PREFACE

All projects and works on highways, roads and streets shall have a traffic control plan. All work shall be executed under the established plan and Department approved procedures. This index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets. The MUTCD and subsequent revisions and addendums, as published by the U.S. Department of Transportation, Federal Highway Administration, are mandatory for use on the State Maintained Highway System whenever there exists the need for construction, maintenance operations or utility work.

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GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

SYMBOLS
The symbols shown are found in the FDOT site menu under Traffic Control cell library on the CADD system. Symbols assigned to the MUTCD, as published by the U.S. Department of Transportation, Federal Highway Administration, are mandatory for use on the State Maintained Highway System whenever there exists the need for construction, maintenance operations or utility work. These symbols are found in the FDOT site menu under Traffic Control Plan(s)

GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

ABBREVIATIONS
Abbreviations assigned to the 600 series Design Standards and applicable to traffic control plans, unless otherwise identified in the plans, are as follows:

- CRT: Code of Federal Regulations
- CSTIP: Cost Savings Initiative Proposal
- DTDE: District Traffic Operations Engineer
- FDOT: Florida Department of Transportation
- HAR: Highway Advisory Radio
- MAS: Motorist Awareness System
- MOT: Maintenance Of Traffic
- MUTCD: Manual On Uniform Traffic Control Devices For Streets And Highways
- NCHRP: National Cooperative Highway Research Program
- PCMS: Portable Changeable (Variable) Message Sign
- PHS: Portable Regulatory Sign
- R: Radius
- RPM: Raised Retroreflective Pavement Marker
- RSDU: Radar Speed Display Unit
- ST: Speed And Law Enforcement Officer
- TCP: Temporary Traffic Control
- TCZ: Traffic Control Zones
- TMA: Truck/Trailer Mounted Attenuator
- TTR: Temporary Traffic Router
- W: Width Of Taper Transition In Feet, i.e., Lateral Offset


GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES
OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following conditions are met:

- Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- Work operations are 60 minutes or less.
- Speed limit is 145 mph or less.
- No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of the travel lane and 18 feet high.
- Aerial lift equipment in the work area has 145 mph or less.
- Aerial lift equipment is placed directly below the area to work close to the lane.
- Traffic control devices are placed in advance of the vehicle/equipment closing lane a minimum 100 feet.
- Volume or complexity of the roadway dictates additional devices, signs, flagmen, and a traffic control officer.

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Work using a modified lane closure is allowed if all of the following conditions are met:

a. Work operation is located on a signalized intersection or limited to signals, signs, lighting, and utilities.
b. Work operations are 60 minutes or less.
c. Speed limit is 145 mph or less.
d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
e. Aerial lift equipment is placed directly below the area work to close the lane.
f. Traffic control devices are placed in advance of the vehicle/equipment closing lane a minimum 100 feet.
g. Volume or complexity of the roadway dictates additional devices, signs, flagmen, and a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Work above a open traffic lane is allowed if all of the following conditions are met:

- Work operations are 60 minutes or less.
- Speed limit is 145 mph or less.
- No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of the travel lane and 18 feet high.
- Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- Volume or complexity of the roadway dictates additional devices, signs, flagmen, and a traffic control officer.
- Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.

OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is only allowed if all of the following conditions are met:

- Work operations are 60 minutes or less.
- Speed limit is 145 mph or less.
- No encroachment by any part of the work activities and equipment within 2 feet from the edge of the travel lane up to 18' height.
- Aerial lift equipment in the work area has 18' feet high.
- Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- Aerial lift equipment is placed directly below the area work to close the lane.
- Traffic control devices are placed in advance of the vehicle/equipment closing lane a minimum 100 feet.
- Volume or complexity of the roadway dictates additional devices, signs, flagmen, and a traffic control officer.
- Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- Other Government Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance is required.

OVERHEAD WORK CONTINUED

OPTION 4 (OVERHEAD WORK MAINTAINING THROUGH TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic control shall be conducted in such a manner that the work zone area shall not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index number. This option applies to, but is not limited to, the following construction activities:

- Beam, girder, segment, and pedestrian cap placement.
- Form and fall work placement and removal.
- Concrete placement.
- Rail construction located at edge of track.
- Structure demolition.

OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate standard index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lanes of traffic with no encroachment by any part of the work activities, materials, or equipment within the minimum vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables are at all time below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.
CLEAR ZONE WIDTHS FOR WORK ZONES

The term "clear zone" describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals, where roadside canals are present; clear zone widths are to conform with the distances to canals as described in Volume I, Chapter 4, Section 4.2 and Exhibit 4.4 and 4.6 of the Plans Preparation Manual.

OVERWEIGHT/OVERSIZE VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of overweight/oversized loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office. For additional information refer to the FDOT Plans Preparation Manual, Volume I, Chapter 10.

LANE WIDTHS

Lane widths of through roadways should be maintained through work zone travel ways whenever practical. The minimum widths for work zone travel lanes shall be as follows: 11' for Interstate with at least one 12 lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for freeways; and 10' for all other facilities.

HIGH-VISIBILITY SAFETY APPAREL

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or 107-2010. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

REGULATORY SPEEDS IN WORK ZONES

Traffic Control Plans (TCPs) for all projects must include specific regulatory speeds for each phase of work. This can either be the posted speed or a reduced speed. The speed shall be noted in the TCPs, this includes indicating the existing speed if no reduction is to be made. Regulatory speeds are to be uniformly established through each phase.

In general, the regulatory speed should be established to route vehicles safely through the work zone as close as to normal highway speed as possible. The regulatory speed should not be reduced more than 10 mph below the posted speed and never below the minimum statutory speed for the class of facility. When a speed reduction greater than 10 mph is imposed, the reduction is to be done in 10 mph per 500 Increments.

Temporary regulatory speed signs shall be removed as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect unless new speed limit signing is provided for in the plans.

On projects with interspaced work activities, speed reductions should be located in proximity to those activities which merit a reduced speed, and not "blanketed" for the entire project. At the departure of such activities, the normal highway speed should be posted to give the motorist notice that normal speed can be resumed.

If the existing regulatory speed is not to be used, consideration should be given to supplementing the existing signs when the construction work zone is between existing regulatory speed signs. For projects where the reduced speed conditions exist for greater than 1 mile in rural areas (non-interstates) and on rural or urban interstate, additional regulatory speed signs are to be placed at a maximum of 1 mile intervals. Engineering judgement should be used in placement at the additional signs. Locating these signs beyond ramp entrances and beyond major intersections are examples of proper placement. For urban situations (non-interstates), additional speed signs are to be placed at a maximum of 1000 apart.

When field conditions warrant speed reductions different from those shown in the TCP the Contractor may submit to the project engineer for approval by the Department, a signed and sealed study to justify the need for further reducing the posted speed, or, the engineer may request the District Traffic Operations Engineer (DTOE) to investigate the need. It will not be necessary for the DTOE to issue regulations for regulatory speeds in work zones due to the revised provisions of F.S. 338.0745(12)(b). Advisory speed plates will be used at the option of the Field Engineer for temporary use while processing a request to change the regulatory speed specified in the plans when deemed necessary. Advisory speed plates cannot be used alone but must be placed below the construction warning sign for which the advisory speed is required.

For additional information refer to the FDOT Plans Preparation Manual, Volume I, Chapter 10.
GENERAL NOTES

1. Temporary rumble strips sets shall be placed in advance of each flagging station when called for in the plans.

2. Temporary rumble strip sets are used to supplement a series of advance warning signs and shall be installed and removed when the signs are installed and removed.

3. Remove the temporary rumble strips prior to removing the advance warning signs.
FLAGGER CONTROL
Where flaggers are used, a FLÄGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum contrast between the flagger's high-visibility safety apparel and equipment and the work area background.

Hand-Signaling Devices
STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, shall be 7 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at nighttime, the STOP/SLOW paddle shall be retroreflectORIZED.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectORIZED.

Flashlight, lantern or other lighted signal that will display a red warning light shall be fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectORIZED.

Surveys Between Active Traffic Lanes or Shared Left Turn Lanes
The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone intersects intersections.

(A) A 600' IN YOUR LANE (MOT-1-065) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.

(B) Elevation Surveys-Cone bases or flag bases may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50 intervals along the break line throughout the work zone.

(C) Horizontal Control With Traffic flow in the same direction, cones shall be placed to protect the back of the traffic control devices. Cones shall be placed at the equipment, and up to 50 intervals for at least 200' for the flow of traffic.

(D) Horizontal Control With Traffic flow in opposite directions, cones shall be used to protect the back of the traffic control devices. Cones shall be placed at the equipment, and up to 50 intervals for at least 200' for the flow of traffic.

SIGNS
MESH SIGNS
Mesh signs may be used only for Daylight Operations.

Vinyl signs may be used for Day or Night Operations not to exceed 1 day except as noted in the standards.

Rigid or Lightweight sign panels may be used in accordance with the vendor drawing for the sign stand to which they are attached.

INTERSECTING ROAD SIGNS
Signs for the control of traffic entering and leaving work zones by way of intersecting roadways shall be adequate to make drivers aware of work zone conditions. Where work operations exceed 60 minutes, intersection of signs involving road signs should be no less than the ROAD WORK AHEAD sign.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases adjacent to each other within their traffic control zones. Where such restrictions or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedures:

(A) For scheduled projects the engineer in charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.

(B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.

(C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.

(D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance work, between routine maintenance work, unscanned work and/or permitted work; and, between unit controlled maintenance work and highway construction projects.

SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING
Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign covers shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS
Detours shall be signed clearly near their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

EXTENDED DISTANCE ADVANCE WARNING SIGN
Advance warning signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (40 MPH or more).

UTILITY WORK AHEAD SIGN
The UTILITY WORK AHEAD (W21-1) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK ADV (W20-1) sign for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN
The length of road work sign (G20-2) bearing the legend ROAD WORK BERT.... MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at beginning points.

SPEEDING FINES DOUBLED WHEN WORKERS PRESENT SIGN
The SPEEDING FINES DOUBLED WHEN WORKERS PRESENT sign should be installed on all projects, but may be omitted if the work operation is less than 1 day. The placement should be 500 feet beyond the ROAD WORK AHEAD sign or midway to the next sign whichever is less.

GROOVED PAVEMENT AHEAD SIGN
The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The WB-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

END ROAD WORK SIGN
The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted if the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless another distance is called for in the plans. When other Construction or Maintenance Operations occur within one mile this sign should be omitted and signing coordinated in accordance with Index No. 600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

PROJECT INFORMATION SIGN
The Project Information sign shall be installed when called for in the plans.
GENERAL NOTES:
1. All signs shall be post mounted when work operations exceed one day except for:
   a. Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the QPL.
   b. Pedestrian advanced warning or regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the QPL.
2. If post mounting criteria cannot be achieved and a barrier or traffic railing exists, use Index 11871.

TEMPORARY SIGN SUPPORT NOTE:
1. Signs mounted on temporary supports or barricades, and barricade/sign combination shall be crashworthy in accordance with NCHRP 350 requirements and included on the Qualified Products List (QPL).

POST MOUNTED SIGN NOTES:
1. Use only approved systems listed on the Department's Qualified Products List.
2. Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Qualified Products List.
   a. Use only approved systems listed on the Department's Qualified Products List.
   b. Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Qualified Products List.

POST AND FOUNDATION TABLE FOR WORK ZONE SIGNS

<table>
<thead>
<tr>
<th>SIGN SHAPE</th>
<th>WORK ZONE SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle</td>
<td>Index 306</td>
</tr>
<tr>
<td>Square</td>
<td>2</td>
</tr>
<tr>
<td>Rectangle</td>
<td>4</td>
</tr>
<tr>
<td>Triangle</td>
<td>5</td>
</tr>
</tbody>
</table>

NOTES FOR TABLE:
1. Use 3 lb/ft posts for Clear Height up to 12' and 4 lb/ft posts for Clear Height up to 12.
2. Use 4 lb/ft U-channel sign post with a mounting height of 7' min. and 8' max. Attach sign panel using Z-bracket detail on Sheet 7.
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 posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
5. The soil plate as shown on the QPL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in note 12), asphalt roadway, shoulder pavement or soil under sidewalk.

SIGN ATTACHMENT DETAIL

TYPICAL FOUNDATION DETAIL
See QPL for post, splice and connection details.
No bolts installed closer than 1" to cutting edge.
**PROJECT INFORMATION SIGN DETAIL**

50 MPH OR GREATER
Use SIGN ATTACHMENT DETAIL (WITH Z-BRACKET).

**PROJECT INFORMATION SIGN DETAIL**

45 MPH OR LESS
Use SIGN ATTACHMENT DETAIL (WITHOUT Z-BRACKET).

**SIGN ATTACHMENT DETAIL**

(WITH Z-BRACKET)

1. **PROJECT INFORMATION SIGN NOTES:**

   1. Road designation should be the most common designation (ie. I-Interstate, SR-State Road or US.)
   2. See sheet 6 for POST AND FOUNDATIONS TABLE FOR WORK ZONE SIGNS.
   3. See sheet 6 for TYPICAL FOUNDATION DETAILS.
   4. Payment for Project Information Sign shall be included in Lump Sum MOT.

**GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES**

**APPLICATIONS**

- **SR**
- **XXX**
- **DISTRICT PHONE NUMBER**

**CONTRACTOR**

**SEASON YR.**

**REVISION**

**DESCRIPTION:**

- **PROJECT INFORMATION SIGN NOTES:**

- **TOTAL CLASS:**

  - **SIGN ATTACHMENT DETAIL**
  - **Z Bracket**
  - **Wind Beam Length**
  - **4 bolt FLAT HEAD Machine Screws With Nuts and Lock Washers:**
  - **Galvanized Steel Bolts With Nuts and Lock Washers:**
  - **Aluminum Z 1 1/2 x 3 1/2 x .09:**
  - **4 1/2 Aluminum Flat Head Machine Screws With Nuts and Lock Washers:**

- **ALUMINUM PANEL**
  - **0.125 Thick Aluminum:**
  - **3 3/4 x 27 1/2 x .09:**
  - **Aluminum Z 1 1/2 x 3 1/2 x .09:**

- **BORDER**
  - **IN=0.75:**
  - **TH=0.25:**
  - **R=8:**
  - **WHITE LEGEND AND BORDER**
  - **6" SERIES D LEGEND:**
  - **4" SERIES D LEGEND:**

- **PROJECT INFORMATION SIGN**
  - **A MIN.= 0.75:**
  - **MAX.= 0.75:**
  - **MOUNTING HEIGHT**
  - **3'-0"**
  - **5'-0"**
  - **7'-0"**

- **RED AND WHITE LEGENDS**
  - **4' and 6' SERIES D LEGEND**
  - **WHITE AND RED LEGENDS**
  - **4" AND 6" SERIES D LEGEND**

- **PROJECT INFORMATION SIGN DETAIL**
  - **45 MPH OR LESS**
  - **PROJECT INFORMATION SIGN DETAIL**
  - **50 MPH OR GREATER**
  - **PROJECT INFORMATION SIGN DETAIL**
  - **4 POST SIGN SUPPORT MOUNTING DETAIL**
  - **BRACKET DETAIL**
  - **SIGN ATTACHMENT DETAIL**
  - **WITH Z-BRACKET**

- **PROJECT INFORMATION SIGN**
  - **SIGN PANEL**
  - **0.125 THICK ALUMINUM**
  - **ALUMINUM Z 1 1/2 X 3 1/2 X .09**
  - **3/4" ALUMINUM FLAT HEAD MACHINE SCREWS WITH NUTS AND LOCK WASHERS**
  - **1/2" GALVANIZED STEEL BOLTS WITH NUTS AND LOCK WASHERS**
  - **PROJECT INFORMATION SIGN**
  - **WIDTH**
  - **HEIGHT**
  - **HOLE SPACING:**
  - **2'-7"**
  - **2'-7"**
  - **2'-7"**

- **PROJECT INFORMATION SIGN**
  - **SIDE PROFILE**
  - **SIDE VIEW**
  - **SECTION VIEW**
  - **PLAN VIEW**

- **PROJECT INFORMATION SIGN**
  - **SHEET 6**
  - **INDEX NO. 600**
  - **SHEET NO. 7**
MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1' or more above the travel lane and crosswalks having an uneven surface greater than 8C shall have a temporary asphalt apron constructed as shown in the diagram below.

All transverse joints that have a difference in elevation of 1' or more shall have a temporary asphalt apron constructed as shown in the diagram below.

TRUCK/TRAILER-MOUNTED ATTENUATORS

Truck/trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index 600; for stationary operations, see Part VI of the MUTCD.

REMOVING PAVEMENT MARKINGS

Existing pavement markings that conflict with temporary work zone delineation shall be removed by any method approved by the Engineer, where operations exceed one daytime period. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as a substitute for removal or obliteration. Full pavement width overlays of either a structural or friction course are a positive means to achieve obliteration.

SIGNALS

Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the contract and approved by the District Traffic Operations Engineer.

Maintain all existing actuated or traffic responsive mode signal operations for main and side street movements for the duration of the contract and require restoration of any loss of detection within 48 hours. The contractor shall select only detection technology listed on the Department's Approved Products List (APL) and approved by the Engineer to restore detection capabilities.

CHANNELIZING AND LIGHTING DEVICES

Channelizing and lighting devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and Index 600 requirements.

CHANNELIZING AND LIGHTING DEVICE CONSISTENCY

Barriques, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

WARNING LIGHTS

Warning lights shall be in accordance with the MUTCD except for the application limitations stipulated below.

Flashing

Type A Low Intensity Flashing Warning Lights shall be mounted on barricades, drums, vertical panels or advance warning signs (except as noted below) and are intended to continually warn drivers that they are approaching or proceeding in a hazardous area. Warning lights shall not be used to delineate the intended path of travel, and not placed with spacings that will form a continuous line to the drivers eye. The Type A light shall be used to more obstacles that are located adjacent to or in the intended travel way. Type A lights shall not be used in conjunction with the first advance warning sign nor the second such sign when used.

For post-mounted signs, Type B High Intensity Flashing Warning Lights shall be mounted on the first advanced warning sign and on the first and second advanced warning sign where two or more signs are used; this applies to all approaches to any work zone. The light shall be mounted on the channel post or on the upper edge of the sign nearest the traffic.

Type B High Intensity Flashing Warning Lights are not to be placed on temporary portable sign supports.

Steady-Burn

Type C Steady-Burn Lights are to be mounted on barricades, drums, concrete barriers walls or vertical panels and used in combination with those devices to delineate the travel way on lane closures, lane changes, diversion curves and other similar conditions. Steady-burn lights are intended to be placed in a line to delineate the travel way through and around obstructions in the transition, buffer, work and termination areas of the traffic control zone. Their intended purpose is not for warning drivers that they are approaching or proceeding through a hazardous area.

STANDARD ORANGE FLAG

For post-mounted signs a standard orange flag 18" x 18" (min.) shall be mounted on the first advanced warning sign and on the first and second advanced warning sign where two or more signs are used; this applies to all approaches to any work zone. The flag shall be mounted on the channel post or on the upper edge of the sign nearest the traffic.

Standard orange flags are not to be placed on temporary portable sign supports except to enhance the SURVEY CHEW AHED sign where dual orange flags shall be used at all times.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

The PCMS can be used to:

1. Supplement standard signing in construction or maintenance work zones
2. Reinforce static advance warning messages
3. Provide motorists with updated guidance information

PCMS should be placed approx. 500 to 800 feet in advance of the work zone conflicts or 1.5 to 2 miles in advance of complex traffic control schemes which require new and/or unusual traffic maneuvers.

If PCMS are to be used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

For additional information refer to the FDOT Plans Preparation Manual, Volume 3, Chapter 18.

ADVANCE WARNING ARROW BOARDS

As an arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.

A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.

When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

Additional Lamps Allowed

Minimum Required Lamps

Or

Additional Lamps Allowed

MODES

MOVE/MERGE LEFT

MOVE/MERGE RIGHT

MOVE/MERGE OR LEFT

- Minimum Required Lamps
- Additional Lamps Allowed
## General Information for Traffic Control Through Work Zones

### Drop-Off Condition Notes

1. A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slopes (A:B) steeper than 1:4. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required. See chart.

2. Distance X is to be the maximum practical under project conditions.

3. Distance from the travel lane to the barrier or warning device should be maximum practical for project conditions.

4. Any drop-off condition that is created and restored within the same work period will not be subject to the use of barriers; however, warning devices will be required.

5. When permanent curb heights are ≥6", no warning device will be required. For curb heights <6", see chart.

### Drop-Off Notes

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.

2. The following are defined as acceptable warning devices:
   - Vertical panels
   - Type I or Type II barricades
   - Drum
   - Cone (where allowed)
   - Tubular marker (where allowed)

3. Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:
   - 600: Temporary guardrail and end anchorage
   - 412: Temporary low profile barrier
   - 414: Type K temporary concrete barrier
   - 415: Temporary concrete barrier

4. Warning device spacing shall be as shown in Table I.

### Drop-Off Protection Requirements

#### All Speeds

<table>
<thead>
<tr>
<th>Device Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>D (in)</td>
</tr>
<tr>
<td>X (ft)</td>
</tr>
</tbody>
</table>

- NO CURB AND GUTTER

- NO MILLING OR RESURFACING

- NO TAPER

- TAPER TANGENT

- TAPER TANGENT

For Clear Zone widths, see Index No. 600 sheet 3.

### Drop-Off Protection Notes

1. Shoulder treatment may be used in lieu of barrier. Warning devices are required.

2. Daily inspections shall be conducted to assure that no erosion, excessive slopes, rutting, or other adverse conditions exist. Any deficiencies shall be repaired immediately.

3. Compensation for the placement and removal of the material required for the shoulder treatment shall be included in the cost for Maintenance Of Traffic, I.S. Use of shoulder treatment in lieu of a barrier is not eligible for CSIP consideration.

#### Drop-Off Notes

1. Pedestrian and/or bicyclist way drop-off is defined as:
   - A drop in elevation greater than 10 inches that is closer than 2 feet from the edge of the pedestrian or bicyclist way

2. A slope steeper than 1:2 that begins closer than 2 feet from the edge of the pedestrian or bicyclist way when the total drop-off is greater than 60 inches

3. Any drop-off adjacent to a pedestrian or bicyclist way shall be protected with warning devices, temporary barrier wall or approved handrail.

### Dropoffs in Work Zones

1. Edges of travel way.

2. Clear zone (CZ).

### Shoulder Treatment Notes

1. Shoulder treatment may be used in lieu of barrier. Warning devices are required.

2. Daily inspections shall be conducted to assure that no erosion, excessive slopes, rutting, or other adverse conditions exist. Any deficiencies shall be repaired immediately.

3. Compensation for the placement and removal of the material required for the shoulder treatment shall be included in the cost for Maintenance Of Traffic, I.S. Use of shoulder treatment in lieu of a barrier is not eligible for CSIP consideration.

### Travel Lane Treatment for Milling or Resurfacing

#### Notes

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.

2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 0.6 mile maximum.

3. If D is 1.6" or less, no treatment is required.

4. Treatment allowed only when D is 2.5" or less.

5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and M07-3-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 0.3 miles in length.

### Table I

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max Distance Between Devices (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cones or Tubular Markers Type I or Type II Barricades or Vertical Panels or Drums</td>
</tr>
<tr>
<td>25</td>
<td>Taper</td>
</tr>
<tr>
<td>30 to 45</td>
<td>25</td>
</tr>
<tr>
<td>30 to 70</td>
<td>25</td>
</tr>
</tbody>
</table>

*Refer to Standard Index drawing of selected barrier for required deflection space.
Section AA

Temporary Lane Separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels shall not be intermixed within the limits where the temporary lane separator is used. 

1. For single business entrances, place one 24” x 36” business sign for each driveway entrance affected. Signs shall show specific business names. Logos may be provided by business owners. Standard BUSINESS ENTRANCE sign in Index 17355 may be used when approved by the Engineer.

2. When several businesses share a common driveway entrance, place one 24” x 36” standard BUSINESS ENTRANCE sign according with index 17355 at the common driveway entrance.

3. Channelizing devices shall be placed at a reduced spacing on each side of the driveway entrance, but shall not restrict sight distance for the driveway users.

4. Business entrance signs are intended to guide motorists to business entrances moved/modified or disturbed during construction projects. Business entrance signs are not required where there is minimal disruption to business driveways which is often the case with resurfacing type projects.

PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE

1. Temporary lane separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels (W6-4) shall only be used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation. Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used. The connection between the channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.

2. Reflective materials shall have a smooth sealed outer surface which will display the same approximate color day and night. Furnish channelizing devices having retroreflective sheeting meeting the requirements of Section 990.

3. 12” openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25’ in areas with grades of 1% or less or 50’ in areas with grades over 1% as directed by the Engineer.

4. Tapered ends shall be used at the beginning and end of each run of the temporary lane separator to form a gradual increase in height from the pavement level to the top of the temporary lane separator.

5. The Contractor has the option of using portable temporary lane separators containing fixed channelizing devices in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet. The portable temporary lane separator shall come in portable sections that can be connected to maintain continuous alignment between the separate curb sections. Each temporary lane separator section shall be 36 inches to 48 inches in total length. Portable temporary lane separators shall duplicate the color of the pavement marking. Portable temporary lane separators shall be one of those listed on the Qualified Products List.

6. Any damage to existing pavement caused by the removal of temporary lane separator shall be satisfactorily repaired and the cost of such repairs are to be included in the cost of Maintenance of Traffic, LS.
GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

**Description:**

1. The details shown on this sheet are for the following purposes:
   - (a) For ease of identification and
   - (b) To provide information that supplements or supersedes that provided by the MUTCD.

2. The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.

3. No sign panel shall be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the QPL.

4. During hours of darkness, warning lights shall be used on LCDs, drums, vertical panels, Type I, Type II, Type III, and direction indicator barricades in accordance with 'Warning Lights' in Index No. 600.

5. Ballast shall not be placed on top rails or any striped rails or greater than 12" above the driving surface.

6. The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.

7. The splicing of sheeting is not permitted on either channelizing devices or MOT signs.

8. For rails less than 12'-0" long, 4" stripes shall be used.

9. Cones shall:
   - a. Be used only in active work zones where workers are present.
   - b. Not exceed 2 miles in length of use at any one time.
   - c. Be reflectorized as per the MUTCD with Department approved reflective collars when used at night.

10. Spacing for longitudinal channelizing devices when placed singly shall be the same as Type I or Type II barricades or drums.

11. Vehicular longitudinal channelizing devices shall not exceed 36" in height. For vehicular longitudinal channelizing devices (LCDs) less than 22" in height, the LCD shall be supplemented with approved fixed (surface mounted) channelizing devices (tubular markers, vertical panels, etc.) along the run of the LCD. The cost of the fixed supplemented channelizing devices shall be included in the cost of the LCD. LCDs less than 32" in height shall not be used for speeds greater than 45 mph.

12. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edge striping above the walkway. A gap exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have smooth connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 27, otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.

**Identifications - Channelizing and Lighting Devices**

**GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES**

**LAST REVISION**

FDOT 2014
DESIGN STANDARDS

**INDEX NO. 600**

**SHEET NO. 12 of 13**
GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

07/01/13

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NO. SHEET

INDEX

DESCRIPTION:

APPLICATION FOR REFLECTIVE PAVEMENT MARKERS

A. Work Zone Applications Only, For Traffic And Nontraffic Areas.

B. Permanent Application In Traffic And Nontraffic Areas Or Can Be Used In Work Zone Applications For Traffic And Nontraffic Areas.

NOTES FOR REFLECTIVE PAVEMENT MARKERS

1. The color of the raised pavement marker under both day and night conditions shall conform to the color of the marking for which they serve as a positioning guide, or for which they supplement or substitute.

2. To provide contrast on concrete pavement, or light asphalt, the five (5) white RPM's shall be followed by five black RPM's. The spacing between RPM's shall be 2'-6". Black RPM's will not be required for contrast with yellow RPM's.

3. RPM's used to supplement lane lines are to be paid for as Reflective Pavement Marker (Temporary), EA. RPM's used as a temporary substitute for paint or removable tape due to equipment malfunction are to be placed at the Contractor's expense.

4. The use of RPM's to supplement or substitute paint or removable tape in work zones shall be as shown in Index No. 17352 with the following exceptions:
   a. All lane lines.
   b. Edge lines in transition & approach areas.
   c. Edge lines of gore areas.

5. The color of the raised pavement marker under both day and night conditions shall conform to the color of the marking for which they substitute.

6. Lane widths identified in the plans must be maintained. Placement of RPM's should consider where work zone markings will be placed as soon as conditions allow. If the RPM's can not be placed so that the lane width is maintained after the placement of the work zone markings, the conflicting RPM's must be removed.

7. Placement of the appropriate work zone marking shall be made within 3 days, or sooner if possible. When RPM's are used as a temporary substitution for work zone markings the following shall apply:
   a. Lane width of RPM markings shall be maintained. Placement of RPM's should consider where work zone markings will be placed as soon as conditions allow. If the RPM's can not be placed so that the lane width is maintained after the placement of the work zone markings, the conflicting RPM's must be removed.
   b. The color of the RPM body and the reflective face shall conform to the color of the marking for which they substitute.
   c. In work zones, CLASS A or B RPM's may be used to form lane lines, edge lines and temporary gore areas as a temporary substitute for paint or removable tape at the spacing shown above.

USE OF RPMS TO SUPPLEMENT PAINT OR REMOVABLE TAPE IN WORK ZONES

1. RPM's shall be installed as a supplement to:
   a. All lane lines.
   b. Edge lines in transition & approach areas.
   c. Edge lines of gore areas.

2. Placement of RPM's should be as shown in Index No. 17352 with the following exceptions:
   a. RPM's shall be placed at 5 feet center to center in approach and transition areas.
   b. RPM's shall be placed at 10 feet center to center in tangent and transition areas.
   c. RPM's shall be placed at 20 feet center to center in tangent and transition areas.

PLACEMENT OF PAVEMENT MARKINGS

PAVEMENT MARKINGS

LW = Total width of travel lanes divided by the number of travel lanes unless other widths are shown in the plans.