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 on the State Highway System. Certain requirements 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 600 provides Department policy and standards. Changes are only to be made thru Department-approved procedures.

Indexes 601 thru 670 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 spacing shown on the Indexes are typical (recommended) distances. These distances may be increased or decreased based on field conditions, in order to avoid conflicts or to improve site specific traffic controls.

Except for emergencies, any road closure on State Highway System shall comply with Section 335.15, F.S.

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 addendums, 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.

SYMBOLES

The symbols shown are found in the FDOT site menu under Traffic Control cell 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:

- Work Area, Hazard Or Work Phase (Any pattern within a boundary)
- Channelizing Device
- Pedestrian Longitudinal Channelizing Device (LCD)
- Type III Barricade
- Work Zone Sign
- Flagger
- Automated Flagger Assistance Device (AFAD)
- Temporary Traffic Signal
- Advance Warning Arrow Board
- Crash Cushion
- Stop Bar
- Work Vehicle With Flashing Beacon
- Shadow (S) Or Advance Warning (AW) Vehicle With Advance Warning Arrow Board And Warning Sign
- Truck/Trailer Mounted Attenuator (TMA)
- Law Enforcement Officer
- Portable Regulatory Sign
- Radar Speed Display Unit
- Portable Changeable (Variable) Message Signs (PCMS)
- Lane Identification + Direction Of Traffic
- Traffic Control Officer

### SYMBOLS

#### Work Area, Hazard Or Work Phase
- Any pattern within a boundary

#### Channelizing Device
- A device used to control the flow of traffic or to divert or channel traffic.

#### Pedestrian Longitudinal Channelizing Device (LCD)
- A strip of white or yellow colored material, typically placed on the ground, used to separate pedestrian and vehicular traffic.

#### Type III Barricade
- A temporary barrier used to control traffic flow.

#### Work Zone Sign
- A sign used to alert drivers to a work zone.

#### Flagger
- A person who uses hand signals to control traffic.

#### Automated Flagger Assistance Device (AFAD)
- An automated system that provides a continuous stream of signals to flaggers.

#### Temporary Traffic Signal
- A traffic signal used for temporary traffic control.

#### Advance Warning Arrow Board
- A board with arrows that display the direction of traffic.

#### Crash Cushion
- A soft barrier used to absorb the impact of collisions.

#### Stop Bar
- A barrier used to stop traffic.

#### Work Vehicle With Flashing Beacon
- A vehicle equipped with flashing beacons for traffic control.

#### Shadow (S) Or Advance Warning (AW) Vehicle
- A vehicle with advanced warning options.

#### Truck/Trailer Mounted Attenuator (TMA)
- A device mounted on a truck or trailer to control traffic.

#### Law Enforcement Officer
- A law enforcement professional who may assist with traffic control.

#### Portable Regulatory Sign
- A sign that can be moved and used to regulate traffic.

#### Radar Speed Display Unit
- A device that displays radar speed readings to drivers.

#### Portable Changeable (Variable) Message Signs (PCMS)
- Signs that can display variable messages.

#### Lane Identification + Direction Of Traffic
- Signs that indicate lane direction and identification.

#### Traffic Control Officer
- A professional responsible for managing traffic control.
GENERAL INFORMATION FOR TRAFFIC OVERHEAD WORK

TARGET HAZARD

Only approved pedestrian longitudinal channelizing devices may be used to delineate a zone, accommodation must be maintained and provision for the disabled must be provided. Portable Regulatory Signs, and any other trailer mounted device shall be delineated or covered. Temporary traffic control devices that are no longer appropriate shall be removed they are no longer needed. When work is suspended for short periods of time, all temporary traffic control devices shall be removed as soon as practical when work is suspended for short periods of time.

DEFINITIONS

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

b. Auxiliary Lane: The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from traffic.

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 a different section 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.

Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches 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 breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

All temporary traffic control devices shall be the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

Temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

Armored Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a temporary traffic control device placed at each corner when in use and shall be moved outside the travel way and clear zone on 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 traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway. Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following conditions is 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 45 mph or less.
- Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- Aerial lift equipment is placed directly below the work area and clear of the lane.
- Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Work overhead above an open traffic lane is allowed if all 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 45 mph or less.
- Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- Aerial lift equipment is placed directly below the work area and clear of the lane.
- Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

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

Work adjacent to an open traffic lane is allowed if all 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 45 mph or less.
- Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- Aerial lift equipment is placed directly below the work area and clear of the lane.
- Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

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

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area below the overhead work (i.e., exactly below the work zone) when the work is located directly below the overhead work and in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but is not limited to, the following construction activities:

a. Beam, girder, segment, and bent/curtain wall placement.

b. Form and Falsework placement and removal.

c. Concrete 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 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 lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

DEFINITIONS

a. Auxiliary Lane: The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from traffic.

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

c. Beam, girder, segment, and bent/curtain wall placement.

d. Form and Falsework placement and removal.

e. Concrete placement.

f. Railing construction located at edge of deck.

g. Structure demolition.

railroad crossings affected by a construction project shall be evaluated for traffic control to reduce queuing on the tracks. The evaluation should include as a minimum traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

SIGHT 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 work zone. 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. Construction equipment and materials shall not restrict intersection sight distance.

ABOVEGROUND HAZARD

Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control practices. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For aboveground 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 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 the PPM, Volume 3, Chapter 4.

OVERWEIGHT/OVERSIZED VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-3777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include (location, type of restriction, height, width and weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

LANE WIDTHS

Lane widths of through roadways should be maintained through work zone travel ways wherever 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 newer. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retro-reflective 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 2 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

WORKERS: All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear high-visibility safety apparel.

UTILITY WORKERS: 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. 316.745(2)(b). Maximum 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.

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 interspersed 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 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-interstate) and on rural or urban interstate, additional regulatory speed signs are to be placed at no more than 1 mile intervals. Engineering judgement should be used in placement of the additional signs. Locations such as dead end accesses and beyond major intersections are examples of proper placement. For urban situations (non-interstate), additional speed signs are to be placed at a maximum of 1,000 feet apart. If existing speed signs are removed, the regulatory speed existing prior to construction will automatically resume. 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.

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

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 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.

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For additional information, refer to the Plans Preparation Manual, Volume 1, Chapter 10.
FLAGGER CONTROL
Where flaggers are used, a FLAGGER 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 stop as required before entering the work zone. 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 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, must not be less than 6 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semiglazed material. The background of the STOP/SLOW paddle shall be orange with black letters and border. When used at night-time, 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) 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 good grade of red material, and securely fastened so that they are approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night-time, 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) 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 good grade of red material, and securely fastened so that they are approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

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 Party Chief to fit roadway and traffic conditions when the Survey Work Zone has intersections.

(A) A STAY IN YOUR LANE (W1-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.

(B) Elevation Surveys—Cones may be used at the discretion of the Party Chief to protect private property and flaggetting. Cones, if used, may be placed at up to 50 intervals along the break line between the work zone.

(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 directions, 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.

SIGNS
SIGN MATERIALS
Mesh signs and non-retroreflective vinyl signs may only be used for daylight operations. Non-retroreflective vinyl signs must meet the requirements of Specifications Section 994.

Retroreflective vinyl signs meeting the requirements of Specification Section 994 may be used for daylight 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 APL standards.

SIGN COVERS 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 coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

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 curve (R-14) 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 Advance 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 (45 MPH or more).

UTILITY WORK AHEAD SIGN
The UTILITY WORK AHEAD (W1-71) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN
The length of road work sign (G20-1) boaring 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 beginning construction 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 8W-1SP 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 when 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 Operations occur within 1 mile this sign should be installed and coordinate 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 INFORMATION FOR TRAFFIC

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 APL.
   b. Pedestrian advanced warning or pedestrian regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.
   c. Median barrier mounted signs per Index 11871.

TEMPORARY SIGN SUPPORT NOTE:

1. Unless shielded with barrier or outside of the Clear Zone, signs mounted on temporary supports or barricades, and barricade/sign combination must be crashworthy in accordance with NCHRP 250 requirements and included on the Approved Products List (APL).

POST MOUNTED SIGN NOTES:

1. Use only approved systems listed on the Department’s Approved Products List (APL).

2. Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this index.

3. Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.48 in² for 60 ksi steel, or a minimum section modulus of 0.34 in² for 80 ksi steel.

4. Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.47 in² for 70 ksi steel, or a minimum section modulus of 0.37 in² for 100 ksi steel.

5. U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 578, Grade 100 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.

6. Sign attachment bolts, washers, nuts, and spacers shall conform with ASTM A 307 or A 36.

7. For diamond warning signs with supplement plaque (up to 5’6” in area), use 4 lb/ft posts for up to 5’ Clear Height (measure to the bottom of diamond warning sign).

8. Install 4 lb/ft Steel U-Channel Posts with approved breakout splice in accordance with the manufacturer’s detail shown on the APL.

9. The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakout splice in accordance with the manufacturer’s detail shown on the APL.

10. Install all posts plumb.

11. The contractor may set posts in performed holes to the specified depth with suitable backfill tamp securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer’s detail shown on the APL.

TYPICAL FOUNDATION DETAIL

See APL for post, splice and connection details. No bolts installed closer than 1” to cutting edge.

NOTES FOR TABLE:

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

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

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

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

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PROJECT INFORMATION SIGN NOTES:

1. Road designation should be the most common designation (i.e. I-Interstate, SR-State Road or US.)

2. Italic text on signs indicate variable information specific to the project.

3. See Sheet 5 for Typical Foundation Details and Post and Foundations Table.
COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES

Notes:
1. The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" x 48".
2. Fluorescent orange shall be used for all orange colored work zone signs.
3. The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 600 series Design Standards and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer.

The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans. See Index No. 17355 for MDT sign details.
MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/2" 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.

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. Remove conflicting pavement marking using a method that will not damage the surface texture of the pavement, unless the pavement will be restored prior to traffic use. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as substitute for removal or obliteration. Full pavement width overlays of either a structural or friction course (non-final surface) are an acceptable alternate means to achieve removal.

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 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 12 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.

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 markings.
3. Provide motorists with updated guidance information.

PCMS should be placed approx. 500 to 800 feet in advance of the work zone conflicts or 0.5 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 I, Chapter 10.

TRUCK/TRAILER-MOUNTED ATTENUATORS

Truck/trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Part VI of the MUTCD. For short-term, stationary operations, see Index Nos. 607 and 619. For short-term, stationary operations, see Part VI of the MUTCD.

CHANNELIZING DEVICES

Channelizing 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. Lighting Devices must not be used to supplement channelization.

CHANNELIZING DEVICE CONSISTENCY

Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.
DROP-OFF CONDITION NOTES

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

2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1). A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4 and an algebraic difference in slopes greater than 0.25 (See Drop-off Condition Detail).

3. Drop-offs may be mitigated by placement of slopes with optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LSD. Use of this treatment in lieu of a barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.

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

5. For Clear Zone widths, see Index No. 600, Sheet 3.

6. For Setback Distance, refer to the Standard Index drawing of the selected barrier for the required deflection space.

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

8. For Conditions 1 and 3 provided in Table 1, 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.

9. When permanent curb heights are ≤ 6", no warning device will be required. For curb heights < 6", see Table 1.

10. 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>400</td>
<td>Guardrail</td>
</tr>
<tr>
<td>412</td>
<td>Low Profile Barrier</td>
</tr>
<tr>
<td>414</td>
<td>Type K Temporary Concrete Barrier System</td>
</tr>
<tr>
<td>415</td>
<td>Type K Temporary Concrete Barrier</td>
</tr>
</tbody>
</table>

For other types of temporary barriers see the APL.

11. Drop-off condition and protection requirements apply to all speeds.

WARNING DEVICE NOTES

1. The following are defined as acceptable warning devices:
   a. Vertical panel
   b. Type 1 or Type II barricades
   c. Drum
   d. Cone (where allowed)
   e. Tubular marker (where allowed)

2. Use the warning device spacing shown in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Warning Device Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (mph)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>30 to 45</td>
</tr>
<tr>
<td>50 to 70</td>
</tr>
</tbody>
</table>

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 1/4 mile maximum.

3. If D is 1½" 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 1:2), the R4-1 and W8-11 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.

PEDESTRIAN AND/OR BICYCLIST WAY DROP-OFF CONDITION NOTES

1. A pedestrian and/or bicyclist way drop-off is defined as:
   a. A drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian or bicyclist way
   b. A slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian or bicyclist way when the total drop-off is greater than 60"

2. Protect any drop-off adjacent to a pedestrian or bicyclist way with warning devices, temporary barrier wall, or approved handrail.

DROP-OFFS IN WORK ZONES
Table 3: Device Spacing

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<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>

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. Retroreflective 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. 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.

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 Approved 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, if necessary.

SECTION AA

FIXED (SURFACE MOUNTED) CHANNELIZING DEVICES

PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE

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 in accordance with Index 17355 as 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.
1. The details shown on this sheet are for the following purposes:
   (a) To provide information that supplements or supersedes that provided by
       the MUTCD.
   (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 should 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 APL.

4. Ballast shall not be placed on top rails or any striped rails or
   higher than 13" above the driving surface.

5. 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.

6. The spacing of wheeling is not permitted on either channelizing
   devices or MOT signs.

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

8. 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.

9. Vehicular longitudinal channeling devices shall not exceed 36" in
   height. For vehicular longitudinal channeling devices (LCDs) less than
   32" in height, the LCD shall be supplemented with approved fixed
   (surface mounted) channeling devices (tubular markers, vertical
   panels, etc.) along the run of the LCD, at the ends, at 50 centers on
   tangents, and 25 centers on radii. The cost of the fixed supplemented
   channeling 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.

10. For pedestrian longitudinal channelizing devices, the device shall have
    a minimum of 8" continuous detectable edging above the walkway. A
    gap not 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 a
    1/8" less than 32" in height shall not be used for speeds greater than 45
    mph.

11. Barrier Delineators:
    a. Place on top of unit so that retroreflective sheeting faces vehicular traffic. Spacing must be a
       maximum of 50 centers in transitions, 100 centers on curves and 200
       centers on tangents. Color must match adjacent longitudinal pavement
       marking.

LONGITUDINAL CHANNELIZING DEVICE

IDENTIFICATIONS - CHANNELIZING 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 cannot 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 condition permits the placement of appropriate work zone marking. 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, B RPM's must 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.

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.

NOTES FOR RETROREFLECTIVE 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 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 placed at the Contractor's expense.

USE OF RPM'S 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.