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<td>08/20/14 08/11/14</td>
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<td>MD 104.02-16</td>
<td>MOBILE OPERATION / 2 LANE, 2-WAY ALL SPEEDS / MOVING NORMAL</td>
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<td>MD 104.02-17</td>
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<td>MD 104.02-18</td>
<td>MOBILE MARKING OPERATION / 2 LANE, 2-WAY ALL SPEEDS</td>
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<tr>
<td>MD 104.03-01</td>
<td>SHOULDER WORK/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
<td>08/11/10</td>
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<td>SHOULDER WORK/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-03</td>
<td>LEFT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>LEFT LANE CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-05</td>
<td>RIGHT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>RIGHT LANE CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-07</td>
<td>PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>MD 104.03-08</td>
<td>PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-09</td>
<td>INTER. FAR-LEFT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>INTER. FAR-LEFT LANE CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>INTER. FAR-RIGHT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>MD 104.03-12</td>
<td>INTER. FAR-RIGHT LANE CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-13</td>
<td>INTER. FAR-SIDE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH</td>
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<td>INTER. FAR-SIDE CLOSURE/MULTILANE UNDIV. EQUAL/LESS THAN 40 MPH</td>
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<td>MD 104.03-15</td>
<td>MOBILE OPERATION/MULTILANE UNDIV. ALL SPEEDS / 0-15 MIN. AND MOVING SLOW</td>
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<td>MD 104.03-16</td>
<td>MOBILE OPERATION/MULTILINE UNDIV. ALL SPEEDS / MOVING NORMAL</td>
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<td>MD 104.04-01</td>
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<td>LEFT LANE CLOSURE/DIVIDED UNCON. GREATER THAN 40 MPH</td>
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<td>CENTER LANE CLOSURE/DIVIDED UNCON. GREATER THAN 40 MPH</td>
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<td>ROADWAY CLOSURE/DIVIDED UNCON. GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>MD 104.04-12</td>
<td>ROADWAY CLOSURE/DIVIDED UNCON. EQUAL/LESS THAN 40 MPH/OVER 12 HRS. NIGHTTIME USE</td>
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<td><strong>MD 104.04-13</strong></td>
<td>LEFT-TURN BAY CLOSURE/DIVIDED UNCON. GREATER THAN 40 MPH</td>
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<td><strong>MD 104.04-14</strong></td>
<td>LEFT-TURN BAY CLOSURE/DIVIDED UNCON. EQUAL/LESS THAN 40 MPH</td>
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<td><strong>MD 104.04-15</strong></td>
<td>INTER. (LEFT LANE, TURN BAY) CLOSURE/DIVIDED UNCON. GREATER THAN 40 MPH</td>
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<td><strong>MD 104.04-16</strong></td>
<td>INTER. (LEFT LANE, TURN BAY) CLOSURE/DIVIDED UNCON. EQUAL/LESS THAN 40 MPH</td>
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<td><strong>MD 104.04-17</strong></td>
<td>MOBILE OPERATIONS/DIVIDED UNCON. OR EXP-FREEWAY ALL SPEEDS/0-15 MIN., AND MOVING SLOW</td>
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<td><strong>MD 104.04-18</strong></td>
<td>MOBILE OPERATION/DIVIDED UNCON. OR EXP-FREEWAY ALL SPEEDS/MOVING NORMAL</td>
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<td><strong>MD 104.04-19</strong></td>
<td>MOBILE WORK OPERATION/DIVIDED UNCON. OR EXP-FREEWAY ALL SPEEDS</td>
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<td><strong>MD 104.04-20</strong></td>
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<td><strong>MD 104.05-01</strong></td>
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<td><strong>MD 104.05-02</strong></td>
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<td><strong>MD 104.05-03</strong></td>
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<td>LANES DIVIDE/EXP-FREEWAY GREATER THAN 40 MPH</td>
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<td><strong>MD 104.05-05</strong></td>
<td>LANE SHIFT/EXP-FREEWAY GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td><strong>MD 104.05-06</strong></td>
<td>LANES DIVIDE/EXP-FREEWAY GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td><strong>MD 104.05-07</strong></td>
<td>RIGHT LANE CLOSURE/EXP-FREEWAY GREATER THAN 40 MPH</td>
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<td>MD 104.05-08</td>
<td>LEFT LANE CLOSURE/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>MD 104.05-09</td>
<td>2 RIGHT (LEFT) LANES CLOSURE/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>MD 104.05-10</td>
<td>CENTER LANE CLOSURE/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>MD 104.05-11</td>
<td>3 RIGHT LANES CLOSURE/EXP-FREeway GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE.</td>
<td>08/11/10</td>
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<td>MD 104.05-12</td>
<td>3 LEFT LANES CLOSURE/EXP-FREeway GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE.</td>
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<tr>
<td>MD 104.05-13</td>
<td>AUXILIARY LANE CLOSURE/EXP-FREeway AT EXIT AND ENTRANCE RAMPS GREATER THAN 40 MPH</td>
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<td>MD 104.05-14</td>
<td>RIGHT LANE CLOSURE/EXP-FREeway AT EXIT AND ENTRANCE RAMPS GREATER THAN 40 MPH</td>
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<td>MD 104.05-15</td>
<td>ENTRANCE RAMP TREATMENT/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>ENTRANCE RAMP TREATMENT/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>MD 104.05-18</td>
<td>PARTIAL RAMP CLOSURE/EXP-FREeway GREATER THAN 40 MPH</td>
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<td>FULL RAMP CLOSURE / EXP.-FREeway GREATER THAN 40 MPH</td>
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<td>3 LEFT LANES CLOSURE/EXP-FREeway AT EXIT AND ENTRANCE RAMPS</td>
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<td>MD 104.05-22</td>
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<td>MD 104.06-05</td>
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<td>MD 104.06-06</td>
<td>DETOUR SIGNING FOR CLOSED STREET/2-LANE, 2-WAY GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>MD 104.06-07</td>
<td>ONE LANE ROAD (YIELD CONTROLLED)/2-LANE, 2-WAY GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>MD 104.06-08</td>
<td>ONE LANE ROAD (SIGNAL CONTROLLED)/2-LANE, 2-WAY GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>MD 104.06-09A</td>
<td>PED AND CURB-LANE CONTROL / MULTILANE UNDIV. SPEED LESS THAN OR EQUAL TO 40 MPH / OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>PED AND CURB-LANE CONTROL / MULTILANE UNDIV. FOR SPEEDS GREATER THAN 40 MPH / OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>PED AND CURB-LANE CONTROL / MULTILANE UNDIV. SPEEDS LESS THAN OR EQUAL TO 40 MPH / OVER 12 HRS. OR NIGHTTIME USE</td>
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<td>MD 104.06-09D</td>
<td>PED AND CURB-LANE CONTROL / MULTILANE UNDIV. FOR SPEEDS GREATER THAN 40 MPH / OVER 12 HRS. OR NIGHTTIME USE</td>
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<td><strong>MD 104.06-10</strong></td>
<td>MOBILE SERVICE WORK/INTERSECTION EQUAL/LESS THAN 40 MPH 0-15 MIN.</td>
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<td><strong>MD 104.06-11</strong></td>
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<td><strong>MD 104.06-12</strong></td>
<td>TEMPORARY ROADWAY CLOSURE/EXP-FREeway GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE</td>
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<td><strong>MD 104.06-13</strong></td>
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<td><strong>MD 104.06-14</strong></td>
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<td><strong>MD 104.06-16</strong></td>
<td>PAVEMENT EDGE DROP-OFF 2.5 INCHES OR LESS (BETWEEN TRAFFIC LANES AND SHOULDER)</td>
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<td>PAVEMENT EDGE DROP-OFF GREATER THAN 2.5 INCHES BUT EQUAL TO OR LESS THAN 5 INCHES (BETWEEN TRAFFIC LANES AND SHOULDER)</td>
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<td><strong>MD 104.06-19</strong></td>
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<td>Barrier Delineation</td>
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<td>Placement of Pavement Marking Arrows</td>
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<td>Precast Temporary 32 Inch F Shape Concrete Traffic Barrier Terminal End</td>
<td>MD 104.01-31</td>
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Precast Temporary 32 Inch F Shape Concrete ———— MD 104.01-52
Traffic Barrier Terminal End – Left Side Approach Details

Precast Temporary 32 Inch F Shape Concrete ———— MD 104.01-53
Traffic Barrier Terminal End – Left Side Approach Details

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F Shape Concrete Traffic Barrier for Transition – Left Side

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32 Inch F Shape Concrete Traffic Barrier Terminal End

Traffic Barrier W Beam Median Barrier Anchorage At ———— MD 104.01-58
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Traffic Barrier Terminal End

Crash Cushion Sand Filled Plastic Barrels ———— MD 104.01-59
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### TYPICAL APPLICATIONS

#### TWO-LANE, TWO-WAY

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<th>Speed</th>
<th>Use This TTCTA</th>
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</thead>
<tbody>
<tr>
<td>Shoulder Work</td>
<td>&gt; 40 MPH</td>
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<td></td>
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<td>MD 104.02-02</td>
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<tr>
<td>Lane Shift Right or Left Side</td>
<td>&gt; 40 MPH</td>
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<td></td>
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<td>Work in Center of Low-Volume Road</td>
<td>&gt; 40 MPH</td>
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<tr>
<td>Lane Shift for Complete Travel Way Blockage</td>
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<td>MD 104.02-08</td>
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<tr>
<td>Flagging Operation</td>
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<td></td>
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<tr>
<td>Bypass Detour</td>
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<td></td>
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<td>MD 104.02-12</td>
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</tbody>
</table>

#### Stationary - Intersection

| Intersection Flagging | > 40 MPH | MD 104.02-13    |
|                       | ≤ 40 MPH | MD 104.02-14    |

#### Mobile

| Less Than 15 Minutes / Moving Slow | All Speeds | MD 104.02-15    |
| Moving Normal                    | All Speeds | MD 104.02-16    |
| Mobile Work                      | All Speeds | MD 104.02-17    |
| Marking                          | All Speeds | MD 104.02-18    |

### Multilane Undivided

#### Stationary - Roadway

| Shoulder Work | > 40 MPH | MD 104.03-01 |
|              | ≤ 40 MPH | MD 104.03-02 |
| Left Lane Closure | > 40 MPH | MD 104.03-03 |
|                | ≤ 40 MPH | MD 104.03-04 |

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#### Multilane Undivided (Continued)

**Stationary - Roadway (Continued)**

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<td></td>
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<tr>
<td>Partial Roadway Closure</td>
<td>&gt; 40 MPH</td>
<td>MD 104.03-07</td>
</tr>
<tr>
<td></td>
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**Stationary - Intersection**

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<td>Intersection Far Left Lane Closure</td>
<td>&gt; 40 MPH</td>
<td>MD 104.03-09</td>
</tr>
<tr>
<td></td>
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<tr>
<td>Intersection Far Right Lane Closure</td>
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<tr>
<td></td>
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<tr>
<td>Intersection Far-Side Closure</td>
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**Mobile**

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<tr>
<td>Less Than 15 Minutes / Moving Slow</td>
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<td>MD 104.03-15</td>
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<tr>
<td>Moving Normal</td>
<td>All Speeds</td>
<td>MD 104.03-16</td>
</tr>
<tr>
<td>Mobile Work</td>
<td>All Speeds</td>
<td>MD 104.03-17</td>
</tr>
<tr>
<td>Marking</td>
<td>All Speeds</td>
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**Divided Uncontrolled**

**Stationary - Roadway**

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<tr>
<td></td>
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<tr>
<td>Left Lane Closure</td>
<td>&gt; 40 MPH</td>
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</tr>
<tr>
<td></td>
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<thead>
<tr>
<th>Specification</th>
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#### Divided Uncontrolled (Continued)

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<thead>
<tr>
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<th>USE THIS TTCTA</th>
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<tbody>
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<td>&gt; 40 MPH</td>
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</tr>
<tr>
<td></td>
<td>≤ 40 MPH</td>
<td>MD 104.04-06</td>
</tr>
<tr>
<td>Center Lane Closure</td>
<td>&gt; 40 MPH</td>
<td>MD 104.04-07</td>
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<td></td>
<td>≤ 40 MPH</td>
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<td>2 Right (Left) Lanes Closure</td>
<td>&gt; 40 MPH</td>
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<td>Roadway Closure</td>
<td>&gt; 40 MPH</td>
<td>MD 104.04-11</td>
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<td></td>
<td>≤ 40 MPH</td>
<td>MD 104.04-12</td>
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</table>

#### STATIONARY – INTERSECTION

| Left-Turn Bay Closure            | > 40 MPH | MD 104.04-13 |
|                                  | ≤ 40 MPH | MD 104.04-14 |
| Intersection (Left Lane / Turn Bay Closure) | > 40 MPH | MD 104.04-15 |
|                                  | ≤ 40 MPH | MD 104.04-16 |

#### MOBILE

| Less Than 15 Minutes / Moving Slow | All Speeds | MD 104.04-17 |
| Moving Normal                     | All Speeds | MD 104.04-18 |
| Mobile Work                       | All Speeds | MD 104.04-19 |
| Marking                            | All Speeds | MD 104.04-20 |

#### EXPRESSWAY/FREeway

### STATIONARY – ROADWAY

| Shoulder Work                     | > 40 MPH | MD 104.05-01 |
|                                  | ≤ 40 MPH | MD 104.05-02 |
| Roadway Shift                    | > 40 MPH | MD 104.05-03 |

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<td>3 Lanes Shift</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-05</td>
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<tr>
<td>3 Lanes Divide</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-06</td>
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<td>Right Lane Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-07</td>
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<td>Left Lane Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-08</td>
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<td>2 Right (Left) Lanes Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-09</td>
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<td>Center Lane Closure</td>
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<td>MD 104.05-10</td>
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<td>3 Right Lanes Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-11</td>
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<td>3 Left Lanes Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-12</td>
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<td>Auxiliary Lane Closure at Exit and Entrance Ramps</td>
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<td>MD 104.05-13</td>
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<td>Right Lane Closure at Exit and Entrance Ramps</td>
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<td>MD 104.05-14</td>
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<td>Entrance Ramp Treatment</td>
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<td>MD 104.05-15</td>
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<td>Partial Ramp Closure</td>
<td>&gt;40 MPH</td>
<td>MD 104.05-16</td>
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<td>Exit Ramp Treatment</td>
<td>&gt;40 MPH</td>
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### Typical Applications (Continued)

#### Expressway/Freeway (Continued)

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<td>&gt; 40 MPH</td>
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### Mobile

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<td>All Speeds</td>
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### Special

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<td>All Speeds</td>
<td>MD 104.06-03</td>
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<tr>
<td>All Speeds</td>
<td>MD 104.06-04</td>
</tr>
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<td>All Speeds</td>
<td>MD 104.06-06</td>
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<tr>
<td>&gt; 40 MPH</td>
<td>MD 104.06-07</td>
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<tr>
<td>&gt; 40 MPH</td>
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<td>MD 104.06-09C</td>
<td>All Speeds</td>
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<tr>
<td>MD 104.06-09D</td>
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- **Pedestrian and Curb Lane Control**
- **Mobile Service Work**

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<td>MD 104.06-10</td>
<td>≤ 40 MPH</td>
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<tr>
<td>MD 104.06-11</td>
<td>&gt; 40 MPH</td>
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- **Temporary Roadway Closure (Exp–Freeway)**
- **Temporary Roadway Closure with Lane Closure and Flagger Control**

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<th>SPEED</th>
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<tr>
<td>MD 104.06-13</td>
<td>&gt; 40 MPH</td>
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- **Unmarked No Passing Zones**
- **Pavement Drop-off 2.5 Inches or Less**
- **Pavement Drop-off Greater Than 2.5 Inches**
- **Pavement Drop-off Greater Than 5 Inches**

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<td>MD 104.06-14</td>
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<tr>
<td>MD 104.06-18</td>
<td>All Speeds</td>
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<tr>
<td>MD 104.06-19</td>
<td>All Speeds</td>
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- **Pavement Drop-off Greater Than 5 Inches Without an Adjacent Lane Closure**
- **Pavement Drop-off Greater Than 5 Inches With an Adjacent Lane Closure**

<table>
<thead>
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<td>MD 104.06-21</td>
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- **Moveable Barrier Transfer Operation**

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<table>
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<th>SPEED</th>
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<td>&gt; 40 MPH</td>
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<td>All Speeds</td>
<td>MD 104.06-25</td>
</tr>
<tr>
<td>≥ 45 MPH</td>
<td>MD 104.06-26</td>
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<tr>
<td>All Speeds</td>
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Dual Highway Construction

Median Work

Automated Speed Enforcement Typical Layout

Roundabout Flagging Operation
1.0 INTRODUCTION

1.1 The General Notes (GN) supplement the Standard Details and the TTCTAs, and have been assembled to provide additional direction on the installation and application of traffic control devices shown in these standards. The GNs also provide additional guidelines and other useful information that will facilitate the installation of appropriate temporary traffic controls. Users of these standards shall also comply with provisions of FHWA's Manual on Uniform Traffic Control Devices (MUTCD) and SHA's Supplement to the MUTCD, Standard Specifications for Construction and Materials, and General Provisions for Construction Contracts.

1.2 The TTCTA show the minimum requirements necessary to plan for the safety of workers, motorists, pedestrians, and other system users throughout the temporary traffic control zone for various types of work activities. Typically, more traffic control devices are required for long-term stationary work activities than for short-term stationary work activities. Additional temporary traffic control devices may be necessary because of other traffic factors, such as the roadway's accident history, expected traffic backups, high truck traffic, roadway geometrics or characteristics, and other conditions that may adversely affect the flow of traffic. Users of these TTCTA should review the temporary traffic control setup once in place to ensure that traffic is traveling smoothly through the traffic control zone, driver expectancy is being met, and no other adjustments to the temporary traffic control devices are necessary. This review is to be repeated on a regular basis as noted elsewhere.

1.3 The TTCTA address a wide variety of different conditions; however, every situation could not be shown. Therefore, charts have been provided showing standard devices to be used for the proposed work zone activity and the placement of these devices for certain roadway conditions and work durations. The user is expected to combine the information from these charts into a workable traffic control plan.

1.4 In applying these standards and guidelines, questions about applications and interpretations should be referred to the State Highway Administration's Assistant District Engineer—Traffic, County Traffic Engineer, City Traffic Engineer, Public Works Engineer, or other responsible party who has expertise in traffic engineering and has jurisdiction on the appropriate roadways. Such consultation may be required, for example, to determine the appropriate TTCTA for the work zone condition.
1.5 The General Notes address the following topics:

- Definitions
- Abbreviations
- Signs
- Portable Variable Message Signs
- Arrow Panels
- Channelizing Devices
- Pavement Markings
- Flagging
- Vehicles
- Work Restrictions
- Traffic Control Plans
- Sign and Buffer Spacing Charts/Standard Temporary
- Traffic Control (TTC) Operations
- Project Limits Signs
- Identification Hat and Shovel Signs
- Placement of Regulatory Speed Signs
- TTC Device Selection Charts (for various roadway types)
- Warning, Regulatory and Special Signs/Sign Designations
- Sign/Sign Support Placement
- Vehicle Conspicuity
- Protection Vehicle/Paint Train Vehicle Signing

2.0 DEFINITIONS

Administration – Maryland Department of Transportation, State Highway Administration.

Average Daily Traffic – The number of vehicles flowing in both directions along a particular segment of roadway during an average 24-hour period.

Divided Highway – A highway consisting of two roadways, with traffic in one direction of travel separated from traffic in the opposite direction by a median or barrier.

Divided Uncontrolled Highway – A divided highway having at-grade access to/from adjoining roads or driveways.

Driver Expectancy – Temporary traffic control should be designed and applied in a manner equal to or better than permanent/existing conditions, so as to compensate for the unexpectancy of the work zone situation, thus providing positive guidance for the road users traversing the area.

Engineer – A person designated by the Administration acting directly or through his duly authorized representative, such representative acting within the scope of the particular authority and duties assigned to that person.
Emergency Repair Operation – An unplanned work operation resulting from a failure or imminent failure of a structure or system that, if not controlled or corrected immediately, may present a hazard to the public.

Expressway – A high-speed divided highway with full or partial control of access and grade separations at major intersections.

Freeway – An expressway with full control of access.

High Bus/Truck Volumes – Bus/truck volumes representing more than 10 percent of the total volume of traffic.

* High Speed – Greater than 40 mph.

Line of Sight – Decision sight distance for the following rate of speed:

<table>
<thead>
<tr>
<th>MPH</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>450–625</td>
</tr>
<tr>
<td>40</td>
<td>600–825</td>
</tr>
<tr>
<td>50</td>
<td>750–1025</td>
</tr>
<tr>
<td>60</td>
<td>1000–1275</td>
</tr>
<tr>
<td>70</td>
<td>1100–1450</td>
</tr>
</tbody>
</table>

Long-Term Stationary Work Activity – Work that occupies a location more than 12 hours or is conducted during darkness.

* Low Speed – Equal to or less than 40 mph.

Mobile Operation – Work activity that moves along the road either intermittently or continuously; may involve stops as long as 15 minutes.

Moving Normal – Mobile work operation traveling at, or within 15 mph of, the posted speed limit.

Moving Slow – Mobile work operation travelling more than 15 mph below the posted speed limit.

Multi-Lane Undivided Highway – A two-way highway having three or more lanes that typically provides at least two lanes in each direction, with traffic separated by a center line as defined by the Manual on Uniform Traffic Control Devices.

Physical Barrier – A device which provides a physical limitation through which a vehicle would not normally pass. It is intended to contain or redirect an errant vehicle.

* Posted or prevailing speed, whichever is higher; also, see definition for "Speed".

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

GENERAL NOTES

STANDARD NO. MD 104.00-03
Prevailing (Travel) Speed – The speed at which the majority of the traffic is traveling at or below (normally the 85th percentile). If the prevailing speed is not known, it shall be determined by the Engineer using the "floating car" method (in which the driver approximates the median speed by passing as many vehicles as pass the driver) or another suitable method, at the discretion of the Engineer.

Protection Vehicle (PV) – A work vehicle with approved flashing lights, a truck or trailer-truck mounted attenuator (TMA/TTM) with support structure designed for attaching the system to the work vehicle, and arrow panel that is used to provide protection for workers, motorists, equipment, and work operations.

Queue – A line of vehicles, or traffic backup, that forms on a section of roadway where traffic volume exceeds capacity.

Service Vehicle – The work vehicle typically used to maintain traffic control devices, such as PCMS and traffic signals.

Short-Term Stationary Work Activity – Daylight work that occupies a location from 15 minutes to 12 hours.


Speed – The term "speed" may mean the 85th percentile speed, prevailing speed, posted speed, design speed, or advisory speed. Vehicle speed should be carefully considered in determining the design, use, placement, and location of various traffic control devices.

Two-Lane, Two-Way Roadway – A roadway that provides a single travel lane in each direction. Traffic is separated by a center line as defined in the Manual on Uniform Traffic Control Devices.
3.0 ABBREVIATIONS

ADE-T – Assistant District Engineer–Traffic
ADT – Average Daily Traffic
ASST – Assistant
BL – Buffer Length
CD or CHAN – Channelizing Devices
DARK – Darkness (nighttime)
DAY – Daytime
EQL – Equal
EXP – Expressway
FT – Feet
FOHPWA – Fluorescent Orange High–Performance Wide Angle
GN – General Notes
HRS – Hours
INTERSECT – Intersection
L – Taper Length
LT – Left
LGTS – Lights
LOC – Location
MASH – Manual for Assessing Safety Hardware
MUTCD – Manual on Uniform Traffic Control Devices
MDOT – Maryland Department of Transportation
MAX – Maximum
MPH – Miles per hour
MIN – Minimum
15 MIN – 15 minutes (title block)
NCHRP – National Cooperative Highway Research Program
OOTS/OOT&S – Office of Traffic & Safety
PED – Pedestrian
PCMS – Portable Changeable Message Sign
PV – Protection Vehicle
RT – Right
SHA – State Highway Administration
STD – Standard
TEMP – Temporary
TTC – Temporary Traffic Control
TTCTA – Temporary Traffic Control Typical Application(s)
TMA – Truck Mounted Attenuator
TYP – Typical
UNCON – Uncontrolled
UNDIV – Undivided
VEH – Vehicle
VP–1 – Vertical Panel–1 (object marker designation)
4.0 SIGNS

4.1 Signs should be spaced at the distances shown on the TCTA diagrams.

4.2 See the "Sign and Buffer Spacing Charts/Standard Temporary Traffic Control Operations" for the appropriate spacing of the advance warning signs for lower speed highway facilities.

4.3 At locations where queues extend beyond the first advance warning sign, additional advance warning signs (static and/or PCMS) shall be placed in advance of the longest observed queue.

4.4 When bus and/or truck volumes are high, an initial advance warning sign may be placed on the left side of a multilane undivided roadway.

4.5 Administration approved Fluorescent Orange Sign Sheetng Material shall be used on all temporary warning signs erected in work zones (post-mounted, roll-up, etc.).

4.6 Administration approved temporary roll-up, composite, and plastic signs on approved portable sign stands may be used for work along all roadways, as directed in Specification 104.08.

4.7 When work zone speed limits along 65 and 60 mph roadways are reduced, temporary regulatory speed signing shall be posted for work activities of one-hour duration or longer, unless otherwise directed by the Engineer. These signs are to be placed as directed in Standard Nos. MD 104.01-06 and MD 104.01-07.

4.8 Sign designations and messages for the signs most commonly used in work zones are shown within these General Notes. See Specification 104.08-03 for information on other temporary traffic signs.

4.9 G2-1 (Hat and Shovel) signs shall be used for projects lasting greater than two months in duration, unless otherwise specified by the Engineer.

4.10 Along streets in urban areas where the prevailing speed is 35 mph or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum sign size of 36” x 36” may be used.

4.11 Where the use of Automated Speed Enforcement (ASE) is determined, the design of signs to be used (i.e. dimensions & legend) and placement shall be approved by OOTS.
4.12 For utility operations, the word "AHEAD" may be used on warning signs in lieu of distance messages for warning signs placed up to and including 1500 feet in advance of the work area. At greater distances, the correct distance messages shall be used on such warning signs. Also, the message UTILITY WORK may be used in lieu of ROAD WORK or SHOULDER WORK. ROAD WORK AHEAD signs may also be used in lieu of distance messages on side streets and entrance ramps that intersect roads where work is being performed (as shown in the Typical Applications) and on the main road during mobile and mowing operations.

4.13 ROAD WORK AHEAD signs shall be installed on all side streets and entrance ramps that intersect roads within work zones. The signing shall be placed along the intersection approach to the right of the travel lane. Refer to Standard Detail 104.01–02 for guidance on sign placement. For side streets intersecting roads outside of work zone boundaries, no advanced signing should be installed.

4.14 Warning signs mounted on wood posts, and those mounted on approved portable supports, shall be mounted in conformance with Standard No. MD 104.01–17. Signs mounted on concrete barrier shall be installed using clamps that are on the Office of Traffic & Safety's Approved Product List. Supplementary signs may be mounted on portable sign stands using additional brackets obtained from the stand manufacturer. Supplementary signs shall not cover any part of the face of the primary sign.

4.15 For shoulder closures greater than a half (1/2) mile in length, advance warning signs should be placed as follows:

   a. A NEXT XX MILES supplemental plate should be provided with the first SHOULDER CLOSED sign in the sequence

   b. The second SHOULDER CLOSED sign in the sequence should be replaced with either:

      - a NO PULL OFF AREA warning sign with NEXT XX MILES supplemental plate, if there are no pull off areas throughout the work area, or

      - a PULL OFF AREA warning sign with EVERY XX MILES supplemental plate, if pull off areas are provided (see MD 104.06–18).
4.16 A BUMP sign should be placed when there is a temporary pavement wedge along a transverse joint, a transverse construction trench with temporary backfill, or a similar transverse disturbance. Signs should be placed according to Shoulder Work Typical Application for the appropriate prevailing speed and work duration, with BUMP signs replacing the SHOULDER WORK signs.

4.17 TRUCK CROSSING signs (W1-1001) shall be used as specified in 11.0, Strategies for Safe Entry/Exit of Work Zone Vehicles to/from the Work Area

5.0 PORTABLE VARIABLE MESSAGE SIGNS (PVMS)

5.1 The PVMS shall not replace standard traffic control devices, but is to supplement these devices.

5.2 PVMS shall be used where a new traffic signal has been installed along State routes having a prevailing speed of 50 mph or greater.

5.3 PVMS shall display a message regarding new traffic signal installation up to 3 days prior to signal turn-on. PVMS shall be removed no later than 7 days after the signal is operational.

5.4 When PVMS are used to advise/warn motorists regarding a new traffic signal installation, they shall be installed along all the major approaches to the intersection, and shall be used in such a way as to supplement the standard traffic control devices required for a new traffic signal installation.

5.5 No more than two displays shall be used within any message cycle unless approved by the District Engineer or ADE-T.

5.6 For a list of standard messages/abbreviations, contact appropriate District Engineer or ADE-T. All customized messages shall be approved by the ADE-T.

5.7 A single message shall be displayed for 2–3 seconds with an "off" interval of 0.5 to 1.0 second. When two messages comprise a message cycle, neither message shall exceed 2 seconds duration. The second message shall follow the first message immediately without any "off" interval. If an off-interval is used between the first and second messages, it shall not exceed 0.5 second.

5.8 The text of the message shall not scroll or travel (horizontally or vertically) across the face of the sign.

5.9 A PVMS should not be used for more than 14 continuous days as part of the same application. A PVMS should be used 3 to 5 days in advance of planned roadwork, if needed.
5.10 PVMS should be used if there is significant change in traffic patterns, unexpected road conditions, or safety concerns that may result in delays/queues and may require caution/diversion.

5.11 PVMS should not be used in place of an arrow panel. The PVMS should be visible from 0.5 mile under day and night conditions and should be legible from a minimum distance of 900 feet.

5.12 PVMS should be placed on the shoulder of the roadway or, if practical, farther from the traveled lane (Standard MD 104.01–22).

5.13 In order to reduce the effect of sun behind the PVMS, the PVMS should be placed so that the sun is not directly behind it (such as during sunrise or sunset).

5.14 The entire message should be readable at least twice at the off-peak 85th-percentile speed prior to work starting or the anticipated prevailing speed.

6.0 ARROW PANELS

6.1 Arrow panels that are installed along roadways with prevailing speeds greater than 40 mph shall be provided with a minimum shoulder closure taper of 1/3 the taper length. For all other roadways a 100-foot minimum shoulder closure taper shall be used.

7.0 CHANNELIZING DEVICES

7.1 Taper Formulas:

\[ L = W S \quad \text{for speeds greater than} \ (\geq) \ 40 \ \text{mph} \]

\[ L = W S^2 / 60 \quad \text{for speeds equal to or less than} \ (\leq) \ 40 \ \text{mph} \]

Where: \( L \) = minimum length of taper (ft), \( S \) = numerical value of prevailing travel speed or speed limit (MPH), whichever is higher, prior to work starting, \( W \) = width of offset (ft)

7.2 Maximum spacing between channelizing devices:

- Taper Channelization – Shall be equal in feet to the posted speed limit for posted speeds equal to or less than 40 mph and 40 feet for posted speeds greater than 40 mph.

- Tangent Channelization – Shall be equal in feet to twice the posted speed limit in the buffer and equal in feet to the posted speed adjacent to the work area for posted speeds equal to or less than 40 MPH. Spacing shall be 80 feet in the buffer and 40 feet adjacent to the work area for posted speeds greater than 40 MPH.
7.3 At horizontal or vertical curves, channelizing devices should be extended to a point where they are visible to approaching traffic. On two-lane, two-way roadways, a full taper length shall always be provided in advance of curves.

7.4 Drums, not cones, shall be used to form the taper on expressways/freeways. Drums, not cones, should be used to form the taper on all other roadways having a prevailing travel speed greater than 40 MPH.

7.5 Storing channelizing devices within 30 feet of the edge of open section roadway or 15 feet of a closed section roadway along any roadway is prohibited without approval of the Engineer.

7.6 Type 3 object markers (VP-1) are required for barrier flare / tangent points.

7.7 The appropriate channelizing devices (including approved barrier) to separate opposing traffic shall be as shown on the plans or as directed by the Engineer.

7.8 On straight sections of roadway with full dimension center and / or lane lines, but without edge lines, channelizing drums shall be used to delineate the edge of the roadway, except at locations designated by the Engineer. Examples would include roadways with curbs, parking, bicycle lanes, or other markings. The channelizing drums may be spaced up to 500' apart where no undue hazards exist unless otherwise directed by the Engineer. On curves, these spacings shall be reduced to a value equal to the posted speed limit, unless otherwise directed by the Engineer.

8.0 PAVEMENT MARKINGS

8.1 Temporary pavement markings should be installed according to Section 104.02–03(f), Specific Requirements for Temporary Pavement Markings, from the Standard Specifications for Construction and Materials and from SHA's "Pavement Marking Policy and Guidelines" issued by OOTS.

8.2 Pavement markings that are no longer applicable shall be completely removed or obliterated. Temporary markings shall be used as necessary. Operations less than 12 hours or undertaken during the daytime may require that the permanent markings be temporarily covered with black tape as specified in Section 8.3.

8.3 Pavement marking lines adjacent to any long duration lane transition or lane closure taper shall be removed (or covered with SHA approved black pavement marking tape), unless otherwise directed by the Engineer. Pavement marking lines shall be re-installed (or uncovered) prior to re-opening the closed lane(s).
8.4 Temporary markings on intermediate pavement surfaces (e.g., base course) shall be placed to full dimensions per the Contract Documents (i.e., continuous double yellow center lines; single dashed yellow center line @ 10' segments, 30' gaps where passing is allowed; lane lines @ 10' segments, 30' gaps).

8.5 Guidance on UNMARKED PAVEMENT signing:

1. Daytime: If the pavement is not marked to SHA's standards/specifications during the daytime, no sign is needed, provided Item #3 below is adhered to.

2. Nighttime: If, due to unforeseen circumstances as determined by the Engineer, the pavement is left in a condition overnight that does not meet SHA pavement marking standards/specifications, then UNMARKED PAVEMENT signing shall be used.

3. In all instances where less than standard markings are in place (permanent or short-term), appropriate channelizing devices and other traffic control devices shall be used to guide traffic through the work zone in an effective, safe, and positive manner.

9.0 FLAGGING

9.1 Where two or more flaggers are used and are unable to see each other, two-way radio communications shall be used.

9.2 If the entire work area is visible from one station, a single flagger may be used, subject to other safety considerations.

9.3 Guidance on flagging at signalized intersections:

1. Issues regarding flagging at signalized intersections should be discussed in the planning/design stages of the project and the recommended intersection control strategy should be specified in the contract documents.

2. At the pre-construction conference, SHA staff and the contractor should discuss the need for flagging operations, MSP (or local police) presence, and the Standard Operating Procedures to request signal operating mode modifications (if needed).

3. In general, all persons (contractors, maintenance, and utility) should contact the Assistant District Engineer - Traffic (ADE-T) to determine the best method for temporary traffic control at a signalized intersection from the following two (2) cases:

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

GENERAL NOTES

STANDARD NO.    MD 104.00-11
Case 1: The signal is turned to flashing mode during flagging operation.

Case 2: The signal is turned off (dark mode) during flagging operation.

Note: Except for police, flagging shall not occur at a signalized intersection operating in a full-color stop-and-go mode (Normal Operation).

10.0 VEHICLES

10.1 If work vehicles need to be stopped in a lane beyond a horizontal curve or a vertical curve (hill), non-essential vehicles are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If no protection vehicle is available, channelizing devices shall be placed as specified in 7.0, Channelizing Devices.

10.2 Work vehicles should not occupy any part of the buffer area.

10.3 Vehicle safety lights (amber in color), as specified in Standard MD 104.01–18A & 18B shall be Class I, as determined by the Society of Automotive Engineers (SAE) and as directed by the Office of Maintenance.

10.4 A protection vehicle is required when opening or closing a lane on freeways, expressways, and roadways with posted speeds greater than or equal to 55 mph during the installation of temporary traffic control devices. A protection vehicle is required for all lane closure work along freeways, expressways, and roadways with posted speeds greater than or equal to 55 mph.

A protection vehicle is also required for mobile operations (e.g. highway marking) and other work conditions to provide protection for workers or as directed by the Engineer. The protection vehicle may be considered as a substitute for the initial advance warning sign for some mobile work operations. A protection vehicle should also be used in advance of a work operation that is located beyond a horizontal and/or vertical curve. Consideration should also be given to placing an additional temporary advance warning sign(s) or truck mounted variable message sign no less than 500' and no more than 1500' (1/2 mile for expressway conditions) in advance of the protection vehicle, when one or more of the traffic factors listed under General Notes 1.2 exist.
10.5 When a police vehicle is required, the vehicle shall not be located in the buffer and/or taper, but should be located as directed by the Engineer, depending on the type of work. It is sometimes preferable to deploy the police vehicle in advance of the work zone or queue (if queue exists) to encourage speed reduction prior to the work zone.

11.0 STRATEGIES FOR SAFE ENTRY/EXIT OF WORK ZONE VEHICLES TO/FROM THE WORK AREA

11.1 Use TRUCK CROSSING signs (W11–(10)1) when:

1) A work area entrance is allowed along a controlled access highway; OR

2) A work area entrance provided along highways other than controlled access does not have adequate decision sight distance for approaching traffic and the entrance cannot be relocated to provide adequate decision sight distance. Refer to Standard No. MD 104.00–03 of the General Notes for decision sight distance criteria.

TRUCK CROSSING signs shall be placed according to the Shoulder Work Typical Applications, with TRUCK CROSSING signs replacing all SHOULDER WORK signs.

Any distances to be displayed on the TRUCK CROSSING sign shall be installed using supplemental distance plaques.

11.2 All work zone vehicles when entering/exiting the work area or operating within the work zone shall display flashing warning lights, as specified in Standards MD 104.01–18A & B.

11.3 PVMS may be used as a supplementary sign to warn drivers of work zone vehicles entering or exiting the work area.

11.4 Coordinate deliveries of materials with proposed lane closures, preferably during occurrences when traffic volumes are low.
12.0 WORK HOUR RESTRICTIONS

12.1 Unless otherwise specified in the Contract Document or permitted by the Engineer, work within a lane, within 15 feet of the nearest edge line (open section roadway), or within 2 feet of the face of curb (closed section roadway), is prohibited during peak hours 6 a.m. – 9 a.m. and 3 p.m. – 7 p.m., Monday – Friday. Also, such work is not permitted on Saturdays, Sundays, National or State holidays, or days preceding and following said holidays.

13.0 TEMPORARY LIGHTING

13.1 Roadway lighting shall be considered during the planning of temporary traffic control plans. Lighting may be required due to nighttime work zone traffic operations or for new traffic patterns (e.g., new exit or lane shift). Once the need for temporary lighting is identified, it should be provided in one of two ways:

1. If practical, permanent lighting that is being installed as part of the project should be installed in the early stages so that it can be used for illuminating travel lanes through the work zone throughout the project.

2. If installation of permanent lighting is not a part of project, then temporary lighting (temporary light poles or flood lights) should be provided to illuminate travel path.

Contractor shall maintain existing lighting.

13.2 The Contractor shall submit a Situation Plan to the Engineer showing the locations and aiming of floodlights. The floodlighting system shall be capable of maintaining 20 ft-c without producing a disabling glare condition for approaching road users. The adequacy of the floodlight placement and the absence of glare should be field-verified by the Engineer and Contractor. This involves driving through and observing the floodlighted area from each direction on all approaching roadways immediately after the initial floodlight setup, at night, and periodically.

14.0 PAVEMENT DROP-OFF

14.1 When pavement drop-offs are present, the placement of temporary traffic control devices, including signs, channelizing devices, and barriers, as well as slope fillet wedges, shall follow SHA Standard Nos. MD 104.06–15, MD 104.06–16, MD 104.06–17, MD 104.06–18, MD 104.06–19, and MD 104.01–28. The Engineer may recommend alternative methods to protect the pavement edge drop-off, considering factors such as: pedestrian, bicycle, and traffic volumes, vehicle speeds, size of work zone, duration of work, etc.
15.0 SIGHT DISTANCE

15.1 Temporary traffic control devices, including drums, barriers, and vertical panels, and construction equipment, shall be placed to ensure that adequate sight distance is not restricted at ramp junctions and intersections. If sight distance restrictions are unavoidable, additional applicable warning signs must be installed. The placement of vertical panels on concrete barrier and the close spacing of approved drums may, in some instances, contribute to restricted sight distance at roadway junctions. For additional guidance on channelizing device placement at intersections, driveways, and/or ramp junctions, see Standard Detail MD 104.01-29.

The following additional criteria should be considered when placing traffic control devices at intersections or ramp junctions:

- TCDs installed at or near intersections, including median openings or driveways, should be designed/installed with adequate corner sight distance (as suggested for intersections in Chapter 9 of AASHTO's "A Policy on Geometric Design of Highways and Streets", 2001 ed.). The area around the intersection should be kept free of obstacles.

- Sight distance along a ramp should be, at a minimum, equal to the safe stopping sight distance based on prevailing speed.

- There should be a clear view of the entire exit terminal, including the exit nose and a section of the ramp roadway behind the gore.

16.0 WORK ZONE SPEED LIMITS ALONG 65 AND 60 MPH ROADWAYS

16.1 Where it is necessary to reduce work zone speed limits along 65 and 60 MPH roadways, such reduced speed limits should be based on adequate engineering study/judgment and approved by the District Engineer. The reduced speed limit should usually be 5 MPH less than the normally posted speed limit, but shall be no more than 10 MPH less than the posted speed. The following guidelines are to be used in consideration of speed limit reduction in work zones:

- Work zone traffic controls should be designed to ensure adequate safety and mobility through work zones and provide site conditions consistent with prevailing operating speeds and driver expectations.

- Where the Engineer is considering reducing the posted speed limits to improve safety, such reduced speed limits should be based on adequate engineering study/judgment and approved by the District Engineer.

- Reduced speed limits should be posted only when the conditions that necessitate the reduced speed are actually present. It is essential to cover or remove reduced speed limit signs if work is not actually underway and site conditions do not require a reduced speed limit.
Where the use of automated speed enforcement (ASE) is expected, any reduction in speed limits in work zones shall be jointly approved by District Engineer (DE) and Director of OOTS or shall be approved by DE in consultation with Director of OOTS.

Use advisory speed limits for spot situations, such as sharp alignment changes or short section of narrow lanes.

Advisory speed signing shall not be used with general warning signs (e.g. W20-1), or along sections of the work zone.

The use of regulatory work zone speed limits should be made in conjunction with State Police usage.

All traffic control devices are to be placed and maintained in accordance with SHA requirements and the MUTCD.

Work zone speed limit signs shall be placed in accordance with SHA guidelines and standards (see MD 104.01-06 and MD 104.01-07 for additional information).

17.0 HIGHWAY/RAIL GRADE CROSSINGS

17.1 Where vehicles might be stopped within a highway–rail grade crossing, the limits of which are defined as 15 feet on either side of the outside rail, the following guidelines apply:

- Coordinate with appropriate agency or company having jurisdiction over the affected rail line prior to the start of road work. Do not set up any portion of the work zone within railroad right of way. The OOTS Railroad Coordinator (Phone (410) 787-5867) should be contacted if this information is not known.

- When a two-way flagging operation will result in a queue that extends across the highway–rail grade crossing, an additional flagger shall be provided at the approach to highway–rail grade crossing.

- Consider the railroad gate operation in the placement of traffic control devices.

- The DO NOT STOP ON TRACKS sign (design) shall be used on all approaches to a highway–rail grade crossing within the limits of a temporary traffic control zone.
18.0 TRAFFIC CONTROL PLANS

18.1 Alternate traffic control plans may be presented to the SHA District Office for approval in conformance with Section 104.01 of the Standard Specifications for Construction and Materials.

18.2 For emergency repair operations, a lesser number of traffic control devices (TCDs) than the full compliment may be used. This generally will consist of one sign per direction, flashing lights on the vehicle, and minimum number of channelizing devices, flags, or high level warning devices. Additional TCDs such as arrow panel(s), additional signing, etc., shall be placed as soon as possible in accordance with the standard TTCTA.

18.3 Where closely spaced work zones create conflicting traffic patterns (e.g. left-lane closure followed by right-lane closure), they should be no closer than 1.5 miles apart (last sign to first sign). Where work zones are closely spaced, but where traffic patterns are not significantly altered and no conflicts exist, no minimum spacing is required; however, care should be exercised to present appropriate and non-conflicting guidance to the public.

18.4 All signs, channelizing devices, and other traffic control devices shall be in conformance with the latest edition of the MUTCD.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

ROADWAY TYPES

NOTES:

A TWO-LANE, TWO-WAY ROADWAY IS A ROADWAY CONSISTING OF TWO LANES THAT PROVIDES A SINGLE LANE IN EACH DIRECTION FOR TRAFFIC. TRAFFIC IS SEPARATED BY A CENTER LINE AS DEFINED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

A MULTI-LANE UNDIVIDED HIGHWAY IS A TWO-WAY HIGHWAY HAVING THREE OR MORE LANES AND TYPICALLY PROVIDES AT LEAST TWO LANES IN EACH DIRECTION FOR TRAFFIC. TRAFFIC IS SEPARATED BY A CENTER LINE AS DEFINED BY THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

A DIVIDED UNCONTROLLED HIGHWAY IS A HIGHWAY CONSISTING OF TWO ROADWAYS, WITH TRAFFIC IN ONE DIRECTION OF TRAVEL SEPARATED BY A MEDIAN OR BARRIER FROM TRAFFIC IN THE OPPOSITE DIRECTION, AND HAVING AT-GRADE ACCESS TO ADJOINING ROADS OR DRIVEWAYS.

AN EXPRESSWAY IS A HIGH-SPEED DIVIDED HIGHWAY FOR THROUGH TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GRADE SEPARATIONS AT MAJOR INTERSECTIONS.

A FREEWAY IS AN EXPRESSWAY WITH FULL CONTROL OF ACCESS.
### TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

#### SIGN SPACING CHART

**STANDARD TEMPORARY TRAFFIC CONTROL OPERATIONS**

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>MINIMUM DISTANCE FROM TAPER TO FIRST SIGN &amp; FOR SIDE STREET SIGN DISTANCE</th>
<th>ADDITIONAL SIGNS IN SERIES TO BE SPACED AT A MINIMUM</th>
<th>MINIMUM COMBINED ADVANCED WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 25</td>
<td>200’</td>
<td>B</td>
<td>600’</td>
</tr>
<tr>
<td>26 - 35</td>
<td>300’</td>
<td>B 200’</td>
<td>900’</td>
</tr>
<tr>
<td>36 - 40</td>
<td>500’</td>
<td>B 200’ D 500’</td>
<td>1500’</td>
</tr>
<tr>
<td>41 - 65</td>
<td>800’</td>
<td>B 700’ D 1100’</td>
<td>2600’ (1/2 MILE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B 1000’</td>
<td>5200’ (1 MILE)</td>
</tr>
</tbody>
</table>

**EXPRESSWAY/FREeway**

<table>
<thead>
<tr>
<th>MINIMUM DISTANCE FROM TAPER TO FIRST SIGN &amp; FOR SIDE STREET SIGN DISTANCE</th>
<th>ADDITIONAL SIGNS IN SERIES TO BE SPACED AT A MINIMUM</th>
<th>MINIMUM COMBINED ADVANCED WARNING</th>
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<tbody>
<tr>
<td>1000’</td>
<td>B</td>
<td>5200’ (1 MILE)</td>
</tr>
<tr>
<td>500’</td>
<td>B 1000’</td>
<td></td>
</tr>
<tr>
<td>2600’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*SPEED LIMIT OR PREVAILING TRAVEL SPEED, WHICHER IS HIGHER.*

**BELOW EXAMPLE TWO LANES, ONE-WAY ROADWAY SPEED LIMIT IS 35 MPH / PREVAILING SPEED IS 38 MPH (USE 40 MPH)**

- **TERMINATION AREA**
  - LETS TRAFFIC RESUME NORMAL DRIVING
  - MAX TO 500’
- **WORK AREA**
  - PROVIDES ADDITIONAL PROTECTION FOR TRAFFIC AND WORKERS
  - 100’ MIN
- **BUFFER AREA**
  - PROVIDES ADDITIONAL PROTECTION FOR TRAFFIC AND WORKERS
- **TRANSITION AREA**
  - MOVES TRAFFIC OUT OF ITS NORMAL PATH
  - TRANSITION LENGTH PRODUCED ON USUALLY SEEN THE GENERAL NOTES FOR APPROPRIATE LENGTHS
  - MIN 500’
- **ADVANCE WARNING AREA***
  - TELLS TRAFFIC WHAT TO EXPECT AHEAD
  - MIN 500’

**REFER TO STANDARD NO. MD 104.01-BI (TYPICAL APPLICATION NOTES) FOR BUFFER LENGTHS.**

***THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.**
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
PROJECT LIMITS SIGNS

NOTES:
DRAWING SHOWS SIGNING FOR TWO-LANE, TWO-WAY.

FOR MULTILANE UNDIVIDED HIGHWAYS USE THIS SAME DRAWING.

FOR MULTILANE DIVIDED HIGHWAYS, ERECT SIGNS (•) ON BOTH SIDES OF THE WORK AFFECTED ROADWAY.

THE SIGN DISTANCE (X) SHALL BE STATED TO THE NEAREST WHOLE MILE.

WHERE HIGHWAY ALIGNMENT CHANGES OCCUR THROUGHOUT THE WORK AREA DUE TO PHASE OF WORK CHANGES, A SUPPLEMENTAL SIGN SPECIFYING "NEW TRAFFIC PATTERN", (G3-((II)), SHALL BE MOUNTED BENEATH THE LENGTH OF WORK SIGN.

THE SUPPLEMENTAL SIGN SHALL REMAIN IN PLACE FOR A MAXIMUM OF 30 DAYS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THIS DRAWING DOES NOT APPLY TO MOBILE OPERATIONS.

KEY:

SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PROJECT LIMITS SIGNS

SPECIFICATION |
CATEGORY CODE ITEMS |

APPROVED

DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA
StateHighway

APPROVAL: 6-29-03

REVISED: 7-19-10

APPROVAL: 9-30-05

REVISED: 7-19-10

STANDARD NO. MD 104.01-03
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
IDENTIFICATION HAT AND SHOVEL SIGNS

- TTC IDENTIFICATION SIGNS - HAT AND SHOVEL SIGN G2-11(1) SHALL BE INSTALLED AT EACH APPROACH OF THE PROJECT.

THE MESSAGES TO BE PLACED ON THE G2-11(1) SIGNS SHALL BE APPROVED BY ADE-TRAFFIC.

THE FOLLOWING IS A LIST OF SUGGESTED MESSAGES FOR HAT AND SHOVEL SIGN G2-11(1):

WORK AREA MESSAGES
- TAKING A STRIDE TO BETTER YOUR RIDE
- BREAKING GROUND TO GET YOU AROUND
- WE'RE IMPROVING TO KEEP YOU MOVING
- PAVING THE WAY TO REDUCE DELAY
- DELAY TODAY TO SMOOTH YOUR WAY
- IN PURSUIT OF A BETTER (SAFER) COMMUTE
- DELAY TODAY FOR A BETTER (SAFER) TOMORROW
- SMILE! THIS IS ALL WORTHWHILE.

WORK DESCRIPTION MESSAGES
- BRIDGE WIDENING
- BRIDGE IMPROVEMENT
- HIGHWAY REALIGNMENT
- HIGHWAY WIDENING
- HIGHWAY IMPROVEMENT
- INTERCHANGE CONSTRUCTION
- INTERSECTION IMPROVEMENT
- ROUNDABOUT CONSTRUCTION
- STREETSCAPE IMPROVEMENT
- DRAINAGE IMPROVEMENT
- RESURFACING
- PAVING

SAFETY MESSAGES
- STAY ALERT. STAY ALIVE.
- DRIVE SMART, DRIVE SAFELY.
- STAY ALERT. STAY SAFE.
- SAFETY FIRST
- PLEASE DRIVE SAFELY
- PLEASE DRIVE COURTEOUSLY
- DRIVE CAREFULLY
- RESPECT WORKERS
- KEEP OUR WORKERS SAFE

**TTC IDENTIFICATION SIGNS - HAT AND SHOVEL SIGN G2-11(3) SHALL BE INSTALLED AT EACH END AREA OF THE PROJECT.**

THE MESSAGES TO BE PLACED ON THE G2-11(3) SIGNS SHALL BE APPROVED BY ADE-TRAFFIC.

THE FOLLOWING IS A SUGGESTED MESSAGE FOR HAT AND SHOVEL SIGN G2-11(3):

EXIT MESSAGE
- THANKS FOR YOUR PATIENCE

LEGEND
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ADVANCE WARNING SIGNS REPRESENTED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
HAT AND SHOVEL SIGN - GREATER THAN 40 MPH

STANDARD NO. MD 104.01-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IDENTIFICATION HAT AND SHOVEL SIGNS

**TTC IDENTIFICATION SIGNS - HAT AND SHOVEL SIGN G2-1(2)**
SHALL BE INSTALLED AT EACH APPROACH OF THE PROJECT. THE
MESSAGES TO BE PLACED ON THE G2-1(2) SIGNS SHALL BE
APPROVED BY ADE-TRAFFIC.

THE FOLLOWING IS A LIST OF SUGGESTED MESSAGES FOR HAT
AND SHOVEL SIGN G2-1(2):

WORK AREA MESSAGES
- BREAKING GROUND
- TO GET YOU AROUND
- WE'RE IMPROVING
- TO KEEP YOU MOVING
- PAVING THE WAY
- TO REDUCE DELAY
- IN PURSUIT OF
- A BETTER (SAFER) COMMUTE
- DELAY TODAY FOR A
- BETTER (SAFER) TOMORROW
- SMILE! THIS IS ALL WORTHWHILE.
- PARDON OUR GROWING PAINS
- BREAKING THE BOTTLENECK
- PARDON OUR PROGRESS
- MOVING MARYLAND
- IMPROVEMENTS AHEAD
- PAVING THE WAY

WORK DESCRIPTION MESSAGES
- BRIDGE WIDENING
- BRIDGE IMPROVEMENT
- HIGHWAY REALIGNMENT
- HIGHWAY WIDENING
- IMPROVEMENT
- INTERCHANGE CONSTRUCTION
- INTERSECTION IMPROVEMENT
- ROUNDABOUT CONSTRUCTION
- STREETSCAPE IMPROVEMENT
- DRAINAGE IMPROVEMENT
- RESURFACING
- PAVING

SAFETY MESSAGES
- STAY ALERT. STAY ALIVE.
- DRIVE SMART. DRIVE SAFELY.
- STAY ALERT. STAY SAFE.
- SAFETY FIRST
- PLEASE DRIVE SAFELY
- DRIVE COURTLY
- DRIVE CAREFULLY
- RESPECT WORKERS
- KEEP OUR WORKERS SAFE

**TTC IDENTIFICATION SIGNS - HAT AND SHOVEL SIGN G2-1(3)**
SHALL BE INSTALLED AT EACH END AREA OF THE PROJECT.
THE MESSAGES TO BE PLACED ON THE G2-1(3) SIGNS SHALL BE
APPROVED BY ADE-TRAFFIC.

THE FOLLOWING IS A SUGGESTED MESSAGE FOR HAT AND SHOVEL
SIGN G2-1(3):

EXIT MESSAGES
- THANKS FOR YOUR PATIENCE

---

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

GENERAL NOTES
HAT AND SHOVEL SIGN - LESS THAN OR EQUAL TO 40 MPH

STANDARD NO. MD 104.01-05
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
PLACEMENT OF REGULATORY SPEED SIGNS
PROJECT EQUAL TO OR LESS THAN 2 MONTHS IN DURATION

NOTE:
THE PLACEMENT OF THE REGULATORY SPEED SIGNS VARIES AS DIRECTED BY THE ENGINEER.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

NOTE:
A MEMORANDUM OF ACTION (MOA) FOR TEMPORARY SPEED LIMIT REDUCTIONS IN WORK ZONES MUST BE IN EFFECT OR REGULATORY SIGNS ERECTED WITHIN THE WORK ZONE ARE NOT ENFORCEABLE. IN ORDER TO OBTAIN AN MOA FOR A TEMPORARY SPEED LIMIT REDUCTION WITHIN A WORK ZONE, THE FOLLOWING MUST BE COMPLETED:

- A TRAFFIC ENGINEERING STUDY THAT ANALYZES TRAFFIC CONDITIONS DURING CONSTRUCTION.
- A DETERMINATION OF THE CONDITIONS THAT NECESSITATE THE REDUCED SPEED LIMIT.
- A RECOMMENDATION OF THE APPROPRIATE SPEED LIMIT, BASED ON TRAFFIC CONDITIONS.
- A STATEMENT OF THE EXTENT OF THE WORK ZONE WHERE THE TEMPORARY SPEED LIMIT REDUCTION IS TO BE ENFORCED.

THE MOA FOR TEMPORARY SPEED LIMIT REDUCTIONS IS CONSIDERED "IN EFFECT" UPON APPROVAL OF THE DISTRICT ENGINEER.

- MAINTAIN MINIMUM 300' SPACING BETWEEN SIGNS
- THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
REGULATORY SPEED SIGNS
STANDARD NO. MD 104.01-06
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
PLACEMENT OF REGULATORY SPEED SIGNS
PROJECT GREATER THAN 2 MONTHS IN DURATION

NOTES:
The placement of the regulatory speed signs varies as directed by the engineer.

Additional speed limit signs may be required and spaced at about 1000 ft and 1/2 mile for low and high speed roadways, respectively, as directed by the engineer.

NOTE:
If no temporary speed reduction is in effect, work area signs should not display "fines double" message.

All regulatory speed limit signs within the work zone shall display "work area" message.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

NOTE:
A memorandum of action (MOA) for temporary speed limit reductions in work zones must be in effect or regulatory signs erected within the work zone are not enforceable. In order to obtain an MOA for a temporary speed limit reduction within a work zone, the following must be completed:

- A traffic engineering study that analyzes traffic conditions during construction.
- A determination of the conditions that necessitate the reduced speed limit.
- A recommendation of the appropriate speed limit, based on traffic conditions.
- A statement of the extent of the work zone where the temporary speed limit reduction is to be enforced.

The MOA for temporary speed limit reductions is considered "in effect" upon approval of the district engineer.

**Maintain minimum 300' spacing between signs**

There shall be a minimum of seven channelizing devices in the shoulder taper.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

REGULATORY SPEED SIGNS

STANDARD NO. MD 104.01-07
# Temporary Traffic Control Typical Application

## Temporary Traffic Control Device Selection Chart

### Two-Lane, Two-Way

<table>
<thead>
<tr>
<th>Location of Work</th>
<th>Speed (MPH)</th>
<th>Duration</th>
<th>Standard Traffic Control Devices</th>
<th>Sign Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On Road</strong></td>
<td>&gt; 40</td>
<td></td>
<td>Flagger, Vests, Arrows, Panels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 15</td>
<td></td>
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<td></td>
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<td>15–12</td>
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<td></td>
<td>&lt; 40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- X: Required
- /: Optional

*Traveling below the posted speed (by more than 15 MPH)

**For moving operations the appropriate advance warning signs may be vehicle mounted.

***Within 15' of the edge line or within 2' behind the face of curb.

****Protection vehicle shall be used on two-lane, two-way roadways with posted speeds greater than or equal to 55 MPH in conformance with Section 10.4 of the General Notes.

---

**Maryland Department of Transportation**

**State Highway Administration**

**Standards for Highways and Incidental Structures**

**Temporary Traffic Control Device Selection Chart**

**Standard No.** MD 104.01-08
## Temporary Traffic Control Typical Application

### Temporary Traffic Control Device Selection Chart

<table>
<thead>
<tr>
<th>Multilane Undivided</th>
<th>Location of Work</th>
<th>Speed (MPH)</th>
<th>Duration</th>
<th>Standard Traffic Control Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt; 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Road</td>
<td></td>
<td>&gt; 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 40</td>
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<td></td>
</tr>
<tr>
<td>Adj to Road</td>
<td></td>
<td>&gt; 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key**:
- X = Required
- / = Optional

- *Traveling below the posted speed (by more than 15 MPH)
- **For moving operations the appropriate advance warning signs may be vehicle mounted.
- ***Within 15' of the edge line or within 2' behind the face of curb
- ****Protection vehicle shall be used on multilane undivided roadways with posted speeds greater than or equal to 55 MPH In conformance with Section 10.4 of the general notes.

---

**Maryland Department of Transportation**

**State Highway Administration**

**Standards for Highways and Incidental Structures**

**Temporary Traffic Control Device Selection Chart**

**Standard No.:** MD 104.01-09
## Temporary Traffic Control Typical Application

### Temporary Traffic Control Device Selection Chart

#### Divided Uncontrolled

<table>
<thead>
<tr>
<th>Location of Work</th>
<th>Speed (MPH)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Road</td>
<td>&gt; 40</td>
<td>&gt; 12 HRS/DARK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 MIN-12 HRS/DAY</td>
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<tr>
<td></td>
<td></td>
<td>&lt; 15 MIN/Loc</td>
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<tr>
<td></td>
<td></td>
<td>MOVING SLOW</td>
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<tr>
<td></td>
<td></td>
<td>MOVING NORMAL</td>
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<tr>
<td></td>
<td>&lt; 40</td>
<td>&gt; 12 HRS/DARK</td>
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<td>MOVING SLOW</td>
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<td>MOVING NORMAL</td>
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<tr>
<td>Adj To Road</td>
<td>&gt; 40</td>
<td>&gt; 12 HRS/DARK</td>
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<td>15 MIN-12 HRS/DAY</td>
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<td>&lt; 15 MIN/Loc</td>
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<td>15 MIN-12 HRS/DAY</td>
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<td></td>
<td></td>
<td>&lt; 15 MIN/Loc</td>
</tr>
</tbody>
</table>

### Sign Locations

- 2 MILES
- 1 MILE
- ½ MILE
- 1500 FT
- 1000 FT
- 800 FT
- 500 FT
- HEAD ENTRANCE
- PROTECTION VEH

### Key:
- **- Required**
- /- Optional

#### Notes:
- * Traveling below the posted speed (by more than 15 MPH)
- ** For moving operations the appropriate advance warning signs may be vehicle mounted.
- *** Within 15' of the edge line or within 2' behind the face of curb
- **** Protection Vehicle shall be used on divided uncontrolled roadways with posted speeds greater than or equal to 55 MPH in conformance with Section 10.4 of the General Notes.

---

Maryland Department of Transportation

State Highway Administration

Standards for Highways and Incidental Structures

Temporary Traffic Control Device Selection Chart

Standard No. MD 104.01-10
## Temporary Traffic Control Typical Application
### Temporary Traffic Control Device Selection Chart

### Expressway / Freeway

<table>
<thead>
<tr>
<th>Location of Work</th>
<th>Speed</th>
<th>Duration</th>
<th>Flagger</th>
<th>Vehicle Lghts</th>
<th>Markings</th>
<th>Arrow Panel</th>
<th>Chain Devices</th>
<th>Portable Wms</th>
<th>Sign Locations</th>
</tr>
</thead>
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<tr>
<td><strong>ON ROAD</strong></td>
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<td></td>
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<tr>
<td>&gt; 40 MPH</td>
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<td>&gt; 12 HRS/DARK</td>
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<td>X</td>
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<td>X</td>
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<td>15 MIN-12 HRS/DAY</td>
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<td><strong>REQUIRED</strong></td>
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<td><strong>REQUIRED</strong></td>
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<td>MOVING SLOW *</td>
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<td>X</td>
<td>X</td>
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<td><strong>REQUIRED</strong></td>
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<td><strong>ADJ TO ROAD</strong></td>
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<td>&gt; 12 HRS/DARK</td>
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</table>

**Key:**
- **Required**
- **Optional**

* Traveling below the posted speed (by more than 15 MPH)

** For moving operations, the appropriate advance warning signs may be vehicle mounted.

*** Protection vehicle shall be used on expressways and freeways in conformance with Section 10.4 of the General Notes.

**** Within 15' of the edge line or within 2' behind the face of curb.

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**Maryland Department of Transportation**

**State Highway Administration**

Standards for Highways and Incidental Structures

Temporary Traffic Control Device Selection Chart

**Standard No.** MD 104.01-11

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**SHA Revision History:**
- **8-20-03** Revised 8-20-03
- **8-20-14** Revised 8-11-14
- **9-15-15** Revised 6-18-15
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
ROADSIDE SIGN /SIGN SUPPORT PLACEMENT

MD SHA'S OFFICE OF TRAFFIC AND SAFETY MAINTAINS A LIST OF APPROVED PORTABLE SIGN SUPPORTS. SIGN SUPPORTS SHALL BE USED AT HEIGHT WHICH MEETS MANUFACTURERS' RECOMMENDATION TO MEET MASH OR NCHRP 350 (LEVEL 3) CRITERIA.

PORTABLE

RURAL DISTRICT

URBAN DISTRICT

BREAKAWAY WOOD SUPPORTS OR BREAKAWAY SQUARE METAL POSTS (TYPICAL)
REFER TO MD 104.01-17B FOR WOOD SUPPORT AND MD 104.01-17C FOR TUBULAR STEEL BREAKAWAY INFORMATION.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

DIRECTION
OF TRAFFIC

WIDER SIDE
OF POST

SIGN FACE

WOOD POST

WOOD POST MODIFICATIONS
FOR BREAKAWAY FEATURE

1.5" HOLE (TYP.)

GROUNDLINE

BACKFILLED
MATERIAL

4'-0"
FOR
4" x 4"
5'-0"
FOR
4" x 6"

3" MAX

ROAD
WORK
1500 FT

TYPICAL FOUNDATION FOR WOOD SUPPORTS

NOTES:
1. ALL WOOD POSTS 4" x 6" SHALL BE
MADE BREAKAWAY BY DRILLING TWO
1-1/2" HOLES CENTERED AT 4" AND
18" ABOVE THE GROUNDLINE AND
PERPENDICULAR TO THE ROADWAY.
2. ALL SUPPORTS SHALL BE BREAKAWAY
UNLESS PROTECTED BY BARRIER OR
GUARDRAIL.
3. TREATED WOODEN POST SHALL BE PLACED
IN PRE-DUG HOLE IN GROUND, BACKFILLED
USING SUITABLE MATERIAL, AND TAMMED
THOROUGHLY TO PROVIDE A RIGID SUB-
SURFACE CONDITION AROUND THE POST.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADSIDE SIGN SUPPORTS
FOUNDATIONS/BREAKAWAY FEATURES (WOOD)

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISION | APPROVAL REVISION
7-1-99 | 7-30-99
6-11-10 | 7-29-10

STANDARD NO. MD 104.01-17 B
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

Sign Panel

7'-0" from roadway or ground

8" min. sign support into base

2'-8"

4" max.

3" max.

Corner Bolt (Typ.)

Grade

SIGN SUPPORT (2" x 2")

8" min. sign support into base

18", 12 GA outer sleeve one size larger than anchor (2" x 2")

Heavy-duty breakaway anchor (0.188" wall thickness, one piece)

12 GA x 3'-0" anchor, one size larger than support (2" x 2")

14" 18"

ONE PIECE ANCHOR SYSTEM

TWO PIECE ANCHOR SYSTEM

NOTES:
1. Installation shall be performed per manufacturer's recommendations.
2. Corner bolts and hardware shall be as approved by AASHTO and per manufacturer's recommendations.
3. The installation shall meet the latest AASHTO breakaway requirements.
4. Splices shall not be used to extend the height of a sign post.
5. Only 2" sign supports shall be used. Sign posts greater than or less than 2" are not permitted.
6. For composite sign attachment, fender washers should be used on the sign panel.
7. All signs 5' wide and larger shall be braced with two horizontal 2" x 4" treated wood or equal, attached to the supports. The bolt lengths shall be coordinated.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADSIDE SIGN SUPPORTS
FOUNDATIONS/BREAKAWAY FEATURES (STEEL)

STANDARD NO. MD 104.01-17 C
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
VEHICLE CONSPICUITY (STRIPING/LIGHTING) REQUIREMENTS

NOTES:
- ADEQUATE LINE OF SIGHT (SIGHT DISTANCE) DURING MOBILE OPERATION IS NECESSARY FOR THE EFFECTIVE
  PERFORMANCE OF THESE VEHICLES CONSPICUITY REQUIREMENTS. IN CASE OF LIMITED LINE OF SIGHT
  A LANE/SHOULDER SHOULD BE CLOSED TO PROTECT THE VEHICLE ACCORDING TO THE APPROPRIATE TTC STANDARD.
- ALL WORK VEHICLES THAT ARE NOT PART OF THE MOBILE OPERATION AND ARE NOT PROTECTED BY CHANNELIZING
  DEVICES/BARRIER, SHALL ALSO DISPLAY FLASHING LIGHTS AND RETROREFLECTIVE STRIPING.
- FOR PERIODS < 15 MINUTES, VEHICLES MAY BE IN CLEAR Zone, PROVIDED FLASHING LIGHTS ARE ON
  AND RETROREFLECTIVE STRIPING IS PRESENT AS SHOWN IN THIS STANDARD.

STRIPING NOTES:
- ALL WORK VEHICLES SHALL HAVE SPECIFIED RETROREFLECTIVE STRIPES AS SHOWN ON THIS STANDARD.
- HIGH PERFORMANCE WIDE ANGLE RETROREFLECTIVE SHEETING-VEHICLE MARKING TAPE
  STRIPE WIDTH - 2 INCH MINIMUM

LIGHTING NOTES:
- BAR AND DOME LIGHTS SHALL BE CLASS I, AS DEFINED BY THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE).
- TO DETERMINE VEHICLE SPECIFIC LIGHTING, SEE MD 104.01-18B FOR VEHICLE LIGHTING SELECTION CHART.
- VEHICLE SHALL ALSO DISPLAY FLASHING HAZARD/PARKING LIGHTS IN FRONT AND REAR.

* SEE GENERAL NOTES DEFINITION.

EXAMPLE OF VEHICLE CONSPICUITY STRIPING/LIGHTING ON A WORK VEHICLE

EXAMPLE OF PORTABLE TRAILER VEHICLE CONSPICUITY STRIPING
# Temporary Traffic Control Typical Application

## Vehicle Lighting Selection Chart

<table>
<thead>
<tr>
<th>Level</th>
<th>Vehicle Types</th>
<th>Option</th>
<th>Single Amber Flashing Light</th>
<th>Two Amber Flashing Bar Lights</th>
<th>Three Amber Flashing Rotating Left and One Rotating Right</th>
<th>Note: Rear Amber Flashing Lights Shall Flash in an Alternating Manner</th>
<th>Use</th>
<th>Special Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Passenger Cars, Sport Utility Vehicles, Pick-up Trucks, Rollers, Minivans</td>
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<td>2</td>
<td>Utility Vehicles, Crew Cabs, Dump Trucks, Paint Trucks, Bridge Inspection Vehicles, Graders, Cranes, Sweepers, Snow Plows, Loaders, Excavators, Mowers, Backhoes, Forklifts, Cargo Vans, Passenger Vans, Etc.</td>
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<tr>
<td>3</td>
<td>Vehicles Retrofitted with Arrow Panel or PVMS</td>
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</table>

**Key:**
- **X** - Required
- / - Optional

### Device Descriptions:

**Rotating Lights** - Device Designed to Project Light on a Sweeping 360 Degree Arc.

**Light Bar** - A Housing Unit or Group of housings or units containing amber lights or lenses with one or more flashing warning lights in each housing.

**Flashing Light** - Device that Emits Light in Pulses at a Rate Not to Exceed 5 Pulses per Second 15 Hz.

**4-Way Flashers** - Lights Installed on Vehicles, Referred to As Hazards, That Flash at a Certain Rate When Activated.

**Notes:** Lights Shall Be Class I As Defined by the Society of Automotive Engineers (SAE).

## Maryland Department of Transportation

**State Highway Administration**

Standards for Highways and Incidental Structures

**Temporary Traffic Control**

**Vehicle Lighting Selection Chart**

**Standard No.** MD 104.01-18 B
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
WORK ZONE VEHICLE
PAINT TRAIN VEHICLE – VAN/PICKUP

WET PAINT
DO NOT CROSS LINE
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
WORK ZONE VEHICLE
PROTECTION VEHICLE

- ARROW PANEL

- REAR TRUCK/TRAILER-TRUCK MOUNTED ATTENUATOR

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PROTECTION VEHICLE

STANDARD NO. MD 104.01-19 C
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

THIS TYPICAL ALSO APPLIES TO PVMS PLACEMENT ON OR ALONG A MEDIAN SHOULDER.

PVMS MESSAGES AND PLACEMENT OF THIS DEVICE SHALL BE APPROVED BY THE ASSISTANT DISTRICT ENGINEER-TRAFFIC.

PVMS SHALL BE PLACED A MINIMUM OF 6' AND NO MORE THAN 15' FROM EDGE LINE.

ON LONG TERM PROJECTS PVMS'S SHOULD BE INSTALLED BEHIND TRAFFIC BARRIER.

PVMS PLACED BEHIND THE TRAFFIC BARRIER SHALL BE LOCATED A MINIMUM OF 4' FROM FACE OF BARRIER.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

6' TO 10' FROM EDGE LINE

GREATER THAN 10' TO 15' FROM EDGE LINE

KEY:

PORTABLE VARIABLE MESSAGE SIGN (PVMS)

CHANNELIZING DEVICES

DIRECTION OF TRAFFIC

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PORTABLE VARIABLE MESSAGE SIGN
PLACEMENT ALL ROADWAYS/ALL SPEEDS

STANDARD NO. MD 104.01-22
TOP AND SIDE BARRIER WALL MARKERS SHALL CONFORM TO STANDARDS NO. MD 104.01-25 AND MD 104.01-26.

TYPE 3 OBJECT MARKER (VP-1)  
REFLECTIVE (ORANGE & WHITE)  
12" x 36" PER SHA STANDARDS (INSTALL AT ALL TAPER TO TANGENT LOCATIONS)

NO BARRIER MARKERS SHALL BE LOCATED ON THE TAPERED BARRIER WALL.

NOTES:
1. TEMPORARY EDGE LINE STRIPING
   ○ TEMPORARY EDGE LINE STRIPING IS OPTIONAL ALONG THE ENTIRE LENGTH OF TANGENT BARRIER WALL UNLESS OTHERWISE SP Nixon.
   ○ THE EDGE LINE SHALL BE REQUIRED WHERE BARRIER WOULD NOT BE TANGENT TO OR WOULD BE TANGENT TO, BUT NOT WITHIN 2' OF PROJECTED EDGE LINE.
   ○ TEMPORARY EDGE LINE STRIPING SHALL BE REQUIRED ALONG THE TANGENT BARRIER WALL FOR A DISTANCE OF 100' PAST THE BEGINNING OF THE TANGENT SECTIONS.
   ○ THE EDGE LINE SHOULD BE PLACED 8'-12' FROM AND ALONG THE BARRIER, WHEN POSSIBLE.

2. WHERE SPACE IS LIMITED AN END TREATMENT MAY BE INSTALLED AS APPROVED BY THE ENGINEER.

3. THE SLOPED END BARRIER TRANSITION IS NOT PERMITTED ON ANY ROADWAY WHERE THE TRAVEL SPEED IS GREATER THAN 25 MPH.

4. UNLESS CONDITIONS DETERMINE OTHERWISE, AS DETERMINED BY THE ENGINEER

5. REFLECTORIZATION IS REQUIRED ON INITIAL CRASH CUSHION. USE VP-1 WITH DIAGONAL STRIPES.

6. REFER TO STANDARD NO. MD 104.01-23B FOR BARRIER FLARE SECTIONS ON TWO-LANE, TWO-WAY ROADWAYS.

7. TAPERED BARRIER WALL MAY BE CONNECTED TO EXISTING BEAM AS DIRECTED BY THE ENGINEER. REFER TO CATEGORY 1 OF THE BOOK OF STANDARDS FOR RELEVANT STANDARD DETAIL(S).

8. THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.
**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**

**TOP AND SIDE BARRIER WALL MARKERS**

**TOP BARRIER WALL MARKER**

![Diagram of top barrier wall marker with dimensions: 12', 8', and 48']

**SIDE BARRIER WALL MARKER**

![Diagram of side barrier wall marker with dimensions: 30', 12', and 8']

**F-SHAPE FRONT VIEW**

**NOTE:** FOR BIFURCATED F-SHAPED BARRIER, MAINTAIN 30 INCH HEIGHT TO TOP OF MARKER

**HIGH PERFORMANCE WIDE ANGLE RETRO-REFLECTIVE SHEETING OR RETROREFLECTIVE REFLECTORS**

**MINIMUM REFLECTIVE AREA, 7.5 SQ. IN.**

**NOTES:**

SIDE BARRIER MARKERS SHALL BE YELLOW IN COLOR WHEN PLACED ON MEDIAN-SIDE BARRIER (SEPARATING OPPOSING TRAFFIC).

SIDE BARRIER MARKERS SHALL BE WHITE IN COLOR WHEN PLACED ON SHOULDER-SIDE BARRIER (OR BARRIER SEPARATING SAME DIRECTION TRAFFIC).

THE 48 FOOT SPACINGS BETWEEN MARKERS SHALL BE MAINTAINED ON CURVES/TURNS.

INSTALL SIDE MARKERS IN CONFORMANCE WITH MANUFACTURERS DIRECTIONS.

THE BOTTOM OF THE TOP MARKER SHALL BE AT THE SAME ELEVATION AS THE TOP OF THE BARRIER.

NO ATTACHMENT METHOD MAY BLOCK ANY PART OF THE REFLECTIVE AREA OF THE MARKER. BACKING FOR TOP MARKERS SHALL BE SHEET ALUMINUM, MEETING MATERIAL THICKNESS PER TEMPORARY TRAFFIC SIGNS SPECIFICATIONS OR ANY OTHER MATERIAL APPROVED BY ODOTS.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
SEE STANDARD NO. MD 104.01-25
FOR MARKER DETAIL.

TANGENT SECTION

* FOR PERMANENT BARRIER WALLS WITHIN WORK ZONES, THIS SPACING SHALL BE 100 FT.

CURVED SECTION

** FOR PERMANENT BARRIER WALLS WITHIN WORK ZONES THIS SPACING SHALL BE 75 FT.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

AN 'ABRUPT' LANE SHIFT IS ANY SHIFT WITH A TAPER LENGTH (L) LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE.

FOR ANY 'ABRUPT' LANE SHIFT OR ONE THROUGH WHICH PREVAILING SPEEDS CANNOT BE MAINTAINED, SOLID LANE LINES SHALL BE USED. FOR LANE SHIFTS WITH A TAPER LENGTH GREATER THAN OR EQUAL TO THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE AND THROUGH WHICH PREVAILING SPEEDS CAN BE MAINTAINED, SKIP LANE LINES MAY BE USED.

FOR ANY 'ABRUPT' LANE SHIFT OR ONE THROUGH WHICH PREVAILING SPEEDS CANNOT BE MAINTAINED, REVERSE CURVE WARNING SIGNS SHALL BE MOUNTED IN ADVANCE OF THE REVERSE CURVES.

FOR ANY 'ABRUPT' LANE SHIFT OR ONE THROUGH WHICH PREVAILING SPEEDS CANNOT BE MAINTAINED, PLACE THE LARGE PAVEMENT MARKING ARROW(S) PARALLEL TO AND CENTERED WITHIN THE LANE(S).

TEMPORARY RAISED PAVEMENT MARKERS SHALL BE REQUIRED ON ALL LANE LINES, UNLESS OTHERWISE SPECIFIED.

NUMBER OF LANES VARIES
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

EXISTING PAVEMENT

NEW CONSTRUCTION

EXCAVATE AS REQUIRED FOR ROADWAY WIDENING

6"

DRUM

EXISTING ROADWAY

4" OR FLATTER

SUBGRADE

THIS TEMPORARY WEDGE MATERIAL AS
APPROVED BY THE ENGINEER REMAINS
UNTIL GRADING FOR PLACEMENT OF
GRADED AGGREGATE BASE COURSE.

EXCAVATION

NEW CONSTRUCTION

6"

DRUM

EXISTING ROADWAY

4" OR FLATTER

SUBGRADE

GRADED AGGREGATE BASE COURSE

DEPTH PER PLAN

EXISTING ROADWAY

SUBGRADE

GRADED AGGREGATE BASE WEDGE
(TEMPORARY)

REMOVE OR RE-GRADE TEMPORARY
WEDGE AS DIRECTED BY ENGINEER,
AND PLACE GRADED AGGREGATE BASE
COURSE AND NEW TEMPORARY WEDGE.
THIS NEW WEDGE IS TO REMAIN IN
PLACE UNTIL GRADING FOR PLACEMENT
OF HOT MIX ASPHALT BASE.

BASE COURSE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STAGED ROADWAY CONSTRUCTION

STANDARD NO. MD 104.01-28
SIGHT TRIANGLE:
The sight triangle consists of the stopping sight distance for two vehicles and the line of sight between two vehicles, at the point just past the obstruction.

NOTE:
Refer to general note 7.8 for guidance on using channelizing drums to delineate the edge of the roadway.

-intersection spacing-

**MUST BE \( \geq \) THE MINIMUM STOPPING SIGHT DISTANCE FOR BOTH APPROACHING VEHICLES.**

-barrier with top panels, drums, and construction equipment placement can have detrimental effect on sight distance

-key:

- channelizing devices
- direction of traffic
- work site

-tangent spacing-

-note:
The inability to see approaching vehicles due to barrier and/or drum obstructions may result in collisions in instances where yield no merge areas are provided.

barriers with top panels could contribute to some degree of sight distance obstruction.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SIGHT TRIANGLE, STOPPING SIGHT DISTANCE, & RAMP JUNCTION SIGHT DISTANCE

standard no. MD 104.01-29
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
REFER TO GENERAL NOTE 7.B FOR GUIDANCE ON USING CHANNELIZING DRUMS TO DELINEATE THE EDGE OF THE ROADWAY.

FOR TWO-LANE, TWO-WAY SCENARIOS, IN ADDITION TO THE FLAGGER(S) REQUIRED, AN ADDITIONAL FLAGGER, DIRECTING MOTORISTS FROM THEIR DRIVEWAYS, MAY BE NEEDED.

A STOP SIGN SHALL BE INSTALLED WHERE THE DRIVEWAY INTERSECTS THE CLOSED LANE. IF AN ADDITIONAL FLAGGER IS PRESENT, A STOP SIGN MAY NOT BE NECESSARY.

MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES (TYPICAL):

TAPER CHANNELIZATION - SPACING SHALL BE EQUAL IN FEET TO THE POSTED SPEED LIMIT

TANGENT CHANNELIZATION - SPACING SHALL BE EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT IN THE BUFFER AND EQUAL IN FEET TO THE POSTED SPEED LIMIT ADJACENT TO THE WORK AREA

SPACING BETWEEN CHANNELIZING DEVICES AT DRIVEWAYS AND INTERSECTIONS:

CHANNELIZATION AT DRIVEWAYS AND INTERSECTIONS - SPACING SHALL BE APPROXIMATELY 6 FEET.
CHANNELIZING DEVICES SHALL BE SPACED AS NEAR AS POSSIBLE TO 6 FEET AND PLACED IN A MANNER THAT THEY DO NOT RESTRICT SIGHT DISTANCE FROM THE DRIVEWAY OR INTERSECTION.

THIS REDUCED SPACING IS NECESSARY TO PRECLUDE MOTORISTS FROM TURNING INTO THE WORK ZONE

KEY:
- CHANNELIZING DEVICES
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

CHANNELIZATION DEVICE USAGE
EQL / LESS THAN 40 MPH OVER 12 HRS. NIGHTTIME USE

STANDARD NO. MD 104.01-30 A
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
DRUMS, 36" CONES OR TALL WEIGHTED CONES SHOULD BE USED IN THE MERGING TAPER.

DRUMS, 36" CONES OR TALL WEIGHTED CONES SHOULD BE USED ADJACENT TO THE WORK AREA.

PROTECTION VEHICLE. WITH FLASHING LIGHTS SHOULD BE USED TO PROTECT THE WORK AREA AS SHOWN IN THE FIGURE. WHILE ALLOWING FOR THE ROLL AHEAD DISTANCE ANTICIPATED WITH IMPACTS.

REFER TO GENERAL NOTE 7.8 FOR GUIDANCE ON USING CHANNELIZING DEVICES TO DELINEATE THE EDGE OF THE ROADWAY.

* TALL WEIGHTED CONES - CONES 42" TALL WITH A NARROW, WEIGHTED BASE. SEE STANDARD SPECIFICATION 104.14.

THIS TYPICAL APPLICATION DOES NOT APPLY TO PAVING OPERATIONS, BUT CAN BE USED AT THE DISCRETION OF THE ENGINEER.

KEY:

- CHANNELIZING DEVICES
- DIRECTION OF TRAFFIC
- WORK AREA
- ARROW PANEL
- TRUCK OR TRAILER-TRUCK MOUNTED ATTENUATOR
- APPROVED VEHICLE SAFETY LIGHT

OPTIONAL PROTECTION VEHICLE (PV)

SHOULDER

1/3 L

MINIMUM 7 DEVICES

L

MAXIMUM DEVICE SPACING SHALL BE POSTED SPEED

1/2BL

MAXIMUM DEVICE SPACING SHALL BE TWICE POSTED SPEED

1/2BL

VARIABLES

MAXIMUM DEVICE SPACING SHALL BE POSTED SPEED

100' LANE CLOSED

SHOULDER TAPER

MERGING TAPER

BUFFER SPACE

WORK AREA

TERMINATION TAPER

** DRUMS, 36" CONES OR TALL WEIGHTED CONES SHOULD BE USED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

CHANNELIZATION DEVICE SPACING
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.01-30 B
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
DRUMS SHALL BE USED IN THE MERGING
TAPER.

DRUMS, 36" CONES OR TALL WEIGHTED CONES
SHALL BE USED ADJACENT TO THE WORK AREA.

PROTECTION VEHICLE WITH FLASHING LIGHTS
SHALL BE USED TO PROTECT THE WORK AREA.
PER SECTION 10.4 OF THE GENERAL NOTES.
PLACEMENT OF THE PROTECTION VEHICLE SHALL
BE AS SHOWN IN THIS FIGURE, WHILE ALLOWING FOR
THE ROLL AHEAD DISTANCE ANTICIPATED WITH IMPACTS.

REFER TO GENERAL NOTE 7.8 FOR GUIDANCE
ON USING CHANNELIZING DEVICES TO DELINEATE
THE EDGE OF THE ROADWAY.

* TALL WEIGHTED CONES - CONES 42" TALL WITH
A NARROW, WEIGHTED BASE. SEE STANDARD
SPECIFICATION 104.14.

THIS TYPICAL APPLICATION DOES NOT APPLY TO
PAVING OPERATIONS, BUT CAN BE USED AT THE
DISCRETION OF THE ENGINEER.

KEY:

- - CHANNELIZING
  DEVICES

↑ DIRECTION
  OF TRAFFIC

□ WORK AREA

□□□ ARROW PANEL

☐ TRUCK OR TRAILER-TRUCK
  MOUNTED ATTENUATOR

☑ APPROVED VEHICLE
  SAFETY LIGHT

** DRUMS SHALL BE USED IN THE MERGING TAPER
DRUMS, 36" CONES OR TALL WEIGHTED CONES
SHALL BE USED IN THE WORK AREA

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

CHANNELIZATION DEVICE SPACING
GREATER THAN 40 MPH

STANDARD NO. MD 104.01-30 C
## Temporary Traffic Control Typical Application

<table>
<thead>
<tr>
<th>Speed in MPH</th>
<th>Min. Merging Taper (L) (Length/# Devices)</th>
<th>Buffer (BL) (Length/# Devices)</th>
<th>Width of Offset, W (FT)</th>
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</table>

* Devices = (Length / Device Spacing) + 1

Shoulder taper = 1/3L, minimum 7 devices

Diagram of temporary traffic control setup with work area.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

1. Follow the steps below to determine when YIELD signs should be installed on entrance ramps:

YIELD SIGN WARRANT CHECKLIST

- Mainline design speed (A) MPH
- Entrance ramp design speed **(B) MPH
- Length of acceleration lane (from Figure 2) FT
- Grade of acceleration lane (D) % UP/DOWN
- Grade adjustment factor (1 if > 2%) from Table 1 (E)

Minimum required length of acceleration lane = (C) x (E) FEET
Measured length of acceleration lane (from Figure 1) FEET

Is the measured length of the acceleration lane greater than the minimum required length (G > F)?

YES - YIELD sign not required
NO - go to step 2

*If design speed is unknown, add 10 mph to the posted speed to approximate design speed
**If the ramp speed is not posted, use the mainline posted speed

2. Follow the steps below to determine when YIELD AHEAD and NO MERGE AREA signs should be installed:

YIELD AHEAD/NO MERGE AREA SIGN WARRANT CHECKLIST

Use Figure 3 to determine required signing

Length of acceleration lane (G)
Ramp speed (B)
Intersecting point of (G) and (B) circle

ZONE 1 - YIELD only
ZONE 2 - YIELD with YIELD AHEAD
ZONE 3 - YIELD with YIELD AHEAD and NO MERGE AREA

GENERAL NOTES:

YIELD signs shall be placed opposite the physical gore, on the right side of the entrance ramp.

YIELD AHEAD signs may be placed on the right or left side of the entrance ramp, depending on ramp geometry and line of sight.

YIELD sign(s), with the approval of the Assistant District Engineer - Traffic, shall be replaced with STOP signs on the right side (both sides) of the approach if no acceleration lane exists for temporary entrance. Also, a temporary stop line shall be placed across the ramp at the desired stop location as determined by the Engineer.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WARRANTS FOR YIELD SIGNS ON ENTRANCE RAMPS
CONVERGING WITH EXPRESSWAYS/FREeways

STANDARD NO. MD 104.01-31
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

REduced OVERHANG SIGN OPTIONS

EXACT SIGN SIZE WILL DEPEND UPON
THE SIGN MESSAGE.

Contractor shall submit sign detail to
Engineer for approval prior to fabrication.

Option 1 (Rectangular Sign)

EXACT SIGN WIDTH
WILL DEPEND UPON
THE SIGN MESSAGE.

Contractor may cut 60"x60" sign to
Reduce width without eliminating
Any portion of sign message.

Contractor shall obtain approval by the
Engineer prior to cutting the sign.

Option 2 (60"x60", Original Size, with Corners Cut Off)

Option 3 (48"x48", Diamond-Shaped Sign)

NOTES:
These options may only be used in cases where restricted lateral clearance
exists, or sign overhang may otherwise result in unsafe driving conditions.

Text size may need to be reduced to fit within sign border, as approved by the engineer.
NOTES

1. This barrier is to be used in combination with traffic barrier W beam as shown on standard MD 605.45 or traffic barrier W beam median barrier as shown on standard MD 104.01-62 and precast temporary concrete traffic barrier shown on std. MD 104.01-53 and MD 104.01-54.

2. The precast temporary concrete traffic barrier terminal end shall be cast using concrete mix No.6 (4500 PSI).

3. Reinforcement: A) 6x6. W2.9xW2.9 welded wire fabric folded in U shape. B) 2 No.4 1/2"Ø reinforcement bars grade 60 each 11'-4" long.

4. One connector pin shall be furnished with each barrier. See std. MD 104.01-54 for details of connector pin.

5. The cost of the connector pin shall be incidental to the contract price per each for precast temporary 32 inch F shape concrete traffic barrier terminal end.

Maryland Department of Transportation
State Highway Administration
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TERMINAL END
MD 104.01-46
1. This standard shall be used in accordance with the appropriate work zone traffic control standards. Refer to the Book of Standards Section 1 – Preliminary.

2. Install posts (1) thru (6) with offset brackets to the existing W beam element. Spacing of posts through the stiffened section shall be 3'-0" C/C.

3. Remove the existing W beam element between posts (1) thru (6) and offset brackets from posts (1), (2), (3) and (6). Grade area as necessary to provide a base suitable for the proper alignment and placement of the precast temporary concrete traffic barrier terminal end right side approach and the precast temporary concrete traffic barrier.

4. The precast temporary concrete traffic barrier terminal end right side approach shall be placed over posts (1) and (6).

5. The W beam terminal connector shall be splice bolted to the end of the existing W beam adjacent to post (6) and bolted to the precast temporary 32 inch F shape concrete traffic barrier terminal end right side approach. Refer to Std. MD 104.01-49.

6. When the precast temporary concrete traffic barrier terminal end right side approach is removed, the W beam system shall be reassembled.

7. The cost of removing and reassembly of the W beam and related hardware, grading, additional posts and hardware, drilling holes and all necessary equipment, labor, etc., will be incidental to the contract price per each for precast temporary 32 inch F shape concrete barrier terminal end right side approach.

8. For pin and loop joint connectors see Std. MD 104.01-53 and MD 104.01-54.
SQUARE PLATE WASHER
WASHERS SHALL BE STEEL MEETING REQUIREMENTS OF
ASTM A709 GR 36 AND GALVANIZED IN ACCORDANCE
WITH ASTM A 153

W BEAM TERMINAL CONNECTOR
10 GAUGE

PRECAST TEMPORARY F SHAPE
CONCRETE TRAFFIC BARRIER TERMINAL
END RIGHT SIDE APPROACH SEE
STD. MD 104.01-49

W BEAM TERMINAL CONNECTOR
SPlice BOLTED TO EXISTING W BEAM
AND ANCHORED TO TRAFFIC BARRIER
TERMINAL END

ISOMETRIC
SEE STD. MD 104.01-47 FOR POST LAYOUT
THRU 3 & 4 THRU 11

TRAFFIC DIRECTION

ELEVATION

ANCHORAGE DETAILS

FOR PIN AND LOOP JOINT CONNECTOR SEE STD. MD 104.01-53 AND 104.01-54

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PRECAST TEMPORARY 32 INCH F SHAPE
CONCRETE TRAFFIC BARRIER TERMINAL END—
RIGHT SIDE APPROACH DETAILS

STANDARD NO.
MD 104.01-48
1. This standard shall be used in accordance with the appropriate work zone traffic control standards. Refer to the Book of Standards Section 1-Preliminary.

2. Install posts A thru H with offset brackets to the existing W beam element. Spacing of posts through the stiffened sections shall be 3'-1/2" C/C.

3. Remove the existing W beam element between posts 1 thru 5 and offset brackets from post 1 and 2, and one offset bracket from post 3 and 4. Grade area as necessary to provide a base suitable for the proper alignment and placement of the precast temporary concrete traffic barrier terminal end and the precast temporary concrete traffic barrier.

4. The temporary precast concrete traffic barrier terminal end left side approach shall be placed over posts 1 and 2.

5. The W beam terminal connector shall be splice bolted to the W beam element at post A and anchored to the precast temporary 32 inch F shape concrete traffic barrier terminal end left side approach. Refer to Standard MD 104.01-51.

6. When the precast temporary concrete traffic barrier terminal end left side approach is removed the W beam system shall be reassembled.

7. The cost of removing and reassembly of the W beam and related hardware, grading, additional posts and hardware, drilling holes, and all necessary equipment, labor etc., will be incidental to the contract unit price per each for precast temporary 32 inch F shape concrete traffic barrier terminal end left side approach.
The existing traffic barrier W beam, on the opposing traffic lane side, shall not be anchored to the concrete terminal end.

**Elevation**

**Anchor Bolts** 4-1/4" 0 galv. hex head bolts, nuts and 8 rectangular washers on each side see STD. MD 605.41-02 for rectangular washer detail.

W beam terminal connector splice bolted to existing W beam. (See STD. MD 104.01-48 for terminal connector details)

**Isometric**

Precast temporary concrete traffic barrier, see STD. MD 104.01-53 and 104.01-54

Precast temporary 32 inch F shape concrete traffic barrier terminal end left side approach. See STD. MD 104.01-52

**Isometric View From Opposing Lanes**

Existing W beam median barrier
NOTES

1. THIS BARRIER SHALL BE USED IN ACCORDANCE WITH THE APPROPRIATE WORK ZONE TRAFFIC CONTROL STANDARDS. REFER TO THE BOOK OF STANDARDS CATEGORY I - PRELIMINARY.

2. THE BARRIER SHALL BE USED IN COMBINATION WITH TRAFFIC BARRIER W BEAM AND PRECAST TEMPORARY CONCRETE BARRIER (PIN AND LOOP) AS SHOWN ON STD. MD 104.01-50 AND MD 104.01-51.

3. THE BARRIER SHALL BE CAST USING CONCRETE MIX NO. 6 (4500 PSI).

4. REINFORCEMENT: A. 6x6 W2.9 x W2.9 WELDED WIRE FABRIC IN U SHAPE.
   B. 2x NO. 4 1/2" REINFORCEMENT BARS - GRADE 60 - EACH 11'-4" LONG

5. ONE CONNECTOR PIN SHALL BE FURNISHED WITH EACH BARRIER, SEE STD. MD 104.01-54 FOR DETAILS OF CONNECTOR PIN.

6. THE COST OF THE CONNECTOR PIN SHALL BE INCIDENTAL TO THE CONTRACT PRICE PER EACH FOR PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TERMINAL END LEFT SIDE APPROACH.

7. SEE STD. MD 104.01-53 AND MD 104.01-54 FOR PIN AND LOOP CONNECTOR DETAILS.
**Plan**

**End A**

**Elevation**

**End B**

**Isometric End View**

**End View**

**Reinforcement Details**

**Notes**

1. **Reinforcement:** A) 6 x 6 W2.9 x W2.9 Welded Wire Fabric Folded in U Shape. B) 2 - No. 4 1/2" Ø Reinforcement Bars - Grade 60 - Each 11'-4" Long.
2. Concrete shall be mix No. 6 (4500 psi).
3. 2 - SCS2 - 2 Ton Lifting Anchors.
4. All Barriers shall have "1350" Imprinted on Top End of Barrier.
5. 24" Wide x 1 1/2" High Drain Pan.
6. 1/4" Chamfer Along Top Edges.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PRECAST TEMPORARY 32 INCH
F SHAPE CONCRETE TRAFFIC BARRIER
(PIN AND LOOP JOINT)

STANDARD NO. MD 104.01-53
1) THE CONNECTOR PIN SHALL BE 1½" Ø x 25" AND SHALL CONFORM TO ASTM A307. NUTS SHALL CONFORM TO A 563. WASHERS SHALL CONFORM TO ASTM F 436. THE CONNECTOR PIN, NUTS AND WASHERS SHALL BE PLAIN OR GALVANIZED IN ACCORDANCE WITH ASTM A 153.

2) CONNECTOR LOOP ¾" Ø PLAIN STEEL ROD SHALL CONFORM TO ASTM A 709 GRADE 36 PLAIN OR GALVANIZED IN ACCORDANCE WITH ASTM A 153 OR STAINLESS STEEL ROD SHALL CONFORM TO ASTM A 276 FOR THE TYPE SPECIFIED.
NOTES
1. CONCRETE SHALL BE MIX NO. 6 (4500 PSI).
2. REINFORCEMENT SHALL BE GALVANIZED OR EXPOXY COATED 6" x 6" WZ2.9 W2.9 WELDED WIRE FABRIC.
3. ONE CONNECTOR PIN SHALL BE FURNISHED WITH EACH BARRIER SEE STD. MD 104.01-54 FOR DETAILS OF CONNECTOR PIN.
4. THE APPROACH PLATE SHALL BE FABRICATED USING 1/2" THICK STEEL PLATE BENT OR WELDED TO THE CONFIGURATION SHOWN ON STD. MD 104.01-57 AND GALVANIZED AFTER FABRICATION. THE APPROACH PLATE SHALL BE ANCHORED TO THE PRECAST TEMPORARY BARRIER TRANSITION AND TO THE EXISTING CONCRETE BARRIER IN THE FIELD TO ACHIEVE PROPER PLACEMENT AND HOLE ALIGNMENT WITH 6 EXPANSION ANCHORS (EACH END) AND 1/8" HEX HEAD BOLTS.
5. THE COST OF THE APPROACH PLATE, ANCHORS, BOLTS, CONNECTOR PIN, LABOR, ETC. SHALL BE INCIDENTAL TO THE UNIT PRICE PER EACH FOR PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE BARRIER TRANSITION RIGHT SIDE APPROACH.
NOTES

1. THE APPROACH PLATE SHALL BE FABRICATED USING 1/2" THICK STEEL PLATE.

2. STRUCTURAL STEEL SHALL CONFORM TO ASTM A 709 GR 36 AND GALVANIZED AFTER FABRICATION IN CONFORMANCE WITH ASTM A 123.

3. SEE STANDARD MD 104.01-55 FOR DETAILS OF PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TRANSITION.

4. COST OF APPROACH PLATE IS INCIDENTAL TO THE COST OF THE PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TRANSITION.

5. WHEN THE APPROACH PLATE IS REMOVED, THE HOLES IN THE EXISTING BARRIER SHALL BE GROUTED.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROACH PLATE FOR PRECAST TEMPORARY
32 INCH F SHAPE CONCRETE TRAFFIC BARRIER FOR TRANSITION RIGHT SIDE

STANDARD NO.
MD 104.01-56
1. Concrete shall be concrete mix No. 6 (4500 psi).
2. Reinforcement shall be galvanized or epoxy-coated 6"x6" - #2.9x2.9 welded wire fabric.
3. One connector pin shall be furnished with each barrier, see Std. MD 104.01-41 for details of connector pin.
4. The approach plate shall be fabricated using ⅛" thick steel plate bent or welded to the configuration shown on Std. MD 104.01-58 and galvanized after fabrication. The approach plate shall be anchored to the precast temporary barrier transition and to the existing concrete barrier in the field to achieve proper placement and hole alignment with 6 expansion anchors (each end) and ⅜" x 0 hex head bolts.
5. The cost of the approach plate, anchors, bolts, connector pin, labor, etc., shall be incidental to the unit price per each for precast temporary 32 inch F shape concrete barrier transition left side approach.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TRANSITION—LEFT SIDE APPROACH

STANDARD NO. MD 104.01-57
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROACH PLATE FOR PRECAST TEMPORARY
32 INCH F SHAPE CONCRETE TRAFFIC BARRIER
FOR TRANSITION LEFT SIDE

NOTES
1. THE APPROACH PLATE SHALL BE FABRICATED USING 1/8" THICK STEEL PLATE BENT OR WELDED TO CONFIGURATION SHOWN.
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM A709 AND GALVANIZED AFTER FABRICATION IN CONFORMANCE WITH ASTM A123.
3. SEE STANDARD MD 104.01-57 FOR DETAILS OF PRECAST TEMPORARY CONCRETE TRAFFIC BARRIER TRANSITION LEFT SIDE APPROACH.
4. COST OF APPROACH PLATE IS INCIDENTAL TO THE COST OF THE PRECAST TEMPORARY 32 INCH F SHAPE CONCRETE TRAFFIC BARRIER TRANSITION LEFT SIDE APPROACH.
5. WHEN THE APPROACH PLATE IS REMOVED THE HOLES IN EXISTING BARRIER SHALL BE GROUTED.
**Location of 3/4" x 2 1/2" slots in the W beam and terminal connector**
6'-3"
6 spaces at 3'-1 1/2" = 18'-9"
6'-3"

**Trafﬁc direction**

**Precast temporary 32 inch F shape concrete trafﬁc barrier terminal end paid for per each**
See STD. MD 104.01-46

**Plan**

**Precast temporary 32 inch F shape concrete trafﬁc barrier**
See STDs. MD 104.01-53 & MD 104.01-54

**26'-10" Basis of payment per each for trafﬁc barrier W beam anchorage at precast 32 inch F shape temporary concrete trafﬁc barrier terminal end (rectangular washers required on this section)**

**Elevation**

**Notes**

1. All posts and offset brackets shall be as shown on standards MD 605.22 and MD 605.23.
2. The W beam terminal connector and W beam sections shall be lapped in the direction of trafﬁc.
3. The cost for the precast 32 inch F shape temporary concrete trafﬁc barrier terminal end will be paid for per each.

**Section A-A**

**4 square steel plate washers**
See STD. MD 104.01-48

**1'-6"**

**4 1/4" @ (galv.) hex head bolts, nuts and 4 rectangular washers**
See STD. MD 605.51-01 for rectangular washer detail
1. All metal posts and wood offset blocks shall be as shown on standard MD 605.23.
2. The W beam terminal connectors and W beam sections shall be lapped in the direction of traffic.
3. The median traffic barrier W beam shall be as shown on standard MD 605.28.
4. The cost for the precast temporary 32 inch F shape concrete traffic barrier terminal end will be paid for per each.

SECTION A-A
A. Barrels

Typical Assembly

B. Layout Configuration

1'-0" Min. to Solid Object

2'-6" Min. for Traffic Direction Shown (Typical Both Sides)

Unidirectional

Bidirectional

 Repeat as required to cover full width of hazard

Wide Arrays are actually several narrow arrays placed side by side to provide the required width.

Wide Hazard Example
C. TYPICAL DESIGN LAYOUT

DESIGN SPEED = 25 M.P.H.

DESIGN SPEED = 30 M.P.H.

DESIGN SPEED = 35 M.P.H.

DESIGN SPEED = 40 M.P.H.

DESIGN SPEED = 45 M.P.H.

DESIGN SPEED = 50 M.P.H.

DESIGN SPEED = 55 M.P.H.
DESIGN SPEED = 60 M.P.H.

DESIGN SPEED = 65 M.P.H. (SEE NOTE 5)

DESIGN SPEED = 70 M.P.H. (SEE NOTE 5)

NOTES:

1. THE CIRCLES REPRESENT THE BARRELS. THE NUMBER INSIDE THE BARREL INDICATES THE WEIGHT OF SAND IN POUNDS.

2. 2'-6" MIN. CLEARANCE TYPICAL BOTH SIDES APPLICABLE TO ALL ARRAY APPLICATIONS.

3. SAND BARRELS SHALL BE LOCATED TO SHIELD THE HAZARD FROM SIDE ANGLE IMPACTS.

4. SPACING BETWEEN BARRELS SHALL BE 6" MINIMUM.

5. THE DESIGN VELOCITY SPEEDS OF 65 AND 70 MPH EXCEEDS MASH AND NCHRP REPORT 350 TEST LEVEL 3 IMPACT CONDITIONS. TYPICAL IMPACTS INTO THIS ARRAY MAY NOT RESULT IN ACCEPTABLE CRASH PERFORMANCE AS DESCRIBED IN MASH AND NCHRP REPORT 350 RELATIVE TO STRUCTURAL ADEQUACY, OCCUPANT RISK AND VEHICLE TRAJECTORY.
## Site Conditions and Recommendations

<table>
<thead>
<tr>
<th>Conditions</th>
<th>FHWA Recommendations</th>
<th>Manufacturer Recommendations</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Angle of array in relation to center line of obstacle</td>
<td>Not recommended for more than 10°</td>
<td>Same as FHWA</td>
<td></td>
</tr>
<tr>
<td>2. Bidirectional traffic</td>
<td>Offset array to avoid impact to the rear module from wrong-way vehicles</td>
<td>Same as FHWA</td>
<td></td>
</tr>
<tr>
<td>3. Module spacing:</td>
<td>Module to hazard</td>
<td>6&quot; minimum length 6&quot; width</td>
<td></td>
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<tr>
<td>Module to module</td>
<td>1' to 2'</td>
<td>None given</td>
<td></td>
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<tr>
<td>4. &quot;Coffin&quot; corner</td>
<td>Shield 30&quot; outside of hazard</td>
<td>Same as FHWA</td>
<td></td>
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<tr>
<td>5. Curbs and raised islands or pallets for temporary sites</td>
<td>No more than 4&quot; high</td>
<td>Same as FHWA</td>
<td></td>
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<tr>
<td>6. Intermixing of brands of modules</td>
<td>Approved - as long as modules are federally approved and array meets design criteria.</td>
<td>Same as FHWA</td>
<td></td>
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<tr>
<td>7. Maintenance</td>
<td>Keep site clear of debris and snow</td>
<td>Same as FHWA</td>
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<tr>
<td>8. Sand densities</td>
<td>100 lbs/cf</td>
<td>Determine in the field</td>
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<tr>
<td>9. Single rows of modules</td>
<td>Not recommended</td>
<td>Same as FHWA</td>
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</table>

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Maryland Department of Transportation  
**State Highway Administration**  
Standards for Highways and Incidental Structures  
Crash Cushion  
Sand Filled Plastic Barrels (Temporary or Permanent)  
**Standard No.** MD 104.01-73
### Temporary Traffic Control Typical Application
#### Taper Length Criteria Table

<table>
<thead>
<tr>
<th>Speed (S) in MPH</th>
<th>Width of Offset (W) in Feet</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>25</td>
<td>Taper Length (L) in Feet where ( L = \frac{WS}{60} )</td>
<td>11</td>
<td>21</td>
<td>32</td>
<td>42</td>
<td>53</td>
<td>63</td>
<td>73</td>
<td>84</td>
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<td>Taper Length (L) in Feet where ( L = WS )</td>
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<td>90</td>
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**Type of Taper**
- MERGING TAPER: \( L \) minimum (on expressways and freeways, merging lane closure tapers shall be 1000 feet, unless directed by the engineer)
- SHIFTING TAPER: \( L \) (when conditions do not permit shifting tapers of length \( L \), shifting tapers down to length \( 1/2 \) \( L \) (min.) may be used)
- SHOULDIER TAPER: \( 1/3 \) \( L \) minimum
- TWO-WAY TAPER (FLAGGING): 100 feet max., 50 feet min.
- TERMINATION TAPER: 100 feet minimum

**Note:**
An "abrupt" lane shift is any shift with a taper length \( L \) less than the value specified in the table above.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
1. MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES:
   TAPER CHANNELIZATION - SHALL BE EQUAL IN FEET TO THE POSTED SPEED LIMIT FOR POSTED SPEEDS EQUAL/LESS THAN 40 MPH AND 40 FEET FOR POSTED SPEEDS GREATER THAN 40 MPH
   TANGENT CHANNELIZATION - SHALL BE EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT IN THE BUFFER AND EQUAL IN FEET TO THE POSTED SPEED ADJACENT TO THE WORK AREA FOR POSTED SPEEDS EQUAL/LESS THAN 40 MPH. SPACING SHALL BE 80 FEET IN THE BUFFER AND 40 FEET ADJACENT TO THE WORK AREA FOR POSTED SPEEDS GREATER THAN 40 MPH

2. THE MINIMUM BUFFER LENGTH (BL) SHALL BE AS FOLLOWS:

BUFFER LENGTH (BL)

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<thead>
<tr>
<th>PREVAILING SPEED (MPH)</th>
<th>LENGTH (FEET)</th>
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<tr>
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<td>75</td>
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</table>

REFER TO LATEST PART VI OF THE MUTCD FOR ADDITIONAL SPEEDS/BUFFER LENGTHS AND ADJUSTMENTS TO BUFFER LENGTH DUE TO THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.

3. REFER TO STANDARD NO. MD 104.01-80 (TAPER LENGTH CRITERIA TABLE) FOR MINIMUM TAPER LENGTHS.
STANDARD DETAIL:

STEEL PLATE BRIDGING AND SHORING SHALL BE INSTALLED USING EITHER METHOD (1) OR (2).

METHOD 1: FOR SPEEDS GREATER THAN 40 MPH (SEE DETAIL BELOW).

THE PAVEMENT SHALL BE MILLED OR SAW CUT TO A DEPTH EQUAL TO THE THICKNESS OF THE PLATE AND TO A WIDTH AND LENGTH EQUAL TO THE DIMENSIONS OF THE PLATE.

* METHOD '1' DOES NOT APPLY TO CEMENT CONCRETE PAVEMENT SECTIONS.

MILL EXISTING PAVEMENT TO ENSURE TOP OF PLATE IS LEVEL WITH ROADWAY. MILL OR SAWCUT PAVEMENT PERPENDICULAR TO TRAFFIC FLOW TO ENSURE EDGE OF PLATE MEETS SMOOTH, VERTICAL FACE OF CUT TO PREVENT LATERAL PLATE MOVEMENT.

STEEL PLATE DETAIL (METHOD 1, GREATER THAN 40 MPH)

NOT TO SCALE

THE FOLLOWING TABLE SHOWS THE ADVISORY MINIMUM THICKNESS OF STEEL PLATE BRIDGING REQUIRED FOR A GIVEN TRENCH (WITH A-36 GRADE STEEL):

<table>
<thead>
<tr>
<th>TRENCH WIDTH</th>
<th>MINIMUM PLATE THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5'</td>
<td>1&quot;</td>
</tr>
<tr>
<td>≥ 5'</td>
<td>SEE NOTE #3</td>
</tr>
</tbody>
</table>

NOTES

1. STEEL PLATE USAGE WILL BE INCIDENTAL TO THE WORK BEING DONE/PROTECTED UNLESS AN ITEM FOR STEEL PLATES IS INCLUDED IN THE CONTRACT SCHEDULE OF PRICES.
2. STEEL PLATE INSTALLED SHALL HAVE A MAXIMUM ONE INCH DEFLECTION. STEEL PLATES SHALL BE WELDED TOGETHER BY A LICENSED WELDER.
3. FOR TRENCH WIDTHS EQUAL TO OR GREATER THAN 5 FT, STEEL PLATE AND SUPPORT SYSTEM SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND AND APPROVED BY THE SHA ENGINEER.
4. STEEL PLATE BRIDGING IS NOT ALLOWED ON EXPRESSWAYS/FREeways.
5. ALL STEEL PLATES ARE TO BE ANCHORED USING MIN. 6 IN. ANCHOR. REFER TO STD. MD 104.01-86.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STEEL PLATE
METHOD 1, GREATER THAN 40 MPH
STANDARD NO. MD 104.01-85
STANDARD DETAIL:

- METHOD '2' SHALL BE USED FOR CEMENT CONCRETE PAVEMENT SECTIONS, REGARDLESS OF SPEED.
- METHOD '2', FOR SPEEDS EQUAL TO OR LESS THAN 40 MPH (SEE DETAIL BELOW)

APPROACH PLATE AND ENDING PLATE OF LONGITUDINAL PLACEMENT SHALL BE ATTACHED TO THE ROADWAY BY A MINIMUM OF 1 ANCHOR IN EACH CORNER OF THE PLATE. DRILL A 3/8 INCH DIAMETER, 5 INCH DEEP PILOT HOLE INTO THE PAVEMENT, DRIVE 1 ANCHOR INTO EACH HOLE. SUBSEQUENT PLATES ARE BUTTED TO EACH OTHER AND WELDED. ASPHALT MATERIAL SHALL BE COMPACTED TO FORM RAMPS. MAXIMUM SLOPE 8.5% WITH A MINIMUM 12 INCH TAPER TO COVER ALL EDGES OF THE STEEL PLATES. CONTRACTOR'S PROPOSED METHOD OF ANCHORING SHALL BE APPROVED BY THE ENGINEER.

SURFACE OF EXISTING PAVEMENT

MINIMUM 12" WEDGE OF ASPHALT MATERIAL (TYPE AS DIRECTED BY THE ENGINEER)

STEEL PLATE (SEE TABLE BELOW) 12" MIN.

OPEN PAVEMENT CUT

25'

SEE NOTE #3

ANCHORS

STEEL PLATE DETAIL (METHOD 2, EQUAL TO OR LESS THAN 40 MPH)

NOT TO SCALE

THE FOLLOWING TABLE SHOWS THE ADVISORY MINIMAL THICKNESS OF STEEL PLATE BRIDGING REQUIRED FOR A GIVEN TRENCH (WITH A-36 GRADE STEEL):

<table>
<thead>
<tr>
<th>TRENCH WIDTH</th>
<th>MINIMUM PLATE THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5'</td>
<td>1&quot;</td>
</tr>
<tr>
<td>≥ 5'</td>
<td>SEE NOTE #3</td>
</tr>
</tbody>
</table>

NOTES
1. STEEL PLATE USAGE WILL BE INCIDENTAL TO THE WORK BEING DONE/PROTECTED UNLESS AN ITEM FOR STEEL PLATES IS INCLUDED IN THE CONTRACT SCHEDULE OF PRICES.
2. STEEL PLATE INSTALLED SHALL HAVE A MAXIMUM ONE INCH DEFLECTION. STEEL PLATES SHALL BE WELDED TOGETHER BY A LICENSED WELDER.
3. FOR TRENCH WIDTHS EQUAL TO OR GREATER THAN 5 FT. STEEL PLATE AND SUPPORT SYSTEM SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND AND APPROVED BY THE SHA ENGINEER.
4. STEEL PLATE BRIDGING IS NOT ALLOWED ON EXPRESSWAYS/PEARWAYS.
5. ANCHORS ARE TO BE A MIN. OF 6 IN. IN LENGTH.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STEEL PLATE
METHOD 2, EQUAL TO OR LESS THAN 40 MPH
STANDARD NO. MD 104.01-86
NOTES

1. TEMPORARY STEEL PLATES TO BE PLACED WHEN REPAIRING DECK AND JOINT HEADERS.

2. ROADWAY PLATES ARE TO BE ANCHORED TO THE DECK USING 1" DIA. ALL THREADED RODS (ASTM A307), RECESSED IN PLATE WITH WELDED NUT AND 12" X 12" X 1" STEEL PLATE WASHER WITH "SPRING SYSTEM" NUT AND WASHER AT UNDERSIDE OF DECK TO SECURE THE ANCHORS. FULLY COMPRESS THE SPRING WHEN TIGHTENING THE NUT.

3. THE USE OF STEEL PLATES AND ALL ASSOCIATED WORK IS INCIDENTAL TO THE MAINTENANCE OF TRAFFIC ITEM FOR STRUCTURE.

4. USE 1.937 O.D., 4" LONG TEMPERED STEEL SPRING, (MIN. 1200 LBS/INCH) WITH A 0.375" WIRE DIAMETER SPRING TO BE SECURED WITH STANDARD FLAT WASHER, NUT AND COTTER PIN THROUGH THREAD ROD.

5. TEMPORARY PLATES TO REMAIN IN PLACE UNTIL CONCRETE HAS ACHIEVED A MINIMUM OF 4500 PSI COMpressive STRENGTH.

6. FOR CONCRETE DECK WITH ASPHALT WEARING SURFACE DECK PUNCTURE REPAIRS, REMOVE ASPHALT WEARING SURFACE 5O TOP PLATE IS LEVEL WITH TOP OF SURROUNDING BRIDGE DECK WORKING SURFACE (OR TO TOP OF CONCRETE DECK) TO THE WIDTH AND LENGTH OF THE STEEL PLATE. REPAIR CONCRETE DECK AND PLACE STEEL PLATE WHILE CONCRETE CURES. USE COLD MIX FOR TAPER TO BE DETERMINED BASED ON SECTION 504.03.09 (TYP.).

COLD MIX FOR TAPER TO BE DETERMINED BASED ON SECTION 504.03.09 (TYP.).

1.937" O.D., 4" TEMPERED SPRING

1" DIA. ALL THREAD ROD IN 1½" DIA CORED HOLES. SPACED TO MISS DECK REINFORCING AND GIRD/BEAM FLANGES. CORED HOLES TO BE FILLED WITH NON-SHRINK GROUT PER 902.11.C AFTER RODS ARE REMOVED.

1½" THICK STEEL SPACER PLATE

2½" X 1½" SLOTTED HOLE IN SPACER PLATE FOR EXPANSION

1", DIA. ALL THREAD ROD

6" (TYP.)

6" (TYP.)

COTTER PIN

12" X 12" X 1"

STEEL PLATE

1" DIA. ALL THREAD ROD IN 1½" DIA CORED HOLES. SPACED TO MISS DECK REINFORCING AND GIRD/BEAM FLANGES. CORED HOLES TO BE FILLED WITH NON-SHRINK GROUT PER 902.11.C AFTER RODS ARE REMOVED.

1½" THICK STEEL SPACER PLATE

2½" X 1½" SLOTTED HOLE IN SPACER PLATE FOR EXPANSION

1", DIA. ALL THREAD ROD

6" (TYP.)

6" (TYP.)

COTTER PIN

12" X 12" X 1"

STEEL PLATE

1" DIA. ALL THREAD ROD IN 1½" DIA CORED HOLES. SPACED TO MISS DECK REINFORCING AND GIRD/BEAM FLANGES. CORED HOLES TO BE FILLED WITH NON-SHRINK GROUT PER 902.11.C AFTER RODS ARE REMOVED.
PLATING DETAIL - PLAN VIEW

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STEEL PLATE
METHOD 3, BRIDGE DECK PLATING PLAN VIEW
STANDARD NO. MD 104.01-88
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE), REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCOUKEMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK /2-LANE, 2-WAY GREATER THAN 40 MPH

STANDARD NO. MD 104.02-01
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
SHOULDER CLOSED SIGNS ARE
REQUIRED IN PLACE OF SHOULDER
WORK SIGNS WHEN THE SHOULDER
IS CLOSED BY POSITIVE PROTECTION
(TEMPORARY CONCRETE BARRIER OR
SIMILAR DEVICE), REFER TO STANDARD
NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT
EDGE DROP-OFF, REFER TO STANDARD
NOS. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.02-02
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
REFFER TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH LANE SHIFTS.
- THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES EITHER CONDITION 'A' OR 'B'.
- CONDITION 'A': LANE SHIFT IS 'ABRupt' - SHIFT HAS A TAPER LENGTH LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE REFER TO MD 104.01-80
- CONDITION 'B': PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGH THE SHIFT.
- FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:
- DELETE 'REVERSE CURVE' WARNING SIGNS, AND
- REPLACE 'LANE SHIFT' SIGNS WITH 'ROAD WORK XXX' SIGNS OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

END ROAD WORK
(OPTIONAL)

NOTE:
MINIMUM LANE WIDTHS THROUGHOUT CHAN. DEVICES AREA SHALL BE 10 FT.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT RIGHT OR LEFT SIDE / 2-LANE, 2-WAY GREATER THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY

STANDARD NO. MD 104.02-03
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTES:

REFER TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH LANE SHIFTS.

• THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES EITHER CONDITION 'A' OR 'B'.

■ CONDITION 'A':
LANE SHIFT IS 'ABRUPT' - SHIFT HAS A TAPER LENGTH LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE REFER TO MD 104.01-80

■ CONDITION 'B':
PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGHOUT THE SHIFT.

FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:

■ DELETE 'REVERSE CURVE' WARNING SIGNS, AND

■ REPLACE 'LANE SHIFT' SIGNS WITH 'ROAD WORK XXX' SIGNS OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT RIGHT OR LEFT SIDE/2-LANE, 2-WAY EQL/LESS THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY
STANDARD NO. MD 104.02-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTE:
The lanes on either side of the center work space shall have a minimum width of 10 ft as measured from the near edge of the channelizing devices to the edge of pavement or the outside edge of paved shoulder.

The engineer should consider additional, adjacent lane closures when the possibility of unplanned travelway encroachments exists.

KEY:
- Channelizing Devices
- Sign Support
- Face of Sign
- Direction of Traffic
- Work Site

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WORK IN CENTER OF LOW-VOLUME ROAD
2-LANE, 2-WAY/GREATERTHAN 40 MPH
15 MIN - 12 HRS. OR DAYTIME ONLY

STANDARD NO. MD 104.02-05
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-00 -
MD 104.01-81

NOTE:
The lanes on either side of the
center work space shall have
a minimum width of 10 ft as
measured from the near edge
of the channelizing devices to
the edge of pavement or the
outside edge of paved shoulder.

The engineer should consider
additional, adjacent lane
closures when the possibility
of unplanned travelway
croachments exists.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WORK IN CENTER OF LOW-VOLUME ROAD
2-LANE, 2-WAY / EQUI. LESS THAN 40 MPH
15 MIN - 12 HRS. OR DAYTIME ONLY

STANDARD NO. MD 104.02-06
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
THE "BEGIN AND END SHOULDER USE" SIGNS SHOULD BE OMITTED WHEN THE SHOULDER CANNOT BE DIFFERENTIATED FROM THE NORMAL TRAVEL PATH.

REFER TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH LANE SHIFTS.

THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES EITHER CONDITION 'A' OR 'B':

- CONDITION 'A':
  LANE SHIFT IS "ABRUPT" - SHIFT HAS A TAPER LENGTH LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE. REFER TO MD 104.01-80

- CONDITION 'B':
  PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGH THE SHIFT.

FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:

DELETE "REVERSE CURVE" WARNING SIGNS, AND

REPLACE "LANE SHIFT" SIGNS WITH "ROAD WORK XXX" SIGNS OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT FOR COMPLETE TRAVEL WAY BLOCKAGE/2-LANE, 2-WAY GREATER THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY
STANDARD NO. MD 104.02-07
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81.

NOTES:
THE 'BEGIN AND END SHOULDER USE' SIGNS SHOULD BE OMITTED
WHEN THE SHOULDER CANNOT BE DIFFERENTIATED FROM THE NORMAL
TRAVEL PATH.
REFERR TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH
LANE SHIFTS.

THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES
THE CONDITION 'A' OR 'B'.

- CONDITION 'A':
LANE SHIFT IS 'ABRUPT' - SHIFT HAS A TAPER LENGTH
LESS THAN THE VALUE SPECIFIED IN THE TAPER
LENGTH CRITERIA TABLE
REFERR TO MD (104.01-80

- CONDITION 'B':
PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGH THE SHIFT.

- FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:
- DELETE 'REVERSE CURVE' WARNING SIGNS, AND
- REPLACE 'LANE SHIFT' SIGNS WITH 'ROAD WORK XXX' SIGNS
OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY
TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT FOR COMPLETE TRAVEL WAY
BLOCKAGE/2-LANE, 2-WAY EQL/LESS THAN
40 MPH/15 MSH - 12 HRS. OR DAYTIME ONLY

STANDARD NO. MD 104.02-08

SPECIFICATION 104 CATEGORY CODE ITEMS

APPROVED
DIREC TOR - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway

APPROVAL - SHA
APPROVAL - FEDERAL
HIGHWAY ADMINISTRATION

APPROVAL: 8-23-05
APPROVAL: 8-11-10
REVIEWED: 8-23-05
REVIEWED: 7-29-10
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
FLAGGER SHALL NEVER BE
STATIONED MORE THAN 1000'
AWAY FROM THE ADVANCE
FLAGGER SIGN.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING
DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION
OF TRAFFIC
WORK SITE
FLAGGER
ROAD WORK
(RELATED TO
15 MIN-12 HRS.
OR DAYTIME
APPLICATIONS)

OVER 12 HRS.
OR NIGHTTIME USE
ONE LANE ROAD
1500 FT
ONE LANE ROAD
1/2 MILE
ROAD WORK
1 MILE

1/2 MILE
1/4 MILE
100'
500'
1000'
500'
1000'
800'
700'
1100'
800'
700'
1/5 MILE
100'
500'
1000'
800'
700'
1100'
800'
700'
1/5 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION / 2-LANE, 2-WAY
GREATER THAN 40 MPH

SPECIFICATION
104
CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway

APPROVAL - SHA
APPROVAL - FEDERAL
HIGHWAY ADMINISTRATION

10-20-05
9-29-09
8-11-10
7-29-10

STANDARD NO.
MD 104.02-09
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
SIMILAR SIGNING FOR THE OPPOSITE APPROACH SHALL BE PLACED.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-10 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

# THE ADE-T WILL DETERMINE ADVISORY SPEED AT SITE.

NOTE:
SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE STANDARD MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC WORK SITE
- TYPE III BARRICADE

CHANNELIZING DEVICES SHALL BE SPACED TYPICALLY AT 25 FOOT INTERVALS CLEARLY SHOWING THE NEW CURVATURE IN THE ROADSIDE.

OBJECT MARKERS

TEMPORARY STRIPING

END ROAD WORK

ROAD CLOSED

DETOUR

DETOUR 1/2 MILE

DETOUR 1 MILE

DETOUR 1/2 MILE

ROAD WORK 1 MILE

MD 104.02-11
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

* THE ADVISORY SPEED WILL DETERMINE
ADVISORY SPEED AT SITE.

NOTE:
SUPPLEMENTARY SIGNS MAY BE MOUNTED ON
PORTABLE SIGN STANDS USING ADDITIONAL
BRACKETS OBTAINED FROM THE STAND
MANUFACTURER. SUPPLEMENTARY SIGNS
SHALL NOT COVER ANY PART OF THE FACE
OF THE PRIMARY SIGN.

OBJECT MARKERS

TEMPORARY STRIPING

KEY:
■ ■ ■ ■ ■
CHANNELIZING DEVICES

■ ■ ■
SIGN SUPPORT

■ ■ ■ ■ ■
FACE OF SIGN

■ ■ ■ ■ ■
DIRECTION OF TRAFFIC

■ ■ ■ ■ ■
WORK SITE

■ ■ ■ ■ ■
TYPE III BARRICADE

END ROAD WORK

CHANNELIZING DEVICES SHALL BE SPACED
TYPICALLY AT 25 FOOT INTERVALS CLEARLY
SHOWING THE NEW CURVATURE IN THE
ROADWAY.

ROAD CLOSED

DETOUR

DETOUR 1000 FT

DETOUR 1500 FT

ROAD WORK

500' 1/6 MILE

500' 1/6 MILE

500' 1/6 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
BYPASS DETOUR/2-LANE, 2-WAY
EQUAL LESS THAN 40 MPH/OVER
12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.02-12
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

END ROAD WORK
(Optional for 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

SIGN MESSAGES AND PLACEMENT SAME ON ALL FOUR APPROACHES

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- FLAGGER

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTERSECTION FLAGGING OPERATION
2-LANE, 2-WAY EQUI/LESS THAN 40 MPH

SPECIFICATION
104

CATEGORY CODE ITEMS

APPROVED

DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
SHA

APPROVAL - SHA
REVISION
9-23-05

APPROVAL - FEDERAL HIGHWAY ADMINISTRATION
REVISION
8-11-10

STANDARD NO.
MD 104.02-14

REVISED 7-29-10
REVISED 6-02-04
REVISED 6-02-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
IF THE LEAD WORK VEHICLE IS
TRAVELING AT THE POSTED
SPEED LIMIT OR WITHIN 15
MPH OF IT, THEN NO BACK UP
VEHICLE IS NECESSARY.

IN URBAN AREAS THE DISTANCE
MAINTAINED BETWEEN VEHICLES
MAY BE DECREASED AS NEEDED.

VEHICLES SHALL DISPLAY FLASHING
HAZARD/PARKING LIGHTS IN FRONT
AND REAR AS PER MD 104.01-IBB.

VEHICLES THAT STOP INTERMITTENTLY
SHOULD BE DRIVEN, OR PARKED, OFF
THE TRAVELED LANE WHENEVER
POSSIBLE.

WHEN USED, THE PROTECTION
VEHICLE MAY BE USED AS A
SUBSTITUTE FOR THE WORK VEHICLE
WHERE DIRECTED BY THE ENGINEER.

KEY:
- SIGN SUPPORT
- FACE OF SIGN
- APPROVED VEHICLE
- SAFETY LIGHT
- DIRECTION OF
- TRAFFIC
- TRUCK OR TRAILER-
- TRUCK MOUNTED
- ATTENUATOR (TMA/TTMA)

ROAD WORK AHEAD

PROTECTION VEHICLE
SEE GENERAL NOTES 10.4

FOR INTERMITTENT STOPS,
USE THIS SIGN, (1) IN ADVANCE OF
CURVES, AND (2) ON ROADWAYS
HAVING SPEEDS GREATER THAN
40 MPH WHEN NO PROTECTION
VEHICLE IS AVAILABLE. THE WORK
VEHICLE SHOULD NEVER BE MORE
THAN 1500' AWAY FROM THIS SIGN.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE OPERATION/2-LANE, 2-WAY
ALL SPEEDS/0-15 MIN., AND MOVING SLOW

STANDARD NO. MD 104.02-15
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
WORK VEHICLE IS TRAVELING AT THE POSTED
SPEED LIMIT OR WITHIN 15 MPH OF IT.
VEHICLE SHALL DISPLAY FLASHING HAZARD/
PARKING LIGHTS IN FRONT AND REAR.

KEY:

APPROVED VEHICLE
SAFETY LIGHT

DIRECTION OF
TRAFFIC

WORK VEHICLE
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES WD 104.00-01 - WD 104.00-18 AND
STANDARD DETAILS WD 104.01-01 -
WD 104.01-81

NOTES:

MOWING OPERATIONS
MOWERS SHALL HAVE FLASHING
WARNING LIGHTS MOUNTED
ON THEM.

THE MOWERS AHEAD SIGN SHOULD BE
USED TO WARN OF MOWING CREWS UNLESS
MOWERS ARE EQUIPPED WITH TWO
360° FLASHING/ROTATING AMBER LIGHTS
OR TWO 360° FLASHING DOME LIGHTS.
THE DECISION SIGHT DISTANCE IS SET
FOR THE RATES OF SPEED SHOWN ON
STANDARD NO. WD 104.00-03, AND MOWERS
WILL NOT BE TRAVELLING IN ANY OF THE
FOLLOWING THREE CONDITIONS:
- WITHIN 5 FT. OF THE EDGE LINE OF
  THE ROADWAY OR ON THE SHOULDER
- IN THE ROADWAY ON A NARROW
  STRETCH OF ROADWAY OR TO
  GET AROUND A HIGHWAY STRUCTURE
  OR APPURTENANCE OR OTHER SUCH
  STRUCTURE
- ACROSS THE ROADWAY

MOWERS MAY NOT PROCEED
MORE THAN 2 MILES AWAY
FROM ADVANCE WARNING
SIGNS.

MOWERS WITHIN 5 FT. OF THE
EDGE LINE SHALL TRAVEL IN
THE SAME DIRECTION AS ADJACENT
TRAFFIC.

OTHER OPERATIONS
THE SURVEY CREW SIGN SHOULD BE
USED TO WARN OF SURVEYING CREWS
WORKING IN OR ADJACENT TO THE
ROADWAY.

THE WORKER'S SYMBOL SIGN SHOULD BE
USED TO WARN OF OTHER MOBILE OPERATIONS
NOT RELATED TO MOWING OR SURVEYING
ACTIVITIES, AND FOR WHICH NO MOBILE
TYPICAL APPLICATION CURRENTLY EXISTS.
THIS INCLUDES WORK PERFORMED BY
INMATE CREWS.

PROTECTION VEHICLE SHALL BE USED
IN CONFORMANCE WITH SECTION 10.4 OF
THE GENERAL NOTES.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE WORK OPERATION/2-LANE, 2-WAY
ALL SPEEDS

STANDARD NO. MD 104.02-17
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
DISTANCES BETWEEN VEHICLES MAY BE INCREASED OR DECREASED DEPENDING ON PAINT DRYING TIME, TERRAIN, LOCAL AREA AND OTHER FACTORS.

CONES MAY BE REQUIRED TO PROTECT WET LINES AT GRADE CROSSINGS, ETC.

THE PAINT AND PROTECTION VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

KEY:
- Sign Support
- Face of Sign
- Arrow Panel (Caution Mode Only)
- Approved Vehicle Safety Light
- Direction of Traffic
- Truck or Trailer-Truck Mounted Attenuator (TMA/TMMA)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE MARKING OPERATION/2-LANE, 2-WAY ALL SPEEDS

STANDARD NO. MD 104.02-18
IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
SHOULDER CLOSED SIGNS ARE
REQUIRED IN PLACE OF SHOULDER
WORK SIGNS WHEN THE SHOULDER
IS CLOSED BY POSITIVE PROTECTION
(TEMPORARY CONCRETE BARRIER OR
SIMILAR DEVICE), REFER TO STANDARD
NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT
EDGE DROP-OFF, REFER TO STANDARD
NO. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/MULTILANE UNDIV.
GREATER THAN 40 MPH

STANDARD NO.
MD 104.03-01
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICES). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NO. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/MULTILANE UNDIV. EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.03-02
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARDS DETAILS MD 104.01-01 - MD 104.01-81.

NOTE:
THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
■ ■ CHANNELIZING DEVICES
[ ] SIGN SUPPORT
■ ■ ■ ■ FACE OF SIGN
■ ■ ### DIRECTION OF TRAFFIC
[ ] WORK SITE
[ ] ARROW PANEL

USE THIS SIGN WHEN BUSES AND/OR TRUCK VOLUMES ARE HIGH.
SIGN SHOULD BE LOCATED OPPOSITE THE FIRST ADVANCE WARNING SIGN.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LEFT LANE CLOSURE/MULTILANE UNDIV.
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.03-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-B1

NOTE:
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
■ ■ CHANNELIZING DEVICES

SIGN SUPPORT
FACE OF SIGN

DIRECTION OF TRAFFIC

WORK SITE

ARROW PANEL

ROAD WORK 1 MILE

15°

USE THIS SIGN WHEN BUS AND/OR TRUCK VOLUMES ARE HIGH. SIGN SHOULD BE LOCATED OPPOSITE THE FIRST ADVANCE WARNING SIGN.

END ROAD WORK
(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

OVER 12 HRS. OR NIGHTTIME USE

15 MIN-12 HRS. OR DAYTIME USE ONLY

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
RIGHT LANE CLOSURE/MULTILANE UNDIV.
GREATER THAN 40 MPH

STANDARD NO.
MD 104.03-05
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

(OPTIONAL FOR
15 MIN-12 HRS.
OR DAYTIME
APPLICATIONS)

(15 MIN-12 HRS.
OR NIGHTTIME USE)

15°

ROAD WORK
1/2 MILE

USE THIS SIGN WHEN
BUS AND/OR TRUCK
VOLUMES ARE HIGH.
SIGN SHOULD BE
LOCATED OPPOSITE
THE FIRST ADVANCE
WARNING SIGN.

ROAD WORK
1/2 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
RIGHT LANE CLOSURE/MULTILANE UNDIV.
EQL/LESS THAN 40 MPH

SPECIFICATION
104

CATEGORIES

ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway

APPROVAL
REVISED
APPROVAL
REVISED

APPROVAL - SHA
0-11-16

APPROVAL - FEDERAL
0-28-05

HIGHWAY ADMINISTRATION
9-23-83

REVISED

MD 104.03-06

STANDARD NO.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
MINIMUM LANE WIDTHS THROUGHOUT
CHAN. DEVICES AREA SHALL BE
10 FT.

THE ARROW PANEL SHALL BE PLACED
AS CLOSE TO THE BEGINNING OF THE
TAPER AS POSSIBLE WHILE REMAINING
WITHIN TAPER.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

END ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.
OR DAYTIME
APPLICATIONS)

PLACE AS DIRECTED BY
THE ENGINEER.

PLACE IN MIDDLE OF
TANGENT IN ADVANCE
OF LEFT LANE SHIFT.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV.
GREATER THAN 40 MPH

STANDARD NO. MD 104.03-07
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

NOTES:
MINIMUM LANE WIDTHS THROUGHOUT
CHANNELIZING DEVICES AREA SHALL BE 10 FT.

THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MQ 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

END ROAD WORK
(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)
PLACE AS DIRECTED BY THE ENGINEER.

PLACE IN MIDDLE OF TANGENT IN ADVANCE OF LEFT LANE SHIFT.

OVER 2 HRS. OR NIGHTTIME USE
15 MIN-12 HRS. OR DAYTIME USE ONLY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PARTIAL ROADWAY CLOSURE/MULTILANE UNDIV.
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.03-08
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

SEE SIGN SPACING CHART (MD 104.01-02) FOR APPROPRIATE DISTANCE.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

LEFT TURN STORAGE LANE LENGTH TO BE DETERMINED BY ENGINEER.

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTER. FAR-LEFT LANE CLOSURE/ MULTILANE UNDIV. GREATER THAN 40 MPH

STANDARD NO. MD 104.03-09
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

1. THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

2. SEE SIGN SPACING CHART (MD 104.01-02) FOR APPROPRIATE DISTANCE.

3. THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

INTER. FAR-LEFT LANE CLOSURE/
MULTILANE UNDIV. EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.03-10
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER WHEN CURB EXIST.

• SEE SIGN SPACING CHART (MD 104.01-02) FOR APPROPRIATE DISTANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

END ROAD WORK (OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

KEY:

CHANNELIZING DEVICES

SIGN SUPPORT

FACE OF SIGN

DIRECTION OF TRAFFIC

WORK SITE

ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

INTER. FAR-RIGHT LANE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH

STANDARD NO. MD 104.03-11
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER WHEN CURB EXIST. * SEE SIGN SPACING CHART (MD 104.01-02) FOR APPROPRIATE DISTANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS. (OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTER. FAR-RIGHT LANE CLOSURE/MULTILANE UNDIV. EQL/LESS THAN 40 MPH

SPECIFICATION 104
CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL - SHA REVISION
APPROVAL - FEDERAL HIGHWAY ADMINISTRATION
APPROVED 9-30-99
REVIEWED 8-17-01
APPROVED 10-5-01
REVIEWED 12-20-01

STANDARD NO. MD 104.03-12
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

END ROAD WORK

NOTES:
THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.
*SEE SIGN SPACING CHART (MD 104.01-02) FOR APPROPRIATE DISTANCE.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

INTERSECTION FAR-SIDE CLOSURE/MULTILANE UNDIV. GREATER THAN 40 MPH

STANDARD NO. MD 104.03-13
TEMPorary Traffic Control Typical Application

Important:
This drawing shall be used in combination with the general notes MD 104.00-01 - MD 104.00-18 and standard details MD 104.01-01 - MD 104.01-81.

Optional for 15 Min-12 Hrs. or Daytime Applications

END ROAD WORK

Notes:
The arrow panel shall be placed as close to the beginning of the taper as possible while remaining within the taper.

There shall be a minimum of seven channelizing devices in the shoulder taper.

See sign spacing chart (MD 104.01-02) for appropriate distance.

The engineer should consider additional, adjacent lane closures when the possibility of unplanned travelway encroachments exists.

Key:
- Channelizing devices
- Sign support
- Face of sign
- Direction of traffic
- Work site
- Arrow panel

Specification: 104
Category: D53 Items

Maryland Department of Transportation
State Highway Administration
Standards for Highways and Incidental Structures

Intersection Far-Side Closure/ Multilane Undiv. EQL/less than 40 MPH

Standard No.: MD 104.03-14
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
IF THE LEAD WORK VEHICLE IS TRAVELING AT THE POSTED SPEED LIMIT OR WITHIN 5 MPH OF IT, THEN NO BACK UP VEHICLE IS NECESSARY.

IN URBAN AREAS THE DISTANCE MAINTAINED BETWEEN VEHICLES MAY BE DECREASED AS NEEDED.

IF ONLY ONE ARROW PANEL IS AVAILABLE IT SHALL OPERATE IN ARROW MODE. EXCEPT A WORK VEHICLE ON THE SHOULDER NEED ONLY DISPLAY THE ARROW PANEL IN THE 'CAUTION' MODE.

WHEN USED, THE PROTECTION VEHICLE MAY BE USED AS A SUBSTITUTE FOR THE WORK VEHICLE WHERE DIRECTED BY THE ENGINEER.

KEY:
[Diagram with symbols and descriptions]

FOR INTERMITTENT STOPS USE THIS SIGN IN ADVANCE OF CURVES WHEN NO PROTECTION VEHICLE IS AVAILABLE. THE WORK VEHICLE SHOULD NEVER BE LOCATED MORE THAN 1500' AWAY FROM THIS SIGN.
IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
WORK VEHICLE IS TRAVELING AT
THE POSTED SPEED LIMIT OR
WITHIN 15 MPH OF IT.
VEHICLE SHALL DISPLAY FLASHING
HAZARD/PARKING LIGHTS IN
FRONT AND REAR.

KEY:

[Diagram showing symbols for approved vehicle safety light and direction of traffic]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE OPERATION/MULTILANE UNDIV.
ALL SPEEDS/MOVING NORMAL

STANDARD NO. MD 104.03-16
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
MOWING OPERATIONS
MOWERS SHALL HAVE FLASHING WARNING LIGHTS MOUNTED ON THEM.
THE MOWERS AHEAD SIGN SHOULD BE USED TO WARN OF MOWING CREWS UNLESS MOWERS ARE EQUIPPED WITH TWO 360° FLASHING/ROTATING AMBER LIGHTS OR TWO 360° FLASHING DOME LIGHTS. THE DECISION SIGHT DISTANCE IS MET FOR THE RATES OF SPEED SHOWN ON STANDARD NO. MD 104.00-03, AND MOWERS WILL NOT BE TRAVELLING IN ANY OF THE FOLLOWING THREE CONDITIONS:
- WITHIN 15 FT. OF THE EDGE LINE OF THE ROADWAY OR ON THE SHOULDER
- IN THE ROADWAY ON A NARROW STRETCH OF ROADWAY OR TO GET AROUND A HIGHWAY STRUCTURE OR APPURTENANCE OR OTHER SUCH STRUCTURE
- ACROSS THE ROADWAY
MOWERS MAY NOT PROCEED MORE THAN 2 MILES AWAY FROM ADVANCE WARNING SIGNS.
MOWERS WITHIN 15 FT. OF THE EDGE LINE SHALL TRAVEL IN THE SAME DIRECTION AS ADJACENT TRAFFIC.

OTHER OPERATIONS
THE SURVEY CREW SIGN SHOULD BE USED TO WARN OF SURVEYING CREWS WORKING IN OR ADJACENT TO THE ROADWAY.
THE WORKER'S SYMBOL SIGN SHOULD BE USED TO WARN OF OTHER MOBILE OPERATIONS NOT RELATED TO MOWING OR SURVEYING ACTIVITIES, AND FOR WHICH NO MOBILE TYPICAL APPLICATION CURRENTLY EXISTS. THIS INCLUDES WORK PERFORMED BY INMATE CREWS.

PROTECTION VEHICLE SHALL BE USED IN CONFORMANCE WITH SECTION 104.4 OF THE GENERAL NOTES.

NOTES:
SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE SIGN MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.
THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE WORK OPERATION / MULTILANE UNDIV.
ALL SPEEDS

STANDARD NO. MD 104.03-17
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
DISTANCES BETWEEN VEHICLES MAY BE INCREASED OR DECREASED DEPENDING ON PAINT DRYING TIME, TERRAIN, LOCAL AREA AND OTHER FACTORS.
CONES MAY BE REQUIRED TO PROTECT WET LINES AT GRADE CROSSINGS, ETC.

KEY:
- SIGN SUPPORT FACE OF SIGN
- ARROW PANEL
- APPROVED VEHICLE SAFETY LIGHT
- DIRECTION OF TRAFFIC
- TRUCK OR TRAILER TRUCK MOUNTED ATTENUATOR (TMA/TTMA)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE MARKING OPERATION/ MULTILANE UNDIV.
ALL SPEEDS

SPECIFICATION 104
CATEGORY CODE ITEMS
APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL - SHA
APPROVAL - FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 8-30-03
REVIEW 8-30-03
APPROVAL 9-23-03
REVIEW 9-23-03
APPROVAL 7-26-18
REVIEW 7-26-18

STANDARD NO. MD 104.03-18
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
SHOULDER WORK SIGNS SHALL BE MOUNTED ON THE SIDE OF THE ROADWAY WHERE THE SHOULDER IS AFFECTED. USAGE OF SHOULDER WORK SIGNS ON THE OPPOSITE SIDE OF DIVIDED HIGHWAYS IS OPTIONAL.

SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NO. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- END ROAD WORK (OPTIONAL FOR 15 MIN.-12 HRS. OR DAYTIME APPLICATIONS)
- WORK WITHIN 15 FT. OF EDGE LINE
- EDGE LINE
- 500'
- 2' MIN.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK / DIVIDED UNCON.
GREATER THAN 40 MPH

STANDARD NO. MD 104.04-01
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-01

NOTES:
SHOULDER WORK SIGNS SHALL BE
MOUNTED ON THE SIDE OF THE
ROADWAY WHERE THE SHOULDER
IS AFFECTED. USAGE OF SHOULDER
WORK SIGNS ON THE OPPOSITE
SIDE OF DIVIDED HIGHWAYS IS
OPTIONAL.

SHOULDER CLOSED SIGNS ARE
REQUIRED IN PLACE OF SHOULDER
WORK SIGNS WHEN THE SHOULDER
IS CLOSED BY POSITIVE PROTECTION
(Temporary concrete barrier or
similar device). Refer to standard
No. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT
EDGE DROP-OFF, REFER TO
STANDARD NOS. MD 104.06-15 TO
MD 104.06-19.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCroachments exists.

KEY:

- CHANNELIZING
  - SIGN SUPPORT
  - FACE OF SIGN
  - DIRECTION
  - WORK SITE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/DIVIDED UNCON.
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.04-02
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL: ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING
DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION
OF TRAFFIC
WORK SITE
ARROW PANEL

END ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.
OR DAYTIME
APPLICATIONS)

OVER 12 HRS.
OR NIGHTTIME USE

LEFT LANE CLOSED
1500 FT

LEFT LANE CLOSED
1/2 MILE

ROAD WORK
1/2 MILE

15 MIN-12 HRS.
OR DAYTIME USE ONLY

1/2 MILE
700'
OVER 12 HRS.
OR NIGHTTIME USE

LEFT LANE CLOSED
1500 FT

LEFT LANE CLOSED
1/2 MILE

ROAD WORK
1/2 MILE

1/2 MILE
700'
1100'
800'
500'

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LEFT LANE CLOSURE/DIVIDED UNCON.
GREATER THAN 40 MPH

STANDARD NO. MD 104.04-03
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

END ROAD WORK
(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- ARROW PANEL
- WORK SITE

OVER 12 HRS. OR NIGHTTIME USE

LEFT LANE CLOSED 1000 FT
LEFT LANE CLOSED 1500 FT
ROAD WORK 1/2 MILE

15 MIN-12 HRS. OR DAYTIME USE ONLY

LEFT LANE CLOSED 1000 FT
LEFT LANE CLOSED 1500 FT
ROAD WORK 1/2 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

LEFT LANE CLOSURE/DIVIDED UNCON.
EQ/L/LESS THAN 40 MPH

STANDARD NO. MD 104.04-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

END ROAD WORK
(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

OVER 12 HRS. OR NIGHTTIME USE

15 MIN-12 HRS. OR DAYTIME USE ONLY

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
RIGHT LANE CLOSURE/DIVIDED UNCON.
GREATER THAN 40 MPH

STANDARD NO. MD 104.04-05
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES WD 104.00-01 - WD 104.00-18 AND
STANDARD DETAILS WD 104.01-01 - WD 104.01-81

NOTE:
THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL - ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:

CHANNELIZING
DEVICES

SIGN SUPPORT
FACE OF SIGN

DIRECTION
OF TRAFFIC

WORK SITE

ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

RIGHT LANE CLOSURE / DIVIDED UNCON.
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.04-06
TEMPERARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-61

NOTE:
THIS TYPICAL APPLICATION SHOULD
GENERALLY BE USED ONLY WHEN
WORKERS ARE NOT PRESENT IN
THE CENTER LANE. WHEN WORKERS
ARE PRESENT IN THE CENTER LANE,
EITHER TEMPORARY TRAFFIC BARRIER
OR A TWO-LANE CLOSURE SHOULD
BE USED TO CLOSE THE CENTER LANE. 16' MIN.
SEE STANDARD NO. MD 104.04-09).

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TATER.

SUPPLEMENTARY SIGNS MAY BE MOUNTED
ON PORTABLE SIGN STANDS USING ADDITIONAL
BRACKETS OBTAINED FROM THE STAND
MANUFACTURER. SUPPLEMENTARY SIGNS SHALL
NOT COVER ANY PART OF THE FACE OF THE PRIMARY
SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL,
ADJACENT LANE CLOSURES WHEN THE
POSSIBILITY OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL (WITH DIRECTIONAL ARROW)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CENTER LANE CLOSURE / DIVIDED UNCON.
GREATER THAN 40 MPH

STANDARD NO. MD 104.04-07
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
THIS TYPICAL APPLICATION SHOULD
GENERALLY BE USED ONLY WHEN
WORKERS ARE NOT PRESENT IN
THE CENTER LANE. WHEN WORKERS
ARE PRESENT IN THE CENTER LANE,
EITHER TEMPORARY TRAFFIC BARRIER
OR A TWO-LANE CLOSURE SHOULD
BE USED TO CLOSE THE CENTER LANE.
(SEE STANDARD NO. MD 104.04-10).

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

SUPPLEMENTARY SIGNS MAY BE MOUNTED
ON PORTABLE SIGN STANDS USING ADDITIONAL
BRACKETS OBTAINED FROM THE STAND
MANUFACTURER. SUPPLEMENTARY SIGNS
SHALL NOT COVER ANY PART OF THE FACE
OF THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE
ARROW PANEL (WITH DIRECTIONAL ARROW)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CENTER LANE CLOSURE / DIVIDED UNCON.
EQL / LESS THAN 40 MPH
STANDARD NO. MD 104.04-08
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTE:
FOR THE TYPICAL 2 LEFT LANES CLOSURE THE CHANNELIZING DEVICES SHALL BE SET UP SYMMETRICALLY TO THE 2 RIGHT LANES CLOSURE SETUP AND THE SIGNING SHALL REFLECT THE 2 LEFT LANES CLOSURE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

END ROAD WORK

OPTIONAL FOR 15 MIN.-12 HRS. OR DAYTIME APPLICATIONS)

60"x60" SIGN SIZE
OVER 12 HRS. OR NIGHTTIME USE
15 MIN.-12 HRS. OR DAYTIME USE ONLY

2 RIGHT LANES CLOSED
1500 FT
ROAD WORK
1/2 MILE
2 RIGHT LANES CLOSED
1/2 MILE
ROAD WORK
1 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

2 RIGHT (LEFT) LANES CLOSURE/
DIVIDED UNCON./GREATER THAN 40 MPH

STANDARD NO.
MD 104.04-09
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
FOR THE TYPICAL 2 LEFT LANES
CLOSURE THE CHANNELIZING
DEVICES SHALL BE SET UP
SYMMETRICALLY TO THE 2
RIGHT LANES CLOSURE
SETUP AND THE SIGNING
SHALL REFLECT THE
2 LEFT LANES CLOSURE.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
[Diagram with symbols and dimensions]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

2 RIGHT (LEFT) LANES CLOSURE/
DIVIDED UNCON./EQ/L/LESS THAN 40 MPH

STANDARD NO. MD 104.04-10
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-B1

SIMILAR SIGNING FOR THE OPPOSITE APPROACH SHALL BE PLACED, EXCEPT SIGN MESSAGES SHALL REFLECT THE LEFT LANE CLOSURE SETUP.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

KEY:

- APPROVED BARRIER
- CRASH CUSHION
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- TYPE III BARRICADE
- ARROW PANEL (WITH DIRECTIONAL ARROW)

NOTES:
INSTALL TEMPORARY CRASH CUSHIONS AT THE END OF THE BARRIERS. SEE STANDARD MD 104.01-23A & 23B FOR ADDITIONAL PROTECTION OF BARRIER END TREATMENT.

MINIMUM LANE WIDTH THROUGHOUT CHANNELIZING DEVICES AREA SHALL BE 10 FT.

WHEN BARRIER IS CONTINUOUS THROUGHOUT TANGENT SECTION, SIGNS R5-1, R4-1&T, W6-3, ARE NOT NECESSARY.

TEMPORARY STRIPING SHALL BE USED AS DELINEATION FOR THE NEW TRAVEL PATH.

THE ARROW PANELS SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THE NUMBER OF SIGNS AND PLACEMENT OF SIGNS THROUGHOUT 2-LANE, 2-WAY SECTION SHALL BE DETERMINED BY THE ENGINEER.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADWAY CLOSURE/_DIVIDED UNCON.
GREATER THAN 40 MPH/OVER 12 HRS.
OR NIGHTTIME USE

STANDARD NO. MD 104.04-11
IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES WD 104.00-01 - WD 104.00-18 AND
STANDARD DETAILS WD 104.01-01 -
WD 104.01-81

SIMILAR SIGNING FOR THE OPPOSITE APPROACH SHALL BE PLACED, EXCEPT SIGN MESSAGES SHALL REFLECT LEFT LANE CLOSURE SETUP.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

NOTES:
INSTALL TEMPORARY CRASH CUSHIONS AT THE END OF THE BARRIERS.
SEE STANDARD NO. MD 104.01-23A & 23B FOR ADDITIONAL PROTECTION OF BARRIER END TREATMENT.

MINIMUM LANE WIDTH THROUGHOUT CHANNELIZING DEVICES AREA SHALL BE 10 FT.

WHEN BARRIER IS CONTINUOUS THROUGHOUT TANGENT SECTION, SIGNS R5-1, R4-187, W6-3, ARE NOT NECESSARY.

TEMPORARY STRIPING SHALL BE USED AS DELINEATION FOR THE NEW TRAVEL PATH.
THE ARROW PANELS SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.
THE NUMBER OF SIGNS AND PLACEMENT OF SIGNS THROUGHOUT 2-LANE, 2-WAY SECTION SHALL BE DETERMINED BY THE ENGINEER.

KEY:
- APPROVED BARRIER
- CRASH CUSHION
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- TYPE III BARRICADE
- ARROW PANEL (WITH DIRECTIONAL ARROW)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADWAY CLOSURE/DIVIDED UNCON.
EQ/LT LESS THAN 40 MPH/OVER 12 HRS.
OR NIGHTTIME USE

STANDARD NO. MD 104.04-12
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THIS DRAWING DOES NOT APPLY WHERE THE LEFT-TURN MOVEMENT IS CONTROLLED BY OPTICALLY-PROGRAMMED HEADS. IN SUCH CASES, LEFT TURNS MUST BE PROHIBITED FOR THE DURATION OF THE TURN LANE CLOSURE AND A DETOUR POSTED.

WHEN, AS DIRECTED BY THE ENGINEER, IT IS FEASIBLE/DESIRABLE TO USE THE LEFT THROUGH LANE AS A SHARED LANE FOR LEFT & THROUGH VEHICLES, ELIMINATE THE LANE REDUCTION SIGNS AND REPLACE THE "LEFT TURN LANE" SIGN WITH A "LEFT TURN VEHICLES" WARNING SIGN WITH AN "IN LEFT LANE" SUPPLEMENTAL PLATE. THIS OPTION SHALL NOT BE USED WHERE THE PERMANENT TURN LANE OPERATES WITH EXCLUSIVE LEFT-TURN PHASING OR WHERE SIGHT DISTANCE FOR LEFT-TURNING VEHICLES IS LESS THAN AASHTO CRITERIA (REFER TO EXHIBIT 9-67 IN "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS").

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

(OPTIONAL FOR 15 MIN-12 HRS. OR DAYTIME APPLICATIONS)

OVER 12 HRS. OR NIGHTIME USE

15 MIN-12 HRS. OR DAYTIME USE ONLY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

LEFT TURN BAY CLOSURE / DIVIDED UNCON.
GREATER THAN 40 MPH

STANDARD NO. MD 104.04-13
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

THE ARROW PANEL SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THIS DRAWING DOES NOT APPLY WHERE THE LEFT-TURN MOVEMENT IS CONTROLLED BY OPTICALLY-PROGRAMMED HEADS, IN SUCH CASES, LEFT TURNS MUST BE PROHIBITED FOR THE DURATION OF THE TURN LANE CLOSURE AND A DETOUR POSTED.

WHEN, AS DIRECTED BY THE ENGINEER, IT IS FEASIBLE/DESIRABLE TO USE THE LEFT THROUGH LANE AS A SHARED LANE FOR LEFT & THROUGH VEHICLES, ELIMINATE THE LANE REDUCTION SIGNS AND REPLACE THE "LEFT TURN LANE" SIGN WITH A "LEFT TURNING VEHICLES" WARNING SIGN WITH AN "IN LEFT LANE" SUPPLEMENTAL PLATE. THIS OPTION SHALL NOT BE USED WHERE THE PERMANENT TURN LANE OPERATES WITH EXCLUSIVE LEFT-TURN PHASING OR WHERE SIGHT DISTANCE FOR LEFT-TURNING VEHICLES IS LESS THAN AASHO CRITERIA (REFER TO EXHIBIT 5-56 IN "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS").

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

LEFT-TURN BAY CLOSURE / DIVIDED UNCON.
EQL/LESS THAN 40 MPH

STANDARD NO.  MD 104.04-14
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

END ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

END ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

ROAD WORK
(OPTIONAL FOR
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

15 MIN-12 HRS., OR DAYTIME USE ONLY

OVER 12 HRS., OR NIGHTTIME USE

SEE SIGN SPACING CHART
(MD 104.01-02) FOR APPROPRIATE
DISTANCE.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

(Optional for
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

NOTE:
The arrow panel shall be placed as close to
the beginning of the taper as possible while
remaining within the taper.

The engineer should consider additional,
adjacent lane closures when the possibility
of unplanned travelway encroachments exists.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

INTER. (LEFT LANE, TURN BAY) CLOSURE/
DIVIDED UNCON. GREATER THAN 40 MPH

STANDARD NO.
MD 104.04-15
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

15 MIN-12 HRS.,
OR DAYTIME USE ONLY

OVER 12 HRS.,
OR NIGHTTIME USE

END ROAD WORK
(OPTIONAL FOR 15 MIN-12 HRS.,
OR DAYTIME APPLICATIONS)

SEE SIGN SPACING CHART
(MD 104.01-02) FOR APPROPRIATE DISTANCE.

NOTE:
THE ARROW PANEL SHALL BE PLACED AS
CLOSE TO THE BEGINNING OF THE TAPER AS
POSSIBLE WHILE REMAINING WITHIN THE TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL,
ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF
UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

CHANNELIZING DEVICES

SIGN SUPPORT
FACE OF SIGN

DIRECTION OF TRAFFIC

WORK SITE

ARROW PANEL
(OPTIONAL FOR 15 MIN-12 HRS.,
OR DAYTIME APPLICATIONS)

THIS SET OF CHANNELIZING DEVICES
SHALL BE TYPICALLY SPACED AT 25 FT.
INTERVALS FOR LEFT TURN BAYS LESS
THAN 200 FT. AND 40 FT. INTERVALS
WHEN GREATER THAN 200 FEET.

LEFT TURN LANE

OVER 12 HRS.,
OR NIGHTTIME USE

LEFT LANE CLOSED
1000 FT

LEFT LANE CLOSED
500 FT

ROAD WORK
1/2 MILE

LEFT LANE CLOSED
1000 FT

LEFT LANE CLOSED
5000 FT

ROAD WORK
500 FT

15 MIN-12 HRS.,
OR DAYTIME USE ONLY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTER. (LEFT LANE, TURN BAY) CLOSURE/ DIVIDED UNCON. EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.04-16
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-01

NOTES:
IF THE LEAD WORK VEHICLE IS TRAVELING AT THE POSTED SPEED LIMIT OR WITHIN 15 MPH OF IT, THEN NO BACK UP VEHICLE IS NECESSARY.

IN URBAN AREAS THE DISTANCE MAINTAINED BETWEEN VEHICLES MAY BE DECREASED AS NEEDED.

IF ONLY ONE ARROW PANEL IS AVAILABLE IT SHALL OPERATE IN ARROW MODE, EXCEPT A WORK VEHICLE ON THE SHOULDER NEED ONLY DISPLAY THE ARROW PANEL IN THE 'CAUTION' MODE.

WHEN USED, THE PROTECTION VEHICLE MAY BE USED AS A SUBSTITUTE FOR THE WORK VEHICLE WHERE DIRECTED BY THE ENGINEER.

KEY:
- SIGN SUPPORT
- SIGN FACE
- ARROW PANEL
- APPROVED VEHICLE SAFETY LIGHT
- DIRECTION OF TRAFFIC
- TRUCK OR TRAILER-MOUNTED ATTENUATOR (TMA/TIMA)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE OPERATIONS
DIVIDED UNCON. OR EXP-FREeways
ALL SPEEDS/O-15 MIN., AND MOVING SLOW
STANDARD NO. MD 104.04-17

FOR INTERMITTENT STOPS, USE THESE SIGNS IN ADVANCE OF CURVES WHEN NO PROTECTION VEHICLE IS AVAILABLE. THE WORK VEHICLE SHOULD NEVER BE MORE THAN 1500' AWAY FROM THIS SIGN ON DIVIDED UNCONTROLLED ROADWAYS, AND NEVER MORE THAN 1/2 MILE AWAY FROM THIS SIGN ON EXP-FREeways.
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-1B AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
WORK VEHICLE IS TRAVELING AT
THE POSTED SPEED LIMIT OR
WITHIN 15 MPH OF IT.
VEHICLE SHALL DISPLAY FLASHING
HAZARD/PARKING LIGHTS IN
FRONT AND REAR.

KEY:

APPROVED VEHICLE
SAFETY LIGHT

DIRECTION OF
TRAFFIC

WORK VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE OPERATION
DIVIDED UNCON. OR EXP-FREeway
ALL SPEEDS/MOVING NORMAL

SPECIFICATION 104
CATEGORY CODE ITEMS

APPROVED
DIRECTION - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway
Administrator

APPROVAL: SHA 6-30-89
APPROVAL: FEDERAL
HIGHWAY ADMINISTRATION 6-30-89
REVIEWED 6-11-89
REVIEWED 7-20-89

STANDARD NO. MD 104.04-1B
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

MOWING OPERATIONS

MOWERS SHALL HAVE FLASHING WARNING LIGHTS MOUNTED ON THEM.

THE MOWERS AHEAD SIGN SHOULD BE USED TO WARN OF MOWING CREWS UNLESS MOWERS ARE EQUIPPED WITH TWO 360° FLASHING/ROTATING AMBER LIGHTS OR TWO 360° FLASHING DOME LIGHTS. THE DECISION SIGHT DISTANCE IS MET FOR THE RATES OF SPEED SHOWN ON STANDARD NO. MD 104.00-03, AND MOWERS WILL NOT BE TRAVELLING IN ANY OF THE FOLLOWING THREE CONDITIONS:

- WITHIN 15 FT. OF THE EDGE LINE OF THE ROADWAY OR ON THE SHOULDER

- IN THE ROADWAY ON A NARROW STRETCH OF ROADWAY OR TO GET AROUND A HIGHWAY STRUCTURE OR APPURTENANCE OR OTHER SUCH STRUCTURE

- ACROSS THE ROADWAY

MOWERS MAY NOT PROCEED MORE THAN 2 MILES AWAY FROM ADVANCE WARNING SIGNALS.

MOWERS WITHIN 15 FT. OF THE EDGE LINE SHALL TRAVEL IN THE SAME DIRECTION AS ADJACENT TRAFFIC.

IF MOWING MACHINE WITHIN MEDIAN IS LOCATED GREATER THAN 15 FT. AWAY FROM EDGE LINE OF ONE ROADWAY, SIGNS FOR THAT ROADWAY ARE UNNECESSARY.

OTHER OPERATIONS

THE SURVEY CREW SIGN SHOULD BE USED TO WARN OF SURVEYING CREWS WORKING IN OR ADJACENT TO THE ROADWAY.

THE WORKERS SYMBOL SIGN SHOULD BE USED TO WARN OF OTHER MOBILE OPERATIONS NOT RELATED TO MOWING OR SURVEYING ACTIVITIES, AND FOR WHICH NO MOBILE TYPICAL APPLICATION CURRENTLY EXISTS. THIS INCLUDES WORK PERFORMED BY INMATE CREWS.

IF SURVEYING OR OTHER MOBILE OPERATION WITHIN MEDIAN IS LOCATED GREATER THAN 15 FT. AWAY FROM EDGE LINE OF ONE ROADWAY (INCLUDING ALL EQUIPMENT AND VEHICLES), SIGNS FOR THAT ROADWAY ARE UNNECESSARY.

KEY:

- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- PROTECTION VEHICLE SHALL BE USED IN CONFORMANCE WITH SECTION 10.4 OF THE GENERAL NOTES.

NOTES:

SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE STAND MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE WORK OPERATION
DIVIDED UNCON. OR EXP-FREeway
ALL SPEEDS

STANDARD NO.
MD 104.04-19
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTES:
DISTANCES BETWEEN VEHICLES MAY BE INCREASED OR DECREASED DEPENDING ON PAINT DRYING TIME, TERRAIN, LOCAL AREA AND OTHER FACTORS.

CONES MAY BE REQUIRED TO PROTECT WET LINES AT GRADE CROSSINGS, ETC.

KEY:
- SIGN SUPPORT FACE OF SIGN
- ARROW PANEL
- APPROVED VEHICLE SAFETY LIGHT
- DIRECTION OF TRAFFIC
- TRUCK OR TRAILER-TRUCK MOUNTED ATTENUATOR (TMA/TTMA)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE MARKING OPERATION/
DIVIDED UNCON.
ALL SPEEDS

STANDARD NO. MD 104.04-20
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
SHOULDER WORK SIGNS SHALL BE
MOUNTED ON THE SIDE OF THE ROADWAY
WHERE THE SHOULDER IS AFFECTED.
USAGE OF SHOULDER WORK SIGNS ON
THE OPPOSITE SIDE OF DIVIDED
HIGHWAYS IS OPTIONAL.

SHOULDER CLOSED SIGNS ARE REQUIRED
IN PLACE OF SHOULDER WORK SIGNS
WHEN THE SHOULDER IS CLOSED BY
POSITIVE PROTECTION (TEMPORARY
CONCRETE BARRIER OR SIMILAR DEVICE).
REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT
EDGE DROP-OFF, REFER TO
STANDARD NO. MD 104.06-15 TO
MD 104.06-19.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULD WORK /EXP-FREeway
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-01
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-61

NOTES:
SHOULDER WORK SIGNS SHALL BE
MOUNTED ON THE SIDE OF THE
ROADWAY WHERE THE SHOULDER IS
AFFECTED. USAGE OF SHOULDER
WORK SIGNS ON THE OPPOSITE SIDE
OF DIVIDED HIGHWAYS IS OPTIONAL.

SHOULDER CLOSED SIGNS ARE
REQUIRED IN PLACE OF SHOULDER
WORK SIGNS WHEN THE SHOULDER
IS CLOSED BY POSITIVE PROTECTION
(Temporary concrete barrier or
similar device). Refer to standard
No. MD 104.06-18.

WHEN WORK INVOLES A PAVEMENT
EDGE DROP-OFF, REFER TO
STANDARD NO. MD 104.06-15 TO
MD 104.06-19.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:

CHANNELIZING
DEVICES

SIGN SUPPORT
FACE OF SIGN

DIRECTION
OF TRAFFIC

WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/EXP-FREeway
EQI/LESS THAN 40 MPH

STANDARD NO. MD 104.05-02
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-61

NOTES:
THIS TYPICAL ALSO APPLIES TO
DIVIDED UNCONTROLLED HIGHWAYS
EXCEPT AS OTHERWISE STATED
IN THE GENERAL NOTES.

THE 'BEGIN AND END SHOULDER USE'
SIGNS SHOULD BE OMITTED WHEN THE
SHOULDER CANNOT BE DIFFERENTIATED
FROM THE NORMAL TRAVEL PATH.

THERE SHALL BE A MINIMUM OF SEVEN
CHANNELIZING DEVICES IN THE SHOULD
TAPER.

REFER TO MD 104.01-27 FOR GUIDANCE
ON PAVEMENT MARKINGS THROUGH
LANE SHIFTS.

THIS TYPICAL SHALL BE USED FOR
ANY LANE SHIFT WHICH SATISFIES
EITHER CONDITION 'A' OR 'B'.

- CONDITION 'A':
LANE SHIFT IS 'ABRUPT' -
SHIFT HAS A TAPER LENGTH
LESS THAN THE VALUE
SPECIFIED IN THE TAPER
LENGTH CRITERIA TABLE
(REFER TO MD 104.01-90)

- CONDITION 'B':
PREVAILING SPEEDS CANNOT BE
MAINTAINED THROUGH THE SHIFT.

FOR LANE SHIFTS WHICH DO
NOT SATISFY ABOVE CONDITIONS:

- DELETE 'REVERSE CURVE'
WARNING SIGNS, AND

- REPLACE 'LANE SHIFT' SIGNS
WITH 'ROAD WORK XXX' SIGNS
OR OTHER APPROPRIATE SIGNS
AS SHOWN IN TEMPORARY
TRAFFIC CONTROL TYPICAL
APPLICATIONS.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADWAY SHIFT/EXP-FREEWAY
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-03
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

END ROAD WORK
(OPTIONAL FOR 15 MIN.-12 HRS. OR DAYTIME APPLICATIONS)

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

NOTES:
THIS TYPICAL ALSO APPLIES TO 1/3 L
DIVIDED UNCONTROLLED HIGHWAYS, SHOULDER
EXCEPT AS OTHERWISE STATED IN GENERAL NOTES.

SYMBOL SIGNS TO REFLECT ACTUAL NUMBER OF THROUGH LANES, USE RECTANGULAR SHAPED SIGNS FOR THREE OR MORE DIVIDED THROUGH LANES.
THE "BEGIN AND END SHOULDER USE" SIGNS SHOULD BE OMITTED WHEN THE SHOULDER CANNOT BE DIFFERENTIATED FROM THE NORMAL TRAVEL PATH.

THIS TYPICAL APPLICATION SHOULD GENERALLY BE USED ONLY WHEN WORKERS ARE NOT PRESENT IN THE RIGHT LANE, WHEN WORKERS ARE PRESENT IN THE RIGHT LANE, EITHER TEMPORARY TRAFFIC BARRIER SHOULD BE USED TO MAINTAIN TWO LANES OR A RIGHT LANE CLOSURE SHOULD BE USED TO MAINTAIN ONE LANE (SEE STANDARD NO. MD 104.05-07).

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.
SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE STAND MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANES DIVIDE/EXP-FREeway
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
THIS TYPICAL ALSO APPLIES TO
DIVIDED UNCONTROLLED HIGHWAYS,
EXCEPT AS OTHERWISE STATED
IN GENERAL NOTES.

SYMBOGRAPHY SIGNS TO REFLECT ACTUAL
NUMBER OF THROUGH LANES.

*WHEN LANES WILL NOT BE DIVIDED
IN SUBSEQUENT WORK PHASES, USE
THE * I-48/LI SIGNS IN LIEU OF
SIGNS SHOWN WITH ASTERISK (*).

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

REFER TO MD 104.01-27 FOR GUIDANCE
ON PAVEMENT MARKINGS THROUGH
LANE SHIFTS.

*THIS TYPICAL SHALL BE USED FOR
ANY LANE SHIFT WHICH SATISFIES
EITHER CONDITION 'A' OR 'B'.

 CONDITION 'A':
LANE SHIFT IS "ABRUPT" -
SHIFT HAS A TAPER LENGTH
LESS THAN THE VALUE
SPECIFIED IN THE TAPER
LENGTH CRITERIA TABLE
REFER TO MD 104.01-80

 CONDITION 'B':
PREVAILING SPEEDS CANNOT BE
MAINTAINED THROUGH THE SHIFT.

*FOR LANE SHIFTS WHICH DO
NOT SATISFY ABOVE CONDITIONS;

*DELETE "REVERSE CURVE"
WARNING SIGNS, AND

*REPLACE "LANE SHIFT" SIGNS
WITH "ROAD WORK XXX" SIGNS
OR OTHER APPROPRIATE SIGNS
AS SHOWN IN TEMPORARY
TRAFFIC CONTROL TYPICAL
APPLICATIONS.

KEY:

- APPROVED BARRIER
- CRASH CUSHIONS
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- OBJECT MARKER

SEE STANDARD NO. MD 104.01-27
FOR GUIDANCE ON PAVEMENT
MARKINGS THROUGHOUT
ALTERED TRAVELWAY AND FOR
PLACEMENT OF TEMPORARY
RAISED PAVEMENT MARKERS
AND OTHER CHANNELIZING
DEVICES. CHANNELIZING DEVICES
MAY BE USED TO DELINEATE BOTH
EDGES OF THE TRAVELWAY, IF
APPROVED BY THE ENGINEER.

SUPPLEMENTARY SIGNS MAY BE
MOUNTED ON PORTABLE SIGN STANDS
USING ADDITIONAL BRACKETS OBTAINED
FROM THE STAND MANUFACTURER.
SUPPLEMENTARY SIGNS SHALL NOT
COVER ANY PART OF THE FACE OF
THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT/EXP-FREeway
GREATER THAN 40 MPH/12 HRS.
OR NIGHTTIME USE

STANDARD NO. MD 104.05-05
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

**KEY:**
- Approved Barrier
- Crash Cushions
- Channelizing Devices
- Sign Support
- Face of Sign
- Direction of Traffic
- Work Site
- Arrow Panel (with Directional Arrow)
- Object Marker

**NOTES:**
This typical also applies to divided uncontrolled highways, except as otherwise stated in general notes.

Symbol signs to reflect actual number of through lanes.

**SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE SIGN MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.**

**THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.**

**END ROAD WORK**

**TEMPORARY STRIPING**

**TEMPORARY STRIPING ON APPROACH AND THROUGHOUT ALTERED TRAVELWAY AS DIRECTED BY THE ENGINEER.**

**LANES DIVIDE / EXP-FREeway / GREATER THAN 40 MPH / OVER 12 HRS. OR NIGHTTIME USE**

**STANDARD NO.**
MD 104.05-06
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES WD 104.00-01 - WD 104.00-18 AND STANDARD DETAILS WD 104.01-01 - WD 104.01-81

NOTE:
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

RIGHT LANE CLOSURE/EXP–FREeway
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-07
IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
FOR THE TYPICAL 2 LEFT LANES
CLOSURE THE CHANNELIZING
DEVICES SHALL BE SET UP
SYMMETRICALLY TO THE 2
RIGHT LANES CLOSURE
SETUP AND THE SIGNING
SHALL REFLECT THE
2 LEFT LANES CLOSURE.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

**END ROAD WORK** (OPTIONAL FOR
15 MIN-12 HRS.,
OR DAYTIME
APPLICATIONS)

*60"x60" SIGN SIZE

OVER 12 HRS.,
OR NIGHTTIME USE

15 MIN-12 HRS.,
OR DAYTIME USE ONLY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

2 RIGHT (LEFT) LANES CLOSURE/EXP-FREeway
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-09
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
THIS TYPICAL APPLICATION SHOULD
GENERALLY BE USED ONLY WHEN
WORKERS ARE NOT PRESENT IN
THE CENTER LANE, WHEN WORKERS
ARE PRESENT IN THE CENTER LANE,
EITHER TEMPORARY TRAFFIC BARRIER
OR A TWO-LANE CLOSURE SHOULD BE
USED TO CLOSE THE CENTER LANE.
(SEE STANDARD NO. MD 104.05-03)

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

SUPPLEMENTARY SIGNS MAY BE
MOUNTED ON PORTABLE SIGN STANDS
USING ADDITIONAL BRACKETS OBTAINED
FROM THE STAND MANUFACTURER.
SUPPLEMENTARY SIGNS SHALL NOT
COVER ANY PART OF THE FACE OF
THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE
ARROW PANEL (WITH
DIRECTIONAL ARROW)

OVER 12 HRS.,
OR NIGHTTIME USE

STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CENTER LANE CLOSURE/EXP-FREEWAY
GREATER THAN 40 MPH

MARYLAND DEPARTMENT OF TRANSPORTATION
STANDARD NO. MD 104.05-10
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
IN THE VICINITY OF RIGHT HAND RAMPS,
IMPLEMENT THE 3 LEFT LANE'S CLOSURE
SET UP FIRST IN LIEU OF THIS SET UP
WHEN BOTH SET UPS ARE NECESSARY.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
■ ■ CHANNELIZING DEVICES

SIGN SUPPORT
FACE OF SIGN

DIRECTION OF TRAFFIC

WORK SITE

ARROW PANEL

PORTABLE VARIABLE MESSAGE SIGN

60' X 60'

3 RIGHT LANE CLOSURES
1/4 MILE

3 RIGHT LANE CLOSURES
1,500 FT

60' X 60'

ROAD WORK

MILE

MESSAGE AND PLACEMENT TO
BE DETERMINED BY ADE-T

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
3 RIGHT LANE'S CLOSURES/EXP-FREeway
GREATER THAN 40 MPH/OVER 12 HRS.
OR NIGHTTIME USE

STANDARD NO. MD 104.05-11

SPECIFICATION 104
CATEGORY CODE ITEMS

APPROVAL
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL - SHA
REVIEWED
APPROVAL - FEDERAL
HIGHWAY ADMINISTRATION

REVIEWED

REVIEWED

REVIEWED

REVIEWED
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTE:
IN THE VICINITY OF RIGHT HAND RAMPS, IMPLEMENT THIS TEMPORARY TRAFFIC CONTROL CLOSURE SET UP FIRST IN LIEU OF THE RIGHT LANES CLOSURE SET UP WHEN BOTH SET UPS ARE NECESSARY.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- PORTABLE VARIABLE MESSAGE SIGN

1/3 L SHOULDER TAPER

MESSAGE AND PLACEMENT TO BE DETERMINED BY ADE-T.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
3 LEFT LANES CLOSURE/EXP-FREeway GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.05-12
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAIL MD 104.01-01 - MD 104.01-81.

NOTES:
CHANNELIZING DEVICES ARE TYPICALLY SPACED AT 25 FOOT INTERVALS MAXIMUM IN THE IMMEDIATE AREA OF THE ENTRANCE POINT IN ORDER TO CLEARLY DEFINE THE TEMPORARY ENTRANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

* THE YIELD, YIELD AHEAD AND NO MERGE AREA SIGNS SHALL BE INSTALLED AS DETERMINED BY MD 104.01-31.

THE YIELD SIGN(S), WITH THE APPROVAL OF THE ADE-T, SHALL BE REPLACED WITH STOP SIGN(S) ON THE RIGHT SIDE (BOTH SIDES) OF THE APPROACH, IF NO ACCELERATION LANE EXISTS FOR TEMPORARY ENTRANCE. ALSO, A TEMPORARY STOP LINE SHALL BE PLACED ACROSS THE RAMP AT THE DESIRED STOP LOCATION AS DETERMINED BY THE ENGINEER.

** WORD MESSAGES MAY BE USED AS ALTERNATIVES TO THE ADVANCE TRAFFIC CONTROL SYMBOL SIGNS

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
AUXILIARY LANE CLOSURE / EXP-FREeways
AT EXIT AND ENTRANCE RAMPS
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-13
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
This drawing shall be used in combination with the general notes MD 104.00-01 - MD 104.00-18 and standard details MD 104.01-01 - MD 104.01-81.

NOTES:
Channelizing devices are typically spaced at 25 foot intervals maximum in the immediate area of the entrance point in order to clearly define the temporary entrance.

There shall be a minimum of seven channelizing devices in the shoulder taper.

* The yield, yield ahead and no merge area signs shall be installed as determined by MD 104.01-31.

The yield signs, with the approval of the ADE-T, shall be replaced with stop signs on the right side (both sides) of the approach, if no acceleration lane exists for temporary entrance. Also, a temporary stop line shall be placed across the ramp at the desired stop location as determined by the engineer.

** Word messages may be used as alternatives to the advance traffic control symbol signs.

The engineer should consider additional, adjacent lane closures when the possibility of unplanned travelway encroachments exists.

KEY:
- Channelizing devices
- Sign support
- Face of sign
- Direction of traffic
- Work site
- Arrow panel

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
RIGHT LANE CLOSURE /EXP-FREeway
AT EXIT AND ENTRANCE Ramps
GREATER THAN 40 MPH
STANDARD NO. MD 104.05-14
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARDS DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
CHANNELIZING DEVICES ARE TYPICALLY SPACED AT 25 FOOT INTERVALS MAXIMUM IN THE IMMEDIATE AREA OF THE ENTRANCE POINT IN ORDER TO CLEARLY DEFINE THE TEMPORARY ENTRANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

* THE YIELD, YIELD AHEAD AND NO MERGE AREA SIGNS SHALL BE INSTALLED AS DETERMINED BY MD 104.01-31.

THE YIELD SIGN(S), WITH THE APPROVAL OF THE ADH, SHALL BE REPLACED WITH STOP SIGN(S) ON THE RIGHT SIDE (BOTH SIDES) OF THE APPROACH, IF NO ACCELERATION LANE EXISTS FOR TEMPORARY ENTRANCE. ALSO, A TEMPORARY STOP LINE SHALL BE PLACED ACROSS THE RAMP AT THE DESIRED STOP LOCATION AS DETERMINED BY THE ENGINEER.

** WORD MESSAGES MAY BE USED AS ALTERNATES TO THE ADVANCE TRAFFIC CONTROL SYMBOL SIGNS.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

---

15 MIN.-12 HRS. OR DAYTIME USE ONLY

OVER 12 HRS. OR NIGHTTIME USE

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

ENTRANCE RAMP TREATMENT/EXP.-FREEWAY GREATER THAN 40 MPH

STANDARD NO. MD 104.05-15
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTE:
CHANNELIZING DEVICES ARE TYPICALLY SPACED AT 25 FOOT INTERVALS MAXIMUM IN THE IMMEDIATE AREA OF THE ENTRANCE POINT IN ORDER TO CLEARLY DEFINE THE TEMPORARY ENTRANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
■ ■  CHANNELIZING DEVICES
-  SIGN SUPPORT
- -  FACE OF SIGN
↑  DIRECTION OF TRAFFIC
-  WORK SITE
○○○  ARROW PANEL

15 MIN.-12 HRS., OR DAYTIME USE ONLY

RIGHT LANE CLOSED 1/8 MILE

1/8 MILE

ROAD WORK 1 MILE

1000'

1600'

OVER 12 HRS., OR NIGHTTIME USE

RIGHT LANE CLOSED 1500 FT

1/4 MILE

RIGHT LANE CLOSED 1/2 MILE

ROAD WORK 1 MILE

1000'

500'

500'

500'

500'

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

ENTRANCE RAMP TREATMENT/EXP-FREeway GREATER THAN 40 MPH

STANDARD NO. MD 104.05-16
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
FOR THE TYPICAL 2 LEFT LINES CLOSURE
THE CHANNELIZING DEVICES SHALL BE SET UP
SYMMETRICALLY TO THE 2 RIGHT LINES CLOSURE
SETUP AND THE SIGNING SHALL REFLECT THE 2 LEFT
LANES CLOSURE, RAMP SIGNING REMAINS THE SAME.

CHANNELIZING DEVICES ARE TYPICALLY SPACED AT
25 FOOT INTERVALS MAXIMUM IN THE IMMEDIATE AREA
OF THE ENTRANCE POINT IN ORDER TO CLEARLY
DEFINE THE TEMPORARY ENTRANCE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING
DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT
LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED
TRAVELWAY ENCROACHMENTS EXISTS.

60' x 60' SIGN SIZE

15 MIN.-1/2 HRS., OR
DAYTIME USE ONLY

OVER 1/2 HRS., OR
NIGHTTIME USE

2 RIGHT LINES CLOSED
1/2 MILE

ROAD WORK 1 MILE

1/2 MILE

500'

NEW TEMPORARY EDGE LINE

END ROAD WORK

(OPTIONAL FOR
15 MIN.-1/2 HRS,
OR DAYTIME
APPLICATIONS)

KEY:

CHANNELIZING DEVICES

SIGN SUPPORT

FACE OF SIGN

DIRECTION
OF TRAFFIC

WORK SITE

ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

ENTRANCE RAMP TREATMENT/EXP-FREeway
GREATER THAN 40 MPH

STANDARD NO. MD 104.05-17
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES WD 104.00-01 - WD 104.00-18 AND STANDARD DETAILS WD 104.01-01 - WD 104.01-81

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE STAND MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PARTIAL RAMP CLOSURE/EXP-FREeway GREATER THAN 40 MPH

STANDARD NO. MD 104.05-18
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

[IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 – MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 – MD 104.01-81]

CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE
PORTABLE VARIABLE MESSAGE SIGN (PVMS)
TYPE III BARRICADE

SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

AN “EXIT CLOSED” (E5-2a) PLAQUE SHOULD BE PLACED DIAGONALLY ACROSS ALL EXISTING GUIDE SIGNS PERTAINING TO THE CLOSED EXIT. WHEN THE EXIT IS EXPECTED TO BE CLOSED FOR A MINIMUM OF 72 CONSECUTIVE HOURS.

DETOUR ROUTE AND SIGN LOCATIONS TO BE DETERMINED BY THE ADE-T. REFER TO STANDARD DETAILS MD 104.06-05 AND MD 104.06-06 FOR DESIGN GUIDANCE.

PVMS MESSAGE AND PLACEMENT TO BE DETERMINED BY THE ADE-T. PVMS SHOULD BE IN PLACE AT LEAST 72 HOURS PRIOR TO THE RAMP CLOSURE.

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

FULL RAMP CLOSURE/EXP–FREEWAY
GREATER THAN 40 MPH

STANDARD NO. MD 104.05–18A
IMPORTANT:
THIS DRAWING SHALL BE USED IN COMPLIANCE WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-10 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
CHANNELIZING DEVICES ARE TYPICALLY SPACED
AT 25 FOOT INTERVALS MAXIMUM IN THE
IMMEDIATE AREA OF THE EXIT POINT IN ORDER
TO CLEARLY DEFINE THE TEMPORARY EXIT.

THERE SHALL BE A MINIMUM OF SEVEN
CHANNELIZING DEVICES IN THE SHOULDER
TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

PLACE 500 FT. IN ADVANCE OF EXIT.

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

MOT
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
EXIT RAMP TREATMENT/EXP.-FREEWAY
GREATER THAN 40 MPH
STANDARD NO. MD 104.05-19
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES WD 104.00-01 - WD 104.00-18 AND STANDARD DETAILS WD 104.01-01 - WD 104.01-81

NOTES:
CHANNELIZING DEVICES SHOULD BE PLACED AT 25 FOOT INTERVALS MAXIMUM IN THE IMMEDIATE AREA OF THE ENTRANCE POINT IN ORDER TO CLEARLY DEFINE THE TEMPORARY ENTRANCE.

PLACE A DOWNSTREAM TAPER BEYOND WORK AREA AND "END ROAD WORK" SIGNS 500 FT. PAST WORK AREA.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- RAMP CONSIDERED FOR CLOSURE

EXIT TRANSITION WILL VARY ACCORDING TO LOCATION OF WORK, PROVIDE A 500 FT. MIN. DECELERATION LANE.

DECLERATION LANE

50 FT.

PORTABLE 5 FT. X 5 FT., WHITE/GREEN

EXIT AHEAD

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

3 RIGHT LANES CLOSURE/EXP-FREeway
AT EXIT AND ENTRANCE RAMPS

STANDARD NO. MD 104.05-20
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
YIELD, YIELD AHEAD AND NO MERGE AREA SIGNS
SHALL BE INSTALLED ON ENTRANCE RAMPS AS
DETERMINED BY MD 104.01-31.
YIELD SIGN(S), WITH THE APPROVAL OF THE ADE-T.
SHALL BE REPLACED WITH STOP SIGN(S) ON THE RIGHT
SIDE (BOTH SIDES) OF THE APPROACH, IF NO ACCELERATION
LANE EXISTS FOR TEMPORARY ENTRANCE, ALSO, A TEMPORARY
STOP LINE SHALL BE PLACED ACROSS THE RAMP AT THE
DESIRED STOP LOCATION AS DETERMINED BY THE ENGINEER
PLACE THE "ROAD WORK AHEAD" SIGN
1000 FT. UP RAMP WHEN ADDITIONAL
SIGNS SUCH AS YIELD AHEAD OR
STOP AHEAD WILL BE INSTALLED.
PLACE "END ROAD WORK" SIGNS
500 FT. BEYOND WORK AREA.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
■ ■ CHANNELIZING DEVICES
[ ] [ ] SIGN SUPPORT
[ ] [ ] FACE OF SIGN
[ ] [ ] DIRECTION OF TRAFFIC
[ ] [ ] WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

3 LEFT Lanes CLOSURE/EXP-FREeway
AT EXIT AND ENTRANCE RAMPS

STANDARD NO. MD 104.05-21
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
This drawing shall be used in combination with the general notes WD 104.00-01 - WD 104.00-18 and standard details WD 104.01-01 - WD 104.01-81.

Similar signing for the opposite approach shall be placed, except sign messages shall reflect the left lane closure setup.

KEY:
- Approved Barrier
- Crash Cushion
- Channelizing Devices
- Sign Support
- Face of Sign
- Direction of Traffic
- Work Site
- Type III Barricade
- Arrow Panel (with directional arrow)

NOTES:
There shall be a minimum of seven channelizing devices in the shoulder taper.

Install temporary crash cushions at the end of the barriers. See standard no. MD 104.01-23 for additional protection of barrier end treatment.

Minimum lane width throughout channelizing devices area shall be 11 ft., for interstate and I/O, for other roadways.

When barrier is continuous throughout tangent section, signs R5-1, R4-1&T, W6-3, are not necessary.

Temporary striping shall be used as delineation for the new travel path.

The arrow panels shall be placed as close to the beginning of the taper as possible while remaining within the taper.

The number of signs and placement of signs throughout 2-lane, 2-way section shall be determined by the engineer.

END ROAD WORK

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
ROADWAY CLOSURE/EXP-FRE ways GREATER THAN 40 MPH

STANDARD NO. MD 104.05-22
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
DISTANCES BETWEEN VEHICLES MAY BE INCREASED OR DECREASED DEPENDING ON PAINT DRYING TIME, TERRAIN, LOCAL AREA AND OTHER FACTORS.

FOR STRIPING OPERATIONS IN THE EXTERIOR LINES, USE THE APPROPRIATE RIGHT OR LEFT ARROW ON THE ARROW PANEL. IN THIS CASE, USE THE RIGHT ARROW IF OCCUPYING LANE 1 AND THE LEFT ARROW IF OCCUPYING LANE 4.

KEY:

- SIGN SUPPORT
- SIGN FACE
- ARROW PANEL
- APPROVED VEHICLE SAFETY LIGHT
- DIRECTION OF TRAFFIC
- TRUCK OR TRAILER-TRUCK MOUNTED ATTENUATOR (TMA/TTMA)

CAUTION LINE PAINTING

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE MARKING OPERATION/EXP-FREeway ALL SPEEDS

STANDARD NO.
MD 104.85-23
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

STEP 1 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

INSTALL ALL ADVANCE WARNING SIGNS MOVING WITH FLOW OF TRAFFIC

STEP 2 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. PLACE CHANNELIZING DEVICES (MIN - 7 DEVICES) TO FORM SHOULDER TAPER MOVING WITH FLOW OF TRAFFIC

2. PLACE ARROW PANEL ON SHOULDER AT BEGINNING OF MERGING TAPER

NOTE:
WHEN CLOSING A LANE ON FREEWAYS, EXPRESSWAYS, AND ROADWAYS WITH POSTED SPEEDS ≥ 55 MPH, A WORK VEHICLE SHALL BE CLOSELY FOLLOWED BY A PROTECTION VEHICLE (PV) DURING INSTALLATION OF TEMPORARY TRAFFIC CONTROL DEVICES. REFER TO 104.01-19C FOR APPROPRIATE PV DETAILS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

REFER TO SIGN SPACING CHART (MD 104.01-02)

KEY:
■ CHANNELIZING DEVICES
□ SIGN SUPPORT
□ FACE OF SIGN
■ DIRECTION OF TRAFFIC
□ ARROW PANEL
□ WORK VEHICLE

APPROVED VEHICLE SAFETY LIGHT

STEP 1

EDGE LINE

STEP 2

NOT TO SCALE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INSTALLING LANE CLOSURE
STEPS 1 AND 2

STANDARD NO. MD 104.06-01
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

STEP 3 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

PLACE VEHICLE ON SHOULDER AND INSTALL CHANNELIZING DEVICES AT CORRECT SPACING BY HAND FROM VEHICLE TO FORM LANE CLOSURE TAPER MOVING WITH FLOW OF TRAFFIC

STEP 4 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. PLACE CHANNELIZING DEVICES AT CORRECT SPACING TO INSTALL BUFFER SPACE MOVING WITH FLOW OF TRAFFIC

2. PLACE CHANNELIZING DEVICES AT CORRECT SPACING THROUGH WORK SPACE MOVING WITH FLOW OF TRAFFIC

NOTE:

WHEN CLOSING A LANE ON FREEWAYS, EXPRESSWAYS, AND ROADWAYS WITH POSTED SPEEDS ≥ 55 MPH, A WORK VEHICLE SHALL BE CLOSELY FOLLOWED BY A PROTECTION VEHICLE (PV) DURING INSTALLATION OF TEMPORARY TRAFFIC CONTROL DEVICES, REFER TO MD 104.01-19C FOR APPROPRIATE PV DETAILS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

REFER TO SIGN SPACING CHART (MD 104.01-02)

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- ARROW PANEL
- WORK VEHICLE
- APPROVED VEHICLE SAFETY LIGHT
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INSTALLING LANE CLOSURE STEPS 3 AND 4
STANDARD NO. MD 104.06-02
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

STEP 5 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. Place channelizing devices at correct spacing to form termination taper moving with the flow of traffic.

2. Install "End Road Work" sign approximately 500' from last device in lane closure moving with the flow of traffic.

STEP 6 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. Cleanup work space removing all debris, vehicles, etc.

2. Remove channelizing devices from end of closure back to widest part of lane closure taper against the flow of traffic.

KEY:
- Channelizing devices
- Sign support - face of sign
- Direction of traffic
- Arrow panel
- Work vehicle
- Approved vehicle safety light
- Work site
- Shoulder taper
- Right lane closed 1500 ft
- Edge line
- End road work
- 100' min., 3 spaces termination taper
- 1000' min., 28 spaces termination taper
- 840' min., 21 spaces taper
- 700' min., 13 spaces taper area
- 520' min., 7 spaces taper
- 840' min., 21 spaces taper
- 660' min., 18 spaces taper
- 580' min., 15 spaces taper
- 280' min., 18 spaces taper
- 200' min., 15 spaces taper
- 100' min., 3 spaces taper

NOT TO SCALE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INSTALLING LANE CLOSURE - STEP 5
REMOVING LANE CLOSURE - STEP 6
STANDARD NO. MD 104.06-03
STEP 7 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. Place removal vehicle on shoulder and remove channelizing devices from lane closure taper by hand onto backing vehicle.
2. Remove arrow panel after ensuring roadway is clear.
3. Remove channelizing devices from shoulder taper.

STEP 8 - TEMPORARY TRAFFIC CONTROL ACTIVITIES

1. Remove advance warning signs moving with the flow of traffic.
2. Remove "End Road Work" sign moving with the flow of traffic.
3. Preferably, two workers walk back and turn signs away from traffic until vehicle picks up signs.

KEY:
- Channelizing devices
- Sign support
- Face of sign
- Direction of traffic
- Arrow panel
- Work vehicle
- Approved vehicle
- Safety light

NOTE:
When opening or closing a lane on freeways, expressways, and roadways with posted speeds ≥ 55 mph, a work vehicle shall be closely followed by a protection vehicle (PV) during installation and removal of temporary traffic control devices. Refer to 104.01-190 for appropriate PV details.

There shall be a minimum of seven channelizing devices in the shoulder taper.

*Refer to sign spacing chart (MD 104.01-02)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
REMOVING LANE CLOSURE STEPS 7 AND 8
STANDARD NO. MD 104.06-04
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTES:
THIS DRAWING SHALL BE USED FOR EMERGENCY USE AND FOR GUIDANCE FOR MOST APPLICATIONS. DETOUR PLANS WILL NEED TO BE REVIEWED AND APPROVED BY THE DISTRICT ADE-T.

CONFIRMATION SIGN MAY BE ELIMINATED IF THE ADVANCE ARROW SIGN IS VISIBLE TO MOTORISTS.

SIMILAR SIGNING FOR OPPOSITE APPROACH SHALL BE REQUIRED.

WARNING LIGHTS SHALL BE USED TO MARK BARRICADES AT NIGHT AS NEEDED.

KEY:
- **SIGN SUPPORT FACE OF SIGN**
- **TYPE III BARRICADE**
- **DIRECTION OF TRAFFIC**

THE OPTIONAL ROAD CLOSED AND EFFECTIVE SIGNS SHOULD BE PLACED TWO (2) WEEKS PRIOR TO THE ROAD CLOSURE. THE EFFECTIVE SIGN SHOULD BE REMOVED TWO DAYS AFTER THE ACTUAL DATE OF THE ROAD CLOSURE AND REPLACED WITH REOPENING INFORMATION. GENERAL INFORMATION REGARDING THE REOPENING DATE MAY BE POSTED UNTIL THE REOPENING DATE IS CONFIRMED, AT WHICH TIME THE REOPENS SIGNS WITH ACTUAL DATE SHOULD BE POSTED.

**EFFECTIVE XXX XX** BLACK/YELLOW
**REOPENS XXX XX** BLACK/YELLOW

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

DETUR SIGNING FOR ROADWAY CLOSURE /2-LANE,2-WAY GREATER THAN 40 MPH /OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.06-05

SPECIFICATION
104
CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway Administration
APPROVAL = SHA RECOMMENDATION
APPROVAL = FEDERAL HIGHWAY ADMINISTRATION

| APPROVAL | RECOMMEND
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TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:
SIMILAR SIGNING FOR OPPOSITE APPROACH SHALL BE REQUIRED.
WARNING LIGHTS SHALL BE USED TO MARK BARRICADES AT NIGHT AS NEEDED.
ROAD NAME PANELS (M4-9111) (BLK/WHT) SHALL BE USED FOR DIRECTING DETOURED TRAFFIC; PLACE IN SPACE PROVIDED ABOVE M4-9 SIGNS (#).

THE OPTIONAL ROAD CLOSED AND EFFECTIVE SIGNS SHOULD BE PLACED ONE TO TWO WEEKS PRIOR TO THE ROAD CLOSURE. THE EFFECTIVE SIGN SHOULD BE REMOVED TWO DAYS AFTER THE ACTUAL DATE OF THE ROAD CLOSURE AND REPLACED WITH REOPENING INFORMATION. GENERAL INFORMATION REGARDING THE REOPENING DATE MAY BE POSTED UNTIL THE REOPENING DATE IS CONFIRMED, AT WHICH TIME THE REOPENS SIGNS WITH ACTUAL DATE SHOULD BE POSTED.

KEY:
SIGN SUPPORT  FACE OF SIGN
TYPE II BARRICADE  DIRECTION OF TRAFFIC

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

DETOUR SIGNING FOR CLOSED STREET /2-LANE, 2-WAY
GREATER THAN 40 MPH /OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO.  MD 104.06-06
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION FOR SIDEWALK CLOSURE
ALTERNATE PEDESTRIAN ROUTE USING ROADWAY LANE OR SHOULDER

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 THROUGH MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 THROUGH MD 104.01-81

NOTES
1. A 5 FOOT MINIMUM WIDTH PEDESTRIAN PATH / ALTERNATE PEDESTRIAN
   PATH SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A 5 FOOT MIN
   WIDTH CANNOT BE ACHIEVED, A MINIMUM WIDTH OF 36 INCHES SHALL
   BE PROVIDED WITH PASSING ZONES 160 IN X 60 IN1 AT LEAST EVERY
   200FT.

2. TEMPORARY RAMPS SHALL HAVE A SLOPE OF 12:1 MAX. THE PEDESTRIAN
   PATH AND RAMP SHALL BE CONSTRUCTED OF HOT MIX ASPHALT OR OTHER
   MATERIAL THAT CAN PROVIDE SMOOTH, HARD SURFACE & WILL MAINTAIN
   12:1 SLOPE.

3. CHANNELIZING DEVICES SHALL BE TEMPORARY CONCRETE BARRIERS
   WITH THE ADDITION OF CONTINUOUS DETECTABLE EDGING.

4. THE CONTINUOUS DETECTABLE EDGINGS SHALL PROTRUDE AT LEAST 6
   INCHES ABOVE THE PATHWAY WITH THE BOTTOM OF THE EDGING NO
   MORE THAN 1½ INCHES ABOVE THE PATHWAY.

5. DETECTABLE BARRICADES SHALL EXTEND AT LEAST 36" ABOVE
   THE PATHWAY WITH THE BOTTOM OF THE BARRICADE NO MORE THAN
   1½ INCHES ABOVE THE PATHWAY, AND SHALL EXTEND THE FULL
   WIDTH OF THE CLOSURE

6. THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE
   CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY
   ENCROACHMENTS EXISTS.

KEY:

- SIGN
- CHANNELIZING DEVICES
- DETECTABLE BARRICADE
- DIRECTION OF TRAFFIC
- WORK SITE
- PARKING SPACES / SHOULDER AREA
- TEMPORARY RAMP
- EXISTING CURB RAMP

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PED AND CURB-LANE CONTROL/MULTILANE
UNDIV. SPEED LESS THAN OR EQUAL TO
40 MPH /OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.06-09A
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
ALTERNATE PEDESTRIAN DETOUR ROUTE AT INTERSECTION

NOTES

1. A 5 FOOT MINIMUM WIDTH PEDESTRIAN PATH / ALTERNATE PEDESTRIAN PATH SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A 5 FOOT MIN. WIDTH CANNOT BE ACHIEVED, A MINIMUM WIDTH OF 36 INCHES SHALL BE PROVIDED WITH PASSING ZONES (60 IN X 60 IN) AT LEAST EVERY 200 FT.

2. TEMPORARY RAMPS SHALL HAVE A SLOPE OF 1:12 MAX. THE PEDESTRIAN PATH AND RAMP SHALL BE CONSTRUCTED OF HOT MIX ASPHALT OR OTHER MATERIAL THAT CAN PROVIDE A SMOOTH, HARD SURFACE & WILL MAINTAIN 1:12 SLOPE.

3. DETECTABLE BARRICADES SHALL EXTEND AT LEAST 36" ABOVE THE PATHWAY WITH THE BOTTOM OF THE BARRICADE NO MORE THAN 1/2 INCHES ABOVE THE PATHWAY. AND SHALL EXTEND THE FULL WIDTH OF THE CLOSURE.

4. THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:

↑ DIRECTION OF TRAFFIC

■ WORK SITE

▲ TEMPORARY RAMP (WITH DETECTABLE SURFACE WARNING)

■ SIGN

■ DETECTABLE BARRICADE

— PARKING SPACES / SHOULDER AREA

■ EXISTING CURB RAMPS

■■■ CHANNELIZING DEVICES

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PED AND CURB-LANE CONTROL / MULTILANE UNDIV. FOR SPEEDS GREATER THAN 40 MPH / OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.06-09B
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION FOR SIDEWALK CLOSURE
ALTERNATE PEDESTRIAN DETOUR ROUTE FOR PULL BLOCK CLOSURE

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 THROUGH MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 THROUGH
MD 104.01-81

NOTES
1. A 5 FOOT MINIMUM WIDTH PEDESTRIAN PATH / ALTERNATE
   PEDESTRIAN PATH SHALL BE MAINTAINED WHERE POSSIBLE.
   WHERE A 5 FOOT MINIMUM WIDTH CANNOT BE ACHIEVED,
   A MINIMUM WIDTH OF 36 INCHES SHALL BE PROVIDED WITH
   PASSING ZONES (60 IN X 60 IN) AT LEAST EVERY 200 FT.

2. TEMPORARY RAMPS SHALL HAVE A SLOPE OF 12:1 MAX.
   PEDESTRIAN PATH AND RAMP SHALL BE CONSTRUCTED
   OF HOT MIX ASPHALT OR OTHER MATERIAL THAT CAN
   PROVIDE A SMOOTH, HARD SURFACE & WILL
   MAINTAIN 12:1 SLOPE.

3. DETECTABLE BARRICADES SHALL EXTEND AT LEAST
   36" ABOVE THE PATHWAY WITH THE BOTTOM OF THE
   BARRICADE NO MORE THAN 1½ INCHES ABOVE THE
   PATHWAY, AND SHALL EXTEND THE FULL WIDTH OF
   THE CLOSURE.

4. THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT
   LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED
   TRAVELWAY ENCORCHMENTS EXISTS.

KEY:
△ SIGN
↑ DIRECTION OF TRAFFIC
□ WORK SITE
↓ TEMPORARY RAMP
   (WITH DETECTABLE SURFACE WARNING)
□ DETECTABLE BARRICADE
□ EXISTING CURB RAMPS
■ ■ ■ CHANNELIZING DEVICES

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PED AND CURB–LANE CONTROL/MULTILANE
UNDIV. SPEED LESS THAN OR EQUAL TO
40 MPH / OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD-104.06-09C
IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 THROUGH MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES
1. A 5 FOOT MINIMUM WIDTH PEDESTRIAN PATH / ALTERNATE PEDESTRIAN PATH SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A 5 FOOT MINIMUM WIDTH CANNOT BE ACHIEVED, A MINIMUM WIDTH OF 36 INCHES SHALL BE PROVIDED WITH PASSING ZONES (60 IN X 60 IN) AT LEAST EVERY 200 FT.

2. TEMPORARY RAMPS SHALL HAVE A SLOPE OF 12:1 MAX. THE PEDESTRIAN PATH AND RAMP SHALL BE CONSTRUCTED OF HOT MIX ASPHALT OR OTHER MATERIAL THAT CAN PROVIDE A SMOOTH, HARD SURFACE & WILL MAINTAIN 12:1 SLOPE.


4. THE ENGINEER SHOULD CONSIDER ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- DIRECTION OF TRAFFIC
- WORK SITE
- SIGN
- DETECTABLE BARRICADE
- EXISTING CURB RAMPS
- CHANNELIZING DEVICES

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PED AND CURB-LANE CONTROL/MULTILANE UNDIV. FOR SPEEDS GREATER THAN 40MPH / OVER 12 HRS. OR NIGHTTIME USE
STANDARD NO. MD 104.06-09D
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
This drawing shall be used in combination with the general notes MD 104.00-01 - MD 104.00-18 and standard details MD 104.01-01 - MD 104.01-81

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- APPROVED VEHICLE SAFETY LIGHT

NOTES:
Vehicle stops may last up to fifteen (15) minutes maximum.
Position work vehicle parallel to higher speed approach and/or higher volume approach, if possible.
Truck mounted yellow flashing light shall be visible from all approaches.
For service vehicle lighting & striping, see standard No. MD 104.01-18A & 18B.
Vehicle shall display flashing hazard/parking lights in front and rear.
Approaches unaffected by the service vehicle may not need to be signed.
At locations where the line of sight to the work activity is adequate and the vehicle conspicuity is in conformance with standard No. MD 104.01-18A, no advance signing is needed.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE SERVICE WORK/INTERSECTION
EQL/LESS THAN 40 MPH/0-15 MIN.

STANDARD NO. MD 104.06-10
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES WD 104.00-01 - WD 104.00-18 AND
STANDARD DETAILS WD 104.01-01 -
WD 104.01-81

KEY:
■ ■ CHANNELIZING DEVICES
♀ ♀ SIGN SUPPORT
♀ ♀ FACE OF SIGN
♀ ♀ DIRECTION OF TRAFFIC
♀ ♀ APPROVED VEHICLE
♀ ♀ SAFETY LIGHT
♀ ♀ SIGNAL WORK
♀ ♀ VEHICLE
♀ ♀ TRAFFIC
♀ ♀ SIGN
♀ ♀ 1000'
♀ ♀ LOW SPEED ROADWAY
♀ ♀ SERVICE VEHICLE
♀ ♀ 1000'
♀ ♀ HIGH SPEED ROADWAY
♀ ♀ 2000'
♀ ♀ 2000'
♀ ♀ 4000'
♀ ♀ 5000'
♀ ♀ 6000'

SPECIAL NOTE:
SIGN THIS APPROACH THE SAME
AS THE OPPOSITE APPROACH

NOTES:
VEHICLE STOPS MAY LAST UP TO FIFTEEN
(15) MINUTES MAXIMUM.
POSITION WORK VEHICLE PARALLEL TO HIGHER
SPEED APPROACH AND/OR HIGHER VOLUME
APPROACH, IF POSSIBLE.
TRUCK MOUNTED YELLOW FLASHING LIGHT
SHALL BE VISIBLE FROM ALL APPROACHES.
FOR SERVICE VEHICLE LIGHTING & STRIPING,
SEE STANDARD NO. MD 104.01-1BA & 1BB.
VEHICLE SHALL DISPLAY FLASHING HAZARD/
PARKING LIGHTS IN FRONT AND REAR.
APPROACHES UNAFFECTED BY THE SERVICE
VEHICLE MAY NOT NEED TO BE SIGNS.
AT LOCATIONS WHERE THE LINE OF SIGHT TO
THE WORK ACTIVITY IS ADEQUATE AND THE
VEHICLE CONSPICUITY IS IN CONFORMANCE
WITH STANDARD NO. MD 104.01-1BA, NO
ADVANCE SIGNING IS NEEDED.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOBILE SERVICE WORK/INTERSECTION
GREATER THAN 40 MPH/0-15 MIN.

STANDARD NO. MD 104.06-11
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:
INTERMITTENT ROADWAY CLOSURES
SHOULD LAST NO LONGER THAN
15 MINUTES.
THIS TYPICAL ALSO APPLIES TO
DIVIDED UNCONTROLLED HIGHWAYS.
A PORTABLE VARIABLE MESSAGE SIGN
MAY BE USED IN LIEU OF THE FIRST
SET OF ADVANCE WARNING SIGNS,
IN CONFORMANCE WITH STANDARD
NO. MD 104.01-22.

KEY:

CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE
POLICE VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TEMPORARY ROADWAY CLOSURE/EXP-FREeway
GREATER THAN 40 MPH/OVER 12 HRS.
OR NIGHTTIME USE

STANDARD NO. MD 104.06-12
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTES:

INTERMITTENT ROADWAY CLOSURES
SHOULD LAST NO LONGER THAN
15 MINUTES.

FOR RIGHT LANE CLOSURE, CHANGE
SIGNING TO REFLECT A RIGHT LANE
CLOSURE, AS WELL AS REPOSITION
OTHER SIGNS, TRAFFIC CONTROL
DEVICES AND FLAGGER TO REFLECT
SAME.

THIS TYPICAL ALSO APPLIES TO
MULTILANE UNDIVIDED HIGHWAYS,
WITH SIGNS ON ONE SIDE OF THE
ROADWAY ONLY.

FLAGGER CONTROL IS RESTRICTED
TO ONE OPEN LANE ONLY.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

KEY:

- SIGN SUPPORT
- FACE OF SIGN
- CHANNELIZING DEVICES
- DIRECTION OF TRAFFIC
- WORK SITE
- TEMPORARY WORK LOCATION
- ARROW PANEL
- FLAGGER

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TEMP. ROADWAY CLOSURE WITH LANE CLOSURE AND
FLAGGER CONTROL DIVIDED UNCONTROLLED
GREATER THAN 40 MPH/OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.06-13
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES WD 104.00-01 - WD 104.00-18 AND STANDARD DETAILS WD 104.01-01 - WD 104.01-81.

NOTES:
THIS TYPICAL APPLIES TO TEMPORARY MARKINGS ON FINAL PAVEMENT SURFACES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

** ** 4' STRIPES, 36' GAP (REDUCED DIMENSIONS CENTER LINE AND OR LANE LINE FORMED BY TAPE SHALL BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THESE REDUCED DIMENSION MARKINGS MAY REMAIN IN PLACE NO LONGER THAN SEVEN DAYS WITHIN NO PASSING ZONES.

IF A STANDARD DOUBLE YELLOW CENTER LINE EXISTS ON APPROACH TO THE TEMPORARY MARKED PAVEMENT, THEN THE "NO PASSING ZONE" SIGN SHOULD BE PLACED AT THE BEGINNING OF THE EXISTING DOUBLE YELLOW LINE ON THE LEFT SIDE OF THE ROADWAY: IF ONE IS NOT ALREADY INSTALLED.

ON STRAIGHT SECTIONS OF ROADWAY WITH FULL DIMENSION CENTER LINES AND/OR LANE LINES BUT WITHOUT EDGE LINES, CHANNELIZING DRUMS SHALL BE USED TO DELINEATE THE EDGE OF THE ROADWAY, EXCEPT AT LOCATIONS AS APPROVED BY THE ENGINEER, SUCH AS WHERE THE EDGE LINE IS DELINEATED BY CURBS, PARKING, BICYCLE LANES, OR OTHER MARKINGS. THE CHANNELIZING DRUMS MAY BE SPACED UP TO 500' APART WHERE NO UNDUE HAZARDS EXIST AND WHEN DIRECTED BY THE ENGINEER, ON CURVE SECTIONS.

THIS SPACING SHALL BE REDUCED TO A VALUE EQUAL TO THE POSTED SPEED LIMIT, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHEN COMPLETE PAVEMENT MARKINGS ARE NOT IN PLACE, AND PASSING IS PERMITTED, SIGNS SHALL BE ERECTED INDICATING "WARNING: PASSING ZONES UNMARKED" (W14-31!) WITH SUPPLEMENTAL PLATE "NEXT.....MILES". THESE SIGNS SHALL BE PLACED IN ADVANCE OF THE UNMARKED ZONE AND THROUGHOUT THE UNMARKED ZONE, WHERE PASSING IS PERMITTED, AT THE FOLLOWING DISTANCES.

** SIGN SPACINGS:
(1) WORK AREA UP TO 1 MILE:
SPACE SIGNS AT 1500 FT. INTERVALS.
(2) WORK AREA OVER 1 MILE:
SPACE SIGNS AT 1/2 MILE INTERVALS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
UNMARKED NO PASSING ZONES
2 OR 3-LANE, 2-WAY
ALL SPEEDS

STANDARD NO. MD 104.06-14
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES WD 104.00-01 - WD 104.00-18 AND
STANDARDS WD 104.01-01 - WD 104.01-81

END OF
PEAVEMENT
DROP-OFF

NOTES:
ON DIVIDED HIGHWAYS, MOUNT
SIGNS ON BOTH SIDES OF THE
WORK AFFECTED ROADWAY.

WHEN THE ENTIRE ROADWAY
HAS BEEN GROOVED AND NO
DROP-OFF EXISTS, USE
"GROOVED PAVEMENT" SIGNS.

SUPPLEMENTARY SIGNS MAY
BE MOUNTED ON PORTABLE
SIGN STANDS USING
ADDITIONAL BRACKETS
OBTAINED FROM THE
MANUFACTURER.

SUPPLEMENTARY SIGNS
SHALL NOT COVER ANY
PART OF THE FACE OF
THE PRIMARY SIGN.

BEGINNING OF
PEAVEMENT
DROP-OFF

KEY
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC

END ROAD WORK

NO GROOVED
SURFACES

500'

VARES

500'

SHOULDER

NO GROOVED
SURFACES

GROOVED SURFACES PRESENT

UNEVEN LANES

OR

UNEVEN LANES

UNEVEN LANES

GROOVED

SHOULD

30"x24"

STAY IN
LANE

REPEAT SIGN MESSAGE:
1) WORK AREA UP TO 1 MILE; SPACE SIGNS AT
1000 FT INTERVALS.
2) WORK AREA OVER 1 MILE; SPACE SIGNS AT
1/2 MILE INTERVALS.

IN THE VICINITY OF ENTRANCE RAMPS, INSTALL
SIGNS JUST BEYOND THESE RAMPS.

*SIGN SHALL HAVE FLUORESCENT ORANGE
BACKGROUND AND BLACK LEGEND

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PAVEMENT DROP-OFF 2.5 INCHES OR LESS
(BETWEEN TRAFFIC LANES)

STANDARD NO. MD 104.06-15
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN
COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARDS MD 104.01-01 - MD 104.01-81

END ROAD WORK

SUPPLEMENTARY SIGNS MAY
BE MOUNTED ON PORTABLE
SIGN STANDS USING
ADDITIONAL BRACKETS
OBTAINED FROM THE
STAND MANUFACTURER.

SUPPLEMENTARY SIGNS
SHALL NOT COVER ANY
PART OF THE FACE OF
THE PRIMARY SIGN.

BEGINNING OF
PAVEMENT EDGE
DROP-OFF

NO GROOVED
SURFACES

GROOVED SURFACES PRESENT

UNEVEN
PAVEMENT

UNEVEN
PAVEMENT
GROOVED

OR

UNEVEN
PAVEMENT

GROOVED

VARES

SHOULDER

1500'

REPEAT SIGN MESSAGE:
(1) WORK AREA UPTO 1 MILE; SPACE SIGNS AT
1500 FT INTERVALS.

(2) WORK AREA OVER 1 MILE; SPACE SIGNS AT
½ MILE INTERVALS.

IN THE VICINITY OF ENTRANCE RAMPS, INSTALL
SIGNS JUST BEYOND THESE RAMPS.

KEY

SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC

NO GROOVED
SURFACES

GROOVED SURFACES PRESENT

UNEVEN
PAVEMENT

UNEVEN
PAVEMENT
GROOVED

1500
FEET

1500
FEET

SPECIFICATION | CATEGORY CODE ITEMS
104,504,508,509

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL SHA REVISIONS | APPROVAL FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 8-20-03 | APPROVAL 9-23-03
REVISED 8-31-10 | REVISED 7-29-10
REVISED 1-3-19 | REVISED 9-18-17
REVISED

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PAVEMENT EDGE DROP-OFF 2.5 INCHES OR LESS
(BETWEEN TRAFFIC LANES AND SHOULDERS)

STANDARD NO. MD 104.06-16
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTES:

SHOULDER WORK SIGNS SHALL BE MOUNTED ON THE SIDE OF THE ROADWAY WHERE THE SHOULDER IS AFFECTED. USAGE OF SHOULDER WORK SIGNS ON THE OPPOSITE SIDE OF DIVIDED HIGHWAYS IS OPTIONAL; MOUNT ALL OTHER SIGNS ON BOTH SIDES OF THE WORK-AFFECTED ROADWAY ON DIVIDED HIGHWAYS.

SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

ON TWO-LANE, TWO-WAY ROADWAYS, FOR THE OPPOSITE APPROACH, MOUNT A "ROAD WORK AHEAD" SIGN 1000 FEET IN ADVANCE OF WORK AREA. ALSO, MOUNT AN "END ROAD WORK" SIGN 500 FEET PAST THE WORK AREA.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PAVEMENT EDGE DROP-OFF GREATER THAN 2.5 INCHES BUT EQUAL TO OR LESS THAN 5 INCHES (BETWEEN TRAFFIC LANES AND SHOULDER)

STANDARD NO. MD 104.06-17
CLOSED SHOULDER

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
\* THE ENGINEER MAY REQUIRE WIDER LANE WIDTHS AS NECESSARY. THIS MAY NECESSITATE A SHIFT IN THE PAVEMENT MARKING LINES.

SHOULDER CLOSED, NO PULL OFF AREA, AND PULL OFF AREA SIGNS SHALL BE MOUNTED ON THE SIDE OF THE ROADWAY WHERE THE SHOULDER IS AFFECTED. USAGE OF THESE SIGNS ON THE OPPOSITE SIDE OF DIVIDED HIGHWAYS IS OPTIONAL. MOUNT ALL OTHER SIGNS ON BOTH SIDES OF THE WORK-AFFECTED ROADWAY ON DIVIDED HIGHWAYS.

ON TWO-LANE, TWO-WAY ROADWAYS, FOR THE OPPOSITE APPROACH, MOUNT A "ROAD WORK AHEAD" SIGN 1000 FEET IN ADVANCE OF WORK AREA. ALSO, MOUNT AN "END ROAD WORK" SIGN 500 FEET PAST THE WORK AREA.

FOR DROP-OFF WITH AN ADJACENT LANE CLOSURE, SEE STANDARD MD 104.06-19.

FOR WORK AREA <1/2 MILE

<table>
<thead>
<tr>
<th>WORK AREA</th>
<th>ROAD WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>800'</td>
<td>1/2 MILE</td>
</tr>
</tbody>
</table>

FOR WORK AREA >1/2 MILE

<table>
<thead>
<tr>
<th>WORK AREA</th>
<th>ROAD WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000'</td>
<td>1/2 MILE</td>
</tr>
</tbody>
</table>

ON TWO-LANE, TWO-WAY ROADWAYS, FLARE AND PROTECT BARRIER AS SHOWN BELOW.

EXCAVATION GREATER THAN 5'

TYPE 3 OBJECT MARKER (VP-1, WHITE/ORANGE)

SEE STANDARD NO. MD 104.01-23 FOR PROTECTION AND TREATMENT OF BARRIER FLARE SECTION.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- CRASH CUSHION
- APPROVED BARRIER

NOTES:
- SEE STANDARD NO. MD 104.01-23
- STANDARD DETAILS MD 104.01-01 - NOTES MD 104.00-01 - MD 104.00-18 AND COMBINATION WITH THE GENERAL

IMPORTANT:
- IN THE SHOULDER TAPER.
- SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.
- SUPPLEMENTARY SIGNS MAY BE MOUNTED ON PORTABLE SIGN STANDS USING ADDITIONAL BRACKETS OBTAINED FROM THE STAND MANUFACTURER. SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.
- MOUNTED ON PORTABLE SIGN STANDS
- USING ADDITIONAL BRACKETS OBTAINED FROM THE STAND MANUFACTURER.
- SUPPLEMENTARY SIGNS SHALL NOT COVER ANY PART OF THE FACE OF THE PRIMARY SIGN.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- CRASH CUSHION
- APPROVED BARRIER

SPECIFICATION 104
CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPRAVAL SHA
REV. 8-20-03

APPROVAL FEDERAL HIGHWAY ADMINISTRATION
REV. 9-23-03

REVISED 2-23-18

REVISED 6-1-17

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

PAVEMENT EDGE DROP-OFF GREATER THAN 5 INCHES WITHOUT AN ADJACENT LANE CLOSURE

STANDARD NO. MD 104.06-18
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-10 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTES:
MOUNT SIGNS ON BOTH SIDES OF THE WORK AFFECTED ROADWAY ON DIVIDED HIGHWAYS.

ON TWO-LANE, TWO-WAY ROADWAYS, CLOSE THE LANE ADJACENT TO THE EXCAVATED AREA; CONTROL TRAFFIC WITH FLAGGING OPERATION IN CONFORMANCE WITH STANDARD NO. MD 104.02-09.

DROP-OFF SHALL BE PROVIDED WITH A 4ft OR FLATTER SLOPE FILET WEDGE AT ALL TIMES WHILE NO WORK IS BEING PERFORMED, SEE AND IMPLEMENT STANDARD NO. MD 104.06-17.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

KEY:

- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PAVEMENT EDGE DROP-OFF GREATER THAN 5 INCHES WITH AN ADJACENT LANE CLOSURE

STANDARD NO. MD 104.06-19
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
SEE STANDARD NO. MD 104.06-18 FOR PROTECTION OF SHOULDER WORK SITE.
INSTALL SIGNS, CHANNELIZING DEVICES, AND ARROW PANEL BEFORE BARRIER TRANSFER OPERATION BEGINS.
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.
THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
CHANNELIZING DEVICES
SIGN SUPPORT
FACE OF SIGN
DIRECTION OF TRAFFIC
ARROW PANEL
CRASH CUSHION
WORK SITE
MOVEABLE BARRIER TRANSFER VEHICLE

USE THIS SIGN WHEN BUS AND/OR TRUCK VOLUMES ARE HIGH.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOVEABLE BARRIER TRANSFER OPERATION
RIGHT LANE CLOSURE/MULTILANE UNDIV.

STANDARD NO. MD 104.06-20
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104.00-01 - MD 104.00-18 AND
STANDARD DETAILS MD 104.01-01 -
MD 104.01-81

NOTE:
SEE STANDARD NO. MD 104.06-18
FOR PROTECTION OF SHOULDER
WORK SITE.

INSTALL SIGNS, CHANNELIZING
DEVICES, AND ARROW PANEL
BEFORE BARRIER TRANSFER
OPERATION BEGINS.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES
IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL, ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- CRASH CUSHION
- ARROW PANEL
- MOBILE BARRIER TRANSFER VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOVEABLE BARRIER TRANSFER OPERATION
RIGHT LANE CLOSURE
DIVIDED UNCON. OR EXP-FREWAY

SPECIFICATION NO. 104
CATEGORY CODE ITEMS

APPROVED
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA
State Highway Administration

APPROVAL - SHA
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HIGHWAY ADMINISTRATION
REVIEW
REVIEW

STANDARD NO. MD 104.06-21
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
SEE STANDARD NO. MD 104.01-23A AND MD 104.01-23B FOR PROTECTION AND TREATMENT OF BARRIER FLARE SECTIONS.

INSTALL BARRIER POCKETS AT START/END POSITIONS, TO PROTECT BARRIER TRANSFER VEHICLE, AS SHOWN IN CONTRACT DOCUMENT OR AS DIRECTED BY THE ENGINEER.

SEE STANDARD NO. MD 104.06-23.

BEFORE BARRIER TRANSFER OPERATION BEGINS, REMOVE/Cover TEMPORARY SIGNS ON APPROACH 'S' AND INSTALL STANDARD LEFT LANE CLOSURE SETUP THROUGHOUT TEMPORARY TRAFFIC CONTROL ZONE.

AFTER BARRIER TRANSFER OPERATION IS COMPLETED, REPLACE THE TRAFFIC CONTROL SETUP FOR APPROACH 'N' WITH THE SETUP SHOWN ON STANDARD NO. MD 104.06-23.

BARRIER SHALL BE MOVED AS SET FORTH IN THE CONTRACT DOCUMENT OR AS DIRECTED BY THE ENGINEER.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- CRASH CUSHION
- MOVEABLE BARRIER TRANSFER VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOVEABLE BARRIER TRANSFER OPERATION (STEP 1)
MULTILANE UNDIVIDED

STANDARD NO. MD 104.06-22
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL
NOTES MD 104-00-01 - MD 104-00-18 AND
STANDARD DETAILS MD 104-01-01 -
MD 104-01-81

NOTES:
SEE STANDARD NO. MD 104.06-22.

BEFORE BARRIER TRANSFER
OPERATION REVERSES, REMOVE/COVER
TEMPORARY SIGNS ON APPROACH 'N'
AND INSTALL STANDARD LEFT LANE
CLOSURE SETUP THROUGHOUT
TEMPORARY TRAFFIC CONTROL ZONE.

AFTER BARRIER TRANSFER
OPERATION IS COMPLETED, REPLACE
THE TRAFFIC CONTROL SETUP FOR
APPROACH 'S' WITH THE SETUP
SHOWN ON STANDARD NO. MD 104.06-22.

THERE SHALL BE A MINIMUM OF
SEVEN CHANNELIZING DEVICES IN
THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER
ADDITIONAL ADJACENT LANE
CLOSURES WHEN THE POSSIBILITY
OF UNPLANNED TRAVELWAY
ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- CRASH CUSHION
- MOVEABLE BARRIER
- TRANSFER VEHICLE
- ROAD WORK
- ROAD WORK 1000 FT
- ROAD WORK 1000 FT
- ROAD WORK 1/2 MILE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
MOVEABLE BARRIER TRANSFER OPERATION
(STEP 2)
MULTILANE UNDIVIDED
STANDARD NO. MD 104.06-23
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

SEE STANDARD NO. MD 104.02-01 FOR SIGNING OPPOSITE APPROACH.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
REPEAT SIGN MESSAGE:
1. WORK AREA UP TO 1 MILE:
SPACE SIGNS AT 1500 FT. INTERVALS.
2. WORK AREA OVER 1 MILE:
SPACE SIGNS AT 3/4 MILE INTERVALS.

THE TWO-WAY TRAFFIC SIGNS SHALL BE ERECTED WHEN FINAL PAVEMENT MARKINGS ARE INSTALLED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- TYPE III BARRICADE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
DUAL HIGHWAY CONSTRUCTION /2-LANE, 2-WAY GREATER THAN 40 MPH/ OVER 12 HRS. OR NIGHTTIME USE

STANDARD NO. MD 104.06-24
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

*MEDIAN WORK WITHIN 15 FT. OF EDGE LINE

2' MIN.

END ROAD WORK

MEDIAN WORK 1/2 MILE

SHOULDER WORK 1500 FT

SHOULDER WORK

SHOULDER WORK

1/3 L & BL

1100'

700'

800'

800'

700'

500'

EDGE LINE

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81.

NOTES:
FOR WORK ALONG ROADWAY MEDIANS, SHOULDER WORK SIGNS SHALL BE MOUNTED ON THE SIDE OF THE ROADWAY WHERE THE MEDIAN SHOULDER IS AFFECTED AND ON THE OPPOSITE SIDE OF THE DIVIDED HIGHWAY.

SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL, ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
■ ■ CHANNELIZING DEVICES
 ■ ■ SIGN SUPPORT
 ■ ■ FACE OF SIGN
 ■ ■ DIRECTION OF TRAFFIC
 ■ ■ WORK SITE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

MEDIAN WORK
ALL SPEEDS

STANDARD NO. MD 104.06-25

SPECIFICATION 104
CATEGORY CODE ITEMS

APPROVED
DIRECTION - OFFICE OF TRAFFIC AND SAFETY

SHA
STATE HIGHWAY ADMINISTRATION

APPROVAL 
FEDERAL HIGHWAY ADMINISTRATION
APPROVAL
6-11-39
7-29-39

REVIEWED
REVISED
REVISED
REVISED

104.06-25
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

PLACEMENT OF AUTOMATED SPEED ENFORCEMENT SIGNS AND EQUIPMENT

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- ARROW PANEL
- SPEED MONITORING VEHICLE
- SPEED DISPLAY TRAILER
- APPROVED BARRIER
- CRASH CUSHION

NOTE: THERE SHALL BE A MINIMUM OF 2 SETS OF 2 (4 TOTAL) ASE SIGNS DISPLAYED IN ADVANCE OF THE SPEED MONITORING VEHICLE.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

** ** UPPER PANEL OF SIGN SHALL HAVE FLUORESCENT ORANGE BACKGROUND WITH BLACK LEGEND AND LOWER PANEL OF SIGN SHALL HAVE WHITE BACKGROUND WITH BLACK LEGEND.

** ** SPEED LIMIT Varies

** ** WORK AREA SPEED LIMIT: XX Photo Enforced

* * * NOTICE SPEED PHOTO ENFORCED WORK ZONE

NOTES:
- LOCATIONS OF SPEED MONITORING VEHICLE, SPEED DISPLAY TRAILER AND LOCATIONS AND SIZES OF ALL AUTOMATED SPEED ENFORCEMENT SIGNS SHALL BE DETERMINED AS DIRECTED BY THE ASE REPRESENTATIVE IN THE OFFICE OF TRAFFIC AND SAFETY. THESE ARE ESTABLISHED AFTER THE ASE REPRESENTATIVE HAS VISITED THE WORK SITE.

PLACE ADDITIONAL ASE SIGNS ON OR IN THE VICINITY OF INTERCHANGE RAMPS IN THE WORK ZONE AND ALONG LONGER WORK ZONES.

THE SPEED MONITORING VEHICLE SHALL BE PROTECTED EITHER BEHIND TEMPORARY CONCRETE BARRIER OR W-BEAM, OR BY A PROTECTION VEHICLE WITH TRUCK OR TRAILER TRUCK MOUNTED ATTENUATOR.

** *** UPPER PANEL OF SIGN SHALL HAVE FLUORESCENT ORANGE BACKGROUND WITH BLACK LEGEND, MIDDLE PANEL SHALL HAVE WHITE BACKGROUND WITH BLACK LEGEND AND LOWER PANEL OF SIGN SHALL HAVE FLUORESCENT ORANGE BACKGROUND WITH BLACK LEGEND.

** *** NOTICE SPEED PHOTO ENFORCED WORK ZONE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

AUTOMATED SPEED ENFORCEMENT TYPICAL LAYOUT

STANDARD NO.  MD 104.06-26
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

NOTE:
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

DETOUR FOR TRUCK TRAFFIC SHOULD BE PROVIDED FOR LOCATIONS WITH HIGH PERCENTAGE OF TRUCK VOLUMES.

FOR LONG TERM PROJECTS, ROUTE SIGN ASSEMBLIES CONSISTING OF ROUTE SIGNS AND ADDITIONAL AUXILIARY SIGNS THAT FURTHER IDENTIFY THE ROUTE AND INDICATE THE DIRECTION SHOULD BE USED IN PLACE OF THE M12-1 DOUBLE ARROW WARNING SIGN.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

END ROAD WORK

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE
- FLAGGER

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

ROUNDABOUT FLAGGING OPERATION
2-LANE, 2-WAY ALL SPEEDS

STANDARD NO. MD-104.06-27