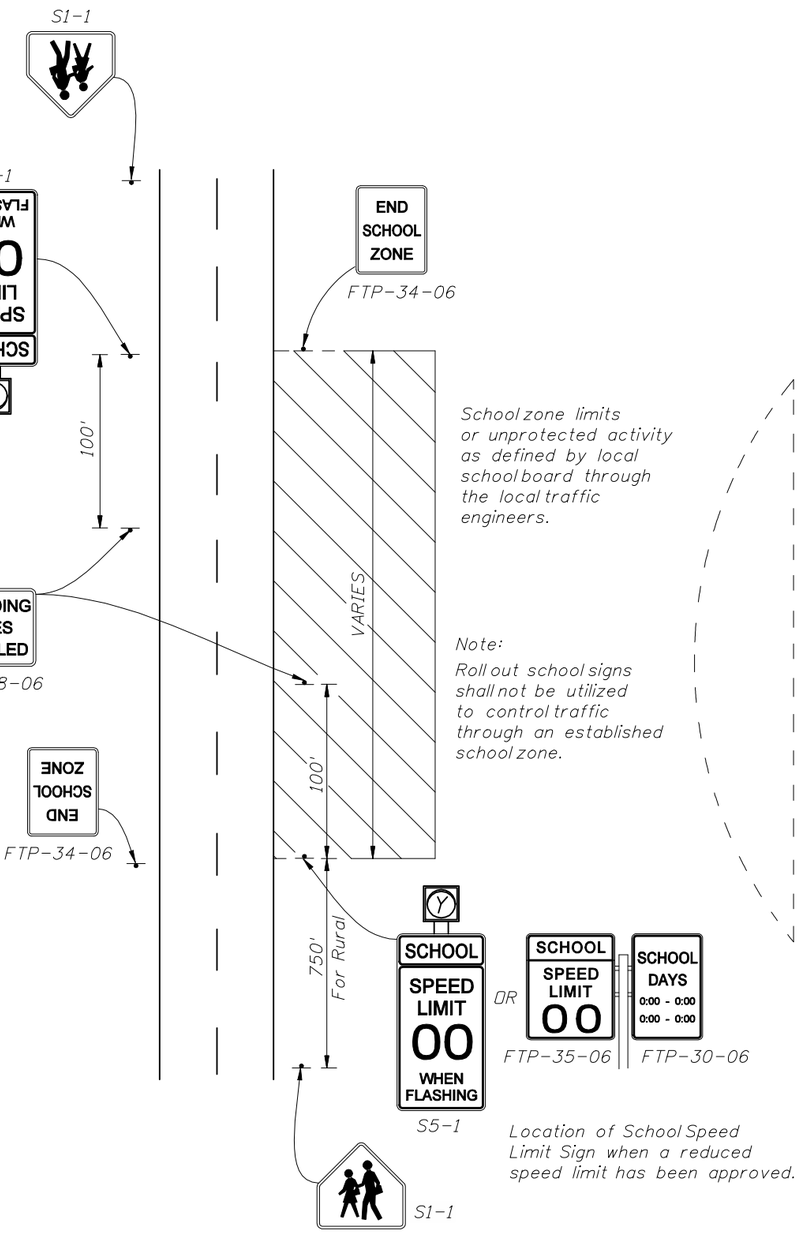
SCHOOL CROSSWALK
Midblock crosswalk shall be a minimum of 10'.
See Index No. 17346, Sheet 2 and 8.

NOTE- CONDITION 7:
Where engineering judgement determines the overhead structure is not suitable or cannot be installed due to site restrictions, S5-1 with flashing beacons on each side of the road may be substituted for the overhead structure.

9. TRAFFIC CONTROL DEVICES AT SCHOOL ENTRANCES WITH LOW VOLUMES OF WALKING STUDENTS



10. TRAFFIC CONTROL DEVICES FOR A TYPICAL SCHOOL ZONE FRONTING THE SCHOOL PROPERTY

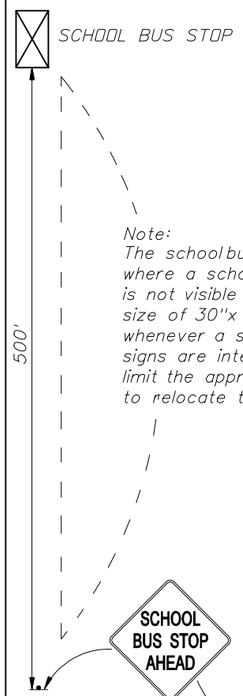


School zone limits or unprotected activity as defined by local school board through the local traffic engineers.

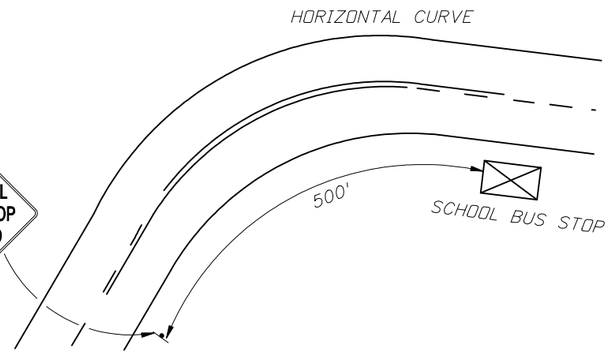
Note:
Roll out school signs shall not be utilized to control traffic through an established school zone.

Location of School Speed Limit Sign when a reduced speed limit has been approved.

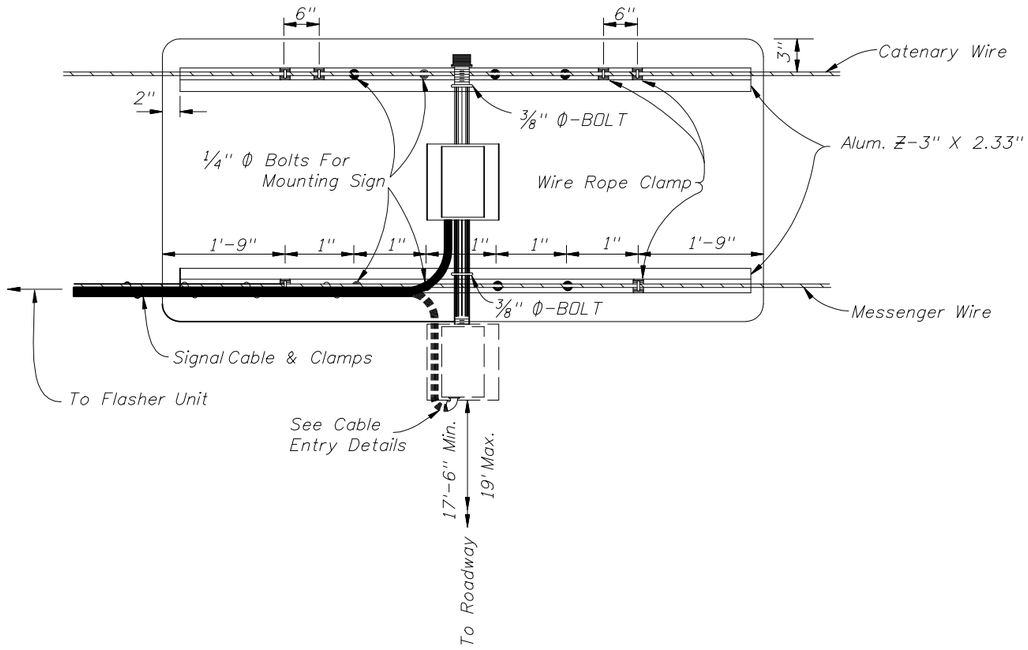
11. SCHOOL BUS STOP



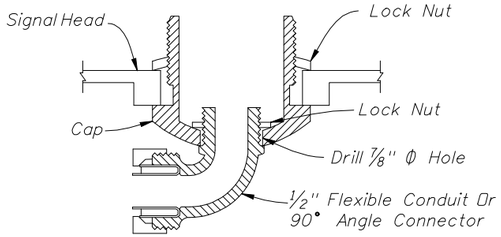
Note:
The school bus stop ahead sign is to be used in advance of locations where a school bus, when stopped to pick up or discharge passengers, is not visible for a distance of 500' in advance. It shall have a min. size of 30"x 30". It is not intended that these signs be used whenever a school bus stops to pick up or discharge passengers. These signs are intended for use only where terrain and roadway features limit the approach sight distance and where there is no opportunity to relocate the stop to another location with adequate visibility.



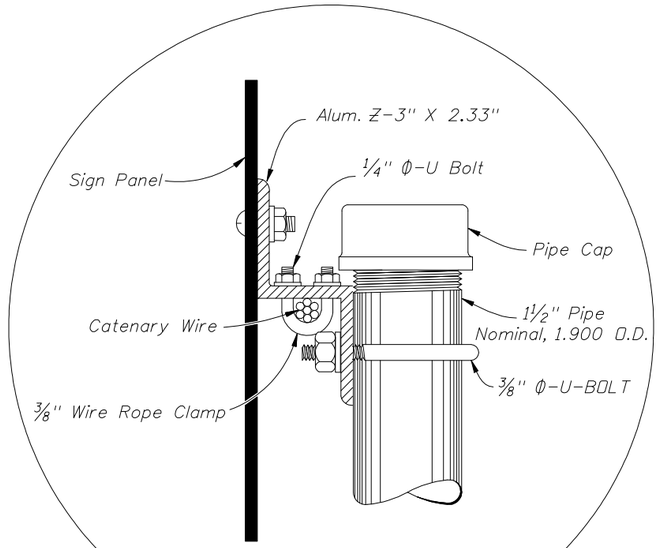
These signs are intended for use only at those few locations where the school entrance is not evident to the motorist, and must be approved in advance by the responsible traffic engineering authority.



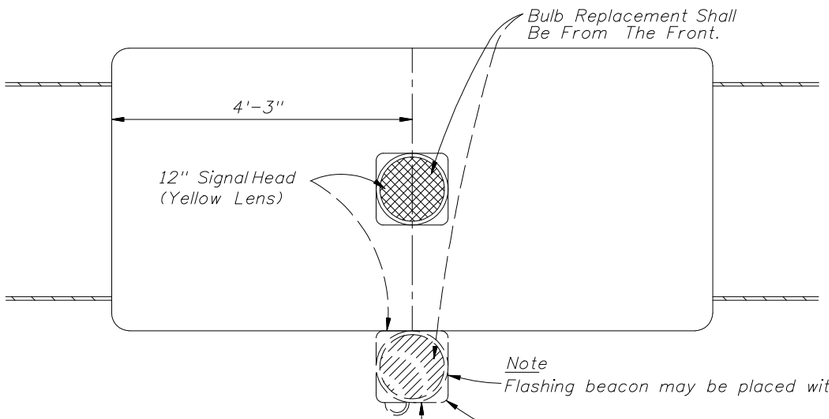
REAR VIEW



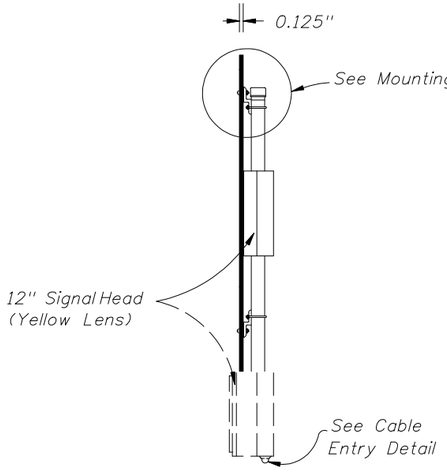
CABLE ENTRY DETAIL



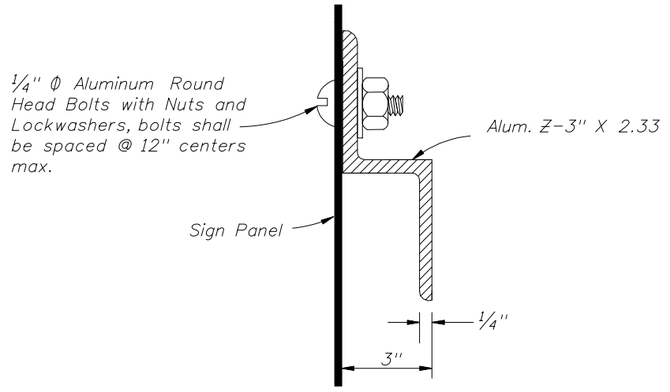
MOUNTING DETAIL



FRONT VIEW



SIDE VIEW



Z SECTION DETAIL

Flasher unit and cabinet to be placed on the strain pole supporting overhead sign assembly or on service pole. The flasher unit not to overhang private property or sidewalk.

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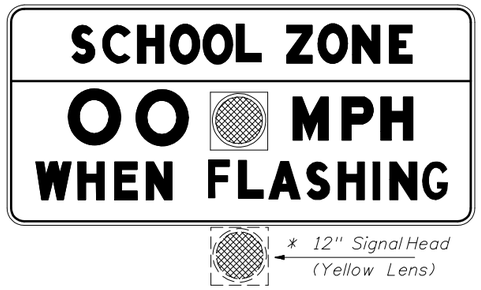


FTP-31-06

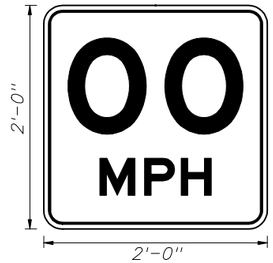
OVERHEAD STANDARD

* Flashing Beacon May Be Placed Within Or Below Panel

FTP-32-06

FTP-38-06

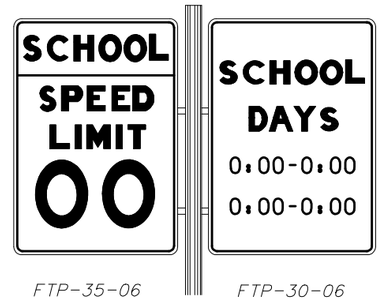
FTP-33-06



W13-1

SPEED LIMIT ASSEMBLY

S4-5

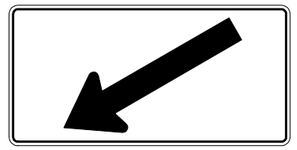


FTP-35-06 FTP-30-06

S1-1

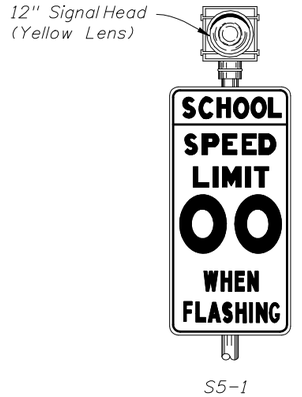
S3-1

FTP-34-06



W16-7

W16-9P



S5-1

Ground Mount Standard

Notes:

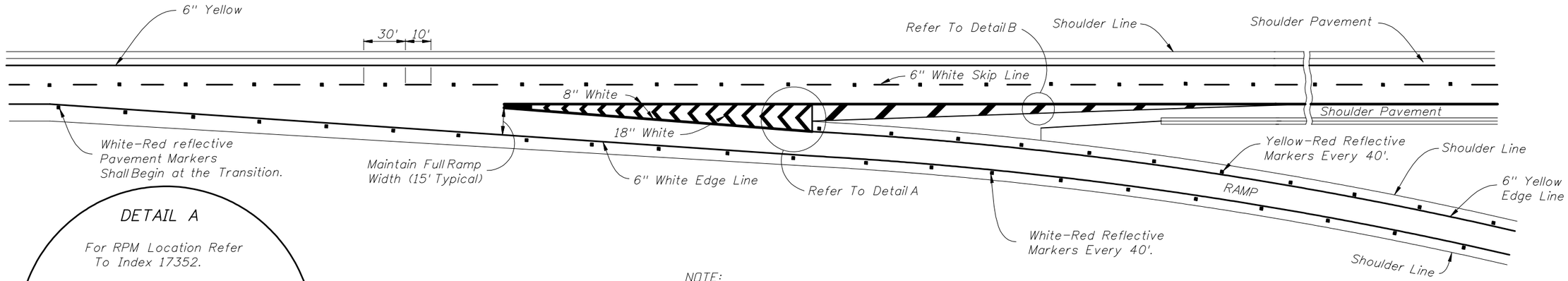
1. Standard size signs should be used whenever possible. Minimum sizes may be used only on low volume, low speed (less than 35 mph) streets. Special sizes should be used on expressway facilities where special emphasis is needed.

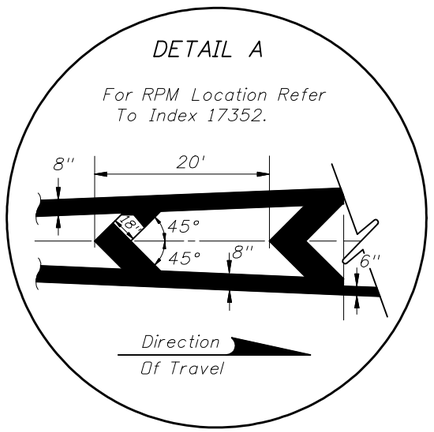
2. The value of the actual school zone speed limit shall be determined by the District Traffic Operations Engineer in cooperation with local school superintendents. In no case shall it be less than the 15 mph min. as set by law.

3. See Index No. 17355 for sign details.

4. When fluorescent yellow-green background color is used, a systematic approach featuring one background color within a zone or area should be used. The mixing of standard yellow and fluorescent yellow green background within a zone should be avouded.

Note:
Existing ground mount school speed limit signs utilizing a single 8" min. size beacon or two 6" min. size beacons inside the sign border are considered meeting the standard. However, replacement or upgrading of these school speed limit signs shall conform to the above standard. Numerical speed limit displayed shall be established by appropriate regulatory authorities.

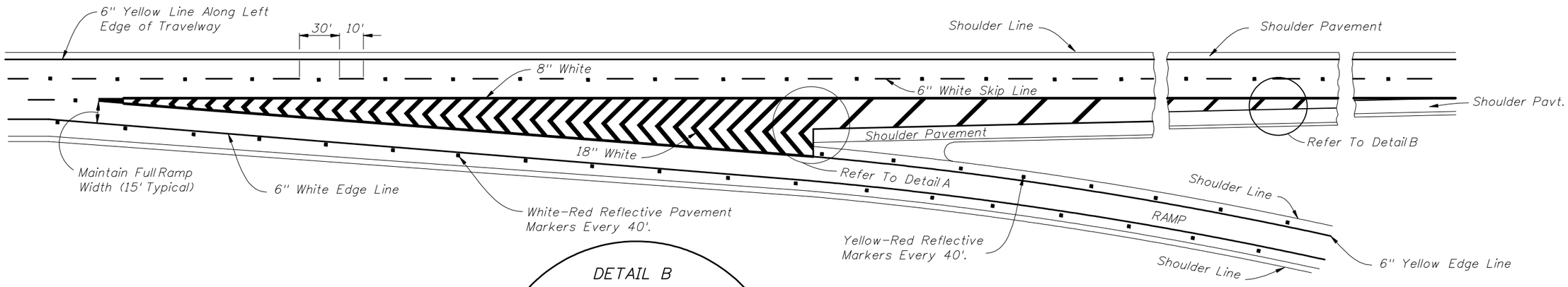




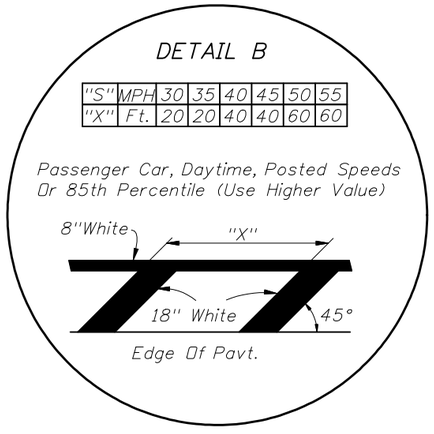
NOTE:
Reflective pavement markers are installed adjacent to the edge line.

NORMAL TAPERED EXIT

(TWO THRU LANES)



NOTE:
In advance of lane drops at exit ramps a special marking pattern may be used to distinguish the lane drop situation from a normal exiting ramp or auxiliary lane.
A typical special marking for lane drops consist of 8" wide by 3' long white stripes separated by 9' gaps. If used, this special marking should begin ½ mile in advance of the theoretical gore point. Where lane changes may cause conflicts, an 8" wide solid white channelizing line may be extended 300' upstream from the theoretical gore. (MUTCD Section 3B.05).



NORMAL TAPERED EXIT ONLY

(TWO THRU LANES - THREE APPROACH LANES)

2010 FDOT Design Standards

INTERCHANGE MARKINGS

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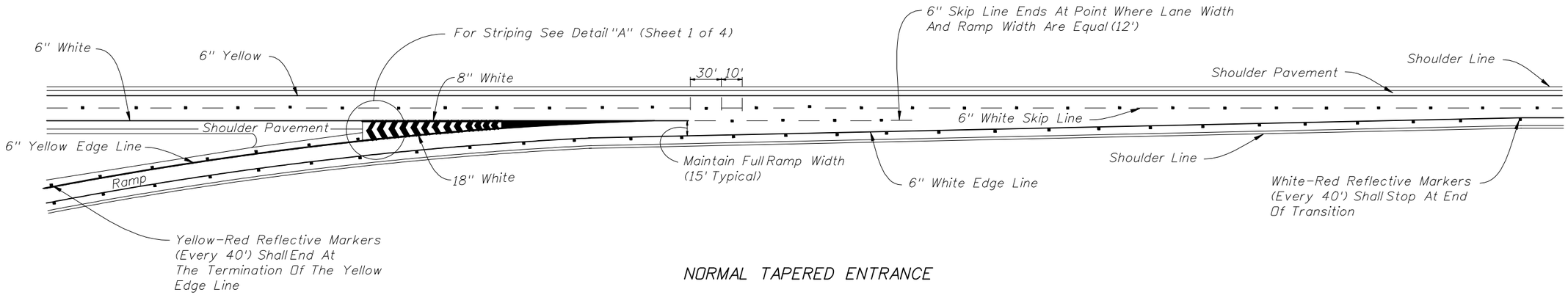
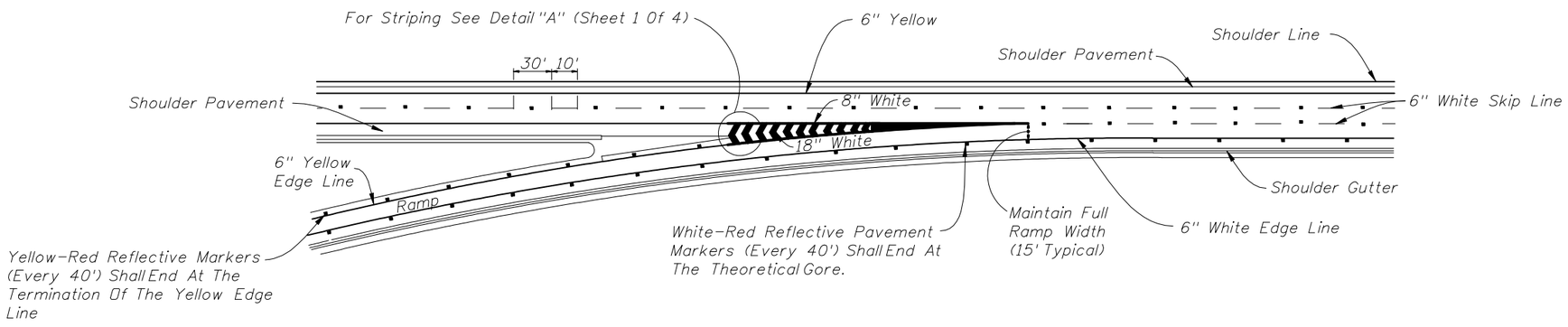


NORMAL TAPERED ENTRANCE



NORMAL TAPERED ENTRANCE
WITH ADDED LANE

2010 FDOT Design Standards

INTERCHANGE MARKINGS

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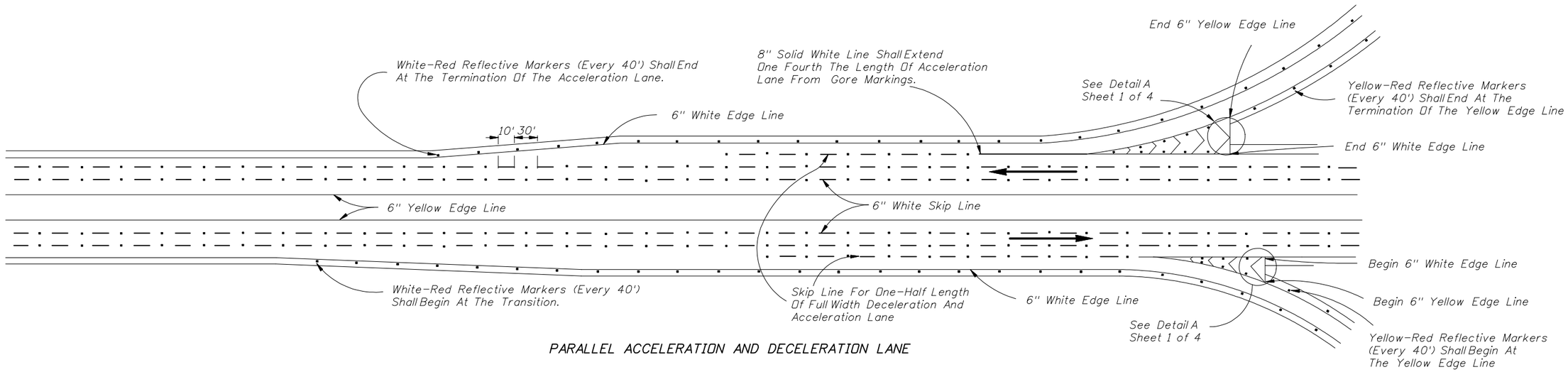
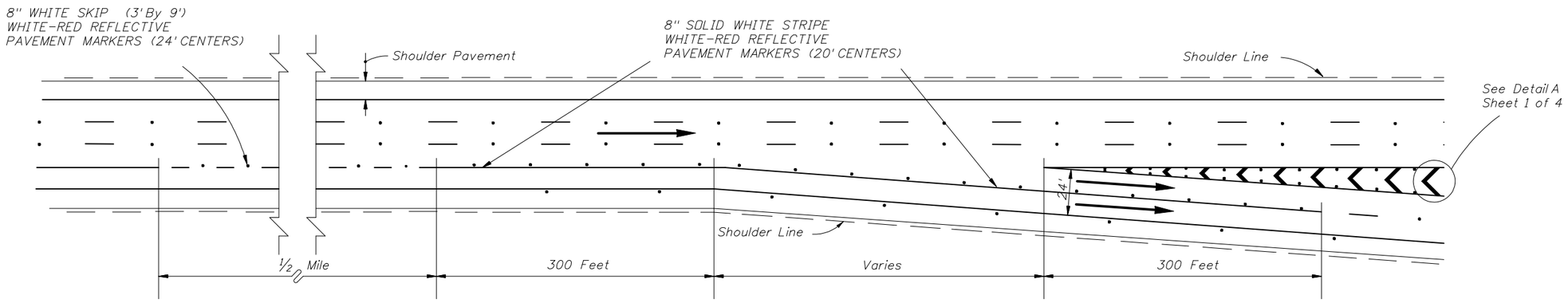
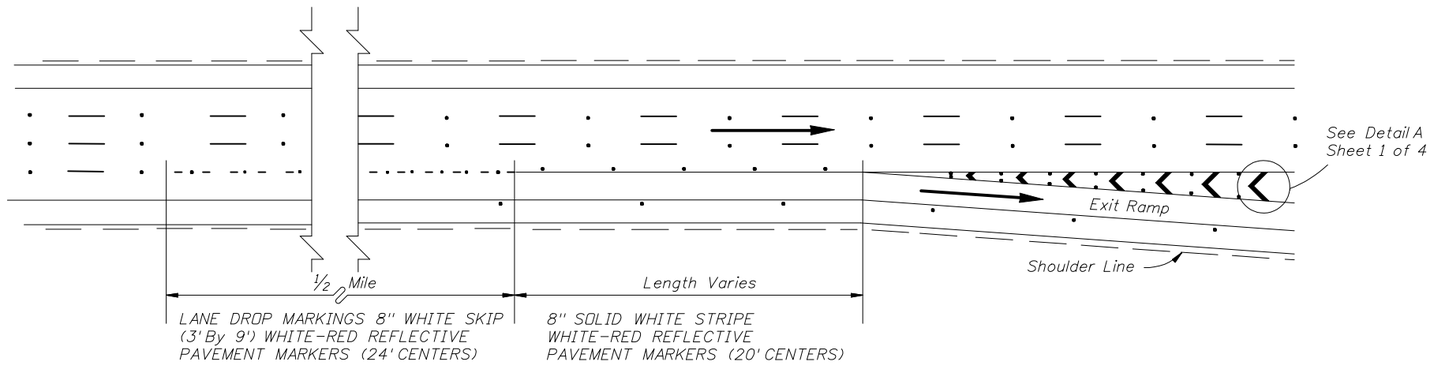


PARALLEL ACCELERATION AND DECELERATION LANE



TYPICAL MARKINGS AT DUAL LANE EXITS



TYPICAL LANE DROP MARKINGS AT EXIT RAMPS

Note: Arrows indicate direction of travel and are not shown for pavement marking.

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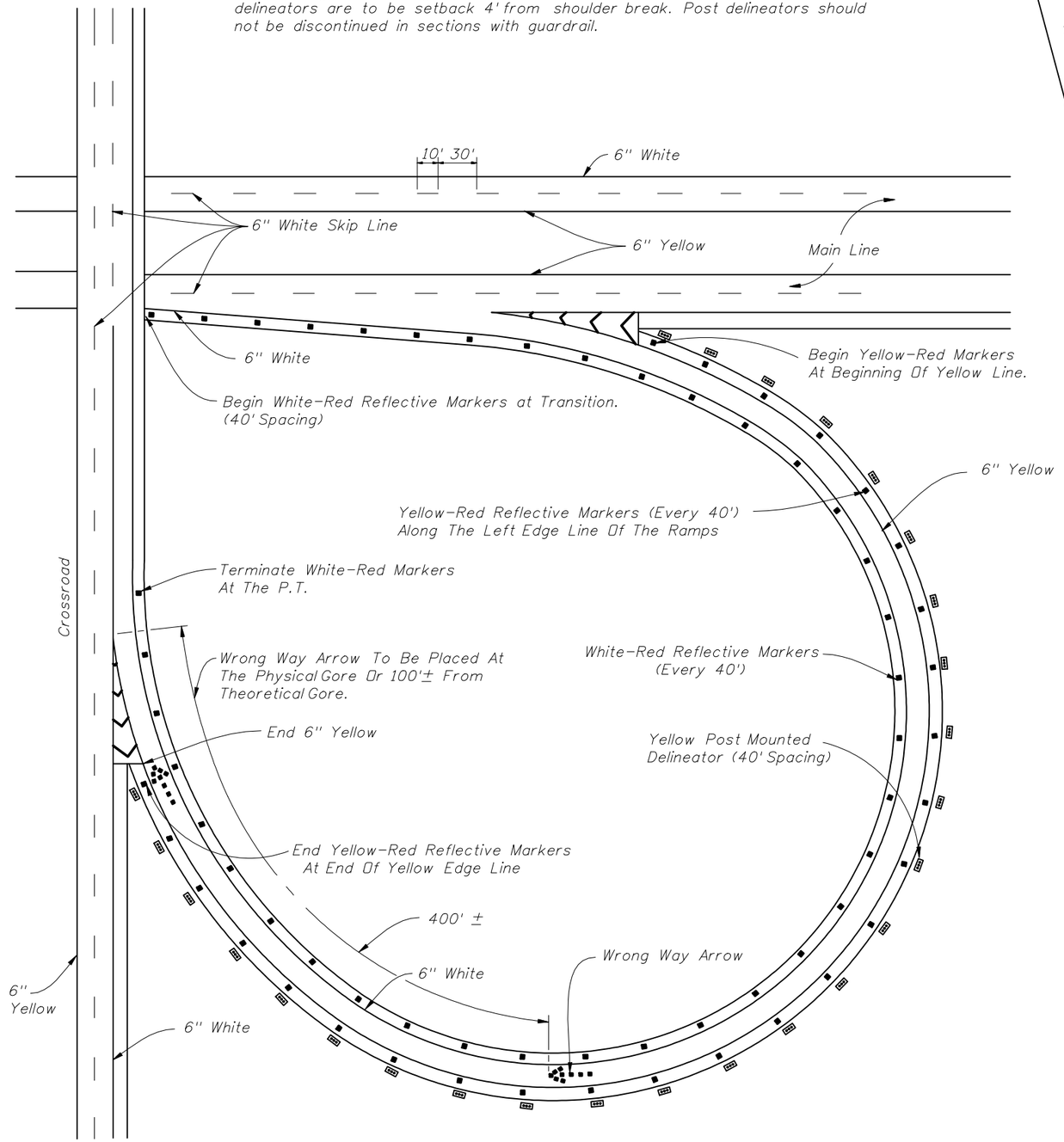
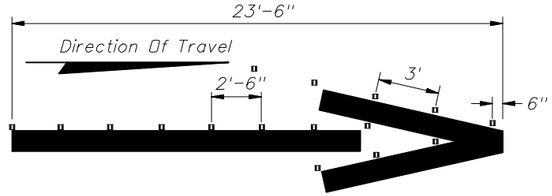
Notes:

1. Post delineators spaced at 40' on curves of the entrance and exit of ramps. The spacing on the tangent portion of the ramp section shall be 300'. All delineators are to be setback 4' from shoulder break. Post delineators should not be discontinued in sections with guardrail.



White Arrow With
White-Red Reflective Markers



WRONG WAY ARROW

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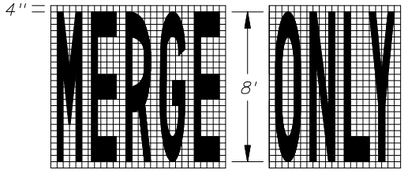
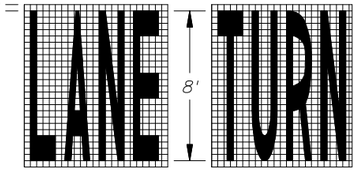
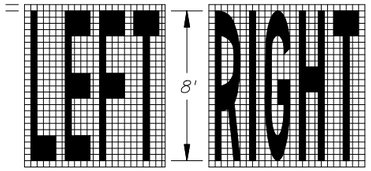


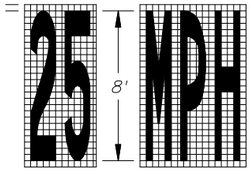
4" = 4" **34 s.f.** **22 s.f.**



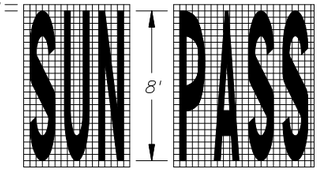
23 s.f. **24 s.f.**



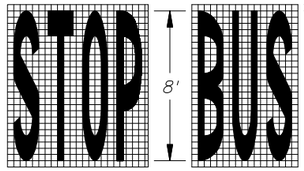
20 s.f. **26 s.f.**



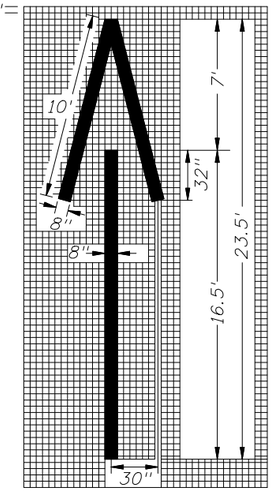
13 s.f. **20 s.f.**



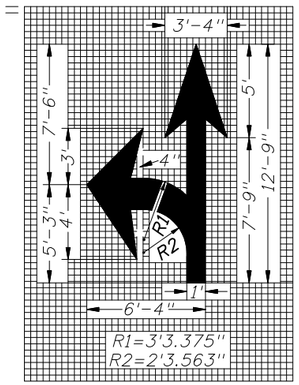
20 s.f. **23 s.f.**



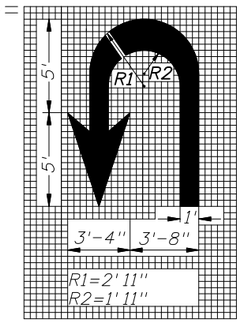
22 s.f. **20 s.f.** 4"



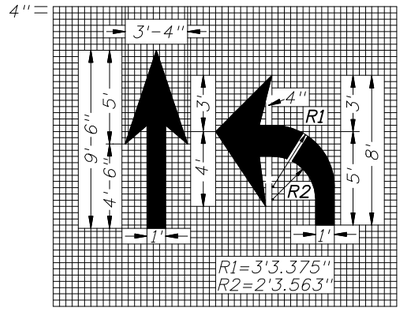
4" *Wrong-Way Arrow* **24 s.f.**



Turn and Through Lane-Use Arrow **29 s.f.**



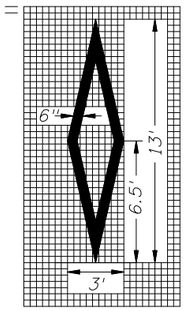
U Turn Lane-Use Arrow **27 s.f.**



Through Lane-Use Arrow **12 s.f.**

Turn Lane-Use Arrow **17 s.f.**

Right Turn Arrow To Be Reversed.



Preferential Lane Symbol **11 s.f.**

DIMENSIONS ARE WITHIN 1" ±

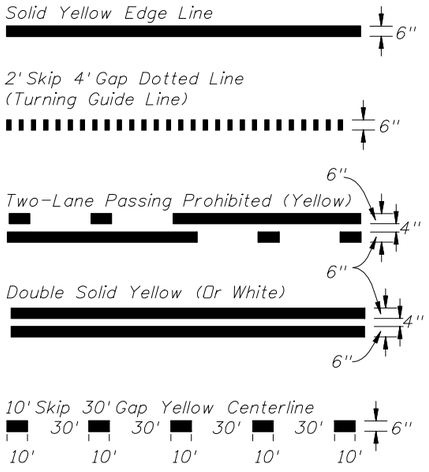
PAVEMENT ARROW AND MESSAGE DETAILS

NOTE: When arrow and pavement message are used together, the arrow shall be located down stream of the pavement message and shall be separated from the pavement message by a distance of 25' (Base of the arrow to the base of the message). Stop message shall be placed 25' from back of stop line.

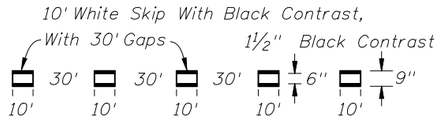
TYPES OF PERMANENT LONGITUDINAL LINES

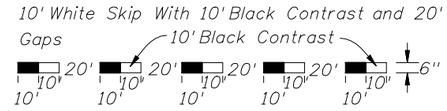
BASIC COLOR RULE:

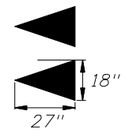
White lines separate traffic in the same direction. Yellow lines separate traffic in opposing directions. Yellow dotted lines may be used in special cases. Black may be used in combination with white for skip lines where a light-colored pavement does not provide sufficient contrast with the markings.



CONTRAST MARKINGS







Yield Lines 5-18" X 27" White triangles facing traffic equally spaced within travel lane with 1 additional triangle using same spacing when a bike lane is present.

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SPECIAL MARKING AREAS

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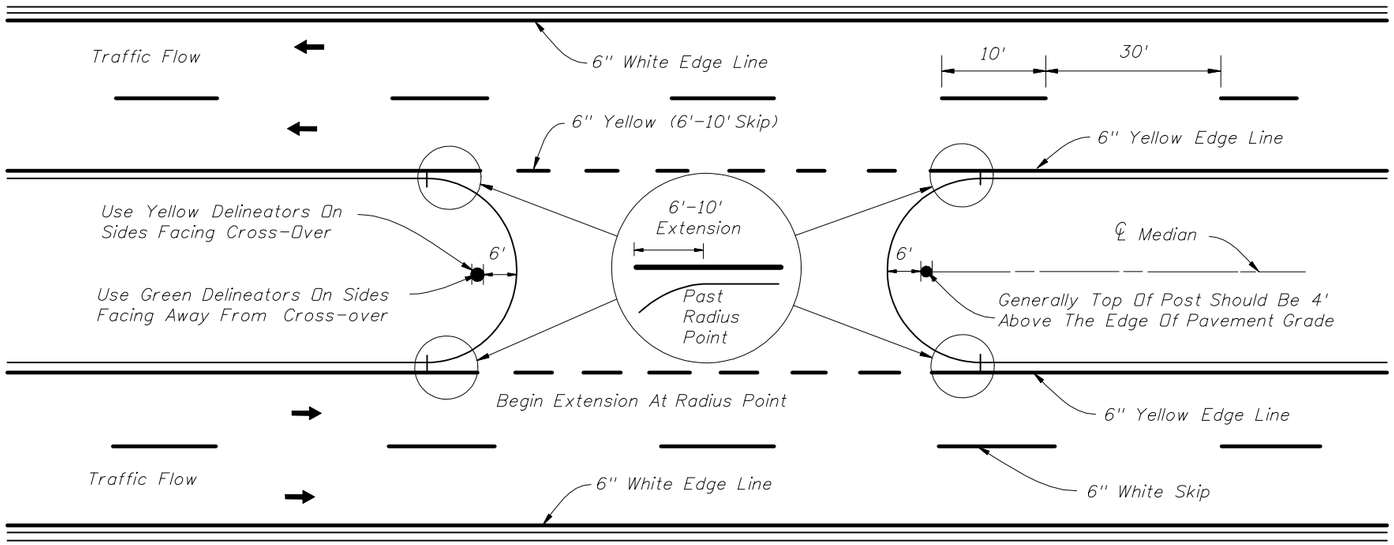
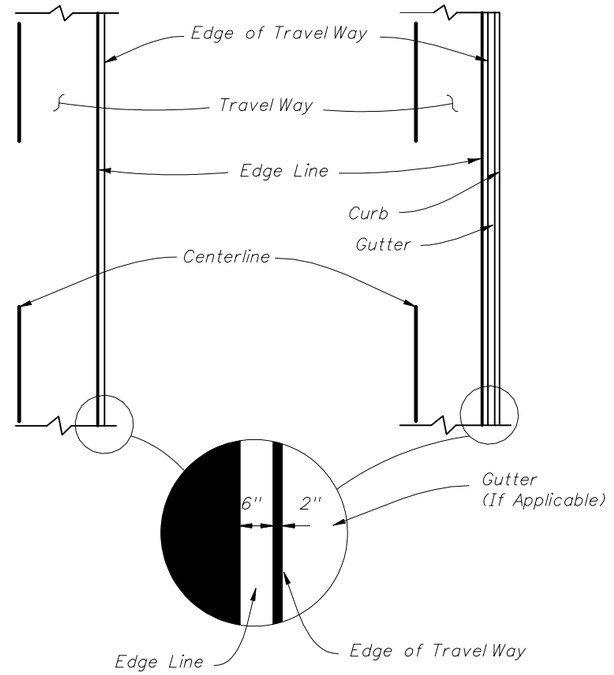
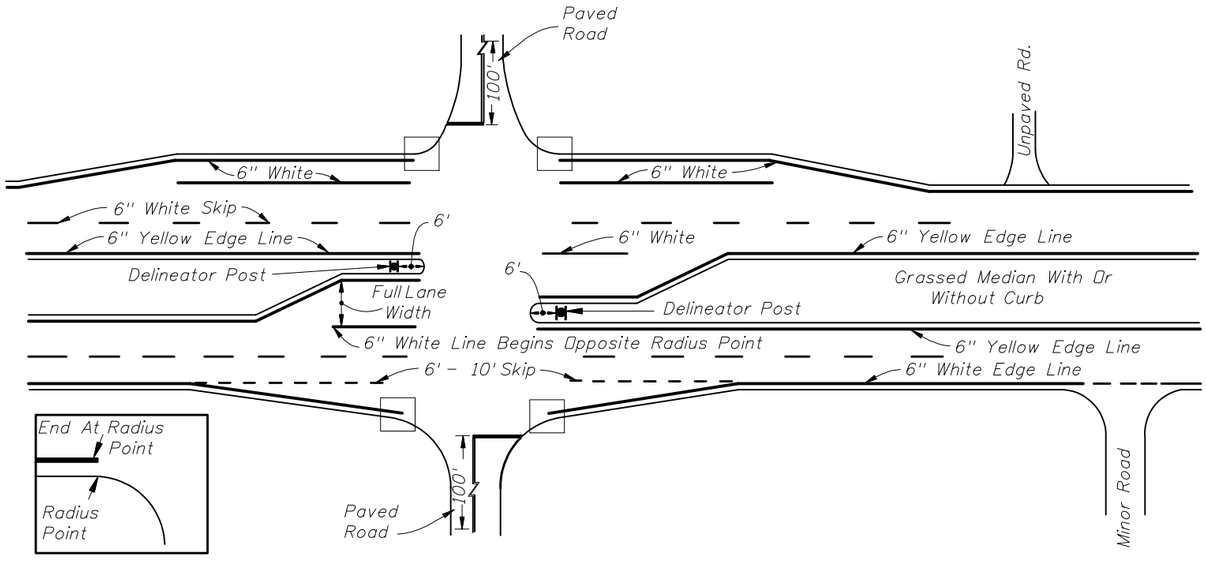


PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER



PLACEMENT OF EDGE LINES

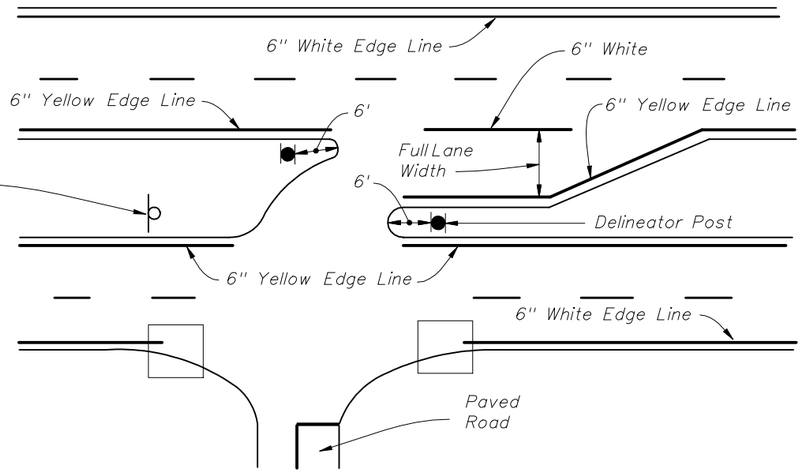


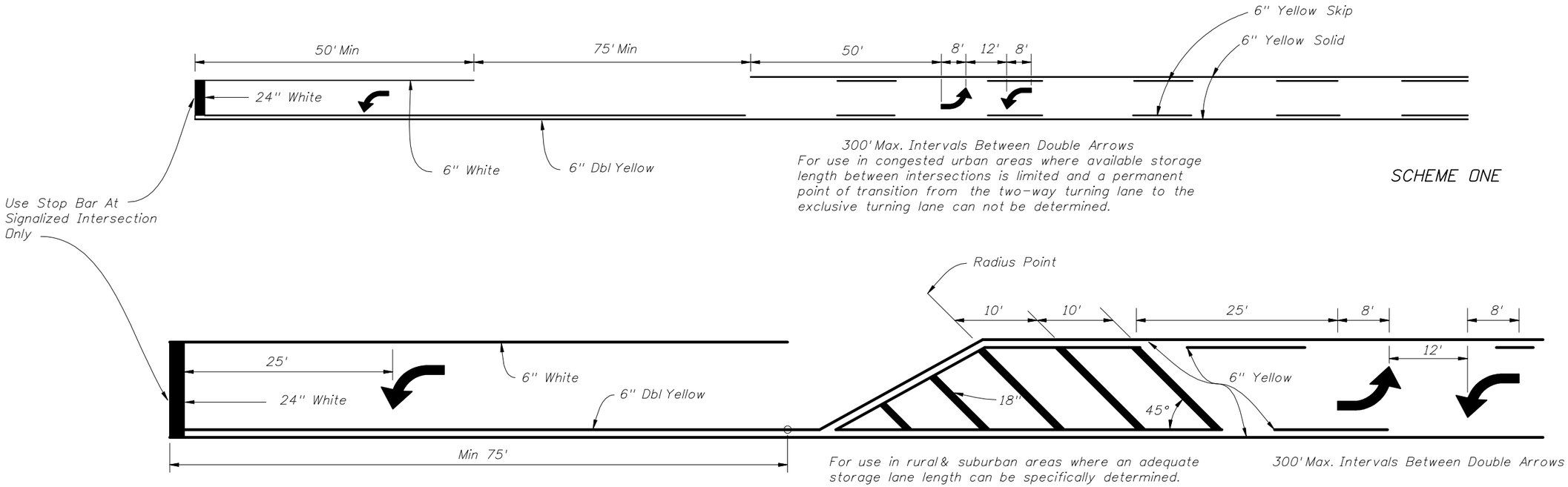
PAVEMENT MARKINGS FOR INTERSECTIONS WITH MAJOR AND MINOR ROADS

NOTE:

Markings applied to median noses shall be yellow in color.

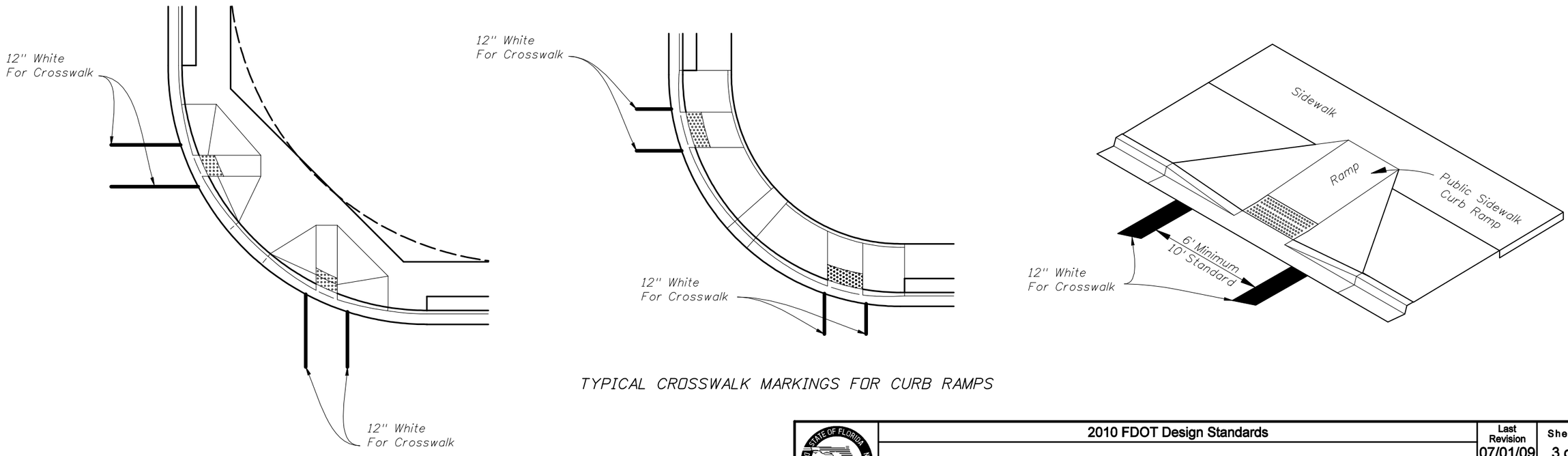
R3-4





(WITH SINGLE LANE LEFT TURN CHANNELIZATION)

TWO WAY LEFT TURN LANE



TYPICAL CROSSWALK MARKINGS FOR CURB RAMPS

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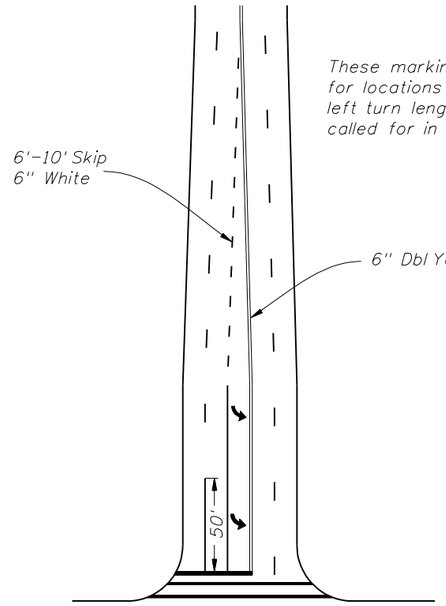
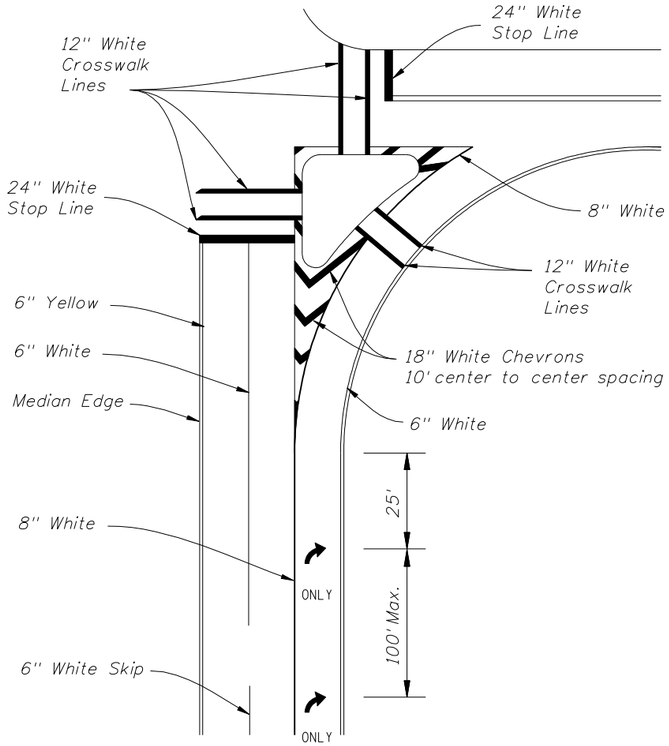
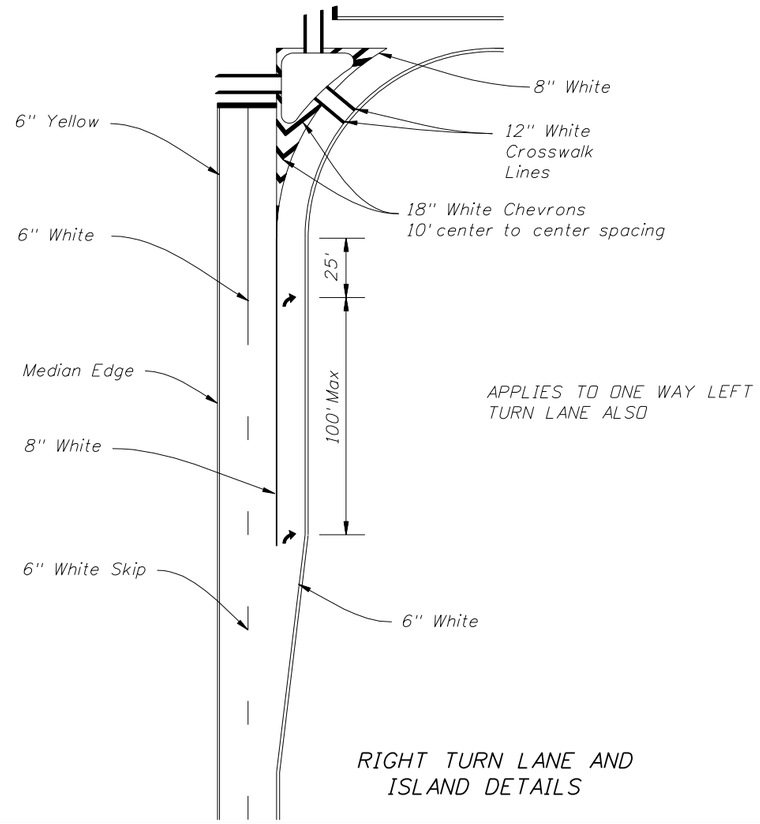


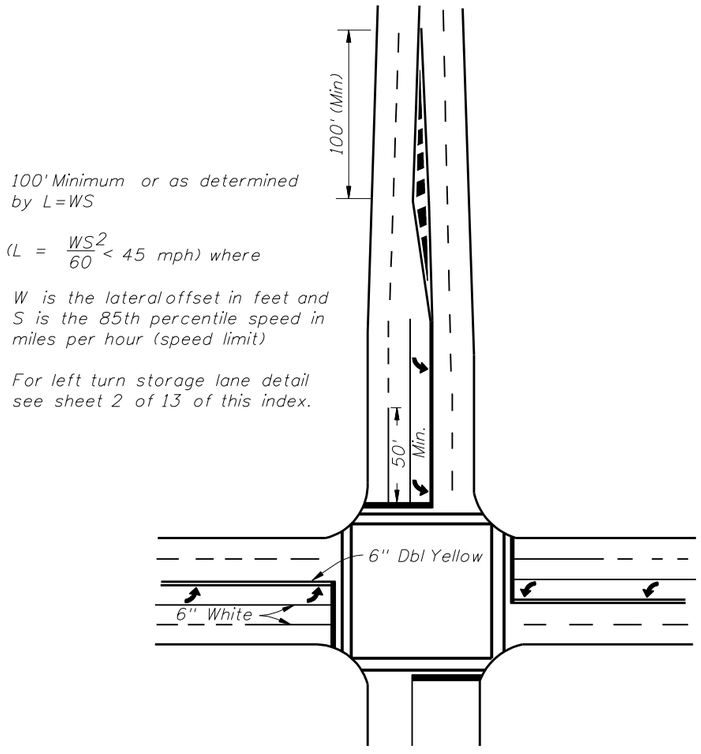
RESTRICTED LEFT TURN MARKING



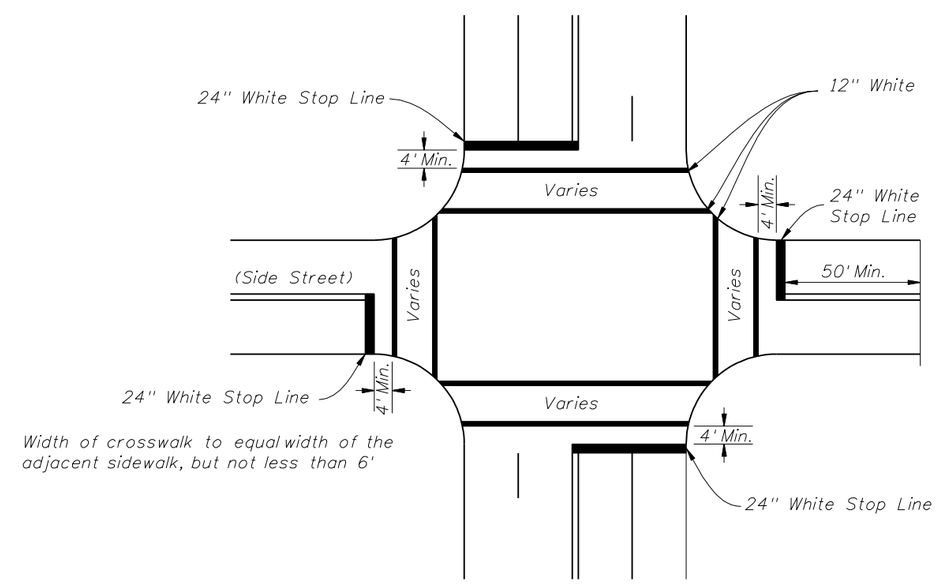
RIGHT TURN LANE DROP AND ISLAND DETAILS
LEFT TURN LANE DROP IS MIRROR IMAGE



RIGHT TURN LANE AND ISLAND DETAILS



TYPICAL INTERSECTION 2 THRU LANES
PLUS LEFT TURN LANE, WITH CROSSWALK



NOTES:

1. When public sidewalk curb ramps are present, refer Index 17344 and Index No. 304 for crosswalk widths.
2. Double yellow longitudinal center lines on all roadway approaches shall be extended back 100' for projects involving intersection improvements only.
3. When specified, "stop" message shall be placed 25' back of stop lines.

STOP BARS, CROSSWALKS AND DOUBLE CENTER LINE DETAILS

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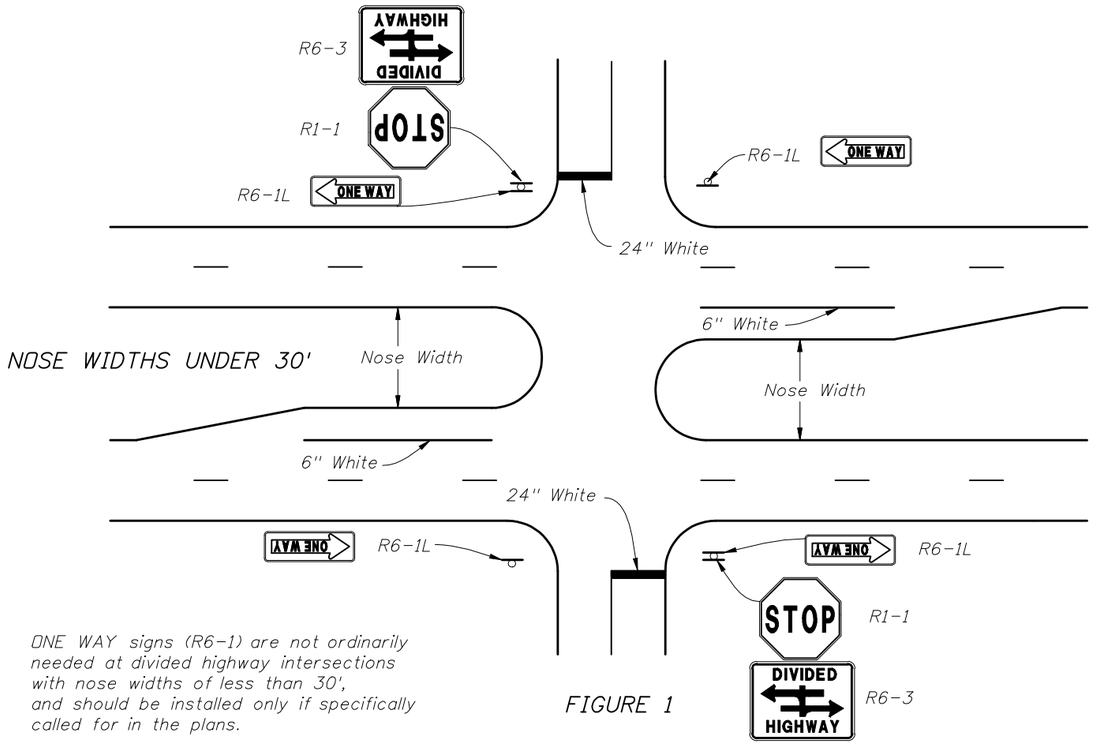


ONE WAY signs (R6-1) are not ordinarily needed at divided highway intersections with nose widths of less than 30', and should be installed only if specifically called for in the plans.

FIGURE 1

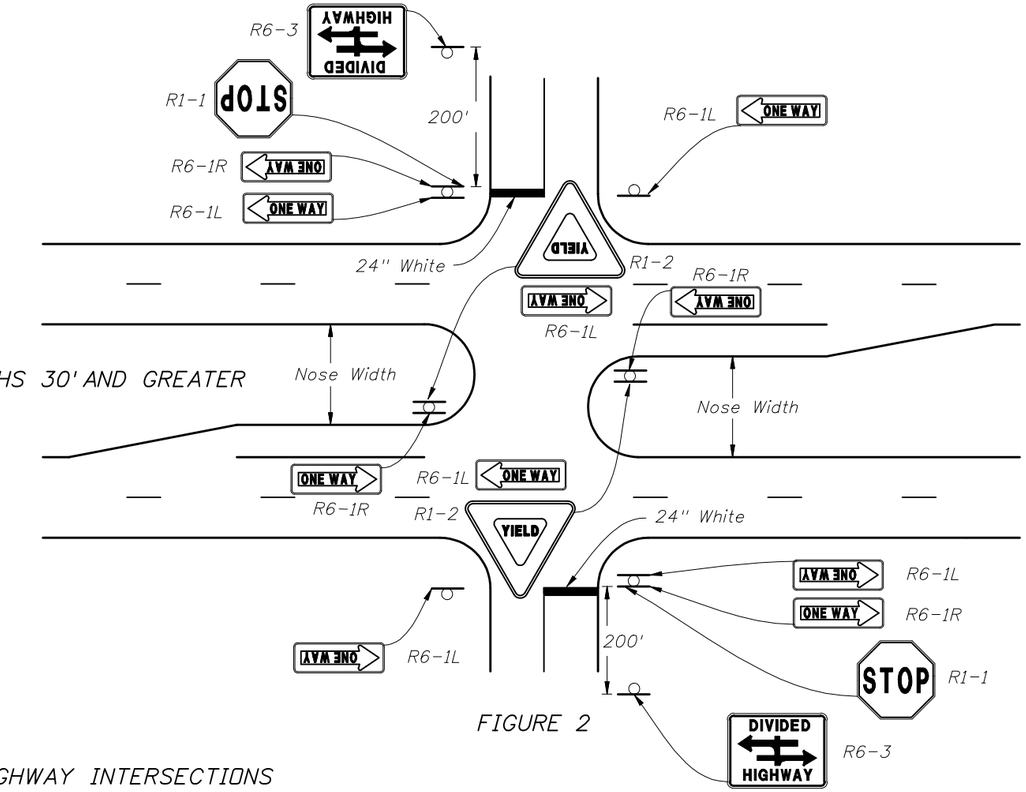
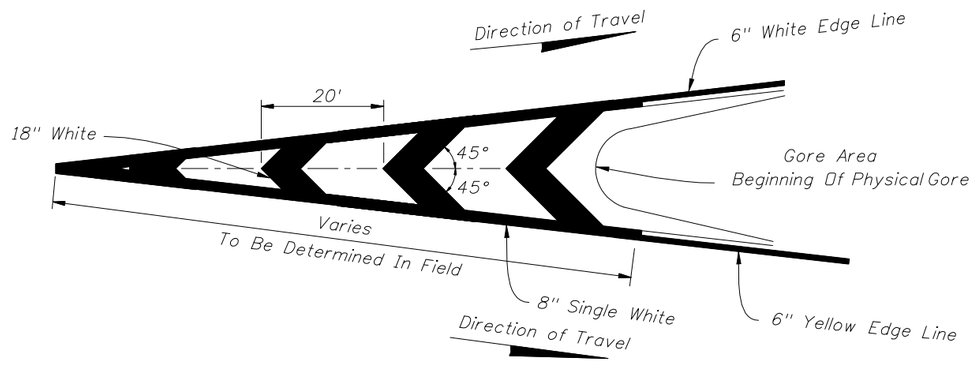


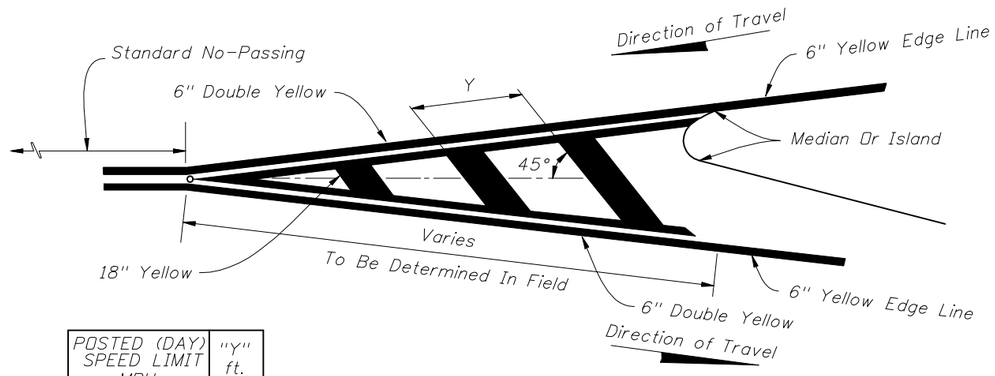
FIGURE 2

ONE-WAY SIGNS ON DIVIDED HIGHWAY INTERSECTIONS



PAVEMENT MARKINGS FOR TRAFFIC CHANNELIZATION AT GORE

(TRAFFIC FLOWS IN SAME DIRECTION)



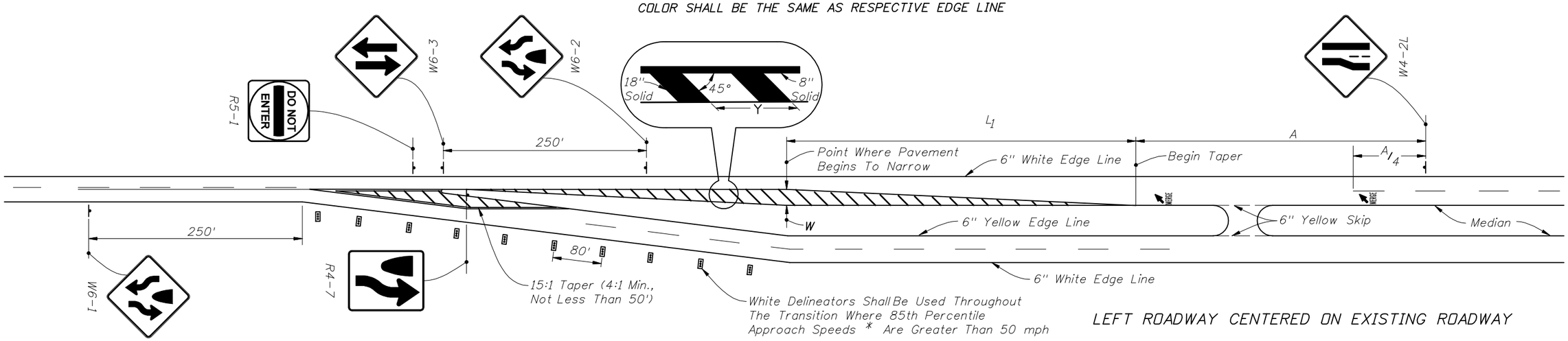
POSTED (DAY) SPEED LIMIT MPH	"Y" ft.
30 OR LESS	10
35	20
40	20
45	30
50 OR MORE	40

PAVEMENT MARKING FOR TRAFFIC SEPARATION

(TRAFFIC FLOWS IN OPPOSING DIRECTIONS)

TYPICAL TRANSITION MARKING

COLOR SHALL BE THE SAME AS RESPECTIVE EDGE LINE

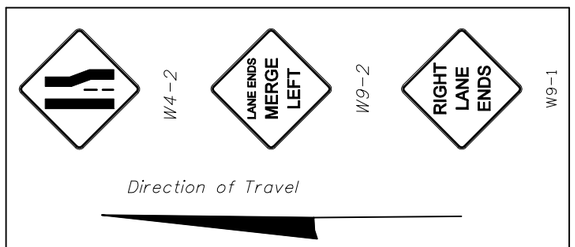


LEFT ROADWAY CENTERED ON EXISTING ROADWAY

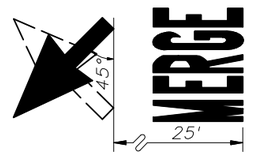
** W / * S	TRANSITION DISTANCE L_1 (FEET)						
MPH	8	9	10	11	12	13	14
30	120	135	150	165	180	195	210
35	165	185	205	225	245	265	285
40	215	240	270	295	320	350	375
45	360	405	450	495	540	585	630
50	400	450	500	550	600	650	700
55	440	495	550	605	660	715	770
60	480	540	600	660	720	780	840
65	520	585	650	715	780	845	910

SPEED* MPH	"A" (FT.)
55	950
50	850
45	750
40	650
30	450

POSTED (DAY) SPEED LIMIT MPH	"Y" (FT.)
30 OR LESS	10
35	20
40	20
45	30
50 OR MORE	40



NOTE:
W9-1 & W9-2 are supplemental to the W4-2 sign and may be deleted if space is not available. The W9-1 should be used if only one supplemental sign is installed.



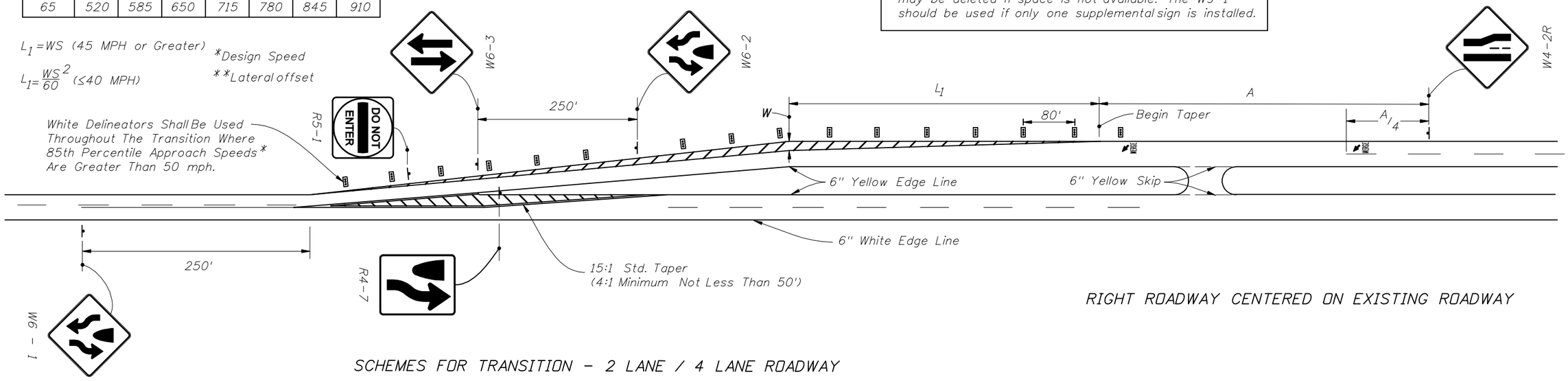
PAVEMENT MARKING DETAIL

$L_1 = WS$ (45 MPH or Greater)

$L_1 = \frac{WS^2}{60}$ (≤40 MPH)

*Design Speed

**Lateral offset



SCHEMES FOR TRANSITION - 2 LANE / 4 LANE ROADWAY

RIGHT ROADWAY CENTERED ON EXISTING ROADWAY

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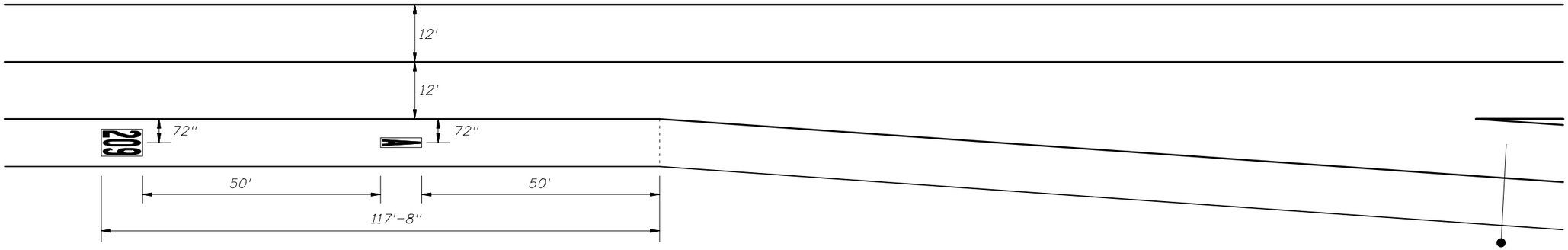
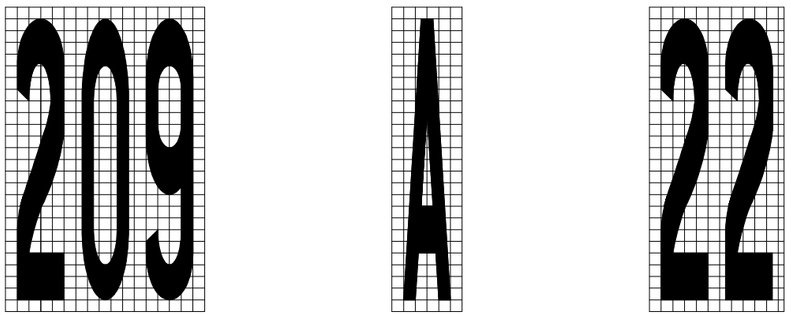
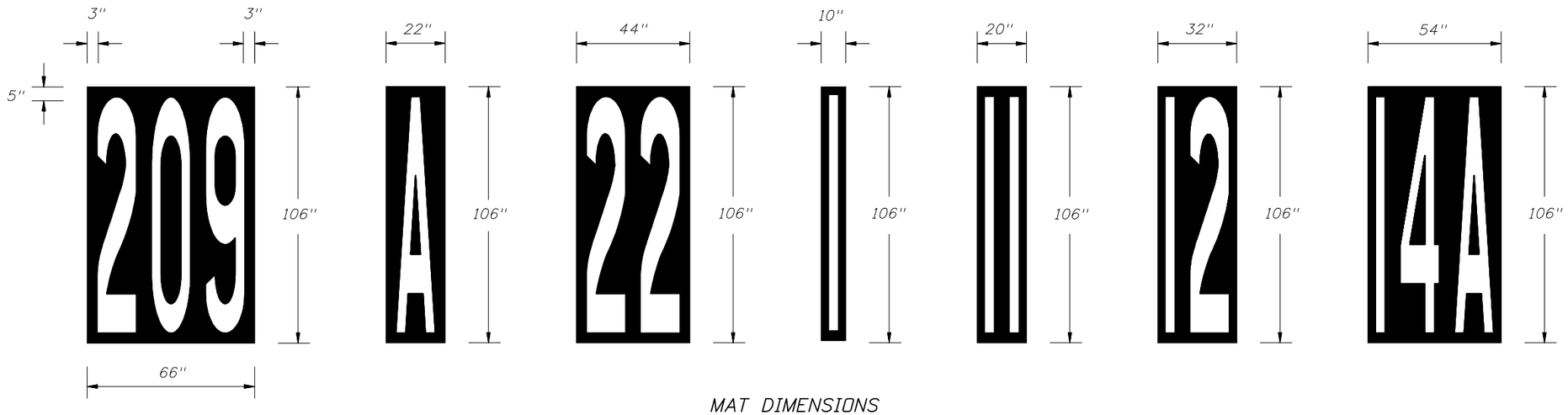


LAYOUT FOR 1, 2 AND 3 DIGIT NUMBERS AND LETTERS



MESSAGE SIZE AND SPACING



MAT DIMENSIONS

NOTES:

1. Messages shall meet requirements of Specification Section 971-7 and Section 711.
2. The thickness of the preformed message shall be 125 mils.
3. The message shall consist of white letters and numbers with black contrasting material. The black material shall meet the mat dimensions shown and have a minimum skid resistance value of 55 BPN.
4. The "EXIT NUMBER" position remains the same (117'-8") from the beginning of taper regardless of the number of lines of information.

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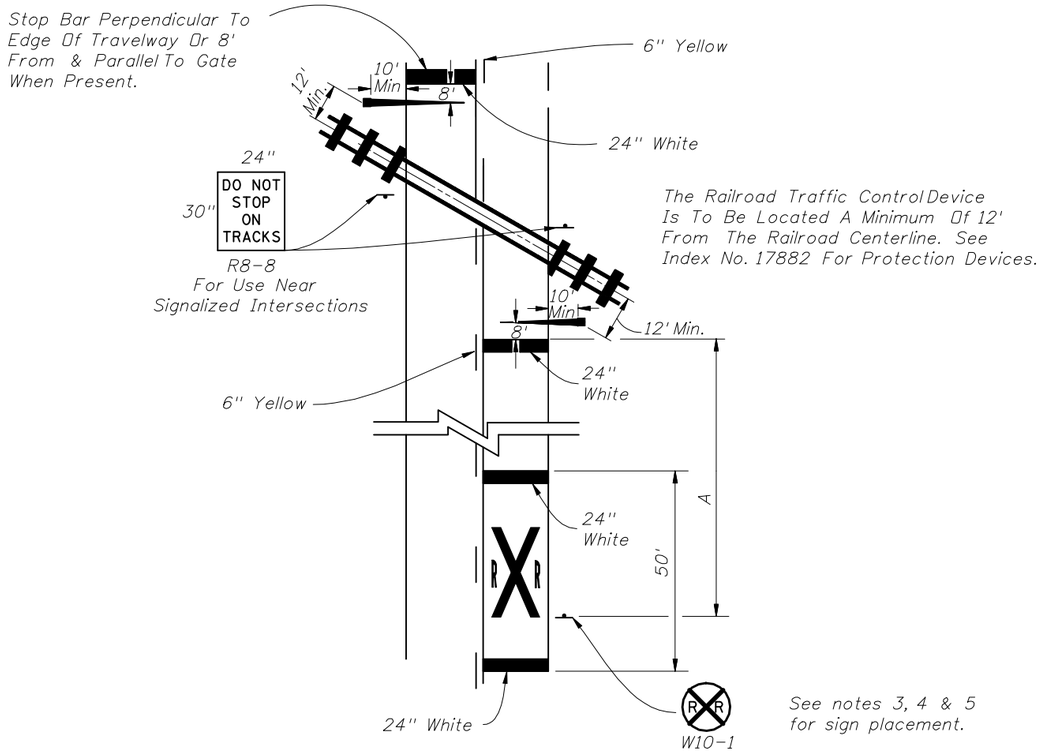
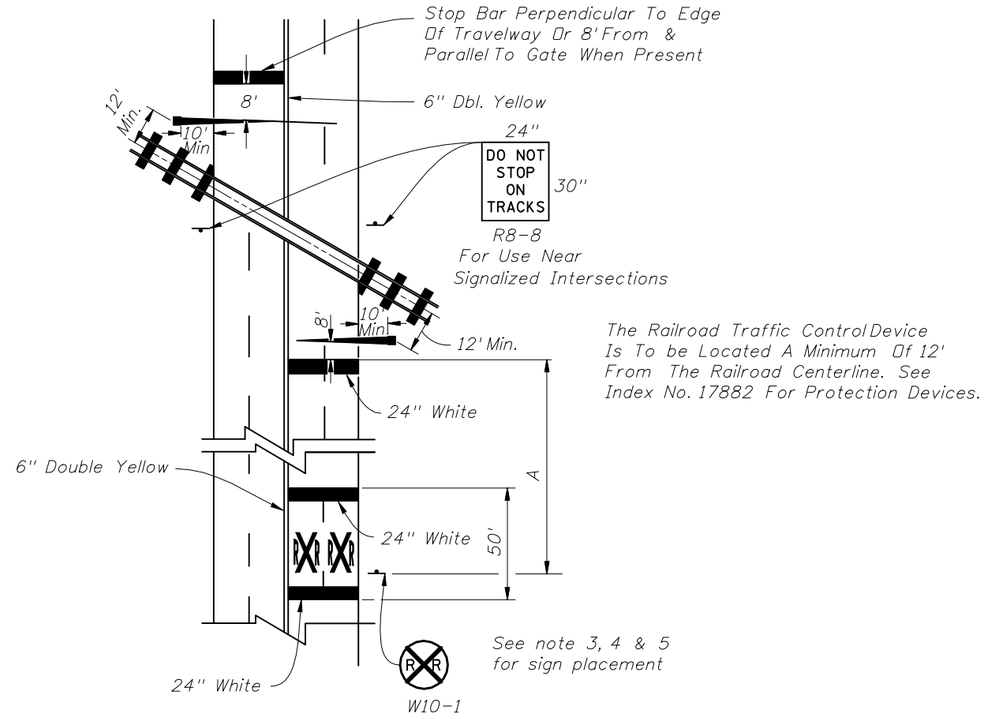
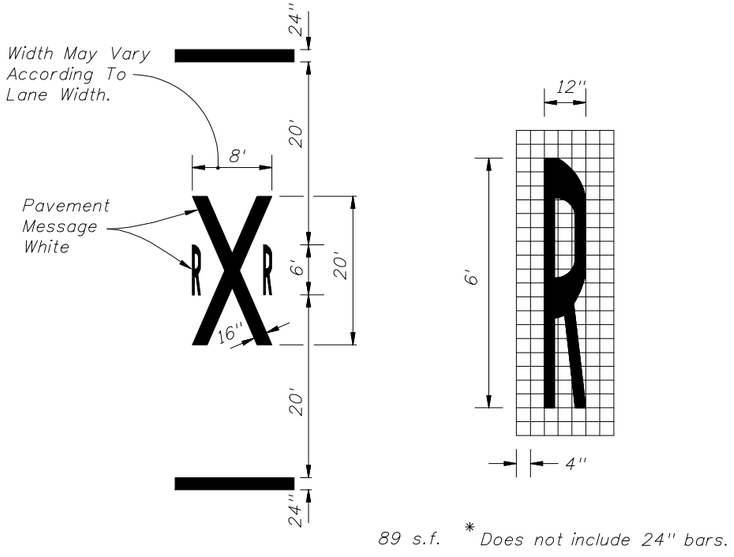


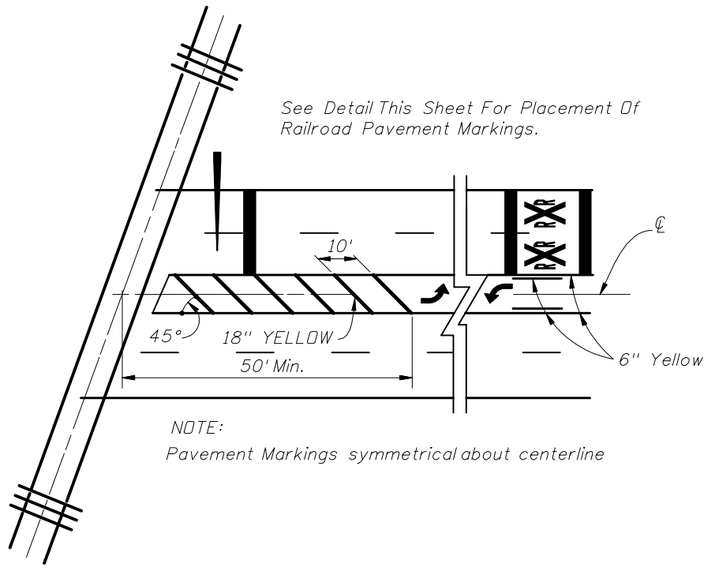
RAILROAD CROSSING AT 2-LANE ROADWAY



RAILROAD CROSSING AT 4-LANE ROADWAY



TYPICAL PAVEMENT MARKINGS FOR R/R CROSSING



PAVEMENT MARKINGS FOR TERMINATION OF TWO WAY LEFT TURN AT R/R CROSSINGS

NOTES:

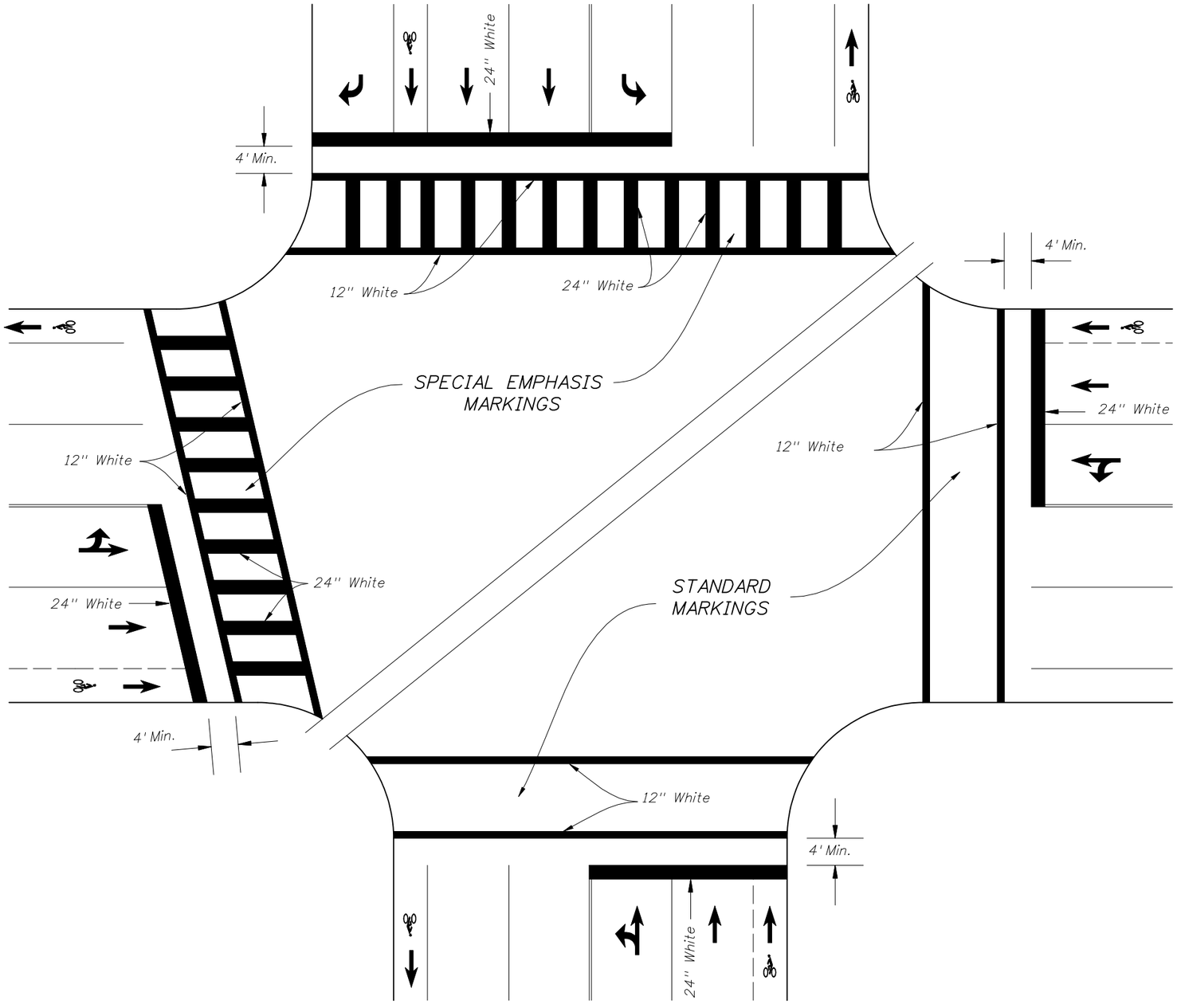
1. When computing pavement messages, quantities do not include transverse lines.
2. When dynamic devices are not present or are to be installed, the crossbuck shall be located at the future location of the RR gate or signal and gate in accordance with Index No. 17882.
3. Placement of sign W10-1 in a residential or business district, where low speeds are prevalent. the W10-1 sign may be placed a minumum distance of 100' from the crossing. Where street intersections occur between the RR pavement message and the tracks an additional W10-1 sign & additional Pavement message should be used.
4. Recommended location for FTP-61-06 or FTP-62-06 sign, 100' urban & 300' rural in advance of the crossings.
5. A portion of the pavement marking symbol should be directly opposite the W10-1 sign.

SPEED MPH	" A " IN FT.
60	400
55	325
50	250
45	175
40	125
35	100
URBAN	85 MIN.

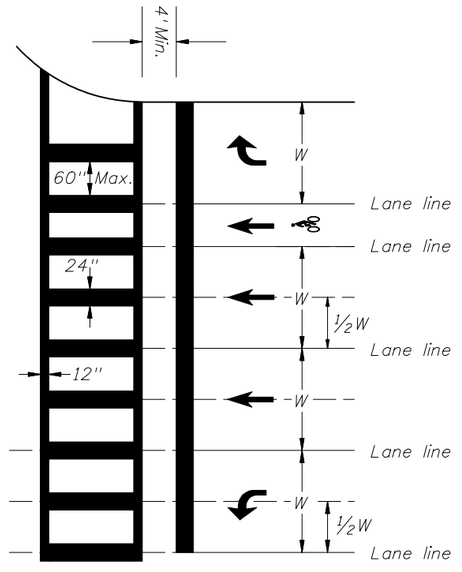
GENERAL NOTES

1. For traffic and pedestrian signal installation, refer to Index No. 17721 through 17890.
2. For public sidewalk curb ramps, refer to Index No. 304.
3. For pavement marking and sign installation, refer to Indexes 11200 through 17356.
4. Crosswalk minimum widths: Intersection Crosswalk 6'. Midblock Crosswalk 10'.
5. All crosswalk markings shall be white.
6. Longitudinal lines in Special Emphasis Crosswalk shall be 24" wide and spaced to avoid the wheel path of vehicles as shown in detail. The maximum space between markings shall not exceed 60". A longitudinal marking shall be centered at each lane line. Additional longitudinal markings shall be placed at the center of each lane (1/2W).

   Where the Crosswalk is skewed to the lane lane lines, the Special Emphasis longitudal lines should be parallel to the lane line.



SPECIAL EMPHASIS AND STANDARD CROSSWALKS
SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION



SPECIAL EMPHASIS
CROSSWALK MARKING
DETAIL

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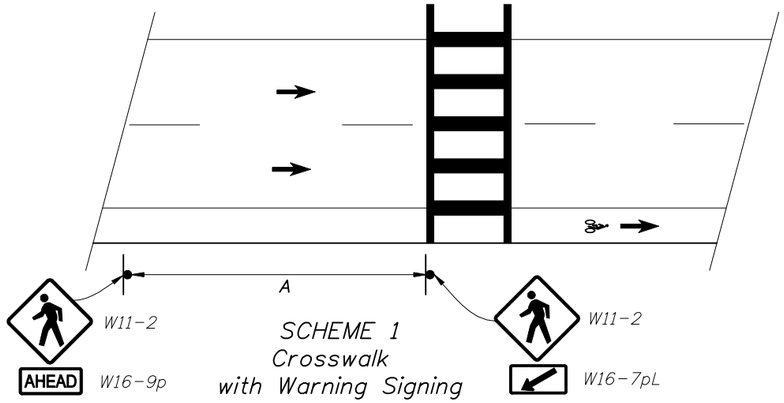
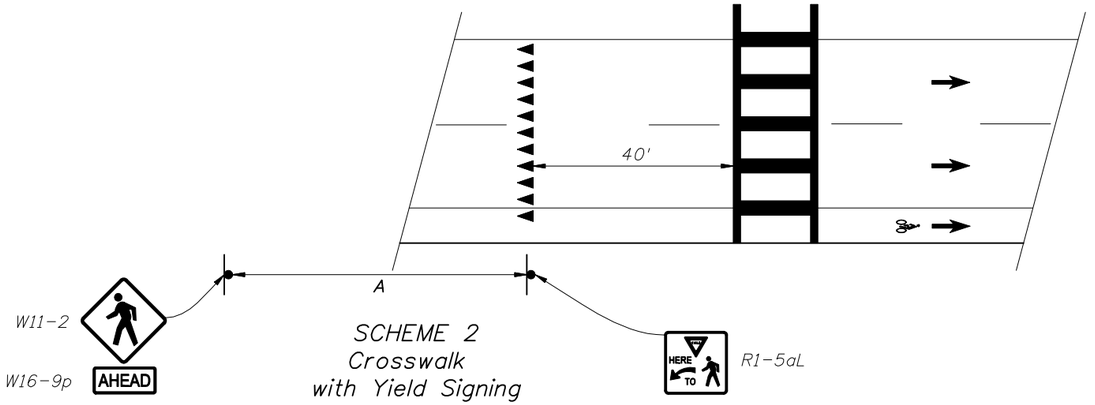
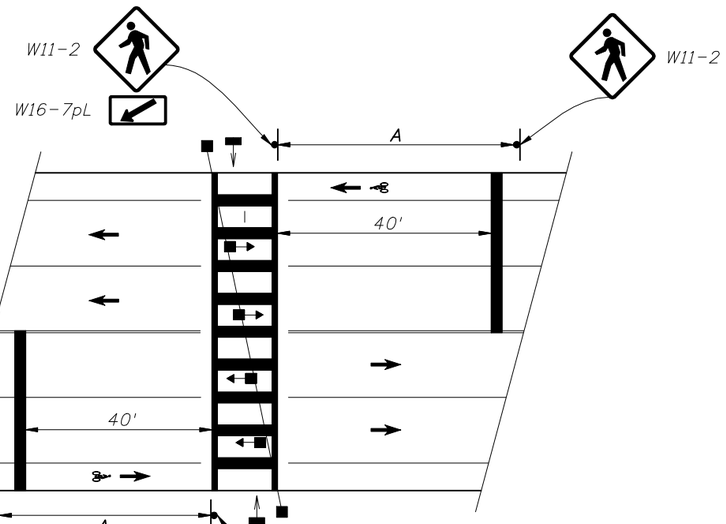


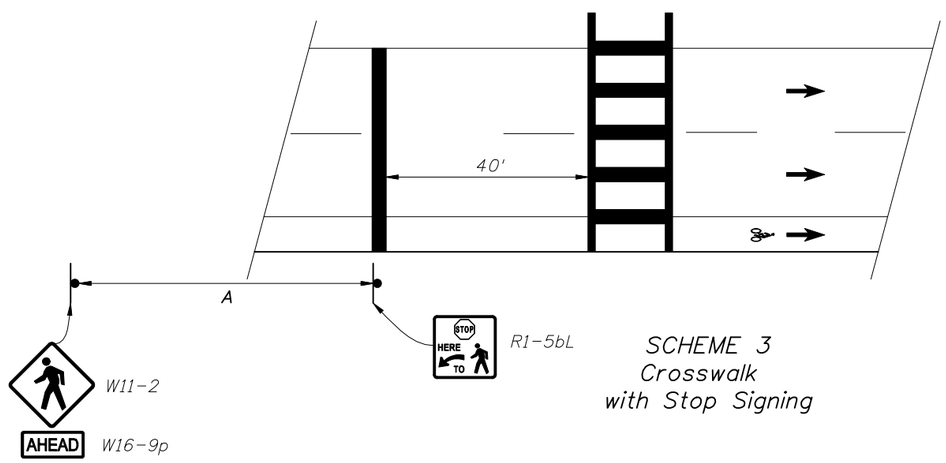
SCHEME 1
Crosswalk
with Warning Signing



SCHEME 2
Crosswalk
with Yield Signing



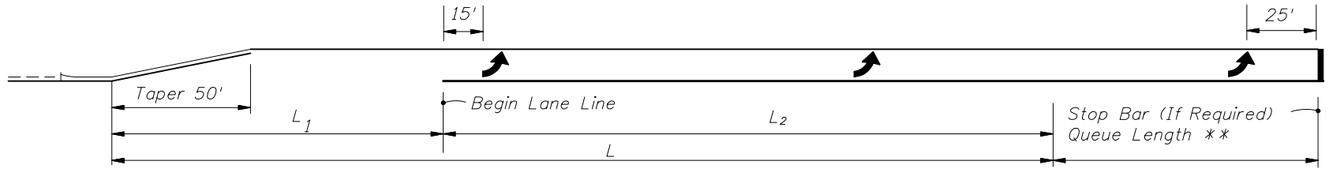
SCHEME 4
Signalized
Crosswalk



SCHEME 3
Crosswalk
with Stop Signing

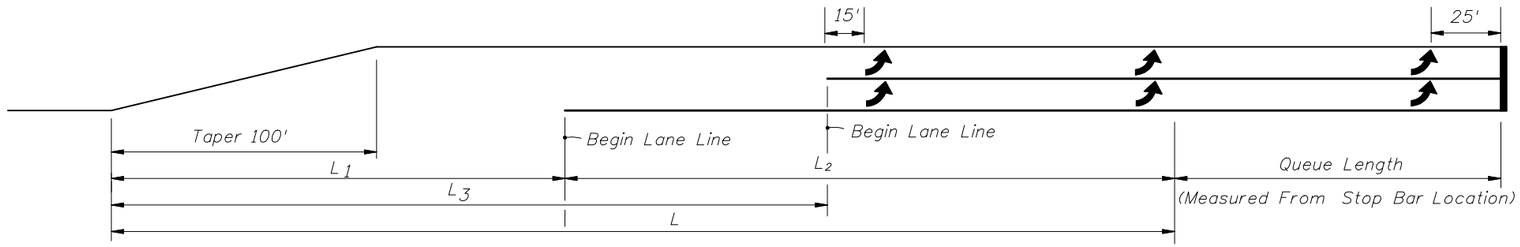
APPROACH SPEED MPH	A-SUGGESTED DISTANCE (Ft.)
25 Or Less	200
26 To 35	250
36 To 45	300
46 To 55	325

1. Plans shall indicate which crosswalk scheme is to be used.
2. The details shown do not depict the signing and markings for multi-lane roadways with divided medians. For these applications, additional signs shall be installed on the median side.
3. All mid-block crosswalks shall use high emphasis crosswalk markings.
4. Crosswalk marking should utilize preformed marking materials.

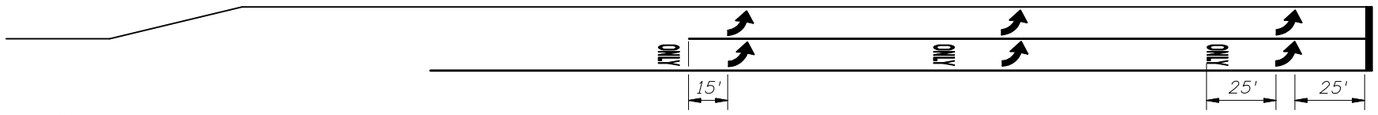


SINGLE LEFT TURNS

** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.

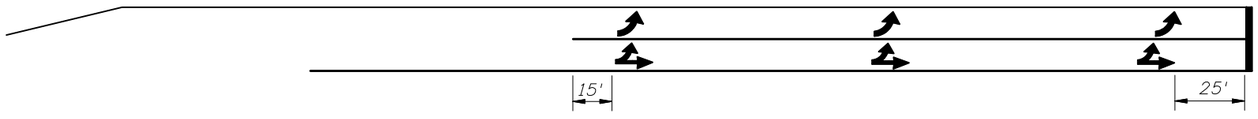


DOUBLE LEFT TURNS



The ONLY pavement message is required for turn lanes, where the thru lane becomes turn lane.

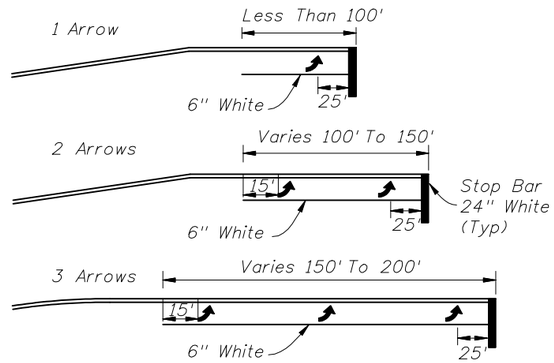
Through Lane Becomes Exclusive Left Turn



Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURN MARKINGS

	TURN LANES ◦ CURBED AND UNCURBED MEDIANS						
		URBAN CONDITIONS			RURAL CONDITIONS		
Design Speed (mph)	Clearance Distance L_1	Brake To Stop Distance L_2	Total Decel. Distance L	Clearance Distance L_3	Brake To Stop Distance L_2	Total Decel. Distance L	Clearance Distance L_3
35	70'	75'	145'	110'	— —	— —	— —
40	80'	75'	155'	120'	— —	— —	— —
45	85'	100'	185'	135'	— —	— —	— —
50	105'	135'	240'	160'	185'	290'	160'
55	125'	— —	— —	— —	225'	350'	195'
60	145'	— —	— —	— —	260'	405'	230'
65	170'	— —	— —	— —	290'	460'	270'

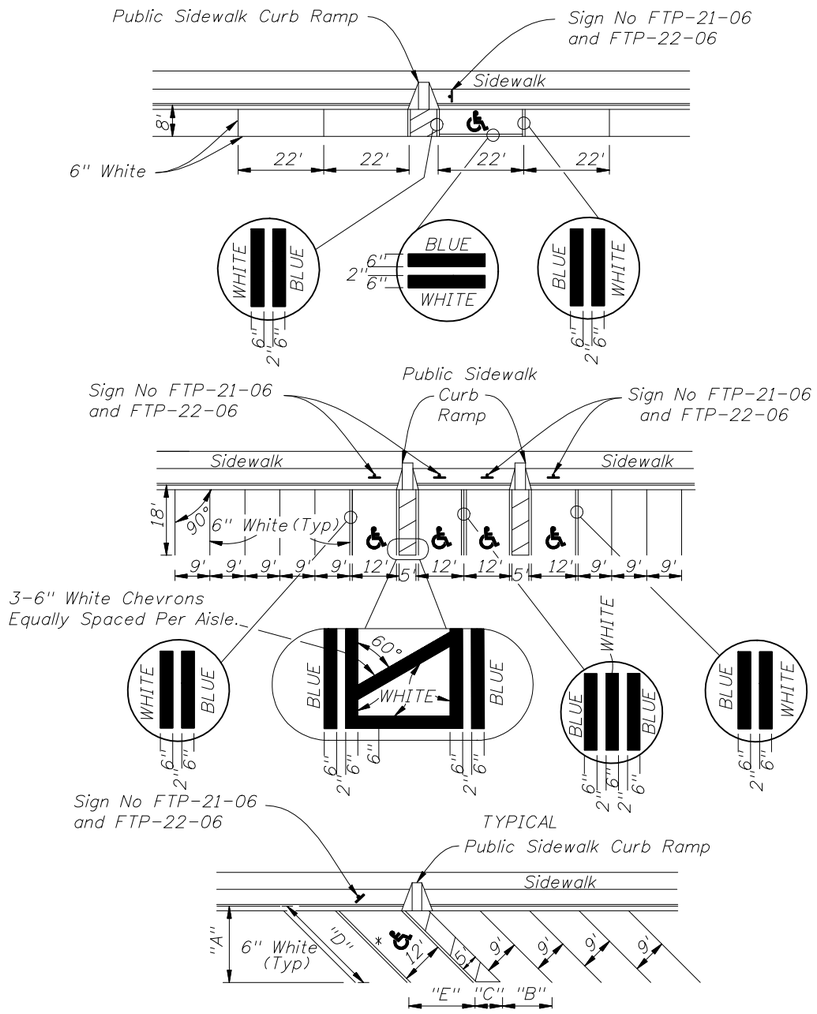


Arrow should be evenly spaced between first and last arrow. Turn lanes longer than 200' add one arrow for each 100' additional length.

ARROW SPACING

NOTES:

1. The "Begin Lane Line" locations are based on the standard lengths shown in Design Standard 301. These locations must be adjusted on a case by case basis for turn lanes not meeting the standard lengths.
2. Yellow left turn edge marking may be used adjacent to raised curb or grass medians if lane use is not readily apparent to drivers approaching a left turn storage lane.
3. Refer to Design Standard Index 301 for Roadway Details.
4. This Index also applies to right turn lanes.

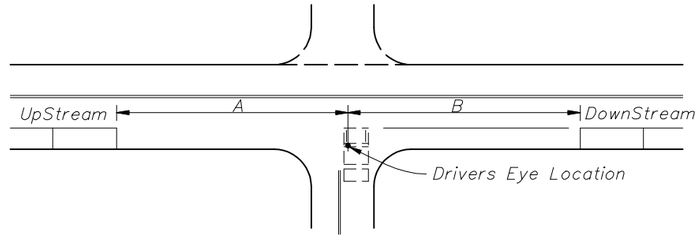


* FOR ACCESSIBLE MARKINGS - SEE ABOVE

	"DIMENSIONS"				
△°	"A"	"B"	"C"	"D"	"E"
45°	19'-1"	12'-9"	7'-0"	27'-0"	17'-0"
60°	20'-1"	10'-5"	5'-9"	23'-2"	13'-10"

NOTES:
1. Dimensions are to the centerline of markings.
2. An Access Aisle is required for each accessible space when angle parking is used.
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
4. Blue pavement markings shall be tinted to match shade 15180 of Federal Standards 595a.
5. The FTP-22-06 panel shall be mounted below the FTP-21-06 sign.

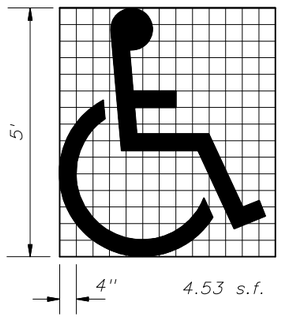
PAVEMENT MARKING FOR PUBLIC SIDEWALK CURB RAMPS IN REST AREAS

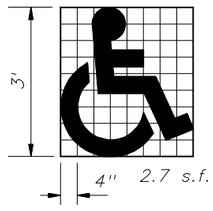


SPEED MPH	UP STREAM (A)	DOWN STREAM (B)	
		2 LANE	4 LANE
0-30	85'	60'	45'
35	100'	70'	50'

NOTES
1. Distances measured longitudinally along the street from driver location of entering vehicle to end of parking restriction.
2. Distances applicable to intersecting street, major driveways and other driveways to the extent practical.
3. For nonsignalized intersections, the values above shall be compared with the values for signalized intersections and the maximum restrictions implemented. These restrictions apply to both accessible and nonaccessible parking.

MINIMUM PARKING RESTRICTION FOR NONSIGNALIZED INTERSECTIONS





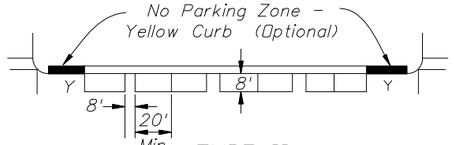
Use of pavement symbol in accessible parking spaces is optional, when used the symbol shall be 3' or 5' high and white in color.

UNIVERSAL SYMBOL OF ACCESSIBILITY

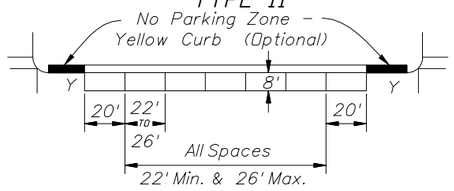
GENERAL NOTES (Signalized & Nonsignalized)

1. For entrances to a one-way street, the downstream restriction may be reduced to 20'.
2. Parking shall not be allowed within 20' of a crosswalk.
3. All parking lane markings shall be 6" white.
4. Parking lane lines shall be broken at driveways.
5. Refer to Chapter 316, Fla. Statutes, for laws governing parking spaces.
6. Where curb and gutter is used, the gutter pan width may be included as part of the minimum width of parking lane, but desirably the lane width should be in addition to that of the gutter pan.

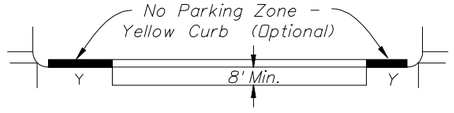
TYPE I



TYPE II



TYPE III



SPEED LIMIT MPH	SIGNALIZED INTERSECTIONS
0-30	30'
35	50'

DISTANCE FROM CURB RADIUS (Y)

PARKING RESTRICTION (FT.) FOR SIGNALIZED INTERSECTION

NOTES:
1. Parking restrictions measured from curb radius point.
2. Restrictions for accessible parking are the same as those applied to nonsignalized intersections.

MINIMUM PARKING RESTRICTION FOR SIGNALIZED INTERSECTION

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SPECIAL MARKING AREAS (PARKING)

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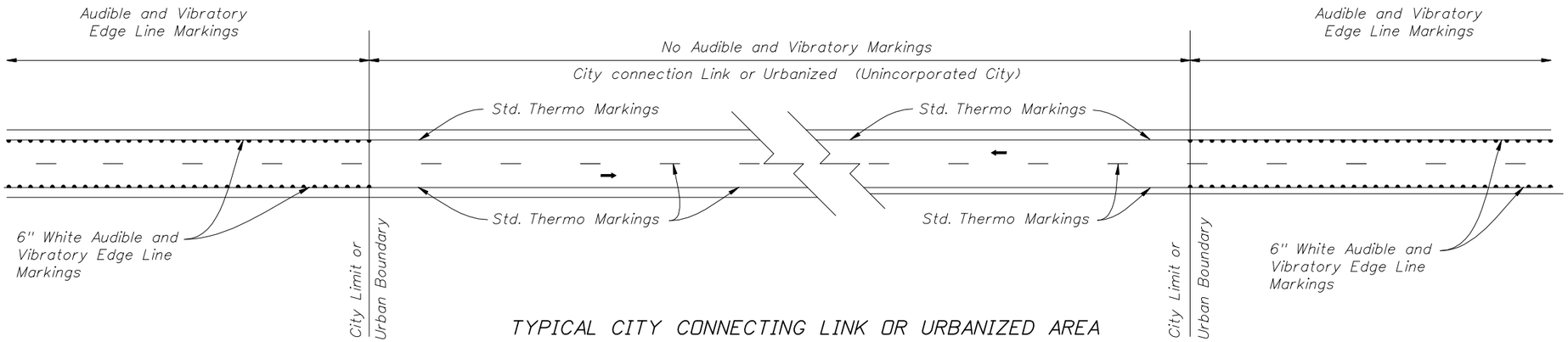
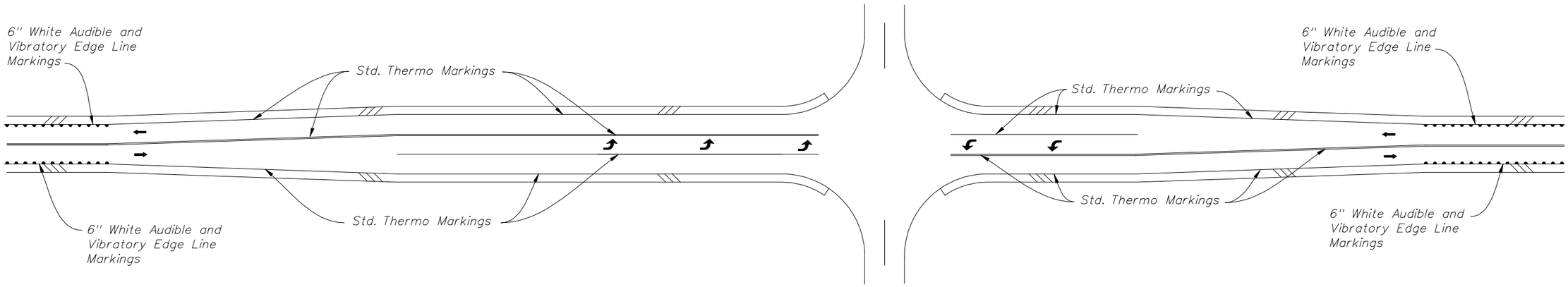
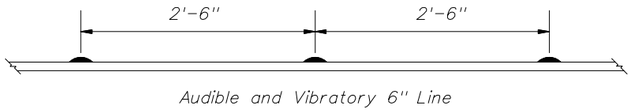
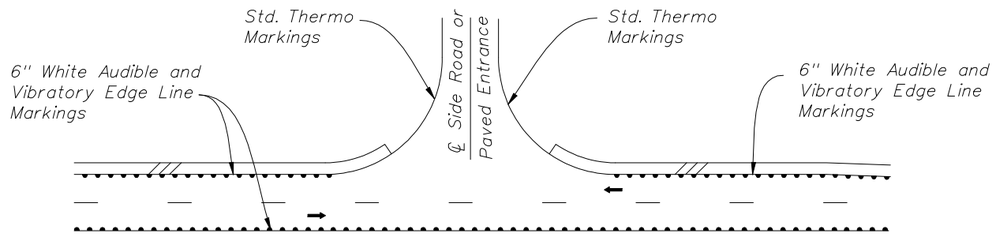


TYPICAL CITY CONNECTING LINK OR URBANIZED AREA



TYPICAL RURAL INTERSECTION WITH TURN LANES





TYPICAL RURAL INTERSECTION WITHOUT TURN LANES

AUDIBLE AND VIBRATORY MARKINGS — 2 LANE ROADWAYS

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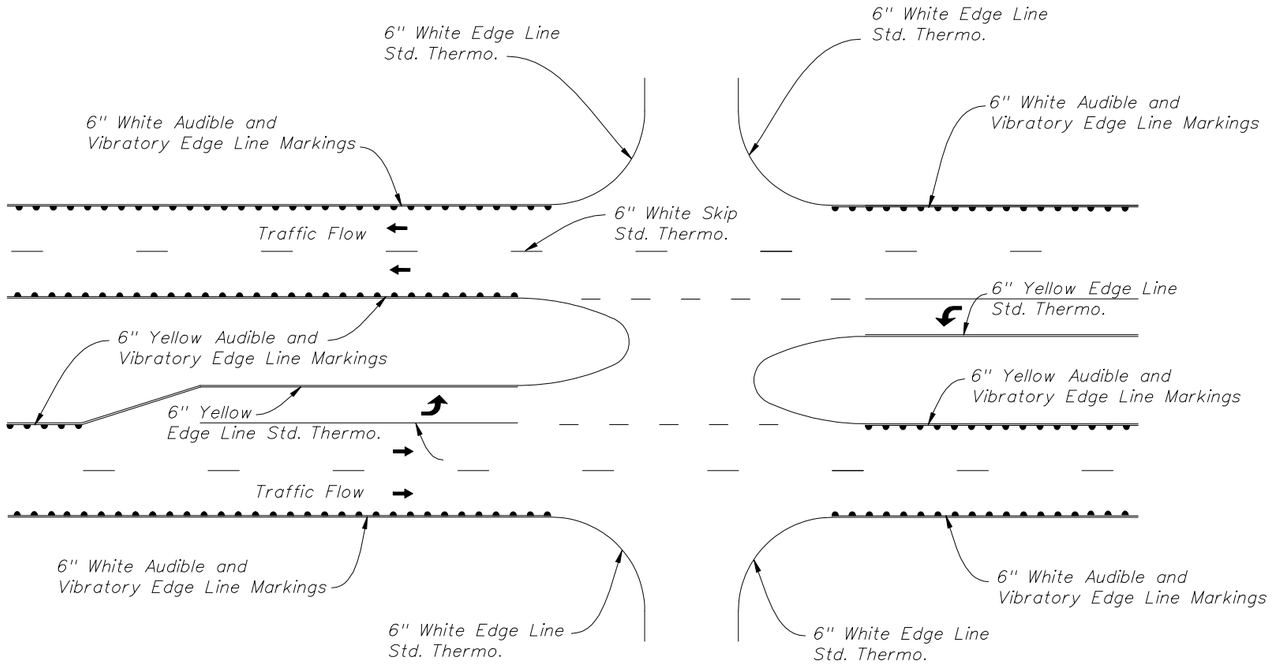
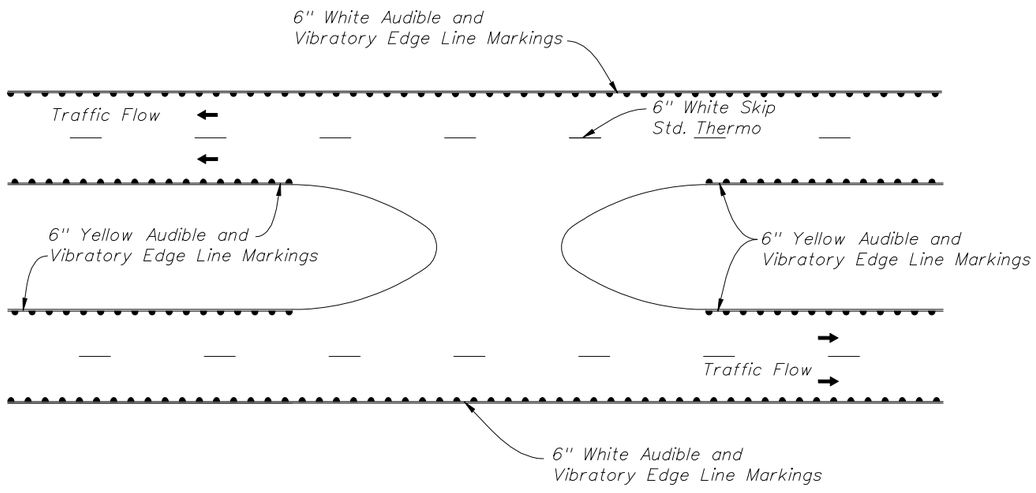
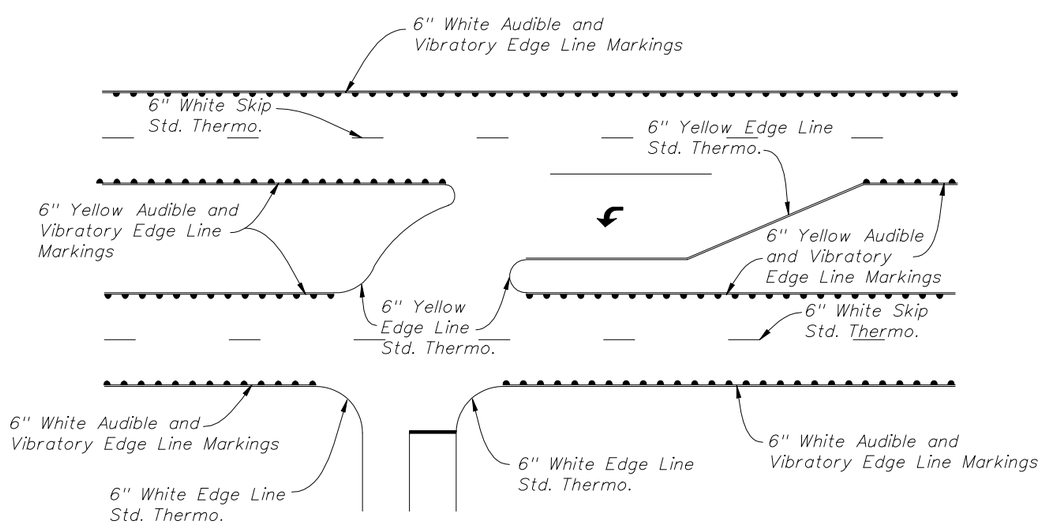


1. The Contractor Shall Adjust The Maintenance Of Traffic During Installation To Provide Sufficient Time For The Markings To Bear Traffic.
2. The Height Of The Transverse Bar For Markings Shall Be 0.45 To 0.55 Inches Above The Pavement Surface At The Edge Of The Marking.
3. Transverse Bars Shall Be Evenly Space In The Marking At Intervals Of 30 Inches Center To Center.
4. The Transverse Bar May Have A Drainage Channel On Each Bar. The Width Of The Drainage Channel May Not Exceed 0.25 Inches At The Bottom Of The Channel.
5. Audible And Vibratory Markings Shall Only Be Installed On Centerline Markings Of Two Lane Roads When Shown In The Plans.
6. When Raised Pavement Markers Conflict With The Installation Of The Centerline Markings, The Contractor Shall Be Responsible For Removing And Replaceing The Raised Pavement Markings. The Additional Expenses Associated With The Raised Pavement Markings Shall Be Included In The Cost Of The Marking.
7. Grinding Is An Acceptable Method Of Removal Of The Existing Markings Where Markings Are Installed As Replacement Markings.
8. The Specifications Allow The Audible Markings To Utilize A Flat Base Line Or An Inverted Rib Profile Base Line.





AUDIBLE AND VIBRATORY MARKINGS — MULTI-LANE ROADWAYS

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SPECIAL MARKING AREAS

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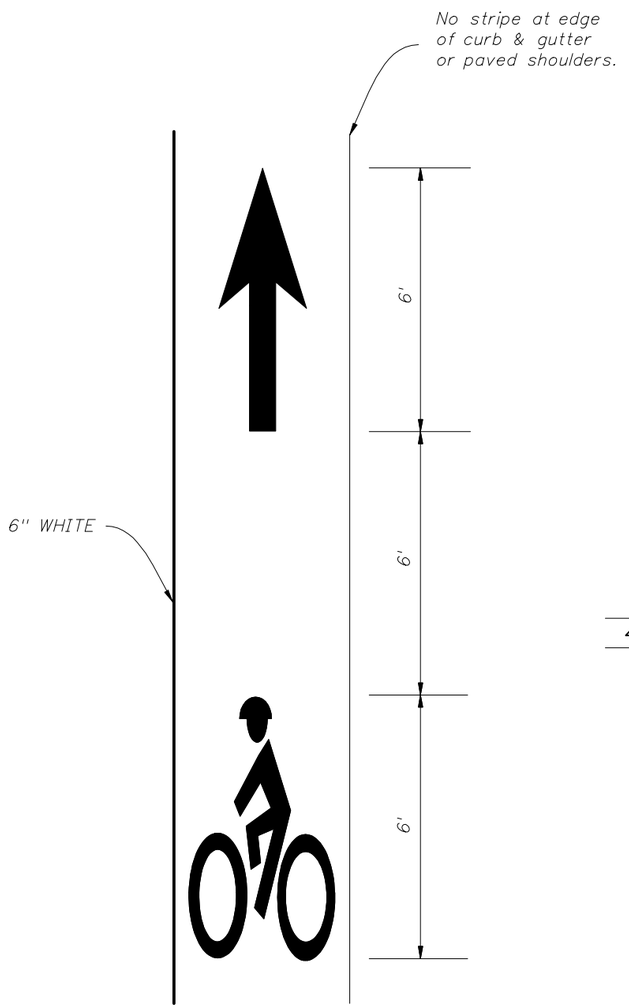
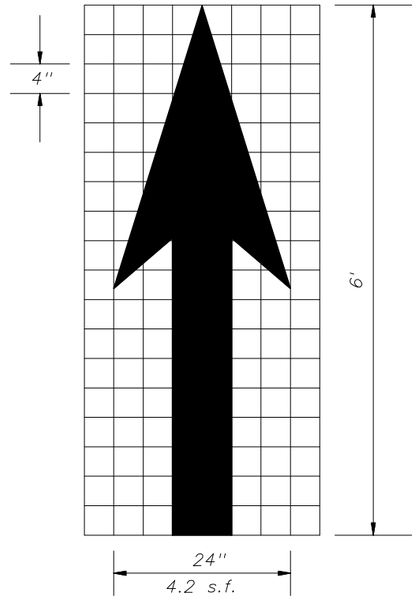
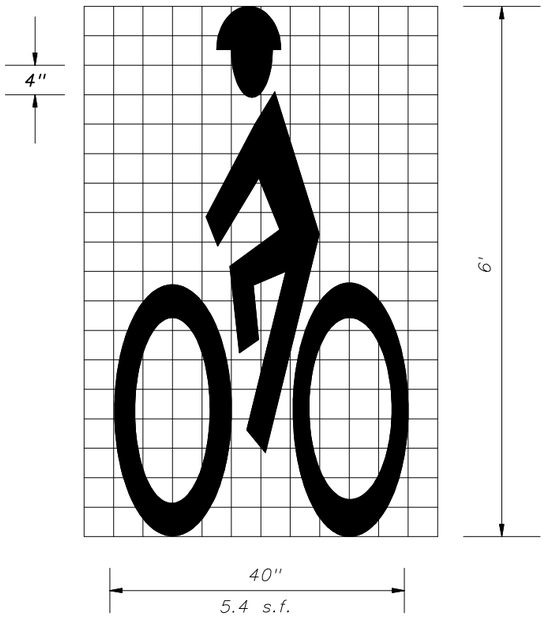
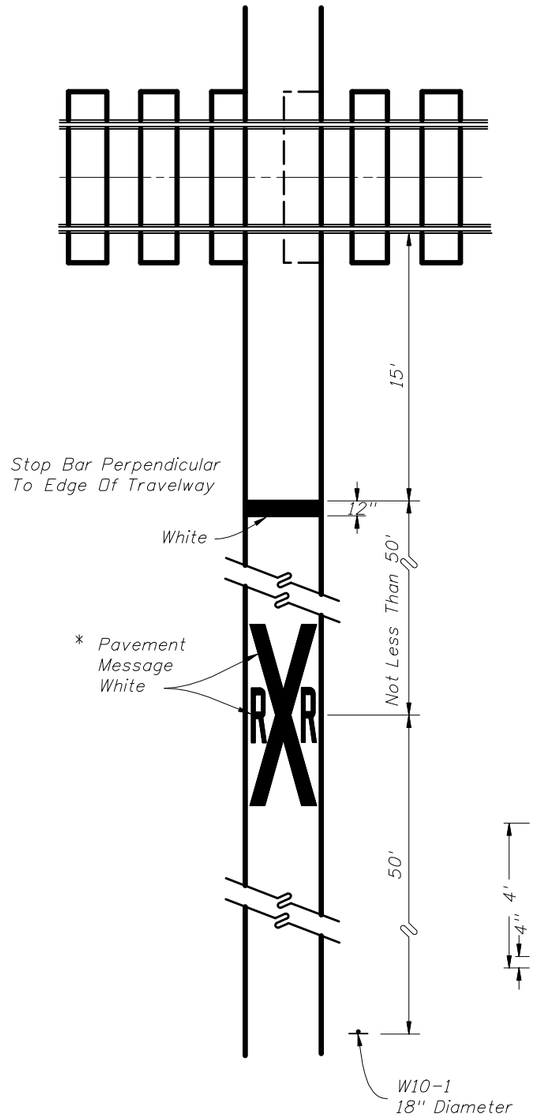
1. Recommended spacing of symbols: Immediately after intersections and major driveways and at a maximum spacing of 600 feet for urban sections and 1320 feet for rural sections.
2. All pavement markings and pavement messages shall be white.

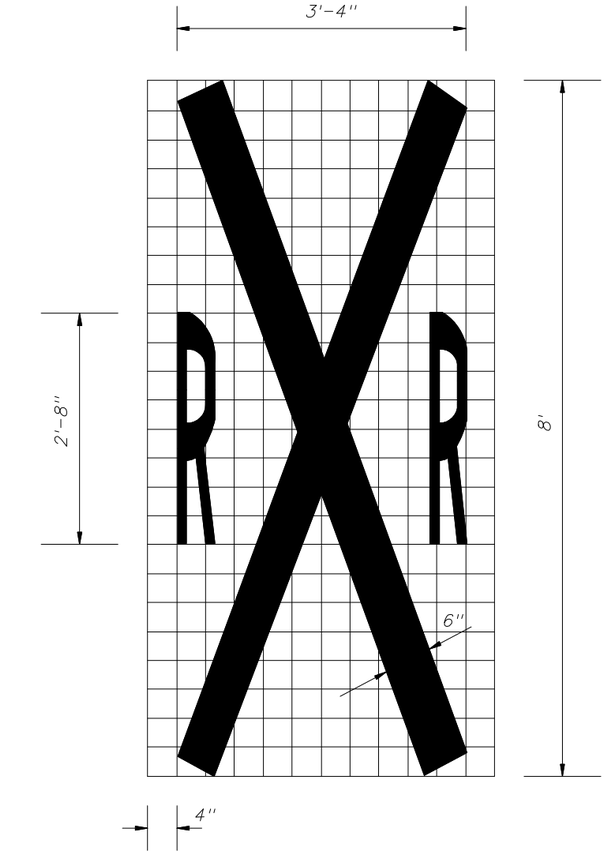


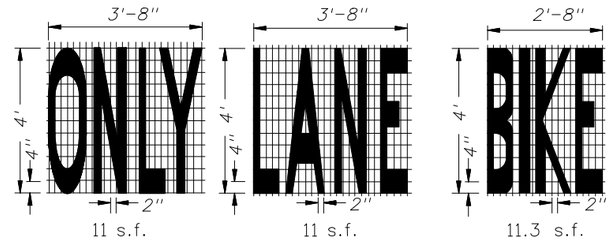
DETAIL OF BIKE LANE MARKINGS











PAVEMENT MESSAGE DETAILS

* NOTE

3. When used on a bike lane (adjacent to vehicle lane) markings shall be placed adjacent to markings for vehicles & W10-1 sign shall be sized and placed for vehicles.

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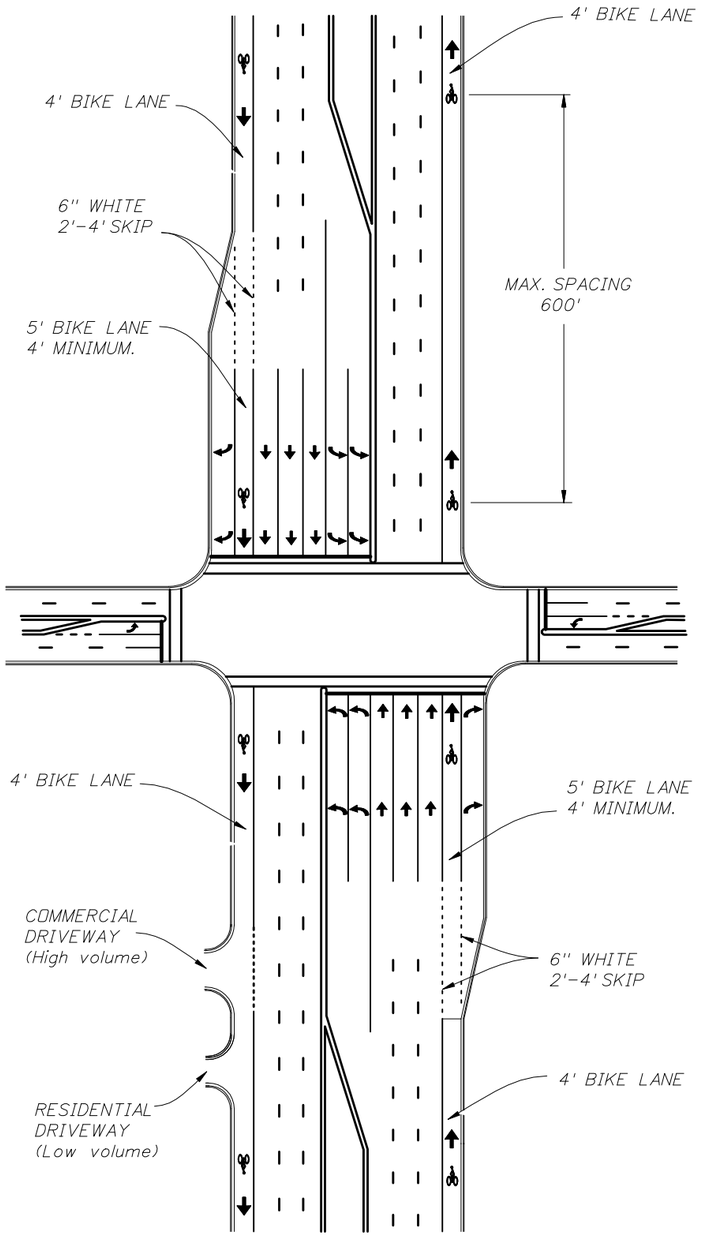
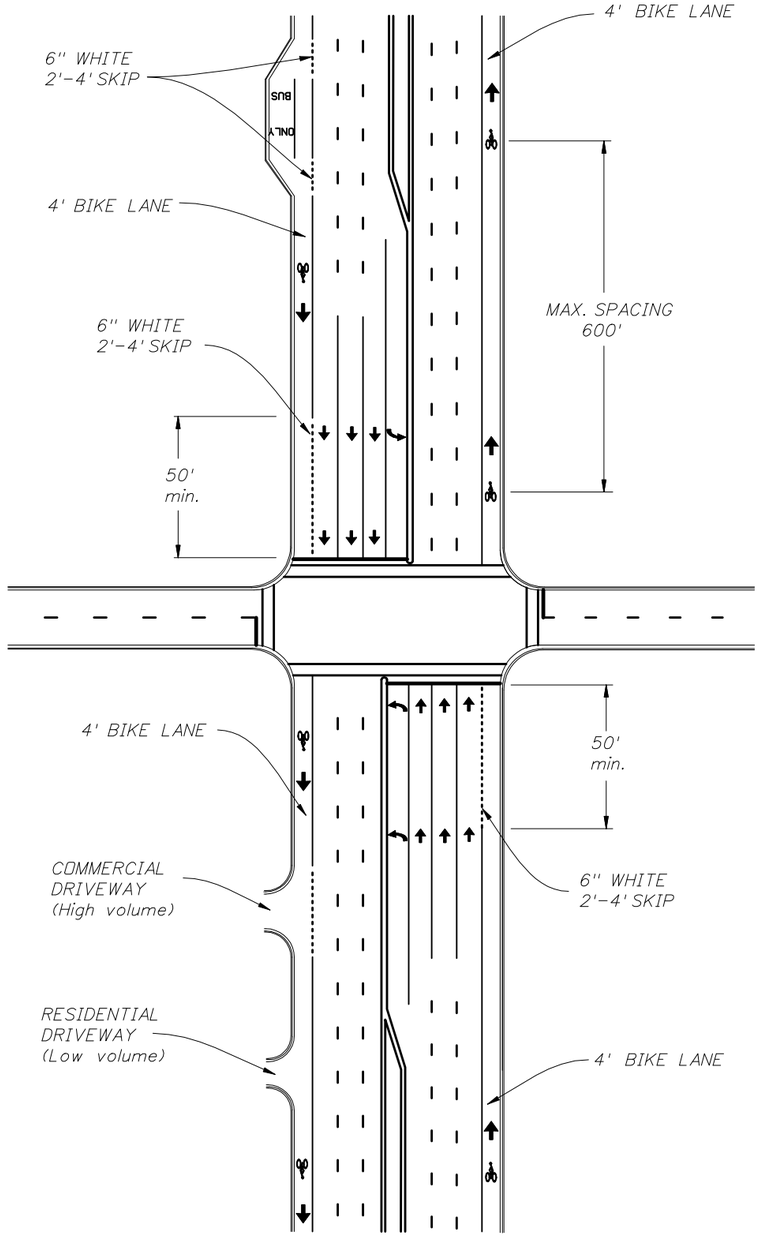
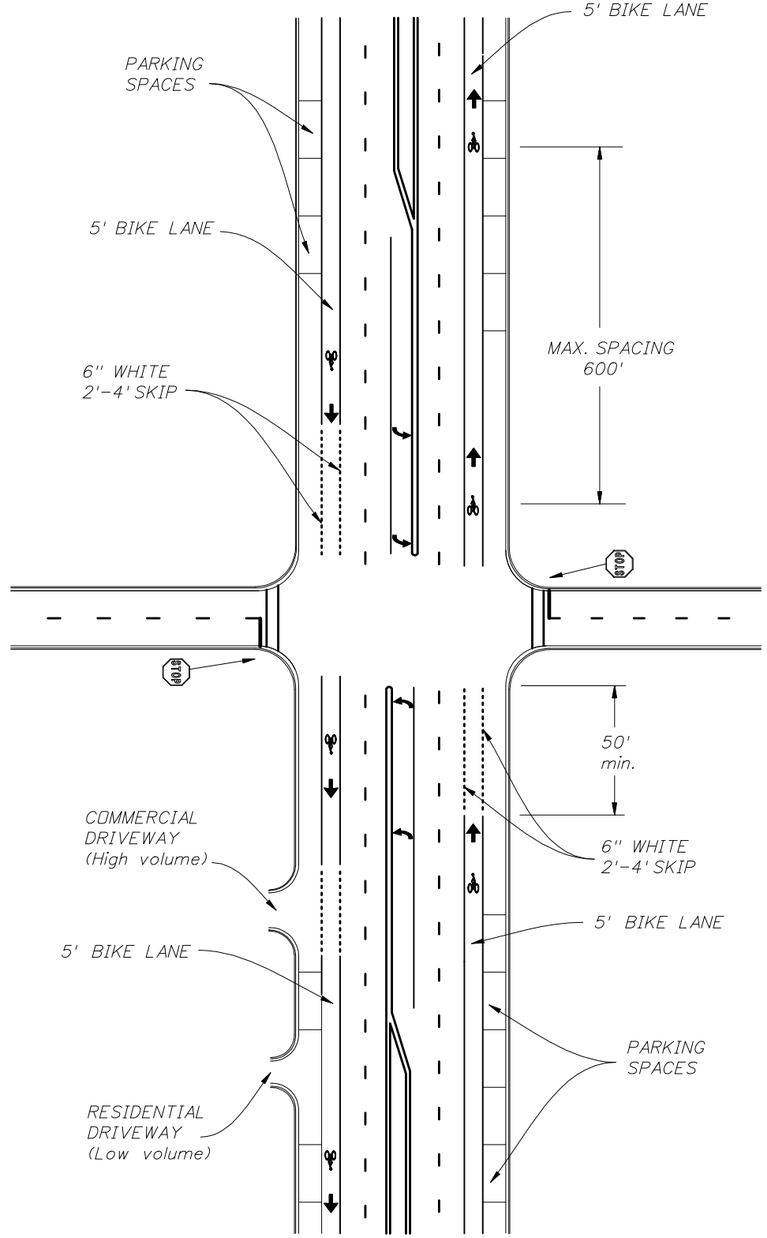


MAJOR INTERSECTION WITH SEPARATE RIGHT TURN LANE URBAN TYPICAL SECTION (CURB AND GUTTER)



MAJOR INTERSECTION, NO RIGHT TURN LANE PLUS BUSBAY URBAN TYPICAL SECTION (CURB AND GUTTER)



MAJOR WITH LOCAL STREET INTERSECTION, NO RIGHT TURN LANE, ON STREET PARKING URBAN TYPICAL SECTION (CURB AND GUTTER)

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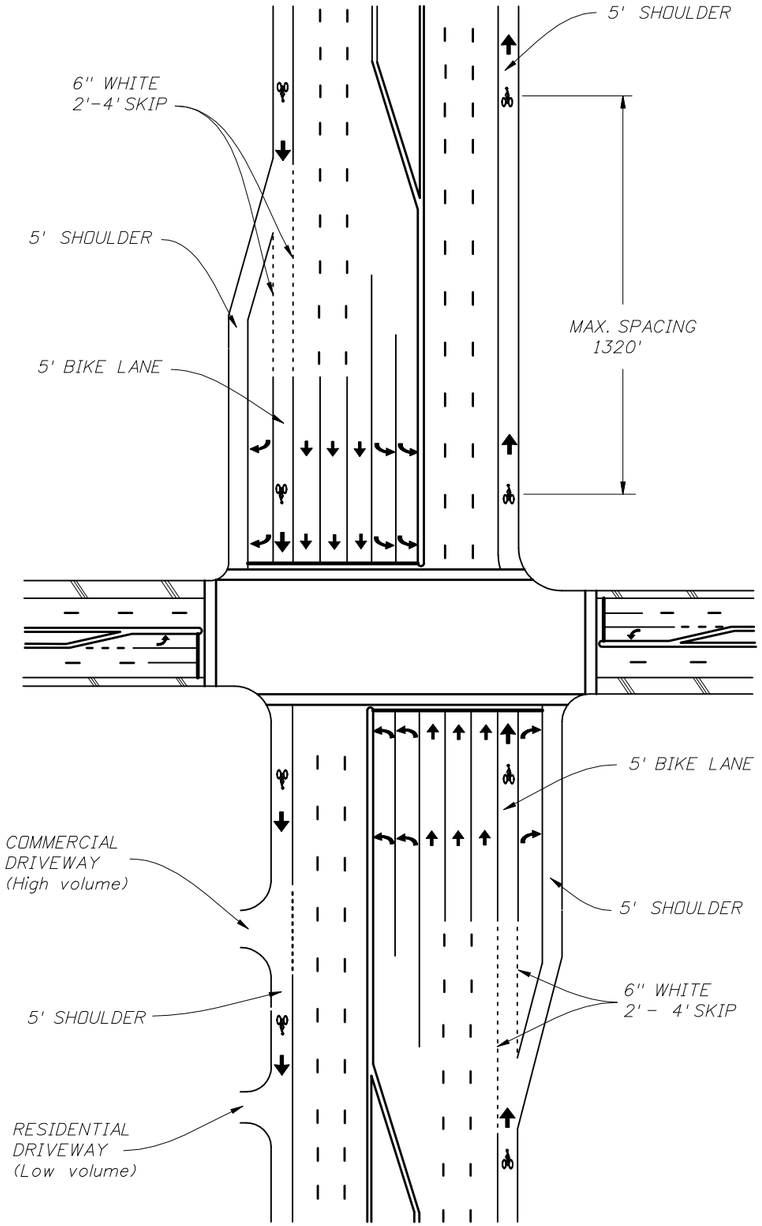
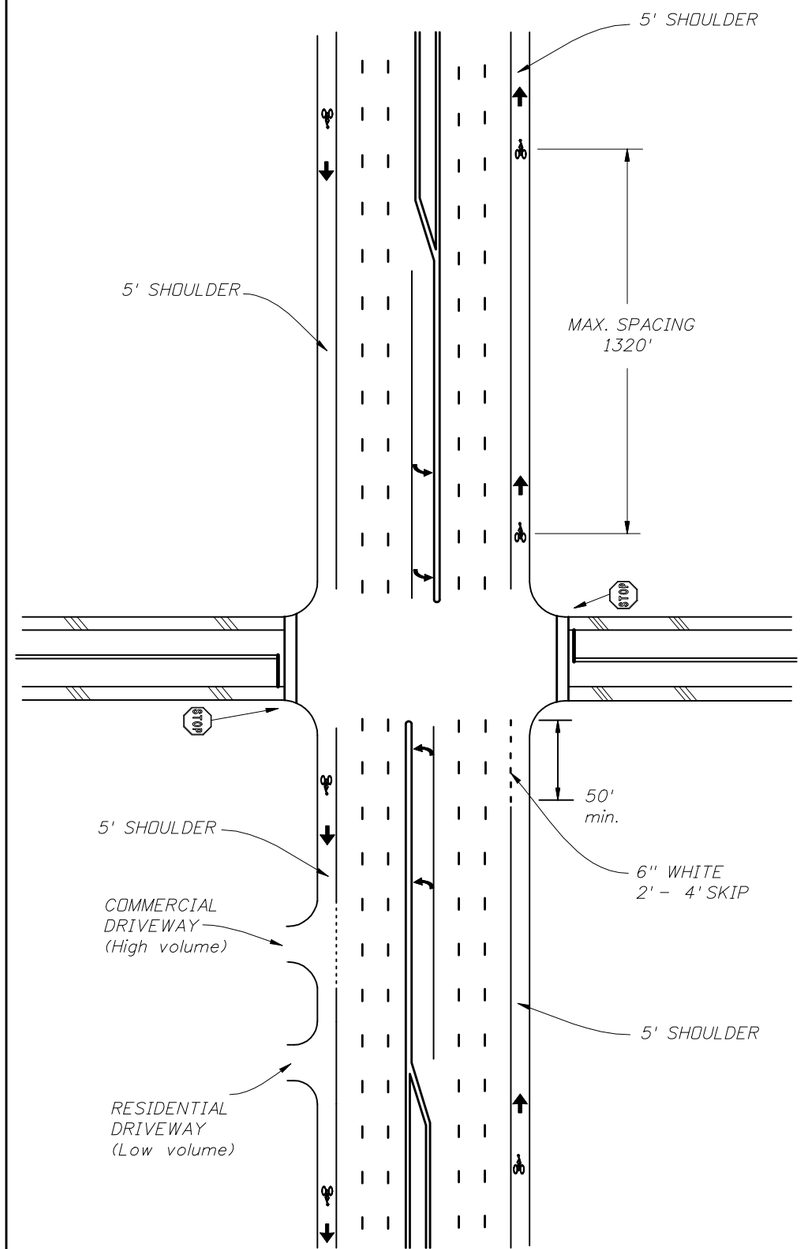
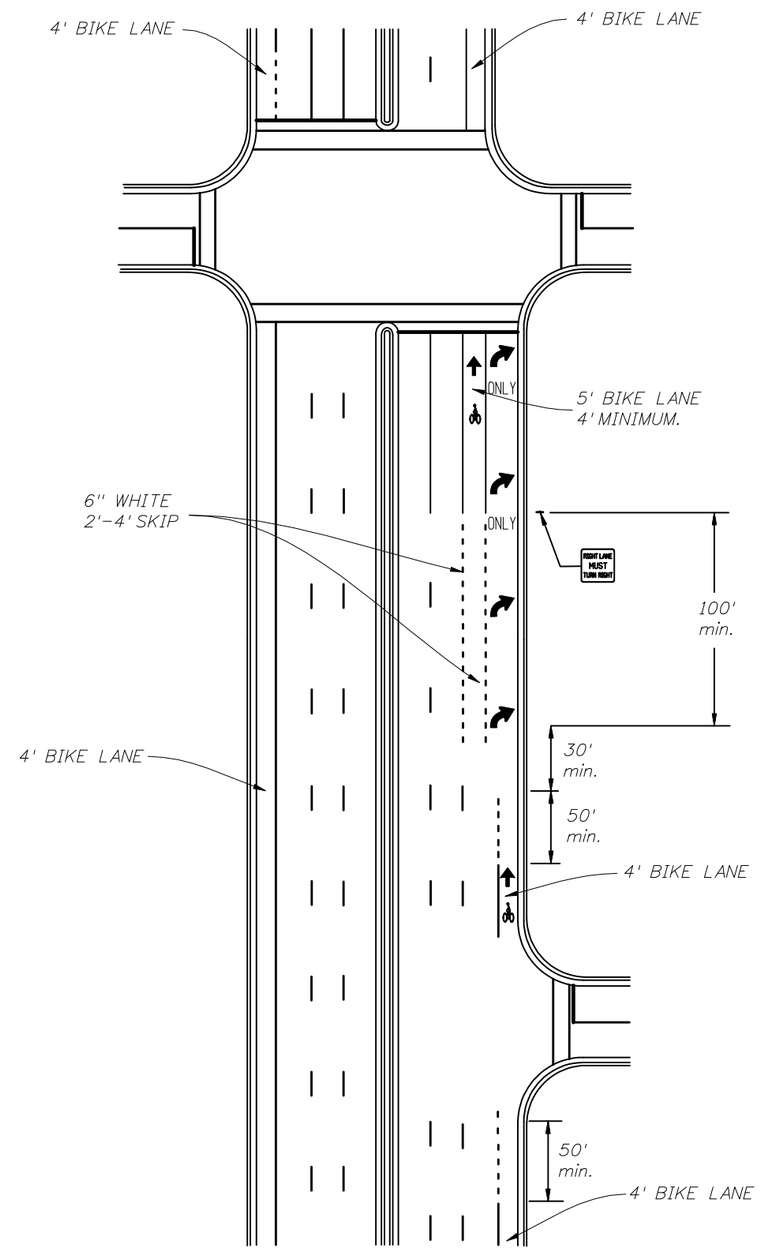


MAJOR INTERSECTION WITH DESIGNATED SHOULDER, AND SEPARATE RIGHT TURN LANE RURAL TYPICAL SECTION (PAVED SHOULDER)



MAJOR WITH LOCAL STREET INTERSECTION, DESIGNATED SHOULDER, AND NO RIGHT TURN LANE RURAL TYPICAL SECTION (PAVED SHOULDER)



MAJOR INTERSECTION WITH RIGHT TURN DROP LANE AND DESIGNATED OR UNDESIGNATED BIKE LANE URBAN TYPICAL SECTION (CURB AND GUTTER)

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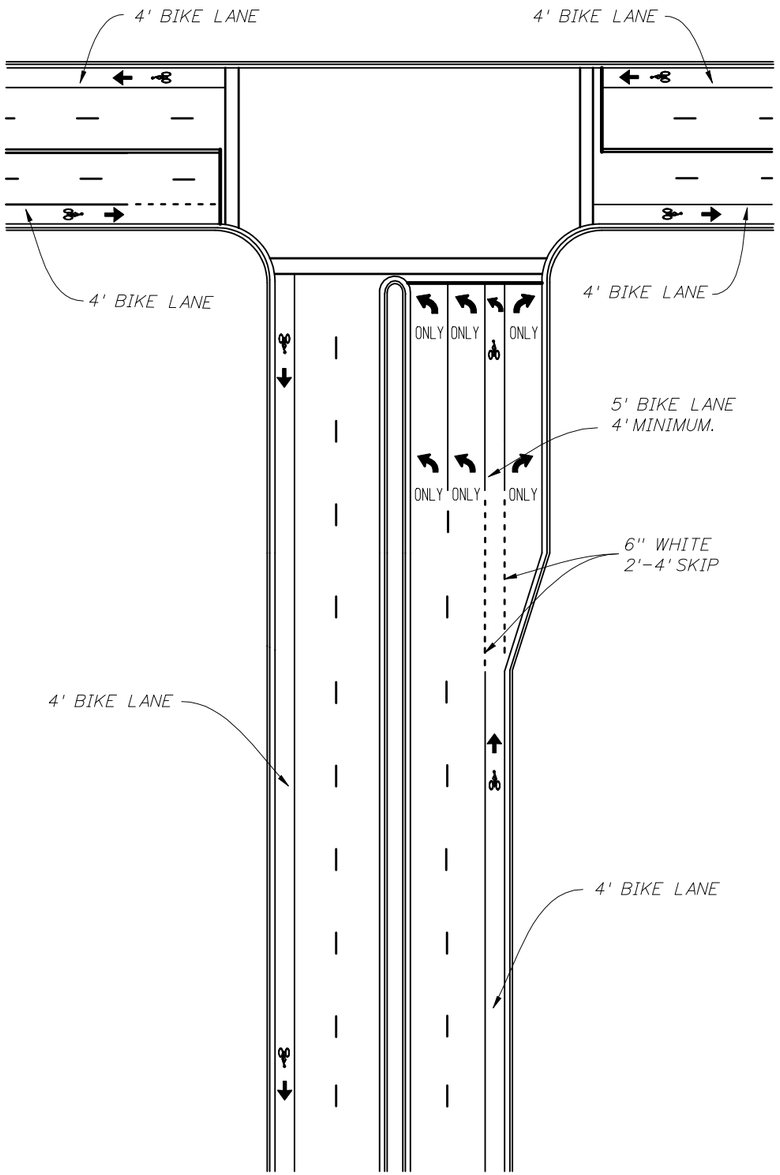
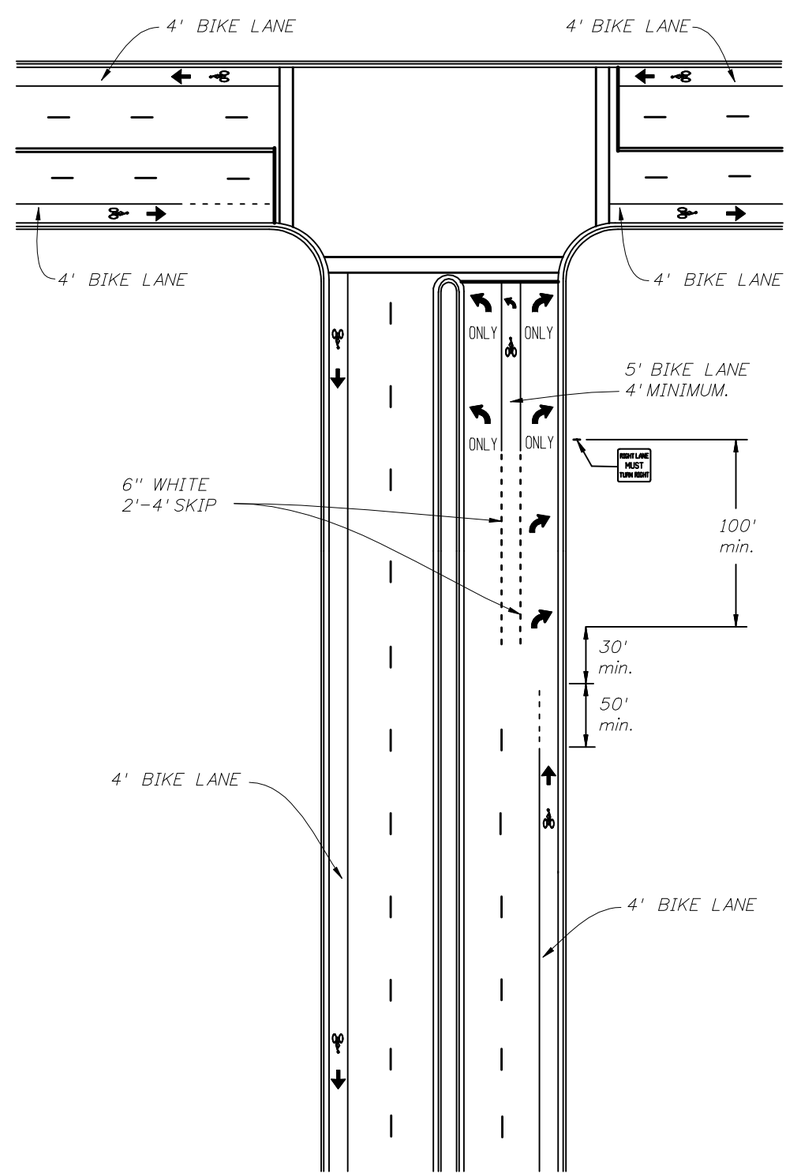
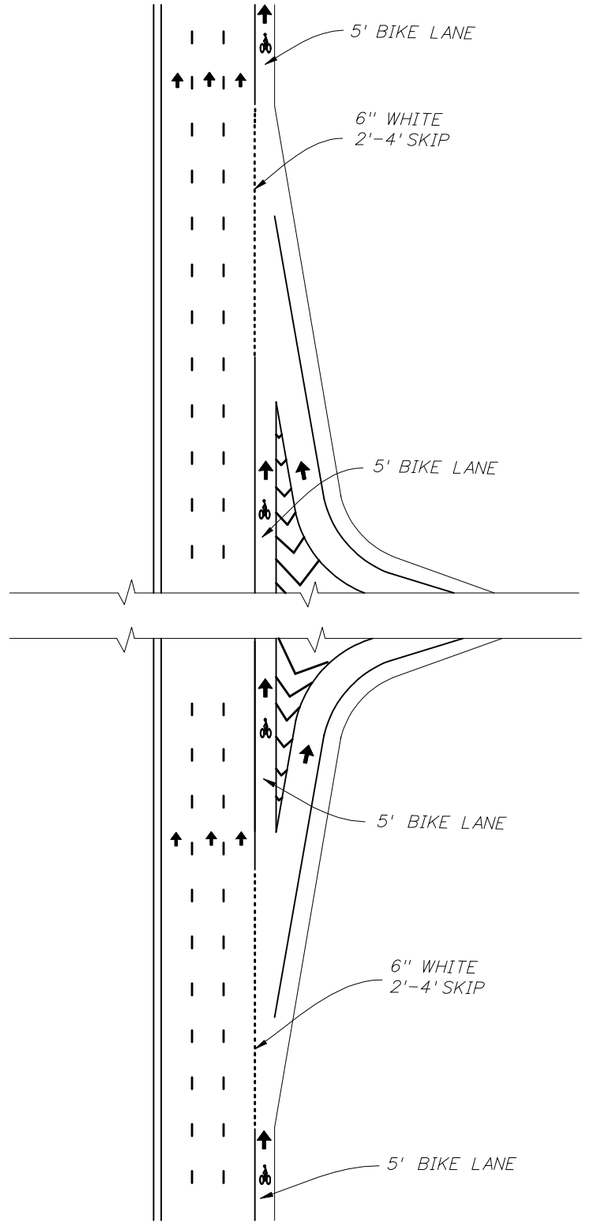


"TEE" INTERSECTION WITH SEPARATE RIGHT TURN LANE URBAN TYPICAL SECTION (CURB & GUTTER)



"TEE" INTERSECTION WITH RIGHT TURN DROP LANE URBAN TYPICAL SECTION (CURB & GUTTER)



INTERCHANGE RAMPS RURAL TYPICAL SECTION (PAVED SHOULDER)

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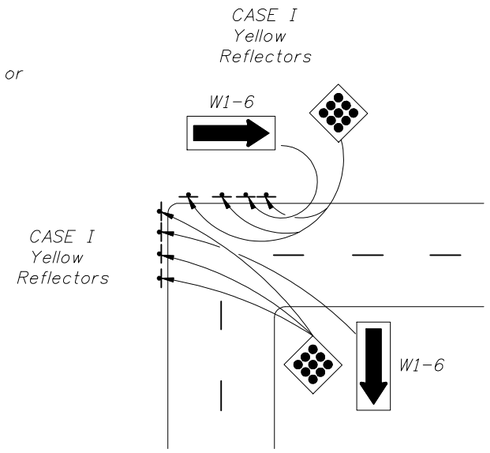
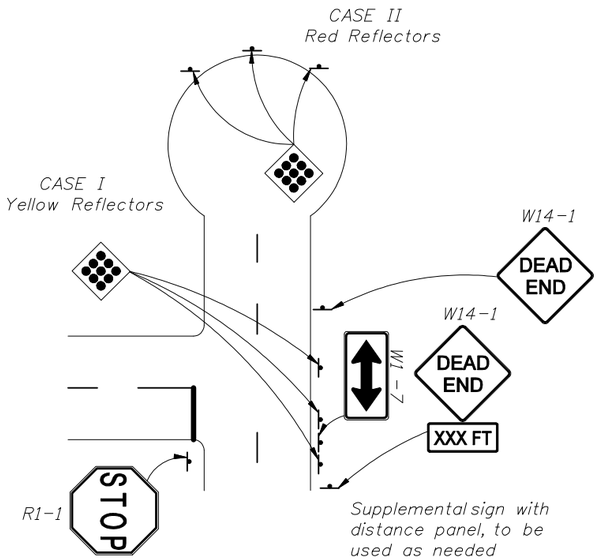
CASE I Type 1 Object Markers shall consist of nine yellow reflectors mounted on a yellow reflective background or consist of a retroreflective panel of the same size.

CASE II End of Road Markers shall consist of nine red reflectors mounted on a red reflective background or consist of a retroreflective panel of the same size.

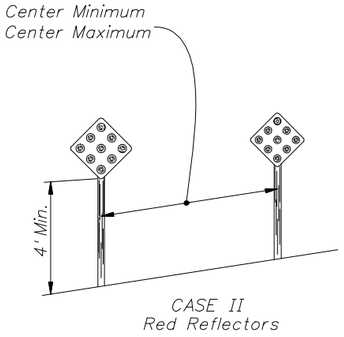
NOTES:

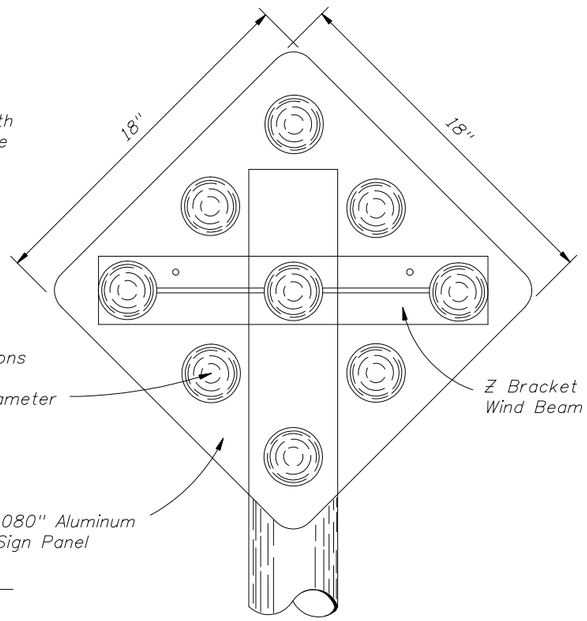
1. This index applicable to residential and minor streets only. Major streets to be evaluated on a case by case basis.
2. "T"-intersection-Two-Way arrows and reflectors are optional. The need should be based on a review of each location.
3. For additional details on aluminum round post, sign panel material and bolts, nuts and washers see Index Nos. 11860.
4. Case I Installation - The arrow panels and object markers shall be located approximately 20', but not less than 12' from the edge of the travel lane.
5. Dead end sign shall be posted a sufficient advance distance to permit the vehicle operator to avoid the dead end by turning off, if possible, at the nearest intersecting street.
6. For pavement marking see Index No. 17346
7. No guardrail is required unless special field conditions require its use.

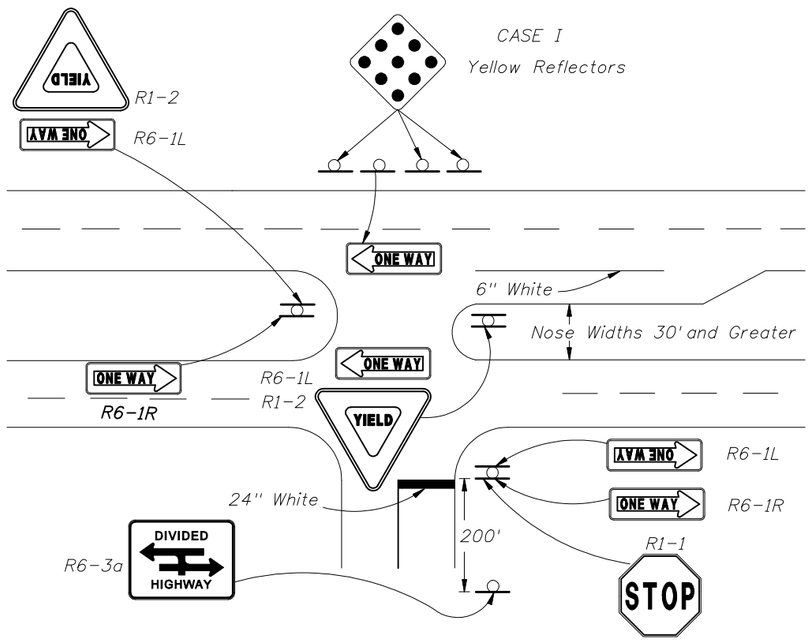


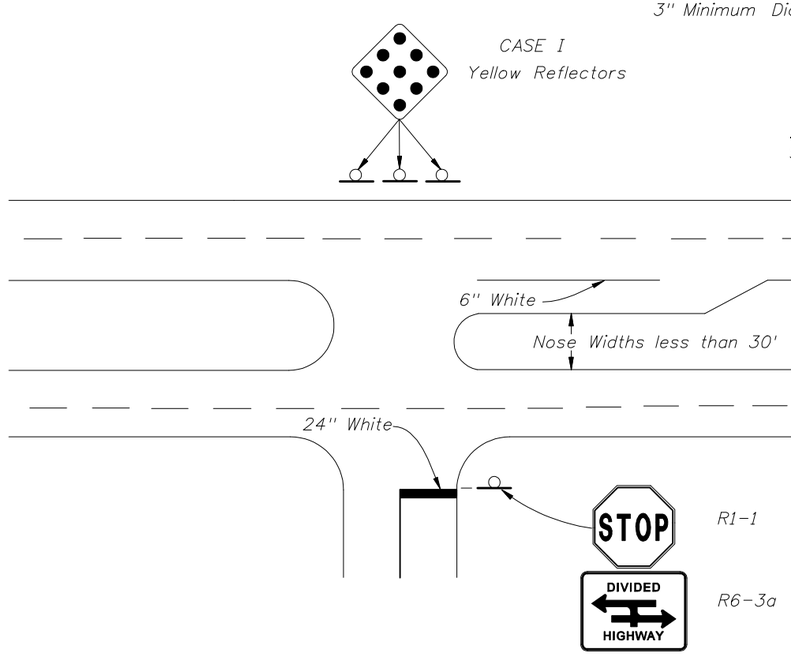


Supplemental sign with distance panel, to be used as needed









Object markers shall be installed on 2" Φ x ⅛" Aluminum Round Post.
⅜" Φ Aluminum Button Head Bolt with Nut and Lockwasher or 15/16" Φ Stainless Steel Hex Head Bolt with Flat Washer under Head and Lockwasher under Nut. Post foundation shall be installed in accordance with Index No. 11860.

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TRAFFIC CONTROLS FOR STREET TERMINATIONS

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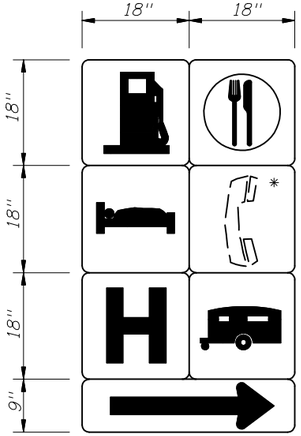
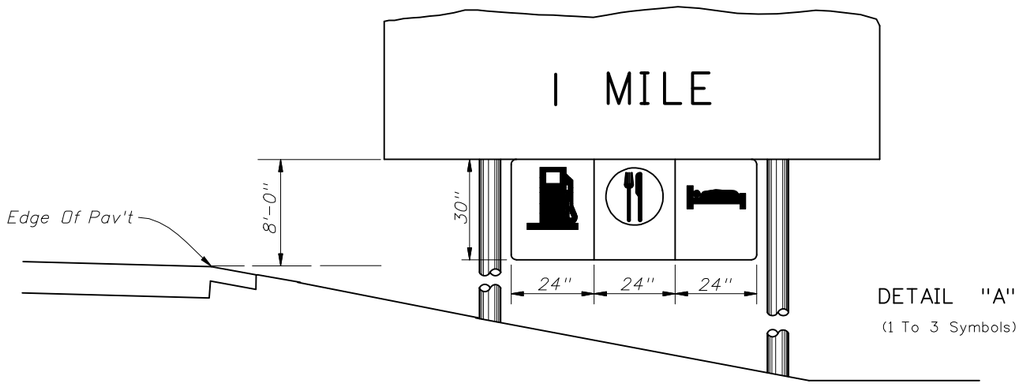
**Note:

Two assemblies are required; one for each side of the ramp, showing those services in each particular direction from the ramp terminal.

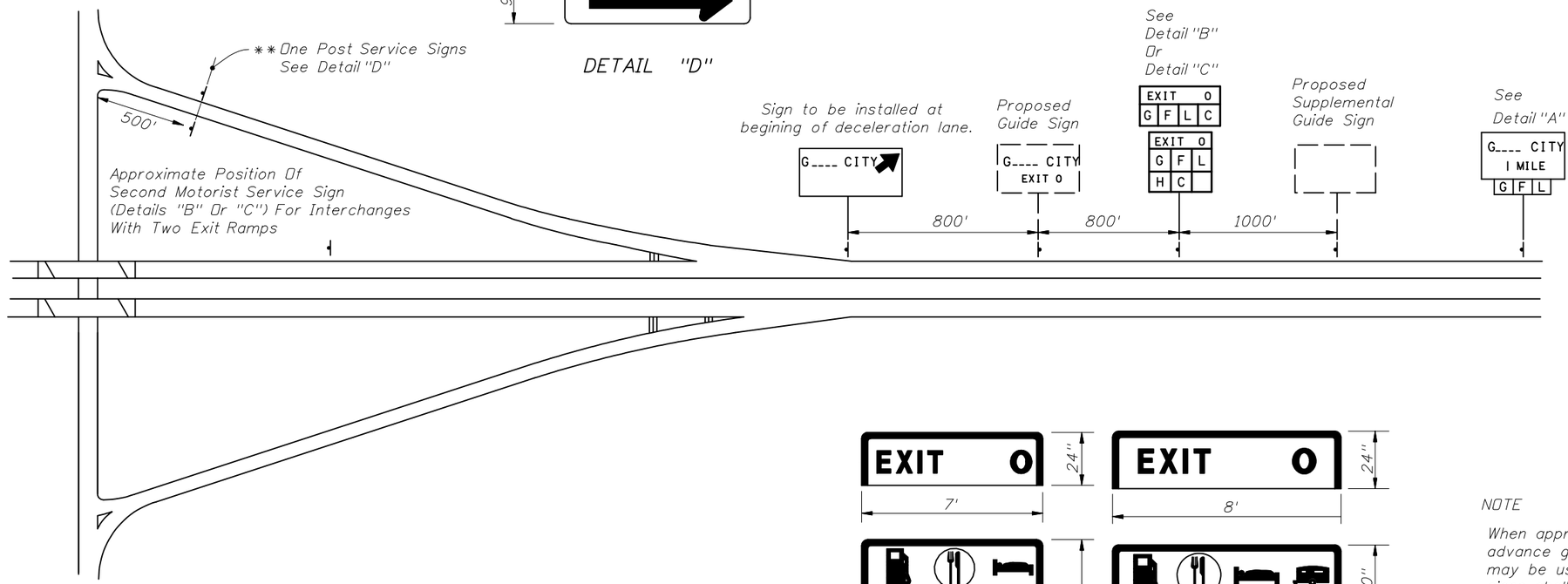
Ramp mounted signs shall be installed to avoid conflict with existing signs and in no case should they be placed within 100' of another sign.



DETAIL "D"



DETAIL "A"
(1 To 3 Symbols)



DETAIL "B"
(4 To 6 Symbols)

DETAIL "C"
(4 Symbols)

NOTE

When approved for attachment to the advance guide signs, up to 3 services may be used for an exit. The symbol signs shall be suspended from the guide sign panel or existing wind beams. Symbol signs are not to be connected to existing sign posts.

The mounting height of the advance guide sign shall be increased, where necessary, to provide 8' between the level of the pavement edge and the bottom of the guide sign, prior to mounting the supplementary panel.

GENERAL NOTES

1. Only those services meeting criteria established by the Department and approved by the State Traffic Operations Engineer for each interchange shall be shown. Symbol signs for motorist services shall always appear in the following order reading from left to right and top to bottom: Gas, Food, Lodging, Phone *, Hospital, Camping. The phone symbol shall not be shown whenever any Gas, Food, Lodging or Camping symbol appears.
2. Symbols shall appear consecutively on the sign with no positions left blank or reserved for intermediate symbols not currently approved for a particular interchange.
3. All motorist service signs to have White Legend and Border with Blue Background.
4. For mounting details see Index 11200 for Type "A" breakaway or Index 11860 for Type "C" Frangibility.

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SIGNING FOR MOTORIST SERVICES

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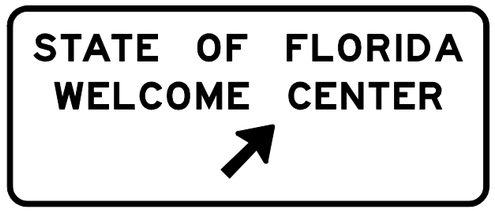
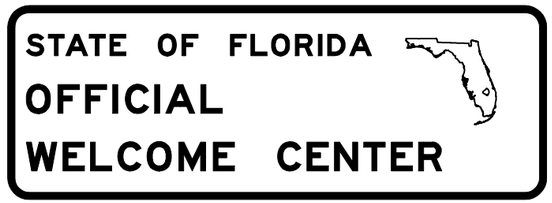
Sign No. FTP-10-06

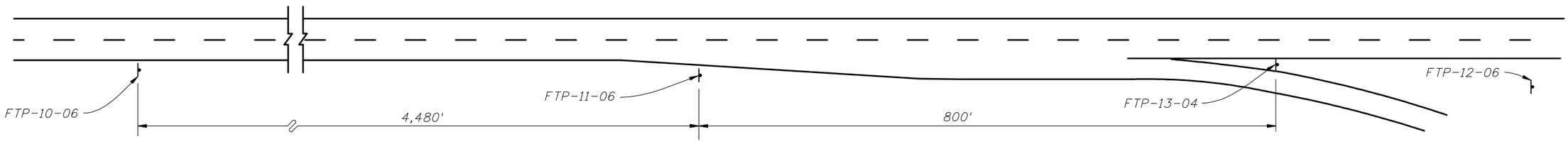


Sign No. FTP-11-06



Sign No. FTP-12-06

Sign No. FTP-13-06



Note : Roadway not drawn to scale
Distances shown are adequate for driver communication
but may be altered slightly if conditions require.

Sign No. FTP-14-06

Note: Sign FTP-14-06 shall be used as a supplemental guide sign at interchanges which have a Tourist Information Center approved for such signing (locate half-way between normal guide signs)

Notes:

1. Signs and sign structures shall be erected in accordance with the details shown on Index No. 11200.
2. Sign FTP-12-06 shall be located on the Welcome Center grounds in proximity to the building and as far from the main line roadway as possible (2 signs back to back.
3. Sign FTP-10-06, 11-06, 12-06 shall be located as limited access highways only.
4. All legend to be Series E.
5. See Index No. 17355 for sign details.

FOR LIMITED ACCESS HIGHWAYS

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WELCOME CENTER SIGNING

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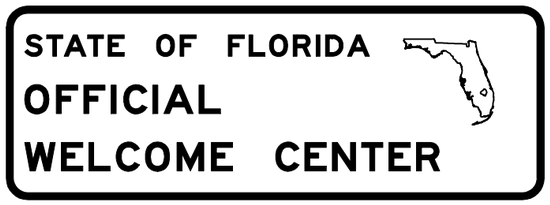
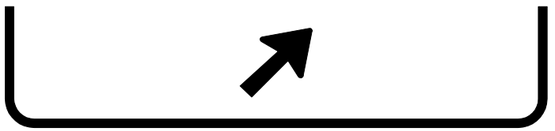
SIGN NO. FTP-15A-04

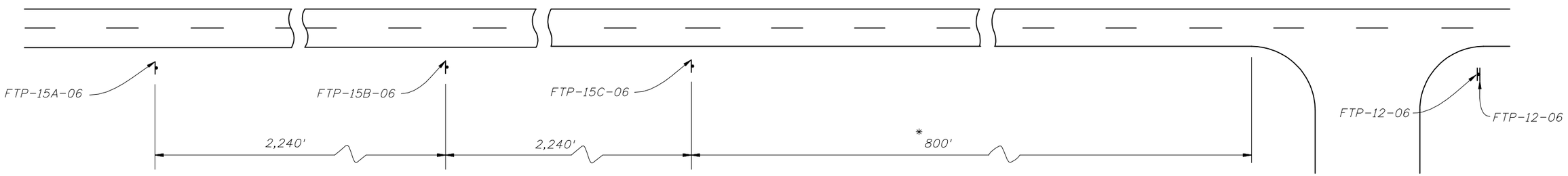


SIGN NO. FTP-12-04

SIGN NO. FTP-15B-04



SIGN NO. FTP-15C-04



* 800' Maximum For Rural Conditions
50' Minimum For Rural Conditions

Notes:

1. Signs and sign structures shall be erected in accordance with the details shown on Index 11200.
2. Sign FTP-12-06 shall be located on the Welcome Center grounds in proximity to the building and as far from the Main Line Roadway as possible (2 signs back to back).
3. All legend to be Series E.
4. One sign FTP-15A-06 or 15B-06 should be used depending on speed, roadside development & geometric conditions.

FOR PRIMARY HIGHWAYS

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WELCOME CENTER SIGNING

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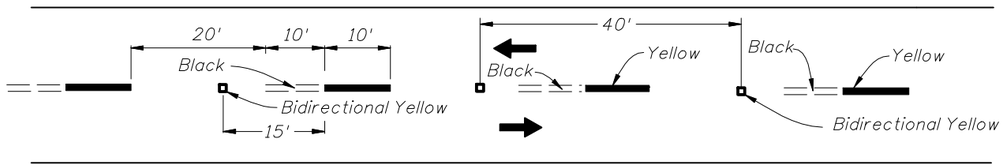
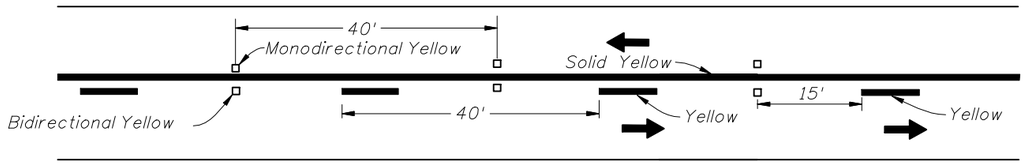
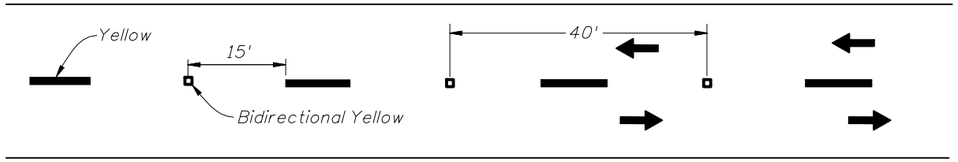


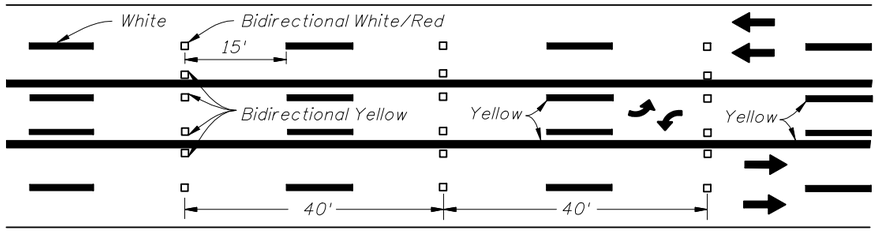
ALTERNATING SKIP LINE



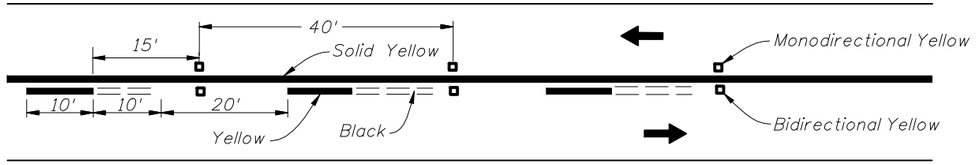
SOLID LINE WITH SKIP



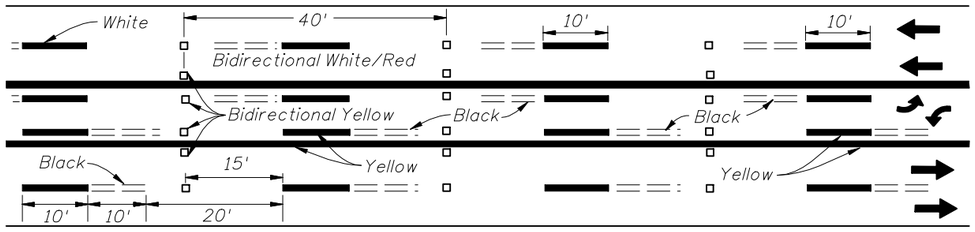
SKIP LINE



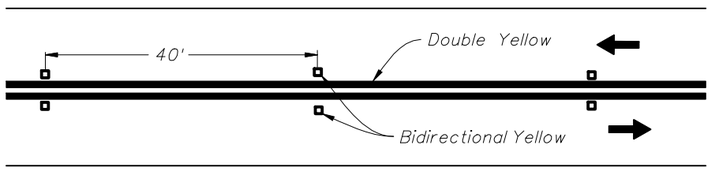
SKIP LINE WITH TWO-WAY LEFT TURN LANE



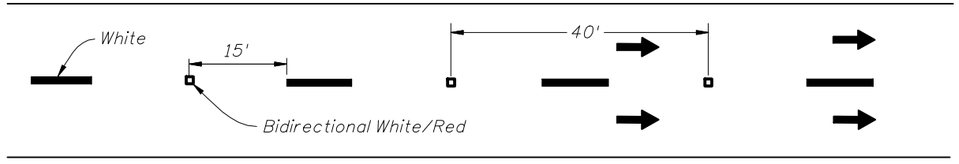
SOLID LINE WITH ALTERNATING SKIP



ALTERNATING SKIP LINE WITH TWO-WAY LEFT TURN LANE



DOUBLE SOLID LINE



MULTILANE

1. Reflective Pavement Markers shall be spaced at 40' on all skip lane lines and skip center lines. This spacing may be reduced to 20' if specifically called for in the plans.
2. The spacing on solid lines and solid/skip combination lines shall be 40'.
3. All RPM's shall be offset 1" from solid lines.
4. These spacings may be reduced for sharp curves if required.
5. All RPM's shall be class "B".

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

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TYPICAL PLACEMENT OF REFLECTIVE PAVEMENT MARKERS

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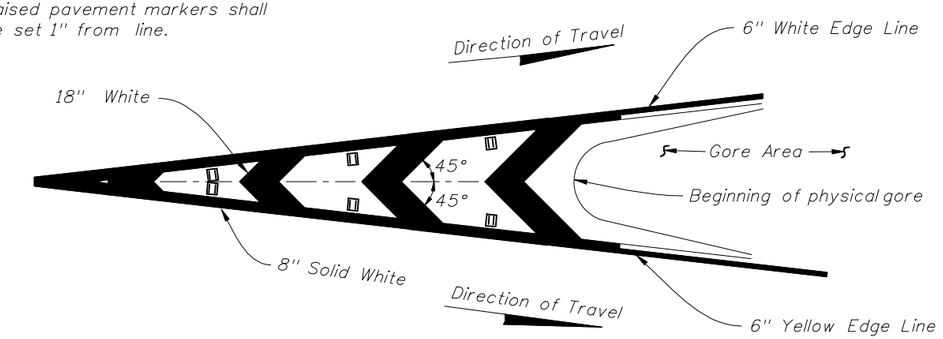
NOTE

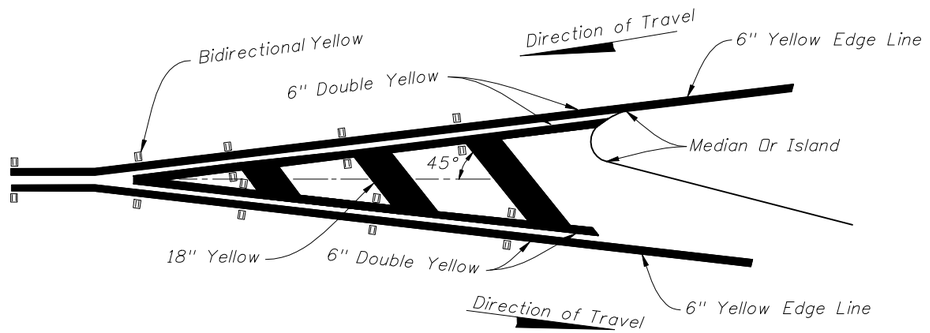
Raised pavement markers shall be set 1" from line.



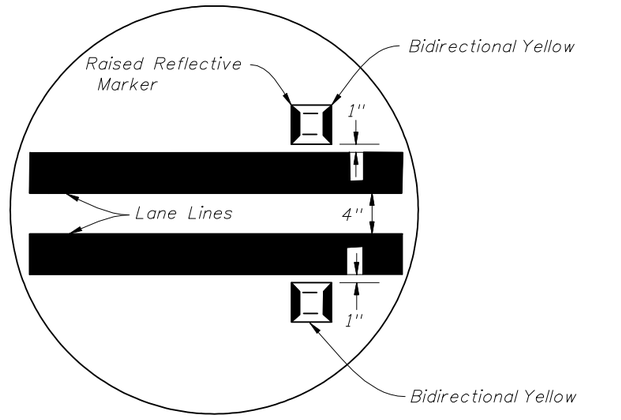
RPM PLACEMENT FOR TRAFFIC CHANNELIZATION AT GORE (TRAFFIC FLOWS IN SAME DIRECTION)

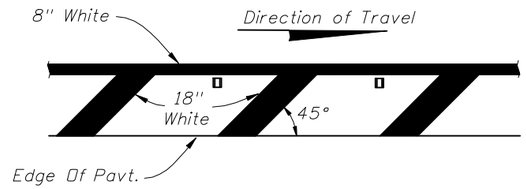
NOTE

Raised pavement markers (Bidirectional White/Red) should be used in all gores of this type



RPM PLACEMENT FOR TRAFFIC SEPARATION (TRAFFIC FLOWS IN OPPOSITE DIRECTION)

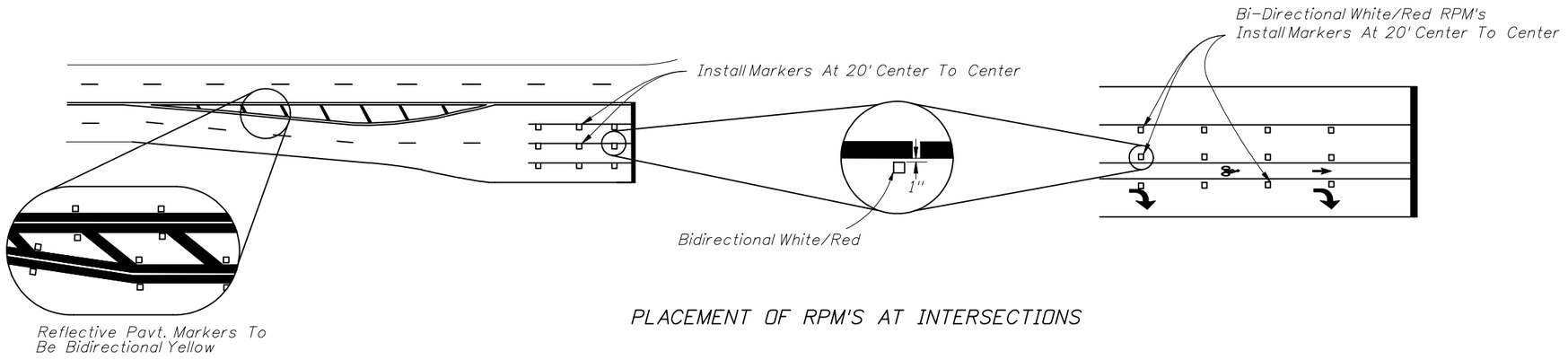




PLACEMENT OF RPM'S ON SHOULDER MARKINGS

For Left Side Of Roadway The Plan Is Opposite Hand And Markings Shall Be Yellow.

For Placement Of Rpm's On Ramps See Index 17345.



PLACEMENT OF RPM'S AT INTERSECTIONS

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TYPICAL PLACEMENT OF REFLECTIVE PAVEMENT MARKERS

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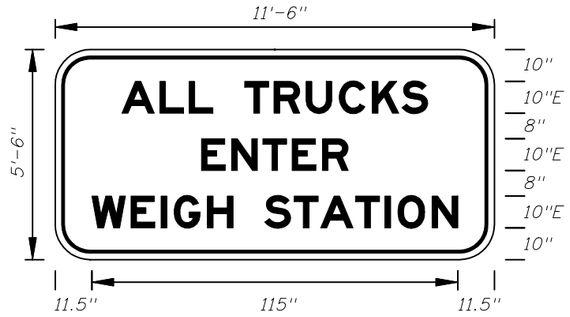
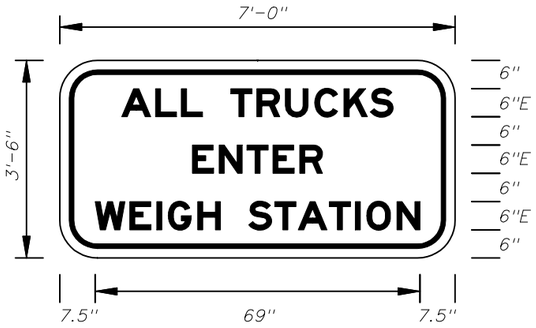
FREEWAY USE



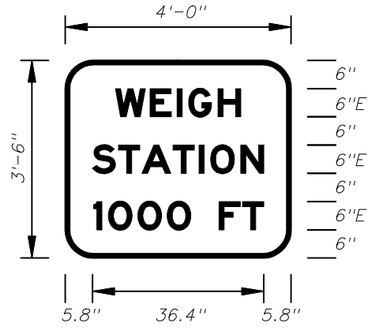
FTP-1-06
11'-6" X 5'-6"
9" Radii 2" Border
10" Series E Legend
White Background
Black Legend and Border

OTHER THAN FREEWAY USE



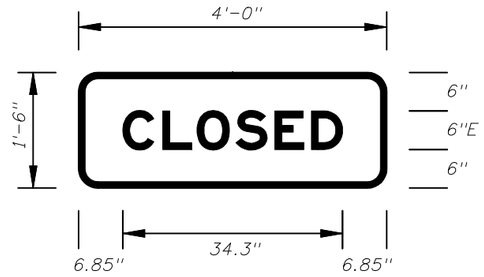
FTP-2-06
7' X 3'-6"
6" Radii 2" Border
6" Series E Legend
White Background
Black Legend and Border

OTHER THAN FREEWAY USE



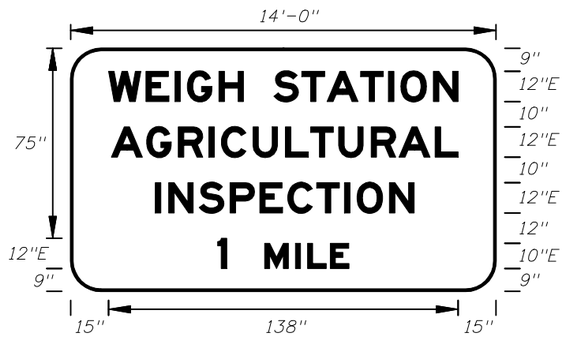
FTP-3-06
4' X 3'-6"
6" Radii 2" Border
6" Series E Legend
Green Background
White Legend and Border

OTHER THAN FREEWAY USE

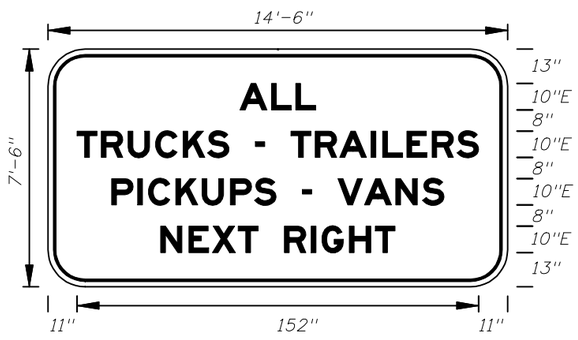


FTP-4-06
4' X 1'-6"
3" Radii 2" Border
6" Series E Legend
Green Background
White Legend and Border

Note:
FTP-4-06 to be
used with FTP-3-06



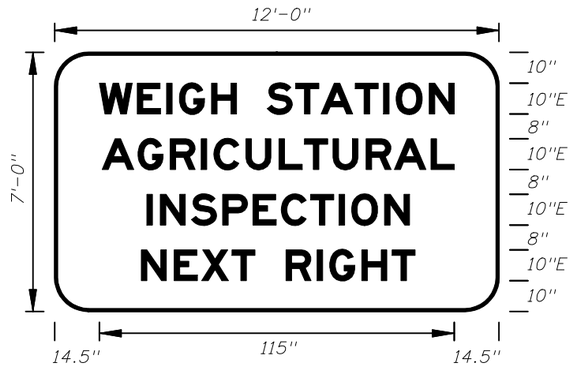
FTP-5-06
14' X 8'
12" Radii 2" Border
12" and 10" Series E Legend
Green Background
White Legend and Border



FTP-6A-06
14'-6" X 7'-6"
12" Radii 2" Border
10" Series E Legend
White Background
Black Legend and Border

On Interstate Station
Delete Pickups-Vans,
and reduce Sign height
accordingly.

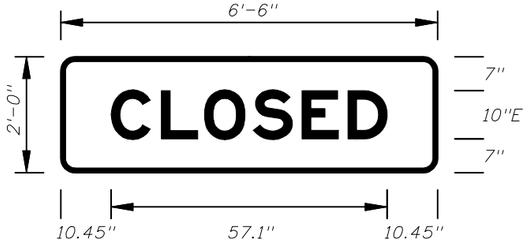
FTP-6B-06
14'-6" X 7'-6"
12" Radii 2" Border
10" Series E Legend
White Background
Black Legend and Border



FTP-7A-06
12' X 7'
11" Radii 2" Border
10" Series E Legend
Green Background
White Legend and Border

FTP-7B-06
12' X 7'
11" Radii 2" Border
10" Series E Legend
Green Background
White Legend and Border

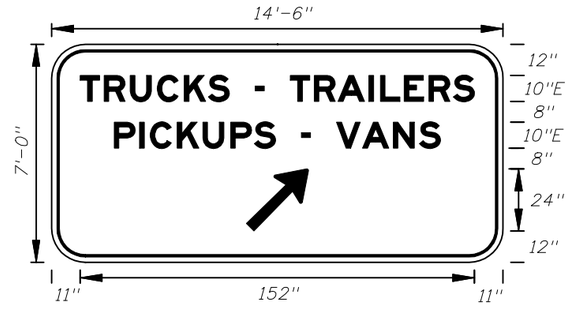
FREEWAY USE



FTP-8-06
6'-6"X 2'
3" Radii 2" Border
10" Series E Legend
Green Background
White Legend and Border

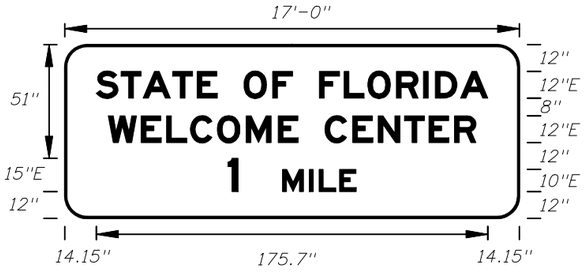
Note:
FTP-8-06 to be
used with FTP-7A-06
& FTP-7B-06.

FTP-9B-06-LEFT ARROW



FTP-9A-06
14'-6" X 7'
11" Radii 2" Border

10" Series E Legend
Green Background
White Legend and Border



FTP-10-06
17' X 6'-6"
10" Radii 2" Border

12", 10" and 15" Series E Legend
Blue Background
White Legend and Border

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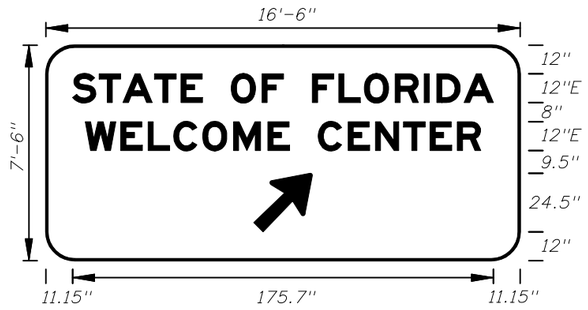
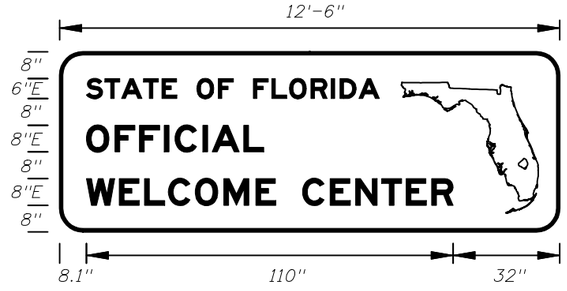
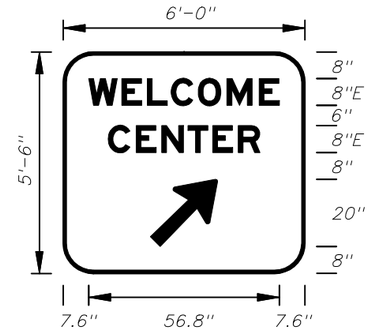


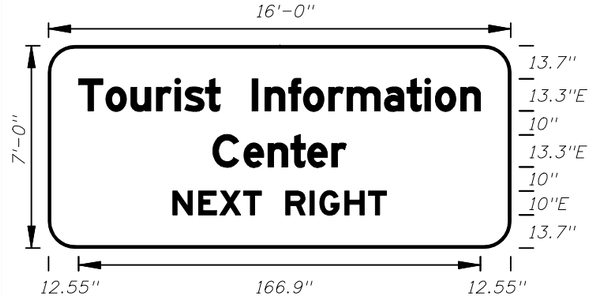
FTP-11-06
16'-6" X 7'-6"
12" Radii 2" Border
12" Series E Legend
Blue Background
White Legend and Border



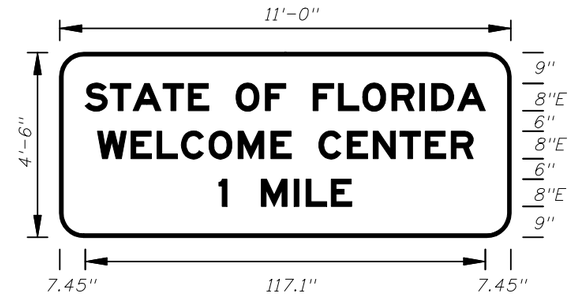
FTP-12-06
12'-6" X 4'-6"
7" Radii 2" Border
6" and 8" Series E Legend
Blue Background
White Legend and Border



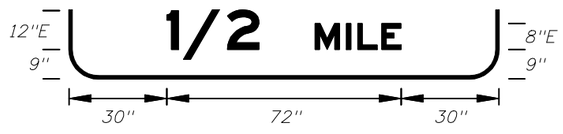
FTP-13-06
6'0" X 5'-6"
9" Radii 2" Border
8" Series E Legend
Blue Background
White Legend and Border



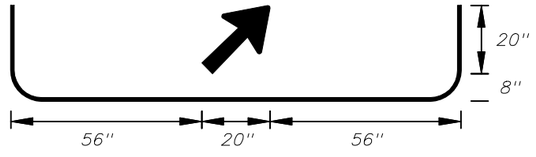
FTP-14-06
16'-0" X 7'-0"
11" Radii 2" Border
13.3 and 10" Series E Legend
Blue Background
White Legend and Border



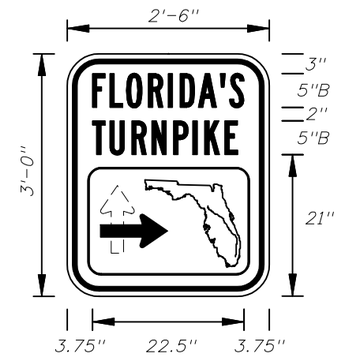
FTP-15A-06
11'-0" X 4'-6"
7" Radii 2" Border
8" Series E Legend
Blue Background
White Legend and Border



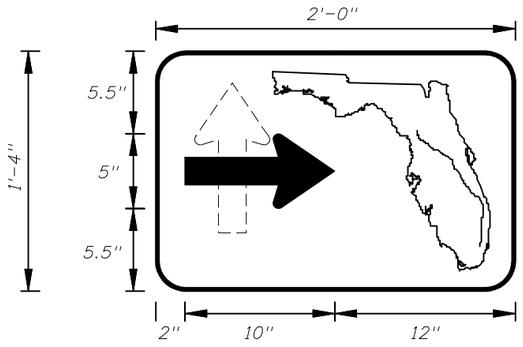
FTP-15B-06
11'-0" X 5'-0"
8" Radii 2" Border
8" and 12" Series E Legend
Blue Background
White Legend and Border



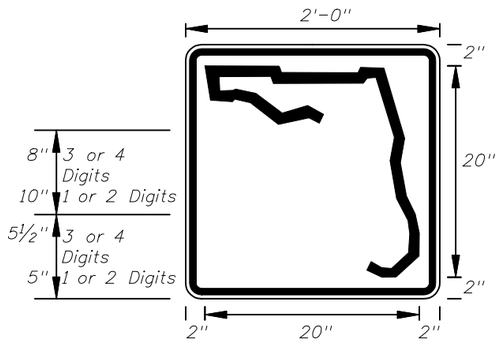
FTP-15C-06
11'-0" X 5'-6"
9" Radii 2" Border
8" Series E Legend
Blue Background
White Legend and Border



FTP-16-06
2'-6" X 3'-0"
4" Radii 2" Border
5" Series B Legend
Green Background
White Legend and Border



FTP-16-06 DETAIL
2' X 1'-4"
2" Radii 1" Border
White Background
Black Legend and Border



FTP-17-06
2' X 2'
1.13" Radii .0521" Border
White Background
Black Legend and Border

See Sheet 3 of 11
For Additional Details

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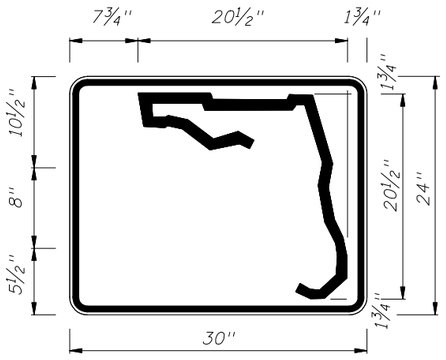
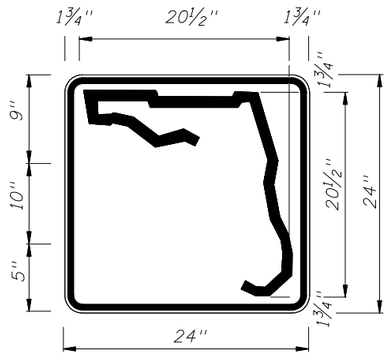


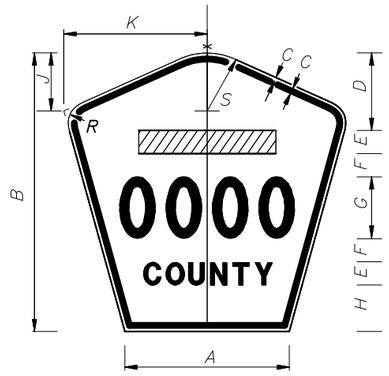
3 or 4 DIGITS



1 or 2 DIGITS

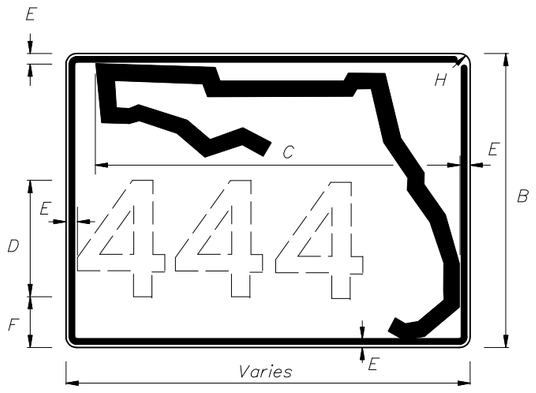
DIGITS	NUMERAL SIZE	SERIES	PANEL SIZE
1-2	10"	D	24" x 24"
3-4	8"	D	24" x 24"
3	8"	C	30" x 24"
4	8"	C	30" x 24"

Note :
The 24" X 24" panel shall only be used for a 3 or 4 digit route when the panel is to be used on a sign cluster with other 24" X 24" panels.

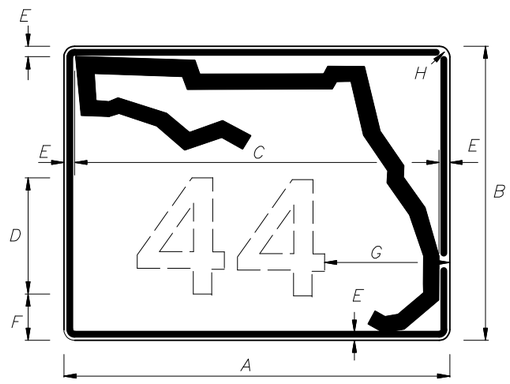


Notes :
1. All Legend Series "D".
2. Color: Yellow Legend and Border on Blue Background.
3. When used on a guide sign, marker must be overlaid on a rectangular Yellow Background as shown in chart. **

INDEPENDENT USE OTHER THAN FREEWAY



3 OR MORE DIGITS



1 OR 2 DIGITS

SIGN	DIMENSIONS												**
	A	B	C	D	E	F	G	H	J	K	R	S	
4 DIGIT POST MOUNTED	25⅛"	42"	¾"	10"	4"	4"	8"	8"	8⅜"	22"	5"	8¾"	
2 DIGIT OVERHEAD	21½"	36"	½"	7½"	3"	3"	12"	4½"	7⅛"	18⅞"	4¼"	7½"	42"x 42"
3 DIGIT OVERHEAD	25⅛"	42"	¾"	8"	4"	4"	12"	6"	8⅜"	22"	5"	8¾"	48"x 48"
4 DIGIT OVERHEAD	29⅞"	48"	¾"	8"	5"	5"	12"	8"	9¾"	25⅝"	5¾"	10¼"	52"x 52"

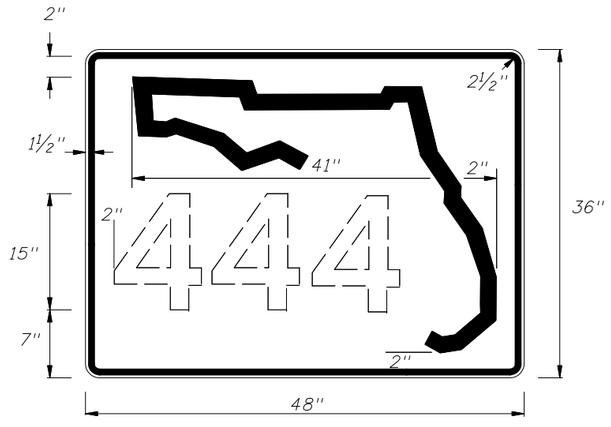
M1-6 COUNTY ROUTE MARKER DETAIL
FTP-18-06

A	B	C	D	E	F	G	H
30"	24"	26"	12"	1¼"	2¾"	8¼"	1¼"
36"	30"	32"	15"	1¼"	3¼"	8¾"	1¼"
42"	36"	38"	15"	1¼"	6¼"	11"	1¼"

GUIDE SIGN USE

Notes:
1. Florida marker shall have Black Legend with White Background.
2. Stroke width of State outline to be 1" for independent use and 1¼" for Guide Sign.
3. Numbers are series D.

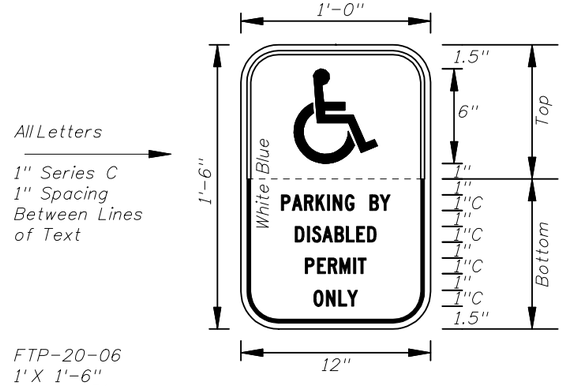
FLORIDA ROUTE MARKER
FTP-17-06



1-3 DIGITS 15" SERIES C
4 DIGITS 12" SERIES C

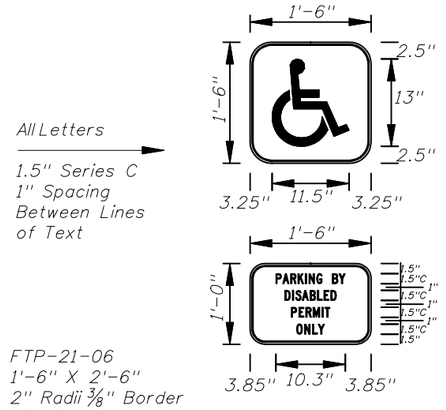
INDEPENDENT USE FOR FREEWAY

FTP-19-06
1'X 1'-6"
4" Radii 3/8" Border
Top 4" Series D
Bottom 2" Series C
White Background
Green Legend and Border



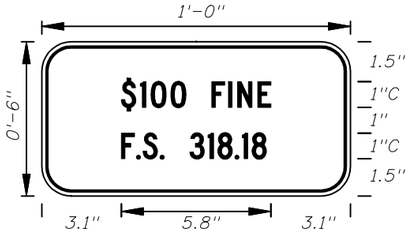
FTP-20-06
1'X 1'-6"
2" Radii 3/8" Border
1" Series C Legend

	Top	Bottom
Color	Blue	White
Background	White	Black
Legend and Border		



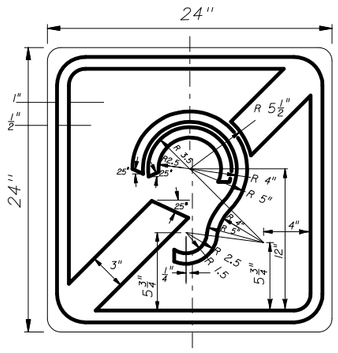
FTP-21-06
1'-6" X 2'-6"
2" Radii 3/8" Border
1.5" Series C Legend

	Top	Bottom
Color	Blue	White
Background	White	Black
Legend and Border		



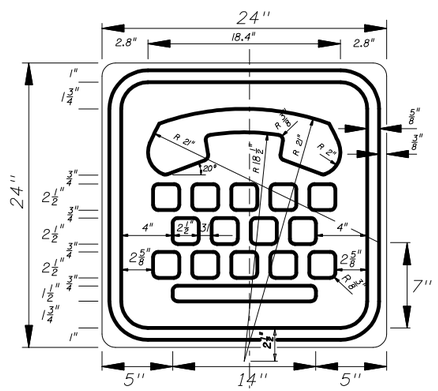
FTP-22-06
1'X 6"
1" Radii 3/8" Border
1" Series C Legend
White Background
Black Legend and Border

Supplemental panel
for the FTP-20-06
and FTP-21-06 signs

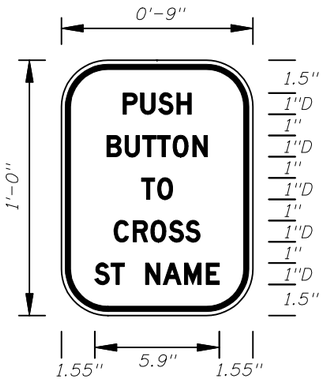


INTERNATIONAL SYMBOL OF
ACCESS FOR HEARING LOSS

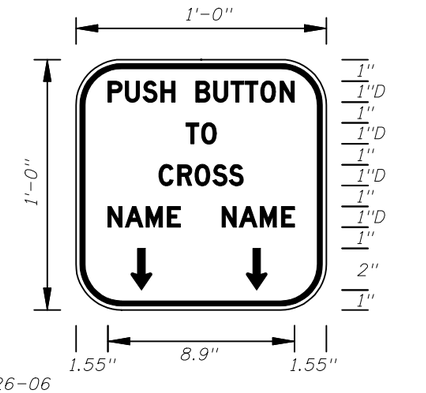
FTP-23-06
2'X 2'
1.5" Radii 5/8" Border
Blue Background
White Legend and Border



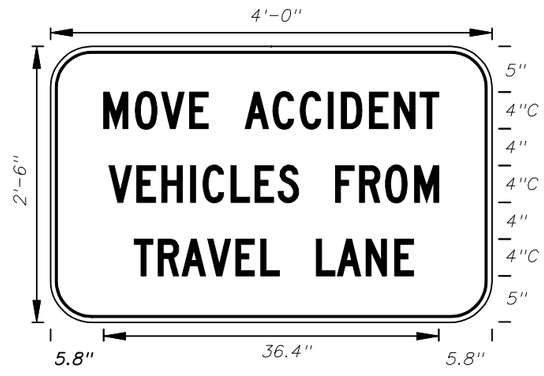
FTP-24-06 INTERNATIONAL TDD SYMBOL
2'X 2'
1.5" Radii 5/8" Border
Blue Background
White Legend and Border



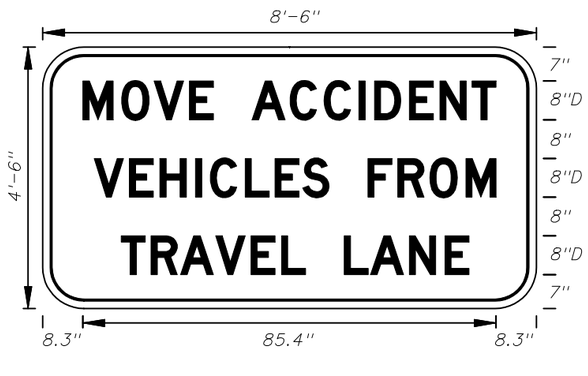
FTP-25-06
9" X 1'-0"
2" Radii 3/8" Border
1" Series D Legend
White Background
Black Legend and Border



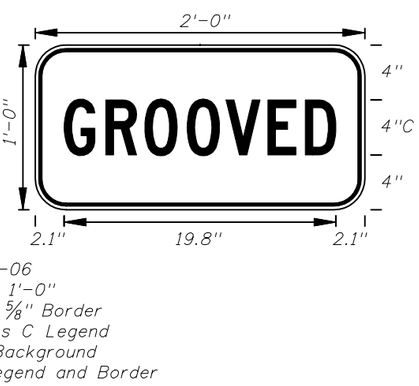
FTP-26-06
1' X 1'
2" Radii 3/8" Border
1" Series D Legend
White Background
Black Legend and Border



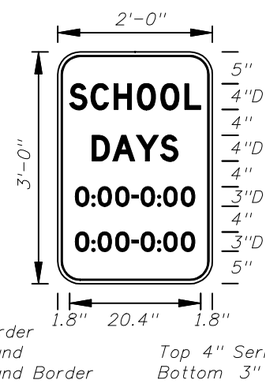
FTP-27-06
4'X 2'-6"
4" Radii 3/4" Border
4" Series C Legend
White Background
Black Legend and Border



FTP-28-06
8'-6" X 4'-6"
7" Radii 3/4" Border
8" Series D Legend
White Background
Black Legend and Border



FTP-29-06
2'-0" X 1'-0"
2" Radii 5/8" Border
4" Series C Legend
Yellow Background
Black Legend and Border



FTP-30-06
2'-0" X 3'-0"
3" Radii 5/8" Border
White Background
Black Legend and Border

Top 4" Series D Legend
Bottom 3" Series C Legend

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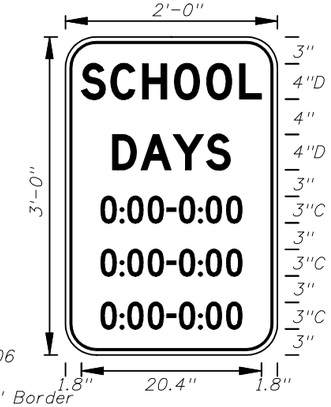
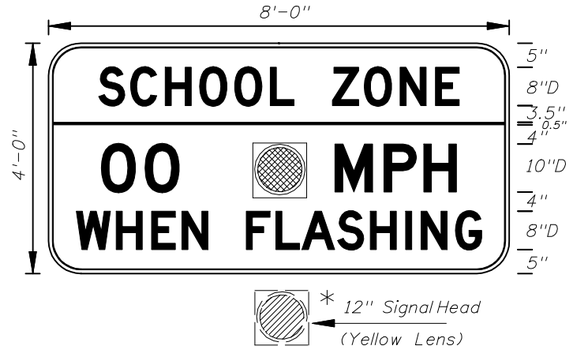
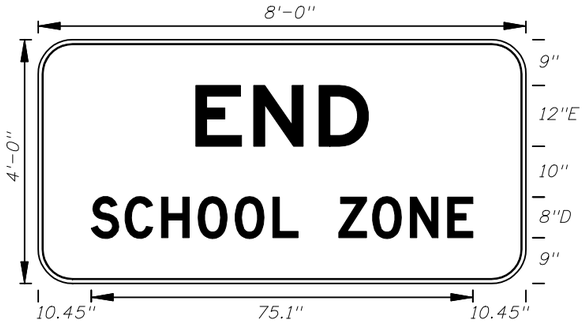


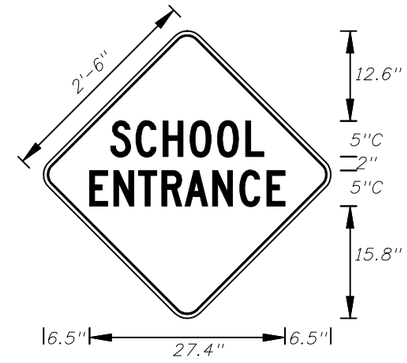
FTP-30A-06
2' X 3'
3" Radii 5/8" Border
Top 4" Series D Legend
Bottom 3" Series C Legend
White Background
Black Legend and Border



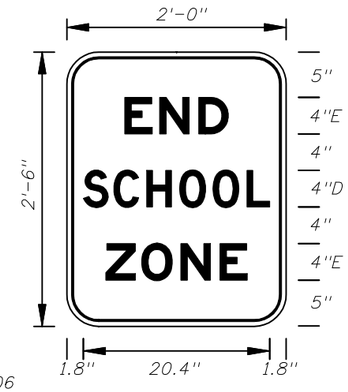
FTP-31-06
8' X 4'
6" Radii 3/4" Border
Series D Legend
Yellow Background Top
White Background Bottom
Black Legend and Border



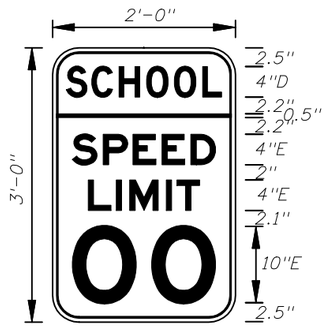
FTP-32-06
8' X 4'
6" Radii 3/4" Border
12" Series E and 8" Series D Legend
White Background
Black Legend and Border



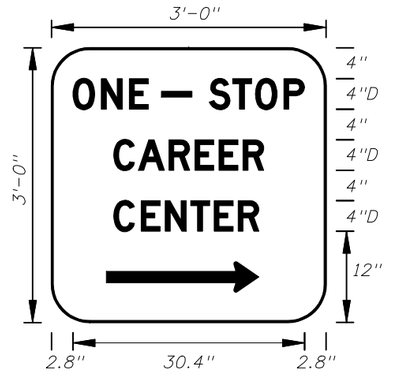
FTP-33-06
2'-6" X 2'-6"
2" Radii 3/4" Border
5" Series C Legend
Yellow Background
Black Legend and Border



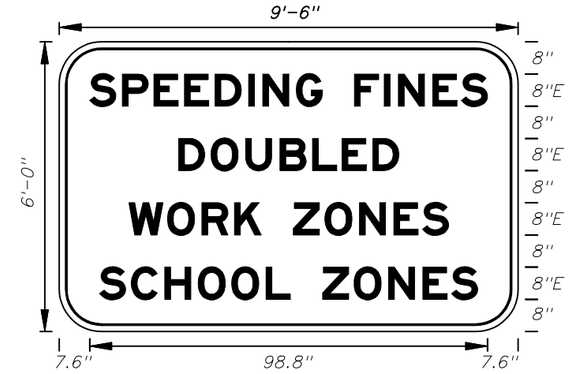
FTP-34-06
2' X 2'-6"
3" Radii 5/8" Border
4"Series D and E Legend
White Background
Black Legend and Border



FTP-35-06
2' X 3'
3" Radii 5/8" Border
Top 4" Series D Legend
Bottom 4" and 10" Series E Legend
Yellow Background Top
White Background Bottom
Black Legend and Border

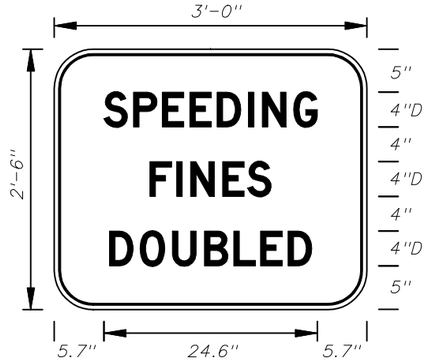


FTP-36-06
3' X 3'
5" Radii
4" Series D Legend
Green Background
White Legend and Border



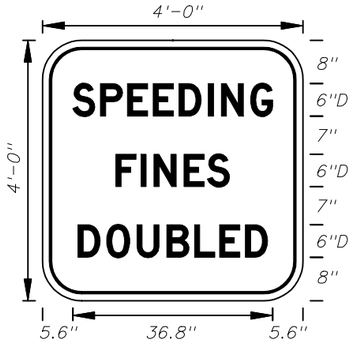
FTP-37-06
9'-6"X 6'
9" Radii 2" Border
8" Series E Legend
White Background
Black Legend and Border

State Line Sign



FTP-38-06
3' X 2'-6"
4" Radii 3/4" Border
4" Series D Legend
White Background
Black Legend and Border

Arterial Sign

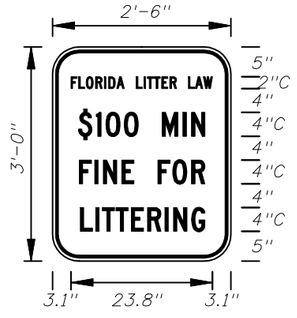


FTP-39-06
4' X 4'
6" Radii 3/4" Border
6" Series D Legend
White Background
Black Legend and Border

Freeway Sign

FTP-40-06
3'-6" X 4'
6" Radii 3/4" Border

3" and 6" Series C Legend
White Background
Black Legend and Border



FTP-41-06
2'-6"X 3'
4" Radii 3/4" Border

2" and 4" Series C Legend
White Background
Black Legend and Border

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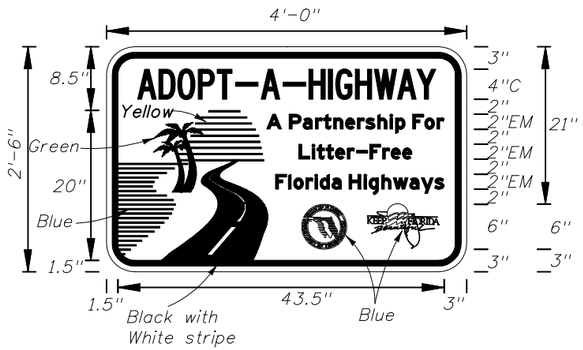
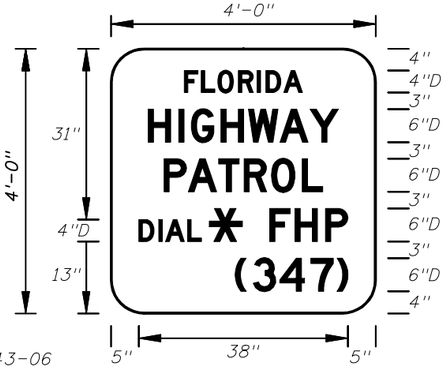
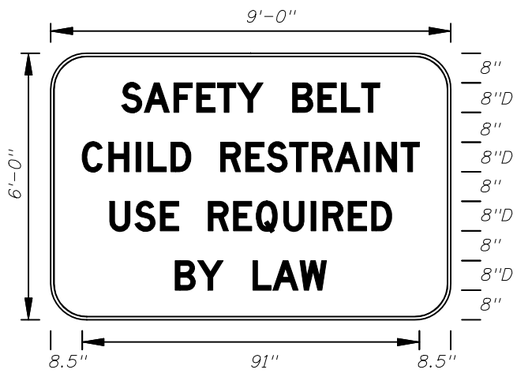


FTP-42-06
4'X 2'-6"
3" Radii
Top 4" Series C Legend
Bottom 2" Series EM Legend
White Background
Blue Legend and Border

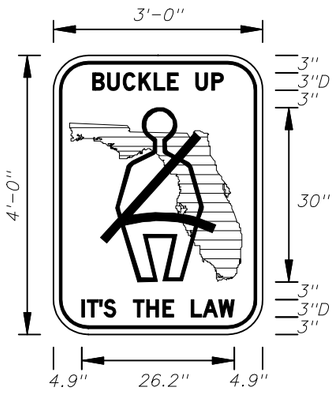


FTP-43-06
4' X 4'
6" Radii 1" Border
Top 4" Series D Legend
Bottom 6" Series D Legend
Blue Background
White Legend and Border

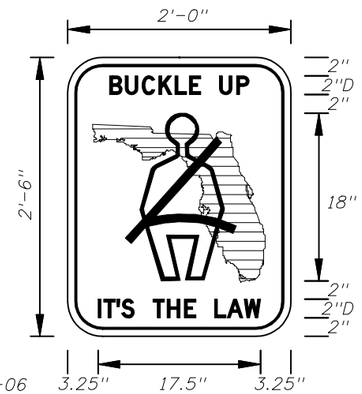


FTP-44-06
9'X 6'
9" Radii ¾" Border
8" Series D Legend
White Background
Black Legend and Border

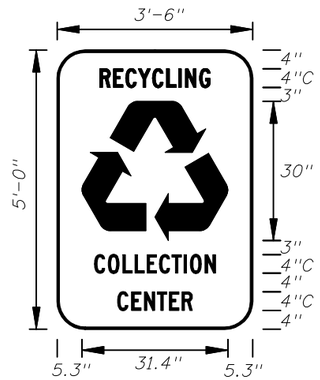
FTP-45-06
4'X 3'
5" Radii ¾" Border
4" Series C Legend
White Background
Black Legend and Border



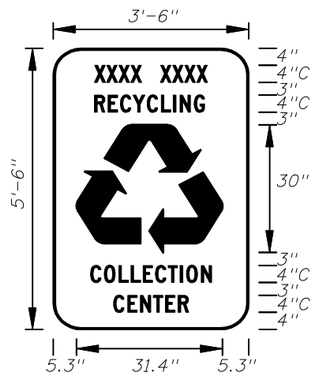
FTP-46-06
3'X 4'
5" Radii ¾" Border
3" Series D Legend
White Background Florida Sheild Green
Black Legend, Border and Man Belt Symbol



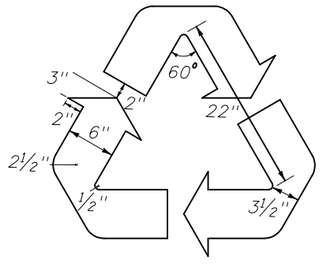
FTP-47-06
2'X 2'-6"
3" Radii ⅝" Border
2" Series D Legend
White Background Florida Shield Green
Black Legend, Border and Man Belt Symbol



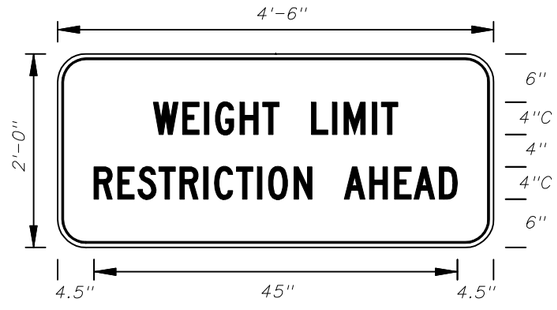
FTP-48-06
3'-6" X 5'
6" Radii
4" Series C Legend
Green Background
White Legend, Border and Symbol



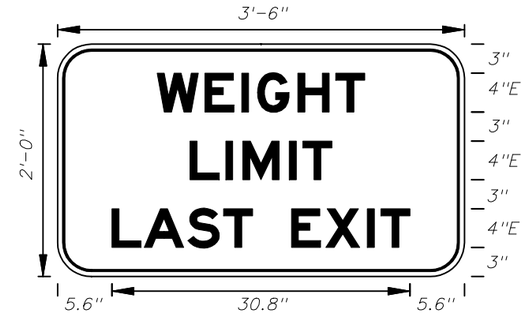
FTP-49-06
3'-6" X 5'-6"
6" Radii
4" Series C Legend
Green Background Municipality Name Optional
White Legend, Border and Symbol



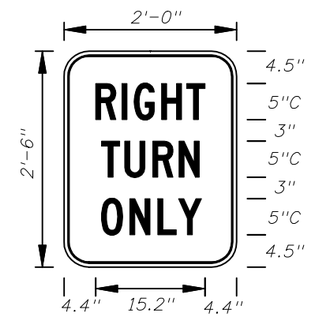
Detail for FTP-48-06 and FTP-49-06



FTP-50-06
4'-6" X 2'
3" Radii ¾" Border
4" Series C Legend
Yellow Background
Black Legend and Border



FTP-51-06
3' X 2'
3" Radii ¾" Border
4" Series E Legend
White Background
Black Legend and Border



FTP-52-06
2'X 2'-6"
3" Radii ⅝" Border
5" Series C Legend
White Background
Black Legend and Border

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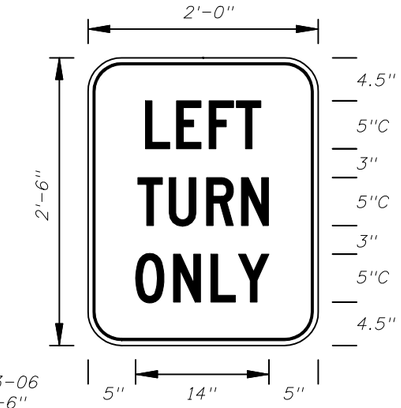
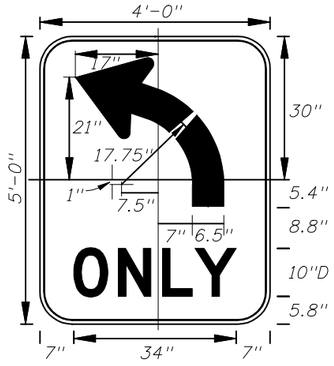
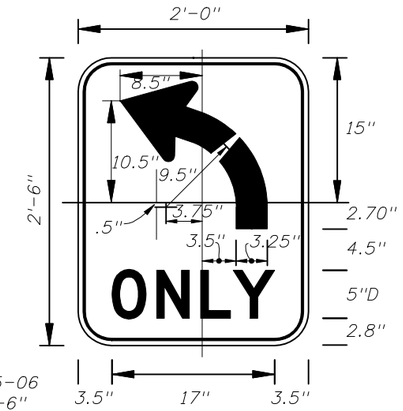


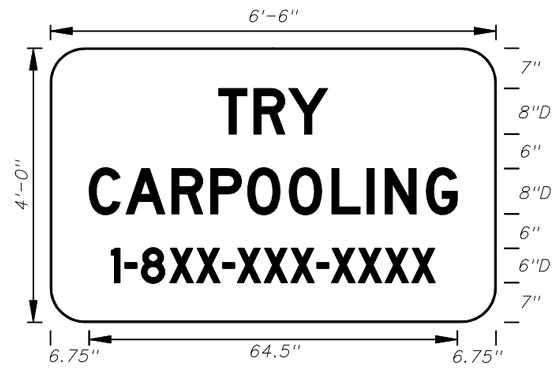
FTP-53-06
2' X 2'-6"
3" Radii 5/8" Border
5" Series C Legend
White Background
Black Legend and Border



FTP-54-06
4' X 5'
6" Radii 3/4" Border
10" Series D Legend
White Background
Black Legend and Border

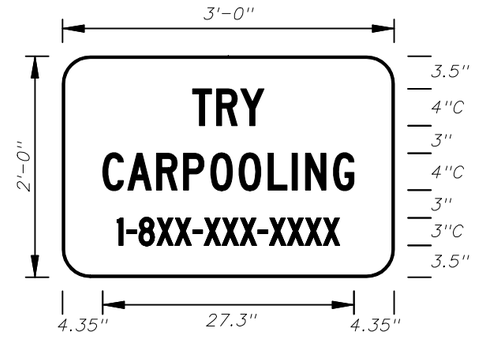


FTP-55-06
2' X 2'-6"
3" Radii 3/8" Border
5" Series D Legend
White Background
Black Legend and Border



FTP-56-06
6'-6"X 4'
6" Radii 3/4" Border
8" and 6" Series D Legend
Blue Background
White Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.

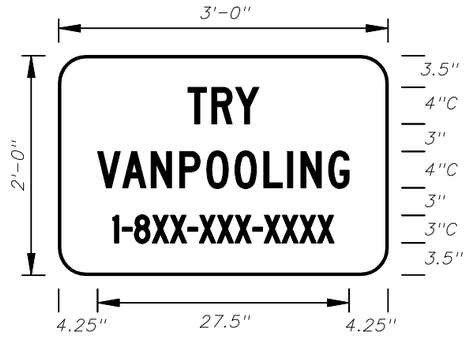


FTP-56A-06
3' X 2'
3" Radii
4" and 3" Series C Legend
Blue Background
White Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.

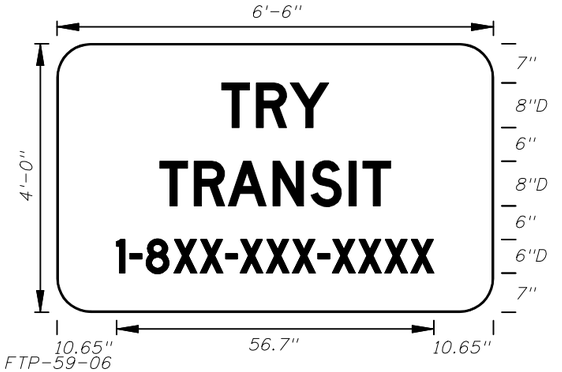
FTP-57-06
6'-6" X 4'
6" Radii
8"and 6" Series D Legend
Blue Background
White Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.



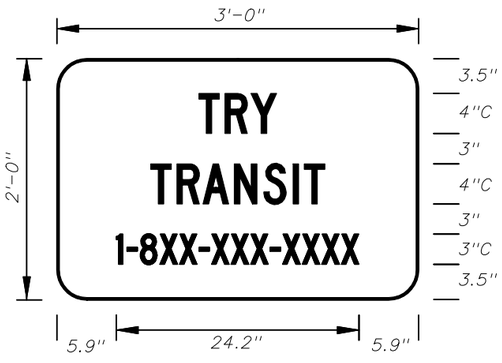
FTP-58-06
3' X 2'
3" Radii
4" and 3" Series C Legend
Blue Background
White Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.



FTP-59-06
6'-6" X 4'
6" Radii
8" and 6" Series D Legend
Blue Background
White Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.

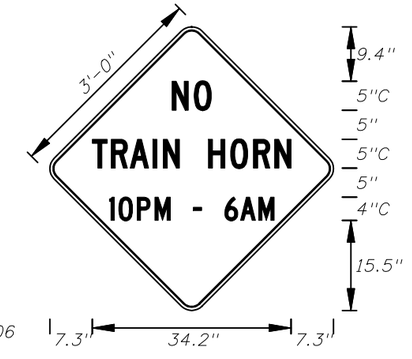


FTP-60-06
3' X 2'
3" Radii
4"and 3" Series C Legend
Blue Background
White Legend and Border

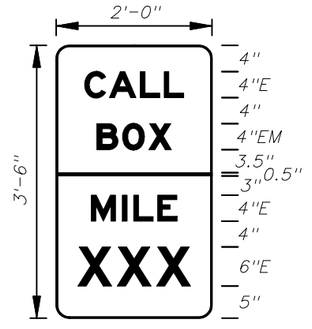
Design Project Manager or Transit Administrator will supply correct 1-8XX number.

FTP-61-06
3' X 2'
3" Radii 3/4" Border
4" and 3" Series C Legend
Yellow Background
Black Legend and Border

Design Project Manager or Transit Administrator will supply correct 1-8XX number.



FTP-62-06
3' X 3'
2" Radii 3/4" Border 4"and 5" Series C Legend
Yellow Background Black Legend and Border



FTP-63-06
2' X 3'-6"
2" Radii 4"and 6" Series E and EM Legend
Top Blue Background White Legend and Border
Bottom Green Background White Legend and Border

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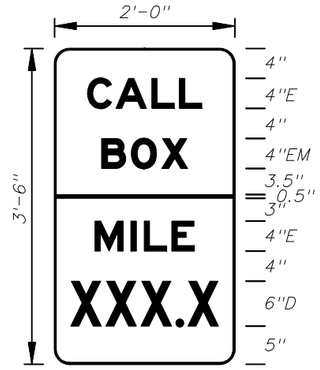
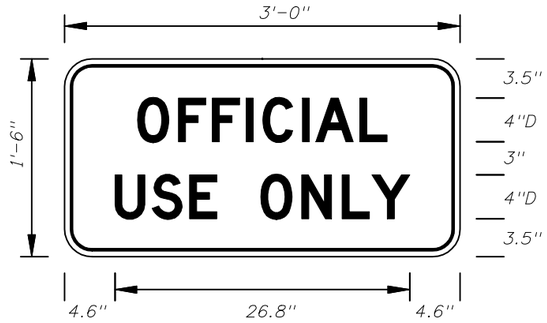


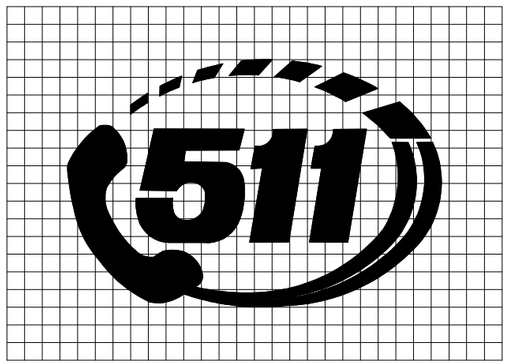
FTP-64-06
2' X 3'-6"
2" Radii
Top 4" Series E and 4" Series EM Legend
Blue Background White Legend and Border
Bottom 4" Series E and 6" Series D Legend
Green Background White Legend and Border



FTP-65-06
3' X 1'-6"
2" Radii ¾" Border
4" Series D Legend
White Background
Black Legend and Border

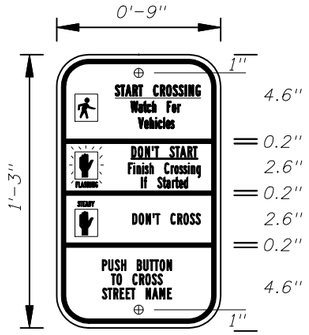
FTP-66-06
4'X 5'
2" Radii ¾" Border
7" Series D Legend
Blue Background
White Legend and Border

FTP-67-06
3' X 4'
2" Radii ¾" Border
5" Series D Legend
Blue Background
White Legend and Border



DETAIL for FTP-66 AND FTP-67

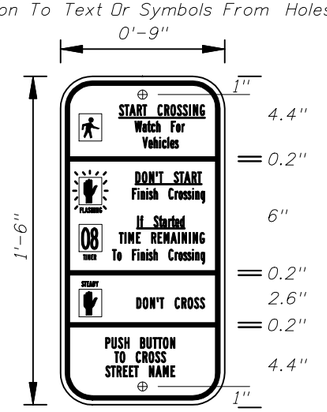
Sign Mounting Holes Can Be Punched Or Field Drilled With No Obstruction To Text Or Symbols From Holes Or Bolts.



FTP-68A-06
9" X 1'-3"
1.5" Radii ¾" Border
Series B Legend
White Background
Black Legend and Border

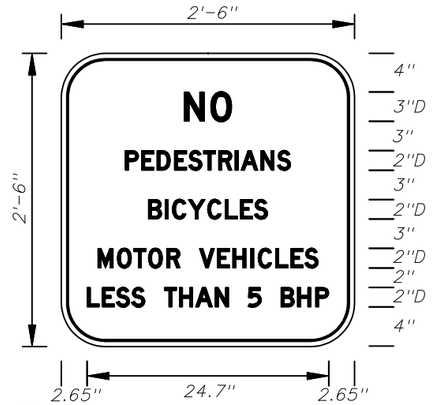
See Standard Highway Signs Manual, Sign R10-3b For Letter Size Spacing And Symbol Sizes.

Sign Mounting Holes Can Be Punched Or Field Drilled With No Obstruction To Text Or Symbols From Holes Or Bolts.

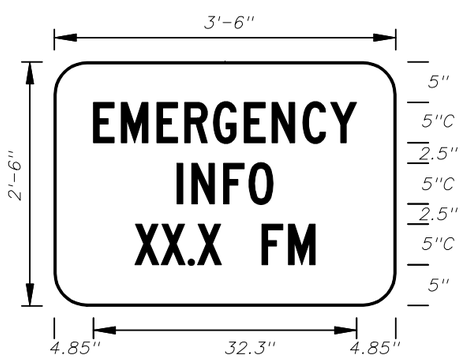


FTP-68B-06
9" X 1'-6"
1.5" Radii ¾" Border
Series B Legend
White Background
Black Legend and Border

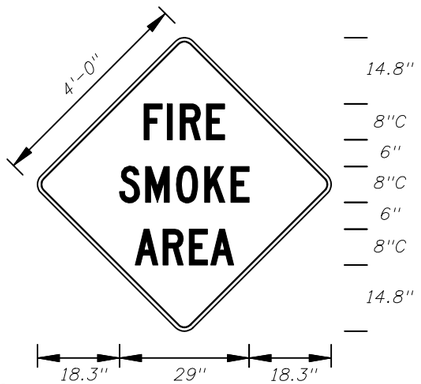
See Standard Highway Signs Manual, Sign R10-3b For Letter Size Spacing And Symbol Sizes.



FTP-69-06
2'-6" X 2'-6"
4" Radii ¾" Border
2" and 3" Series D Legend
White Background
Black Legend and Border



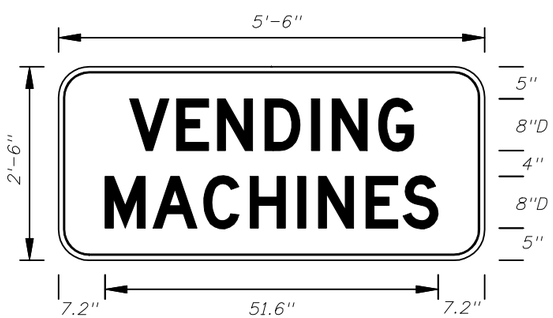
FTP-70-06
3'-6" X 2'-6"
4" Radii ¾" Border
5" Series C Legend
Blue Background
White Legend and Border



FTP-71-06
4' X 4'
2" Radii ¾" Border
8" Series C Legend
Yellow Background
Black Legend and Border

FTP-72-06
3' X 3'
2" Radii ¾" Border

6" Series C Legend
Yellow Background
Black Legend and Border



FTP-73-06
5'-6" X 2'-6"
4" Radii ¾" Border

8" Series D Legend
Blue Background
White Legend and Border

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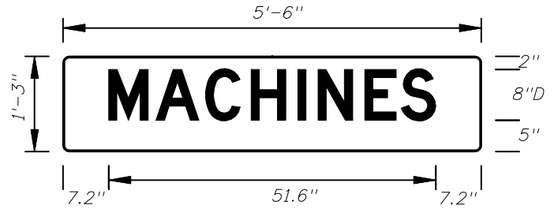
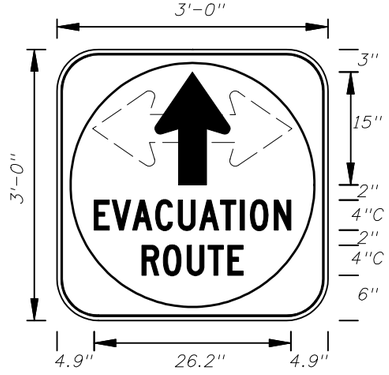
FTP-74-06
5'-6" X 2'-6"
4" Radii ¾" Border
6" Series D Legend
Blue Background
White Legend and Border

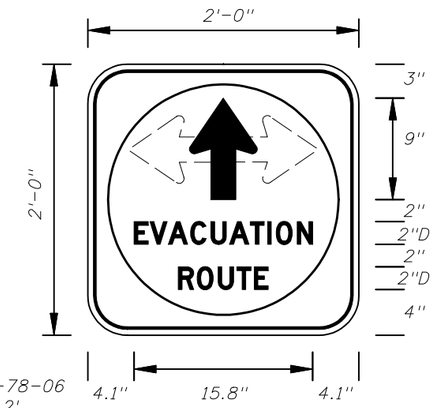
FTP-75-06
5'-6" X 1'-3"
1" Radii
6" Series D Legend
Blue Background
White Legend



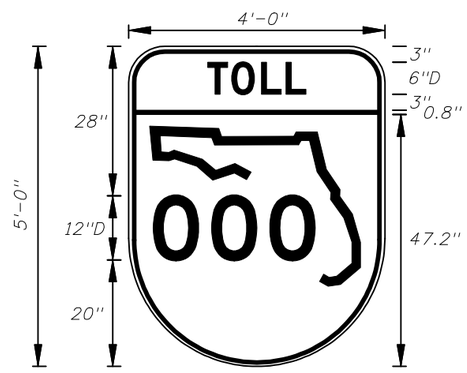
FTP-76-06
5'-6" X 1'-3"
1" Radii
8" Series D Legend
Blue Background
White Legend



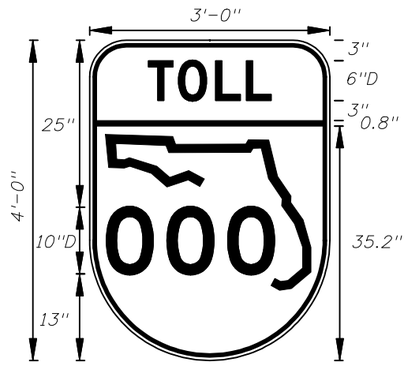
FTP-77-06
3' X 3'
5" Radii ¾" Border
4" Series C Legend
White Background with Blue Circle Background
White Legend and Black Border



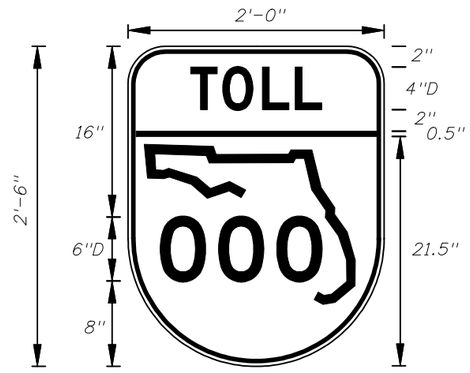
FTP-78-06
2' X 2'
3" Radii ¾" Border
2" Series D Legend
White Background with Blue Circle Background
White Legend and Black Border



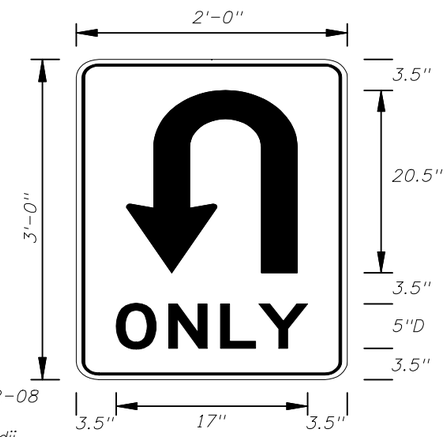
FTP-79-06
4' X 5'
6" Radii ¾" Border
6" and 12" Series D Legend
Top Green Background with White Legend and Black Border
Bottom White Background with Black Legend and Border



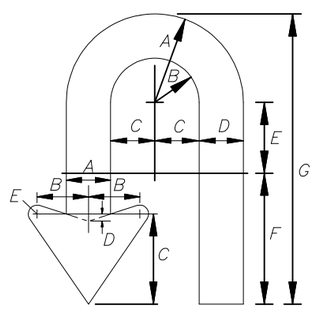
FTP-80-06
3' X 4'
5" Radii ¾" Border
6"and 10" Series D Legend
Top Green Background with White Legend and Black Border
Bottom White Background with Black Legend and Border



FTP-81-06
2' X 2'-6"
3" Radii ¾" Border
4" and 6" Series D Legend
Top Green Background with White Legend and Black Border
Bottom White Background with Black Legend and Border



FTP-82-08
2' X 3'
1.5" Radii
5" Series D Legend
White Background
Black Legend and Border

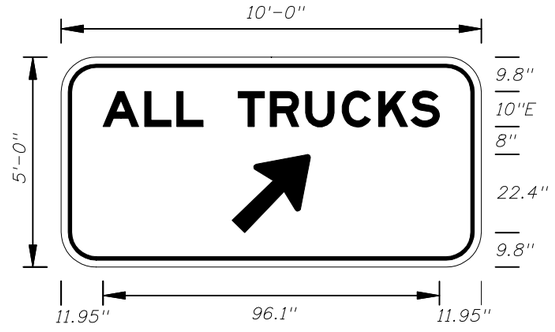


ARROW BODY

A	B	C	D	E	F	G
6.25	3.125	3.125	3.125	5	9.25	20.5

ARROW HEAD

A	B	C	D	E
3.125	3.625	6.375	.5	.625



FTP-83-08
10'-0" X 5'-0"
8" Radii

10" Series E Legend
Green Background
White Legend

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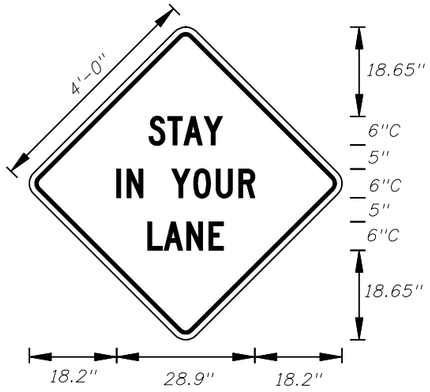
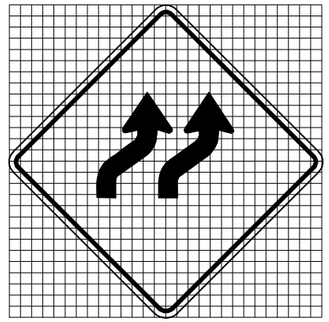


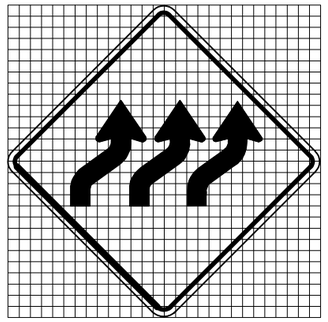
MOT-1-06
4'X 4'
2" Radii ¾" Border

6" Series C Legend
Orange Background
Black Legend and Border



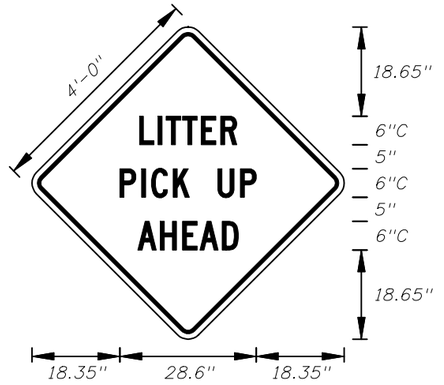
MOT-2-06
4'X 4'
2" Radii ¾" Border

Orange Background
Black Arrows and Border



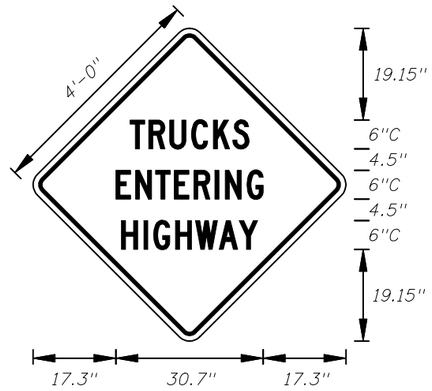
MOT-3-06
4'X 4'
2" Radii ¾" Border

Orange Background
Black Arrows and Border



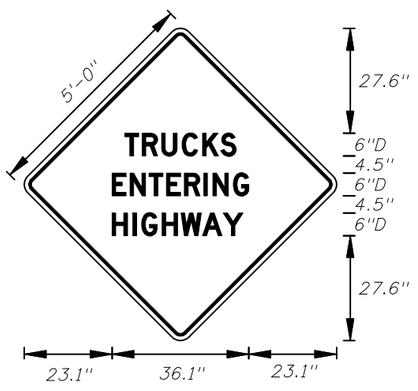
MOT-4-06
4'X 4'
2" Radii ¾" Border

6" Series C Legend
Orange Background
Black Legend and Border



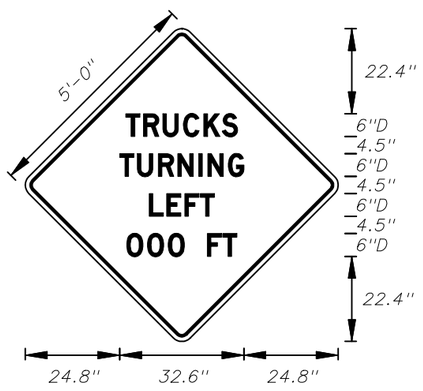
MOT-5-06
4'X 4'
2" Radii ¾" Border

6" Series C Legend
Orange Background
Black Legend and Border



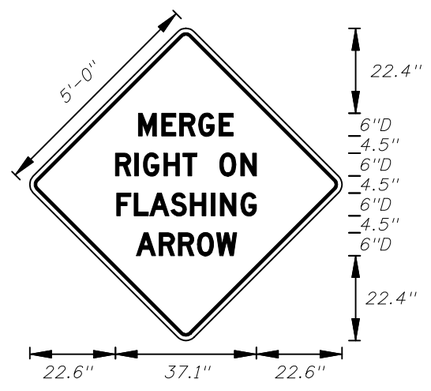
MOT-6-06
5'X 5'
2" Radii ¾" Border

6" Series D Legend
Orange Background
Black Legend and Border



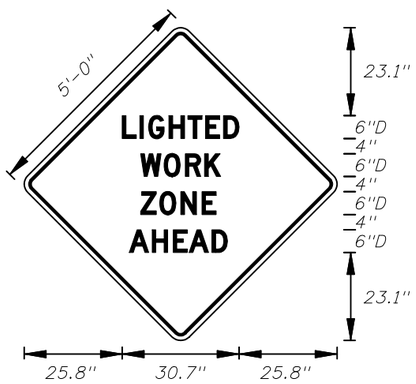
MOT-7-06
5'X 5'
2" Radii ¾" Border

6" Series D Legend
Orange Background
Black Legend and Border



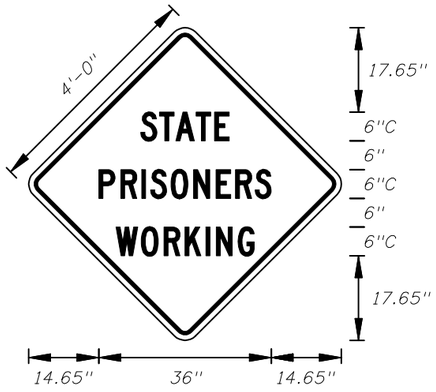
MOT-8-06
5'X 5'
2" Radii ¾" Border

6" Series D Legend
Orange Background
Black Legend and Border



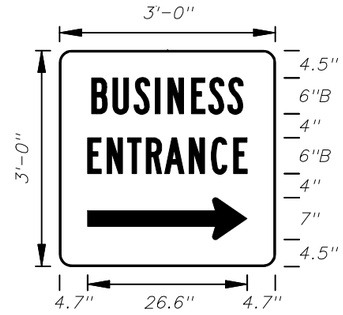
MOT-9-06
5'X 5'
2" Radii ¾" Border

6" Series D Legend
Orange Background
Black Legend and Border



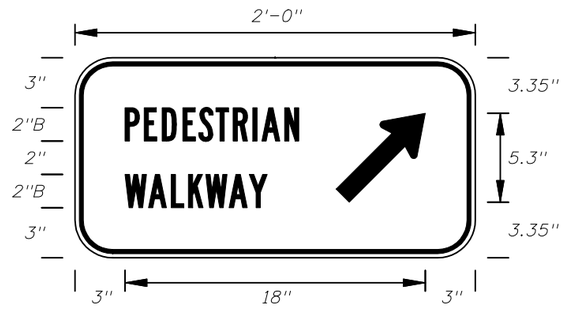
MOT-10-06
4'X 4'
2" Radii ¾" Border

6" Series C Legend
Orange Background
Black Legend and Border



MOT-11-06
3'X 3'
2" Radii ¾" Border

6" Series B Legend
Blue Background
White Legend and Border



MOT-12-06
2'X 1'
2" Radii ¾" Border

2" Series B Legend
White Background
Black Legend and Border

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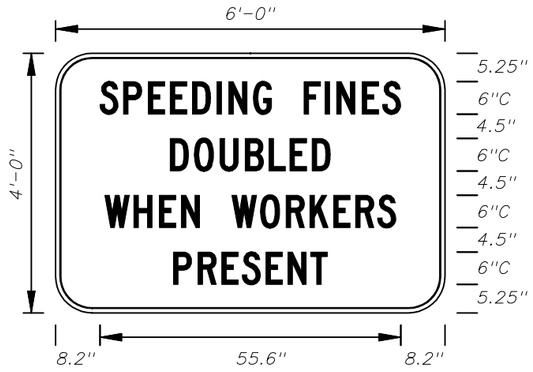
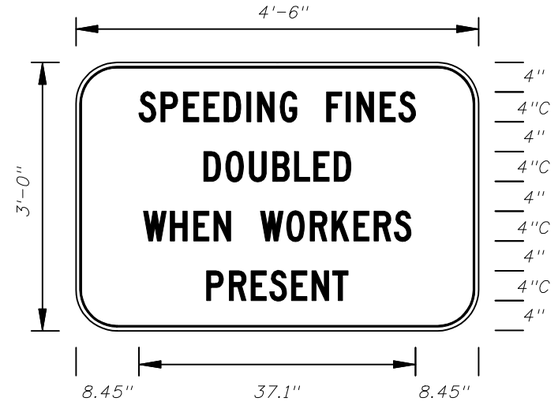


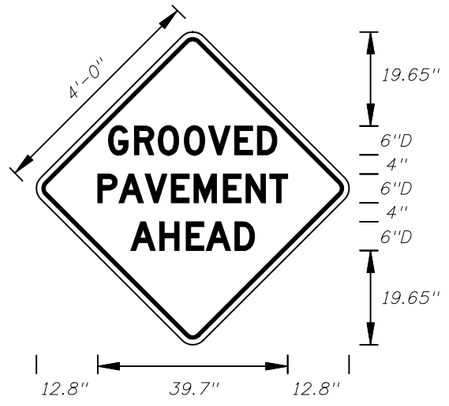
MOT-13-06 Freeway Sign
6' X 4'
6" Radii ¾" Border

6" Series C Legend
White Background
Black Legend and Border



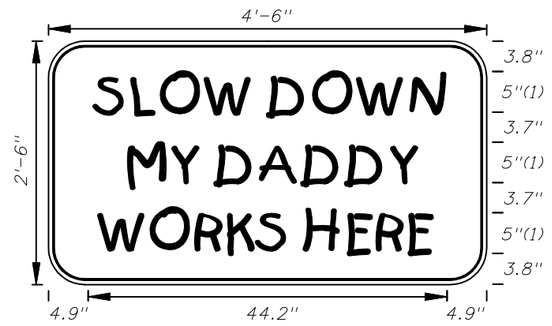
MOT-14-06 Arterial Sign
4'-6" X 3'
5" Radii ¾" Border

4" Series C Legend
White Background
Black Legend and Border



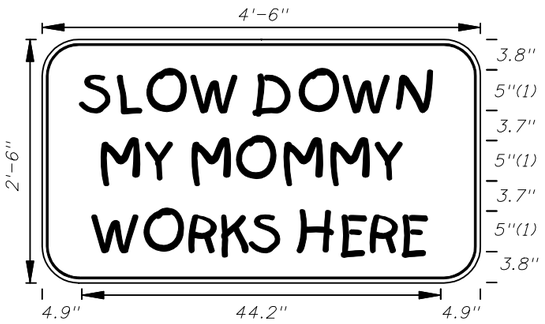
MOT-15-06
4' X 4'
2" Radii ¾" Border

6" Series D Legend
Orange Background
Black Legend and Border



MOT-16-06
4'-6" X 2'-6"
4" Radii ¾" Border

5" Kids Series Legend
Orange Background
Black Legend and Border



MOT-17-06
4'-6" X 2'-6"
4" Radii ¾" Border

5" Kids Series Legend
Orange Background
Black Legend and Border

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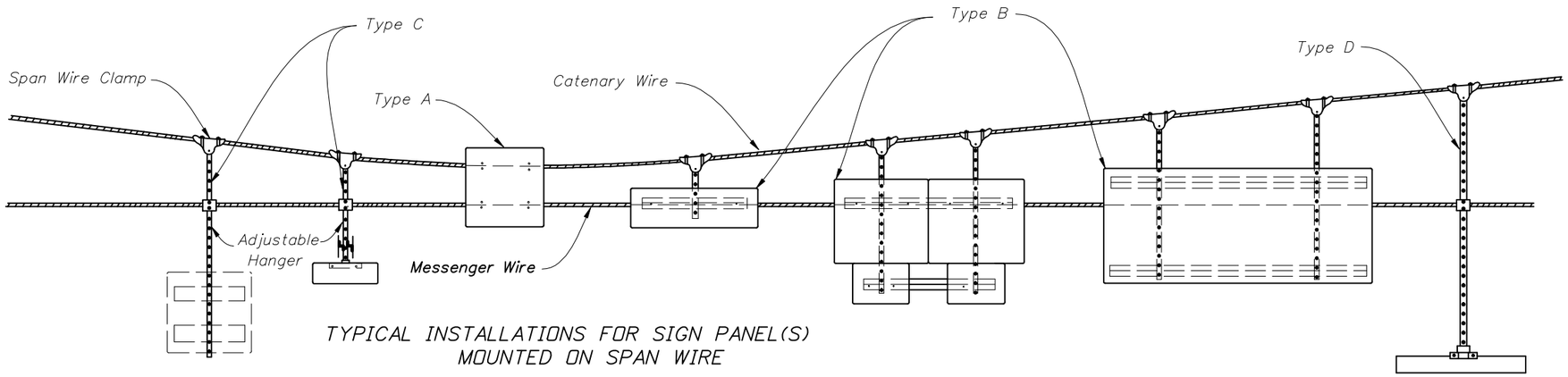


TYPICAL INSTALLATIONS FOR SIGN PANEL(S) MOUNTED ON SPAN WIRE

Notes :

1. Bottom edge of signs shall be approximately at the same elevation.

2. Type B & C attachments with one hanger shall have wind beams for signs wider than 3½'. The beams shall extend to within 6" of the sign edge.

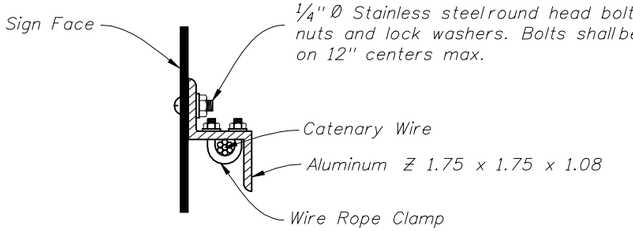
3. Type B & C attachments for signs 4' and wider shall have 2 hangers. Signs 7' and wider shall have wind beams that extend to within 6" of the sign edge.

4. Type D attachments shall be for signs 3½' wide or less.

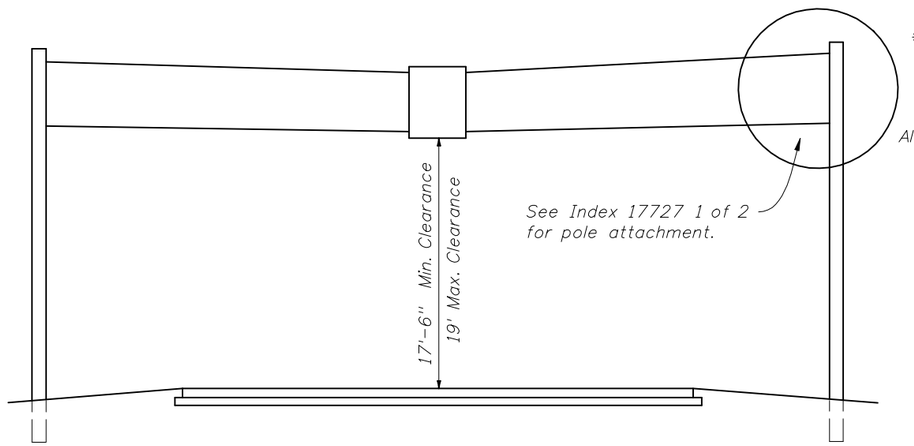
5. Sign panels shall meet the requirements of Index 11200.

6. Refer to section 634 of the Standard Specifications For Road And Bridge Construction.

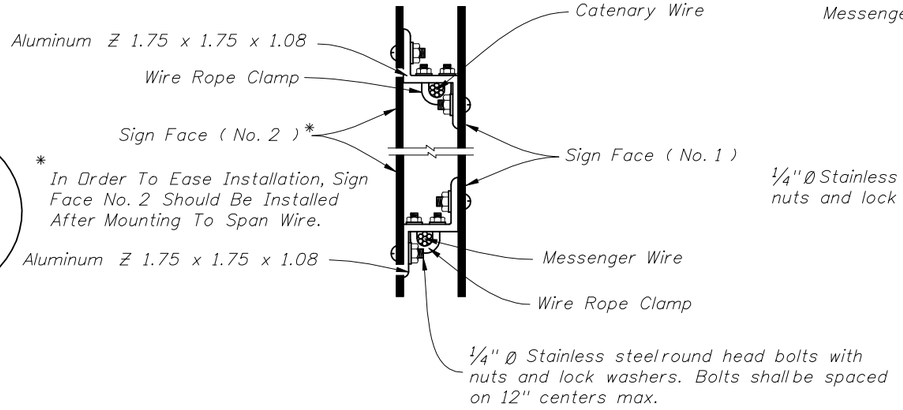
7. All bolts, nuts, and washers shall be passivated stainless steel, AISI 300 series, commercial grade, type 316.



SIGN MOUNTING DETAIL

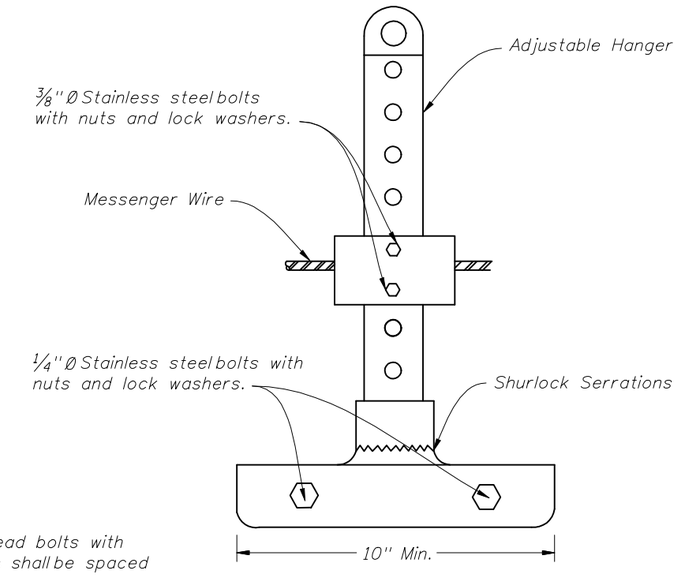


TYPICAL SPAN WIRE INSTALLATION



The overlapped connection of adjustable hangers shall use a minimum of 2 bolts with a minimum spaceing between bolts of 2".

DETAIL OF OPPOSING SIGNS SPAN WIRE MOUNTED



ADJUSTABLE HANGER FOR SIGN MOUNTING

TWO POINT ATTACHMENT

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SPAN WIRE MOUNTED SIGN DETAILS

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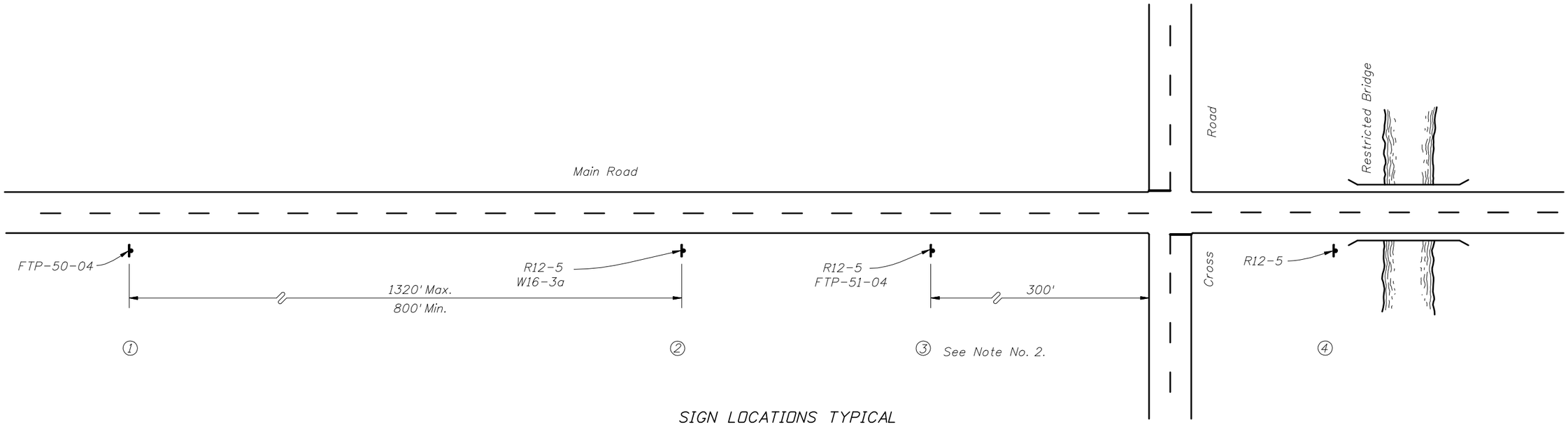

SIGN LOCATIONS TYPICAL

①

FTP-50-06

②

R12-5 (30" X 36")

W 16-3A

③

R12-5 (30" X 36")

FTP-51-06

④

R12-5 (30" X 36")

1. See Standard Highway Signs for sign R12-5 and W16-3 details.
2. Sign locatin No. 3 may require some field adjustment.
3. The Cross Road is the last detour to route around the restricted bridge.
4. Sign location No. 2 should be established from the Cross Road the following approximate distances; Interstate-1 Mile Non- Interstate-1/2 Mile.
5. See Index 17355 for sign details.

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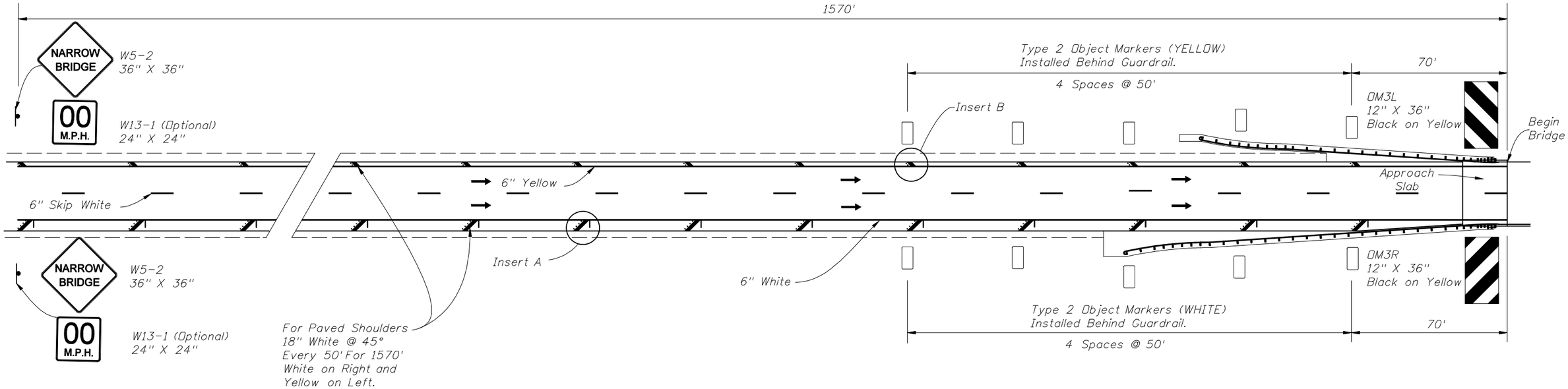
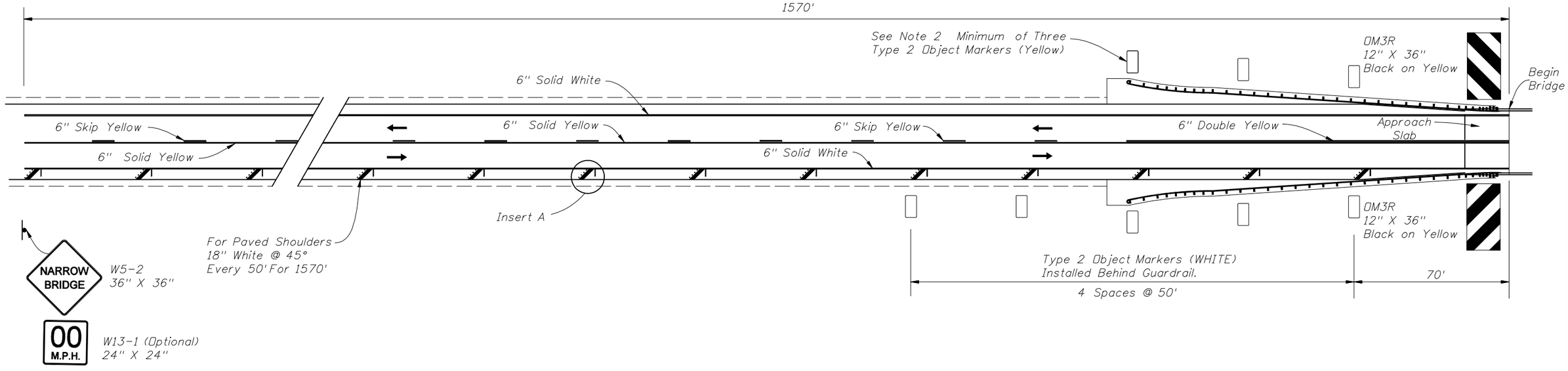


One-Way Traffic



2-Way Traffic

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RURAL NARROW BRIDGE TREATMENT

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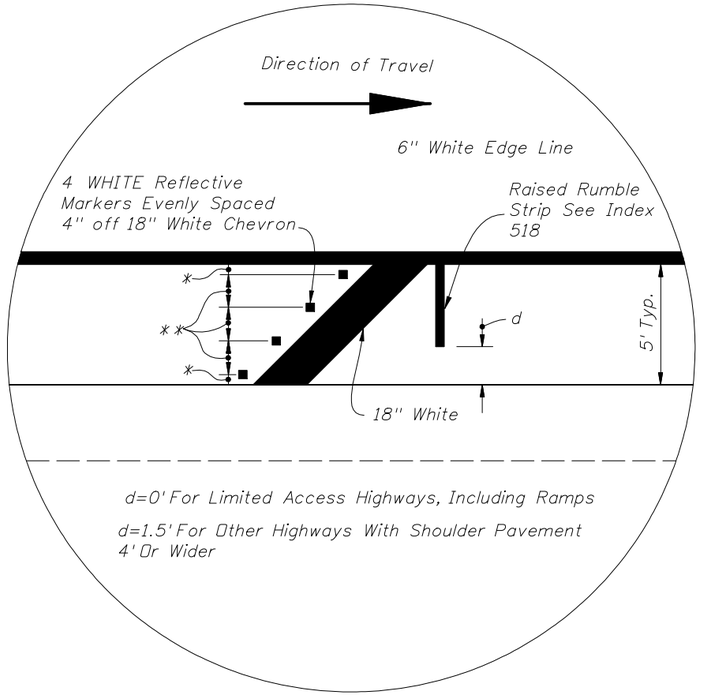
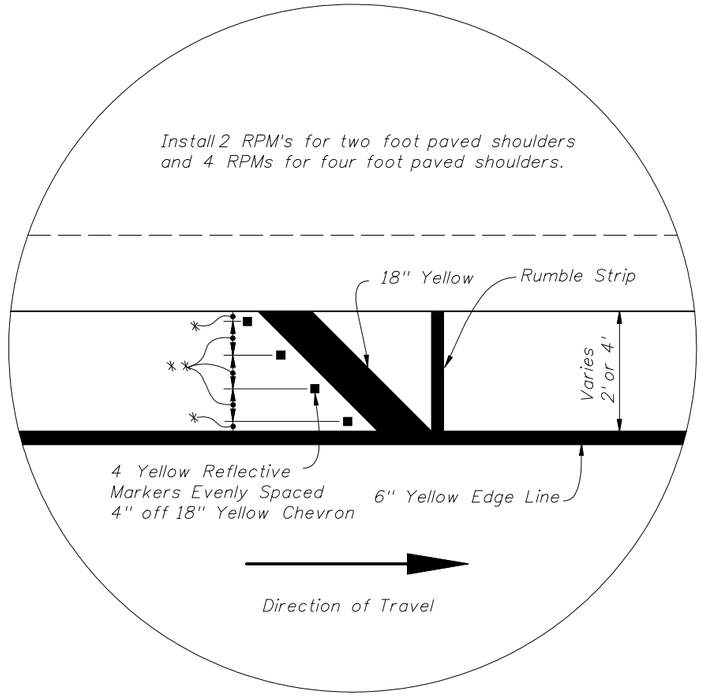


* 1/8 Length (4' and 5' shoulder)
1/4 Length (2' shoulder)

** 1/4 Length (4' and 5' shoulder)
1/2 Length (2' shoulder)

INSERT A



* 1/8 Length (4' and 5' shoulder)
1/4 Length (2' shoulder)

** 1/4 Length (4' and 5' shoulder)
1/2 Length (2' shoulder)

INSERT B

NOTES:

1. Bridges should be marked as narrow bridges under the following conditions:
   (1) For approach roadways with paved shoulders when the bridge width including shoulders is less than the width of the approach roadway including paved shoulders.
   (2) For approach roadways without paved shoulders when the bridge shoulder width is less than 2'.

2. Roadways with Two-Way Traffic:
   No passing zone should be extended 1570' in advance of narrow bridge.

3. If the bridge or the approach is on a curve, delineators shall be installed for a distance of 1570' in advance of narrow bridge on the outside portion of the roadway. Spacing shall be 100' between delineators. Delineators are to be placed not less than 2' or not more than 8' outside the outer edge of pavement.

4. Object markers and delineators on both sides of roadway shall face traffic approaching bridge

5. The OM-3R & OM-3L object markers shall be installed 4' above the roadway edge. The panels may be post mounted at the bridges.

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	RURAL NARROW BRIDGE TREATMENT	Index No.	17359