GENERAL NOTES:

1. Verify Column lengths in the field prior to fabrication.
2. Shop drawings:
   A. Column/Sign Posts: Sign Support Shop drawings are not required when fabricated in accordance with this index and support posts do not exceed the length shown in the plans by more than 2'-0".
   B. Sign Panels: Horizontal panel splices are allowed at interior wind beams for sign panels with a depth ("D") greater than 10 feet. Shop drawings required for panel splice details.
   C. When shop drawings are required; obtain approval prior to fabrication.
3. Materials:
   A. Sign Panel Mounting Materials:
      a. Aluminum Bars and Extruded Shapes: ASTM B221, Alloy 6061-T6 or Alloy 6351-T6
      b. Aluminum Structural Shapes: ASTM A508, Alloy 6061-T6
   B. Sign Support Structure Materials:
      a. Steel Plates and Structural Shapes: ASTM A36 or ASTM A709, Grade 36
      b. Steel Weld Metal: E70XX
      c. Reels/Strips: ASTM B48
   C. Aluminum Bolts, Nuts and Washers:
      a. Flat Head and Button Head Bolts: ASTM F 468, Alloy 2024-T4
      b. Hex Nuts: ASTM F467, 2024-T4
      c. Washers: ASTM B221, Alloy 7075-T6
   D. Stainless Steel Bolts, Nuts and Washers: Alloy Group 2, Condition A, may be substituted for the Aluminum bolts as follows:
      a. Bolts: ASTM F3125, CW1 or SH1
   E. High Strength (M.5) Steel Bolts, Nuts and Washers:
      a. Galvanized Hex Head Bolts: ASTM F3125, Grade A325, Type 1
      b. Galvanized Nuts: ASTM A563 Hex, Grade DH
      c. Galvanized Washers: ASTM F436
   F. Concrete: Class 1
   G. Reinforcing Bars or Welded Wire Reinforcement (WWB): Specification Section 615
5. Fabrication:
   A. All Base Connections and Stub Column materials are steel unless otherwise specified.
   B. Drill or sub-punch and ream holes in Fuse Plates and Hinge Plates.
   C. Weld Base Plate to Post & Stub or if using the Alternate Connection Detail weld Base Plate and Stiffeners to Post and Stub (Sheet 2)
   D. Hot dip galvanize after fabrication. Remove all drips, runs or beads on base plate within washer contact areas (Including saw cuts)
6. Construction:
   A. Install the Sign Structure foundation in accordance with Specification Section 455. Orient Stub Post according to direction of traffic (Sheet 2).
   B. Tighten all high strength bolts except Base Bolts in accordance with Specification Section 700.
   C. Assemble Post to Stub with Base Bolts and three flat washers per bolt (See Base Connection Details, Sheet 2). Tighten Base Bolts in accordance with Instructions Notes on Sheet 2.

STATE OF FLORIDA
WELCOME CENTER

MULTI-COLUMN SIGN ASSEMBLY
MULTI-COLUMN GROUND SIGN

INSTRUCTIONS NOTES:

1. Assembly of Base Instructions:
   A. Place one washer on each Base Bolt between the Bottom Base Plate and the head of high strength Base Bolt; place the next washer between the bottom Base Plate and the Bolt Keeper Plate, and the Top Base Plate section and place the third washer between the Top Base Plate and the Nut.
   B. Shim as required to plumb column. Provide 2-0.0149" thick (28 gauge) and 2-0.0329" thick (21 gauge) brass washers & hex nut.

2. H.S. Base Bolt L1 Tightening Instructions:
   A. Tighten Base Bolts to the maximum possible with a 12" to 15" wrench this will bed the washers and shims and clear the bolt threads.
   B. Loosen each Base Bolt one turn.
   C. Under the supervision of the Engineer, use a calibrated wrench to tighten bolts to the torque prescribed in the table. Over tightened Base Bolts will not be permitted.
   D. Burr threads at junction with nut to prevent nut loosening. Treat damaged galvanizing.

3. **ALTERNATIVE BASE CONNECTION DATA**

<table>
<thead>
<tr>
<th>Section</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
<th>k</th>
<th>l</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-6x12</td>
<td>4&quot;</td>
<td>0</td>
<td>0.0125</td>
<td>2</td>
<td>1/8</td>
<td>2</td>
<td>1/8</td>
<td>3/32</td>
<td>2</td>
<td>3/32</td>
<td>27</td>
<td>2</td>
<td>11/16</td>
</tr>
<tr>
<td>M-8x18</td>
<td>6&quot;</td>
<td>0</td>
<td>0.0156</td>
<td>2</td>
<td>1/8</td>
<td>2</td>
<td>1/8</td>
<td>3/32</td>
<td>2</td>
<td>3/32</td>
<td>27</td>
<td>2</td>
<td>11/16</td>
</tr>
<tr>
<td>M-10x24</td>
<td>8&quot;</td>
<td>0</td>
<td>0.0156</td>
<td>2</td>
<td>1/8</td>
<td>2</td>
<td>1/8</td>
<td>3/32</td>
<td>2</td>
<td>3/32</td>
<td>27</td>
<td>2</td>
<td>11/16</td>
</tr>
</tbody>
</table>

* Designations: (Normal Depth in inches) x (weight in pounds per linear foot)
MULTI-COLUMN SIGN ASSEMBLY

**BACK ELEVATION**
- See Sign Panel Splice Details
- Backing Strip (Typ.)
- Match Column Flange Thickness

**SIDE ELEVATION**
- Column Hinge
- See Plans for Column Size
- See DETAIL 'A'

**MULTI-COLUMN SIGN BACK PANEL**
- Hinge Plate

**NUMBER OF WIND BEAMS FOR GIVEN DEPTH**

<table>
<thead>
<tr>
<th>No. Beams</th>
<th>Max. Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7'-0&quot;</td>
</tr>
<tr>
<td>3</td>
<td>10'-0&quot;</td>
</tr>
<tr>
<td>4</td>
<td>13'-0&quot;</td>
</tr>
<tr>
<td>5</td>
<td>16'-0&quot;</td>
</tr>
</tbody>
</table>

**SIZE OF WIND BEAMS**

<table>
<thead>
<tr>
<th>Size of Zee**</th>
<th>Length of Sign (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zee 1&quot; x 2-1/2&quot; x 1-1/4&quot;</td>
<td>0'-10&quot; 1/8&quot;</td>
</tr>
<tr>
<td>Zee 3&quot; x 2-1/2&quot; x 1-1/4&quot;</td>
<td>0'-10&quot; 1/8&quot;</td>
</tr>
</tbody>
</table>

**FUSE PLATE**
- See DETAIL 'B'
- Hinge Plate
- Match Column Flange Thickness

**WIND BEAM, BACKING STRIP & FUSE/HINGE PLATE DETAILS**

**SIGN PANEL SPLICE**
- Panel Splice
- Flat Head Bolt With Washer And Nut

**FUSE & HINGE PLATE**
- Fuse Plate
- Separate Beams Required

**DETAIL 'B'**
- Column
- Hinge Plate

**TYPICAL HINGE**
- 1/2" Aluminum Button Head Or Flat Head Bolt With Washer And Nut

**OPTIONAL HINGE**
- 1/2" H.S. Steel Bolt With Washer And Nut

**MULTI-COLUMN GROUND SIGN**
- DESCRIPTION:
  - BACK ELEVATION
  - SIDE ELEVATION
- MATERIALS:
  - Backing Strip
  - Panel Splice
- DESIGN STANDARDS:
  - Column
  - Hinge Plate
STATE OF FLORIDA
WELCOME CENTER

FRONT ELEVATION

TYPICAL SIGN FOR OVERHEAD TRUSS

WIND BEAMS AND VERTICAL HANGERS

<table>
<thead>
<tr>
<th>Wind Beam (Typ.)</th>
<th>Number of 3/8&quot; x 2.33</th>
<th>Number of 3/8&quot; x 2.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H.P.M.)</td>
<td>Angle</td>
<td>Depth</td>
</tr>
<tr>
<td>170</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>170</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>170</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>170</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>170</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>170</td>
<td>7</td>
<td>45</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Work this Index with Index 11310 and 11320.
2. The number and location of the Panel Splices are determined by the Sign Face supplier.
3. Spacing of Vertical Hangers:
   A. Two Vertical Hanger = 21.0% L
   B. Three Vertical Hanger = 14.5% L
   C. Four Vertical Hanger = 10.7% L
   D. Five Vertical Hanger = 8.5% L
   E. Six Vertical Hanger = 7.5% L
4. Spacing of Wind Beams:
   A. Two Wind Beams = 12.0% D
   B. Three Wind Beams = 14.5% D
   C. Four Wind Beams = 10.7% D
   D. Five Wind Beams = 8.5% D
   E. Six Wind Beams = 7.0% D
5. Shop Drawings:
   A. Required for Sign Panels deeper than 10'-0" with a horizontal panel splice.
   B. Splice must be located in between interior Zee Supports and only allowed on signs greater than 10'-0".
6. Materials:
   A. Aluminum:
      a. Bars, and Extruded Shapes: ASTM B221, 6061-T6 or Alloy 6351-T5
      b. Structural Shapes: ASTM B860, Alloy 6061-T6
      c. Bolt, U-Bolt, Lock Nuts: ASTM A449 or ASTM A490 or ASTM F490, Alloy 2024-T4
      d. Washers: ASTM F436, (Flat Washers)
      e. Lock Washers: ASTM B221, Alclad 2024-T4
   B. Structural Shapes:
      a. U-Bolts: ASTM A449 or ASTM A490 or ASTM F490, Alloy 2024-T4
      b. Nuts: ASTM F436, (Flange Washers)
      c. Washers: ASTM F436, (Flange Washers)
   C. Coatings:
      a. Washers: ASTM F436, (Flat Washers)
      b. Paints: ASTM B221, Alclad 2024-T4

STATE OVERHEAD SIGN STRUCTURES
INDEX NO.
11300
SHEET NO.
1 of 1

DESIGN STANDARDS
**NOTES:**

1. Work this Index in conjunction with CANTILEVER SIGN STRUCTURE DATA TABLES in the Plans and Index 11300.
2. Handholes are required at pole base for DMS Structures. Refer to Index 18300 for Handhole Details.

3. Shop Drawings are required:
   - Obtained Shop Drawing approval prior to fabrication. Include the following:
     - Upright Pipe height ('A') and Foundation elevations. Verify dimension in the field prior to submittal to ensure minimum vertical clearances of the sign panel over the roadway.
     - Height of the foundation above adjacent ground.
     - Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
     - Chord Splices
     - Handholes at pole base (when required).

4. Materials:
   - Sign Structure
     - Upright and Chords (Steel Pipe): API-5L-X42, 42 ksi yield or ASTM A360, Grade B (W1)
     - Steel Angles and Structural Plates and Bars: ASTM A790 Grade 36
   - Weld Material: E70XX
   - Bolts, Nuts and Washers:
     - High Strength Bolts: ASTM F3125, Grade A325 Type 1
     - Nuts: ASTM A563 Grade DH Heavy-Hex
     - Washers: ASTM F436 Type 1, one under turned element
   - Anchor Bolts, Nuts and Washers:
     - Anchor Bolts: ASTM F1554 Grade 55
     - Nuts: ASTM A563 Grade A Heavy-Hex (5 per bolt)
     - Plate Washers: ASTM A36 (2 per bolt)
   - Concrete:
     - Spread Footing Concrete: Class IV
     - Drilled Shaft Concrete: Class IV (Drilled Shaft)
   - Reinforcing Steel: Specification Section 415

5. Fabrication:
   - Welding: Specification Section 460-6.4
   - Chord Splices: "SD" Panel from upright is the closest panel in which a chord splice may be used. See Plans for CANTILEVER SIGN STRUCTURE DATA TABLE. Minimum splice spacing in two truss panel lengths apart.
   - Upright Splices: not allowed
   - Structural bolt hole diameters: Bolt diameter plus 1/4"
   - Anchor bolt hole diameters: Bolt diameter plus 1/2"
   - Hot Dip Galvanize after fabrication.
   - Shop assemble the entire structure after galvanizing to validate/document alignment and clearance for bolted connections as well as contact between connecting plates. Take remedial action, if necessary, prior to shipment.
   - Disassemble, as necessary, and secure components for shipment.

6. Coatings:
   - Bolts, Nuts and Washers: ASTM F2329
   - All other steel, including Plate Washers, not dip galvanize: ASTM A132

7. Construction:
   - Construct foundation in accordance with Specification Section 455, except payment is included in the cost of the structure.
   - Prior to erection, record the as-built anchor locations and submit to the Engineer.
   - Plate backfill above spread footings prior to installation of the sign panel. Do not remove or reduce backfill without prior approval of the Engineer.
   - Tighten nuts and bolts in accordance with Specification Section 700. Split Lock Washers are not permitted.
   - Install Aluminum Sign Panels as shown in Production Plans.
   - Place structural grout pad with drain between top of foundation and bottom of baseplate in accordance with Specification Section 649-7.

---

**FY 2017-18 DESIGN STANDARDS**

**CANTILEVER SIGN STRUCTURE**

---

**ISOMETRIC VIEW**

**CANTILEVER SIGN ASSEMBLY**

11/01/16

**DESIGN STANDARDS**

**INDEX NO.**

**SHEET NO.**

1 of 5
CANTILEVER ASSEMBLY

Notes:
1. Construction joint allowed, roughen surface to 1/4" minimum amplitude prior to pour.
2. See Traffic Plans for elevation at top of Foundation.
3. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drill shaft to the finished grade, unless specified otherwise in the plans.
4. The shaft length is based on 2'-0" height above finished grade.
5. Structural Grout Pad dimension may be modified to be less than 3" where the footprint of the structural Grout Pad does not provide adequate clearance for accessibility considerations.
6. Wrap fillet weld around the stiffner termination on the tube wall.

CANTILEVER SIGN STRUCTURE

INDEX NO. 11310

CANTILEVER ASSEMBLY

NOTES:
1. Construction joint allowed, roughen surface to 1/4" minimum amplitude prior to pour.
2. See Traffic Plans for elevation at top of Foundation.
3. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drill shaft to the finished grade, unless specified otherwise in the plans.
4. The shaft length is based on 2'-0" height above finished grade.
5. Structural Grout Pad dimension may be modified to be less than 3" where the footprint of the structural Grout Pad does not provide adequate clearance for accessibility considerations.
6. Wrap fillet weld around the stiffener termination on the tube wall.

CANTILEVER SIGN STRUCTURE
SECTION A-A
(With Gusset Plates And Web Angles Omitted For Clarity)

NOTE:
1. Wrap fillet weld around the stiffener termination on the tube wall.
2. Truss Chord Bolts:
   A. Top and Bottom, Install 'TC' hex head bolts.
   B. Back, install 'TB' hex head bolts.
CANTILEVER ASSEMBLY

SPlice CONNECTION NOTES:
1. Only 6 bolts are shown in detail for clarity. (One Half Each Side Of Splice)
2. Splices are not permitted for trusses less than or equal to 40', Splice optional for trusses greater than 40'.
NOTES:
1. Work this Index in conjunction with SPAN SIGN STRUCTURE DATA TABLES in the Plans and Index 11300.
2. Handholes at the pole base are required for DMS Structures. Refer to Index 18300 for Handhole Details.

3. Shop Drawings are required:
   - Obtain Shop Drawing approval prior to fabrication. Include the following:
     A. Upright Pipe height ('C' & 'B') and Foundation elevations: Verify vertical clearances of the sign panel over the roadway.
     B. Height of the Foundation above adjacent ground.
     C. Anchor bolt orientation with respect to centerline of truss and the direction of traffic.
   - Method to be used to provide the required parabolic camber (see Camber Diagram).
   - Handholes at pole base (when required).

4. Materials:
   A. Sign Structure:
      a. Upright and Chords (Steel Pipe): API-5L-X42, 42 ksi yield or ASTM A500, Grade B (Min).
      b. Steel Angles and Plates: ASTM A709 grade 36
      c. Weld Material: E70XX
   B. Bolts, Nuts and Washers:
      a. High Strength Bolts: ASTM F3123, Grade A325, Type 1
      b. Nuts: ASTM F3126, Grade DH Heavy-Hex
      c. Washers: ASTM F563, Type 1, one under turned element
      d. Anchor bolts: Nuts and Washers: ASTM A490, Grade 55, threaded full length
   C. Steel Angles and Plates: ASTM A709 grade 36
   D. Concrete: Class IV (Drilled Shaft)
   E. Reinforcing Steel: Specification Section 415
   F. Handholes at pole base (when required).

5. Fabrication:
   A. Welding: Specification Section 460-6.4
   B. Chord Splices: Minimum splice spacing is three truss panel lengths apart and three truss panel lengths from the uprights. Chord Splices may be either the Standard Splice or the Alternate Splice but not both on the same structure.
   C. Upright splice: Not allowed
   D. Structural bolt hole diameters: Bolt diameter plus 0.36".
   E. Anchor bolt hole diameters: Bolt diameter plus 0.36".
   F. Hot Dip Galvanize after fabrication.
   G. Shop assemble the entire structure after galvanizing to validate/document alignment and clearance for bolted connections as well as contact between connecting plates. Take remedial action, if necessary, prior to shipment.
   H. Disassemble as necessary and secure components for shipment.

6. Coatings:
   A. Bolts, Nuts and Washers: ASTM F3126
   B. All other steel, including Plate Washers, hot dip galvanize: ASTM A500, Grade B (Min)
   C. Upright and Chords (Steel Pipe): API-5L-X42, 42 ksi yield or ASTM A500, Grade B (Min)

7. Construction:
   A. Construct foundation in accordance with Specification Section 455-6.4
   B. Prior to erection, record the as-built anchor locations and submit to the Engineer.
   C. Provide a parabolic camber with the required upward deflection as shown on the Camber Diagram.
   D. Tighten nuts and bolts in accordance with Specification Section 700.
   E. Install Aluminum Sign Panels as shown on the Elevation drawing per Production Plan.
   F. After installation, place wire screen between top of pole and bottom of baseplate in accordance with Specification Section 500-6.4.
NOTES:
1. See Traffic Plans for elevation at top of Foundation.
2. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drill shaft to the finished grade, unless specified otherwise in the plans.
3. The shaft length is based on 2'-0" height above finished grade.
4. Wrap fillet weld around the stiffener termination on the tube wall (Typ).

1. See Traffic Plans for elevation at top of Foundation.
2. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drill shaft to the finished grade, unless specified otherwise in the plans.
3. The shaft length is based on 2'-0" height above finished grade.
4. Wrap fillet weld around the stiffener termination on the tube wall (Typ).

1. See Traffic Plans for elevation at top of Foundation.
2. Install Drilled Shaft with a 2'-0" minimum from top elevation of the drill shaft to the finished grade, unless specified otherwise in the plans.
3. The shaft length is based on 2'-0" height above finished grade.
4. Wrap fillet weld around the stiffener termination on the tube wall (Typ).
NOTES:
1. Wrap fillet weld around the stiffener termination on the tube wall.
2. Truss Chord Bolts: "LB" or "RB" Hex Head Bolts "LA" or "RA".
3. Right Upright Truss connection shown, Left Upright Truss connection similar.

SPAN SIGN ASSEMBLY

UPRIGHT-TRUSS CONNECTION DETAIL

SECTION A-A

(With Gusset Plates And Web Angles Omitted For Clarity)

DETAIL "C"

SPAN SIGN STRUCTURE
STEP 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 signs. These are shown on Sheets 5, 7, 8 and 9.

STEP 2: Determine the height 'H' from groundline to the centroid of the individual sign or sign cluster.

STEP 3: Refer to the Aluminum Column (Post) Selection Table and find the intersection point. See Sheet 3.

STEP 4: For sign assemblies with signs oriented in two directions, only the sign with the largest area should be analyzed to determine the Column (Post) requirements.

GENERAL NOTES:
1. Shop Drawings:
   - This Index is considered fully detailed. Submit Shop Drawings for minor modifications not detailed in the Plans.
2. Aluminum Sign, Wind Beams and Column (Post) Materials:
   a. Aluminum Plates: ASTM B209, Alloy 6061-T6
   b. Aluminum Bars and Extruded Shapes: ASTM B221, Alloy 6061-T6
   c. Aluminum Structural Shapes: ASTM B908, Alloy 6061-T6
   d. Cast Aluminum: ASTM B26, Alloy A356-T6
   e. Aluminum Weld Material: ER 5556 or 5556
3. Sign Mounting Bolts, Nuts and Washers:
   a. Aluminum Button Head and Flat Head Bolts (Screws): ASTM F468
   b. Aluminum Hex Nuts: ASTM F657, Alloy 6061-T6 or 6062-T9
   c. Aluminum Washers: ASTM A325, Type 1
4. Sign Column (Post) Bolts, Nuts and Washers:
   a. Galvanized U-Bolt (Column): ASTM A499 or ASTM A193 B7 according to ASTM F2329 with nuts and washers
   b. Galvanized Hex Nuts: ASTM F657, Alloy 6061-T6 or 6062-T9 with washers ASTM F468-0616 or 6062-19 and washers R313, Alouud 3504-T4
   c. Galvanized High Strength Hex Head Bolts (Base-Bolts): ASTM F3125, Grade 505, Type 1
   d. Galvanized Hex Nuts: ASTM A563, Grade 8H
   e. Galvanized Washers: ASTM F436
   f. Galvanized Bolts (Screws): ASTM A307 with Galvanized Hex Nuts and Washers
5. Coatings:
   a. Aluminum Fasteners: Anodic coating (0.0005 in. min) and chromate sealed
   b. High Strength Steel Bolts Nuts and Washers: ASTM F339
   c. All other steel items (excluding stainless steel): Hot-dip galvanize – ASTM A123
5. Repair damaged galvanizing in accordance with Specification Section 582
### Calculation of Sign Cluster Centroid

\[ X_C = \frac{\sum (X_i \times A_i)}{\sum A_i} \]
\[ Y_C = \frac{\sum (Y_i \times A_i)}{\sum A_i} \]

- \( A_i \) = Area of individual sign
- \( X' \) = Height of the edge of pavement from the mounting elevation
- \( C' \) = Height of the centroid of the sign or cluster from the edge of pavement elevation
- \( X'' \) = Height of the centroid of the sign or cluster from the bottom of the sign or cluster
- \( h \) = Individual sign height
- \( h' \) = Height of sign or cluster centroid from groundline
- \( a \) = Individual sign width
- \( X''_C \) = Centroid horizontal location of sign or cluster from Aluminum Column (Post)
- \( Y''_C \) = Centroid height of sign or cluster from bottom of sign cluster
- \( Y''_h \) = Individual sign centroid horizontal location from Aluminum Column (Post)
- \( Y''_h \) = Individual Sign centroid height from bottom of sign cluster

### Notes:
1. For 'B' & 'C' see Index No. 17302 and Roadway Plans.
2. Do not exceed an area of 30 SF or a width of 60 inches for a sign or a sign cluster, including rotated sign panels.
3. Vertical sign spacing (1" shown on Sign Cluster detail) also applies to rotated signs.

### Centroid and Height

- **STOP**
- **YIELD**
- **RECTANGLE**
- **DIAMOND**
- **RAILROAD**
- **SCHOOL**
- **SHIELD**
- **COUNTY**

---

**FY 2017-18 DESIGN STANDARDS**

**INDEX NO.**

**SHEET NO.** 2 of 9
### ALUMINUM COLUMN (POST) SELECTION TABLE (O.D. in.)

<table>
<thead>
<tr>
<th>Outside Diameter (in)</th>
<th>Wall Thk. (in)</th>
<th>Embedment Depth (ft)</th>
<th>Concrete (Class I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>4.5</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>2.5</td>
<td>5.0</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>3.0</td>
<td>6.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>3.5</td>
<td>6.0</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>4.0</td>
<td>6.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4.5</td>
<td>6.0</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>5.0</td>
<td>6.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>5.5</td>
<td>6.0</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>6.5</td>
<td>6.0</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>7.0</td>
<td>6.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>7.5</td>
<td>6.0</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>8.0</td>
<td>6.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*INSTALLING FRANGIBLE COLUMN SUPPORTS:*

Columns (posts) 3\(^{\circ}\) or less are frangible. Frangible columns may be installed by driving the post or the posts may be set in preformed holes. Backfill preformed holes with suitable material tamped in layers not thicker than 6" (to provide adequate compaction) or filled with flowable fill or bagged concrete.

---

### COLUMN AND FOUNDATION TABLES

**COLUMN SIZE**

<table>
<thead>
<tr>
<th>Foundation Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
</tr>
<tr>
<td>2.0</td>
</tr>
<tr>
<td>2.5</td>
</tr>
<tr>
<td>3.0</td>
</tr>
<tr>
<td>3.5</td>
</tr>
<tr>
<td>4.0</td>
</tr>
<tr>
<td>4.5</td>
</tr>
<tr>
<td>5.0</td>
</tr>
<tr>
<td>5.5</td>
</tr>
<tr>
<td>6.0</td>
</tr>
<tr>
<td>6.5</td>
</tr>
<tr>
<td>7.0</td>
</tr>
<tr>
<td>7.5</td>
</tr>
<tr>
<td>8.0</td>
</tr>
</tbody>
</table>

**Soil Plate Embedment Depth (ft)**

- Drive post to a minimum embedment depth of 6" in firm soil.
- Use of driven post is not permitted.

**CANTILEVER SIGN**

- Use of driven post for cantilever sign is not permitted.
- For cantilever sign installations, see Index 17302.
- For cantilever signs with widths greater than 4', see Index 11861.

**NOTE:**

1. For cantilever sign installations, see Index 17302.
2. For cantilever signs with widths greater than 4', see Index 11861.
3. Use of driven post for cantilever sign is not permitted.
**SLIP BASE AND FOUNDATION DETAILS**

---

**INDEX**

<table>
<thead>
<tr>
<th>Column (Post) Size</th>
<th>Sleeve Diameter 1</th>
<th>Sleeve Height Min.</th>
<th>Post Height</th>
<th>Base Plate Width</th>
<th>Base Plate Depth</th>
<th>Base Plate Torque</th>
<th>Base Plate Thickness</th>
<th>Width</th>
<th>Length</th>
<th>Base Plate Flange Size D</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>7/8&quot;</td>
<td>9/16&quot;</td>
<td>12&quot;</td>
<td>4&quot;</td>
<td>2&quot;</td>
<td>40</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>7/8&quot;</td>
<td>9/16&quot;</td>
<td>14&quot;</td>
<td>5&quot;</td>
<td>2&quot;</td>
<td>55</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>16&quot;</td>
<td>6&quot;</td>
<td>2&quot;</td>
<td>65</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
</tbody>
</table>

---

**SINGLE COLUMN GROUND SIGNS**

---

**NOTES:**

1. Foundation Notes for Frangible Slip Base:
   - Place Stub into concrete to diameter and depth shown in POST AND FOUNDATION TABLE using Class I Concrete.

2. Slip Base Fabrication Notes:
   - The difference between the O.D. of the post and I.D. of the Sleeve must be 1/16" or less.
   - Either a Welded Stub or Bolted Sleeve/Base may be used to fabricate the Slip Base.

3. Slip Base Construction:
   - Assemble Slip Base connections in the following manner:
     1. Insert Post into Sleeve and connect using 2 – 1/4" diameter Sleeve Bolts.
     2. Assemble top base plate to bottom Base Plate using Base Bolts (high strength) with 3 washers per bolt. (See Table 'A')
       - Place one washer on each Base Bolt between the bottom base plate and the base bolt head.
     3. Slip-Base Assembly Instructions:
       - Tighten Base Bolts as follows:
         1. Tighten Base Bolts to the maximum possible with a 12” wrench (this will allow washers and shims and clear the bolt threads).
         2. Loosen each Base Bolt one turn.
         3. Under the supervision of the Engineer, use a calibrated wrench to tighten bolts to the torque prescribed in the SLIP BASE DETAILS Table. Over tightened Base Bolts are not permitted.
         4. Distort bolt threads at the junction with nuts to prevent loosening. Repair damaged galvanizing.
     4. For cast base plates bolted to foundation stubs, use a foundation slab the same size as the sign column (Post).

---

**DESIGN STANDARDS**

---

**INDEX**

<table>
<thead>
<tr>
<th>Column (Post) Size</th>
<th>Sleeve Diameter 1</th>
<th>Sleeve Height Min.</th>
<th>Post Height</th>
<th>Base Plate Width</th>
<th>Base Plate Depth</th>
<th>Base Plate Torque</th>
<th>Base Plate Thickness</th>
<th>Width</th>
<th>Length</th>
<th>Base Plate Flange Size D</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>7/8&quot;</td>
<td>9/16&quot;</td>
<td>12&quot;</td>
<td>4&quot;</td>
<td>2&quot;</td>
<td>40</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>7/8&quot;</td>
<td>9/16&quot;</td>
<td>14&quot;</td>
<td>5&quot;</td>
<td>2&quot;</td>
<td>55</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>16&quot;</td>
<td>6&quot;</td>
<td>2&quot;</td>
<td>65</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
<td>1/16&quot;</td>
</tr>
</tbody>
</table>
NOTES:

1. Align Soil Plate bottom at 1/3 of embedment depth.
2. Slot up to 1" long is allowed to accommodate various Column (Post) sizes.
3. Rectangular soil plate of size 1'-2" x 1'-0" may be used as an alternative.
4. Embedment Depth is 2'-6" for 2.0" and 2.5" Column (Post) Stubs and 3'-6" for 3.0" and 3.5" Column (Post) Stubs.
5. Concrete foundation may be Class Non Structural if poured monolithically with sidewalk or separator.

---

ALUMINUM SOIL PLATE DETAIL

- Thickness = \( \frac{1}{4} \)
- 9/64" bolt holes
- (Spacing to match 5-bolts)
- (Washers as required)
- (See Note #2)

---

CONCRETE/STUB DETAIL

- Embedment Depth
- Column (Post) Stub
- Foundation
- (See Note #3)

---

DRIVEN POST DETAIL

(Fragile Post In Crossovers, Medians & Sidewalks)

- Aluminum Column (Post)
- (Driven in Center to Full Embedment)
- Concrete Sidewalk, Median, Etc.
- Aluminum Soil Plate

---

DRIVEN POST AND SOIL PLATE DETAIL

CONCRETE/STUB DETAIL

(Fragile Post In Crossovers, Medians & Sidewalks)
SINGLE COLUMN GROUND SIGNS

**DESCRIPTION:**

**WIND BEAM PLACEMENT NOTES:**

1. Install an additional third wind beam along the sign for signs with heights greater than 30" and less than 72". For rectangular signs greater than 72" maintain a maximum wind beam spacing of 2'-6". With the additional wind beams spaced evenly between the top and bottom wind beams. For rectangular signs up to 12" in height, use only one wind beam at the top.

2. Install an additional third wind beam along the sign for Yield and School signs greater than 36".

3. Install an additional third wind beam along the sign for Diamond signs 30" or greater.

**WIND BEAM CONNECTION NOTES:**

1. Use Stainless Steel hex head bolts with flat washer under head and lock washer under nut may be used in lieu of 1/4" aluminum button head bolts.

2. Use nylon washers (provided by the sheeting supplier) under the button bolt heads to protect sign sheeting.

3. Slots up to 2" long are allowed in wind beams to accommodate U-Bolts for varying column (post) diameters.

4. Wind beams may be oriented in either direction.

**WIND BEAM CONNECTION DETAILS:**

1. Install an additional third wind beam along the sign for signs greater than 72" maintain a maximum wind beam spacing of 2'-6". With the additional wind beams spaced evenly between the top and bottom wind beams. For rectangular signs greater than 72" maintain a maximum wind beam spacing of 2'-6". With the additional wind beams spaced evenly between the top and bottom wind beams. For rectangular signs up to 12" in height, use only one wind beam at the top.

2. With the additional wind beams spaced evenly between the top and bottom wind beams. For rectangular signs up to 12" in height, use only one wind beam at the top.

**BACK-TO-BACK SIGN DETAIL:**

Use the area and the centroid location of the largest sign to determine aluminum column (post) size.
### Single Column Ground Signs

<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>36x12</td>
<td>3.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24x26</td>
<td>3.31 SF</td>
<td>6.62 SF</td>
<td>1.27 FT</td>
</tr>
<tr>
<td>36x12</td>
<td>3.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x30</td>
<td>5.18 SF</td>
<td>10.36 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>36x26</td>
<td>7.46 SF</td>
<td>14.92 SF</td>
<td>3.15 FT</td>
</tr>
<tr>
<td>36x12</td>
<td>3.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36x36</td>
<td>7.46 SF</td>
<td>14.92 SF</td>
<td>3.15 FT</td>
</tr>
<tr>
<td>36x12</td>
<td>3.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24x26</td>
<td>3.31 SF</td>
<td>6.62 SF</td>
<td>1.27 FT</td>
</tr>
<tr>
<td>24x18</td>
<td>3.00 SF</td>
<td>6.00 SF</td>
<td>1.27 FT</td>
</tr>
<tr>
<td>30x30</td>
<td>5.18 SF</td>
<td>10.36 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>36x26</td>
<td>7.46 SF</td>
<td>14.92 SF</td>
<td>3.15 FT</td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>8.00 SF</td>
<td>2.20 FT</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>8.00 SF</td>
<td>2.20 FT</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>8.00 SF</td>
<td>2.20 FT</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>36x24</td>
<td>7.19 SF</td>
<td>14.38 SF</td>
<td>3.15 FT</td>
</tr>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td>4.00 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>8.00 SF</td>
<td>2.20 FT</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>36x24</td>
<td>7.19 SF</td>
<td>14.38 SF</td>
<td>3.15 FT</td>
</tr>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td>4.00 SF</td>
<td>1.09 FT</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>8.00 SF</td>
<td>2.20 FT</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>4.38 SF</td>
<td>1.09 FT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td>6.26 SF</td>
<td>1.45 FT</td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td>6.26 SF</td>
<td>1.45 FT</td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td>10.00 SF</td>
<td>2.19 FT</td>
</tr>
</tbody>
</table>

### Design Standards

**FY 2017-18**

**Index No.:** 11860

**Sheet No.:** 7 of 9

---

**Revision:** 07/01/15

**Description:** Revised Design Standards

**Date:** 10/14/2016

**Time:** 7:58 AM

**Revision No.:** 07/01/15

**Sheet No.:** 7 of 9

---

**Revision:** 07/01/15

**Description:** Revised Design Standards

**Date:** 10/14/2016

**Time:** 7:58 AM

**Revision No.:** 07/01/15

**Sheet No.:** 7 of 9
<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>6.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>5.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>6.00 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30x24</td>
<td>6.00 SF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SINGLE COLUMN GROUND SIGNS**

**FY 2017-18 DESIGN STANDARDS**

**INDEX No.**

**SHEET No.**
<table>
<thead>
<tr>
<th>Size</th>
<th>Area</th>
<th>Total Area</th>
<th>Centroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td>3.13 SF</td>
<td>2.18 Ft.</td>
</tr>
<tr>
<td>45x36</td>
<td>8.99 SF</td>
<td>8.99 SF</td>
<td>2.18 Ft.</td>
</tr>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td>2.00 SF</td>
<td>1.06 Ft.</td>
</tr>
<tr>
<td>24x24</td>
<td>3.20 SF</td>
<td>3.20 SF</td>
<td>1.37 Ft.</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>2.19 SF</td>
<td>1.06 Ft.</td>
</tr>
<tr>
<td>30x24</td>
<td>3.99 SF</td>
<td>3.99 SF</td>
<td>2.33 Ft.</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>2.19 SF</td>
<td>1.06 Ft.</td>
</tr>
<tr>
<td>30x15</td>
<td>3.13 SF</td>
<td>3.13 SF</td>
<td>2.18 Ft.</td>
</tr>
<tr>
<td>30x24</td>
<td>3.99 SF</td>
<td>3.99 SF</td>
<td>2.33 Ft.</td>
</tr>
<tr>
<td>21x15</td>
<td>2.19 SF</td>
<td>2.19 SF</td>
<td>1.06 Ft.</td>
</tr>
<tr>
<td>30x20</td>
<td>4.00 SF</td>
<td>4.00 SF</td>
<td>2.06 Ft.</td>
</tr>
<tr>
<td>24x12</td>
<td>2.00 SF</td>
<td>2.00 SF</td>
<td>1.06 Ft.</td>
</tr>
<tr>
<td>24x24</td>
<td>4.00 SF</td>
<td>4.00 SF</td>
<td>2.06 Ft.</td>
</tr>
<tr>
<td>30x18</td>
<td>3.75 SF</td>
<td>3.75 SF</td>
<td>2.06 Ft.</td>
</tr>
<tr>
<td>36x26</td>
<td>6.75 SF</td>
<td>6.75 SF</td>
<td>2.06 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>30x30</td>
<td>6.25 SF</td>
<td>6.25 SF</td>
<td>3.13 Ft.</td>
</tr>
<tr>
<td>36x36</td>
<td>9.00 SF</td>
<td>9.00 SF</td>
<td>3.13 Ft.</td>
</tr>
</tbody>
</table>

**Size** | **Area** | **Total Area** | **Centroid**
GENERAL NOTES:
1. Refer to FDOT Design Standards Index No. 11860 for additional notes, assembly of base connection and material specifications not given in this Index.


3. Place galvanized steel shims between the Sleeve and Post to obtain a tight fit between the Post and Sleeve.

4. Wind Beam and Vertical Brace: Aluminum Z 3" x 2 1/2" x 3/8. Install Vertical Brace on 7'-0" to 8'-0" signs only.

5. Provide 2-0.0149" Thick (28 gauge) and 2-0.0329" Thick (21 gauge) Brass Shims Per Post. Use brass shims to plum the post.

COLUMN SELECTION AND FOOTING SIZE TABLE

<table>
<thead>
<tr>
<th>Sign Size</th>
<th>Column Size Diameter x Thickness</th>
<th>Sleeve Size Diameter x Thickness</th>
<th>U-bolt Diameter</th>
<th>Base Bolt Diameter x Length</th>
<th>Torque lbs.in</th>
<th>Base Plate Thickness</th>
<th>Footing Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'-0&quot; x 9'-0&quot;</td>
<td>4.5&quot; x 0.337&quot; (Schedule 80)</td>
<td>5.563&quot; x 0.5&quot; (Schedule 120)</td>
<td>3/8&quot;</td>
<td>5/16&quot; x 3/4&quot;</td>
<td>270</td>
<td>1&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>4'-0&quot; x 6'-0&quot;</td>
<td>4.5&quot; x 0.337&quot; (Schedule 80)</td>
<td>5.563&quot; x 0.5&quot; (Schedule 120)</td>
<td>3/8&quot;</td>
<td>5/16&quot; x 3/4&quot;</td>
<td>270</td>
<td>1&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>4'-0&quot; x 7'-0&quot;</td>
<td>5.563&quot; x 0.375&quot; (Schedule 80)</td>
<td>6.625&quot; x 0.437&quot; (Schedule 80)</td>
<td>3/16&quot;</td>
<td>3/16&quot; x 1&quot;</td>
<td>443</td>
<td>1/4&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>4'-0&quot; x 8'-0&quot;</td>
<td>5.563&quot; x 0.375&quot; (Schedule 80)</td>
<td>6.625&quot; x 0.437&quot; (Schedule 80)</td>
<td>3/16&quot;</td>
<td>3/16&quot; x 1&quot;</td>
<td>443</td>
<td>1/4&quot;</td>
<td>6'-0&quot;</td>
</tr>
</tbody>
</table>

TYPICAL SECTION

- 2 Equal Spaces
- 1'-0" Min.
- 3'-0" Min.
- 4'-0" (Max.)
- 2'-0" Min.
- 5'-0" Min.
- 5'-0" Min.
- 6'-0" Min.

SECTION A-A

- Vertical Brace (See Note #4)
- Wind Beam (See Note #4)
- Sign Face

SECTION B-B

- Sign Face
- 5/8" Dia. Bolts (Typ.)
- 5/8" Dia. Aluminum Button Head Bolts with Nuts and Nylon Washers
- Stainless Steel U-bolt with Stainless Steel Nuts and Washer (See Table)

SECTION C-C

- Sign Face
- 5/8" Dia. Bolts (Typ.)
- 5/8" Dia. Aluminum Button Head Bolts with Nuts and Nylon Washers
- Stainless Steel U-bolt with Stainless Steel Nuts and Washer (See Table)
GENERAL NOTES:

1. Use aluminum materials that meets the requirements of Aluminum Association Alloy 6061-T6 (AS/NZS 1209, BS211, 9318 or B429), except as noted in the Plans.

2. Install sign panel, wind beam and columns in accordance with Index 11860 and Specifications 730.

3. Install sign column so that the height and offset are in accordance with Index 11762.

4. When aluminum column (post) are installed with a frangible transformer bases, engage all threads on the transformer base and post unless the aluminum post is fully seated into base.

5. Meet the requirements of Specifications 646 for aluminum poles and transformer bases.

6. Install a concrete slab around all flashing beacon assemblies on slopes 6:1 or greater. The minimum slab dimension is 4'-0" by 5'-0".

7. Install a concrete slab around all pull bases. The minimum slab dimension is 4'-0" by 4'-0". In urban areas where space is limited slab dimensions may be adjusted as shown in the Plans.

8. For beacon assemblies connected to conventional power, provide single pole non-fused watertight breakaway electrical connectors in the frangible transformer base.

9. Install the connection of controller cabinet and solar panel to the column in accordance with manufacturer's recommendations.

10. When wire entry holes are drilled in the sign column, use a bushing or rubber grommet to protect conductors.

11. Orient solar panel to face South for optimal exposure to sunlight.
### STANDARD WARNING SIGN COLUMN SIZE

<table>
<thead>
<tr>
<th>Wind Speed</th>
<th>Sign Height</th>
<th>Column Size</th>
<th>Footing Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
<td>7'</td>
<td>4.5&quot;</td>
<td>4'</td>
</tr>
<tr>
<td>130</td>
<td>7'</td>
<td>5&quot;</td>
<td>4.5'</td>
</tr>
<tr>
<td>150</td>
<td>8.5'</td>
<td>5&quot;</td>
<td>4.5'</td>
</tr>
<tr>
<td>110</td>
<td>8.5'</td>
<td>4.5&quot;</td>
<td>4'</td>
</tr>
<tr>
<td>130</td>
<td>8.5'</td>
<td>5&quot;</td>
<td>4.5'</td>
</tr>
<tr>
<td>150</td>
<td>8.5'</td>
<td>6&quot;</td>
<td>5'</td>
</tr>
</tbody>
</table>

### NOTES:

1. Install the sign column slip base in accordance with Index 11860.
2. Use beacon and beacon controllers that are listed on the Approved Products List (APL).
3. Details show a typical warning sign with two flashing beacon heads. When only one beacon is required, install upper beacon.

---

**TABLE 1**

**ROADSIDE FLASHING BEACON ASSEMBLY**

**INDEX NO.**

**NO.**

3 of 8

**LAST REVISION**

3/01/16

**DESCRIPTION:**

FY 2017-18

**DESIGN STANDARDS**

**SOLAR POWERED WARNING SIGN DETAILS**

**SIDE VIEW**

**SLIP BASE AND FOOTING DETAIL**

**FRONT VIEW**
NOTES:
1. Install a separate pole for mounting the solar panel, controller and batteries for all flashing beacon assemblies with solar panels, controllers and batteries weighing more than 170 lbs.
2. Install the auxiliary pole as close to the right of way as possible.
3. Install the auxiliary pole so that the height is the same as the column for the beacon assembly.
4. Payment for the separate pole, foundation, conduit and wiring are included in the cost of the electronic warning sign with flashing beacon.

ROADSIDE FLASHING BEACON ASSEMBLY

SOLAR POWERED BEACON WITH AUXILIARY POLE AND CONCRETE SLAB DETAIL
NOTES:

1. A transformer base is required for both conventional powered and solar powered applications. (Conventional Power Shown)

2. Use Rectangular Rapid Flashing Beacon (RRFB) equipment and hardware that are listed on the Approved Products List (APL).

3. Install the RRFB in pairs, one on either side of approach traffic.

4. Install controller on the backside of post from approach traffic.

5. Install a 30" X 30" W11-2 sign on single lane facilities and a 36" X 36" W11-2 sign for multi-lane facilities.

6. Install push button and R10-25 sign in accordance with Index 17784.
NOTES:

1. A transformer base is required for both conventional powered and solar powered applications. (Conventional Power Shown)
2. Use beacons and beacon controllers that are on the Approved Products List (APL).
3. Details show a typical school zone sign with two flashing beacon heads. When only one beacon is required, install upper beacon.
NOTES:
1. A transformer base is required for both conventional powered and solar powered applications. (Conventional Power Shown)

2. Use speed feedback display, beacons, beacon controllers and installation hardware that are on the Approved Products List (APL).

3. For posted speeds less than 45 mph, install a speed feedback display with numeral heights of 19" and for posted speeds 45 mph or greater, install a speed feedback display with numeral heights of 18"

4. Only speed display units weighing 62 lbs. or less may be mounted with a 5'-0" clearance. Mount speed display units that weigh more than 62 lbs. with a 7'-0" clearance.

5. The beacon controller and solar batteries may be in the same compartment.
NOTES:

1. A transformer base is required for both conventional powered and solar powered applications. (Conventional Power Shown)

2. Use speed feedback display, beacon, beacon controller and installation hardware that are on the Approved Products List (APL).

3. For posted speeds less than 45 mph, install a speed feedback display with numeral heights of 15" and for posted speeds 45 mph or greater, install a speed feedback display with numeral heights of 18".

4. Only speed display units weighing 62 lbs. or less may be mounted with a 5'-0" clearance. Mount speed display units that weigh more than 62 lbs. with a 7'-0" clearance.

5. The beacon controller and solar batteries may be in the same compartment.
NOTES:
1. Work with Index 11860.
2. Shop Drawings: Not required.

3. Materials:
   A. Steel Plate: ASTM A36 or ASTM A709 Grade 36
   B. Steel Pipe (Support Post): ASTM A501 Schedule 40
   C. Aluminum Pipe: ASTM B210 Alloy 6061-T6
   D. Galvanized U-Bolts, Nuts, and Plate Washer
      a. U-Bolts: ASTM A469
      b. Hex Nuts: ASTM A 563 Lock Nuts
   E. Plate Washer: ASTM A 36 or ASTM A709 Grade 36 or 50
   F. Galvanized Anchor bolts, Nuts and Washers:
      a. Anchor Rod: ASTM F1554 Grade 55 fully threaded (for Adhesive Anchors)
      b. Anchor Bolts: ASTM F1554 Grade 55 Grade A Hex
      c. Nuts: ASTM A563 Heavy Hex Locking
      d. Washers: ASTM F436
   G. Adhesive Anchor Bonding Material: Specification Section 931 Type HV Adhesive.
   H. Weld Material: E70XX
   H. Snap-In Post Cap: UV and weather-resistant glass-filled polyester cap

4. Coating:
   A. U-Bolts, Threaded Rods, Nuts and Washers: ASTM F2329
   B. Other Steel: ASTM A123

5. Fabrication:
   A. Weld: Specification Section 460-6.4
   B. Not dip galvanize after Fabrication

6. Construction:
   A. Locate Sign Support a minimum of 5 feet from an open joint or transition (sign stationing may be adjusted to accommodate this requirement)
   B. Base plate must be flush with back of Traffic Railing
   C. Anchors in Traffic Railings:
      a. Install Adhesive anchors in accordance with Specification section 416 except perform field test on one anchor per sign support location.
      b. Use templates and tie anchors as necessary to maintain correct placement of C-I-P Embedded Anchors
      c. Do not drill into existing conduit
   D. Cut anchor rods flush with the top of the traffic railing
   E. Hot dip galvanize after fabrication
   F. Weld: Specification Section 460-6.4
      a. U-Bolts, Threaded Rods, Nuts and Washers: ASTM F2329
      b. Anchor Bolts: ASTM F1554 Grade 55 Grade A Hex
      c. Nuts: ASTM A563 Heavy Hex Locking
      d. Washers: ASTM F436
   G. Adhesive Anchor Bonding Material: Specification Section 931 Type HV Adhesive.
   H. Snap-In Post Cap: UV and weather-resistant glass-filled polyester cap

7. Removal of Temporary Signs on Permanent Traffic Railings:
   A. Cut anchor rods flush with the top of the traffic railing
   B. Coat anchors with Type F-1 epoxy to prevent corrosion
   a. Extend coating 2 inches beyond edge of cut anchor rods
   b. Epoxy coating 1/16" thick minimum

8. Payment:
   a. Include the cost of all materials and labor in the cost of the single post sign assembly.

<table>
<thead>
<tr>
<th>SIGN LIMITATIONS TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX. SIGN AREA (SF)</td>
</tr>
<tr>
<td>MAX. SIGN CENTROID HEIGHT (DIM. A + DIM. C)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Dimension A = Distance from centerline of the Support Post to the bottom of the sign or sign cluster.
Dimension C = Vertical distance from the bottom of the sign or sign cluster to the centroid of the sign or sign cluster.

---

**SIGN SUPPORT ASSEMBLY**
NOTES:

1. Existing Traffic Railings:
   - A. Locate existing conduit prior to drilling and adjust placement of base plate as necessary to avoid damaging existing conduit. Base plate must be flush with back of traffic railing. Maintain a minimum cover 2" from face of traffic railing to tip of Adhesive Anchor.
   - B. For concrete parapets less than 12" thick, through bolt 1/2" Heavy Hex Head Bolts with Nuts and Washers in lieu of Adhesive Bonded Anchors. Bolt heads shall not protrude more than 1/8" beyond traffic face of railing.
   - C. For through bolting, cut front face of the traffic railing so that washer is flush with the concrete.

2. New Traffic Railings:
   - A. Optional Couplers are shown for slipforming; keep Anchor Bolt coupler threads free of concrete.
   - B. For concrete parapets less than 10" thick, through bolt 1/2" through bolt with Heavy Hex Head Bolts with Nuts and Washers in lieu of Adhesive Bonded Anchors. Bolt heads shall lie flush with traffic face of railing.
   - C. For through bolting, cut front face of the traffic railing so that washer is flush with the concrete.

3. 32" F-Shape Traffic Railing shown, other Traffic Railings and Parapets are similar.

4. Bridge Deck shown, Approach Slab and Retaining Wall are similar.
SIGN SUPPORT ASSEMBLY

SIGN SUPPORT WELDMENT DETAIL

BASE PLATE

U-BOLT PLATE WASHER

END PLATE

SINGLE POST BRIDGE MOUNTED SIGN SUPPORT
**NOTES:**

1. Work with Index 11860.
2. Shop Drawings: Not required.

3. **Materials:**
   - A. Steel Plate: ASTM A36 or ASTM A709 Grade 36
   - B. Steel Pipe (Support Post): ASTM A500 schedule 40
   - C. Galvanized U-Bolts, Nuts and Plate Washer
     - a. U-Bolts: ASTM A449
     - b. Hex Nuts: ASTM A 563 Lock Nuts
     - c. Plate Washer: ASTM A 36 or ASTM A709 Grade 36 or 50
   - D. Galvanized Anchor Bolts, Nuts and Washers:
     - a. Anchor Rod: ASTM F1554 Grade 55 fully threaded (for Adhesive Anchors)
     - b. Nuts: ASTM A563 Heavy Hex Locking
     - c. Washers: ASTM F436
   - E. Adhesive Anchor Bonding Material: Specification Section 931 Type HV Adhesive
   - F. Weld Material: E70XX
   - G. Snap-In Post Cap: UV and weather-resistant glass-filled polyester cap

4. **Coating:**
   - A. U-Bolts, Threaded Rods, Nuts and Washers: ASTM F2329
   - B. Other Steel: ASTM A123

5. **Fabrication:**
   - A. Welds: Specification Section 460-6.4
   - B. Hot dip galvanize after fabrication

6. **Construction:**
   - A. Locate Sign Support a minimum of 5 feet from an open joint or transition (sign stationing may be adjusted to accommodate this requirement)
   - B. Anchor bolt (1 per sign support) flush with top of Railing
   - C. Anchors in Traffic Railings:
     - a. Install Adhesive Anchors in accordance with Specification section 416 except
     - b. Use template and tie anchors as necessary to maintain correct placement of C-I-P
     - c. Do not drill into existing reinforcing
   - D. Temporary Signs on Permanent Traffic Railings, Same as Permanent except field
     - A. Temporary Signs on Temporary Railings/Barriers:
     - a. Install Sign Supports at the midpoint along the length of a single segment
     - b. Avoid drilling through existing reinforcement; use of metal detector not required.
     - c. Field testing of anchors is not required
   - E. Removal of Temporary Signs on Permanent Traffic Railings:
     - A. Cut anchor rods flush with the top of the railing
     - B. Coat anchors with Type F-1 epoxy to prevent corrosion
       - a. Extend coating 2 inches beyond edge of cut anchor rods
       - b. epoxy coating 2.75 inches minimum
   - F. Payment:
     - Include the cost of all materials and labor in the cost of the single post sign assembly.

---

**TABLE 1 - SIGN PANEL AND POST SIZING**

<table>
<thead>
<tr>
<th></th>
<th>Max. Sign Area (SF)</th>
<th>Post Ø (NPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temporary Signs</strong></td>
<td>= 24</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Permanent Signs</strong></td>
<td>≥ 135</td>
<td>3.0</td>
</tr>
</tbody>
</table>

---

**ELEVATION**

(Index 410 Standard "Full Wall" Median Barrier shown; others similar)
### Table 2 - Base Plate Type and Anchor Rod Sizing

<table>
<thead>
<tr>
<th>Index No.</th>
<th>Type/Application</th>
<th>Base Plate</th>
<th>Anchor Rod Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>410</td>
<td>Full Wall</td>
<td>B</td>
<td>1&quot;</td>
</tr>
<tr>
<td>410</td>
<td>Cantilever or L-Wall</td>
<td>A</td>
<td>1&quot;</td>
</tr>
<tr>
<td>420 &amp; 425</td>
<td>When Clear Space between Dual Bridge Traffic Railing is ≤ 4'-0&quot;</td>
<td>A</td>
<td>1&quot;</td>
</tr>
<tr>
<td>421</td>
<td>All Applications</td>
<td>A</td>
<td>1&quot;</td>
</tr>
<tr>
<td>All listed above</td>
<td>Plus 414 &amp; 415</td>
<td>Temporary Signs</td>
<td>C</td>
</tr>
</tbody>
</table>

#### Notes:
1. Place anchor rods in a staggered or linear pattern as necessary to avoid reinforcing.
2. Use a staggered pattern for all temporary barriers.

---

**Base Plate Type A**

- Linear Anchor Rod Pattern

**Base Plate Type B**

- Staggered Anchor Rod Pattern

**Base Plate Type C**

- Staggered Anchor Rod Pattern

---

**Sign Support Weldment Detail**

- Staggered Anchor Rod Pattern shown
MOUNTING EXIT NUMBER PANELS TO HIGHWAY SIGNS

GENERAL NOTES

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 B206.

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 6061-T6 (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.

ELEVATION

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

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

CASE III
For Use On All Roads With Signs Mounted Behind Sidewalk.

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.

CASE VII (REST AREA & EXIT GORE SIGNS)
For Use On All Freeway And Expressway Systems

CASE VIII
Sign On Island or Curbed Median

CASE IX (MILE POST MARKER)
For More Information Refer To Section 2H Of The Manual On Uniform Traffic Control Devices
WEIGH STATION SIGNING

WEIGH STATION SIGNING

4 - LANE DIVIDED INSTALLATION

WEIGH STATION
1 MILE

D8-1

ALL TRUCKS ENTER
WEIGH STATION
FTP-1-06

D8-2

WEIGH STATION
NEXT RIGHT
FTP-2-06

D8-3

ALL TRUCKS
WEIGH STATION
FTP-3-06

ALL TRUCKS
WEIGH STATION
FTP-83-08

WEIGH STATION
1 MILE

D8-1

D8-2

D8-3

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

Note:
Signs D8-3 to be placed at or near the theoretical gore.

WEIGH STATION
1 MILE

D8-1

ALL TRUCKS ENTER
WEIGH STATION
FTP-1-06

D8-2

WEIGH STATION
NEXT RIGHT
FTP-2-06

D8-3

ALL TRUCKS
WEIGH STATION
FTP-3-06

ALL TRUCKS
WEIGH STATION
FTP-83-08

WEIGH STATION
1 MILE

D8-1

D8-2

D8-3

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

MEDIAN INSTALLATION

WEIGH STATION
1 MILE

D8-1

ALL TRUCKS ENTER
WEIGH STATION
FTP-1-06

D8-2

WEIGH STATION
NEXT LEFT
FTP-2-06

D8-3

WEIGH STATION
FTP-3-06

WEIGH STATION
FTP-83-08

WEIGH STATION
1 MILE

D8-1

D8-2

D8-3

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

WEIGH STATION
1 MILE

D8-1

ALL TRUCKS ENTER
WEIGH STATION
FTP-1-06

D8-2

WEIGH STATION
NEXT LEFT
FTP-2-06

D8-3

WEIGH STATION
FTP-3-06

WEIGH STATION
FTP-83-08

WEIGH STATION
1 MILE

D8-1

D8-2

D8-3

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

F T P - 1 - 0 6
F T P - 2 - 0 6
F T P - 3 - 0 6
F T P - 8 3 - 0 8

TYPICAL SIGNING FOR TRUCK WEIGH & INSPECTION STATIONS

FY 2017-18 DESIGN STANDARDS

INDEX NO. 17328

SHEET NO. 1 of 2

LAST REVISION 07/01/09

DESCRIPTION:

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.

REV NO.
1. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A SIGNALIZED INTERSECTION

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

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

Notes:
Signs shall be erected in accordance with index No. 17302.
When computing pavement markings quantities do not include transverse lines.
School crosswalk widths at intersections shall be 6' minimum 10' standard without public sidewalk curb ramps 9' minimum with public sidewalk curb ramps. The width is measured from inside of line to inside of line.
For additional marking information, see Index 17346, Sheet 2.

<table>
<thead>
<tr>
<th>Approach Speed (MPH)</th>
<th>Distance A (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 or less</td>
<td>200</td>
</tr>
<tr>
<td>26 To 35</td>
<td>250</td>
</tr>
<tr>
<td>36 To 45</td>
<td>300</td>
</tr>
<tr>
<td>46 To 55</td>
<td>325</td>
</tr>
</tbody>
</table>
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)

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)
**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**

*A 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.

SCHOOL CROSSWALK Midblock crosswalk shall be a minimum of 10'. See Index No. 17346.
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

11. SCHOOL BUS STOP

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

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.

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.
SCHOOL SIGNS & MARKINGS

**DESCRIPTION:**
- **FY 2017-18 Design Standards**
- **Index No.** 17344
- **Sheet No.** 5 of 6

**REV. NO.**
- **Sheet No.** 1038
- **Index No.** 1107
- **Revision No.** 1101

**REVISION LAST OF DESIGN STANDARDS FY 2017-18**

**SCHOOL SIGNS & MARKINGS**

**Sign Panel**
- max. be spaced @ 12" centers
- Lockwashers, bolts shall

**Head Bolts with Nuts and**

**" Ø Aluminum Round**

**Catenary Wire**

**Wire Rope Clamp**

**Messenger Wire**

**Signal Head** (Yellow Lens)
- 12" Signal Head

**Additional Details:**
- **Cable Entry Detail**
- **Mounting Detail**
- **SIDE VIEW**
- **FRONT VIEW**
- **REAR VIEW**

**Additional Notes:**
- 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.
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 avoided.

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 should conform to the above standard. Numerical speed limit displays shall be established by appropriate regulatory authorities.
Shoulder Line

Edge Line

6" Yellow

Shoulder Line

Markers Every 40’. Yellow-Red Reflective

Markers Every 40’. White-Red Reflective

6" White Edge Line

Width (15’ Typical)

Maintain Full Ramp

Shall Begin at the Transition.

Pavement Markers

White-Red reflective

12" White

Pavement Markers

White-Red reflective

6" Yellow

12" White

Passenger Car, Daytime, Posted Speeds
Of 85th Percentile (Use Higher Value)

NORMAL TAPERED EXIT

(TWO THRU LANES)

DETAIL A

NORMAL TAPERED EXIT ONLY

(TWO THRU LANES - THREE APPROACH LANES)
Shoulder Line
Shoulder Pavement
6" Yellow
6" White

6" Yellow Edge Line

6" White Edge Line
Shoulder Line

6" White Skip Line
Shoulder Line

6" White Skip Line
Shoulder Line

6" White Edge Line
Shoulder Line

White-Red Reflective Pavement Markers Every 20'

Yellow-Red Reflective Markers (Every 40') Shall End At The Termination Of The Yellow Edge Line

NORMAL TAPERED ENTRANCE
WITH ADDED LANE
TYPICAL MARKINGS AT DUAL LANE EXITS

PARALLEL ACCELERATION AND DECELERATION LANE

TYPICAL LANE DROP MARKINGS AT EXIT RAMPS

Note: Arrows indicate direction of travel and are not shown for pavement marking.
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 6' from shoulder break. Post delineators should not be discontinued in sections with guardrail.

2. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

3. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

4. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

5. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

6. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

7. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

8. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

9. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

10. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

11. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

12. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

13. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

14. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

15. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

16. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

17. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

18. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

19. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

20. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

21. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

22. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

23. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

24. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

25. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

26. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

27. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

28. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

29. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.

30. 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 post delineators spaced at 40' on curves of the entrance and exit of ramps.
NOTES:
1. When an arrow and a pavement message are used together, locate the arrow 25' downstream from the pavement message. Measure the distance from the base of the arrow to the base of the pavement message.
2. Place stop message 25' back from the stop line.
3. Dimensions are within 1" ±.
4. All grids are 4" x 4".
**Description:**

**Revision of Design Standards FY 2017-18**

**Pavement Markings**

**Solid Edge Line or Lane Line**

**Solid Channelizing Line**

**Two-Lane Passing Prohibited Lines**

**Double Solid Lines**

12" Solid Pedestrian Crosswalk Line

24" Solid Stop Line

2' - 4' Dotted Guide Line

6'-10' Dotted Extension Line

3'-9' Dotted Interchange Line

3'-9' Dotted Lane Drop Line

10'-30' Skip Line

8", 12" or 18" 6" 12" or 24" 10'

Yield Lines consist of five - 18" x 27" white triangles which face traffic. Equally space triangles within traffic lane. When a bike lane is present, add one additional triangle in the center of the bike lane.

**Contrast Markings**

10' White Skip With 10' Black Contrast and 20' Gaps

**Direction of Traffic**

Lane Line  Travel Lane  Edge Line  Yield Lines
REVISION NO.
INDEX NO.
DESCRIPTION:
REVISIO
NO.
SHEET NO.
INDEX
NO.
REVISION
NO.
SHEET
NO.
INDEX
NO.
DESIGN STANDARDS
PAVEMENT MARKINGS
11/01/16
17346
3 of 17

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

CURB AND GUTTER SHOWN

PAVEMENT MARKINGS

10'-30' Skip Line
6" Yellow Solid Line
6" White Solid Line
2'-4' Dotted Line

Curb And Gutter
Edge Of Traveled Way
Traffic Lane
Buffered Bike Lane
Edge Of Traveled Way

Traffic Lane

Edge Of Traveled Way

2'-4' Dotted Line

12" Solid Line

10" Solid Pedestrian Crosswalk Lines

24" Solid Stop Line

Guide Line

2'-4' Dotted Line

Extension Of Edge Of Traffic Lane (Illustration Only)

6" White Solid Line

Extension Of Edge Of Traffic Lane (Illustration Only)

Edge Of Traveled Way

Edge Of Traveled Way

Edge Of Traveled Way

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Extension Of Edge Of Traffic Lane (Illustration Only)

Extension Of Edge Of Traffic Lane (Illustration Only)

Extension Of Edge Of Traffic Lane (Illustration Only)

Extension Of Edge Of Traffic Lane (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)

Edge Of Curb Taper (Illustration Only)
PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER

NOTE:

1. Apply yellow markings to the median noses.

2. Use yellow retro-reflective sheeting on both sides of the delineator. Install the post so that the top is 4' above the grade at the edge of the pavement.

PAVEMENT MARKINGS FOR INTERSECTIONS WITH MAJOR AND MINOR ROADS
TYPICAL CROSSWALK MARKINGS FOR CURB RAMP

SCHEME ONE

SCHEME TWO

TWO WAY LEFT TURN LANE
These markings may be used for locations with restricted left turn lengths, only when called for in plans.

**RESTRICTED LEFT TURN MARKING**

<table>
<thead>
<tr>
<th>Width</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6' White</td>
<td>6'-10' Dotted 6' White</td>
</tr>
<tr>
<td>6' Dbl Yellow</td>
<td>6' Dbl Yellow</td>
</tr>
</tbody>
</table>

**RIGHT TURN LANE DROP AND ISLAND DETAILS**

<table>
<thead>
<tr>
<th>Width</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6' White</td>
<td>6' White Skip</td>
</tr>
<tr>
<td>12' White</td>
<td>12'-3' Dotted 6' White</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Width</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6' Dbl Yellow</td>
<td>6' Dbl Yellow</td>
</tr>
</tbody>
</table>

**LEFT TURN LANE DROP IS MIRROR IMAGE**

**RIGHT TURN LANE AND ISLAND DETAILS**

<table>
<thead>
<tr>
<th>Width</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6' White</td>
<td>6' White Skip</td>
</tr>
<tr>
<td>6' White</td>
<td>6' White Skip</td>
</tr>
</tbody>
</table>

**NOTES:**

1. When public sidewalk curb ramps are present, refer Index No. 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.
**ONE WAY SIGNS ON DIVIDED HIGHWAY INTERSECTIONS**

- **NOSE WIDTHS UNDER 30’**
  - 6” White
  - 24” White

- **NOSE WIDTHS 30’ AND GREATER**
  - 6” White
  - 24” White

---

**PAVEMENT MARKINGS FOR TRAFFIC CHANNELIZATION AT GORE**

*(TRAFFIC FLOWS IN SAME DIRECTION)*

- 8” Single White
- 6” White
- 6” Yellow Edge Line
- 6” Double Yellow
- Varies

---

**PAVEMENT MARKING FOR TRAFFIC SEPARATION**

*(TRAFFIC FLOWS IN OPPOSING DIRECTIONS)*

- Standard No-Passing
- 6” Yellow Edge Line
- 6” Double Yellow
- Varies

---

**POSTED (MILE) SPEED LIMIT MPH**

<table>
<thead>
<tr>
<th>Speed Limit</th>
<th>MPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 or Less</td>
<td>10</td>
</tr>
<tr>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>50 or More</td>
<td>45</td>
</tr>
</tbody>
</table>

---

*Divided Highway signs (R6-3) may be on the same structure with the STOP and ONE WAY signs or on a separate structure.*
**TYPICAL TRANSITION MARKING**

**COLOR SHALL BE THE SAME AS RESPECTIVE EDGE LINE**

**LEFT ROADWAY CENTERED ON EXISTING ROADWAY**

1. **Transition Distance L₁ (Feet)**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>80</td>
<td>85</td>
<td>90</td>
</tr>
</tbody>
</table>

2. **Posted (Day) Speed Limit MPH**

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

3. **Solid 6" Yellow Edge Line**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>95</td>
<td>100</td>
<td>105</td>
<td>110</td>
</tr>
</tbody>
</table>

4. **Solid 6" White Edge Line**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>125</td>
<td>130</td>
<td>135</td>
<td>140</td>
<td>145</td>
<td>150</td>
</tr>
</tbody>
</table>

5. **Yellow Skip**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>

6. **Direction of Travel**

**RIGHT ROADWAY CENTERED ON EXISTING ROADWAY**

1. **Transition Distance L₁ (Feet)**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>80</td>
<td>85</td>
<td>90</td>
</tr>
</tbody>
</table>

2. **Solid 6" Yellow Edge Line**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>95</td>
<td>100</td>
<td>105</td>
<td>110</td>
</tr>
</tbody>
</table>

3. **Solid 6" White Edge Line**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>125</td>
<td>130</td>
<td>135</td>
<td>140</td>
<td>145</td>
<td>150</td>
</tr>
</tbody>
</table>

4. **Yellow Skip**

<table>
<thead>
<tr>
<th>MPH</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>

5. **Direction of Travel**

**SCHEMES FOR TRANSITION - 2 LANE / 4 LANE ROADWAY**

**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.
NOTES:

1. Messages shall meet requirements of Specification Section 971-6 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 dimensions shown and have a minimum skid resistance value of 55 BPN.

4. The "Exit Number" position remains the same distance from the beginning of taper regardless of the number of lines of information.
When Present.

From & Parallel To Gate
Edge Of Travelway Or 8' Stop Bar Perpendicular To

6" Yellow
24" White

6" Yellow
White
24" White

6" Double Yellow
24" White

DO NOT STOP ON TRACKS

The Railroad Traffic Control Device
Is To Be Located A Minimum Of 12'
From The Railroad Centerline. See
Index No. 17882 For Protection Devices.

Railroad Pavement Markings.
See Detail This Sheet For Placement Of
Railroad Pavement Markings.

NOTE:
Pavement Markings symmetrical about centerline

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 crossbucks 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 minimum 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 crossing.
5. A portion of the pavement marking symbol should be directly opposite the W10-1 sign.

SPEED MPH 40 45 50 55
IN FT 20 25 30 35

URBAN 40 125 130 100

TYPICAL PAVEMENT MARKINGS FOR R/R CROSSING

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

WIDTHS MAY VARY

According To Lane Width

Pavement Message
White

See notes 3, 4 & 5
For sign placement.

INDEX NO. 17882 For Protection Devices.

From & Parallel To Gate
Edge Of Travelway Or 8'

DO NOT STOP ON TRACKS

The Railroad Traffic Control Device
Is To Be Located A Minimum Of 12'
From The Railroad Centerline. See
Index No. 17882 For Protection Devices.
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.
5. All crosswalk marking must be white.
6. Longitudinal markings in Special Emphasis Crosswalk must be 24" wide and spaced to avoid the wheel path of vehicles (see details). Center the longitudinal markings at each lane line. Place additional longitudinal markings at the center of each lane (1/2W). The maximum spacing allowed between longitudinal markings is 60".

When the Crosswalk is skewed to the lane lines, the longitudinal markings should be parallel to the lane lines. 24" Longitudinal Bars in Special Emphasis Crosswalk must be preformed thermoplastic.
12" Transverse lines in the Special Emphasis Crosswalk may be standard thermoplastic or preformed thermoplastic.

SPECIAL EMPHASIS CROSSWALK MARKING DETAIL

SPECIAL EMPHASIS AND STANDARD CROSSWALKS
SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

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.
5. All crosswalk marking must be white.
6. Longitudinal markings in Special Emphasis Crosswalk must be 24" wide and spaced to avoid the wheel path of vehicles (see details). Center the longitudinal markings at each lane line. Place additional longitudinal markings at the center of each lane (1/2W). The maximum spacing allowed between longitudinal markings is 60".

When the Crosswalk is skewed to the lane lines, the longitudinal markings should be parallel to the lane lines. 24" Longitudinal Bars in Special Emphasis Crosswalk must be preformed thermoplastic.
12" Transverse lines in the Special Emphasis Crosswalk may be standard thermoplastic or preformed thermoplastic.

SPECIAL EMPHASIS CROSSWALK MARKING DETAIL

SPECIAL EMPHASIS AND STANDARD CROSSWALKS
SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

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.
5. All crosswalk marking must be white.
6. Longitudinal markings in Special Emphasis Crosswalk must be 24" wide and spaced to avoid the wheel path of vehicles (see details). Center the longitudinal markings at each lane line. Place additional longitudinal markings at the center of each lane (1/2W). The maximum spacing allowed between longitudinal markings is 60".

When the Crosswalk is skewed to the lane lines, the longitudinal markings should be parallel to the lane lines. 24" Longitudinal Bars in Special Emphasis Crosswalk must be preformed thermoplastic.
12" Transverse lines in the Special Emphasis Crosswalk may be standard thermoplastic or preformed thermoplastic.
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. Minimum width of Mid-Block Crosswalks is 10'.

3. All mid-block crosswalks shall use special emphasis crosswalk markings.

4. Crosswalk marking shall be preformed marking materials.

### Crosswalk Markings

**SCHEME 1**
- Crosswalk with Warning Signing

**SCHEME 2**
- Crosswalk with Stop Signing

**SCHEME 3**
- Signalized Crosswalk

### Speed Approaches and Suggested Distance

<table>
<thead>
<tr>
<th>Approach Speed MPH</th>
<th>Suggested Distance (Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 or Less</td>
<td>200</td>
</tr>
<tr>
<td>26 to 35</td>
<td>250</td>
</tr>
<tr>
<td>36 to 45</td>
<td>300</td>
</tr>
</tbody>
</table>

- Solid White
- 100' of 6"
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

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.

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.

Refer to Design Standard Index 301 for Roadway Details.

This Index also applies to right turn lanes.

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.

** Arrow Spacing

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

** Design Speed (mph)

** Clearence Distance

** Brake To Stop Distance

** Total Decel. Distance

** Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURN MARKINGS
SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR

10/14/2016
8:38:24 AM

DESCRIPTION:

REV IS IO N NO.
SHEET NO.
INDEX NO.

SIDEWALK CURB RAMPS IN REST AREAS

PUBLIC PAVEMENT MARKING FOR
TYPICAL RURAL INTERSECTION WITHOUT TURN LANES

TYPICAL RURAL INTERSECTION WITH TURN LANES

GENERAL NOTES:

1. Remove raised retroreflective pavement markers when in conflict with the installation of the centerline profiled thermoplastic pavement markings. The cost of removal is included in the cost of the profiled thermoplastic pavement marking.

2. Replacement of retroreflective pavement markers removed during the installation of the centerline profiled thermoplastic pavement markings will be paid for under Pay Item 706.

PROFILED THERMOPLASTIC MARKINGS 2 LANE ROADWAYS
See Profiled Thermoplastic Markings General Notes on Sheet 13.

TYPICAL RURAL INTERSECTION

TYPICAL RURAL MEDIAN OPENING

TYPICAL RURAL DIRECTIONAL INTERSECTION

PROFILED THERMOPLASTIC MARKINGS MULTI-LANE ROADWAYS
1. All bicycle markings and pavement messages shall be white.
2. All bicycle markings shall be preformed thermoplastic.
3. Recommended placement of bicycle lane markings:
   a) At the beginning of a bicycle lane, on the far side of major intersections, and prior to and within the bicycle lane keyhole.
   b) Along the roadway as needed to provide a maximum spacing of 1,320 feet for posted speeds less than or equal to 45 mph, 2,640 feet for a posted speed of 50 mph or greater.
4. Recommended spacing for shared lane marking (SLM) immediately after intersections and at a maximum spacing of 500 feet.
**SCENARIO #1**
**LANE WIDTH ≤ 14'**

- Lane Line Center of Lane
- 6" White Solid Line

**SCENARIO #2**
**ADJACENT TO PARKING**

- Lane Line Center of Lane
- 6" White Solid Line

**DESCRIPTION:**

**REVISION OF DESIGN STANDARDS FY 2017-18**

**INDEX NO. 17347**

**SHEET NO. 2 of 5**
**Approach to Intersections Details**

- **Standard Buffered Bike Lane Striping**
  - 6" White Solid Line

**Far Side of Intersection Detail**

- **Center of Solid Line**
- **2'-4' Dotted Line**
- **Return Curb Return or Stop Line**

**Bus Bay Detail**

- **Curb and Gutter Typical Section**
- **6" White 2'-4' Dotted Line**
- **6" White 3' Buffer at 10' Spacing**
- **Diagonal Hatching With 6" White**

**Adjacent to Parking**

- **Buffered Bike Lanes**
  - **Lane Width**
  - **Return Curb Radius**
  - **5' Min. From Curb Radius Return**

**Description:**

- **Revision No.**
- **Design Standards FY 2017-18**
- **Bicycle Markings**

**Index No.:**

- **P. & R. Sheet No.:**

**Sheet No.:**

- **Last Revision:**
- **11/18/14**
- **17347**
- **3 of 5**
BIKE LANE TYPICAL SECTION
FLUSH SHOULDER WITH BUFFERED INTERSECTION WITH NO RIGHT TURN LANE,

10/14/2016

R E V I S I O N
NO.
SHEET
INDEX

DESCRIPTION:
REVISION
LAST
REV 11/18/14
DESIgn STANDARDS
FY 2017-18

BIKE LANE MARKINGS
- 2'-4' Dotted 6" White Spaces
- Parking at 10' Spacing
- Diagonal Hatching
- 3' Buffer With 6" White Diagonal Hatching at 10' Spacing
- Indicated Paved Shoulder

BIKE LANE ADJACENT TO ON STREET PARKING
NO RIGHT TURN LANE,
CURB AND GUTTER TYPICAL SECTION

150'

Indicates Paved Shoulder

Adjust Parking As Needed For Clear Sight Requirements

5" White
2'-4' Dotted

Paved Shoulder
Buffered Bike Lane
(See Plans for Dimensions)

3" Buffer With 6" White Diagonal Hatching at 10' Spacing

Parking Spaces

CURB AND GUTTER TYPICAL SECTION
NO RIGHT TURN LANE,
BIKE LANE ADJACENT TO ON STREET PARKING

150'

5" White
2'-4' Dotted

Paved Shoulder
Buffered Bike Lane
(See Plans for Dimensions)
BICYCLE MARKINGS

KH-1
INTERSECTION WITH SEPARATE RIGHT TURN LANE, CURB AND GUTTER TYPICAL SECTION

KH-2
INTERSECTION WITH RIGHT TURN DROP LANE, CURB AND GUTTER TYPICAL SECTION

KH-3
"TEE" INTERSECTION WITH SEPARATE RIGHT TURN LANE, CURB & GUTTER TYPICAL SECTION

KH-4
INTERSECTION WITH SEPARATE RIGHT TURN LANE, IN OR WITHIN ONE MILE OF AN URBAN AREA FLUSH SHOULDER TYPICAL SECTION

KH-5
INTERSECTION WITH SEPARATE RIGHT TURN LANE, IN RURAL AREA FLUSH SHOULDER TYPICAL SECTION

KEYHOLE MARKINGS

Indicates Paved Shoulder
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 No. 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.

Object markers shall be installed on 2" OD x 1/4" Aluminum Round Post.
16" OD Aluminum Button Head Bolt with Nut and Lockwasher or 1" x 8" 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.
**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.

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.

**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.

**One Post Service Signs See Detail "D"**

Approximate Position Of
Second Motorist Service Sign
(Details "B" Or "C") For Interchanges
With Two Exit Ramps

**Sign to be installed at
beginning of deceleration lane.**

**Provision Guide Sign**

G    City
MILE 1
EXIT 0

**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.
Welcome Center Sign Design

**Description:**

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.

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

**Tourist Information Center**

**Next Right**

**Notes:**

- 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).
STATE OF FLORIDA
WELCOME CENTER
1 MILE

STATE OF FLORIDA
OFFICIAL
WELCOME CENTER

SIGN NO. FTP-15A-06
SIGN NO. FTP-12-06

1/2 MILE

SIGN NO. FTP-15B-06
SIGN NO. FTP-15C-06

FTP-15A-06
FTP-15B-06
FTP-15C-06
FTP-12-06

2,240'
2,240'

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
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 longitudinal lines.

4. These spacings may be reduced for sharp curves if required.

5. All RPM's shall be class "B".
NOTES
1. Set Raised Pavement Markers 1" from line.
2. Center the Raised Pavement Markers between chevrons.

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.

PLACEMENT OF RPM'S AT INTERSECTIONS

PLACEMENT OF RPM'S ON SHOULDER MARKINGS

Right side of the roadway shown. For the left side of roadway, the pavement marking is yellow and oriented opposite hand.

For Placement Of RPM's On Ramps See Index 17345.
### DESIGN FOR TOURIST ORIENTED DIRECTIONAL SIGNS

(Options for Aluminum Round Tube, Steel I Beam and Steel U-Channel)

<table>
<thead>
<tr>
<th>Total Area (SF)</th>
<th>Single Post Configuration</th>
<th>Two Post Configuration</th>
<th>Three Post Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-1/2&quot; X 0.125&quot; Aluminum Tube Direct Burial</td>
<td>4&quot; X 0.125&quot; Aluminum Tube Slip Base</td>
<td>5X5.7 Steel I Beam Slip Base</td>
</tr>
<tr>
<td>6-10</td>
<td>OK</td>
<td>OK</td>
<td>N/A</td>
</tr>
<tr>
<td>16-20</td>
<td>N/A</td>
<td>OK</td>
<td>N/A</td>
</tr>
<tr>
<td>18-16</td>
<td>N/A</td>
<td>N/A</td>
<td>OK</td>
</tr>
<tr>
<td>22-24</td>
<td>N/A</td>
<td>N/A</td>
<td>OK</td>
</tr>
<tr>
<td>30-32</td>
<td>N/A</td>
<td>N/A</td>
<td>OK</td>
</tr>
<tr>
<td>38</td>
<td>N/A</td>
<td>N/A</td>
<td>OK</td>
</tr>
</tbody>
</table>

* Limited to 22 SF Total Sign Area.

### NOTES:

1. Signs must comply with Rule 14-51, Florida Administrative Code.
2. Use 6" Type C lettering.
4. See Index 11200 for Multi-Column Ground Sign for foundation and connection details.
5. See Index 600, Work Zone Sign Supports, for Temporary 3-Post Sign Support assembly and foundation details. Galvanize Steel U-Channel in accordance with ASTM 123.
**Florida Route Marker**

**FTP-17-06**

---

**Guide Sign Use**

1. Florida marker shall have black legend with white background.
2. Stroke width of state outline shall be 1" for guide sign.
3. Numbers are series D.

---

**Special Sign Details**

**FTP-18-06**

---

**Florida Route Marker**

**FTP-18-06**

---

**County Route Marker**

**FTP-19-06**

---

**County Route Marker**

**FTP-19-06**

---

**Design Standards**

**FY 2017-18**

---

**Revision**

07/01/14

---

**Sign**

**Dimensions**

**Note:**

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

SPECIAL SIGN DETAILS

**FTP-65-06**
3 x 3
2" Radii ½" Border
4" Series D Legend
White Background
Black Legend and Border

**FTP-66-06**
4 x 3
2" Radii ½" Border
5" Series D Legend
White Background
Black Legend and Border

**FTP-67-06**
4 x 5
2" Radii ½" Border
5" Series D Legend
Blue Background
White Legend and Border

**FTP-67A-06**
9" x 12"
1½" Radii ½" Border
Series B Legend
Black Background
Yellow Legend and Border

**FTP-68A-06**
9" x 15"
1½" Radii ½" Border
Series B Legend
Black Background
Yellow Legend and Border


**FTP-68B-06**
9" x 22"
1½" Radii ½" Border
Series B Legend
White Background
Black Legend and Border


**FTP-69-06**
3 and 5" Series D Legend
White Background
Black Legend and Border

**FTP-69A-06**
3 and 5" Series D Legend
White Background
Yellow Legend and Border

**FTP-70-06**
2½" x 2½"
2½" Radii ½" Border
5" Series C and 7" Series C Legend
Blue Background
White Legend and Border

**FTP-71-06**
6" Series C Legend
Black Background
Yellow Legend and Border

**FTP-72-06**
5" Series C and 7" Series C Legend
32.3" X 24.7"
4" Radii ½" Border

**FTP-73-06**
6" Series C Legend
Blue Background
White Legend and Border

**FTP-74-06**
6" Series C and 7" Series C Legend
32.3" X 24.7"
4" Radii ½" Border

**FTP-75-06**
9" X 12"
1½" Radii ½" Border
8" Series D Legend
Blue Background
Blue Legend and Border

**FTP-76-06**
9" X 12"
1½" Radii ½" Border
8" Series D Legend
White Background
Blue Legend and Border

**FTP-77-06**
9" X 12"
1½" Radii ½" Border
8" Series D Legend
White Background
White Legend and Border

**FTP-78-06**
9" X 12"
1½" Radii ½" Border
8" Series D Legend
Yellow Background
White Legend and Border
SPECIAL SIGN DETAILS

STAY IN YOUR LANE
6" Series C Legend
Orange Background
Black Legend and Border

TRUCKS ENTERING HIGHWAY
5" Series C Legend
Orange Background
Black Legend and Border

LIGHTED WORK ZONE AHEAD
5" Series D Legend
Orange Background
Black Legend and Border

STATE PRISONERS WORKING
6" Series C Legend
Orange Background
Black Legend and Border

BUSINESS ENTRANCE
6" Series B Legend
Blue Background
White Legend and Border

PEDESTRIAN WALKWAY
2" Series B Legend
Black Legend and Border

LITTER PICK UP AHEAD
6" Series C Legend
Orange Background
Black Legend and Border

MERGE RIGHT ON FLASHING ARROW
6" Series D Legend
Orange Background
Black Legend and Border

TRUCKS TURNING LEFT 000 FT
6" Series D Legend
Orange Background
Black Legend and Border

THEME
FY 2017-18 DESIGN STANDARDS
**Typical Installations for Sign Panel(s) Mounted on Span Wire**

- **Span Wire Clamp**
- **Type A**
- **Messenger Wire**
- **Type C**
- **Catenary Wire**
- **Type B**
- **Type D**
- **Adjustable Hanger**
- **Shurlock Serrations**

**Sign Mounting Detail**

- **Wire Rope Clamp**
- **Aluminum Zee 1.75 x 1.75 x 1.08**
- **Catenary Wire**
- **Sign Face (No. 1)**
- **Sign Face (No. 2)**

**Typical Span Wire Installation**

- **10' Min. Clearance**
- **1' Min. Clearance**

**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 30'. The beams shall extend to within 6" of the sign edge.
3. Type B & C attachments for signs 6' 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 30' 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.

**Details of Opposing Signs Span Wire Mounted**

- **Wire Rope Clamp**
- **Aluminum Zee 1.75 x 1.75 x 1.08**
- **Catenary Wire**
- **Sign Face (No. 1)**
- **Sign Face (No. 2)**

**Two Point Attachment**

- **Adjustable Hanger for Sign Mounting**
- **10' Min.**

**Sign Mounting Detail:**

- **Wire Rope Clamp**
- **Aluminum Zee 1.75 x 1.75 x 1.08**
- **Catenary Wire**
- **Sign Face (No. 1)**
- **Sign Face (No. 2)**

- **Wire Rope Clamp**
- **Aluminum Zee 1.75 x 1.75 x 1.08**
- **Catenary Wire**
- **Sign Face (No. 2)**
- **Sign Face (No. 1)**

- **Wire Rope Clamp**
- **Aluminum Zee 1.75 x 1.75 x 1.08**
- **Catenary Wire**
- **Sign Face (No. 1)**
- **Sign Face (No. 2)**

In order to ease installation, sign face No. 2 should be installed after mounting to span wire.

The overlapped connection of adjustable hangers shall use a minimum of 2 bolts with a minimum spacing between bolts of 2".
SIGN LOCATIONS TYPICAL

2. Location of Sign No. 3 may require some field adjustment.
3. The Cross Road is the last detour to route around the restricted bridge.
4. Location of Sign 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.
One-Way Traffic

For paved shoulders 18" White @ 45° Every 50' For 1570'
White on Right and Yellow on Left.

6" Solid White

6" Solid Yellow

6" Solid White

6" Solid Yellow

2-Way Traffic

For paved shoulders 18" White @ 45° Every 50' For 1570'

6" Double Yellow

6" Skip Yellow

6" Solid White

6" Solid Yellow

See Note 2 Minimum of Three
Type 2 Object Markers (Yellow)
NOTES:
1. Roadways with Two-Way Traffic:
   No passing zone should be extended 1570' in advance of narrow bridge.
2. 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.
3. Object markers and delineators on both sides of roadway shall face traffic approaching bridge.
4. The OM-3R & OM-3L object markers shall be installed 4' above the roadway edge. The panels may be post mounted at the bridges.

<table>
<thead>
<tr>
<th>Shoulder Width</th>
<th>No. of RPM's</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>18'</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>13'</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>19'</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>16.67'</td>
</tr>
</tbody>
</table>