Chapter 6  
Special Details and TCPs

The following detail plans show examples which are difficult to show on other traffic control plans or where additional guidance is necessary.

**TCD 1  Shoulder Work Area Protection During Non-Working Hours**
(This detail provides guidance to drop-off protection and providing a recoverable slope if a vehicle were to drive off the edge of the roadway in a work zone during non-work hours.)

**TCD 2  Typical Example – Motorcycle Warning Sign Detail**
(This detail provides examples for sign placement in using the Motorcycles Use Extreme Caution sign in coordination with specific warning signs. Place the warning sign in advance of the Motorcycle warning sign. (See RCW 47.36.200 and WAC 468-95-305.)

**TCD 3  Typical Example – Lane Closure With Shift**
(For use on multi-lane roadways where the work operation goes to the lane line and the traffic is shifted over onto the existing shoulder in order to maintain some buffer space between the work and traffic.) Use caution shifting traffic onto shoulders as traffic may approach a bridge structure and the shoulder may narrow and additional devices may be needed to make drivers aware of the condition

**TCD 4  Typical Example – Speed Zone Detail for Chip Seal Project**
(Guidance for the signing requirements in chip seal projects with reduced work zone speed limits.)

**TCD 5  Typical Example – Work Beyond the Shoulder**
(Typical example taken from MUTCD application that details minimum signing requirements for work within 15 feet of the edge of roadway.)

**TCD 6  Typical Example – Long-Term Shoulder Closure on Freeway**
(Typical example taken from the MUTCD, this plan depicts the signing and channelizing device requirements for shoulder closure operations, particularly operations with barrier.)

**TCD 7  Typical Example – Rolling Slowdown**
(See detailed operational guidance that accompanies this plan.)

**TCD 8  Typical Example – Emergency Operations**
(See detailed operational guidance that accompanies this plan.)

**TCD 9  Temporary Pavement Marking Details**
(This detail sheet provides descriptions and typical layouts as needed.)
TCD 10  **Typical Example – Temporary Intersection Pedestrian Traffic Control**  
(This plan depicts typical signing examples for closing of a sidewalk during work zone operations. Specific pedestrian needs must be considered prior to any work beginning that impacts pedestrian pathways. Special attention must be given to pedestrian ADA accommodations. Consult with Region Traffic Office for assistance with specific issues or needs to provide the appropriate pedestrian controls.)

TCD 11  **Typical Example – Temporary Portable Signal**  
(This plan provides example of the traffic control signing and device requirements for a portable signal operation. Assistance from the Region Traffic Office and the Region Signal Superintendent may be necessary to adequately address the signal timing needs and any specific details in regard to the location of the portable signal system. 1,500 feet maximum between signal heads.)

TCD 12  **Typical Example – Automated Flagger Assistance Device (AFAD)**  
(This plan provides an example of the traffic control signing and device requirements for an alternating one-way traffic operation that utilizes an automated flagger assistance device. The AFAD device can be used in any alternating one-way traffic operation that is typically flagger controlled, the AFAD is a device that is used as a safety enhancement that enables the human flagger to be physically away from traffic in a safe location and remotely operate the device. 800 feet maximum between AFAD locations.)

TCD 13  **Typical Example – Work Within a Roundabout**  
(This example provides general guidance on the signing and device requirements for maintenance work in and around a roundabout location. Each roundabout location is unique and a site specific traffic control plan should be developed for the work operation.)

TCD 14  **Typical Mobile Shoulder Operation With Encroachment on a Two-Lane Roadway**  
(For mobile operations on a rural two-lane, two-way roadway with lane encroachment and limited sight distance.)

TCD 15  **Typical Temporary Exit Gore Channelization Plan**  
(This example is for use during paving operations in the vicinity of an exit gore, the existing pavement markings are commonly covered by new pavement and the markings are not visible so this detail shows a method to create a temporary physical gore for use until the permanent pavement marking is installed.)
TCD 1 – Shoulder Work Area Protection During Non-Working Hours

1. SHOULDER EXCAVATION SHALL BE LIMITED TO ONE SIDE OF ROADWAY AT A TIME.
2. 28” ONE OR 42” TALL CHANNELIZATION DEVICE MAY BE USED IN LIEU OF A DRUM.
3. REFER TO TCP 6 FOR SHOULDER CLOSURE REQUIREMENTS AND INFORMATION.
**TCD 2 – Typical Example – Motorcycle Warning Sign Detail**

**WSDOT Work Zone Traffic Control Guidelines for Maintenance Operations**

**Special Details and TCPs Chapter 6**

**TCD 2 – Typical Example – Motorcycle Warning Sign Detail**

**SIGN SPACING = X (feet) (1)**

<table>
<thead>
<tr>
<th>Freeways &amp; Expressways</th>
<th>55/70 MPH</th>
<th>1000+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-lane highways</td>
<td>60/65 MPH</td>
<td>800+</td>
</tr>
<tr>
<td>Rural Roads</td>
<td>45/55 MPH</td>
<td>500+</td>
</tr>
<tr>
<td>Rural Roads &amp; Urban Arterials</td>
<td>35/40 MPH</td>
<td>350+</td>
</tr>
<tr>
<td>Residential/Industrial Districts</td>
<td>25/30 MPH</td>
<td>300+</td>
</tr>
<tr>
<td>pavement</td>
<td>25 MPH or LESS 1000+</td>
<td></td>
</tr>
</tbody>
</table>

*All signs are 48 x 48 in frame unless otherwise indicated.*

*Spacing may be adjusted to accommodate interchange ramp/mountain intersections, and driveways.*

*This spacing may be reduced in urban areas to fit roadway conditions.*

---

**CHANNELIZING DEVICE SPACING (FEET)**

<table>
<thead>
<tr>
<th>MPH</th>
<th>TAPER</th>
<th>TANGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>60/70</td>
<td>40</td>
<td>60</td>
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</tr>
<tr>
<td>40/50</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

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**FIELD LOCATE AS NECESSARY THROUGH WORK AREA TO SUPPLEMENT MOTORCYCLE WARNING SIGN (1 MILE INTERVALS)**

**TYPICAL SIGNING FOR LANE CLOSURE**

---

**TYPICAL SIGNING FOR SHOULDER WORK**

---

**NOTES**

1. REFER TO OTHER TCP'S FOR TYPICAL LANE CLOSURE AND SHOULDER CLOSURE SIGNING DETAILS, DEVICE SPACING REQUIREMENTS AND TAPER LENGTHS.

2. USE OF APPROPRIATE WARNING SIGNS FOR ROAD CONDITION REQUIRED ALONG WITH THE MOTORCYCLE WARNING SIGN AS PER WAC 468-65-325.

**TYPICAL MOTORCYCLE SIGNING DETAIL**

**TCD 2**

---

**LEGEND**

- **K** SIGN LOCATION
- **△ △ △** CHANNELIZING DEVICES
**TCD 3 – Typical Example – Lane Closure With Shift**

**TYPICAL SECTION A-A**

**SIGN SPACING = X (feet) (1)**

- Freeways & Expressways: 55/70 MPH, 1000°
- Rural Highways: 60/70 MPH, 800°
- Rural Roads: 40/55 MPH, 500°
- Rural Roads & urban arterials: 35/70 MPH, 500°
- Urban arterials: 25 MPH or LESS 500°

- All signs are at or near edge of roadway unless otherwise designated.
- Spacing may be increased to accommodate interchange ramps, exits, intersections, and driveways.
- This spacing may be reduced in urban areas or for roadway conditions.

**CHANNELIZING DEVICE SPACING (FEET)**

<table>
<thead>
<tr>
<th>MPH</th>
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<tr>
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<td>40</td>
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<tr>
<td>35/70</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

**TYPICAL SHORT DURATION LANE CLOSURE WITH SHIFT**

**NOTES**

1. REFER TO OTHER PLANS IN THIS MANUAL FOR LANE CLOSURE DETAILS NOT SHOWN.
2. IF SHOULDER HAS EXISTING RUMBLE STRIPS IN PLACE, REFER TO REGION POLICY BEFORE SHIFTING TRAFFIC ONTO THEM.
3. TMA REQUIRED FOR ROADWAY 45 MPH OR HIGHER. FOR 40 MPH OR LESS PROTECTIVE VEHICLE SHALL BE STRATEGICALLY PLACED TO SHIELD WORKERS.

**MINIMUM TAPER LENGTH = L (feet)**

<table>
<thead>
<tr>
<th>LANE WIDTH (feet)</th>
<th>25</th>
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<th>35</th>
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**BUFFER DATA**

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<th>SPEED LIMIT (MPH)</th>
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<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
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<th>70</th>
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</thead>
<tbody>
<tr>
<td>LENGTH (feet)</td>
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<td>40</td>
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<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**EXAMPLE**

Field locate 1 mile + C in advance of lane closure taper.

**RECOMMEND ADVANCE NOTICE FOR ANY OVERWIDTH LOADS PRIOR TO LANE CLOSURE FOR ALTERNATE ROUTES IF APPLICABLE.**
**TCD 4 – Typical Example – Speed Zone Detail for Chip Seal Project**

### General Notes

1. Refer to lane closure plans for lane closure details and signing.
2. The tables provided are an aide for determining sign locations. The values contained in the tables should be considered minimums and applied in the field with respect to site conditions.
3. Contact the region traffic engineer for additional guidance if needed due to unusual site conditions or traffic characteristics.
4. Regulatory speed limit signing is not a substitute for work zone signing required to warn motorists.
5. Speed zone signing shall only remain in place for as long as the reduced speed condition applies.
6. Contact the region traffic office for special sign orders, speed reduction notices, etc.
7. See TCD 12 for temporary pavement marking details.
8. Motorcycle warning signs are required as per WAC 468-35-305.

### Typical Speed Zone Detail Chip Seal Projects TCD 4

**TCD 4 – Speed Zone Details**

#### Legend

- **Sign Location**
- **Work Area Limits**

#### Speed Limit Reduction

- **Speed Reduction Sign**
- **Work Area Ahead**

#### Work Area

- **Place Sign to Indicate Legal to Resume Speed**
- **Place Sign to Indicate Legal to Resume Speed**

#### Speed Limit XX

- **Work Area Ahead**
- **Road Work Ahead**

#### Work Zone

- **All Speed Reductions Must Be Approved by the Region Traffic Engineer Prior to Implementation.**

**Special Details and TCPs Chapter 6**

**TCD 4 – Typical Example – Speed Zone Detail for Chip Seal Project**

<table>
<thead>
<tr>
<th>Desired Reduced Speed (MPH)</th>
<th>Approach Speed - (POSTED SPEED LIMIT) (MPH)</th>
<th>TCD 4 on Plan Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
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<td>70</td>
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<tr>
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<td>25</td>
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<tr>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

**Special Details and TCPs**

**TCD 4 – Speed Zone Example – Speed Zone Detail for Chip Seal Project**

**SIGN SPACING = X (feet) (1)**

- Rural Highways: 60/65 MPH 800+ ft
- Rural Roads: 45/55 MPH 500+ ft
- Rural Roads & Urban Arterials: 35/40 MPH 350+ ft
- Urban Roads, Urban Arterials, Business Districts: 25/30 MPH 200+ ft
- Urban Streets: 25 MPH or LESS 100+ ft

**All signs are 48" x 48" black on orange unless otherwise designated.**

**SAMPLE MESSAGE**

- 6D 48"x60" B/O
- PCMS

**CHIP SEAL PROJECT**

- NEXT X MILES
- AUG XX

**OR**

- CHIP SEAL PROJECT TO AUG XX
- 2.0 SEC 2.0 SEC

**TO BE FIELD LOCATED**

**Note:**

1. All spacing may be adjusted to accommodate interchanges, ramp entrances, and intersections.
2. The spacing may be reduced in urban areas to fit roadway conditions.
SIGN SPACING = X (feet) 

<table>
<thead>
<tr>
<th>Type</th>
<th>Speed Limit</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeways &amp; Expressways</td>
<td>55/70 MPH</td>
<td>500' X(1)</td>
</tr>
<tr>
<td>Rural Highways</td>
<td>60/65 MPH</td>
<td>800' X(1)</td>
</tr>
<tr>
<td>Rural Roads</td>
<td>45/55 MPH</td>
<td>500' X(1)</td>
</tr>
<tr>
<td>Rural Roads &amp; Urban Arteries</td>
<td>35/40 MPH</td>
<td>350' X(1)</td>
</tr>
<tr>
<td>Rural Highways, Urban Arteries &amp; Residential &amp; Business Districts</td>
<td>25/30 MPH</td>
<td>200' X(2)</td>
</tr>
<tr>
<td>Urban Streets</td>
<td>25 MPH or LESS</td>
<td>100' X(2)</td>
</tr>
</tbody>
</table>

(1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.
(2) This spacing may be reduced in urban areas to fit roadway conditions.

LEGEND

vably  
SIGN LOCATION

ROAD WORK AHEAD

W20-1
48" x 48"
B/O

NOTES:

1. THE ROAD WORK AHEAD SIGN MAY BE REPLACED WITH OTHER APPROPRIATE SIGNS SUCH AS SHOULDER WORK.
2. THE ROAD WORK AHEAD SIGN MAY BE OMITTED WHERE THE WORK SPACE IS BEHIND BARRIER, MORE THAN 24 INCHES BEHIND THE CURB OR 15 FEET OR MORE FROM THE EDGE OF ANY ROADWAY.
3. IF WORK VEHICLES ARE ON THE SHOULDER, A SHOULDER WORK SIGN MAY BE USED. FOR MOWING OPERATIONS THE SIGN MOWING AHEAD MAY BE USED.
4. A GENERAL WARNING SIGN SUCH AS ROAD MACHINERY AHEAD SHOULD BE USED IF WORKERS AND EQUIPMENT MUST OCCASIONALLY MOVE ONTO THE SHOULDER.
5. WORK OPERATIONS SUCH AS MOWING WHERE THE MOWER IS OFF THE SHOULDER IS ALLOWED UNDER THIS PLAN.
6. THE PARKING OF ADDITIONAL EQUIPMENT USED TO LOAD/UNLOAD EQUIPMENT ARE NOT CONSIDERED A WORK ZONE OF ITS OWN AND CAN BE PARKED ON THE SHOULDER BUT NEEDS TO HAVE AT LEAST 3 DEVICES TO CLOSE THE SHOULDER. REFER TO 3.1 FOR ADDITIONAL INFORMATION.

TCD 5 – Typical Example – Work Beyond the Shoulder
TCD 6 – Typical Long-Term Shoulder Closure on High Speed Roadway
TCD 7 – Rolling Slowdown

A rolling slowdown is a legitimate form of traffic control commonly practiced by the WSP and highway maintenance crews. This use is valuable for emergency, or very specific short duration closures (e.g. to pick debris from the roadway, to push a blocking disabled to the shoulder, or to pull power lines across the roadway). The traffic control vehicles form a moving blockade across all lanes, which reduce traffic speeds and create a large gap in traffic, or clear area, allowing very short-term work to be accomplished without completely stopping the traffic.

Other traditional forms of traffic control such as lane closures should be considered first and as the primary choice when possible. If the slowdown is to be a scheduled operation, then the Regional Traffic Office needs to be contacted with a work request so a site specific traffic control plan (TCP) can be developed and/or reviewed and approved. The gap in traffic created by the rolling slowdown, and other traffic issues, should be addressed on an approved TCP. Also, use of WSP is encouraged whenever possible, at a minimum coordination with WSP is necessary.

In the event of debris in the roadway, a blocking disabled vehicle, or other emergency, the use of experience and resources at hand, along with sound judgment and common sense, will suffice in lieu of an approved, site specific, TCP. TCD 7 has been developed as a guideline to represent the basic requirements for performing a safe and effective rolling slowdown. Site specific TCPs can be developed based on this plan.

Equipment availability is a prime consideration. Before starting this operation, ensure there are at least one traffic control vehicle (with flashing amber lights) per two lanes, and one vehicle to cover every point of access onto the “rolling slowdown” segment of roadway. (Only during emergencies should less than one traffic control vehicle per lane be considered.) Truck mounted PCMS boards stating, “Slow or Stopped Vehicles” are very helpful. Be sure that every crewmember participating is well briefed and knows what is needed from them. Good communications for this operation are essential!

The traffic control vehicles leading the rolling slowdown must enter the roadway far enough upstream from the work operation site to allow a clear area in front of them to develop. The traffic control vehicles will work into position so that each lane is controlled. As in every other form of traffic control, sight distance is important, so that drivers are not surprised. While traveling at a fixed and reduced rate of speed, a gap in traffic must be created which is long enough to provide the estimated time needed for the work to be done.

A separate traffic control vehicle, “chase vehicle,” shall follow the slowest, or last, vehicle ahead of the blockade. When that last vehicle passes, the crew can begin the work operation.
All ramps and entrances to the roadway between the moving blockade and work operation must be temporarily closed using traffic control equipment and personnel. Each of those ramps must remain closed until the crew doing the work gives the “all clear” signal, or until the front of the moving blockade passes the closed on-ramp(s).

Radio communications between the work crew and the moving blockade are required so the speed of the blockade can be adjusted, if necessary, to increase or decrease the closure time. Release traffic only after you have confirmation that all workers and their vehicles are clear of the roadway.

**Rolling Slowdown Calculations**

**Known:**

- \( T \) = Time needed with no traffic (in minutes)
- \( V_s \) = Speed of slowdown vehicles (in mph) 20 mph minimum recommended
- \( V_c \) = Speed of chaser vehicle in front of slowdown (in mph) generally it should be the posted speed

**Calculations:**

- \( G \) = Gap needed (in miles)  
  \[ G = T \left( \frac{V_s}{60} \right) \]
- \( C \) = Clearance time needed to create the gap (in minutes)  
  \[ C = \frac{G}{\left( \frac{V_c}{60} - \frac{V_s}{60} \right)} \]
- \( D \) = Distance ahead of the work area to start the slowdown (in miles)  
  \[ D = C \left( \frac{V_c}{60} \right) \]

**Example:**

You need a 5 minute gap on a 60 mph freeway to cross a large piece of equipment into the median work area, so you propose a 20 mph rolling slowdown during the off-peak or lowest traffic volume hours for the freeway.

- \( G = 5 \times \frac{20}{60} = 1.67 \) miles
- \( C = \frac{1.67}{(60-20)/60} = 2.5 \) minutes
- \( D = 2.5 \times \frac{60}{60} = 2.5 \) miles

**Links:**

For WSDOT maintenance, see the Chapter 6 of this manual.
THIS PLAN DEPICTS THE MINIMUM REQUIREMENTS TO PERFORM AN EMERGENCY ROLLING SLOWDOWN. IF THE SLOWDOWN IS, OR CAN BE, A PLANNED EVENT, THEN A SITE SPECIFIC TRAFFIC CONTROL PLAN SHOULD BE DEVELOPED AND APPROVED BY THE REGION TRAFFIC OFFICE PRIOR TO THE OPERATION OCCURRING.

LEGEND

TMA
TRUCK MOUNTED ATTENUATOR (RECOMMENDED)

+ WARNING BEACON - REQUIRED

& ARROW BOARD CAUTION MODE (REQUIRED)

OPERATIONAL NOTES

1. ALL WORK VEHICLES SHALL USE WARNING BEACONS.

2. THE NUMBER OF VEHICLES SHOWN IS A MINIMUM, IF POSSIBLE USE ONE VEHICLE PER LANE DURING CLOSURE.

3. NOTIFY WSP PRIOR TO OPERATION SO THEY ARE AWARE OF OPERATION.

4. ALL ON-RAMP TRAFFIC SHALL BE STOPPED DURING SLOWDOWN.

5. USE CALCULATION CHART TO DETERMINE CLEAR AREA.
TCD 8 – Emergency Operations

The immediate response to an emergency situation must, by necessity, make use of whatever devices and equipment are available. Assistance from the Washington State Patrol and WSDOT Incident Response Team may be appropriate. The use of flares is allowed unless flammable material is present, electronic flares or glow sticks are an option for this condition.

Implement the appropriate traffic control plan (lane closure, etc.) if the situation is expected to last longer than 60 minutes. This allows for a short duration operation, until traffic control assistance arrives.

It is important to differentiate between an actual emergency and an emergent condition. An actual emergency requires an immediate response to save lives or prevent serious injury using whatever resources are available, usually in response to a crash or incident. An emergent condition requires an expedient yet planned response to a situation that may have the potential to cause a crash, but the crash has not yet occurred or a crash or other event has caused damage needing repair after the crash event. Most “call outs” or damage reports fall into the emergent condition category and although serious to varying degrees, still allow some period of time to plan a reasonable short duration work zone response, even if additional resources are needed once the condition is evaluated on site.

TCD 8 reflects various conditions and measures that might be applied as part of an emergency response for a natural disaster. More commonly, emergencies are those caused by vehicle crashes, breakdowns or spilled or lost cargo. Response to these types of emergencies is urgent and not specifically addressed by work zone standards. Refer to WSDOT Incident Response Program for guidance. Refer to Section 3.2 for additional guidance.

Response to an emergency situation is inherently more dangerous than planned situations. Do not expose yourself to a life-threatening situation. Wait for assistance and protect yourself at all times.
Chapter 6: Special Details and TCPs

TCD 8 – Typical Example – Emergency Operations

INSTALL THESE OR OTHER WARNING SIGNS AS NEEDED FOR THE SPECIFIC HAZARD.

- W2O-4: 48" x 48" B/G
- W8-150 I: 48" x 48" B/Y
- R11-4: 48" x 30" B/W
- R1-2: 36" x 36" B/W
- V-8-1: 48" x 48" B/G
- W8-180 I: 48" x 48" B/G
- W21-170 I: 48" x 48" B/G
- W21-80 I: 48" x 48" B/G

SAMPLE MESSAGE

<table>
<thead>
<tr>
<th>PCMS</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>CAUTION</td>
<td>WATER</td>
<td>STORM ON ROAD</td>
</tr>
<tr>
<td>STORM ON ROAD</td>
<td>DEBRIS AHEAD</td>
<td>2.0 SEC</td>
</tr>
</tbody>
</table>

FIELD LOCATE IN ADVANCE OF DEBRIS

MINOR SLIDE ENCROACHMENT

OVERHANGING TREES OR OBSTACLES BELOW 15'

LOCAL ROAD

STATE ROUTE

INSTALL FOR EMERGENCY USE AS NEEDED:

- PASSABLE ROADWAYS WITH SPOT OR CONTINUOUS HAZARDS REQUIRING MINIMAL OR NO SPECIFIC DRIVER WARNING
- THIS SIGN IS NOT A REPLACEMENT FOR REQUIRED TRAFFIC CONTROL MEASURES NEEDED AT MORE SUBSTANTIAL HAZARD LOCATIONS.

GENERAL NOTES

1. IMPLEMENT ELEMENTS OF THIS PLAN ONCE THE INITIAL ROADWAY ASSESSMENT IS COMPLETE AND DETERMINED TO BE PASSABLE WITH DUE CAUTION.
2. RECOMMEND USE OF PCMS AND PORTABLE HAR EQUIPMENT WHEN AVAILABLE.
3. FOR ONE-LANE, TWO-WAY TRAFFIC SITUATIONS, REFER TO TCP1 OF THIS MANUAL OR THE MUTCD FOR ADDITIONAL DETAILS.
4. SPOT HAZARDS SHOULD BE MARKED WITH BARRICADES OR CHANNELIZING DEVICES TO ALERT DRIVERS.
5. CONTACT THE REGION TRAFFIC OFFICE STAFF FOR SPECIFIC PLAN NEEDS OR ADDITIONAL INFORMATION.

LEGEND

- TYPE 2 BARRICADE WITH TYPE “A” WARNING LIGHT OR CHANNELIZING DEVICE (E.G., CONE, TUBULAR MARKER, DRUM)
- TYPE “A” FLASHING WARNING LIGHT (SIGNS & BARRICADES)
- SIGN LOCATION

EXAMPLE WARNING SIGNS FOR FLOOD / SLIDE / EMERGENCY

TCD 8
WORK OPERATIONS THAT REMOVE OR OBSCURE EXISTING PAVEMENT MARKINGS MUST PROVIDE FOR TEMPORARY MARKINGS UNTIL THE PERMANENT MARKINGS ARE APPLIED. TEMPORARY MARKINGS MAY BE USED UNTIL IT IS PRACTICAL AND POSSIBLE TO INSTALL PERMANENT MARKINGS. THE DETAILS BELOW SHOW VARIOUS COMMON APPLICATIONS. CONTACT THE REGION TRAFFIC OFFICE FOR ASSISTANCE WITH MORE COMPLEX SITUATIONS.

MULTI-LANE ROADWAYS

A.C.P.

36" 4" 40"

(2) 4" YELLOW TAPE STRIPE

2 LANE ROADWAYS

A.C.P. OVERLAY - TEMPORARY STRIPING TAPE SHALL BE INSTALLED IN CONJUNCTION WITH "PASS WITH CARE" AND "DO NOT PASS" SIGN LOCATIONS.

T.R.P.M. = TEMPORARY RAISED PAVEMENT MARKER

CHANNELIZING DEVICES

A.C.P.

36" 4" 40"

WHITE T.R.P.M.'S

CHANNELIZING DEVICES

CHANNELIZING DEVICES

B.S.T.

4" WHITE TAPE (OR PAINT) STRIPE

WHITE T.R.P.M.'S

CHANNELIZING DEVICES

B.S.T. OVERLAY - T.R.P.M.(CHIP SEAL MARKER) - 4" YELLOW CENTER STRIPE

TEMPORARY EDGE STRIPES ARE NOT REQUIRED FOR THE ABOVE SITUATIONS BUT IF USED, T.R.P.M.'S MAY BE USED ON A PATTERN SPACING OF 5'O.C. TO SIMULATE A SOLID LINE. TEMPORARY ROADSIDE DELINEATION WITH CHANNELIZATION DEVICES SHOULD BE CONSIDERED, BUT ARE OPTIONAL. DO NOT USE A "SKIP" PATTERN OF TAPE STRIPE TO SIMULATE AN EDGE STRIPE.

FOR LONG TERM PROJECTS, A TEMPORARY CHANNELIZATION/PAVEMENT MARKING PLAN SHOULD BE DEVELOPED.

CHANNELIZATION DEVICE SPACING - TANGENT 200' +
CURVES 100' +
O.C.
TAPERS 1/2 L

TEMPORARY PAVEMENT MARKING DETAILS

TCD 9
**INSTALL ON TYPE 2 BARRICADES THROUGHOUT THE WORK AREA 24 HOURS PRIOR TO IMPLEMENTING TRAFFIC CONTROL. PRIOR NOTIFICATION OF LOCAL LAW ENFORCEMENT REQUIRED.**

<table>
<thead>
<tr>
<th>NO PARKING</th>
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<tbody>
<tr>
<td>24&quot; x 30&quot;</td>
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<tr>
<td>R/W</td>
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### R8-3

**R9-11 MOD**

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**R9-11 MOD**

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**SIDEWALK DETOUR**

**TYPICAL INTERSECTION PEDESTRIAN TRAFFIC CONTROL SIGNING**

**TCD 10**

**GENERAL NOTES**

1. CONTROLS SHOWN ARE FOR PEDESTRIAN TRAFFIC ONLY.
2. MAINTAIN A MINIMUM WIDTH OF 48" FOR PEDESTRIAN PATH.
3. CONTACT AND COORDINATE IMPACTED TRANSIT AGENCIES PRIOR TO IMPLEMENTING ANY CLOSURES.
4. ADA PEDESTRIAN ACCOMMODATIONS MUST BE Addressed AND CONSIDERED FOR ALL WORK OPERATIONS. EXISTING ADA FACILITIES MUST BE MAINTAINED.
5. REFER TO MUTCD FIGURE TA-28 & 29 FOR ADDITIONAL INFORMATION.
6. USE OF LONGITUDINAL BARRIER FOR PROTECTION IS ALLOWED. REFER TO MUTCD SECTION 6D AND 1.8 THIS MANUAL.
TCD 11 – Typical Example – Temporary Portable Signal

GENERAL NOTES

1. EXTEND TAPER ACROSS SHOULDER WHEN 8FT OR WIDER.
2. PROTECTIVE VEHICLE RECOMMENDED - MAY BE A WORK VEHICLE.
3. SIGN SEQUENCE IS THE SAME FOR BOTH DIRECTIONS OF TRAVEL.
4. THE MAXIMUM LENGTH OF WORK AREA CONTROLLED BY ONE-WAY TRAFFIC SIGNAL IS 1500 FT. FOR SIGNAL TIMING CONTACT REGION SIGNAL SUPERINTENDENT.
5. INSTALL NO PASSING STRIPE IF NOT ALREADY IN PLACE.
6. POST MOUNT SIGNS FOR LOCATIONS IN PLACE LONGER THAN 3 DAYS.
7. TEMPORARY LIGHTING IS REQUIRED AT STOP BARS DURING WORK OPERATIONS AT NIGHT.
8. RECOMMEND USING TEMPORARY RUMBLE STRIP TAPE AT SIGNAL AHEAD SIGNS.

THIS PLAN MAY NEED TO BE ADJUSTED TO FIT SITE CONDITIONS. REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUICD) PART B OR CONTACT THE REGION TRAFFIC ENGINEER FOR SPECIFIC QUESTIONS.

TYPICAL ALTERNATING ONE-WAY TRAFFIC PORTABLE TEMPORARY SIGNAL CONTROLLED

TCD 11
TCD 13 – Typical Example – Work Within a Roundabout

NOTES

1. Night work requires additional roadway lighting at flagging stations.
2. Protection vehicle recommended - may be a work vehicle strategically located to shield work area.
3. Each roundabout location is unique and the traffic control must be developed to meet the specific conditions of the location and the work operation.
4. If the work and all work vehicles are off of the travel lanes and Island apron, a single Road Work Ahead sign per approach is all that is required.
5. Additional signing in center island may be necessary to assist traffic movement through roundabout.

LEGEND

- Flagging Station
- Sign Location
- Channelizing Devices
- Protective Vehicle - Recommended
- Vehicle Travel Path During a Flagging Phase

SIGN SPACING = X (FEET) (1)

RURAL ROADS
45.0 MPH
(100')
RURAL ROADS & URBAN ARTERIALS
35-45 MPH
(150')
RURAL ROADS URBAN ARTERIALS
25-30 MPH
(200')
RESIDENTIAL & BUSINESS DISTRICTS
25 MPH OR LESS
(100')
ALL AREAS ARE 48" X 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

(1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.
(2) This spacing may be reduced in urban areas to fit roadway conditions.

TCD 13 TYPICAL ROUNDBOARD FLAGGING OPERATION
TCD 14 – Typical Mobile Shoulder Operation With Encroachment on a Two-Lane Roadway

### Typical Mobile Shoulder Operation With Lane Encroachment

**TCD 14**

**SIGHT DISTANCE DATA**

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<tr>
<th>SPEED LIMIT MPH</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
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</thead>
<tbody>
<tr>
<td>DISTANCE FEET</td>
<td>155</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>360</td>
<td>425</td>
<td>495</td>
<td>570</td>
<td>645</td>
<td>730</td>
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**MINIMUM STOPPING SIGHT DISTANCE = S**

**LEGEND**

- **WV** WORK VEHICLE WITH FLASHING AMBER WARNING BEACON
- **SV** SHADOW VEHICLE WITH FLASHING AMBER WARNING BEACON (TMA RECOMMENDED, BUT NOT REQUIRED)

**GENERAL NOTES**

1. DAYLIGHT HOURS ONLY.
2. RADIO CONTACT BETWEEN WORK CREW AND SHADOW VEHICLE REQUIRED.
3. PCMS RECOMMENDED.

**SAMPLE MESSAGE**

**PCMS**

- **1**
  - WORKERS ON ROADWAY
  - BE PREPARED TO STOP
  - 2.0 SEC
- **2**
  - WORKERS ON ROADWAY
  - BE PREPARED TO STOP
  - 2.0 SEC

**TRUCK MOUNTED PCMS**

**SHADOW VEHICLE MAINTAIN MIN. SIGHT DISTANCE "S" (SEE CHART) TO APPROACHING TRAFFIC.**

**CRITICAL SIGHT DISTANCE AREA**

**MOUNT TO BACK OF WORK VEHICLE OR OTHER APPROPRIATE WARNING SIGNS**

**ROAD WORK AHEAD**

**MOUNT TO BACK OF SHADOW VEHICLE**

**EXPERIENCE BASED SIGHT DISTANCE**

**WORK AREA**

- **48" x 48" B/D**

- **MOUNT TO BACK OF WORK VEHICLE**
TCD 15 – Typical Temporary Exit Gore Channelization Plan

GENERAL NOTES
1. Place channelizing devices to form a temporary physical gore until pavement markings are installed.