FY 2022-23 Standard Plans
Update Training

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Update Training Agenda

➢ General Overview
  • Rick Jenkins
    • Website Updates
      (http://www.fdot.gov/design/standardplans/)

➢ Standard Plans Updates
  • Rick Jenkins
    • Miscellaneous Roadway Updates
  • Derwood Sheppard
    • 102 Series Temporary Traffic Control Updates
  • Joshua Turley
    • Structures and Bridge Related Updates
Website:

http://www.fdot.gov/design/standardplans/

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Standard Plans

- Standard Plans for Road and Bridge Construction
- Developmental Standard Plans

Supporting Documents

- Standard Plans CADD - DGN and Cell Libraries
- Standard Plans Training
- Standard Plans History

Review and Response

- Origination Form: Form to Propose Revisions to a Standard Plans Index
- Industry Review: Review Packages for Proposed Revisions to a Standard Plans Index
- Track the Status of Revisions: Check the Status of Proposed Revisions to the Standard Plans Indexes
- Archive: Past Review and Revision Packages to the Standard Plans Indexes

Design Standards

- Design Standards (FY. 2017-18 and earlier)
- Developmental Design Standards

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Technical Experts

- Standard Plans Technical Expert List
Standard Plans

Standard Plans for Road and Bridge Construction

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Design Standards
• **Standard Plans - Updates**:  
  - General Overview, Agenda and Website  
  - Critical Roadway, Drainage, Traffic and Lighting  
  Updates to the 2022-2023 Standard Plans Indexes
Per the request of Industry, the State Material Office removed Class I Concrete from the Specifications

- All references in the Standard Plans to Class I Concrete were updated to Class II Concrete

List of Indexes Updated:
- 370-001
- 425-060
- 430-010
- 430-011
- 430-012
- 430-020
- 430-030
- 430-040
- 430-090
- 440-002
- 508-T01
- 509-100
- 550-001
- 646-001
- 700-010
- 700-011
- 700-020
- 715-002
**Bridge Approach Expansion Joint Concrete Pavement – Index 370-001**

- **Class I Concrete to Class II**
- **Updated General Note 1**

**GENERAL NOTES:**

1. For alignment, use the same indication per Index 370-001.
2. The centerline of roadway and the centerline of the bridge do not necessarily coincide. Determine the location of the expansion joint prior to beginning the expansion joint.
3. For information on other types of concrete pavement joints see index 370-001.
4. The quantity for expansion joint is the length of joint to be constructed across the roadway and shoulder pavement, measured in right abundance to the centerline of the roadway. Payment for expansion joint is full compensation for joint construction, including reinforced concrete subbase, subbase, and expansion joint but not including roadway pavement resurfacing or reconstruction, adjacent with joint requirements or reconstruction. Expansion joint to be used for other than the contract, and price for design approach expansion joint, if.

**NOTES:**

1. Preheat strip prior to placing the metal. Thermoplastic forms the joint of all internal material. Immediately after the set to place, level up the sheet metal strip against the pavement edge.

2. Use a minimum 36 gauge steel, 3/8 wide sheet metal strip, colored or painted according with ADOT A-40, Joint Designation E00.

**JOINT DIMENSIONS**

**OPTIONAL SEALS**

**COMPRESSION SEAL DETAIL**

**SHEET METAL STRIP DETAILS**

**CONSTRUCTION DRAWING**

**PLAN**

**SECTION A-A**

**REINFORCING STEEL**

**EXPANSION JOINT**

**RIGID SHOULDER PAVEMENT**

**SOFTENED SHOULDER OR FLEXIBLE SHOULDER PAVEMENT**

**COMPRESSION SEAL**

**CONSTRUCTION NOTE:**

**11/01/21**

**INDEX** 370-001

**SHEET** 1 of 1

**FY 2021-22 STANDARD PLANS**

**BRIDGE APPROACH EXPANSION JOINT CONCRETE PAVEMENT WITH SPECIAL SELECT SOIL BASE**

**DESCRIPTION:**

**DATE:** 11/01/2021
Bridge Approach Expansion Joint Concrete Pavement – Index 370-001

Updated Index

Plan

Expansion Joint

General Notes:
1. For approach bridge, use four expansion joints, spaced at 15 feet, per Index 350-001.
2. The contour of roadway and the contour of bridge do not necessarily coincide. Determine the
   contour at the roadway pavement prior to the placement of the expansion joint.
3. For information on other types of concrete pavement joints see Index 370-007.
4. Pay quantity for expansion joint in the length of Joint to be constructed across the roadway and
   shoulder pavement, measured at right angles to the centerline of the roadway. Pay for
   expansion joint in full compensation for joint construction, including reinforcement, spacers,
   and jointing materials, plus tear-down cost, in accordance with Standard Specifications.

Reinforcing Steel

Reinforcing steel shall be composed of steel bars with a yield strength of 60,000 psi. The
steel shall be deformed or smooth, Gilson Class A or Class B, with a minimum yield strength of
60,000 psi. The steel shall be designed and fabricated in accordance with the Standard
Specifications.

Sheet Metal Strip Details

Rigid Shoulder or Flexible Shoulder Pavement

Notes:
1. As necessary prior to placing the seal, thoroughly clean the joint of all foreign material. Immediately
   after the seal is placed, bend the sheet metal strip against the pavement edge.
2. Use a minimum 16-gauge steel, 1/16 inch thick steel metal strip. Galvanized in accordance with
   ASTM A-959, coating Class 6B.

Compression Seal

Joint Dimensions

Optional Seals

Concrete Pavement

NOTE: Proprietary seal as contacting surfaces between the compression seal and concrete suit with manufacturer’s specifications.

Foot to 3’’ Radius at Crown of Chamber

Shear Web 1.25’’ Width

Compression Seal

Foot to 3’’ Radius at Crown of Chamber

Foot to 3’’ Radius at Crown of Chamber

Concrete Pavement

Foot to 3’’ Radius at Crown of Chamber

Foot to 3’’ Radius at Crown of Chamber
**Updates to Index 000-510:**

- Update to be consistent with FDM
- Added Direction Arrows
- Updated Slope Ratios Table
- Added 2-Lane Option to Pavement with Median Detail

---

**SUPERELEVATION TRANSITIONS, INDEX 000-510 & 511**

**SUPERELEVATION TRANSITIONS**

- **3.00% or 3.00%**
- **5.00% or 5.00%**
- **7.50% or 7.50%**

**SLOPE RATIOS FOR SUPERELEVATION TRANSITIONS**

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<tr>
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**NOTES:**

1. These details apply to both paved and gravel shoulders. For median shoulders use 0.03 in lieu of 0.06.
2. **SHOULDER ON HIGH SIDE:** A shoulder slope of 0.06 and/or 0.08 should be maintained until the 0.03 break in slope at the paved shoulder edge is reached due to superelevation of the shoulder at the pavement superelevation increases. The 0.03 break in slope will be maintained and the shoulder truncated until the shoulder slope reaches the minimum of 0.03 should be maintained from the edge of travel way. Any further reduction in pavement superelevation will necessitate stopping the inside half of the shoulder toward the travel way and the outer half outward, both at 0.03 for superelevation 0.06 and 0.08 at 0.03 for superelevation 0.03. For shoulders with paved within 5 ft or less 0.03 Special Shoulder Break Over Details on Sheet 3 of 2.
3. **SHOULDER ON LOW SIDE:** Maintain 0.06 cross slope across shoulder until pavement cross slope reaches 0.03. For pavement cross slopes greater than 0.03, shoulder is have same slope as pavement. See SHOULDER SLOPES IN SUPERELEVATION SECTIONS (Sheet 4).

**SHOULDER CONSTRUCTION WITH SUPERELEVATION**

- **SUPER-ELEVATED**
- **SUPER-ELEVATED**
  - **SUPER-ELEVATED**
  - **SUPER-ELEVATED**
  - **SUPER-ELEVATED**

**UPDdTED TABLE**

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<tr>
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**ADD DIRECTION ARROWS**

- **Direction Arrows**

**SUPER-ELEVATED**

- **Super- Elevated**
- **Super- Elevated**
- **Super- Elevated**

**SUPERELEVATED**

- **Super- Elevated**
- **Super- Elevated**
- **Super- Elevated**

**2-LANE, 4-LANE OR BLAPE PAVEMENT, NO MEDIAN**

- **2-LANE, 4-LANE OR BLAPE PAVEMENT, NO MEDIAN**
- **2-LANE, 4-LANE OR BLAPE PAVEMENT, NO MEDIAN**

**2-LANE, 4-LANE OR 8-LANE PAVEMENT WITH MEDIAN**

- **2-LANE, 4-LANE OR 8-LANE PAVEMENT WITH MEDIAN**
- **2-LANE, 4-LANE OR 8-LANE PAVEMENT WITH MEDIAN**

**UPDdTED TITLE**

- **UPDATED TITLE**
- **UPDATED TITLE**
- **UPDATED TITLE**

**SUPERELEVATION TRANSITIONS - HIGH SPEED ROADWAYS**

- **SUPERELEVATION TRANSITIONS - HIGH SPEED ROADWAYS**
- **SUPERELEVATION TRANSITIONS - HIGH SPEED ROADWAYS**

**INDEX 000-510**

- **INDEX 000-510**
- **INDEX 000-510**

**Sheets:**

- **Sheet 1 of 2**
- **Sheet 1 of 2**
- **Sheet 1 of 2**

**DESCRIPTION:**

- **DESCRIPTION**
- **DESCRIPTION**
- **DESCRIPTION**

**11/01/21**
Superelevation Transitions, Index 000-510 & 511

• **Updates to Index 000-511:**
  - Update to be consistent with FDM
  - Updated General Note 4
  - Added One Lane Option

**GENERAL NOTES:**
1. **Superelevation Transition:** By rotating the plane so that the pressure on the inside of the curve equals that on the outside, the plane should be adjusted to be tangent to the sides of the curve. The curve should be made as to be consistent with the FDM.
2. **Updated General Note 4:**
3. **Added One Lane Option:**

**UPDATED TO: 25-30 MPH**
- Lane gradual change breaks "combing transition"

**UPDATED TO: 40-45 MPH**
- The variable superelevation transition length is variable.

**SUPERELEVATION TRANSITION SECTIONS FOR LOW SPEED HIGHWAYS**

<table>
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<tr>
<td>Line 3</td>
<td>Normal Superelevation Section</td>
</tr>
<tr>
<td>Line 4</td>
<td>Normal Superelevation Section</td>
</tr>
</tbody>
</table>

When this section is used, superelevation is established by rotating the plane so that the pressure on the inside of the curve equals that on the outside. The curve should be made so that the sides of the curve are consistent with the FDM.

11/01/21
Updated Sheet 1 on Index 000-511:

Superelevation Transitions, Index 000-510 & 511

GENERAL NOTES:
1. Design superelevation by rotating the plane successively about the break points of the section until the plane has attained a slope equal to that required by the Plans. Should the rotation traverse the entire section and further superelevation be required, the remaining rotation of the plane shall be about the new edge of the travel lane. Crown is to be removed in the auxiliary lane to the outside of the curve only when the adjoining travel lanes require positive superelevation.

2. When positive superelevation is required, continue the slope of the pavement across the gutter at the high side.

3. Plane shall vertical curves at an angular profile break within the limits of the superelevation transition.

4. The variable superelevation transition length "C" has a maximum value of 90 feet for design speeds of 25-30 mph and 75 feet for design speeds of 40-45 mph.

5. Roadway sections having lane arrangements different from those shown, but composed of a series of planes, are superelevation in a similar manner.

Superelevation Transition Sections for Low Speed Highways

Undivided Facilities

Divided Facilities

Parabolic Section

Line 1: Max. Superelevation Rate (E/O)
Line 2: Slope of Parabola at Inside Edge Of Mnt.
Line 3: Positive Superelevation Rate Less Than Max. Slope of Parabola
Line 4: Inside Superelevation

When this section is used, superelevation is established by rotating the plane about the arc of the parabolic crown until the desired slope is attained (points A, B, C and D). The normal parabolic crown will be maintained outside the limits of the plane thus formed.
**Updates to Index 000-511:**

- Update to be consistent with FDM
- Updated Slope Ratio Table
- Clarified Ratio Callout
Updated Sheet 2 on Index 000-511:
Concrete Pavement Joints, Index 350-001

- **Updates to Index:**
  - Updated Note 3.B and Note 7
  - Clarify Butt Construction Joint Details
  - Added Relation of Dowels to Tie Bars Detail

**Notes:**
1. For joint seal dimensions see Sheet 2.
2. For integral pavement, tie bars may be inserted in the plastic concrete by means approved by the Engineer.
3. For longitudinal joints:
   - Dowel bars are placed in the expansion joint.
   - Sheet metal button straps are installed with Specification 931. Bars required with asphalt base.
   - Dowel bars in accordance with Specification 350.

**Updated Note 7:**
Cost plain steel dowel bars and welded wire basket assemblies in accordance with Specification 931. Lubricate dowel bars in accordance with Specification 350.
Concrete Pavement Joints, Index 350-001:

• Updated Sheet 1 to Index 350-001:
• **Updated Index 425-061**
  • Added Flume Length Varies label
Closed Flume Inlet – Index 425-061

- Updated Index 425-061 Sheet 2

NOTES:
1. Use stand section with standard applications only.
2. Use Trench Wells with Sidewalk application only. For
   Sidewalk without Sidewalk see DETAILS on Sheet 4.
3. Slope to match adjacent curb with 3’ top radius and 71/2’
   bottom radius.
4. See Sheet 5 for multiple owned flumes scan variation.
- Updates to Index 430-001:
  - Moved Joining Mainline Pipe to Stub Pipe Details and notes to SPI
• **Updates to SPI 430-001:**
  - Moved Joining Mainline Pipe to Stub Pipe Details and notes to SPI
Updated Sheet 4
Index 430-001:

NOTES:
1. The cover may be formed by any method approved by the Engineer.
2. Initial [XXXX] fitting is adhesive bed material.
- **Redeveloped Indexes:**
  - Index 520-001 (Curb and Gutter)
  - Index 520-005 (Concrete Shoulder Gutter Spillway)
  - 520-010 (Median Opening Flume)
**Redeveloped Index**

- Curb and Gutter – Index 520-001

**General Notes**
1. For curb, gutter and curb & gutter joint, specify W - 6" contraction joint at 20' on center lines. Curb and gutter joints adjacent to concrete pavement on tangents and flat areas to be flush with lip of curb or curb & gutter.

2. Butt of Contra. Types B and D shall be staggered from full to zero height at 5'.

**CONTRACTION JOINT IN CURB**

![Diagram of Curb and Gutter](image)

**CONTRACTION JOINT IN CURB AND GUTTER ADJACENT TO FLEXIBLE PAVEMENT**

![Diagram of Curb and Gutter](image)

**CONCRETE BUMPER GUARD**

![Diagram of Curb and Gutter](image)

**ASPHALTIC CONCRETE CURB**

![Diagram of Curb and Gutter](image)
**Index 520-001**

**New Sheet 1**

**GENERAL NOTES:**

1. For curbs, gutter and curb & gutter, provide M + W construction joints at 10 feet centers (max). Construction joints adjacent to concrete pavement to be staggered and full sections to be matched to the pavement joints, with intermediate joints not to exceed 10 centers.

2. Locate expansion joints for curb, gutter and curb & gutter in accordance with Specification 303.

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<tr>
<th>Sheet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Notes and Contents</td>
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<tr>
<td>2</td>
<td>Concrete Curb and Gutter</td>
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<tr>
<td>3</td>
<td>Curb and Gutter Joints and Expans. (Other Types Service)</td>
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</table>
**Index 520-001**

**Updated Sheet 2**
• **Index 520-001**

**Updated Sheet 3**

**Curb and Gutter – Index 520-001**

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**CONTRACTION JOINTS IN CURB**

---

**EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT**

**NOTES:**
1. Surface on left side of pavement to be 6" above lip of gutter.
2. Surface on right side of pavement to be flush with lip of curb.

---

**CURB AND GUTTER JOINTS AND ENDINGS, CONCRETE BUMPER GUARD, AND ASPHALTIC CONCRETE CURB**

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**INDEX**

**520-001**

**Sheet**

3 of 3
**Index 522-002 Updates**

- Added New Note 2.C.

---

**Detectable Warnings and Sidewalk Curb Ramps – Index 522-002**

**GENERAL NOTES:**

1. **Cross Slopes and Brackets**:
   A. Sidewalk, ramp, and landing slopes (e.g., 0.02, 0.05, and 0.20) shown in this index are minimums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.
   
   B. Landings must have cross-slopes less than or equal to 0.02 in any direction.
   
   C. Maintain a single longitudinal slope along each side of the curb ramp.
   
   D. Joints permitted at the location of Slope Breaks. Otherwise, joints permit to be accordance with Index 522-003. No joints are permitted within the landing portion of the curb ramp.

2. **Curb, Curb and Gutter and/or Sidewalk**:
   
   A. Refer to Index 522-001 for concrete thickness and sidewalk details.
   
   B. Progressively widening curb, curb and gutter, or sidewalk to the nearest joint beyond the curb transition of or to the extent that no remaining section is less than 3 feet long.

3. **Curb Ramp Alpha-Specification**:
   
   A. Sidewalk curb ramp alpha-identification (e.g., CR-6) are provided for reference purposes in the Plans.
   
   B. Alpha-identifications CR-4 and CR-1 are intentionally omitted.

4. **Detectable Warnings**:
   
   A. Install detectable warnings in accordance with Specification 227.
   
   B. Place detectable warnings across the full width of the ramp or landing, to a minimum depth of 2 feet measured perpendicular to the curb line and no greater than 3 feet from the back of the curb or edge of pavement.
   
   C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the transverse elements with the contours of the ramp; otherwise, the transverse elements are not required to be aligned.

---

**ADDED NOTE 2.C:**

Width of Curb Ramp is 4'-0" minimum. Match sidewalk or Shared Use Path width as shown in the Plans.
Updated CR-D on Sheet 4

Detected Warnings and Sidewalk Curb Ramps – Index 522-001

- Changed back of sidewalk to accommodate a 4'-0" Min. Dimension
- 2'-0" Detectable Warnings

Option B
Isometric View

Sidewalk Curb

Updated CR-D on Sheet 4

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

INDEX 522-002

SHEET 4 of 7

SIDEWALK CURB RAMPS CR-D, CR-E, CR-F & CR-G
Detachable Warnings and Sidewalk Curb Ramps—Index 522-001

Updated Sheet 1

GENERAL NOTES:

1. Cross Slopes and Grades:
   A. Sidewalk, ramps, and landing slopes (i.e., 0.03, 0.05, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.
   B. Landings must have cross-slopes less than or equal to 0.05 in any direction.
   C. Maintain a simple longitudinal slope along each side of the curb ramp.
   D. Ramps are not required to exceed 15 feet in length.
   E. Joints permitted at the location of Slope Breaks. Otherwise, joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.

2. Curb, Curb and Gutter, and/or Sidewalk:
   A. Refer to Index 522-001 for concrete thickness and sidewalk details.
   B. Remove any existing curb, curb and gutter, or sidewalk to the nearest joint beyond the curb transition or to the extent that its remaining section is less than 3 feet long.
   C. Width of Curb Ramp is 4-6 feet minimum. Match sidewalk or Shared Use Path width as shown in the Plans.

3. Curb Ramps Alpha-Identification:
   A. Sidewalk curb ramp alpha-identifications (e.g., CR-A) are provided for reference purposes in the Plans.
   B. Alpha-identifications CR-A and CR-J are intentionally omitted.

4. Detachable Warnings:
   A. Embed detectable warnings in accordance with Specification 527.
   B. Place detectable warnings across the full width of the ramp or landing, as a minimum depth of 2 feet measured perpendicular to the curb line and no greater than 3 feet from the back of the curb or edge of pavement.
   C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the truncated cones with the centerline of the ramp. Otherwise, the truncated cones are not required to be aligned.

CURB RAMP NOMENCLATURE
• **Index 522-001**

*Updated Sheet 4*
Conduit Installation Details, Index 630-001

- **Index 630-001 Updates**
  - Updated Note 2
  - Added Fiber Optic Cable Route Marker Label
GENERAL NOTES:
1. Install conduit in accordance with Specification 630.
2. when signals are damaged by conduit installation, replace entire sidewalk side.
3. Trench up to be open more than 25° at a line where construction work is subject to vehicular or pedestrian traffic.
4. Seal asphalt at the edges of the trench to leave neat lines.
5. Provision made for pull box and route marker label in accordance with Specification 630.

• Index 630-001 Updates

• Updated Index
**Index 641-020 Redlines**

- Updated Handhole Locations to be downstream of Traffic
- Added notes on Pole Installation
• **Index 641-020 Redlines**

• Updated Handhole Locations to be downstream of Traffic

• Added notes on Pole Installation

---

**NOTES:**

1. Diameter of 12-sided poles are measured flat to face.
2. Total Taper applies to pole, strainers and reinforcing.
3. For 3D-Related Pole and Round Hole Option 3, Service pressure restricted to 70% of ultimate before transfer. For Round Hole Option 2, stress pressurized strand to 100% of ultimate before transfer.

**Additional Details to match Sheet 1**

4. Pole Design Details: Buried Depth is based on foundation diameter. Increase the buried depth in accordance with the additional Buried Depth due to ground slope for foundations with shores 1:6 and steeper. Use the higher value for shape or dimension values that fall between those shown on the tables.

---

**ADDITIONAL BURIAL DEPTH DUE TO GROUND SLOPE**

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**12-SIDED POLE DESIGN TABLE**

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<th>Tip Diameter</th>
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**PLAN VIEW**

- Updated Handhole Locations to be downstream of Traffic
- Added notes on Pole Installation

---

**CONCRETE CCTV POLE**

- Fixed Mounting Bracket
- Camera Lowering Device
- 3" Lifting Hole (See Sheet 3)
- Pole Identification Markings
- Handhole with Cover (See General Note 7)
**Index 641-020**

**Updated Index**

---

**GENERAL NOTES:**

1. Work in the Index with Specification 641.
2. This Index is complete and fully detailed and no shop drawings are necessary. Submit Shop Drawings for Index modifications are detailed in the Plans.
3. Provide either round or 4-sided poles.
4. See index 631-004 for additional details for Pull Boxes.

**Materials:**

A. Pole: Use Class TF concrete with 6 in minimum strength at transfer.
B. Preformed Cover: Use ASTM A684, Grade 85, for all reliefs.
C. Cover: Use ASTM A306, Grade 60.
E. Pair: Use ASTM A306, Grade 60.
F. Cover: Use ASTM A684, Grade 85, for all reliefs.
G. Cover: Use ASTM A684, Grade 85, for all reliefs.
H. Cover: Use ASTM A684, Grade 85, for all reliefs.

**Fabrication:**

A. Cut the top end of the precasted strand first and simultaneously with the bottom end.
B. Use a central conduit at each location for central coupling and turn couplers into the top and bottom of each.
C. For reinforcing steel, top option to cover to a 2-4 in depth at each pole. Be sure that no clamping ring to be applied at the same cross section of the cover slip as needed.
D. Provide a flat surface finish in accordance with Specification 640.
E. Provide a flat surface finish in accordance with Specification 640.
F. Provide a flat surface finish in accordance with Specification 640.
G. Provide a flat surface finish in accordance with Specification 640.
H. Provide a flat surface finish in accordance with Specification 640.

**Installation:**

A. Install the slide rings at the top and bottom of each pole.
B. Install the slide rings at the top and bottom of each pole.
C. Install the slide rings at the top and bottom of each pole.
D. Install the slide rings at the top and bottom of each pole.
E. Install the slide rings at the top and bottom of each pole.
F. Install the slide rings at the top and bottom of each pole.

**Cable Installation:**

A. Splice fiber optic cables in a cable to preterminated patch panel.
B. Prevent and install fiber optic protection devices using air fiber optic cable.
C. Prevent and install fiber optic protection devices using air fiber optic cable.
D. Prevent and install fiber optic protection devices using air fiber optic cable.
E. Prevent and install fiber optic protection devices using air fiber optic cable.
F. Prevent and install fiber optic protection devices using air fiber optic cable.

**Leasing Device Installation:**

A. Place the leasing device that houses within the pole in an interior conduit to prevent it from tangling or interfering with any electrical area that is in the pole. Ensure that any electrical area that is in the pole is installed according to the Final Revisions.
B. Place the leasing device that houses within the pole in an interior conduit to prevent it from tangling or interfering with any electrical area that is in the pole. Ensure that any electrical area that is in the pole is installed according to the Final Revisions.
C. Prevent all leasing device hardware requirements (including Poles, Poles mounting plates, parking stand, etc.) with leasing device manufacturer.
• **Index 641-020 Updated Index**

- Conduit Entry Hole (See Sheet 3)
- Couplings (See Sheet 2)
- Handhole (See Sheet 4)
- Identification Tag (See General Note 6.6)
- Ground Rod (See Sheet 5)
- Ground Mounted Cabinet Option (See Sheet 5)
- Pull Box
- Burial Depth (See Sheet 2)
- Foundation (See Sheet 2)
Index 649-020 Redlines

- Updated Handhole Locations to be downstream of Traffic

- Added Notes to Match 649-020
• **Index 649-020 Updated Sheet 1**
  - Updated Handhole Locations to be downstream of Traffic
  - Added Notes to Match 641-020

---

**GENERAL NOTES:**

1. Read this manual with Specification 640.
2. This Index is considered fully detailed, only submit sheet drawings for minor modifications not detailed in the Plans.
3. See Index 630-A1 for additional details for Pol Boxes.

**Materials:**

- Pipe: ASTM A501 Grade 30, 50, 60, or 80 (less than 1") or ASTM A53 Grade 30, 50, 60, or 85 (greater than or equal to 1") in ASTM A501 Grade 30 or 50. 500 psi or Grade 80 480 psi. 100 psi.
- Steel Plates and Pipe Cap: ASTM A36 or ASTM A509 Grade 30.
- Wood: Maple, EVERGR.
- Nails: 1 1/2" 11 Gauge A232, Type 1.
- Note: ASTM A36.
- Window: ASTM A443.
- Anchor Bolt: ASTM F1554 Grade 55 with ASTM A479 Grade A heavy hex ACL and ASTM A36 plate washers.
- Header Frame: ASTM A501 Grade 30 or ASTM A36.
- Header Cover: ASTM A501 Grade 30, 50, 60 or 85.
- Stainless Steel Screws: Type 304.
- Mounting Screws: ASTM A572 Grade 50.
- Stabilization Bolt: 1 1/2" and 2" 11 Gauge A232 on other sheet including plate washer: ASTM A232
- Concrete: Type I-220-Milled Multi for all environment classifications.

**Specifications:**

- Working:
  - Specification 640-3-A4.
- Pole:
  - 68" or 72" or 78" (kilo).
  - Paper pin diameter at 0.24" inches per foot.
  - Fabricated Pole (galvanized sheet units) (2) minimum with 60 percent minium penetration or fusion welded except as follows:
    - Use a full-penetration groove welded within 6 inches of the circumferential base-top-plate connection and
    - Use full-penetration groove welded on the fan and section of metallic,ize, 8 equal holes for options for a minimum length of one and six inches from the inside diameter of the fan section plus 6 inches.
- Pole shaft may be either one or two sections with reinforcing flange section:
  - Corrugated/Corrugated pole shafts and laminated pole shafts are not permitted
  - Corrugation flange, Designation flange for approval
  - Corrugation Type (Designation flange for approval)
  - Laminated flange (Laminate flange for approval)
  - Select the inside of the pole from the handhole
  - Secure with 2" diameter stainless steel screws or screws
  - Include the following information in the SD Tag:
    - Financial Project (F)
    - Pole Type
    - Pole Height
    - Manufacturer's Name
    - Pole Strength (kilo of Steel)
  - Note: k戛安 except for Anchor Bolts, pull diameters are delivered diameters plus 0.24" and anchor holes are bolt diameters plus 0.12" prior to galvanizing.

**Pole Installations:**

- Do not add additional wire access holes (shown in this Index) with a diameter that exceeds 1/2" in diameter.
- Incrust Anchor Bolts in accordance with Specification 640-A.
- Cable Supports: Electrical cable guides and brackets:
  - Anchor top and bottom cable guides along the pole aligned with each other.
  - Position guide cable house 1" directly below the top of the pole.
  - Position guide cable house 2" above the top of the handhole.
- Incrust the pole into the handhole:
  - Incrust the Pol Box.

**Cable Installation:**

- Basic rack, 1/2" wire in rack
- Encase the Finish for Ladder Rack in Duct (1) in conduit.
- Secure the Cat. Wire cable in conduit through the handhole and position the conduit in the gulley.
- Finish all electrical equipment protected and covered with SPOS.
- Ensure that equipment cabinet is set and fit and fit the cabinet to the ground cabinet.
- Finish the pole receptor in the bungees to the pole.
- Sides and ends of conduit and inner ducts for relay communications between the pulley and cabinet are stated in the Contract Documents.

**Rack Mount Cabins:**

- Steel CCTV Pole Assembly

---

![CCTV Poles, Index 641-020 and 649-020](image-url)
• **Updated Foundations within Indexes 646-001, 654-001, 695-001 and 700-120**
• **Index 646 Updates:**
  - Delete Class I Concrete Reference in Note 4
  - Add Note 5
  - Update post callouts
  - Update Foundations
• **Index 646 Updates:**
  • **Pedestal Mounted Option**

---

**Signal Pole, AASHTO MASH CP6 Series (APL Product)**
by Frey Manufacturing Corp.
Model: CP6ACT484OTCSS

**APL Certification**
- 646-001-005 (Approval Date: 6/24/2021) (Service Life Expectancy: )

**Product Types**
- Transformer Base

**Resource Links**
- FDOT Standard Specifications for Road and Bridge Construction

**Random Sampling Frequency**
There are no items to display.

**Limitations**
Furnish and Install Transformer Base, Post, and Anchor Bolts in accordance with the Vendor drawings and installation instructions. Meet the requirements of Specification 646 for all other items.

**Documents**
- Drawing (PDF 185 KB)
- Installation Instructions (PDF 1254 KB)

Download the Adobe Reader

**Comments**
Approved as an alternative to the "Post Mounted" Pedestrian Detector Assembly included on FDOT Standard Plans, Index 646-001. Installation Pedestrian Detector Assembly (Pushbutton) and Actuation Sign in accordance with Standard Plans, Index 665-001.

**Manufacturer Detail**
Frey Manufacturing Corp.
Updated Index 646

NOTES:
1. Work this Index with Specification 646.
2. For Pedestrian Signals see Index 654-001.
3. For Pedestrian Director Assembly (p. Plankenton and Sight details see Index 685-001.
4. Footing may be Cast-In-Place (C-I-P) or Precast.
5. As an alternative to the direct buried "Post Mounted" Pedestrian Director Assembly shown below, the post may be installed on a transformer base. Use a transformer base instead of the AP approved as an alternative to a "Post Mounted" assembly.

PLAN VIEW
SECTION A-A

PLAN VIEW
SECTION B-B

POST FOUNDATIONS, INDEXES 646-001, 654-001, 695-001, 700-120
**Index 654 Updates:**

- Reorganized to Show Beacon Assembly Adjacent to Sidewalk
- Deleted Detail B and referenced Index 700-120 in Note 1
- Update pole callouts
- Update Foundations
- **Index 654 Updates:**
  - Updated Notes
  - Update post callouts
  - Update Foundations
  - Deleted Detail B and referenced Index 700-120

**NOTES:**

1. A transformer base is required for both conventionally-powered and solar-powered applications. Install pull box, conduit, wiring, and grounding in accordance with Index 700-120 based on the powering configuration called for in the Plans.

2. Install the DBM in pairs, one on either side of approach traffic.

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

4. Install a 20" x 30" W13-2 sign on two-lane roadways and a 30" x 40" W13-2 sign for multiple lanes.

5. Install push button and F7P-40C-31 sign in accordance with Index 654-01.

6. Engage all threats on the transformer base and post unless the designer post is fully sealed lid base.

7. Meet the requirements of Specification 644.

8. Install a concrete slab around all base boxes. The minimum slab dimension is 4'-0" by 4'-0". In urban areas where a concrete slab dimension may be adjusted as shown in the Plans.

9. For assemblies connected to conventional power, provide single pole non-fused main break electrical connectors in the triangle transformer base.

10. Where new traffic signs are installed, local signs, use a backing or rubber bumper to protect consultants.

11. For solar-powered applications, orient solar panel to face south for optimal exposure to sunlight.
• **Index 654 Updates:**
  - Added inside Curb Option
**Index 695 Updates:**
- Updated Foundations
- Updated Pole Callouts
Index 695 Updated
Sheet 8:

Post Foundations, Indexes 646-001, 654-001, 695-001, 700-120

NOTES:
1. The unit must be capable of detecting up to eight lanes of traffic (in either or both directions) when measured perpendicular to the roadway.

2. Coverage area of the unit is affected by the roadway geometry: distance from the travel lanes, median type and width, barrier walls, etc.

3. Mounting height of the unit and offset from the roadway must be specified on a site-by-site basis, in accordance with the manufacturer’s recommendations. Offset of pole must be greater than or equal to minimum clear zone requirements.
**Index 695 Updates:**

- Updated Foundations
- Updated Pole Callouts
- Revised Note 2 and Note 6
**Index 695 Updated**

**Sheet 9:**

- Post Foundations, Indexes 646-001, 654-001, 695-001, 700-120

---

**NOTE:**

1. Cabinet installed per Index 646-001 except cabinet cover will be a front above grade.

2. Meet the requirements of Specification 646.

3. Use #10 AWG stranded copper wire for Solar Panel array installation, one Insulation is from or through for positive 12 volt wiring. Drawers into terminal or frame for negative 12 volt wiring. Green grounding or ground wire, from the ground terminal of the Solar Panel frame or its mounting, shall be in accordance with all applicable codes.

4. Solar panel should be installed facing south with angle of 15 degrees or above.

5. Enclose all wiring from the weather head to the solar panel in outdoor flexible conduit.

6. Concrete Base Dimensions:
   - 4 feet, depth of 2'-0".
   - 12 to 15 poles, depth of 3'-0".
   - 20 or 30 poles, depth of 4'-0".

---

**ELEVATION**

**SOLAR POWER POLE**

**WITH POLE MOUNTED CABINET**

(Footprint Sizes)

---

**ELEVATION**

**PEDESTAL MOUNTED CABINET**

(Portable Traffic Monitoring Sites)
**Index 695 Updates Requested by the Traffic Engineering Office:**

- Updated the name of the office from "Transportation Statistics" to "Transportation Data and Analytics".

**NOTES:**

1. Traffic monitoring site cabinet includes:
   A. One adjustable shelf (equipped as shown).
   B. One backplane assembly (equipped as shown).
   C. One J1 receptacle with mounting bracket.
   D. One J1 equipment cable 5 ft. long (Reference Sheet 4).
   E. All Associated wiring and wiring harnesses.

2. Basic backplane assembly consists of:
   A. Two inductive sensor terminal strips.
   B. One piezo sensor terminal strip.
   C. One battery terminal strip.
   D. One solar panel terminal strip.

3. The contractor is responsible for contacting the TMS Manager at the Transportation Data and Analytics Office for lane number information and verification.

4. Speed/Classification unit and Modem furnished separately.

5. Cable ends must be fabricated to fit the vehicle speed/Classification unit. (Reference Sheet 4)

6. 12 Fiber Single Mode Cable, 12 Port Patch Panel, Managed Field Ethernet Switch furnished separately.
Index 695 Updates Requested by the Traffic Engineering Office:
- Added note 6 on 12 Port Patch Panel and Managed Field Ethernet Switch
• **Index 695 Updates Requested by the Traffic Engineering Office:**

• Added reference to new Note 6
**Index 695**

**Updated Sheet 1:**

**CABINET LAYOUT DETAILS (Four Lanes or Less)**

1. **Traffic monitoring site cabinet includes:**
   - A 12 port patch panel (installed as shown).
   - One backplane assembly (equipped as shown).
   - One 12 channel mixer.
   - One 24 channel mixer.
   - All associated wiring and terminal harnesses.
   - One 12-port patch panel.
   - One 24-port patch panel.
   - One 48-port patch panel.
   - One 96-port patch panel.

2. **Basic backplane assembly consists of:**
   - Two 48-channel patch panels.
   - One 24-channel patch panel.
   - One 12-channel patch panel.
   - One 2-channel patch panel.
   - One 1-channel patch panel.
   - One 0.5-channel patch panel.

3. **The contractor is responsible for contacting the FMS Manager at the Transportation Data and Analysis Office for lane number data and traffic data.

4. **Standard Patch Panel Unit and Module furnished separately.

5. **Cables ends must be fabricated to fit the vehicle speed classification unit.**

6. **Provide a 12 fiber single mode cable, a 12 port patch panel, and a managed field ethernet switch separately.**
Index 695 Updates Requested by the Traffic Engineering Office:

- Updated color scheme to match vendor provided color scheme
Updated color scheme to match vendor provided color scheme

**Index 695 Updates Requested by the Traffic Engineering Office:**

- Updated color scheme to match vendor provided color scheme

**Post Foundations, Indexes 646-001, 654-001, 695-001, 700-120**

![Diagram](image-url)
Index 695 Updates Requested by the Traffic Engineering Office:

New Sheet 6
Index 695 Updates Requested by the Traffic Engineering Office:

New Sheet 7
Index 700-120 Updates:

- Updated Foundations
- Updated Pole Callouts
**Index 700-120 Updates:**

- Updated Foundations
- Updated Pole Callouts
- Updated Various Notes throughout Index

---

**POWER CONFIGURATION A:** Conventionally Powered

*Type A1 shown*

**GENERAL NOTES:**

1. Install sign assemblies based on Alpha-numeric Type designation shown in the Plans (e.g., Type A1).
2. Assembly Type is based on Power Configuration Manual specification shown above and numerous identification shown on Sheet 2 thru 8.
3. Engage all threads in the transformer base and bolt across the aluminium poles is fully loaded into base.
4. Meet the requirements of specification for aluminium poles and transformer bases.
5. Install a concrete slab around all road signs assemblies on slabs 4' or greater. The minimum slab dimension is 6' by 6' by 5-1/2.
6. When 16cr entry holes are drilled in the sign columns use a bushing or rubber grommet to protect conductor.

**POWER CONFIGURATION B:** Solar Powered

*Type B1 shown*

**GENERAL NOTES:**

1. Install a solar pole for mounting the solar panel, control, and batteries for all road signs assemblies with solar panels, controllers and batteries weighing more than 170 lbs.
2. Install the auxiliary pole as close to the flight of way boundaries as possible.
3. Install the auxiliary pole so that the height is the same as the column for the road sign assembly.
4. Offset solar panel to face South for optimal exposure to sunlight.
5. The controller and the solar batteries may be located in the same compartment.

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<td>Sign Assembly 700-120</td>
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</table>
• **Index 700-120**

**Updated:**

---

**POWER CONFIGURATION A**

**CONVENTIONALLY POWERED** (Type A1 Shown)

**GENERAL NOTES:**

1. Install all assemblies based on Alpha-Numeric Type designation shown in the Plan Fig., Type A1.
2. Assembly Type is based on Power Configuration Type-Identification shown above and Numerical Identification shown on Sheet 9 thru 12.
3. Install Sign panel and wind brace in accordance with Item 5A-001 and Specification 700.
4. Engage all threads on the transformer base and post unless the aluminum post is fully seated into base.
5. Meet the requirements of Specification 646.
6. Install a concrete slab around all roadside assemblies on slopes 6% or greater. The minimum slab dimension is 8’ by 8’ by 8’.
7. When in use, bolts are drilled in the stop column, use a backing or rubber gasket to protect conductors.

---

**POWER CONFIGURATION B**

**SOLAR-POWERED** (Type B1 Shown)

**GENERAL NOTES:**

1. Install a separate pole for mounting the solar panel, controller, and batteries for all roadside assemblies with solar panels, controllers, and batteries weighing more than 370 lbs.
2. Install the auxiliary pole as close to the right of way boundary as possible.
3. Install the auxiliary pole as close to the side of the column for the roadside assembly.
4. Orient solar panel to face South for optimal exposure to sunlight.
5. The controller and the solar batteries may be located in the same compartment.

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Post Foundations, Indexes 646-001, 654-001, 695-001, 700-120

- **Index 700-120 Updates**
  - New Sheet 10
**Index 700-101 Updates**

- Added Median or Island Nose Offset Callout to Case VIII
- **Index 700-101 Updated**

- Added Median or Island Nose Offset Callout to Case VIII
• **Index 700-102 Updates**

• Updated the Speeding Fines Doubled sign font, dimensions and number

---

**SPECIAL SIGN DETAILS**

- **FTP-38-06**
  - 2' x 2'-6" (3' x 3' for Billboard)
  - 9" Radii 1/2" Border
  - White Background
  - Black Legend and Border

- **FTP-39-06**
  - 4' x 4' (6' x 6' for Billboard)
  - 6" Radii 1/2" Border
  - White Background
  - Black Legend and Border

- **FTP-40-21**
  - 3' x 5' (8' x 10' for Billboard)
  - 8" Radii 1/2" Border
  - White Background
  - Black Legend and Border
• **Index 700-102 Updates**

  • Updated the Speeding Fines Doubled sign font, dimensions and number
• **Index 700-102 Sheet 10 Updates**

- **WELCOME CENTER TRUCK PARKING XXX SPACES AVAILABLE**
  - **ADDED:**
    - FTP-90-22
    - FTP-91-22

- **STAY IN YOUR LANE**
  - **UPDATED SIGN FONT AND DIMENSIONS**

- **LITTER PICK UP AHEAD**
  - **UPDATED SIGN FONT AND DIMENSIONS**

- **TRUCKS ENTERING HIGHWAY**
  - **UPDATED SIGN FONT AND DIMENSIONS**

- **MOVED TO SHEET 11**

- **MERGE RIGHT ON FLASHING ARROW**
  - **UPDATED SIGN FONT AND DIMENSIONS**

- **LIGHTED WORK ZONE AHEAD**
  - **UPDATED SIGN FONT AND DIMENSIONS**

---

**SPECIAL SIGN DETAILS**

**INDEX** 700-102

**SHEET** 10 of 12
Special Sign Details, Index 700-102

- **Index 700-102 Sheet 12 Updated**
  - Added MOT-26A-22 and MOT-26B-22
• **DELETED Index 700-109 Updates**

• Deleted Index as Most Information is in FDM 230
**Index 706-001 Updates**

- Yellow Reflective Paint replaced w/ Durable Paint – Yellow
- New Notes 3 & 4
Typical Placement of Raised Pavement, Index 706-001

- **Index 706-001 Updates**
- Updated Sheet 3

**Details**

- **DETAIL "A"**
- **DETAIL "B"**
- **DETAIL "C"**
- **DETAIL "D"**
- **DETAIL "E"**
- **DETAIL "F"**

- **FLUSH MEDIAN OPENINGS TYPE "D" OR "F" CURB**

**NOTES:**

1. For Type "B" Curve, Paint RPMs along the pavement edge marking using the same opening shown.
2. Great traffic faces of RPMs in curb median must be parallel to direction of travel lanes.
3. Use spray adhesive to install RPMs on concrete median or curb.
4. Install RPMs on clean, unpainted surface. Do not paint curb surface where RPMs will be placed.

**LEGEND:**

- **B/C** = BACK OF CURB
- **EOP = EDGE OF PAVEMENT**
- **RPM = RAISED PAVEMENT MARKER**
- **W/M = WHITE/MD RPM**
- **Y/W = YELLOW/YELLOW RPM**
- **R/Y = RED/YELLOW RPM**
- **R/Y = RED DIRECTIONAL YELLOW RPM**

**POSTED SPEED LIMIT (MPH) 7'-3" FEET**

<table>
<thead>
<tr>
<th>Speed Limit</th>
<th>RPM Placement</th>
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<td>40</td>
<td>RPM Placement</td>
</tr>
<tr>
<td>50</td>
<td>RPM Placement</td>
</tr>
</tbody>
</table>
• **Index 706-001 Updates**

  • No yellow paint or yellow RPMs on nose of curb
Typical Placement of Raised Pavement, Index 706-001

- **Index 706-001 Updates**
  - Updated
  - Sheet 4

**RPM Placement at Islands**
(When called for in the Plans)

**RPM Placement at Traffic Separators**
(When called for in the Plans)

**NOTES:**
1. For Type "C" Cure Medall RPMs along the pavement edge marking using the same spacing shown.
2. Inset traffic lanes of RPMs to median slab to be parallel direction of travel lanes.

**LEGEND:**
- BIC = Back of Curb
- EOD = Edge of Pavement
- RPM = Raised Pavement Markers
- W/R = White/Red RPM
- V/R = Yellow/Red RPM
- H/W = Black/White RPM
- H/Y = White/Black RPM
- H/Y = Black/White RPM
- H/Y = White/Black RPM
- H/Y = Black/White RPM
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- H/Y = White/Black RPM
- H/Y = Black/White RPM
- H/Y = White/Black RPM
• **Index 711-001 Updates**

  • Added Pavement Warning Marking Detail
  • Updated Notes
Pavement Markings, Index 711-001

• Index 711-001
  Updated Sheet 1

PAVEMENT MESSAGES NOTES:
1. Place all pavement messages 20 feet from the map line.
2. Obstacles and within 3 feet.
3. All signs are 4 ft x 4 ft.
4. All pavement messages must be white except Route Numbers and 10 Pavement Warning Markings.
5. Increase width of route shield for routes with three digits.

PAVEMENT MESSAGE AND ARROW DETAILS
• **Index 711-001 Updates**

  • Added Markings for Merge Detail
**Index 711-001**

**Updated Sheet 2**

- **PAVEMENT MARKING LINES**
  - Solid Edge Line or Lane Line
  - Solid Centerline Line
  - Two-Lane Highway Broken Line
  - Double Solid Line
  - 12' Solid Pedestrian Crosswalk Line
  - 2X Solid Side Line

- **MARKINGS FOR MERGE**
  - 24'-0" Dotted Lane Drop Line
  - 19'-0" Dotted Lane Drop Line

- **12'-30" SKIP LINE WITH SHADOW MARKINGS**

- **DOTTED LINE WITH ALTERNATING SHADOW MARKINGS**
  - 12'-0" Dotted Line (with 12'-0" Solid Line Interval)

- **YIELD LINES**

Yield lines consist of line - up to 2" wide triangles which face traffic. Equally spaced with traffic lanes. When 2 lane how is present, add one additional triangle in the center of the blue lane.
INDEX 711-001

Updates

- Deleted Right Turn Lane Details
- Deleted Traffic Channelization at Gore Note
• **Index 711-001**
  Updated Sheet 8

**Pavement Markings, Index 711-001**

---

**Scheme One**

- Use Solid Line in Signalized Intersection Only
- 6" White
- 6" Double Yellow
- 30' White

**Scheme Two**

- 6" White
- 6" Double Yellow
- For use in rural/suburban areas where an adequate average lane length can be specifically determined.
- 300' Max. Interval Between Double Arrows

---

**TWO WAY LEFT TURN LANE**

(With Single Lane Left Turn Channelization)

<table>
<thead>
<tr>
<th>Design Speed Limit MPH</th>
<th>ft</th>
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<tr>
<td>35 OR LESS</td>
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<td>20</td>
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<td>45</td>
<td>25</td>
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<tr>
<td>50 OR MORE</td>
<td>40</td>
</tr>
</tbody>
</table>

---

**Markings for Traffic Separation**

**Traffic Channelization at Gore**

---

**Last Revision:**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>FY 2022-23</th>
<th>INDEX</th>
<th>SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAVEMENT MARKINGS</td>
<td>711-001</td>
<td>8/13</td>
<td></td>
</tr>
</tbody>
</table>
Pavement Markings, Index 711-001

- **Deleted Sheet 9**

**Index 711-001**

Moved to FDM, Combined with Signing Details shown on 230-5.

Deleted from Index.

MOVED TABLE TO SHEET 8

MOVED DETAILS TO SHEET 2

MOVED DETAILS TO SHEET 8

DELETED FROM INDEX

SCHEMES FOR TRANSITION - 2 LANE / 4 LANE ROADWAY

MARKINGS FOR TRAFFIC SEPARATION

CHANGED TO: 2C

DELETED NOTE

CHANGED TO: Marking for Merge

NOTE: White pavement markings by left roadway centered on existing roadway. Right roadway centered on existing roadway is similar with white pavement markings.

1F Pavement Marking (See Notes)

EDGE OF PATH

DETAIL "D"

6" Pavement Marking (See Notes)
• **Index 711-001 Updates**
  • Deleted Redundant Information
  • Add Sheet Title

**Delete redundant information shown in FDM Exhibit 212-1.**

**Notes:**
1. This index also applies to right turn lanes.
2. Make pavement marking yellow for left-turn lanes and white for right-turn lanes.
**Index 711-001**

*New Sheet 10*

1. Arrow spacing between first and last arrow: Turn lanes longer than 200' will use one arrow for each 100' additional length.

**ARROW SPACING**

Through lane becomes exclusive left turn.

**TURNS LANE MARKINGS**

**NOTES:**
1. This Index also applies to right turn lane.
2. Mark opposite pavement markings yellow for
   - Left-turn lanes and white for right-turn lanes.
• **Index 711-001 Updates**

• Deleted Note 4
**Pavement Markings, Index 711-001**

- **Index 711-001**
  - New Sheet 11

**General Notes:**
1. Dimensions are to the centerline of markings.
2. An access plank is required for each accessible space when single parking is used.
3. Criteria for pavement markings only, not curbs, sidewalks, or curb cuts. Refer to FDOT Standards for these issues.
4. Mount FTP-21-06 sign below the FTP-21-06 sign.
5. Use of the pavement symbol in accessible parking spaces is optional. Where feasible, parking is intended to be wheelchair accessible.

**Forward-in Parking**

**Reverse-in Parking**

**Dimensions:**

<table>
<thead>
<tr>
<th>Description</th>
<th>FT</th>
<th>Width (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3’6”</td>
<td>7”</td>
<td>37”</td>
</tr>
<tr>
<td>4’0”</td>
<td>12”</td>
<td>22-7/8”</td>
</tr>
<tr>
<td>4’4”</td>
<td>24”</td>
<td>24-2/8”</td>
</tr>
<tr>
<td>4’8”</td>
<td>32-7/8”</td>
<td>32-7/8”</td>
</tr>
</tbody>
</table>

**Universal Symbol of Accessibility**

---

**Last Revision:**

**Description:**

**FY 2022-23**

**Standard Plans**

**Pavement Markings**

**Index:** 711-001

**Sheet:** 11 of 13
• **Index 711-003 Updates**

  • Added Chevrons and Associated Callouts
GENERAL NOTES:
1. Make the traffic face of the raised pavement markers (RPM) the same color as the pavement marking that it is supplementing.

2. See Index 105-001 for additional Raised Pavement Markers (RPM) requirements.
• **Index 711-003 Updates**
• Added Chevrons and Associated Callouts
• Extended lane Extension to End of Taper
- **Index 711-003 Updated Sheet 2**
- **Extended lane Extension to End of Taper**

**NOTES:**
1. Paint this 8’-wide Pavement Marker one-fourth the length of the acceleration lane from the gore markings.
2. See Index 711-001 for pavement message extensions and details.
3. Discontinue the 8’ White (P-43) Solid Interchange line where the merging taper begins for a Single-Lane Parallel-Type Entrance Without added lane. Merge Pavement Message and Arrow only used for Two-Lane Entrance.
• **Index 711-003 Updated Sheet 2**
  - Added Chevrons to Entrance
  - Moved Detail C to Index 706-001
  - Moved Note 1 to a callout
Interchange Markings, Index 711-003

• Index 711-003
  Updated Sheet 5

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

TYPICAL CURVED EXIT RAMP
• **Index 711-003**

**Updates to Sheet 6**

CHANGED TO:
Wrong-Way Arrow
(Place Arrow at the end of the physical gore or 100' - 0" + from the end of the theoretical gore)
• **Index 711-003**

  *Updated Sheet 6*
**New** Light Pole Type in Standard Plans

- **Utility Conflict Pole** is used for avoidance of overhead utilities and powerlines:
  - Horizontal Arm Length = 16 feet
  - Vertical Rise = 15 feet

- Previously very popular usage, but now... **No** longer requires project-specific Pay Item, special design, and Central Office review

- **Standard Plans include a complete design**
• Design includes materials, fabrication, and construction requirements

• Shop drawings are not required

• EOR chooses **mounting height**: 35 feet thru 50 feet
Sheet 2: Fixture Arm Assembly

- Design includes welding and pole clamp requirements

- ‘Fixture Arm Length’ dimension measures from CL of pole to the approximate center of luminaire

(EOR can check exact dimensions on this sheet)
• Similar to normal poles of 715-002, but larger foundations and pole thickness is used here

• Frangible/Breakaway Base is included
• 2’-6” diameter concrete foundation is included...

• EOR selects the... “Standard Foundation” Pay Item option to use the foundation shown

Otherwise, a project-specific design is required (e.g. for a spread footing)
**NEW** Basis of Estimates - Pay Item Structure

Pay Item: **715-6A-BCD** for “Light Pole Complete”

- Used for both 715-002 (Standard Pole) & 715-003 (Utility Conflict Pole)

- Pay Item Structure Captures:
  - Index Number
  - Foundation Type (Standard or Project-Specific)
  - Mounting Height
  - Horizontal Arm Length
  - Vertical Arm Rise
Questions?

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FY 2022-23 Standard Plans Update Training

102 Series - Temporary Traffic Control

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General Changes

• Changed nomenclature in notes from: “work zone” to “work operation”

• Removed redundant note:

  “If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the plans.”
General Changes

• Changed nomenclature in notes from:
  “work zone” to “work operation”

• Removed redundant note:
  “If the work encroaches on a marked bicycle lane or ridable shoulder, close the lane or shoulder in accordance with the plans.”
General Changes

General Construction Operations-Roadway

Maintenance of Traffic

102-100
Temporary Barrier

102-110
Type K Temporary Concrete Barrier System

102-120
Low Profile Barrier

102-600
General Information for Traffic Control Through Work Zones

102-601
Two-Lane and Multilane Roadway, Work Beyond the Shoulder

102-602
Two-Lane and Multilane, Work on Shoulder

102-603
Two-Lane, Two-Way, Work Within the Travel Way

102-604
Two-Lane, Two-Way, Intersection Work

102-606
Two-Lane Roadway, Lane Closure Using Temporary Traffic Sign

Quick Reference Sheet: 102 Series Tables

TABLE 7
POST AND FOUNDATION TABLE FOR WORK ZONE SIGNS

<table>
<thead>
<tr>
<th>SIGN SHAPE</th>
<th>POST LOCATION</th>
<th>NUMBER OF SIGNS</th>
<th>D CHANNEL POSTS</th>
<th>Notes for Table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>Right 40'-0&quot;</td>
<td>1</td>
<td>-</td>
<td>1. Use 2 sign(s) for Clear Height up to 10' and 4 (4'x7') posts for Clear Height up to 12'.</td>
</tr>
<tr>
<td></td>
<td>Left 40'-0&quot;</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>H-Shape</td>
<td>Middle</td>
<td>2</td>
<td>-</td>
<td>2. Maximum foundation depth is 6' for 3 (6'x6') posts and 4 1/2' for 4 (4'x6') posts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>H-Shape</td>
<td>Right 40'-0&quot;</td>
<td>1</td>
<td>-</td>
<td>3. Fix 1 for 4' post and 4' x 6' sign and fix 2 for 4' post and 4' x 6' sign.</td>
</tr>
<tr>
<td></td>
<td>Left 40'-0&quot;</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Square</td>
<td>Right 40'-0&quot;</td>
<td>2</td>
<td>-</td>
<td>4. The sign plate as shown on the APA vendor drawing is not required for base posts or sign posts installed in existing medians.</td>
</tr>
<tr>
<td></td>
<td>Left 40'-0&quot;</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Diamond</td>
<td>Right 40'-0&quot;</td>
<td>2</td>
<td>-</td>
<td>5. The diamond warning signs with backgripper plaque (up to 3' H) or slender, use D 40' posts.</td>
</tr>
<tr>
<td></td>
<td>Left 40'-0&quot;</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Circle</td>
<td>Right 40'-0&quot;</td>
<td>2</td>
<td>-</td>
<td>For up to 30' Clear Height (maximum to the bottom of diamond warning signs).</td>
</tr>
<tr>
<td></td>
<td>Left 40'-0&quot;</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 8
DROP-OFF PROTECTION REQUIREMENTS

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>K (ft)</th>
<th>D (ft)</th>
<th>Device Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 12</td>
<td>&gt; 2</td>
<td>Temporary Barrier</td>
</tr>
<tr>
<td>2</td>
<td>&gt; 12-24</td>
<td>&gt; 3 to 6</td>
<td>Temporary Device</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 12-24</td>
<td>&gt; 6</td>
<td>Temporary Barrier</td>
</tr>
<tr>
<td>4</td>
<td>Rubber or Reflective, Ball Bearing</td>
<td>Temporary Barrier</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Removal of portions of barrier</td>
<td>Temporary Barrier</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 9
EXAMPLE "L" VALUES

<table>
<thead>
<tr>
<th>S (mph)</th>
<th>5</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>W (feet)</th>
<th>5</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
<tr>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
<td>L/2</td>
</tr>
</tbody>
</table>

FY 2022-23 STANDARDS PLANS
QUICK REFERENCE SHEET 102 SERIES TABLES
General Information for Traffic Control Through Work Zones:
Sheet 5

Sign sizes 60” x 54” and 120” x 60”, and the associated note have been removed from the post and foundation table.

Note 9 has been moved into Table 7 as new Table Note 5.

9. For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).

<table>
<thead>
<tr>
<th>SIGN SHAPE</th>
<th>SIGN SIZE (inches)</th>
<th>NUMBER OF STEEL U-CHANNEL POSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>24 x 24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>24 x 30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>30 x 24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>36 x 24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>48 x 48</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>60 x 60</td>
<td>2</td>
</tr>
<tr>
<td>Rectangle</td>
<td>24 x 24</td>
<td>1</td>
</tr>
<tr>
<td>(W x H)</td>
<td>24 x 30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>30 x 24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>36 x 24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>48 x 48</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>60 x 60</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>72 x 48</td>
<td>2</td>
</tr>
<tr>
<td>Square</td>
<td>30 x 30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>36 x 36</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>48 x 48</td>
<td>2</td>
</tr>
<tr>
<td>Diamond</td>
<td>40 x 48</td>
<td>2</td>
</tr>
<tr>
<td>(See Note 7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle</td>
<td>200</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes for Table:
1. Use 3 lb/ft posts for Clear Height up to 10’ and 4 lb/ft posts for Clear Height up to 12’.

2. U-Channel sign post with mounting height of 12’ max. Armazen sign panel using 2-bracket detail on sheet.

3. Minimum foundation depth is 4.0’ for 3 lb/ft posts and 4.5’ for 4 lb/ft posts.

4. For both 3 lb/ft and 4 lb/ft base or sign post installed in rock, a minimum cumulative depth of 2’ of rock layer is required.

5. The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in Note 3), asphalt roadway, shoulder pavement, or soil under grades.

6. Use 24” x 24” sign panel with mounting height of 12’ max. Armazen sign panel using 2-bracket detail on sheet.

7. Minimum foundation depth is 4.0’ for 3 lb/ft posts and 4.5’ for 4 lb/ft posts.
General Information for Traffic Control Through Work Zones:
Sheet 5

Sign sizes 60” x 54” and 120” x 60”, and the associated note have been removed from the post and foundation table.

Note 9 has been moved into Table 7 as new Table Note 5.

9. For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).
General Information for Traffic Control Through Work Zones:
Sheet 6

- MUTCD SHS Signs R4-11, W11-1, and W16-1P were added.
- MOT-26A-22 and MOT-26B-22 Add to Index 700-102
General Information for Traffic Control Through Work Zones:

Sheet 6

- MUTCD SHS Signs R4-11, W11-1, and W16-1P were added.
- MOT-26A-22 and MOT-26B-22 Add to Index 700-102

- All the FDOT Specific TTC signs were removed. See Standard Plans, Index 700-102
General Information for Traffic Control Through Work Zones:

The Side Road Intersecting detail from Standard Plan 102-606 was added

Signals:

Installation traffic signal operations that require modifications in order to carry out work zone traffic control shall be indicated in the Plans and be approved by the District Traffic Operations Division.

Refer to Specification 102-4 for additional information.

Channelizing Devices:

Channelizing devices for work zone traffic control shall be as prescribed in Part 60 of the FDOT Standard Traffic Control Devices Manual. The site shall be designed to achieve the following goals:

1. Traffic flow shall be controlled to prevent vehicle conflicts and ensure a safe driving environment.
2. Traffic signs, signals, and markings shall be installed in accordance with Chapters 5 of the FDOT Standard Traffic Control Devices Manual.
3. Traffic signals shall be designed to provide for safe and efficient operations.

Channelizing Device Consistency:

The consistency of traffic control devices shall be maintained throughout the work zone. The devices shall be in accordance with the standards prescribed in this manual.

Truck/Trailer-Mounted Attenuators:

Truck/trailer-mounted attenuators shall be used to protect traffic and work zone personnel from the impact of stopped vehicles. They shall be placed at appropriate locations and maintained in a safe and operational condition.
Two-Lane and Multilane, Work on Shoulder:

Sheet 1

• Note 3 was updated to:

"Where work activities are between 2′ and 15′ from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less."

• New Note 9 addresses roads with no paved shoulder.

3. Where work activities are between 2′ and 15′ from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.

9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).
Two-Lane, Two-Way, Work Within the Travel Way:

Sheet 1

Centerline Encroachment language was removed from Note 8. See Detail on Sheet 2 for layout.

8. Railroad Crossings:

a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.

b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.

Only if the Existing Paved Shoulder Width is sufficient to provide for an 11’ lane between the Work Area and the Edge of Existing Paved Shoulder and the Work Zone will be in place for 24 hours or less. Reduce the posted speed when appropriate.
Two-Lane, Two-Way, Intersection Work:
Sheet 1

• New Note 9 was added to give the option of using a flagger for side street control instead of using a stop sign and restricting left turn movements.

9. As an option to the “STOP” sign (R1-1) and Restricted Left/Right Turning Movement sign (R3-1 or R3-2), the “SIDE ROAD INTERSECTING THE WORK ZONE” flagging operation from Index 102-600 may be used.
New Note 9 was added to give the option of using a flagger for side street control instead of using a stop sign and restricting left turn movements.

The flagger location in the “lane closure for work more than 200’ from the intersection” detail was moved from the centerline to the shoulder.
The flagger and taper dimension in southbound approach of the detail was moved from the left shoulder to the right shoulder.

Two-Lane, Two-Way, Intersection Work:
Sheet 1
Mobile Operations:
Sheet 1

Removed vehicle light requirement statement from Note 4. This is a requirement of all equipment and vehicles in the Work Zone per Standard Specification 102.

4. Where work activities within 2' of the edge of travel way are incidental (i.e., Mowing, Litter Removal), the Engineer may delete requirements for signs and the Shadow vehicle on the shoulder provided vehicles in the work area have high intensity rotating, flashing, oscillating, or strobe lights operating.
Multilane Roadway, Lane Closures:
Sheet 5

Updated Note 1 to clarify usage of the Motorist Awareness System

i.e., “for lane closures of at least 5 days (consecutive or not) on multilane divided facilities with a posted speed of 55 mph or greater.

NOTES:
1. Use the Motorist Awareness System (MAS) for lane closures of at least 5 days (consecutive or not) on multilane divided facilities with a posted speed of 55 or greater when workers are present and not protected by a barrier.
Multilane Roadway, Intersection Work:
Sheet 4

- Updated Buffer Space location to upstream of the Shadow Vehicle.
- Added Arrow Board Mode.
Two-Way Left Turn Lanes:
Sheet 1

Updated Buffer Space location to upstream of the Shadow Vehicle.
Two-Way Left Turn Lanes:
Sheet 3

- Updated Arrow Board at Shifting Taper to “CAUTION” Mode instead of “MERGE” Mode.
- Changed “Right Lane Closed” (W20-5aR) sign to the W1-4L Lane Shift symbol sign.
Sidewalk Closure:
Sheet 2

- Changed “Temporary Pedestrian Way” detail title to “Pedestrian Special Detour”.

- Changed “Temporary Pedestrian Way Diverting Traffic Into the Traveled Way” detail title to “Pedestrian Diversion – Option 1”
Sidewalk Closure:
Sheet 2 Cont’d

- Added “Pedestrian Diversion – Option 2”.
- Added new Note 5.

5. Pedestrian Diversion Option 2 may only be used when called for in the Plans or as approved by an Engineer.
Bicycle Facility Closure:

• Renamed “Bicycle Facility Closures”

• Sheet 2
  Changed the title for the “Temporary Bicycle Diversion” detail to “Bicycle Special Detour”.
Bicycle Facility Closure:

Added new detail for “Bicycle Facility Shift (Work Zone Speed of 35 mph or Less)”. 
FY 2022-23 Standard Plans Update Training

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Standards

- 450-199
- 515-052
- 515-062
- 521-660
- 548-020
- 649-031
- 700-091
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
  - 515-052
  - 515-062
  - 521-660
  - 548-020
  - 649-031
  - 700-091
• Changed the camber tolerance to be inline with the specs
Standard Plans – Update Training

BEAM CAMBER AND BUILD-UP NOTES:
The build-up values given in the Data Table are based on theoretical beam camber. The Contractor shall measure beam camber for the purpose of predicting camber values at the time of the build-up. If the measured camber based on field measurements differs more than 0.5" from the theoretical "At Beam Center of Span" shown in the Data Table, obtain approval from the Engineer to modify the build-up dimensions as required. When the measured beam camber creates a conflict with the bottom nose of deck steel, notify the Engineer a minimum of 23 days prior to casting.

**Table Note:**
- Takes into account the weight of the Stay-In-Place Forms.

**Diagram Notes:**
- The build-up diagrams shown in the Data Table are for the purpose of predicting camber values at the time of the build-up. If the measured camber differs more than 0.5" from the theoretical "At Beam Center of Span" shown in the Data Table, obtain approval from the Engineer to modify the build-up dimensions as required. When the measured beam camber creates a conflict with the bottom nose of deck steel, notify the Engineer a minimum of 23 days prior to casting.

**Diagram Description:**
- Diagrams illustrate build-up for different cases:
  - **Case 1:** Tangent spans (along Q beam)
  - **Case 2:** Sag vertical curve & horizontal curve spans (along Q beam)
  - **Case 3:** Crest vertical curve spans (along Q beam)
  - **Case 4:** Crest vertical curve spans (control at begin or end span along Q beam)

**Section Notes:**
- **Section A-A**
  - Build-up over beams (Florida) beam shown
  - AASHTO Type II similar

**Data Table Notes:**
- Measure camber from the build-up and deflection data table for Florida and AASHTO Type II beams in structural plans.
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
- 515-052 Pedestrian/Bicycle Railing (Steel)
- 515-062 Pedestrian/Bicycle Railing (Aluminum)
- 521-660
- 548-020
- 649-031
- 700-091
• Changed the bottom of the fencing from twisted to a knuckled selvage. This was to prevent the fencing catching on pedestrians' feet and legs.

• This was done for both this standard and the aluminum version 515-062.
• Final sheet
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
- 515-052 Pedestrian/Bicycle Railing (Steel)
- 515-062 Pedestrian/Bicycle Railing (Aluminum)
- **521-660 Light Pole Pedestal - Bridge**
- 548-020
- 649-031
- 700-091
We added an option to allow for slipforming past the pedestal.

In doing so we reorganized the details and had to update the bill of reinforcing and labels.
• Final Sheet 1
• Moved the details around to re-organize
Final Sheet
Moved the details around to re-organize
• New detail provides 1 ½” gap. The slab steel extends into the pedestal.
• The gap is grouted after slip forming
OPTION 2 - ELEVATION VIEW

OPTION 2 - TYPICAL SECTION AT LIGHT POLE PEDESTAL
(Approach Slab Similar)

OPTION 3 - PLAN VIEW
WITH GAP BETWEEN BARRIER AND PEDESTAL TO ALLOW SLIP FORMING

CASE 1 LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK LESS THAN 7-5/8” AT COPING
Relabeled some of the bars due to reorganization.
• Final sheet

**Standard Plans – Update Training**

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**TYPICAL SECTION AT LIGHT POLE PEDESTAL**

- **PLAN VIEW**
- **ELEVATION VIEW**

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**CASE 2 LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS AT COPING 1-3/8" OR GREATER**

---

**LIGHT POLE PEDESTAL - BRIDGE**

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**FY 2022-23 STANDARD PLANS**

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**INDEX**

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**521-660**

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**3 of 4**
• Reworked the bill of reinforcing to account for the new option.
• Added a reference for conduit to the appropriate standard
• Added a nut to the anchor bolt for breakout for compressive force in the anchor.
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

REINFORCING STEEL NOTES:

a. When Pedestal is attached to Pedestal/Bridge Railings – Index 521-836
b. All B’s where members are spaced or the Bridge Deck or Approach Span Thickness is less than 1'-0". Bars 4 1/2 shall have top length and bar length shown in parenthesis.

b. The number of bars shown is approximately to for Bars 4 1/2 when Pedestal is attached to Pedestal/Bridge Railings – Index 521-820 or all B’s where concrete ends and the Bridge Deck or Approach Span Thickness is less than 1'-0".

c. Lap Splices for Bars 4 1/2. 4 1/2 & 4 5/8 shall be a minimum of 7'-0".

PLA BARS 4 1/2

BAR S# 4B

BARS 4 1/2 & 4 5/8

PLAN BARS 4H

LIGH POLE PEDESTAL NOTES

1. Concrete and Reinforcing Steel required for the construction of the Pedestal shall meet the same requirements as the Traffic Railings or Pedestal/Bridge Railings (the Pedestal is attached to).

2. Light Pole Pedestal may be used with the following:

- Index 523-423 – Traffic Railings (423" Vertical Shells).
- Index 523-423 – Traffic Railings (423" Vertical Shells).
- Index 523-423 – Traffic Railings (423" Vertical Shells).
- Index 523-423 – Traffic Railings (423" Vertical Shells).
- Index 523-423 – Pedestal/Bridge Railings.

3. Unless otherwise noted, Traffic Railings (423" Single-Shells) is shown in all Views and Sections. The Precast details for other Traffic Railings or Pedestal/Bridge Railings are similar.

ANCHOR BOLTS:

Anchor Bolt Groups is based on the Standard Highway Abutment Light Pole configurations shown in Index 715-716.

Anchor Bolt Diameter: See Table 1

Anchor Bolt: AASHTO F1554 Grade 50

Weld: ASTM A307 Grade A

METHOD: FIA Type 1

Coating: Galvanized All Nuts. Bolts: 1/2, in accordance with ASTM F2390.

This contractor is responsible for ensuring the anchor bolt configuration is compatible with the light pole base plate. Guide modifications of the anchor bolt design to the Engineer for approval.

5. Install Anchor Bolt plates.

6. For Corallus, Embossed Junction Boxes (EJBs): Expansion/Deflection Fitting and adjusted Reinforcing Steel Details, see Utility Cover, Detail Sheets and Index 430-510.

7. FeaNET: The cost of Wire Screen Anchor Nuts, Nails, Washers and Anchor Plates shall be included in the Bid Price for Light Poles. The cost of all Labor, Concrete and Reinforcing Steel required for the Construction of the Pedestals, and Miscellaneous Hardware required for the completion of the Electrical System, shall be included in the Bid Price for the Traffic Railings or Pedestal/Bridge Railings the Pedestal is attached to.

Table 1 - Design Limitations for Anchor Bolts (1 Dis.).

<table>
<thead>
<tr>
<th>WIND</th>
<th>BOLT</th>
<th>DESIGN STUD SIZE (FT)</th>
<th>DESIGN STUD LOAD (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>B-15</td>
<td>15' 11/2 x 11/2</td>
<td>40 x 11/2</td>
</tr>
<tr>
<td>150</td>
<td>B-15</td>
<td>15' 11/2 x 11/2</td>
<td>40 x 11/2</td>
</tr>
<tr>
<td>180</td>
<td>B-15</td>
<td>15' 11/2 x 11/2</td>
<td>40 x 11/2</td>
</tr>
<tr>
<td>210</td>
<td>B-15</td>
<td>15' 11/2 x 11/2</td>
<td>40 x 11/2</td>
</tr>
<tr>
<td>240</td>
<td>B-15</td>
<td>15' 11/2 x 11/2</td>
<td>40 x 11/2</td>
</tr>
</tbody>
</table>

* Above Average ground or MSD.

** 1 1/2" diameter anchor bolts for Bridge Data. (1/4" higher than shown in Table 1, 11 1/2 x 11 1/2".)

E: Standard Highway Abutments

F: Estimated Light Pole Pedestal Quantities

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Per Pedestal Thruets</td>
<td>CY</td>
<td>0.000</td>
</tr>
<tr>
<td>Reinforcing Steel</td>
<td>LB</td>
<td>195 (10)</td>
</tr>
</tbody>
</table>

(The Reinforcing Steel quantity shown is parenthesis is for a Pedestal attached to Pedestal/Bridge Railings – Index 522-820 with Bridge Height of 1'-0".)
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
- 515-052 Pedestrian/Bicycle Railing (Steel)
- 515-062 Pedestrian/Bicycle Railing (Aluminum)
- 521-660 Light Pole Pedestal - Bridge
- 548-020 MSE Retaining Wall Systems - Permanent
- 649-031
- 700-091
• Removed the 2E alternative wall option as an alternative to the 2D wall because it was felt the option may not be able to accommodate the more aggressive environment condition 2D was designated for.
Standard Plans – Update Training

NOTES

DESIGN CRITERIA:
1. Design is based on the assumption that the material contained within the reinforced soil volume, methods of construction and select of professional materials are in accordance with Specification Section 540 and Chapter 3 of the FDOT Standard Design Guidelines.

MATERIALS:
1. See Specification Section 540 for material requirements.

CONSTRUCTION:
1. Walls will be constructed in accordance with Specification Section 540 and Standard Design Guidelines.
2. For location and alignment of retaining walls, see Wall Control Drawings.
3. In-place, where feasible, concrete panels shall be cast on reinforcing mats.
4. Refer to Wall Control Drawings of individual walls for maximum reinforcement staggered height, depth of knee reinforcement, minimum wall thickness and anticipated long term and differential settlements.

The Contractor is responsible for controlling muck and mowing storm water as needed during construction.

It is the Contractor's responsibility to determine the location of any guardrail posts behind retaining wall panels. Prior to placement of the top layer of soil reinforcement, individual reinforcing anchorage bars for inclined (25°) masonry to avoid the maximum if installed at the Engineer's request. Setting of guardrail post is approved through shown on Shop Drawings and approved by the Engineer. No change done to the wall reinforcement due to installation of the guardrail will be required by the Contractor & the Contractor's expense. Inspector will be approved by the Engineer.

1. If existing in future structures, piles, foundations or guardrail posts within the reinforced soil volume interfere with the placement of soil reinforcement and specific directions have not been provided on the plans, the Contractor shall notify the Engineer to determine the location of action shafts to be taken.

The Contractor is responsible for guaranteeing that the finished guardrail of the FDOT maximum guardrail is fabricated and installed by the roofing contractor and in accordance with guardrail standards and by LTL equipment. The Contractor's attention is directed specifically to avoid such where temporary bracing within the road and existing are anticipated.

For concrete facing panel surface treatment, see Wall Control Drawings. Extend surface treatment a minimum of 6" below floor grade line.

These notes should be used in the construction of the retaining wall, unless a method to protect the structure, acceptable to both the Engineer and Wall Control Drawings. Wherever and existing. The portion of piles or bolts shafts extensions within the concrete wall will be wrapped with protective covering in accordance with Specification Section 499.

1. A structural extension of the connection of the retaining wall to soil reinforcement will be used whenever necessary to avoid cracking or excessive movement other than 1/16" of the wall reinforcement and shall be composed of steel, or Portland cement, or other, etc.

2. Skips in leveling pads as shown in MSE Wall panel interfaces. Panels will not be the same size as the end of the upper two leveling pads.

3. The top of the leveling pad as shown in the shop drawings. In MSE Walls must be less than 1/4" below the height of a standard panel.

4. MSE Walls with high with Index 540-540 thru 540-546.

5. See Specification Section 540 for shop drawing requirements.

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GENERAL NOTES AND DETAILS

INDEX

548-020

SHEET

1 of 1

MSE RETAINING WALL SYSTEMS - PERMANENT
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
- 515-052 Pedestrian/Bicycle Railing (Steel)
- 515-062 Pedestrian/Bicycle Railing (Aluminum)
- 521-660 Light Pole Pedestal - Bridge
- 548-020 MSE Retaining Wall Systems - Permanent
- 649-031 Mast Arm Assemblies
- 700-091
Made modifications to this Standard based on requests from fabricators. Which repeatedly get addressed and approved in shops.

In the first sheet we added some language about pole cap and nut cover materials.
Standard Plans – Update Training

GENERAL NOTES:
1. Shop Drawings. This form is considered fully detailed, only add shop drawings
   for major modifications we have reviewed in the Field.
2. Prior to Fabrication, verify the indicated fabrication details with center in the
   required liquid location and ensure the Main Module is received.
3. Details for signal and traffic functions. Signal module attachment, sign attachment,
   Pedestrian Module attachment, and Illumination Loom are shown for simplification.

4. Calculations:
   a. Calculation of the Table of Capacities
   b. Calculation of the Table of Capacities
   c. Calculation of the Table of Capacities

5. Conclusion:
   a. Specification is included and is acceptable to the Structural Engineer and Traffic
   Engineer as Section 9.4.6-1.
• Added note about caulking
- Added option for a bolt at the arm splice
- Same for sheet 4 with the double arm
Final sheet
Standard Plans – Update Training

• Final sheet
Added notes for pole cap to allow for both dome and flat top.

- Added notes for pole cap to allow for both dome and flat top.
- Added a note to allow an option for fabricating the terminal compartment at a constant depth.

ADDED to Note 4: Cap may be flat plate or domed cap with set screws.

ADDED Note 5: An alternate terminal compartment frame detail is allowed where the compartment frame is of constant depth and cuts into the pole at the frame top and bottom but lays flush with the pole on the frame sides. The frame is then welded to the pole using fillet welds all around the outside.
Standards

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- 649-031 Mast Arm Assemblies
- **700-091 Catwalk Details**
Added language about the finish of the self closing gate.
GENERAL NOTES:
1. Start all notes with Specification 700.
2. Shop Drawings are required.
   A. Provide lengths as shown on the Plans.
   B. Design in accordance with AISC, ASME, and SSA requirements.
   C. Do not start fabrication until the shop drawings are approved.
3. Catwalk hangers must be positioned to avoid conflicts with the sign structure truss and gusset plates. Place walkway close to the sign with a maximum open distance from walkway grade to DMS sign of 5".
4. Maximum spacing of Catwalk hanger supports is 5'-0", Cantilever ends of gratings is 5'-0".
5. Galvanized steel catwalk gratings meeting the requirements of Specification 504-23. Must Support a 50 lb. load and have a 30' minimum live load. Attach grating in accordance with the manufacturer's instructions using stainless steel or galvanized fasteners.
   Install per manufacturer instructions.
7. Chain link fabric options (2 mesh with knitted selvage top and bottom for all options):
   A. ASMA (M16) Type I - Zinc Coated Steel, 10 gauge (coated wire diameter), coated at the rate of 18 oz/ft (300 g/m2), 5.6 oz/sq/ft (300 g/m2)
   B. ASMA (M16) Type II - Stainless Steel, 10 gauge (coated wire diameter), coated at the rate of 6.0 oz/sq/ft
8. Install 2" NFS (screw rods) panel type and posts. ASTM A36 Grade B for standard weight pipe.
9. Ratings:
   AN/3A
10. Materials:
    A. Steel Plates ASTM A 36 or A572 Grade 50
    B. ASTM A36 or A572 Grade 50
    C. Steel Pipe Ratings or Structural Tubing: Specification M62
    D. High Strength Bolts, Nuts, and Washers: Specification M62
    E. Screws, Nuts, and Washers: Specification M62
11. Coatings/finish:
    Hot dip galvanize support frame after fabrication and galvanize non-stainless steel fasteners in accordance with Specification M62.

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<th>Description</th>
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<td>1</td>
<td>General Notes and Content</td>
</tr>
<tr>
<td>2</td>
<td>General Assemblies and Fixed Base Details</td>
</tr>
<tr>
<td>3</td>
<td>Walkway Support Details</td>
</tr>
</tbody>
</table>
Standards

- 450-199 Prestressed I-Beams Build-Up & Deflection Data
- 515-052 Pedestrian/Bicycle Railing (Steel)
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- 548-020 MSE Retaining Wall Systems - Permanent
- 649-031 Mast Arm Assemblies
- 700-091 Catwalk Details
- **700-040 Cantilever Sign Structure**
- **700-041 Span Sign Structure**
• Corrected lap distance for the higher strength concrete used here
• In order to prevent cracking arising during fabrication from making its way to the field we instituted a 100% mag particle testing requirement
• Final sheet 700-040
- Final sheet 700-041

**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 drift 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 filler weld around the driftshaft termination on the side wall (right).
5. After galvanizing, provide magnetic particle testing on 100% of upright filler welds.
Questions

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Joshua.Turley@dot.state.fl.us