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. The 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 adapt 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 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 spacings 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.

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.

ABBREVIATIONS

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

- CFR: Code of Federal Regulations
- CSIP: Cost Savings Initiative Proposal
- DTDE: District Traffic Operations Engineer
- FDOT: Florida Department Of Transportation
- HAR: Highway Advisory Radio
- LAS: Location Of Speed Change
- MAS: Manual On Uniform Traffic Control Devices
- MUTCD: Manual on Uniform Traffic Control Devices
- NCHRP: National Cooperative Highway Research Program
- PCMS: Portable Changeable Message Sign
- PSA: Portable Signal Apparatus
- RPM: Raised Pavement Marking
- RDDEN: Raised Reflective Pavement Marker
- SD: Speed Display Unit
- TCP: Temporary Traffic Control
- TCC: Temporary Construction Zone
- TCP: Traffic Control Plan
- TCZ: Traffic Control Zones
- TRA: Truck/Trailer Mounted Attenuator
- W: Work Area
- WH: Work Hazard

SYMBOLS

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)
  - Work Area
  - Hazard
  - Work Phase
- Channelizing Device
- Type III Barricade
- Work Zone Sign
- Flagger
- Traffic Signal
- Advance Warning Arrow Board
- Portable Signal
- Crash Cushion
- Stop Bar
- Work Vehicle With Flashing Beacon
- Shadow (Si) Or Advance Warning (AW) Vehicle
- Truck/Trailer Mounted Attenuator (TRA)
- Orange Flag For TCZ Signs
- Type B Light For TCZ Signs
- Law Enforcement Officer
- Portable Regulatory Sign
- Radar Speed Display Unit
- Portable Changeable (Variable) Message Sign
- Lane Identification + Direction Of Traffic
- Traffic Control Officer
DEFINITIONS

Regulatory Speed (In Work Zones)
The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit sign. The speed zone must be shown or noted in the plan. When speeds are reduced, the reduced speed limit sign must be shown or noted on the plans. The speed must be used as the minimum design speed to determine runout lengths, departure rates, flare rates, lengths of need, taper lengths, crash cushion requirements, marker spacings, superellipse and other similar features.

Advisory Speed
The maximum speed recommended to travel through a curve or a hazardous area.

Travel Way
The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way 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 width of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.

b. Auxiliary Lane: The designated width of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through 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 into a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

Above Ground Hazard
An above ground 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 breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES

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

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

Arrow 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 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 traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelling 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:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

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

a. Work operation is located on a signalized intersection 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. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.

e. Aerial lift equipment is placed directly below the work area to close the lane.

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

g. 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 above 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 60 minutes or less.

c. Speed limit is 65 mph or less.

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

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

f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a 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.

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:

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 travel way up to 18 height.

Above 18’ in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).

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

f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a 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 NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be directed, shifted, diverted or paced if not encroaching in the work zone directly below the overhead work operations in accordance with the appropriate standard index drawing or in the plans. This option applies to, but is not limited to, the following construction activities:

a. Beam, girder, segment, and bent/ pier cap placement.

b. Form and fallwork placement and removal.

c. Concrete placement.

d. Railing construction located at top of deck.

Above structure demolition.

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

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

Continuous pulling operations of secured cable and/or conductors are allowed over open lanes of traffic with no encroachment at 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.

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

a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.

During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights/flashers during the pulling operation.

RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum the 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 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. Construction equipment and materials shall not restrict intersection sight distance.

ABOVE GROUND HAZARD

Above ground hazards (see definitions) are to be considered work areas during working hours and should be treated as work traffic control zone during non-working hours. All objects, materials and equipment that encroach 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 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 be conform to the distances to canals as described in Volume I, Chapter 4, Section 4.2 and Exhibit 4-A and 4-B of the Plans Preparation Manual.

<table>
<thead>
<tr>
<th>WORK ZONE SPEED (MPH)</th>
<th>CURB &amp; GUTTER</th>
<th>BEHIND FACE OF CURB</th>
<th>BEHIND FACE OF GUTTER</th>
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</thead>
<tbody>
<tr>
<td>25-30</td>
<td>10</td>
<td>4</td>
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</tr>
<tr>
<td>35-40</td>
<td>14</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>45-50</td>
<td>18</td>
<td>8</td>
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</tr>
<tr>
<td>55-60</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>60-70</td>
<td>24</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>65-70</td>
<td>28</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>70-80</td>
<td>32</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>80-90</td>
<td>36</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>90-100</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

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 107-2010. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

OVERWEIGHT/OVERSIZED VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of overweight/oversized 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 Permits Office shall be notified immediately.

REGULATORY SPEEDS IN WORK ZONES

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

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

Temporary regulatory speed signs shall be removed as soon as the conditions requiring the reduced speed no longer exist. 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 inter-spaced 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 restored to give the motorist notice that normal speed can be resumed.

LOW-SPEED AREA CONTROL

Overweight/oversized vehicles and moving equipment (including vehicles hauling oversized loads) shall follow low-speed area control plans. All traffic shall be regulated by flaggers and regulatory speed signs established through each phase.

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.

SUPERELEVATION

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

<table>
<thead>
<tr>
<th>WORK ZONE SPEED (MPH)</th>
<th>SUPERELEVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>3</td>
</tr>
<tr>
<td>35-40</td>
<td>3</td>
</tr>
<tr>
<td>45-50</td>
<td>3</td>
</tr>
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<td>65-70</td>
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</tr>
<tr>
<td>70-80</td>
<td>3</td>
</tr>
<tr>
<td>80-90</td>
<td>5</td>
</tr>
<tr>
<td>90-100</td>
<td>5</td>
</tr>
</tbody>
</table>

LENGTH OF LANE CLOSURES

Lane closures shall not exceed 2 miles in total length (apart, 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.
TEMPORARY RAISED RUMBLE STRIP SET

TYPICAL PLACEMENT OF TEMPORARY RAISED RUMBLE STRIPS

TEMPORARY PORTABLE RUMBLE STRIP SET

TYPICAL PLACEMENT OF TEMPORARY INTERNALLY BALLASTED RUMBLE STRIPS

DISTANCE BETWEEN SIGNS

<table>
<thead>
<tr>
<th>Speed</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>mph</td>
<td>ft.</td>
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<td></td>
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</tr>
<tr>
<td>40 or less</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>50</td>
<td>350</td>
<td>350</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>55 or greater</td>
<td>500</td>
<td>750</td>
<td>1000</td>
<td>1500</td>
</tr>
</tbody>
</table>

GENERAL NOTES

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

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

3. Remove the temporary rumble strips prior to removing the advance warning signs.
FLAGGER CONTROL

Where flaggers are used, a FLAUGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work 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-signal 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, should be 3 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light, semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflective/ized.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night-time. Flags shall be retroreflective red. When used at night-time, flags shall be orange with black letters and border. When used at night-time, flags shall be 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 night-time, flags shall be retroreflective/ized.

Flagger Stations

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

SURVEY WORK ZONES

The SURVEY CREW AHEAD symbol or legend 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 Party Chief. 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 as called for on certain 600 Series Indexes shall 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 shall be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone intersects intersections.

(A) A O IN YOUR LANE (MOT-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-Coordinates may be used at the discretion of the Party Chief to project precise location and flagging Corners, if used, may be placed at up to 50 intervals along the break line throughout the work zone.

(C) Horizontal Control-When traffic flow in the same direction, cones shall be used to protect the backstop 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-When traffic flow in opposite directions, cones shall be used to protect the backstop 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 may be used only for Daylight Operations. Vinyl signs may be used for Day or Night Operations not to exceed 1 day except as noted in the standards.

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

INTERSECTING ROAD SIGNING

Signs for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. If work operations exceed 60 minutes, intersection section signing will be omitted.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases directly within their traffic control zones. Where such restrictions or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public and to ensure a safe and efficient traffic flow.

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

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

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

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

SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING

Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Signs or other available coverings must completely cover the existing sign. Rigid sign covering 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 near their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

EXTENDED DISTANCE ADVANCE WARNING SIGN

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended Distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

UTILITY WORK AHEAD SIGN

The UTILITY WORK AHEAD (W31-7) 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 (G20-2) bearing the legend ROAD WORK BEG... W MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at beginning points.

SPEEDING FINES DOUBLED WHEN WORKERS PRESENT SIGN

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

GROOVED PAVEMENT AHEAD SIGN

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a mild or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

END ROAD WORK SIGN

The END ROAD WORK sign (G20-1) 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 another distance is called for in the plans. When other Construction or Maintenance Operations occur within 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.

LAST REVISION NO. 01/01/12 DESCRIPTION FDOT 2014 DESIGN STANDARDS GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES INDEX NO. 600 SHEET NO. 5 of 13
GENERAL NOTES:
1. All signs shall be post mounted when work operations exceed one day except for:
   a. Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the QPL.
   b. Pedestrian advanced warning or regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the QPL.
2. If post mounting criteria cannot be achieved and a barrier or traffic railing exists, use Index 1187.

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

POST MOUNTED SIGN NOTES:
1. Use only approved systems listed on the Department's Qualified Products List.
2. Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Qualified Products List must submit a QPL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.

1. Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in² for 60 ksi steel, a minimum section modulus of 0.37 in² for 70 ksi steel, or a minimum section modulus of 0.34 in² for 80 ksi steel.
2. Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.66 in² for 60 ksi steel, a minimum section modulus of 0.56 in² for 70 ksi steel, or a minimum section modulus of 0.50 in² for 80 ksi steel.
3. U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 572, Grade 50, or ASTM A 1011, Grade 50. Sign attachment bolts, washers, nuts and spacers shall conform with ASTM A 307 or A 36. Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi, or a minimum section modulus of 0.47 in³ for 70 ksi steel, or a minimum section modulus of 0.34 in³ for 80 ksi steel.
4. Install attachment bolts, washers, nuts and spacers shall conform with ASTM A 307 or A 36.
5. For diamond warning signs with supplement plaque up to 3 ft in area, use 4 lb/ft posts for up to 30 ft. Clear height (measure to the bottom of diamond warning sign)
6. Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the QPL.

NUMBER OF STEEL U CHANNEL POSTS

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>3 LB/FT</th>
<th>4 LB/FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Base</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3 POST SIGN SUPPORT MOUNTING DETAILS

Where W = 48": a = 1' - 4½" (± 1"

W = 60": a = 1' - 9" (± 1"

W = 72": a = 2' - 7" (± 1"

WORK ZONE SIGN SUPPORTS

POST AND FOUNDATION TABLE FOR WORK ZONE SIGNS

<table>
<thead>
<tr>
<th>SIGN SHAPE</th>
<th>SIGN NO.</th>
<th>NUMBER OF STEEL U CHANNEL POSTS</th>
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<tbody>
<tr>
<td>Triangle</td>
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<td>1</td>
</tr>
<tr>
<td>Rectangle</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Square</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Circle</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Notes For Table:
1. Use 3 lb/ft posts for Clear Height up to 10'
2. Use 4 lb/ft posts for Clear Height up to 12'
3. Use 4 lb/ft U-channel sign post with a mounting height of 2' min. and 8' max. Attach sign panel using Z-bracket detail on Sheet 7.
4. Minimum foundation depth is 4' for 3 lb/ft posts and 4½' for 4 lb/ft posts.
5. For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
6. The soil plate as shown on the QPL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in note 5). Asphalts, roadways, shoulder pavement or soil under sidewalk.
SR* XXX IMPROVEMENTS 
BY FDOT AND CONTRACTOR

COMPLETION: SEASON YR.

QUESTIONS OR COMMENTS
DISTRICT PHONE NUMBER

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

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

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

PROJECT INFORMATION SIGN

GENERAL INFORMATION FOR TRAFFIC 
CONTROL THROUGH WORK ZONES
COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES

Notes:
1. The size of diamond shaped Temporary Traffic Control (ITC) warning signs shall be a minimum of 48" X 48".
2. Fluorescent orange shall be used for all orange colored work zone signs.
3. When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.
4. 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 approved by the State Traffic Plans Engineer. The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel). 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 MOT sign details.
MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 10 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.

- Manhole or other above ground obstruction
- Asphalt Apron
- Temporary Surface

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, 15.

TRUCK/TRAILER-MOUNTED ATTENUATORS

Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index Nos. 607 and 619. 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. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as a substitute for removal or obliteration. Full pavement width overlaid with either a structural or friction course are a positive means to achieve obliteration.

SIGNALS

Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the 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.

CHANNELIZING AND LIGHTING DEVICES

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

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

The PCMS can be used to:
1. Supplement standard signing in construction or maintenance work zones.
2. Reinforce static advance warning messages.
3. Provide motorists with updated guidance information.

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

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

For additional information refer to the FDOT Plans Preparation Manual, Volume 1, Chapter 16.

ADVANCE WARNING ARROW BOARDS

An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multi-lane roadways.

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

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

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

The PCMS can be used to:
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2. Reinforce static advance warning messages.
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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 1, Chapter 16.
DROP-OFF CONDITION NOTES

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

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

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

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

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

DROP-OFF NOTES

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

2. The following are defined as acceptable warning devices:
   a. Vertical panels
   b. Type I or Type II barricades
   c. Drum
   d. Cone (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:
   - Type K temporary concrete barrier
   - Temporary low profile barrier
   - Temporary guardrail and end anchorage
   - Temporary low profile barrier
   - Temporary concrete barrier
   - Temporary guardrail and end anchorage

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

Table 1

<table>
<thead>
<tr>
<th>Max. Distance Between Devices (ft)</th>
<th>Device Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cones or Tubular Markers</td>
<td></td>
</tr>
<tr>
<td>Type I or Type II Barricades</td>
<td></td>
</tr>
<tr>
<td>Type I or Type II Barricades</td>
<td></td>
</tr>
<tr>
<td>Vertical Panels or Drums</td>
<td></td>
</tr>
</tbody>
</table>

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

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING

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

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

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

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 inches that is closer than 2 feet from the edge of the pedestrian or bicyclist way
   b. a slope steeper than 1:2 that begins closer than 2 feet from the edge of the pedestrian or bicyclist way when the total drop-off is greater than 60 inches.
   c. Any drop-off adjacent to a pedestrian or bicyclist way shall be protected with warning devices, temporary barrier wall or approved handrail.

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

3. For temporary water filled barriers see the QPL.

4. 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-OFFS IN WORK ZONES

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

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

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

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

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

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

DROP-OFF PROTECTION REQUIREMENTS

1. Drop-off protection requirements for all speeds:

<table>
<thead>
<tr>
<th>X (ft)</th>
<th>D (ln.)</th>
<th>Device Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>&gt; 3</td>
<td>Barrier</td>
</tr>
<tr>
<td>12-CZ</td>
<td>&gt; 3 to ≤ 5</td>
<td>Warning Device</td>
</tr>
<tr>
<td>0-12</td>
<td>&gt; 3</td>
<td>Barrier</td>
</tr>
</tbody>
</table>

   For Clear Zone widths, see Index No. 600 sheet 3.
GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES

PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE

1. For single business entrances, place one 24" x 30" 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 30" standard BUSINESS ENTRANCE sign according with Index 17355 at the common driveway entrance.

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

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

5. 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 contractor channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.

6. Reflectorized 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.

7. 12" openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25' in areas with grades of 1% or less or 50' in areas with grades over 1% as directed by the Engineer.

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

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

10. 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.
1. The details shown on this sheet are for the following purposes:
   (a) For ease of identification and
   (b) To provide information that supplements or supersedes that provided by the MUTCD.

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

3. No sign panel 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 QPL.

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

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

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

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

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

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

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

11. Vehicular longitudinal channelizing devices shall not exceed 36" in height. For vehicular longitudinal channelizing devices (LCDs) less than 22" in height, the LCD shall be supplemented with approved fixed (surface mounted) channelizing devices (tubular markers, vertical panels, etc.) along the run of the LCD, at the ends, at 50’ centers on tangents, and 25’ centers on radii. The cost of the fixed supplemented channelizing devices shall be included in the cost of the LCD. LCDs less than 32" in height shall not be used for speeds greater than 45 mph.

12. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 12" 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 smooth connection points between the devices to facilitate hand drilling. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.
RPMs shall be placed at 5 feet center to center in approach and transition areas.

Placement of RPMs should be as shown in Index No. 17352 with the following exceptions:

PHOTO: Centerline of Pavement Marking

\[ LW = \text{Total width of travel lanes divided by the number of travel lanes unless other widths are shown in the plans.} \]

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 RPMs for work zone markings will be allowed until the weather condition permits the placement of appropriate work zone marking. Temporary substitution of RPMs 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 RPMs 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 RPMs should consider where work zone markings will be placed as soon as conditions allow. If the RPMs can not be placed so that the lane width is maintained after the placement of the work zone markings, the conflicting RPMs must be removed.

b. The color of the RPM body and the reflective surface shall conform to the color of the marking for which they substitute.

c. In work zones, CLASS A or B RPMs 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.

**NOTES FOR REFLECTIVE PAVEMENT MARKERS**

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

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

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

**PLACEMENT OF PAVEMENT MARKINGS**

**PAVEMENT MARKINGS**

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

**FDOT 2014 DESIGN STANDARDS**

**LOCATION OF REFLECTIVE PAVEMENT MARKERS**

**APPLICATION FOR REFLECTIVE PAVEMENT MARKERS**

**RPM CLASS**

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

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

**DESCRIPTION:**

**REVISIO N**
GENERAL NOTES

1. If the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in conformance with Index No. 602.

2. No special signing is required.

3. When a side road intersects the highway within the work area, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.

4. When construction activities encroach on a sidewalk refer to Index No. 660.

5. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS

- Work Area
- Lane Identification + Direction of Traffic

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE BEHIND AN EXISTING BARRIER, MORE THAN 2' BEHIND THE CURB, OR 15' OR MORE FROM THE EDGE OF TRAVEL WAY.
GENERAL NOTES

1. When four or more work vehicles enter the through traffic lanes in a one hour period or less (excluding establishing and terminating the work area), the advanced FLAGGER sign shall be substituted for the WORKERS sign. For location of flaggers and FLAGGER signs, see Index No. 603.

2. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign only on the side where the shoulder work is being performed.

3. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TTC Indexes.

4. For general TTC requirements and additional information, refer to Index No. 600.

DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.
GENERAL NOTES

1. Work operations shall be confined to one traffic lane, leaving the opposite lane open to traffic.

2. Additional one-way control may be effected by the following means:
   1. Flag-carrying vehicle;
   2. Official vehicle;
   3. Pilot vehicles;
   4. Traffic signals.

When flaggers are the sole means of one-way control, the flaggers shall be in sight of each other or in direct communication at all times.

3. The ONE-LANE ROAD signs are to be fully covered and the FLAGGER signs either removed or fully covered when no work is being performed and the highway is open to two-way traffic.

4. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.

5. The two channelizing devices directly in front of the work area and the one channelizing device directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

6. For general TCZ requirements and additional information, refer to Index No. 600.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY,
Automated Flagger Assistance Devices (AFAD) Notes

1. AFADs shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled.
2. When used at daytime, the AFAD flagging station shall be illuminated.
3. When the AFAD is not in use, it shall be moved outside the clear zone or be shielded by a barrier or crash cushion and the signs associated with the AFAD shall be removed or covered.
4. Duration Notes shown on sheet 1 of 2 do not apply when AFAD are used.
5. Only qualified flaggers who have been trained in the operation of the AFAD may operate the AFAD. When in use, each AFAD must be in view of and attended at all times by the flagger operating the device. Use two flaggers and one of the following methods in the deployment of AFAD:

**Method 1**: Place an AFAD at each end of the temporary traffic control zone.

**Method 2**: Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.

A single flagger may simultaneously operate two AFAD (Method 1) or may operate a single AFAD on one end of the temporary traffic control zone while being the flagger at the opposite end of the temporary traffic control zone (Method 2) if all four of the following conditions are present:

a. The flagger has an unobstructed view of approaching traffic in both directions;
b. The flagger has an unobstructed view of the AFAD(s);
c. AFAD's shall only be used in situations where there is only one lane of traffic in the direction to be controlled.
d. Ensure two trained flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.

Distance Between Signs

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 or less</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>45</td>
<td>250</td>
<td>500</td>
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<td>50</td>
<td>250</td>
<td>500</td>
<td>500</td>
<td>250</td>
</tr>
<tr>
<td>55 or greater</td>
<td>2500</td>
<td>1640</td>
<td>1000</td>
<td>300</td>
</tr>
</tbody>
</table>

* (See Sheet 1 Notes) ** (See Sheet 1 Notes)
**GENERAL NOTES**

1. The FLAGGER legend sign may be substituted for the symbol sign.
2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17982.
3. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.
4. Flaggers shall be located where they can control more than one direction of traffic.
5. Maximum spacing between channelizing devices shall be no greater than 20'.
6. Temporary signal phasing modifications are to be approved by the District Traffic Operations Engineer prior to the beginning of work.
7. For general TCZ requirements and additional information, refer to Index No. 600.

**DURATION NOTES**

1. ROAD WORK AHEAD AND END ROAD WORK sign may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Speed is 45 mph or less.
   c. No sight obstructions to vehicles approaching the work area for a distance equal to A plus B.
   d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
   e. Volume and complexity of the roadway has been considered.

**SYMBOLS**

- Work Area
- Stop Bar
- Flagger
- Lane Identification + Direction of Traffic
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Orange Flag And Type B Light
- Sign With 18" x 18" (Min.)

**CONDITIONS**

Where any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of a portion of one or more traffic lanes in an intersection.

**DISTANCE BETWEEN SIGNS**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Speed</th>
<th>Spacing (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph or less</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>45 mph</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>50 mph</td>
<td>300</td>
<td>350</td>
</tr>
</tbody>
</table>
SYMBOLS

- **Work Area**
- **Poly**
- **Orange Flag And Type B Light**
- **Channelizing Device (See Index No. 600)**
- **Work Zone Sign**
- **Flagger**
- **Lane Identification + Direction of Traffic**

GENERAL NOTES

1. Work operations shall be confined to one travel lane, leaving the opposing travel lane open to traffic.
2. When vehicles in a parking zone block the line of sight to TCZ signs or when TCZ signs encroach on a normal pedestrian walkway, the signs shall be post mounted and located in accordance with Index No. 11303.
3. If work area is confined to an outside auxiliary lane, the work area shall be barricaded and the FLAGGER signs replaced by ROAD WORK AHEAD signs. Flaggers are not required.
4. Flaggers shall be in sight of each other or in direct communication at all times.
5. The FLAGGER legend sign may be substituted for the symbol sign.
6. The maximum spacing between devices shall be no greater than 25'.
7. For general TCZ requirements and additional information, refer to Index No. 600.
8. The two channelizing devices directly in front and directly at the end of the work area may be utilized provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating, or the vehicular traffic is 45 mph or less.

DURATION NOTES

1. ROAD WORK AHEAD sign may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Speed is 45 mph or less.
   c. No sight obstructions to vehicles approaching the work area for a distance of 600 feet.
   d. Vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
   e. Volume and complexity of the roadway has been considered.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF ONE TRAFFIC LANE, FOR WORK AREAS LESS THAN 200' DOWNSTREAM FROM AN INTERSECTION FOR A PERIOD OF MORE THAN 60 MINUTES.
1. Work operations shall be confined to one traffic lane, except for haul road crossings, leaving the opposite lane open to traffic.

2. The installation and timing of signals shall be approved by the District Traffic Operations Engineer prior to signals being placed in operation.

3. Flaggers to supplement the signal operator/flagger shall be used when needed to assure safe movements between traffic and operating equipment, as determined by the Engineer.

4. When needed, an additional warning sign may be installed in advance of the ROAD WORK AHEAD sign. The distance between successive signs shall be 500'.

5. The SIGNAL AHEAD legend sign may be substituted for the symbol sign.

6. SIGNAL AHEAD and EQUIPMENT CROSSING AHEAD signs are to be removed or fully covered when no work is being performed and the highway is open to two-way traffic. Type III Barricades shall be in place to block haul road access when the haul road is not in operation and a flagger/signal operator is not on duty, except when the haul road is an existing properly marked road.

7. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.

8. For general TCZ requirements and additional information, refer to Index No. 600.

9. Span wire signals are to be used only in work zones with workers present, where the contractor can monitor signal operation and maintain traffic with flaggers in the event of a power failure.

CONDITIONS
WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES WILL ENCROACH ON ONE LANE OR MOMENTARILY ENCROACH ON BOTH LANES OF A TWO-LANE TWO-WAY ROADWAY AND TRAFFIC SIGNALS ARE NEEDED.
SINGLE LANE CLOSURE • ROADWAY AND BRIDGES ALL LENGTHS

SINGLE LANE CLOSURE • SHORT BRIDGES
ROAD AHEAD WORK EQUIPMENT CROSSING AHEAD

MOMENTARY ROADWAY CLOSURE • HAUL ROUTE CROSSING

Haul Road (Configuration Varies)

Span Wire Signal

24" White ReflectORIZED Preformed Mat Or Pavement Marking Tape (Location To Suit Signal Position)

Supplemental Flagger See General Note No. 4

24" White ReflectORIZED Preformed Mat Or Pavement Marking Tape (Location To Suit Signal Position)

Signal Operator/Flagger When Haul Route In Operation-See General Note No. 7

Haul Road (Configuration Varies)

500' Min.
1000' Max.

60' Min.
150' Max.
The distance between the advance warning sign and the work location should not exceed 5 miles.

*GENERAL NOTES*

1. Where work activities within 2' of the edge of travel way are incidental (i.e., Mowing, Litter Removal), the Engineer may delete requirements for signs and the advance warning vehicle provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

2. If an arrow board is used, the caution mode shall be used.

3. Shadow and advance warning vehicle shall display rotating/strobe lights.

4. For general TCZ requirements and additional information, refer to Index No. 600.

*CONDITIONS*

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES REQUIRE AN INTERMITTENT OR CONTINUOUS MOVING OPERATION.

*SYMBOLS*

- Work Area
- Sign with 24" x 18" (Min.)
- Orange Flag and Type B Light
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Work Vehicle With Rotating/Flash Light
- Shadow (S) Or Advance Warning (AW)
- Vehicle with Advance Warning Arrow Board and Sign Message
- Truck/Trailer Mounted Attenuator (TMA)
- Advanced Warning Arrow Board

**TWO-LANE, TWO-WAY, MOBILE OPERATION, WORK ON SHOULDER AND WORK WITHIN THE TRAVEL WAY**
**GENERAL NOTES**

1. For speed sign applications, see Index No. 600.

2. Where the tangent distance (T) exceeds 600', spacing between cones or tubular markers may be increased to 50' or spacing between Type I or Type II barricades, vertical panels or drums may be increased to 100' within limits of the tangent, or post mounted delineators at 50' centers may be substituted for the barricades, vertical panels or drums.

3. On the existing pavement, all existing markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement markings used for marking a new centerline and edge lines.

4. Where the tangent distance (T) exceeds 600' and no passing or stopping sight distance restrictions exist, the yellow reflectorized markings used to indicate the centerline of the traveled way may be replaced with yellow reflectorized markings in a broken pattern. For raised pavement marker application see Index No. 650 and Index No. 17352.

5. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.

6. If temporary structures are required on the diversion, traffic control will be in conformance with Index No. 650.

7. For general TCZ requirements and additional information, refer to Index Nos. 600 and 17352.

8. If posted speed for Work Zone is 45 mph or less, use "ROAD WORK IS MILE" and space accordingly.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES REQUIRE THE CLOSURE OF BOTH LANES AND A TEMPORARY DIVERSION IS CONSTRUCTED.

**SYMBOLS**

- Work Area
- Sign With 18" x 18" (Min.) Orange
- Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Type III Barricade
- Work Zone Sign
- Lane Identification + Direction of Traffic

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NO. SHEET

INDEX

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GENERAL NOTES

1. If the work operation (excluding establishing and terminating the work area), requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in accordance with Index No. 612.

2. No special signing is required.

3. This index also applies when work is being performed on a multilane undivided highway.

4. This index also applies to work performed in the median behind an existing barrier or more than 15' from the edge of travel way, both roadways. Work performed in the median behind curb and gutter shall be in accordance with Index No. 612.

5. When a side road intersects the highway within the work area, additional traffic control devices shall be placed in accordance with other applicable TCZ indexes.

6. When construction activities encroach on a sidewalk, refer to Index No. 660.

7. For general TCZ requirements and additional information, refer to Index No. 650.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE BEHIND AN EXISTING BARRIER, MORE THAN 2' BEHIND THE CURB, OR 15' OR MORE FROM THE EDGE OF TRAVEL WAY.
### GENERAL NOTES

1. If the work operation encroaches on the through traffic lanes or when four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), a flagger shall be provided and a FLAGGER sign shall be substituted for the WORKERS sign. The flagger shall be positioned at the point of vehicle entry or departure from the work area.
2. This TCZ plan also applies to work performed in the median more than 2' but less than 15' from the edge of travelway.
3. When work is being performed on a multilane undivided roadway, the signs normally mounted in the median (as shown) shall be omitted.
4. WORKERS signs to be removed or fully covered when no work is being performed.
5. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign.
6. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
7. For general TCZ requirements and additional information, refer to Index No. 600.

### DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
   - Work operations are 60 minutes or less.
   - Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

### CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

### DISTANCE BETWEEN SIGNS

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Spacing (ft.)</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 or less</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>45 to 50</td>
<td>225</td>
<td>225</td>
<td>225</td>
</tr>
<tr>
<td>50 or greater</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
</tbody>
</table>

*300' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

### Table I

#### Device Spacing

<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>
<tr>
<td>75 to 100</td>
<td>30</td>
</tr>
<tr>
<td>100 to 120</td>
<td>35</td>
</tr>
<tr>
<td>120 to 150</td>
<td>40</td>
</tr>
<tr>
<td>150 to 200</td>
<td>50</td>
</tr>
</tbody>
</table>

### Table II

#### Taper Length - Shoulder

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>B</th>
<th>10' Shoulder</th>
<th>12' Shoulder</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>25</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>35</td>
<td>35</td>
<td>55</td>
<td>68</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>60</td>
<td>82</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>72</td>
<td>107</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
<td>80</td>
<td>135</td>
</tr>
<tr>
<td>55</td>
<td>55</td>
<td>90</td>
<td>170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shldr. Width</th>
<th>Workplace</th>
<th>Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>10'</td>
<td>12'</td>
</tr>
</tbody>
</table>

### Notes

- \( L = \text{WS}^2 \)
- \( W = \text{Width of total shoulder in feet} \)
- \( L = \text{minimum shoulder width}. \)
- \( S = \text{Posted speed limit (mph)} \)
- \( W = \text{Width of total shoulder in feet (combined paved and unpaved width)} \)
- \( \text{WS} = \text{Width of shoulder taper in feet} \)
- \( B = \text{Width of shoulder taper in feet} \)
- \( L = \text{Length of shoulder taper in feet} \)

### TCZ Plan

- **ROAD WORK AHEAD**
- **Work Area**
- **Orange Flag And Type B Light**
- **Sign With 18" X 18" (Min.)**
- **Lane Identification + Direction of Traffic**
- **Channelizing Device (See Index No. 600)**
- **Work Zone Sign**

---

**DESCRIPTION:**

FDOT 2014 DESIGN STANDARDS

MULTILANE, WORK ON SHOULDER

**INDEX NO.:** 612

**SHEET NO.:** 1 of 1

**REVISED ON:** 07/01/07

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**GENERAL NOTES**

1. Work operations shall be confined to one traffic lane, leaving the adjacent lane open to traffic.
2. On undivided highways the median signs as shown are to be omitted.
3. When work is performed in the median lane on divided highway, the channelizing device plan is inverted and left lane closed and lane ends signs substituted for the right lane closed and lane end signs.

   The same applies to undivided highways with the following exceptions:
   a. Work shall be confined within one median lane.
   b. Additional barricades, cones, or drums shall be placed along the centerline to alert the work area and across the tailing end of the work area.

4. Signs and traffic control devices are to be modified in accordance with intermittent work stoppage details (Sheet 2 of 2) when no work is being performed and the highway is open to traffic.

5. The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

6. When parent shoulders having a width of 8 ft. or more are closed, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the travel way. See Index No. 612 for shoulder taper formulas.

7. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCC Indexes.

8. This TCC plan does not apply when work is being performed in the middle lane(s) of a six or more lane highway. See Index No. 614.

9. For general TCC requirements and additional information, refer to Index No. 600.

**SYMBOLS**

- **Work Area**
- **Sign With 12" 138" (Min.)**
- **Orange Flag and Type B Light**
- **Channelizing Device (see Index No. 600)**
- **Work Zone Sign**
- **Advance Warning Arrow Board**

**DISTANCE BETWEEN SIGNS**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>A (ft)</th>
<th>B (ft)</th>
<th>C (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph or less</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>45 mph</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>50 mph or greater</td>
<td>240</td>
<td>240</td>
<td>100</td>
</tr>
</tbody>
</table>

* The ROAD WORK 1 MILE sign may be used as an alternate to the ROAD WORK AHEAD sign and the RIGHT LANE CLOSED 1 MILE sign may be used as an alternate to the RIGHT LANE CLOSED AHEAD sign.

**SPEED LIMITS**

- For lateral transitions other than 12', use:
  - L = Length of taper in feet
  - W = Width of lateral transition in feet
  - S = Posted speed limit (mph)

**BUFFER SPACE AND TAPER LENGTH**

<table>
<thead>
<tr>
<th>Buffer Space (Dist)</th>
<th>Taper Length (Taper)</th>
<th>Notes (Hwys)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>155</td>
<td>125</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
<td>240</td>
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<tr>
<td>40</td>
<td>300</td>
<td>300</td>
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<tr>
<td>45</td>
<td>350</td>
<td>400</td>
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<tr>
<td>50</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td>55</td>
<td>450</td>
<td>600</td>
</tr>
<tr>
<td>60</td>
<td>500</td>
<td>700</td>
</tr>
<tr>
<td>65</td>
<td>550</td>
<td>780</td>
</tr>
<tr>
<td>70</td>
<td>600</td>
<td>800</td>
</tr>
</tbody>
</table>

* The table above lists the taper length combined with the buffer space.

**DURATION NOTES**

1. Temporary white edgeline may be omitted for work operations less than 3 consecutive calendar days.
2. For work operations up to approximately 15 minutes, signs, channelizing devices, arrow board, and buffer space may be omitted if all of the following conditions are met:
   a. Speed limit is 45 mph or less.
   b. No sight obstructions to vehicles approaching the work area.
   c. Volume and complexity of the roadway has been considered.
   d. The closed lane is occupied by a class 5 or larger, medium duty truck(s) with a minimum gross weight vehicle rating (GVWR) of 16,001 lb with high-intensity, rotating, flashing, oscillating, or strobe lights mounted above the cab height and operating.

3. For work operations up to 60 minutes, arrow board and buffer space may be omitted if conditions a, b, and c in DURATION NOTE 2 are met, and vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

**CONDITIONS**

Where any vehicle, equipment, workers or their activities encroach on the lane adjacent to either shoulder and the area 2' outside the edge of travel way.

**Table I**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Device Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Cones or Tubular Markers</td>
</tr>
<tr>
<td>30 to 45</td>
<td>Type I or Type II</td>
</tr>
<tr>
<td>50 to 70</td>
<td>Barriacdes or Vertical Panels or Drums</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Taper Length (Taper)</th>
<th>Notes (Hwys)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>155</td>
</tr>
<tr>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>75</td>
<td>250</td>
</tr>
<tr>
<td>100</td>
<td>300</td>
</tr>
</tbody>
</table>

* The table above lists the taper length combined with the buffer space.

**Table II**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Dist (ft)</th>
<th>Taper Length (Taper)</th>
<th>Notes (Hwys)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>155</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>40</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>45</td>
<td>350</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>50</td>
<td>400</td>
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</tr>
<tr>
<td>55</td>
<td>450</td>
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<td>60</td>
<td>500</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>65</td>
<td>550</td>
<td>780</td>
<td>780</td>
</tr>
<tr>
<td>70</td>
<td>600</td>
<td>800</td>
<td>800</td>
</tr>
</tbody>
</table>

* The table above lists the taper length combined with the buffer space.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

* For lateral transitions other than 12', use:
  - L = Length of taper in feet
  - W = Width of lateral transition in feet
  - S = Posted speed limit (mph)
Even pavement

Uneven pavement

INTERMITTENT WORK STOPPAGE - LANE REOPENED TO TRAFFIC
The Proposed Work Zone Speeds are recommended speeds for the traffic control plan detailed below, however, where the Engineer deems other speeds are appropriate, the applicable speeds are to be shown on the plans.

### CONDITION NOTES

1. The RIGHT LANE CLOSED and lane reduction signs are to be removed or fully covered when no work is being performed and the center lane is opened to traffic.

2. For work performed in the median or outside lane, refer to Index No. 613.

3. When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement marking used for marking new edge lines and centerline.

### GENERAL NOTES

1. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TTC indexes.

2. For general TTC requirements and additional information, refer to Index No. 600.

### DURATION NOTES

1. Temporary pavement markings may be omitted for work operations less than 3 days.

### SYMBOLS

- Work Area
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

### CONDITIONS

Where any vehicle, equipment, workers or their activities encroach on any portion of a center line of a multilane highway, and two driving lanes are maintained on the travel way.
**CONDITION NOTES**

1. See General Notes, Sheet 1.

2. Length of time that traffic is using shoulder should be minimized. For example, remove lane closure and lane shift at night (unless performing night work) if practical.

3. The RIGHT LANE CLOSED, lane reduction and reverse curve signs are to be removed or fully covered when no work is being performed and the travel way is open to traffic.

4. When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement markings used for marking new edge lines and centerlines.

5. For general TCZ requirements and additional information, refer to Index No. 600.

**SYMBOLS**

- Work Area
- Sign with 28" x 28" (Min.) Orange Flag and Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board

**DEVICE SPACING**

**Table I**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Buffer Space (ft)</th>
<th>Taper Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>30 to 45</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>50 to 70</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

**Table II**

<table>
<thead>
<tr>
<th>Buffer Space (12' Lateral Transition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed Limit (mph)</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>30</td>
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<td>35</td>
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</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>65</td>
</tr>
<tr>
<td>70</td>
</tr>
</tbody>
</table>

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON ANY PORTION OF A CENTER LANE OF A MULTILANE HIGHWAY, AND TWO DRIVING LINES ARE MAINTAINED, AND, THE OUTSIDE SHOULDER PAVEMENT IS TEMPORARILY USED AS A TRAVEL LANE.

**REMARKS**

- Where: L = Length of Taper in Feet
- W = Width of lateral transition in feet
- S = Posted speed limit (mph)

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column.

See General Notes, Sheet 1.
GENERAL NOTES

1. The WORKERS legend sign may be substituted for the symbol sign.

2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.

3. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.

4. Dual signs are required for divided roadways.

5. Maximum spacing between barricades, vertical panels, cones, tubular markers and drums shall not be greater than 25'.

6. Temporary signal phasing modifications are to be approved by the District Traffic Operations Engineer prior to the beginning of work.

7. For general TCZ requirements and additional information, refer to Index No. 600.

DURATION NOTES

1. Signs and arrow board may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Speed is 45 mph or less.
   c. No sight obstructions to vehicles approaching the work area for a distance equal to twice the taper length.
   d. Vehicles in the work area have high intensity, rotating, flashing, oscillating, or strobe lights operating.
   e. Volume and complexity of the roadway has been considered.

Table II
Taper Length - Merge (12' Lateral Transition)

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Spacing (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 or less</td>
<td>275-325-350</td>
</tr>
<tr>
<td>45</td>
<td>320-350-375</td>
</tr>
<tr>
<td>45-50</td>
<td>350-375-375</td>
</tr>
<tr>
<td>50-55</td>
<td>375-375-375</td>
</tr>
<tr>
<td>55-60</td>
<td>375-375-375</td>
</tr>
<tr>
<td>60</td>
<td>375-375-375</td>
</tr>
</tbody>
</table>

For lateral transitions other than 12', use formula for L shown in the notes column. Where:

L = Length of taper in feet
W = Width of lateral transition in feet
S = Posted speed limit (mph)

Volume and complexity of the roadway has been considered.
**GENERAL NOTES**

1. Work operations shall be confined to either one lane, or lane combinations as follows:
   a. Outside travel lane;
   b. Outside auxiliary lane;
   c. Outside travel lane and adjoining auxiliary lane;
   d. Inside travel lane; 
   e. Inside auxiliary lane;
   f. Inside travel lane and adjoining auxiliary lane.
   △ See Sheet 3

If the work area is confined to an auxiliary lane the work area shall be barricaded and the RIGHT (LEFT) LANE CLOSED AHEAD signs replaced by ROAD WORK AHEAD signs, and the merge symbol signs eliminated.

2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.

3. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.

4. Signs are required on the median side for divided highways.

5. The two channelizing devices directly in front and directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

6. For general TCZ requirements and additional information, refer to Index No. 600.

**SYMBOLS**

- Work Area
- Sign With 18" x 18" (Min.)
- Orange Flag And Type B Light
- Work Zone Sign
- Advance Warning Arrow Board
- Type III Barricade
- Channelizing Device (See Index No. 600)
- Lane Identification + Direction of Traffic

**DURATION NOTES**

1. For work operations up to approximately 15 minutes, signs, channelizing devices, and arrow board may be omitted if all of the following conditions are met:
   a. Speed limit is 45 mph or less.
   b. No sight obstructions to vehicles approaching the work area for a distance equal to twice the taper length.
   c. Volume and complexity of the roadway has been considered.
   d. The closed lane is occupied by a class 5 or larger, medium duty truck(s) with a minimum gross weight vehicle rating (GWVR) of 16,001 lb with high-intensity, rotating, flashing, oscillating, or strobe lights mounted above the cab height and operating.

2. For work operations up to 60 minutes, the arrow board may be omitted if conditions a, b, and c in DURATION NOTE 1 are met, and vehicles in the work area have high-intensity, rotating, Flashing, oscillating, or strobe lights operating.
**MULTILANE, WORK NEAR INTERSECTION MEDIAN OR OUTSIDE LANE**

1. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a right lane having significant right turning movements, then the right lane may be restricted to right turns only as shown in this detail.

2. For intersection approaches reduced to a single lane, left turning movements may be prohibited to maintain capacity for through vehicular traffic.

---

**DISTANCE BETWEEN SIGNS**

<table>
<thead>
<tr>
<th>Speed</th>
<th>Spacing (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph or less</td>
<td>A  B  C</td>
</tr>
<tr>
<td>45 mph</td>
<td>300 300 300</td>
</tr>
</tbody>
</table>

*500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**Device Spacing**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>25 50 25 30</td>
</tr>
<tr>
<td>30 to 45</td>
<td>35 50 30 50</td>
</tr>
</tbody>
</table>

**Taper Length - Merge**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>L (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>125</td>
</tr>
<tr>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>245</td>
</tr>
<tr>
<td>40</td>
<td>320</td>
</tr>
<tr>
<td>45</td>
<td>380</td>
</tr>
</tbody>
</table>

For lateral transitions other than 12', use formula for L shown in the notes column, where:

- \( L = \text{Length of taper in feet} \)
- \( W = \text{Width of lateral transition in feet} \)
- \( S = \text{Posted speed limit (mph)} \)

**Table II**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>L (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>125</td>
</tr>
<tr>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>245</td>
</tr>
<tr>
<td>40</td>
<td>320</td>
</tr>
<tr>
<td>45</td>
<td>380</td>
</tr>
</tbody>
</table>

\( L = \sqrt{60W^2} \)

**NOTES**: Use distance from the edge of the roadway.

---

**RIGHT LANE CLOSED ON FAR SIDE OF INTERSECTION WITH SIGNIFICANT RIGHT TURNING MOVEMENTS**
**MULTILANE, WORK NEAR INTERSECTION**

**MEDIAN OR OUTSIDE LANE**

**07/01/12**

**R E V I S I O N**

1. **DESCRIPTION:**
   - **LEFT LANE CLOSED ON FAR SIDE OF MINOR SIDESTREET** - **RESTRICTED TURNING MOVEMENTS**
   - **LOW LANE CLOSED AHEAD**
   - **SPEEDING FINES DOUBLED WHEN WORKERS PRESENT**

2. **LEFT LANE CLOSED ON FAR SIDE OF INTERSECTION TURNING MOVEMENTS ALLOWED**

   1. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a left lane having significant left turning movements, then the left lane may be reopened as a turn bay for left turns only as show in this detail.

**DISTANCE BETWEEN SIGNS**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 or less</td>
<td>350</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>45</td>
<td>350</td>
<td>350</td>
<td>350</td>
</tr>
</tbody>
</table>

* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**Table I**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mph or less</td>
<td>300</td>
</tr>
<tr>
<td>25 mph or less</td>
<td>500</td>
</tr>
<tr>
<td>30 mph or less</td>
<td>750</td>
</tr>
<tr>
<td>35 mph or less</td>
<td>1000</td>
</tr>
<tr>
<td>40 mph or less</td>
<td>1500</td>
</tr>
<tr>
<td>45 mph or less</td>
<td>2000</td>
</tr>
<tr>
<td>50 mph or less</td>
<td>2500</td>
</tr>
</tbody>
</table>

**Table II**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Taper Length (ft)</th>
<th>Merge</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>125</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>150</td>
<td>40</td>
</tr>
<tr>
<td>35</td>
<td>180</td>
<td>50</td>
</tr>
<tr>
<td>40</td>
<td>215</td>
<td>60</td>
</tr>
<tr>
<td>45</td>
<td>250</td>
<td>75</td>
</tr>
</tbody>
</table>

For lateral transitions other than 12', use formula: $L = \frac{W S^2}{2}$. Where: $L = $ Length of Taper in ft, $W = $ Width of lateral transition in ft, $S = $ Posted speed limit (mph)

**Notes:**

- **LEFT LANE MUST TURN LEFT**
- **ROAD WORK AHEAD**
- **SPEEDING FINES DOUBLED WHEN WORKERS PRESENT**
- **ROAD CLOSED**
- **LEFT LANE CLOSED AHEAD**
- **TAPER LENGTH = \L**

**FDOT 2014 DESIGN STANDARDS**

**MULTILANE, WORK NEAR INTERSECTION MEDIAN OR OUTSIDE LANE**
**GENERAL NOTES**

1. Work operations shall be confined to one center travel lane, leaving the adjacent travel lanes open to traffic.

2. The merging taper shall direct vehicular traffic into either the right or left lane, but not both.

3. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.

4. If the work area extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.

5. For general TCZ requirements and additional information, refer to Index No. 680.

**DURATION NOTES**

1. Signs and buffer space may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Speed limit is 45 mph or less.
   c. No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space and the taper length combined.
   d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
   e. Volume and complexity of the roadway has been considered.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF THE CENTER LANE NEAR AN INTERSECTION.

---

**SPEEDING FINES**

---

**TABLE I**

**Device Spacing**

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

**TABLE II**

**Buffer Space and Taper Length**

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Buffer Space</th>
<th>Taper Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dist. (ft.)</td>
<td>L (ft.)</td>
<td>Notes (Merge)</td>
</tr>
<tr>
<td>25</td>
<td>155</td>
<td>125</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
<td>245</td>
</tr>
<tr>
<td>40</td>
<td>305</td>
<td>320</td>
</tr>
<tr>
<td>45</td>
<td>360</td>
<td>540</td>
</tr>
</tbody>
</table>

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use L = WS² formula for L shown in the notes column.

- L = Length of taper in feet
- W = Width of lateral transition in feet
- S = Posted speed limit (mph)

---

**SYMBOLS**

- Work Area
- Sign with 18" x 18" (Min.) Orange Flag and Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

---

**MULTILANE, WORK IN INTERSECTION CENTER LANE**

**INDEX NO. 617**
Erect STOP Sign And Install Removable Stop Bar
Marking, Remove Or Cover Existing STOP Sign And
Reinstall When Through Lane Reopened To Traffic.

Transition Pattern When Crossroads > 500 Centers
Use Pattern Below When Crossroads < 500 Centers

Erect STOP Sign And Install Removable Stop Bar
Marking, Remove Or Cover Existing STOP Sign And
Reinstall When Through Lane Reopened To Traffic.

Erect STOP Sign And Install Removable Stop Bar
Marking, Remove Or Cover Existing STOP Sign And
Reinstall When Through Lane Reopened To Traffic.

CONDITIONS
WHERE ANY VEHICLE, EQUIPMENT, WORKERS
OR THEIR ACTIVITIES ENCROACH ON THE
PAVEMENT REQUIRING THE CLOSURE OF EITHER
THE OUTSIDE AND CENTER TRAVEL LANES
ON THE MEDIAN AND CENTER TRAVEL LANES,
WITH OR WITHOUT CLOSURE OF ADJOINING
AUXILIARY LANES, FOR WORK AREA LESS THAN
200' FROM INTERSECTION, FOR A PERIOD
OF MORE THAN 60 MINUTES.

CONDITIONS
WHERE ANY VEHICLE, EQUIPMENT, WORKERS
OR THEIR ACTIVITIES ENCROACH ON THE
PAVEMENT REQUIRING THE CLOSURE OF EITHER
THE OUTSIDE AND CENTER TRAVEL LANES
ON THE MEDIAN AND CENTER TRAVEL LANES,
WITH OR WITHOUT CLOSURE OF ADJOINING
AUXILIARY LANES, FOR WORK AREA 200' OR
MORE FROM INTERSECTION, FOR A PERIOD
OF MORE THAN 60 MINUTES.

GENERAL NOTES
1. If the work space extends across a crosswalk, the crosswalk should be closed using the information in
Index No. 660.

2. Signs are required on the median side for divided highways.

3. The two channelizing devices directly in front and directly at the end of the work area may be omitted
if the work zone extends across a crosswalk. The crosswalk should be closed using the information in
Index No. 660.

4. Within the lateral transitions, the maximum spacing between cones and tubular markers shall be 25'
unless shown in the notes. Maximum spacing between Type I or Type II barricades or vertical panels or drums shall be based on
the speed limit as follows; 15' up to 25 MPH; 30' for 30-40 MPH; 50' for 45 MPH.

5. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS
- Work area
- Sign With 38'x 18' (Min.)
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Stop Bar
- Lane Identification + Direction of Traffic

FOR LATERAL TRANSITIONS OTHER THAN 12', USE FORMULA FOR L SHOWN IN THE NOTES COLUMN. WHERE:

L = Length of taper in feet
W = Width of horizontal transition in feet
S = Posted speed limit (mph)

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>L (ft.)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>540</td>
<td></td>
</tr>
</tbody>
</table>

Table 11
Taper Length - Merge (12' lateral transition)

For lateral transitions other than 12', use formula for L shown in the notes column. Where:

L = Length of taper in feet
W = Width of horizontal transition in feet
S = Posted speed limit (mph)
MULTILANE, MOBILE OPERATIONS WORK ON SHOULDER, WORK WITHIN TRAVEL WAY

07/01/12

SYMBOLS

WORK ON SHOULDER

GENERAL NOTES

1. These illustrations are representative of general conditions.

2. The figures illustrate closing the right shoulder or right lanes for various lane configurations. When work is required on left side of roadways, the inverted plan is to be applied. The intent of this index is to allow passing on only one side of the work convoy.

3. Arrow boards shall not be obscured by equipment, supplies, signs, or the enclosure.

4. Vehicle-mounted signs shall be mounted with the bottom of the sign at a minimum height of 48 inches above the pavement. Vehicle mounted changeable message signs may be used in lieu of truck mounted static signs. Changeable message signs shall flash alternately to read “Left or Right Lane” or “Two Left or Two Right Lanes”, “Closed Ahead”, and the arrow symbol. Arrow boards shall not be used with truck mounted changeable message signs. Sign legends shall be covered or turned from view when work is not in progress.

5. On freeway facilities (interstates, toll roads, and expressways), a traffic control officer is required for all nighttime operations for work within the travel lane.

6. If the work vehicle speed exceeds the minimum legal speed limit on limited access facilities and one half the posted speed limit on other facilities, the Engineer may delete requirements for shadow vehicle and attenuator. The work vehicle will be required to have an arrow board and sign message.

7. Where work activities within 2’ of the edge of travel way are incidental (i.e. Mowing, Litter Removal), the Engineer may delete requirements for signs and the advance warning vehicle provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

8. Work, Shadow, and Advance Warning Vehicles shall have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

9. Functional two-way communication is required between all vehicles in the mobile operation convoy.

10. For general TCZ requirements and additional information, refer to Index No. 600.
MULTILANE, MOBILE OPERATIONS WORK ON SHOULDER, WORK WITHIN TRAVEL WAY

07/01/12

Symbols:
- **W**: Work Vehicle
- **S**: Shadow (S) Vehicle with Arrow Board
- **AW**: Advance Warning (AW) Vehicle with Arrow Board and Sign Message or Changeable Message Sign
- **TMA**: Truck/Trailer Mounted Attenuator (TMA)
- **A**: Arrow Board
- **LID**: Lane Identification And Direction Of Traffic

**ARROW BOARD MODE**

Move/Merge

Where adequate shoulder width is not available, the advance warning vehicle may drive in the lane.

**WORK WITHIN TRAVEL WAY, CENTER LANE OR OUTSIDE CENTERLINE**

**SYMBOLES**

- **W**: Work Vehicle
- **S**: Shadow (S) Vehicle with Arrow Board
- **AW**: Advance Warning (AW) Vehicle with Arrow Board and Sign Message or Changeable Message Sign
- **TMA**: Truck/Trailer Mounted Attenuator (TMA)
- **A**: Arrow Board
- **LID**: Lane Identification And Direction Of Traffic

**WORK WITHIN TRAVEL LANE**
**GENERAL NOTES**

1. **TWO-WAY TRAFFIC signs** shall be repeated every 1/8 mile in each direction, throughout the tangent distance (T).

2. \( L (\min) = \frac{W S}{S} \) for speeds 45 mph

\[ L (\min) = \frac{W S}{S} \] for speeds 40 mph

Where:
- \( W \) = Width of lateral transition in feet.
- \( S \) = Posted speed limit (mph).

3. **Where the tangent distance (T) exceeds 250°, spacing between Type I or II barricades or vertical panels or drums may be increased to 100° within the limits of the tangent, or post mounted delineators at 50° centers may be substituted for barricades, vertical panels or drums.**

4. **All existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement markings used for making new edge lines.**

5. **When side roads, cross roads or interchanges intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TTC Indexes.**

6. **For general TTC requirements and additional information, refer to Index No. 600.**

**SYMBOLS**

- Work Area
- **Sign With 18" x 18" (Min.)**
- Orange Flag And Type B Light
- Channeling Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES REQUIRE THE CLOSURE OF ONE ROADWAY AND THE OPPOSING ROADWAY IS CONVERTED TO TEMPORARY TWO-WAY TRAVEL BY WAY OF CROSSOVERS.
Multilane Work Near Intersection—Temporary Diversion Connection - 35 MPH or Less

General Notes:
1. When vehicles in a parking zone block the line of sight to TCZ signs or when TCZ signs encroach on a normal pedestrian walkway, the signs shall be post mounted and located in accordance with Index No. 33902.
2. Dual signs are required for divided roadways.
3. Channelizing devices are to be spaced with Type I or Type II barricades or vertical panels or drums at 30 centers in tapers, 50 centers in tangent sections and 15 centers where reduced device spacing runs are identified in the drawing.
4. For general TCZ requirements and additional information, refer to Index No. 600.

Duration Note:
Removable reflectorized pavement markings shall be used when closure time exceeds one daylight period.

Symbols:
- Work Area
- Channelizing Device (See Index No. 400)
- Type III Barricade
- Advance Warning Arrow Board
- Stop Bar
- Lane Identification + Direction of Traffic
GENERAL NOTES

1. This index does not apply to limited access facilities.

2. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with applicable TCZ Indexes.

3. Traffic volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

4. The buffer space may be omitted if there are no sight obstructions to vehicles approaching the Flagger/Officer for distance equal to the buffer space.

5. A Flagger may be substituted for a Traffic Control Officer and the BE PREPARED TO STOP sign may be omitted, when the following conditions are met:
   a. Speed limit is 45 mph or less.
   b. No sight obstructions to vehicles approaching the Flagger/Officer for a distance equal to the buffer space.
   c. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

6. On undivided highways the median sign as shown are to be omitted.

7. For general TCZ requirements and additional information refer to FDOT Index No. 600.

CONDITIONS

PLANNED CLOSURE NOT EXCEEDING 5 MINUTES.
When other construction or maintenance operations occur within 1 mile, sign(s) are to be coordinated in accordance with Index No. 600.

Maximum spacing between cones and tubular markers shall be 25'. Maximum spacing between Type I or Type II Barricades or Vertical Panels or Drums shall be based on the speed limit as follows: 15' up to 25 MPH; 30' for 30-40 MPH; 50' for 45 MPH or greater.

GENERAL NOTES

1. Work operations shall be confined to two way left turn lane, leaving the adjacent lanes open to traffic.

2. Advance Warning Vehicle will have an Advanced Warning Arrow Board in the Warning Mode.

3. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TTC indexes.

4. For general TTC requirements and additional information, refer to Index No. 600.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ARE BEING CONDUCTED IN THE TWO WAY LEFT TURN LANE.
CONDITION A

WHEN THE PAVING TRAIN IS IN LANE ➁ THE U-TURNING VEHICLE SHALL CAUTIOUSLY TURN INTO LANE ➀, AND PROCEED IN LANE ➀ TO THE FRONT OF THE TRAIN.

CONDITION B

WHEN THE PAVING TRAIN IS IN LANE ❼ THE U-TURNING VEHICLE SHALL CAUTIOUSLY TURN INTO LANE ➁, AND PROCEED IN LANE ❼ TO THE FRONT OF THE PAVING TRAIN.

CONDITION A & B

THE ADVANCE WARNING ARROW BOARDS ARE REQUIRED. UNDER NO CIRCUMSTANCES WILL THE TRAFFIC TRANSITION BE LOCATED WITHIN THE LIMITS OF THE CROSSOVER.

SYMBOLS

- Work Area
- Work Zone Sign
  - Sign with 18"x18" (Min.) Orange Flag and Type B Light
- Advance Warning Arrow Board - Type C (48"x96")
  - (F) Trailer Mounted And Actuated By Flagger Upon Approach Of The Work Vehicle
- Work Vehicle
- Lane Number
- Lane Identification + Direction of Traffic

TRAFFIC TRANSITION AREA UPSTREAM FROM Crossover

CASE 1

GENERAL NOTES

1. This index does not apply to limited access facilities.

2. When crossovers do not exist, the contractor will construct temporary crossovers in accordance with Index No. 631.

3. L = Length of taper in feet:
   - WS for speeds ≤ 45 mph
   - WS² for speeds > 45 mph

   Where:
   - W = Width of lateral transition in feet.
   - S = Posted speed limit (mph).

   The values of L = 500' Min. or 1000' Min. and S vary up to 45 MPH; 30' for 30-40 MPH; 50' for 45 MPH or greater.

4. Within the lateral transitions, the maximum spacing between cones and tubular markers shall be 25'. Maximum spacing between Type I or Type II barricades or vertical panels or drums shall be based on the speed limit as follows: 15' up to 25 MPH; 30' for 30-40 MPH; 50' for 45 MPH or greater.

Spacing for devices parallel to the travel lanes shall be 25' centers for cones or tubular markers and 50' for Type I or Type II barricades or vertical panels or drums.

5. For Case I, Condition A, when the median width is too narrow for trucks to make turns into Lane No. 2, Sign Nos. 1, 2, and the Flagger Actuated Advance Warning Arrow Board shall be moved ahead to a crossover in advance of the paving lane taper. Project advance warning signs (not shown) shall be located in advance of the relocated Sign No. 3.

6. For Case II, Conditions A & B, when the median width is too narrow for trucks to make turns into Lane No. 2, Sign Nos. 1, 2, and the Flagger Actuated Advance Warning Arrow Board shall be moved ahead to a crossover in advance of the "RIGHT LANE CLOSED ½ MILE" sign. Project advance warning signs (not shown) shall be located in advance of the relocated Sign No. 3.
CONDITION A
When the paving train is in lane ➀, the u-turning vehicle shall cautiously turn into lane ➁ and proceed in lane ➁ to the front of the train.

CONDITION B
When the paving train is in lane ➁, the u-turning vehicle shall turn into lane ➀ and proceed to the front of the paving train.

CONDITION A & B
The advance warning arrow board is required. Under no circumstances will the traffic transition be located within the limits of the crossover.

Note: See Sheet 1 for General Notes.
GENERAL NOTES

1. Temporary median crossovers shall be within the project limits and shall not be used for transporting materials to or from any other project. The acceleration-deceleration surfaces shall be paved. RAP material is acceptable for crossing surfacing.

2. Temporary median crossovers shall be located only in areas having adequate sight distance. On limited access segments, temporary median crossovers shall not be located within 0.5 miles of interchanges or within 2000 ft. of acceleration-deceleration lanes at rest areas, other access openings or other highway service areas.

3. For paving train operations at permanent crossovers, see Index No. 630.

4. All traffic control devices are to be removed when crossover will not be in use for one hour or longer.

5. Trailer mounted advance warning panel may be used in lieu of advance warning vehicle.

6. When a crossover is no longer needed, all temporary construction shall be immediately removed and the area restored to its original condition.

7. Cost of construction, maintenance, removal and restoration work related to temporary crossovers shall be included in the contract unit price for Maintenance of Traffic, LS.

8. Temporary crossovers on limited access right of way and use of this Index are prohibited unless specifically permitted in the Contract Plans or Special Provisions. When permitted in the Contract Plans or Special Provisions and prior to construction of any temporary crossover, the Contractor must submit, in writing, a request identifying specific locations for approval by the Engineer.

9. Pipe and mitered end sections are not required when crossover is located at the high point of a crest vertical curve.
TEMPORARY CROSSOVER FOR MEDIAN WIDTHS FROM 50' TO < 75'

LENGTH OF ACCESS LANES (FT.)

<table>
<thead>
<tr>
<th>Grade</th>
<th>D1</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2% or less</td>
<td>580</td>
<td>1540</td>
</tr>
<tr>
<td>3 to 4% Upgrade</td>
<td>530</td>
<td>2210</td>
</tr>
<tr>
<td>3 to 4% Downgrade</td>
<td>710</td>
<td>925</td>
</tr>
</tbody>
</table>

NOTE:
1. A lane closure analysis will be required to determine the times of day that this crossover can be in operation.

Maximum Spacing Between Cones and Tubular Markers Shall Be 25'

\[ L (\text{Min}) = \frac{W}{S} \]

\[ S = \text{Existing Posted Speed (MPH)} \]

SYMBOLS

- Temporary Pavement
- Work Zone Sign
- Channelizing Device (See Index No. 600)
- Advance Warning Vehicle
- Lane Identification + Direction of Traffic

TEMPORARY CROSSOVER FOR MEDIAN WIDTHS FROM 50' TO < 75'

EXIST. SHDL. PAVT.

S = Existing Posted Speed (MPH)
WORK IN VICINITY OF RAILROAD CROSSING

GENERAL NOTES

1. Work operations shall be confined to one traffic lane, leaving the opposite lane open to traffic.

2. Additional one-way control may be effected by the following means:
   (1) Flag-carrying vehicle; (2) Official vehicle; (3) Pilot vehicles; (4) Traffic signals.

   When flaggers are the sole means of one-way control, the flaggers shall be in sight of each other or in direct communication at all times.

3. The ONE-LANE ROAD signs are to be fully covered and the FLAGGER signs either removed or fully covered when no work is being performed and the highway is open to two-way traffic.

4. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.

5. The two channelizing devices directly in front of the work area and the one channelizing device directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.

6. Discontinuance of extended buffer space will not occur until the queue length plus 300' is reached.

7. If the queue of vehicles across active rail tracks cannot be avoided, a uniformed traffic control officer or flagger shall be provided at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic warning devices are in place.

8. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS

Work Area

Orange Flag And Type B Light

Channelizing Device (See Index No. 600)

Work Zone Sign

Flagger

Lane Identification + Direction of Traffic

DISTANCE BETWEEN SIGNS

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph or less</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>45 mph</td>
<td>300</td>
<td>200</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>50 mph</td>
<td>300</td>
<td>200</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>55 mph or greater</td>
<td>3640</td>
<td>1840</td>
<td>1000</td>
<td>500</td>
</tr>
</tbody>
</table>

* The ROAD WORK 1 MILE sign may be used as an alternative to the ROAD WORK AHEAD sign.
** 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.
*** BE PREPARED TO STOP sign may be omitted for speeds of 45 MPH or less.

DISTANCE BETWEEN SIGNS

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>155</td>
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<td></td>
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</tr>
<tr>
<td>30</td>
<td>200</td>
<td></td>
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<td>35</td>
<td>250</td>
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</tr>
<tr>
<td>70</td>
<td>730</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

CONDITIIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY THAT REQUIRES A LANE CLOSURE IN THE VICINITY OF A RAILROAD CROSSING.

SPEEDING FINES

SPEEDING FINES TABLE

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Dist. (ft.)</th>
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<tbody>
<tr>
<td>25 to 45</td>
<td>20</td>
</tr>
<tr>
<td>50 to 70</td>
<td>20</td>
</tr>
</tbody>
</table>

DURATION NOTE

1. ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Speed limit is 45 mph or less.
   c. No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space.
   d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
   e. Volume and complexity of the roadway has been considered.
   f. No queuing of vehicles across rail tracks.

Table I

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 45</td>
<td>20</td>
</tr>
<tr>
<td>50 to 70</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type I or Type II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cones or Tubular Markers</td>
</tr>
<tr>
<td>Barricades or Vertical Panels or Drums</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buffer Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (mph)</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
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<tr>
<td>60</td>
</tr>
<tr>
<td>65</td>
</tr>
<tr>
<td>70</td>
</tr>
</tbody>
</table>

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.
1. Maintain two-lane two-way traffic over existing pavement. Construct new roadway within the proposed 4-lane limits, excluding the friction course. Sign as shown if roadway construction area falls within 15' of existing pavement edge. When the construction area falls more than 15' from the existing pavement edge, traffic shall be controlled in accordance with Index No. 601 or 602.

2. Construct shoulder pavement to provide two-lane two-way traffic over shoulder and existing pavement during Phase II roadway construction. For lane width requirements see Index No. 600. Signing as shown, with the near 1500' zone modified in accordance with Index No. 603, to be in place prior to shoulder pavement construction.

PHASE II

1. Remove existing pavement marking in areas of diversion and remark as shown. Install warning devices and resign as shown. Traffic to be controlled in accordance with Index No. 607. For lane width requirements see Index No. 600.

2. Route through traffic to temporary and existing pavement.

3. Construct transitions, excluding friction course.

LEGEND

- Phase I Construction
- Phase II Construction
- Phase III Construction

SYMBOLS

- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic

Note: See Sheet 2 for General Notes.
PHASE III
1. Remove temporary marking from the existing pavement and temporary shoulder pavement. Mark pavement, install warning devices and resign as shown. Traffic to be controlled in accordance with Index No. 607. For lane width requirements see Index No. 600.

2. Route through traffic to newly constructed roadway.

3. Resurface or reconstruct existing pavement including required shoulder pavement and friction course.

PHASE IV
1. Reroute through traffic as shown in Phase II. Signing to be as shown in Phase II.

2. Construct friction course over pavement constructed in Phases I and II.

GENERAL NOTES
1. Existing signs and pavement markings that conflict with construction signing and marking shall be obliterated or removed.

2. Lane widths for maintenance of two-way traffic should desirably be equal to lane width of the existing facility, but lanes shall be not less than 10' in width. When one-lane one-way operations are necessary, a minimum width of 12' shall be maintained and traffic controlled in accordance with Index Nos. 603 and 607. Minimum width for the temporary shoulders is 8'.

3. Within the lateral transitions, the maximum spacing between Type I or Type II barricades or vertical panels or drums shall be based on the speed limit as follows: 15' up to 25 MPH; 30'-40 MPH; 50' for 45 MPH or greater.

4. The maximum spacing between warning devices used for delineation between the travel way and construction area is 50' for Type I or Type II barricades or vertical panels or drums.

5. For speed sign applications, see 'Regulatory Speed in Work Zones' Index No. 600.

6. For recentered raised pavement marker applications, see 'Pavement Markers' Index No. 600 and Index No. 17352.

7. Additional barricades, signing lighting or other traffic controls shall be provided for limited work areas in accordance with other applicable TCZ Indexes.

8. When a side road intersects the highway within the TCZ zone, additional TCZ devices shall be placed in accordance with other applicable TCZ Indexes.

9. Provisions approved by the Engineer shall be made for the removal of storm water from the roadways during construction.

10. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS
- Sign With 18" x 18" (Min.) Orange Flag And Type II Light
- Channelizing Device (See Index No. 600)
- Type III Barricade
- Work Zone Sign
- Lane Identification + Direction of Traffic

LEGEND
- Phase I Construction
- Phase II Construction
- Phase III Construction

CONVERTING TWO LANES TO FOUR LANES DIVIDED, RURAL

FDOT 2014 DESIGN STANDARDS

INDEX NO. 640

SHEET NO. 2 of 2
Phases I, II, and III

Phase I
1. Maintain two-lane two-way traffic along existing facility. Install construction signing.
2. Remove existing pavement to facilitate temporary pavement construction. For lane width requirements see Index No. 600.
3. Construct temporary pavement of sufficient width to accommodate two-lane two-way traffic on the temporary pavement and a portion of the existing pavement during Phase I roadway construction. When two-lane two-way traffic can not be maintained during temporary pavement construction one-lane operations shall be maintained in accordance with Index No. 605. Channelizing devices shall be in conformance with ‘Drop-Offs in Work Zones’ of Index No. 600.
4. Mark the pavement in accordance with the Phase I diagram. Reroute through traffic to the temporary pavement and a portion of the existing pavement. For lane width requirements see Index No. 600.
5. Construct two lanes of the proposed roadway, excluding the friction course. Side street traffic to be maintained. Through and cross traffic to be controlled in accordance with Index Nos. 604, 605 and 615. Barricading shall be in conformance with ‘Drop-Offs in Work Zones’, Index No. 600. When work extends through an intersection, temporarily reroute the cross traffic to other cross streets. When rerouting is not possible, provide one-lane access (minimum) for two-lane two-way cross streets and one-lane access (minimum) each direction for four-lane two-way cross streets, in accordance with Index Nos. 604, 605 and 615.

Phase II

Phase III

LEGEND

See Sheet 3 for General Notes.
PHASE II

1. Sign and mark Phase I pavement in accordance with the Phase II diagram. For lane width requirements see Index No. 600.

2. Reroute through traffic to Phase I pavement.

3. Complete all Phase II construction, including the friction course. Side street traffic to be maintained. Through and cross traffic to be controlled in accordance with Index Nos. 604, 605 and 615. Channelizing devices shall be in conformance with ‘Drop-Offs in Work Zones’ of Index No. 600. When work extends through an intersection, temporarily reroute cross traffic to other cross streets. When rerouting is not possible, provide one-lane access (minimum) for two-lane two-way cross streets and one-lane access (minimum) each direction for four-lane two-way cross streets, in accordance with Index Nos. 604, 605 and 615.

SYMBOLS

- Sign With 18' x 18' (Min) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Type III Barricade
- Work Zone Sign
- Stop Bar
- Lane Identification + Direction of Traffic

LEGEND

See Sheet 3 for General Notes.

Phase I Construction
Phase II Construction
Phase III Construction
STOP CONVETING TWO LANES TO FOUR LANES DIVIDED, URBAN

07/01/09

REV

SHEET

INDEX

DESCRIPTION:

GENERAL NOTES

1. All signing, pavement marking, barricades and warning lights necessary for maintenance of traffic shall conform to Index No. 600.

2.Lane widths for maintenance of two-way traffic should desirably be equal to lane widths of the existing facility, but lanes shall not be less than 10' in width. When one-lane one-way operations are necessary, a minimum width of 12' should be maintained and traffic controlled in accordance with Index Nos. 604, 605 or 615.

3. At signalized intersections, signals shall be directed or relocated as required to the center of relocated lanes.

4. Additional barricades, signing, lighting or other traffic controls for limited work areas shall be provided in accordance with other applicable TCZ Indexes as conditions warrant in each phase.

5. Provisions approved by the Engineer shall be made for the removal of storm water from the roadway(s) during construction.

6. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS

LEGEND

1. Sign and mark Phase II pavement in accordance with the Phase III diagram.

2. Reroute through traffic to Phase II pavement.

3. Construct friction course over Phase I pavement. Side street traffic to be maintained. Through and cross traffic to be controlled in accordance with Index Nos. 604, 605 or 615. When work extends through an intersection, temporarily reroute cross traffic to other cross streets. When rerouting is not possible, provide one-lane access (minimum) for two-lane two-way cross streets and one-lane across (minimum) each direction for four-lane two-way cross streets.

4. For reflectorized raised pavement marker application, see Index Nos. 600 and 17352.

5. In cross streets and one-lane across (minimum) each direction for four-lane two-way cross streets.

6. Provision guide lines

7. Provisions approved by the Engineer shall be made for the removal of storm water from the roadway(s) during construction.

8. For general TCZ requirements and additional information, refer to Index No. 600.
BARRIER AND TRANSITION LOCATED ON PAVED OR UNPAVED SHOULDERS

PLAN SHOWN FOR RIGHT LANE - INVERTED PLAN FOR LEFT LANE

WORK AREA

Type I or Type II Barricades or Vertical Panels or Drums (At 50' Centers), With Steady Burning Lights At Night Only

1. For signing information see the Plans, Specifications, MUTCD and other TCZ Standards.

2. Where W=width of lateral transition in feet, S=posted speed limit.

SYMBOLS

- Lane Identification + Direction of Traffic
- Channelizing Device (See Index No. 600)

GENERAL NOTES

LANE DROP AND LANE SHIFTS - PLAN SHOWN FOR RIGHT LANE MERGE LEFT - INVERTED PLAN FOR LEFT LANE MERGE RIGHT

INDEX NO. 600

See "LANE WIDTHS"

INDEX NO. 415

See "CHANNELED LANE WIDTHS"

INDEX NO. 600

See "LANE WIDTHS"

INDEX NO. 415

See "CHANNELED LANE WIDTHS"
**PHASE I**

1. Maintain two-lane two-way traffic over existing facility.

2. Construct temporary structure, approaches, guardrail and install crash cushions if center truss is constructed.

3. The signing shown in the Phase I diagram is required whenever equipment workers or their activities are within 15' of the existing pavement edge.

**PHASE II**

1. Reconfigure traffic to diversion and maintain two-way traffic on diversion. Install Type III barricades.

2. Reroute traffic to diversion and maintain two-way traffic on diversion. Install Type III barricades.

3. Construct proposed structure and reconstruct or resurface existing approaches.

---

**SYMBOLS**

- Diamond: Sign with 18' x 18' (Min.)
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Type III Barricade
- Work Zone Sign
- Lane Identification + Direction of Traffic

**LEGEND**

- [ ] Phase I
- [ ] Phase II

---

**DESCRIPTION**

1. **PHASE III** and General Notes (See Sheet 2)

---

**FDOT 2014 DESIGN STANDARDS**

**TWO-LANE TWO-WAY, RURAL STRUCTURE REPLACEMENT**

**INDEX NO. 650**

**SHEET NO. 1 of 2**

---

**LAST REVISION**

07/01/09

---

**REVISE (each change required):**
PHASE III

1. Reroute traffic to final alignment and maintain two-way traffic.
2. Remove all temporary construction items.

GENERAL NOTES

1. All signing, pavement marking, barricades and warning lights necessary for maintenance of traffic shall conform to Index No. 600.

2. For speed sign applications, see Index No. 600.

3. For lane width requirements see Index No. 600. When one-way one-lane operations are necessary, a minimum width of 12’ shall be maintained and traffic controlled in accordance with Index Nos. 603, 606 or 607. Minimum width for the diversion shoulders is 6’.

4. Method of attaching temporary guardrail to the diversion structure to be approved by the Engineer. Cost of temporary guardrail systems, including end anchorage assemblies, transitions and attachment to temporary structures, are to be included in the contract unit price for Guardrail (Temporary) LF.

5. Provisions approved by the Engineer shall be made for the removal of storm water from the roadway(s) during construction.

6. Only temporary crash cushions approved by the Department shall be used unless specified devices called for in the plans.

7. Where the temporary structure is not required, the diversion may be constructed in accordance with Index No. 608, unless otherwise stipulated in the plans.

8. For reflective raised pavement marker application, see Index Nos. 650 and 17352.

9. For general TCZ requirements and additional information, refer to Index No. 600.
When Other Construction Or Maintenance Operations Occur Within 3 Mile, Signs To Be Omitted And Signing To Be Coordinated In Accordance With Index No. 600.

*Length of barrier wall needed for protection of work area and/or other hazards to be shown in the plans. For complimentary information on barrier walls and work area see Sheet 1. See Index No. 600 for clear zone requirements.

**NOTE:** Divisions with speeds of 30 mph or greater are considered high speed facilities, curvature and superelevation criteria for open highway conditions apply.
TRAFFIC PACING GUIDE

Traffic pacing is a traffic control technique to slow but not stop traffic to facilitate short duration work operations without an elaborate and difficult detour or diversion. Traffic Control Officers pace or slow the traffic to a speed that provides approximately 20-30 minutes to perform the overhead construction. The Department has frequently used this technique for setting bridge beams, overhead sign structures and replacing overhead sign panels.

The traffic pacing begins with approval of the exact date of the activity that shall be made two weeks in advance. The District Public Information Office, the District Traffic Operations Engineer, Local Emergency Management Agencies and Project Personnel shall be notified of the location, date and time. Advance notification to the public shall begin at least one week in advance by using Changeable Message Signs.

The day of the traffic pacing operation, the Changeable Message Sign messages shall be revised to indicate the activity will occur that night or day. The traffic pacing operation begins with a Traffic Control Officer Supervisor at the work site initiating the pacing operation in accordance with pacing details shown on sheet 2. The intent is to keep traffic moving unless there is an emergency.

CHANGEABLE MESSAGE SIGNS
(Typical Placement and Messages)

Symbols
- Channelizing Device (See Index No. 660)
- Marked Police Vehicle with Flashing Blue Lights
- PCMS, Portable Changeable Message Sign
- To be placed the day of pacing operation
- Lane Identification and Direction of Traffic

TRAFFIC CONTROL PLANS OR TECHNICAL SPECIFICATION

1. A site specific traffic control plan shall be developed for each pacing operation.

TRAFFIC PACING GENERAL NOTES

1. Install ROAD CLOSED (W20-3) signs approximately 1000' prior to the work area. These signs shall remain covered until the pacing operation begins and covered when the pacing operation has ended.

2. Prior to requesting that the traffic control officer supervisor initiate the pacing operation, the contractor shall ensure that the necessary equipment is properly positioned (off the roadway) for the construction activity requiring the Traffic pacing operation.

3. Truck mounted attenuator(s) with changeable message sign(s) are required to protect workers and/or equipment positioned in a travel lane(s) at the work area during the pacing operation from an errant vehicle. If no workers and/or equipment are positioned in a travel lane(s) at the work area, truck mounted attenuator(s) are not required.

4. A traffic control officer supervisor shall be stationed at the work area continuously throughout the pacing operation to insure radio communications between the contractor and the project administrator, and all the police vehicles involved in the pacing operation.

5. When more than one pacing operation is required in one work period the contractor shall allow sufficient time between pacing operations to permit traffic to return to normal speeds and flow. Additional time may be required between pacing operations to allow traffic to resume normal speeds and flow up to the work area as determined by the project administrator or traffic control officer supervisor.

TRAFFIC PACING MEANS OF IMPLEMENTATION

1. Each traffic pacing activity shall be identified by at least one Changeable Message Sign with an expected time period for the activity requiring the traffic pacing operation.

2. Signs shall be in place at least 1000' prior to the work area. The contractor shall ensure that the necessary equipment is properly positioned (off the roadway) for construction activities requiring traffic pacing operations. Truck mounted attenuator(s) with changeable message sign(s) are required to protect workers and/or equipment during traffic pacing operations.

3. A traffic control officer supervisor shall be stationed at the work area continuously throughout the pacing operation to insure radio communications between the contractor and the project administrator.
MAINLINE PACING DETAILS
(1 DIRECTION OF FOUR LANE ROADWAY EXAMPLE)

STAGE ONE
1. Four police vehicles located upstream of the work area at the beginning location of the traffic pacing operation with flashing blue lights off.

STAGE TWO
1. Once the police vehicles are in place and the traffic control officer supervisor at the work area notifies all officers to begin the traffic pacing operation, the last three police vehicles shall turn their flashing blue lights off. The first three police vehicles shall enter the pacing operation, the last three police vehicles shall turn on their flashing blue lights.

STAGE THREE
1. The two pace setting police vehicles shall begin to slow to the pacing speed (20 mph is preferred, 10 mph minimum), for the duration of the traffic pacing operation.
2. The lead police vehicle (flashing blue lights off) shall match the speed of the last vehicles ahead of the pacing vehicles and continue following traffic until a point approximately 500' in advance of the work area. The lead police vehicle shall then come to a complete stop on the right shoulder and turn on its flashing blue lights. Once the two pace setting police vehicles pass the work area, the police vehicle shall turn their flashing blue lights on and position the vehicle across the work area.

STAGE FOUR
1. When the pace setting police vehicles are within approximately two miles of the work area they shall notify the onsite traffic control officer supervisor who will immediately inform the contractors on site supervisor of their location. Once the contractors on site supervisor has been notified of the pacing vehicles location, the contractor shall begin to clear the travel lanes of all equipment and debris in order to reopen all travel lanes.
2. In case of emergency the pace setting police vehicles shall come to a complete stop once they reach the lead police vehicle. If no emergency is encountered, the crash truck(s) shall be moved from the travel lanes and the two pace setting police vehicles shall clear the work area and immediately move to the right shoulder or an area designated by the traffic control officer supervisor and turn off the flashing blue lights. Once the two police setting police vehicles pass the work area, the traffic control officer supervisor shall instruct the lead and last police vehicles to turn off their flashing blue lights.

GENERAL NOTES
1. Each Traffic Control Officer shall have a marked vehicle with flashing blue lights for the pacing operation. The location and number of officers at each location will be as follows:

<table>
<thead>
<tr>
<th>No. Of Traffic Control Officers With Vehicles</th>
<th>Function</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lead Vehicle</td>
<td>Supervisor</td>
<td>Work Area</td>
</tr>
<tr>
<td>1 for each travel lane</td>
<td>Pacing Operation</td>
<td>Mobile operation beginning x miles upstream and terminating at the work area</td>
</tr>
<tr>
<td>1 at each entrance ramp</td>
<td>Advanced Warning to Motorist</td>
<td>Stationed at the Beginning of Pacing Operation</td>
</tr>
<tr>
<td>1 at each entrance ramp</td>
<td>Entrance Ramp Roadblocks</td>
<td>One at each of the entrance ramps upstream of the work area</td>
</tr>
</tbody>
</table>
DESIGN CONSIDERATIONS:

The design shall evaluate the actual distance required for the pacing operation based on site specific features such as roadway geometrics, pacing speeds, regulatory speeds, interchange spacing, work duration, availability of traffic control officers, traffic volumes and maximum queue length.

The starting point of a traffic pacing operation must consider the following factors: the speed of the pacing vehicles, the location of entrance ramps, horizontal and vertical alignment of the facility. In some instances, it may be necessary to close a lane at the work site to position a crane(s) and the materials to be lifted. All material to be installed shall be on-site before the traffic pacing operation begins.

It may be necessary to install temporary barrier walls to protect pre-positioned and assembled materials in the right of way. The minimum speed allowed for a pacing operation is 20 mph with 20 mph the preferred speed. The maximum allowed work duration is 3 hours (180 min).

The minimum allowed work duration is 20% hour (120 min).

The maximum practical pacing operation length is 10 miles.

DESIGN STANDARDS:


TRAFFIC PACING DISTANCES (L) miles

<table>
<thead>
<tr>
<th>Fp</th>
<th>Tw (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>5.5</td>
</tr>
<tr>
<td>65</td>
<td>25</td>
</tr>
<tr>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>55</td>
<td>25</td>
</tr>
<tr>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

NOTES FOR TABLE:

Tw is the total time allowed for work activity in minutes. This time starts just after the last vehicle traveling at the pre-pacing regulatory speed clears the work area and ends just as the pacing operation reaches the work area. Tw must include the time required to clear the roadway of equipment, materials, and personnel.

Demand volume may not exceed 1,750 pcphpl (passenger cars per hour per lane) without a site specific design. Traffic counts can be obtained from the Office of Planning, or you may need to collect traffic counts. Hourly directional traffic volumes must be converted to pcphpl using the following:

pcphpl = \( \frac{\text{Hourly Directional Volume}}{\text{Number of Lanes} \times \text{Each Direction}} \) \times \text{Heavy Vehicle Factor}

For additional guidance for site specific designs refer to the FHWA Preparation Manual, Volume 1 Chapter 10.
CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALKS

GENERAL NOTES

1. Only the signs controlling pedestrian flows are shown. Other work zone signs will be needed to control traffic on the streets.

2. For spacing of traffic control devices and general TCZ requirements refer to Index No. 600. Maximum spacing between barricades, vertical panels, drums or tubular markers shall not be greater than 25’.

3. Street lighting should be considered.

4. For nighttime closures use Type A flashing warning lights on barricades supporting signs and closing sidewalks. Use Type C steady-burn lights on channelizing devices separating the work area from vehicular traffic.

5. Pedestrian traffic signal display controlling closed crosswalks shall be covered or deactivated.

6. Post Mounted Signs located near or adjacent to a sidewalk shall have a 7’ minimum clearance from the bottom of sign to the sidewalk.

7. When construction activities involve sidewalks on both sides of the street, efforts should be made to stage the construction so that both sidewalks are not out of service at the same time.

8. In the event that sidewalks on both sides of the street are closed, pedestrians shall be guided around the construction zone.

9. Temporary walkways shall be a minimum of 4’ wide with a maximum 0.02 cross slope and a maximum 0.05 running slope between ramps. Temporary walkways less than 5’ in width shall provide for a 5’ x 5’ passing space at intervals not to exceed 200’. Temporary ramps shall meet the requirements for curb ramps specified in Index No. 304. Temporary walkway surfaces and ramps shall be stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.

10. Temporary ramps and temporary crosswalk markings shall be removed with reopening of the sidewalk, unless otherwise noted in the plans. All work and materials associated with constructing temporary curb ramps and temporary crosswalk markings, removal and disposal of temporary curb ramps and temporary crosswalk markings, and restoration to original condition shall be paid for as Maintenance of Traffic, Lump Sum.

11. A pedestrian longitudinal channelizing device shall be placed across the full width of the closed sidewalk.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT WORKERS OR THEIR ACTIVITIES ENCROACH ON THE SIDEWALK FOR A PERIOD OF MORE THAN 60 MINUTES.
GENERAL NOTES

1. Access openings across limited access right of way and use of this Index are prohibited unless specifically permitted in the Contract Plans or Special Provisions. When permitted in the Contract Plans or Special Provisions and prior to construction of any opening, the Contractor must submit, in writing, a request identifying specific locations for approval by the Engineer.

2. No more than two (2) access openings will be allowed on each project.

3. Access openings shall be located only in areas having adequate sight distance and shall not be located within 0.5 miles of interchanges, within 2000 ft. of acceleration-deceleration lanes at rest areas, other access openings or other highway service areas.

4. Access openings shall not be constructed directly opposite temporary median crossovers or within 2000 ft. of temporary median crossovers.

5. Access openings shall be within the project limits and shall not be used for transporating materials to or from any other project. The acceleration-deceleration surfaces shall be paved. RAP material is acceptable for driveway surfacing.

6. Any Motorist Aid Call Boxes affected by the temporary access openings shall be relocated outside the limits of access lanes and remain in use during construction. Upon removal of access lanes, call boxes shall be returned to their previous location. Temporary relocation and restoration of call boxes shall be at the contractor's expense.

7. Access openings in the limited access fence shall have gates which are to be locked during nonwork hours or periods when the access is not in active use.

8. The contractor shall take all precautions necessary to insure against entrance by livestock or unauthorized persons or vehicles.

9. The contractor shall not vary from the plan detail without approval of the Engineer.

10. Gates shall be removed and access opening locations shall be restored to preconstruction condition immediately upon completion of activities utilizing the materials being transported through the openings whether or not the project is completed.

11. Failure to comply with any provision of the access opening plan shall be cause for terminating use of all openings. Upon notification by the Engineer, the contractor shall cease hauling and begin restoration of affected areas. Under this condition expense of removal, restoration and of additional hauling distances shall be borne by the contractor.

12. No guardrail or barrier wall will be removed for access openings.

13. Construction and removal of the access and restoring the area to preconstruction condition shall be included in the cost of Maintenance Of Traffic (MOT).
**PRESENT WHEN WORKERS DOUBLED SPEEDING FINES**

When workers present*, install temporary "Speeding Fines Doubled" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

**DEDICATED LANE(S) IN CENTER**

Device Spacing 25 Typ.

500' Taper Lengths

**DEDICATED LANE(S) ON INSIDE (SINGLE LEFT LANE CLOSURE)**

Device Spacing 25 Typ.

1000' Taper Lengths

**SYMBOLS**

- Work Area
- PCMS Display A
- PCMS Display B
- PCMS Display C

**GENERAL NOTES**

1. This Plan is to be used at Mainline Plazas Only.
2. This Plan is for Lane Closures that exceed three hours.
3. Plaza canopies which have existing DMS signs on the canopies shall display the message "LANE CLOSED" for the duration of this closure.
4. A truck/trailer mounted attenuator is required.
5. Lane use control lights, signs, or signals over toll lanes shall be switched to the appropriate symbol, message, or correct color prior to the start of any lane closure. They should also be switched at project completion.
6. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

**Table 1 - Taper Length (L)**

<table>
<thead>
<tr>
<th>Dedicated Lane Location</th>
<th>Number of Dedicated Lanes</th>
<th>Number of Dedicated Lanes Closed</th>
<th>Taper Length (Feet)</th>
<th>PCMS Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center</td>
<td>2</td>
<td>3</td>
<td>200</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>350</td>
<td>B</td>
</tr>
<tr>
<td>Inside***</td>
<td>1</td>
<td>1</td>
<td>350</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>350</td>
<td>C</td>
</tr>
</tbody>
</table>

*** See Index 667 Sheet 2 for Right or Center Inside Dedicated Lanes Closed, or Two or More Inside Dedicated Lanes Closed Configurations.

* If there is no Room in the Median for the PCMS, then locate it on the Outside of the Roadway only.

** Install temporary "Speeding Fines Doubled" sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

Manager shall be notified for security and staffing.

At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

Manager shall be notified for security and staffing.

Manager shall be notified for security and staffing.

Manager shall be notified for security and staffing.

Manager shall be notified for security and staffing.
GENERAL NOTES

1. This Plan is to be used at Mainline Plazas Only.

2. This Plan is for Lane Closures that exceed three hours.

3. Plaza canopies which have existing DMS signs on the canopies shall display the message "LANE CLOSED" for the duration of this closure.

4. A truck/trailer mounted attenuator is required.

5. See INDEX 667 sheet 1 for Two or More Inside Dedicated Lanes Single Left Lane Closed Configuration.

6. Lane use control lights, signs, or signals over toll lanes shall be switched to the appropriate symbol, message, or correct color prior to the start of any lane closure. They should also be switched at project completion.

7. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

INSIDE DEDICATED LANES
** If there is no room in the median for the PCMS, then isolate it on the outside of the roadway only.

ALL LANES CLOSED***

*** Inserted for Inside Open Road Tolling Lanes Configuration

** Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

GENERAL NOTES

1. This Plan is to be used at Mainline Plazas Only.
2. This Plan is for lane closures of any time length.
3. Plaza canopies which have existing DMS signs on the canopies shall display the message "LANE CLOSED" for the duration of this closure.
4. For planned lane closure, a portable changeable message sign shall be placed and shall display the message shown at a minimum of one week prior to closure. If planned lane closure is less than one week, place portable changeable message sign immediately using "prior to closure" messages.
5. A truck/trailer mounted attenuator is required.
6. Lane closure configurations applicable to 2 or 3 lane open road tolling plazas.
7. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

OUTSIDE OPEN ROAD TOLLING LANES
**GENERAL NOTES**

1. This Plan is to be used at Mainline Plazas only.

2. This Plan is for lane closures of any time length.

3. Plaza canopies which have existing DMS signs on the canopies shall display the message "LANE CLOSED" for the duration of this closure.

4. For planned lane closure, a portable changeable message sign shall be placed and shall display the messages shown at a minimum of one week prior to closure. If planned lane closure is less than one week, place portable changeable message sign immediately using 'prior to closure' messages.

5. A truck/trailer mounted attenuator is required.

6. Lane closure configurations applicable to 2 or 3 lane open road tolling plazas.

7. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

**SYMBOLS**

- Work Area
- "Speeding Fines Doubled When Workers Present" sign in place.
- Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
- If there is no room in the median for the PCMS sign, then locate it on the outside of the roadway only.
- **Only** use "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

**TOLL PLAZA TRAFFIC CONTROL STANDARDS**

**REVISED**

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DESCRIPTION:

- PCMS Display Prior to Closure
- PCMS Display During Closure

- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Area
- "Speeding Fines Doubled When Workers Present" sign in place.
- Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
- If there is no room in the median for the PCMS sign, then locate it on the outside of the roadway only.
- **Only** use "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

**REVISED**

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DESCRIPTION:

- PCMS Display Prior to Closure
- PCMS Display During Closure

- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Area
- "Speeding Fines Doubled When Workers Present" sign in place.
- Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
- If there is no room in the median for the PCMS sign, then locate it on the outside of the roadway only.
- **Only** use "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

**REVISED**

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DESCRIPTION:

- PCMS Display Prior to Closure
- PCMS Display During Closure

- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Area
- "Speeding Fines Doubled When Workers Present" sign in place.
- Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
- If there is no room in the median for the PCMS sign, then locate it on the outside of the roadway only.
- **Only** use "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

**REVISED**

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DESCRIPTION:

- PCMS Display Prior to Closure
- PCMS Display During Closure

- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator
- Portable Changeable (Variable) Message Sign
- Work Area
- "Speeding Fines Doubled When Workers Present" sign in place.
- Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
- If there is no room in the median for the PCMS sign, then locate it on the outside of the roadway only.
- **Only** use "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.
PRESENT WHEN WORKERS DOUBLED SPEEDING FINES

AHEAD WORK PLAZA CLOSED CENTER LANE AHEAD

TOLL PLAZA TRAFFIC CONTROL STANDARDS
07/01/09

REVISION
C:\COMMENTS\2014 DESIGN STANDARDS\TOLL PLAZA TRAFFIC CONTROL STANDARDS\0060-05.png

DESCRIPTION:

SYMBOLS

Work Area

Sign With 18" x 18" (Min.)
Orange Flag And Type B Light
Channelizing Device (See Index No. 600)

Work Zone Sign

Advance Warning + Direction of Traffic
Advance Warning Vehicle Equipped with
Advance Warning Arrow Board

Lane Identification + Direction of Traffic

EXHIBIT A
DEDICATED, CASH, OR MIXED-USE LANES IN CENTER - ONE LANE CLOSED
(This same plan can be used for any non-dedicated lane even if they are not in the center of the plaza)

** Install temporary Speeding Fines Doubled sign only if there is not an existing permanent "Speeding Fines Doubled Through Toll Plaza" sign or an existing "Speeding Fines Doubled When Workers Present" sign in place.

EXHIBIT B
DEDICATED LANE INSIDE OR OUTSIDE - ONE LANE CLOSED
(Outside Lane Closure is a Mirror Image of this Exhibit)

GENERAL NOTES

1. This Plan is for lane closures that exceed three hours.
2. If the closed lane is a dedicated lane, Exhibit A shall be used at Ramp Plazas only. If the closed lane is a cash or mixed-use lane, Exhibit A may be used at Ramp or Mainline Plazas.
3. A truck/trailer mounted attenuator is required.
4. Exhibit B shall be used at Ramp Plazas only.
5. Lane use control lights, signs, or signals over toll lanes shall be switched to the appropriate symbol, message, or correct color prior to the start of any lane closure. They should also be switched at project completion.
6. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.

MAINLINE PLAZAS & RAMP PLAZAS
GENERAL NOTES
1. This Plan is for lane closures that are three hours or less.
2. This Plan is to be used at Ramp or Mainline Plazas.
3. This Plan can be used for any lane, with appropriate modifications, even if it is not in the center of the Plaza.
4. Lane use control lights, signs, or signals over toll lanes shall be switched to the appropriate symbol, message, or correct color prior to the start of any lane closure. They should also be switched at project completion.
5. At least 48 hours prior to any closure, other than emergencies, the plaza manager shall be notified for security and staffing.
6. A Truck/Trailer Mounted Attenuator is required for all aerial work operations (lift truck). For non-aerial operations, the Truck Mounted Attenuator or additional devices may be required by the Engineer based on the work being performed.

SHORT-TERM CLOSURES

SYMBOLS
- Work Area
- Sign With 24" x 12" (Min.)
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic
- Advance Warning Vehicle Equipped with Advance Warning Arrow Board and Truck/Trailer Mounted Attenuator

WORK DONE WITHIN TRAVEL LANE - ONE LANE CLOSED

WORK NOT DONE WITHIN TRAVEL LANE - ONE LANE CLOSED
PRESENT SPEEDING FINES DOUBLED WHEN WORKERS CLOSED RIGHT LANE 1/2 MILE ROAD 1 MILE WORK

SYMBOLES
- Work Area
- Sign With 28" x 18" (Min.)
- Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic
- PCMS= Portable Changeable(Variable) Message Sign
- PRS= Portable Regulatory Sign- Speed Limit When Flashing
- RSDU= Radar Speed Display Unit

GENERAL NOTES
1. At lane closures where workers are present, reduce the posted speed limit (speed limit that existed prior to construction) by 10 MPH using the Portable Regulatory Sign (PRS), but not less than 55 MPH or to a speed warranted by geometric condition, whichever is lower. Taper lengths, buffer space and device spacing shall be selected using the posted speed, not the reduced speed.

2. All Arrow Boards, Portable Changeable Message Signs, Portable Regulatory Signs and Radar Speed Display Trailers, shall be turned off and moved outside the clear zone or be shielded by a barrier or crash cushion when not in use.

3. Work operations shall be confined to one traffic lane, leaving the adjacent lane(s) open to traffic.

4. When work is performed in the median lane of a divided highway, the barricading plan is inverted and left lane closed and lane reduction signs substituted for the right lane closed and lane reduction signs.

5. When work is being performed on a multilane undivided roadway, the signs and traffic control devices normally placed in the median (as shown) shall be omitted.

6. When paved shoulders having a width of 8 ft. or more are closed, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the travel way. See Index No. 612 for shoulder taper formulas.

7. For general TCZ requirements and additional information, refer to Index No. 600.

CONDITIONS
The MAS shall be used if all the following conditions exist:

MULTILANE FACILITY
- POSTED SPEED LIMIT IS 55 MPH OR GREATER
- WORK ACTIVITY REQUIRES A LANE CLOSURE FOR MORE THAN 2 DAYS (CONSECUTIVE OR NOT)
- WORKERS ARE PRESENT AND NOT PROTECTED BY BARRIER

WORK ZONE DISPLAYS
See Table I
- Device Spacing-Tangent
- Device Spacing-Taper

Table I Device Spacing

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Max. Distance Between Devices (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cone or Tubular Markers</td>
<td>Type I or Type II Barricades or Vertical Panels or Drums</td>
</tr>
<tr>
<td>Taper Tangent</td>
<td>Taper Tangent</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Table II Buffer Space and Taper Length

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Buffer Space (12' Lateral Transition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cone or Tubular Markers</td>
<td>Type I or Type II Barricades or Vertical Panels or Drums</td>
</tr>
<tr>
<td>Taper Tangent</td>
<td>Taper Tangent</td>
</tr>
<tr>
<td>25</td>
<td>15</td>
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<td>65</td>
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</tr>
<tr>
<td>90</td>
<td>40</td>
</tr>
<tr>
<td>115</td>
<td>60</td>
</tr>
</tbody>
</table>

Where:
- L = WS²
- D = DI (ft.)
- D = DI (ft.)
- L = WS
- W = Width of lateral transition in feet
- S = Posted speed limit (mph)
- L shown in the notes column.

For lateral transitions other than 12', use formula for L shown in the notes column.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

Buffer Space and Taper Length (12' Lateral Transition)

- L = WS²
- D = DI (ft.)
- D = DI (ft.)
- L = WS
- W = Width of lateral transition in feet
- S = Posted speed limit (mph)

For lateral transitions other than 12', use formula for L shown in the notes column.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.