TYPICAL PLACEMENT OF VMS

SYMBOLS

PORTABLE VARIABLE MESSAGE SIGN (VMS)

LAW ENFORCEMENT VEHICLE WITH FLASHING RED AND BLUE LIGHTS

DIRECTION OF TRAVEL

CHANNELING DEVICE FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLAN.

WORK AREA

LENGTH OF ROLLING ROADBLOCK OPERATION

GENERAL NOTES

1. ROLLING ROADBLOCK IS A TRAFFIC CONTROL TECHNIQUE TO SLOW (STOP, IF NEEDED) TRAFFIC TO FACILITATE SHORT DURATION WORK OPERATIONS WITHOUT AN ELABORATE AND DIFFICULT DETOUR. TRAFFIC CONTROL LAW ENFORCEMENT OFFICERS PLACE OR SLOW THE TRAFFIC TO A SPEED THAT PROVIDES APPROXIMATELY 20-30 MINUTES TO PERFORM THE SPECIFIED CONSTRUCTION.

2. ON THE DAY OF THE ROLLING ROADBLOCK OPERATION, THE VARIABLE MESSAGE SIGNS SHALL BE REVISED TO INDICATE THE ACTIVITY WILL OCCUR THAT NIGHT OR DAY. THE ROLLING ROADBLOCK OPERATION BEGINS WITH A TRAFFIC CONTROL SUPERVISOR AT THE WORK SITE INITIATING THE PACING OPERATION IN ACCORDANCE WITH PACING DETAILS SHOWN ON SHEET 2. THE INTENT IS TO KEEP TRAFFIC MOVING UNLESS THERE IS AN EMERGENCY.

3. TRUCK-MOUNTED ATTENUATORS WITH VARIABLE MESSAGE SIGNS SHALL BE USED TO PROTECT CONSTRUCTION WORKERS AND/or EQUIPMENT POSITIONED IN A TRAVEL LANE(S) AT THE WORK AREA DURING THE ROLLING ROADBLOCK OPERATION FROM AN ERRANT VEHICLE. IF NO WORKERS AND/OR EQUIPMENT ARE POSITIONED IN A TRAVEL LANE AT THE WORK AREA, TRUCK-MOUNTED ATTENUATORS SHALL NOT BE USED.

4. WHEN MORE THAN ONE ROLLING ROADBLOCK OPERATION IS REQUIRED IN ONE WORK PERIOD, THE CONTRACTOR SHALL ALLOW SUFFICIENT TIME BETWEEN ROLLING ROADBLOCK OPERATIONS TO PERMIT TRAFFIC TO RETURN TO NORMAL SPEEDS AND FLOW. ADDITIONAL TIME MAY BE REQUIRED BETWEEN ROLLING ROADBLOCK OPERATIONS TO ALLOW TRAFFIC TO RESUME NORMAL SPEEDS AND FLOW UPSTREAM OF THE WORK AREA, AS DETERMINED BY THE ENGINEER OR THE REGION TRAFFIC ENGINEER.
ONE LANE RAMP

STAGE 1 NOTE:
MINIMUM OF FOUR (4) LAW ENFORCEMENT VEHICLES LOCATED UPSTREAM OF THE WORK AREA AT THE BEGINNING LOCATION OF THE ROLLING ROADBLOCK OPERATION WITH FLASHING BLUE LIGHTS OFF.

STAGE 2 NOTE:
ONCE THE LAW ENFORCEMENT VEHICLES ARE IN PLACE AND THE LAW ENFORCEMENT SUPERVISOR NOTIFIES ALL LAW ENFORCEMENT OFFICERS TO BEGIN THE ROLLING ROADBLOCK OPERATION, THE LAST THREE (3) LAW ENFORCEMENT VEHICLES SHALL TURN ON THEIR FLASHING BLUE LIGHTS. THE FIRST THREE (3) LAW ENFORCEMENT VEHICLES SHALL ENTER THE TRANSIT LANE WITH THE SECOND LAW ENFORCEMENT VEHICLES IMMEDIATELY FORMING A SIDE BY SIDE "PACING OPERATION" OF ALL LANES BEHIND THE LEAD LAW ENFORCEMENT VEHICLE (FLASHING BLUE LIGHTS OFF).

STAGE 3 NOTES:
1. THE TWO (2) PACE-SETTING LAW ENFORCEMENT VEHICLES SHALL BEGIN TO SLOW TO THE PACING SPEED 50 MPH MINIMUM, FOR THE DURATION OF THE ROLLING ROADBLOCK OPERATION.
2. THE LEAD LAW ENFORCEMENT VEHICLE WITH FLASHING BLUE LIGHTS OFF SHALL MATCH THE SPEED OF THE LAST THREE (3) LAW ENFORCEMENT VEHICLES AND CONTINUE FOLLOWING TRAFFIC, WITH A POINT APPROXIMATELY 500 FEET IN ADVANCE OF THE WORK AREA, THE LEAD LAW ENFORCEMENT VEHICLE SHALL THEN COME TO A COMPLETE STOP ON THE WORK AREA SHOULDER AND TURN ON ITS STEADY BLUE LIGHTS. IT IS RECOMMENDED THAT THE LEAD LAW ENFORCEMENT VEHICLE ENTER THE TRAVEL LANES APPROXIMATELY 300 FEET UPSTREAM OF THE WORK AREA WITH THE IMPACT ATTENDANTS DOWN AND OPERATING VERY SLOWLY ONCE THE WORK AREA HAS BEEN CLEARED.

STAGE 4 NOTES:
1. WHEN THE PACE-SETTING LAW ENFORCEMENT VEHICLES ARE WITHIN APPROXIMATELY TWO (2) MILES OF THE WORK AREA, THE LEAD LAW ENFORCEMENT SUPERVISOR SHALL INSTRUCT THE CONTRACTOR TO CLEAR THE WORK AREA OF ALL EQUIPMENT AND DEBRIS IN ORDER TO REOPEN ALL TRAVEL LANES.
2. IN CASE OF EMERGENCY, THE PACE-SETTING LAW ENFORCEMENT VEHICLES SHALL COME TO A COMPLETE STOP ONCE THEY REACH THE LEAD LAW ENFORCEMENT VEHICLE. IF AN EMERGENCY IS ENCOUNTERED, THE LEAD LAW ENFORCEMENT SUPERVISOR, IN CONJUNCTION WITH THE CONTRACTOR, SHOULD DETERMINE THE BEST LOCATION OF THE PACE-SETTING LAW ENFORCEMENT VEHICLES LOCATED. THE CONTRACTOR SHALL BEGIN TO CLEAR THE TRAVEL LANES OF ALL EQUIPMENT AND DEBRIS IN ORDER TO REOPEN ALL TRAVEL LANES.

TYPICAL APPLICATIONS
ROLLING ROADBLOCK - RAMP CLOSURE DETAILS

1. LEAD VEHICLE VARIES MOBILE OPERATION
2. 1 PER TRAVEL LANE PACING OPERATION MOBILE OPERATION BEGINNING A MILE TERMINATING AT THE END OF THE WORK AREA
3. I STATIONED AT BEGINNING OF ROLLING ROADBLOCK OPERATION ADVANCED TO MOTORISTS
4. I PER ENTRANCE ROADBLOCKS ENTRANCE ROADBLOCKS ONE AT EACH ENTRANCE RAMP STREAM OF THE WORK AREA

GENERAL NOTES:
- THE MINIMUM NUMBER OF LAW ENFORCEMENT VEHICLES PER LANE FINAL NUMBER OF LAW ENFORCEMENT VEHICLES SHALL BE DETERMINED BY THE LAW ENFORCEMENT SUPERVISOR.
- THERE SHALL BE AT LEAST ONE LAW ENFORCEMENT VEHICLE PER LANE FINAL NUMBER OF LAW ENFORCEMENT VEHICLES PER LANE.
- LAW ENFORCEMENT OFFICERS AT EACH LOCATION SHALL BE AS STATIONED AT THE END OF THE WORK AREA.
**BEGIN ROLLING ROADBLOCK OPERATION**

**DESIGN NOTES:**

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

2. The starting point of a rolling roadblock operation shall consider the following factors: the speed of the pacing law enforcement vehicles, the location of exit ramps, horizontal and vertical alignment of the facility.

3. In some instances, it may be necessary to close a lane at the work site to position a crane and the materials to be lifted.

4. All material to be installed shall be on-site before the rolling roadblock operation begins.

5. It may be necessary to install temporary barrier walls to protect pre-positioned and assembled materials in the right-of-way.

6. The minimum speed allowed for a pacing operation is 10 MPH.

---

**PACING DISTANCES, L (MILES)**

<table>
<thead>
<tr>
<th>Sp</th>
<th>PCHL ≤ 1,250</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>3.3 4.7 7.0 9.3 * * *</td>
</tr>
<tr>
<td>65</td>
<td>2.4 6.6 7.9 9.6 * * *</td>
</tr>
<tr>
<td>60</td>
<td>2.5 5.0 7.5 9.0 * * *</td>
</tr>
<tr>
<td>55</td>
<td>2.6 5.2 7.8 * * *</td>
</tr>
<tr>
<td>50</td>
<td>2.8 5.6 8.3 * * *</td>
</tr>
</tbody>
</table>

* - SITE-SPECIFIC DESIGN REQUIRED

**PACING DISTANCES NOTES:**

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

Demand volume may not exceed 1,250 PCHL without a site-specific design. Traffic counts can be obtained from the region traffic engineer or you may need to collect traffic counts. Hourly directional traffic volumes must be converted to PCHL using the following equation:

\[ \text{PCHL} = \frac{\text{PCPHL}}{\text{HEAVY VEHICLE FACTOR}} \]

PCPHL = Passenger Cars per Hour per Lane

- HEAVY VEHICLE FACTOR
- NO. OF LANES (EACH DIRECTION)
- HEAVY VEHICLE FACTOR

\[ \text{HEAVY VEHICLE FACTOR} = 1 + \left( \frac{\text{NO. OF LANES} \times \text{PCPHL}}{60} \times 0.50 \right) \]