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 in the State Highway System. Controls in this index are based on the high volume nature of State highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.

Index No. 600 provides department policy and standards. Changes are only to be made thru Department approved procedures. Index Nos. 601 thru 610 provide typical applications for various situations. Modification can be made to these Indexes as long as the changes comply with the MUTCD and Department Design Standards.

The sign spacings shown on the Indexes are typical (recommended) spacings. These distances may be increased or decreased based on field conditions, in order to avoid conflicts or to improve site specific traffic controls.

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
The Florida Department of Transportation has adopted the "Manual On Uniform Traffic Control Devices For Streets And Highways" (MUTCD) and subsequent revisions and additions, as published by the U.S. Department of Transportation, Federal Highway Administration, for mandatory use on the State Maintained Highway System whenever there exists the need for construction, maintenance operations or utility work.

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

CPR Code of Federal Regulations
DSO District Traffic Operations Engineer
FDOT Florida Department Of Transportation
HA Highway Advisory Radio
L Taper Length, Buffer Length Or Taper Length Plus Buffer Space
MAS Motorist Awareness System
MOT Maintenance Of Traffic
MOTC Maintenance Of Traffic Committee
MUTCD Manual On Uniform Traffic Control Devices For Streets And Highways
NCHRP National Cooperative Highway Research Program
PCMs Portable Changeable (Variable) Message Sign
PRS Portable Regulatory Sign
P Raised Retro Reflective Pavement Marking
RSDU Radar Speed Display Unit
S Posted Speed Of (KPH) Peak 85 Percentile Speed (MPH)
SLED Speed And Law Enforcement Officer
TTC Temporary Traffic Control
TCP Traffic Control Plans
TCZ Traffic Control Zones
TMZ Truck Mounted Attenuator
VECP Valve Engineering Change Proposal
W Width Of Taper Transition In Feet, i.e., Lateral Offset

SYMBOLS
The symbols shown are found in the FDOT site menu under Traffic Control. All Library on the CADD system. Symbols assigned to the 600 series Design Standards and applicable to traffic control plans, unless otherwise identified in the plans, are as follows:

0 Work Area, Hazard Or Work Phase (Any pattern within a boundary)
0 Sign With 18" x 18" (Min.) Orange Flag And Type B Light
1 Channelizing Device
0 Type III Barricade
1 Work Zone Sign
0 Flag
0 Traffic Signal
0 Advance Warning Arrow Panel
0 Portable Signal
0 Crash Cushion
0 Stop Bar
0 Work Vehicle With Flashing Beacon
0 Shadow ES1 Advance Warning (AW) Vehicle
0 With Advance Warning Arrow Panel And Warning Sign
0 Truck Mounted Attenuator (TMA)
0 Orange Flag For TC2 Signs
0 Type B Light For TC2 Signs
0 Law Enforcement Officer
0 Portable Regulatory Sign
0 Radar Speed Display Unit
0 Portable Changeable (Variable) Message Signs
0 Lane Identification - Direction Of Traffic
DEFINITIONS

Regulatory Speed (In Work Zones)
The maximum speed posted for the work zone is indicated by the regulatory speed limit sign. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine required lengths, shoulder rates, lane rates, lane lengths, need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, super-elevation and other similar features.

Advisory Speed
The recommended maximum traveled speed through a curve or in a hazardous area.

Travel Way
The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel ways may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

a. Travel lane: The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other travel lanes.

b. Auxiliary lane: The designated widths of roadway pavement marked to separate it from opposing traffic or traffic occupying other travel lanes.

Detour, Lane Shift, and Diversion
A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto another portion of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway usually adjacent to the permanent roadway and within the limits of the right-of-way.

Above Ground Hazard
Any ground hazard is any object, material or equipment other than traffic control devices that encroach upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4' in height and is firm and unyielding or doesn't meet clearance requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

Temporary traffic control devices shall be removed as soon as practical when they are no longer required. When work is suspended for short periods of time, temporary traffic control devices that are no longer necessary shall be removed or covered. Arrow panels, portable changeable message signs, radar speed display trailers, portable regulatory signs, and any other trailer mounted devices shall be delineated with retractive reflective traffic control devices when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

PEDESTRIAN AND BICYCLIST

When an existing pedestrian way or bicycle way is located within a temporary traffic control zone, accommodation must be maintained and provision for the disabled must be provided.

PEDESTRIAN AND BICYCLIST

Only approved temporary traffic control devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detour shall be provided by appropriate signs.

OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

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

a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.

b. Work operations are 60 minutes or less.

c. Speed limit is 45 mph or less.

d. Sign lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.

e. Mobile lighting equipment is placed directly above the work area.

f. Traffic control devices are placed in advance of the vehicle/equipment crossing the lane using a minimum 100 foot taper.

g. Volume or complexity of the roadway may dictate additional devices, signs, flags and/or traffic control officers.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

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

a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.

b. Work operations are 60 minutes or less.

c. Speed limit is 45 mph or less.

d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet inside the edge of trafficway and 18 feet high.

e. Equipment that may be encroached into the roadway may have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

f. Volume or complexity of the roadway may dictate additional devices, signs, flags and/or traffic control officer.

g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.

h. Other Governmental Agencies, Rail facilities, or Codes may require additional clearance. The greater clearance required prevails as the rule.

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

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

a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.

b. Work operations are 1 day or less.

c. Speed limit is 45 mph or less.

d. No encroachment by any part of the work activities and equipment within 2 feet from the edge of trafficway up to 18' high.

e. Equipment that may be encroached into the roadway may have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

f. Volume or complexity of the roadway may dictate additional devices, signs, flags and/or traffic control officer.

g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.

h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OVERHEAD WORK CONTINUED.

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

Traffic shall be detoured, shifted, diverted or paced as to not encourage in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but is not limited to, the following enforcement actions:

a. Beam, guard and segment placement.

b. Deck form placement and removal.

c. Concrete deck placement.

d. Railing construction located at edge of deck.

e. Structure demolition.

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

Overhead cable and/or de-energized conductor installations shall be in proper tension shall be done in accordance with the appropriate standard index drawing 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 roadway. The utility or contractor shall take precautions to ensure that pull ropes and conductors/cables are not at time fall below the minimum vertical clearance.

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

a. The temporary traffic control setup for the initial pulling at the pull ropes across the roadway.

b. 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.

RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic control and reduced conflict on the tracks. The evaluation should include a minimum traffic volume, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

SITE DISTANCE

Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.

Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely.

ABOVE GROUND HAZARD

Above ground hazards (see definition) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constilute above ground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For above ground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.
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 lanes. 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 2, Chapter 4, Section 4.2 and Exhibit 4-4 and 4-9 of the Plans Preparation Manual.

<table>
<thead>
<tr>
<th>WORK ZONE SPEED (MPH)</th>
<th>TRAVEL LANES &amp; MULTILANE RAMPS (FEET)</th>
<th>AUXILIARY LANES &amp; SINGLE LANE RAMPS (FEET)</th>
</tr>
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<tbody>
<tr>
<td>60-70</td>
<td>30</td>
<td>18</td>
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<td>55</td>
<td>24</td>
<td>14</td>
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<td>45-50</td>
<td>18</td>
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<td>30-40</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>ALL SPEEDS</td>
<td>4' BEHIND FACE OF CURB</td>
<td>4' BEHIND FACE OF CURB</td>
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<tr>
<td>Curb &amp; Gutter</td>
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OVERWEIGHT/OVERSIZE VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensional loads. The Contractor shall notify the Engineer who in turn shall notify the State Permit Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance or traffic plan which will impact the flow of overweight/oversize vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permit Office shall be notified immediately.

LANE WIDTHS

Lane widths of through roadways should be maintained through work zone travels whenever practical. The minimum widths for work zone travels shall be as follows: 11' for Interstates with at least one 12' lane provided in each direction, unless normally accepted by the Federal Highway Administration or for freeways and 10' for all other facilities.

LENGTH OF LANE CLOSURES

Lane closures shall not exceed 2 miles in total length (taper, buffer space and work space) in any given direction on the Interstate or on state highways with a posted speed of 55 MPH or greater.

SUPERELEVATION

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal cross slope controls curvature, the minimum radii that can be applied are listed in the table below.

<table>
<thead>
<tr>
<th>MINIMUM RADIUS FOR NORMAL CROSS SLOPES</th>
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<tbody>
<tr>
<td>DESIGN SPEED</td>
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<td>---------------</td>
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<tr>
<td>MPH</td>
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<tr>
<td>65</td>
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</table>

Superelevate When Smaller Radii is Used

TEMPORARY RAISED RUMBLE STRIP SET

**GENERAL NOTES**

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

2. Temporary raised 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 temporary raised rumble strip prior to removing the advance warning signs.

2010 FDOT Design Standards

GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>5 of 13</th>
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</table>
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 shall be labeled as such. The reflective, fluorescent orange-red or fluorescent yellow-green as defined by the standard. The reflective-foresight material shall be orange, red, or yellow-green, or a fluorescent-foresight version of these colors, and shall be visible at a minimum distance of 1,000 feet

WORKERS: All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery, or equipment in a roadway zone clothing could become entangled during operation shall wear high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

UTILITIES: When other industry apparel/safety standards require utility workers to wear apparel that is inconsistent with ANSI/ISEA, FHWA, etc., the other standards for apparel may prevail.

FLAGGERS: For daytime activities, flaggers shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, flaggers shall wear ANSI/ISEA Class 3 apparel.

FLAGGER CONTROL

Where flaggers are used, a FLAGGER symbol or legible sign must be replaced the WORKERS symbol or legible sign.

The flagger must be clearly visible, visible to approaching traffic, for a distance sufficient to permit proper response by the motorist to the flagger's signals, and stop traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color 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 a red paddle with a white background. 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 on the ground should be 7 ft. The STOP/SLOW paddle shall be at least 24 inches wide with letters at least 6 inches high and shall 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 right-angle, the STOP/SLOW paddle shall be retroreflective.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline of a divided highway. When two 12 ft flaggers are used and there is opposing traffic in the adjacent lane, flags shall be placed. 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 nightime, flags shall be retroreflective.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

Flagger Stations

Flagger stations shall be located far enough in advance of the work space so that approaching road users with sufficient distance to stop before entering the work space. When used at nightime, flagger station shall be illuminated.

REGULATORY SPEEDS IN WORK ZONES

Traffic Control Plans (TCP) for all projects must include specific regulatory speeds for each phase of work. This can either be the speed posted or a reduced speed. The speed posted in the TCP includes the speed the rigidly to be made. Regulatory speeds are to be uniformly established through each phase.

In general, the regulatory speed shall be established to route vehicles safely through the work zone as close as to normal/highway speed as possible. The regulatory speed shall 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 GDP 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 speed signs have been removed, the regulatory speed existing prior to construction will automatically go back into effect unless new speed limit signs are provided for in the plans.

On projects with interspersed work activities, speed reductions should be located in proximity to those activities that merit a reduced speed, and not "beneath" the project at the departure of such activities, the normal/highway speed should be posted to give the motorist notice that normal speeds can be resumed.

If the existing regulatory speed is 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 no more than 1/2 mile intervals. Engineering judgment shall be used in placement of the additional signs. Locating these signs beyond ramp entries and beyond major intersections are examples of proper placement. For urban situations (interstates), additional speed signs are to be placed at a maximum of 500 ft. spacing.

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 to investigate the need. It will not be necessary for the TCP to issue regulations for regulatory speeds in work zones due to the revised provisions of F.S. 318.074(31) D1). 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 beneath the construction warning signs for which the advisory speed is required.

For additional information refer to the FDOT Plans Preparation Manual, Volume 1, Chapter 10.

SURVEY WORK ZONES

The SURVEY CREW AHEAD symbol legible sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur at the discretion of the Traffic Control. Type III Light or Dual Orange flags shall be used at all times to enhance the SURVEY CREW AHEAD sign, even with mesh signs.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign is called for on certain EGD Series Templates should be omitted.

Survey 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 Board of the Traffic Control to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

(A) A STAY IN YOUR LANE WIT/RIGHT TURN sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.

(B) Elevations Surveys Zones may be used at the discretion of the Traffic Control to control work zone traffic and other traffic conditions when the Survey Work Zone includes intersections.

(C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backside tripod and/or instrument. Cones shall be placed at the equipment, and up to 50 intervals for at least 200' towards the flow of traffic.

(D) Horizontal Control-With traffic flow in opposite direction, cones shall be used to protect the backside tripod and/or instrument. Cones shall be placed at the equipment, and up to 50 intervals for at least 200' in both directions towards the flow of traffic.
SIGN PLACEMENT
Post-mounted signs installed at the side of the road shall be mounted a height of at least 7 feet measured from the bottom of the sign to a horizontal line extended from the nearest edge of the pavement. Signs mounted on barricades or other portable supports shall be no less than 1 foot above the traveled way.

SIGN MATERIALS
Mesh signs may be used only for Daylight Operations as noted in the standards. Type III Lights and Orange Flags are not required except for survey work zones.

VINYL signs may be used for Day or Night Operations not to exceed 2 day except as noted in the standards. Type III Lights and Orange Flags are not required except for survey work zones.

INTERSECTING ROAD SIGNING
Signs for the control of traffic entering and leaving work zones by way of intersecting highways, roads and streets shall be adequate to make drivers aware of work zone conditions. Under no condition will intersecting leg signage be less than a ROAD WORK AHEAD sign.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING
Adjacent work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas. In some cases other areas within their traffic control zones where such restraints 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 misunderstandings on the part of the traveling public as to the intended travelway by the traffic control procedures established:

(4) For scheduled projects the engineer responsible charge of the project design will resolve anticipated work zone conflicts prior to the beginning of the project traffic control plan. This may be the rendezvous of plans or procedures established by the Resident Engineer for projects under his jurisdiction, and by the District Construction Engineer for in-progress projects under adjoining jurisdictions.

(5) When anticipated conflicts arising between adjoining in progress highway construction projects not resolved by the Resident Engineer for projects under his jurisdiction, and by the District Construction Engineer for in-progress projects under adjoining jurisdictions.

(6) The District Maintenance Engineer will resolve anticipated and occurring conflicts when necessary.

(7) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance projects, between routine maintenance work, unscheduled 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 travelpath shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings 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 should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curves (R-L-R) warning sign should be used for the advanced warning sign 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 for any type roadway, but particularly on multilane divided highways, where vehicle speed is generally in the higher range (45 MPH or more).

UTILITY WORK AHEAD SIGN
The UTILITY WORK AHEAD (U-W-A) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK W/ SIGN for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN
The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT----- 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 the conclusion of work.

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.

END ROAD WORK SIGN
The END ROAD WORK sign (G20-2A) should be installed on all projects, but may be omitted where 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 other distance is called for in the plans. When other construction or maintenance work occurs within 1 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.
PROJECT INFORMATION SIGN

4 POST SIGN SUPPORT MOUNTING DETAIL

TYPICAL FOUNDATION DETAIL

SIGN ATTACHMENT DETAIL

BRACKET DETAIL
MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 0.5" 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.

The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

TRUCK-MOUNTED ATTENUATORS

Truck-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index Nos. 602P and 602. For short-term 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 daylight period however, painting over existing pavement markings shall not be permitted. Pavement with overlays of either a structural 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 TCP and be approved by the District Traffic Operations Engineer.

Maintain all existing active or traffic responsive lane signal operations for main and side street movements for the duration of the Contract and require restoration of all phases of traffic within 12 hours. The contractor shall accept any additional technology listed on the Department’s Approved Products List (APL) and approved by the Engineer to restore detection capabilities. The plan should identify the intersections where Temporary Traffic Detection is required.

CHANNELIZING AND LIGHTING DEVICES

Channelizing and lighting devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD to subject supplemental revisions provided in the contract documents and Index 500 requirements.

Approved devices are listed on the Department’s Qualified Product List.

CHANNELIZING AND LIGHTING DEVICE CONSISTENCY

Barriques, vertical panels, cones, hula markers and drums shall not be interleaved within either lateral advancement or within the tangent alignment.

WARNING LIGHTS

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

Flashing

Type A Low Intensity Flashing Warning Lights are to be mounted on barriques, drums, vertical panels or advance warning signs (except as noted below) and are intended to continuously warn drivers that they are approaching or proceeding in a hazardous area. Flashing lights shall be used to delineate the intended path of travel and shall be placed in areas that will form a continuous line to the drivers eyes. The Type A light shall be used to mark obstructions that are located adjacent to or in the intended travelway. Type A lights shall not be used in conjunction with the first advanced warning sign or the second such sign when used.

For post-mounted signs, Type B High Intensity Flashing Warning Light 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 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.

Steady-Burn

Type C steady-burn lights are to be mounted on barriques, drums, concrete barrier walls or vertical panels and used in combination with those devices to delineate the travel path on lane closures, lane changes, diversions, curves and other similar conditions. Steady-burn lights are intended to be placed in a line to delineate the traveled way through and around obstructions in the transition buffer, work and terminal 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 and standard orange flag 18" x 18" (min.) shall be mounted on the first advanced warning sign and the first and second advanced warning sign where two or more signs are used this applies to approaches to any work zone. The flag shall be mounted on the channel post or on the upper edge of the sign furthest from traffic.

PORTABLE CHANGEABLE (VARIABLE) 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 on all new or existing traffic control devices which require new or different traffic maneuvers.

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 1, Chapter 10.

ADVANCE WARNING ARROW PANELS

An arrow panel 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 panel shall be used only in the caution mode.

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

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

M0DEs

- Minimum Required Lamps
- Additional Lamps Allowed

MOVE/MERGE LEFT
MOVE/MERGE RIGHT
MOVE/MERGE RIGHT OR LEFT

GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

2010 FDOT Design Standards

305/05/00

Sheet No.

8 of 13

INDEX No

600

9/14/10

07/01/09

5 of 13

DATE UTILITY ACCOMMODATION MANUAL REVISIONS

Or

Or

Or
DROP-OFF CONDITION NOTES

1. A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3\(^\circ\) with slopes (4:1) 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:
   a. Vertical panel
   b. Type I Or Type II barricades
   c. Drum
   d. Curb (where allowed)
   e. Tubular marker (where allowed)

3. Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

<table>
<thead>
<tr>
<th>Index No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>Temporary guardrail and anchorages</td>
</tr>
<tr>
<td>417</td>
<td>Temporary low profile barrier</td>
</tr>
<tr>
<td>414</td>
<td>Type K temporary concrete barrier</td>
</tr>
<tr>
<td>415</td>
<td>Temporary concrete barrier</td>
</tr>
<tr>
<td></td>
<td>For temporary water filling barriers see the QPL.</td>
</tr>
</tbody>
</table>

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

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</td>
</tr>
<tr>
<td></td>
<td>Taper</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>30 to 45</td>
<td>25</td>
</tr>
<tr>
<td>50 to 70</td>
<td>25</td>
</tr>
</tbody>
</table>

DROP-OFFS IN WORK ZONES

SHOULDER TREATMENT

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. Compensations for the placement and removal of the material required for the shoulder treatment shall be included in the cost for Maintenance Of Traffic, LS. Use of shoulder treatment in lieu of a barrier is not eligible for MCOT consideration.

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING

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 RH-21 sign with "UNEVEN LANES" is required at intervals of 1/4 mile maximum.

3. If 0° is 15° or less, no treatment is required.

4. Treatment allowed only when D is 3° or less.

5. If the slope is steeper than 1:4, (not to be steeper than 1:1), the RH-21 and MDT-151-56 signs shall be used as a supplement to the WH-11. This condition shall not exceed 3 miles in length.
**TEMPORARY LANE SEPARATOR**

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 (W8-4) shall only be used on center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation.

2. Reflective materials shall have a smooth sealed outer surface which will display the same approximate color day and night.

3. 12" openings for drainage will be constructed in the separator island every 25' in areas with grades of 1% or less or every 50' in areas with grades over 1% as directed by the Engineer.

4. Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used.

5. The Contractor has the option of using temporary lane separators systems (including channelizing devices) from the qualified products list in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet.

6. Temporary lane separator shall be paid for under the contract unit price for Maintenance of Traffic, LS, and will include all materials and work necessary to construct, relocate, maintain, and remove the temporary lane separator. 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.

**SECTION AA**

**PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE**

1. Sign height shall be a minimum. Sign offset from edge of travelway should be between 8' and 10' and relatively consistent through the project phase.

2. Signs should show specific business names. Logos may be provided by business owners. BUSINESS ENTRANCE sign in accordance with Index 177105 may be used when approved by the Engineer.

3. Place one business sign for each driveway entrance affected. When several businesses share a common driveway entrance, place one sign per common driveway entrance.

4. Channelizing devices should be placed at a reduced spacing on each side of the driveway entrance as to not to interfere with providing sight distances for the driveway user.

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**Table I**

<table>
<thead>
<tr>
<th>Device Spacing</th>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tubular Markers</td>
</tr>
<tr>
<td>Taper</td>
<td>Taper</td>
<td>Taper</td>
</tr>
<tr>
<td>25</td>
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<td>50 to 70</td>
<td>25</td>
<td>50</td>
</tr>
</tbody>
</table>

**Asphalt (See Note 5)**

**Fixed (Surface Mounted) Channelizing Devices**

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**GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES**
1. Only approved traffic control devices included on the Qualified Products List (QPL) may be used.

2. The FDOT approval number shall be engraved on the device at a convenient and readily visible location. Where engraving is not practical, a water-resistant type label may be used.

3. 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.

4. 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.

5. No sign panel should be mounted on any barricade type unless the barricade/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the barricade shown on the QPL.

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

7. Ballast shall not be placed on top rails or any striped rails or higher than 15" above the driving surface.

8. The direction indicator barricades may be used in taper 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.

9. The spotting of sheeting is not permitted on either channelizing devices or MUTCD signs.

10. For rails less than 3'-0" long, 4" stripes shall be used.

II. 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 retroreflectorized as per the MUTCD with Department approved reflective colors when used at night.

IDENTIFICATIONS - CHANNELIZING AND LIGHTING DEVICES
**TEMPORARY SUBSTITUTION OF RPM’S FOR PAINT OR REMOVABLE TAPE**

1. Paint or removable tape are the required work zone markings and shall be placed in accordance with the plans and specifications.

   If these work zone markings can not be placed due to weather restrictions identified in the appropriate specification, temporary substitution of RPM’s for work zone markings will be allowed until the weather conditions permit the placement of appropriate work zone markings. Temporary substitution of RPM’s for work zone markings will be allowed for equipment malfunction, 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 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.

   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, B or D 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. Where the RPM’s will be used for five (5) days or less, CLASS E RPM’s may be used.

**USE OF RPM’S TO SUPPLEMENT PAINT OR REMOVABLE TAPE IN WORK ZONES**

1. RPM’s shall be installed as a supplement to:
   a) Lane lines.
   b) Edge lines in transition and approach areas.
   c) Edge lines in gore areas.

2. Placement of RPM’s shall be as shown in Index No. 17352 with the following exceptions:
   a) Work Zone Application 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.
   c) Work Zone Application Only, For Traffic And Nontraffic Areas.
   d) Temporary Work Zone Application Only, Not Exceeding Five (5) Continuous Days, For Traffic And Nontraffic Areas.

**NOTES FOR REFLECTIVE PAVEMENT MARKERS**

1. The color of the raised pavement marker under both dry and wet 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 weather restrictions 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 paid at the Contractor’s expense.