TRAFFIC PACING GUIDE

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

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

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

CHANGEABLE MESSAGE SIGNS
(Typical Placement and Messages)

![Diagram of traffic pacing]

- Median
- Work Area

1  MILE

 meditation

CHANGEABLE MESSAGE SIGN MESSAGE
(MAINLINE AND RAMPS)

<table>
<thead>
<tr>
<th>Symbols</th>
<th>ONE WEEK PRIOR TO PACING OPERATION</th>
<th>DURING DAY OF PACING OPERATION</th>
<th>DURING PACING OPERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channeling Device (See Index No. 600)</td>
<td>EXPECT DELAYS</td>
<td>ROAD WORK TIGHTEN</td>
<td>SLOW TRAFFIC AREA</td>
</tr>
<tr>
<td>Marked Police Vehicle with Flashing Blue Lights</td>
<td>IMM</td>
<td>EXPECT DELAYS</td>
<td>(BE PREPARED TO STOP)</td>
</tr>
<tr>
<td>PCMS, Portable Changeable Message Sign</td>
<td>ON</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>To be placed day of pacing operation</td>
<td>X AM - X AM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Identification and Direction of Traffic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTICE

This index applies to limited access facilities.

This index represents the minimum requirements for traffic pacing operations on the State Highway System.

TRAFFIC PACING GENERAL NOTES

1. Install ROAD CLOSED (0200–0300) signs approximately 1000’ prior to the work area. These signs shall remain covered until the pacing operation begins and covered when the pacing operation has ended.

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

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

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

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

TRAFFIC CONTROL PLANS OR TECHNICAL SPECIFICATION

1. The specific activities and locations, along with allowable times of day and days of the week, when pacing will be allowed should be clearly detailed in the traffic control plans or technical specification. If there are specific holiday or special event dates that due to anticipated traffic congestion, pacing operations shall not be allowed, these dates should also be spaced out in plans or specifications. When detailing the specific activities and locations of pacing activities, identify the minimum number of traffic control officers needed for each function and location of the pacing operation. If there are certain work activities that need to be completed prior to the contractor starting the work anticipated during the pacing operation, the activities should be clearly detailed in the plans or technical specification.

2. When developing a pacing plan, facilitate “stop points” should be identified for those work operations in which a construction problem could create a condition that could not be immediately cleared. A work stop point is the safest access from the highway facility prior to traffic coming upon the work that is being performed during the operation. In the unlikely event that the work is not completed during the time estimated for the pacing, the plans or specification should direct the pacing to be speeded past the work stop point until the highway is cleared. In the event of major construction problem that cannot be immediately cleared, traffic can then be diverted off the facility.

3. The traffic control plans or technical specification should require the contractor to submit a pacing plan in advance of the operation. The pacing plan shall outline the contractors expected equipment and personnel, outline the operation and include a contingency plan should any of the contractor’s critical equipment break down. If the project includes a damage recovery clause, the traffic control plan or technical specification should be clear that the damage recovery applies to the pacing operation as well.

4. Changeable message signs shall be displayed one week prior to work using messages described in the traffic pacing plan. The number and location of changeable message signs shall be called out in the traffic control plans.
MAINLINE PACING DETAILS

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

STAGE TWO
1. Once the police vehicles are in place and the traffic control officer supervisor at the work area notifies all officers to begin the traffic pacing operation, the last three police vehicles shall turn off their flashing blue lights. The last three police vehicles shall enter the travel lanes with the second and third police vehicles immediately forming a side-by-side “pacing operation” of all lanes behind the lead police vehicle flashing blue lights off.

STAGE THREE
1. The two pace setting police vehicles shall begin to slow to the pacing speed (20 mph is preferred, 10 mph minimum), for the duration of the traffic pacing operation.
2. The lead police vehicle (Flashing Blue lights On) shall match the speed of the last vehicles ahead of the pacing vehicles and continue following traffic until a point approximately 500 ft. in advance of the work area. The lead police vehicle shall then come to a complete stop on the right shoulder and turn off its flashing blue lights. If required, the crash truck(s) with rear mounted impact attenuator(s) and changeable message signs shall move into the travel lanes approximately 200 ft. upstream of the work area with the impact attenuators down and operating once traffic has cleared the work area.

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

RAMP PACING DETAILS

ONE LANE RAMP

TWO LANE RAMP

RAMP CLOSURE DETAIL
1. Once notified by the on site traffic control officer supervisor to begin the traffic pacing operation each police vehicle at the indicated ramp shall turn their flashing blue lights on and position the vehicle across the ramp lane to close ramp access.
2. Once the pacing operation passes the closed on ramp the police vehicle on the ramp shall turn off the flashing blue lights and move from the ramp lane to allow traffic to enter the mainline traffic pacing operation.

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

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

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

The starting point of a traffic pacing operation must consider the following factors: the speed of the pacing vehicles, the location of entrance ramps, horizontal and vertical alignment of the facility.

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

All materials shall be on-site before the traffic pacing operation begins.

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

The minimum speed allowed for a pacing operation is 10 mph with 20 mph the preferred speed.

The maximum allowed work duration is 1/4 hour (15 min).

The maximum practical pacing operation length is 10 miles.

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**TRAFFIC PACING DISTANCES**

(1) miles

<table>
<thead>
<tr>
<th>$S_p = 20$</th>
<th>pcp/h/pk ≤ 1,750</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_p$</td>
<td>$t_w$ (min)</td>
</tr>
<tr>
<td>70</td>
<td>2.1</td>
</tr>
<tr>
<td>65</td>
<td>2.4</td>
</tr>
<tr>
<td>60</td>
<td>2.5</td>
</tr>
<tr>
<td>55</td>
<td>2.6</td>
</tr>
<tr>
<td>50</td>
<td>2.8</td>
</tr>
</tbody>
</table>

* Site Specific design required.

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NOTES FOR TABLE:

$t_w$ 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 have cleared the work zone.

$S_p$ is the speed of the pre-pacing vehicle.

$t_w$ must include the time required to clear the roadway of equipment, materials, and personnel.

Demand volume may not exceed 1,750 pcp/h/pk (passenger cars per hour per lane) without a site specific design. Traffic counts can be obtained from the Florida Traffic Diagnostic Analysis System (FDATS) or the Traffic Demand, or you may need to collect traffic counts. Hourly directional traffic volumes must be converted to ppcp/h/pk using the following:

$$pccp/h/pk = \frac{pccp/h/pk}{(2 \times \text{Lanes} \times \text{Travel Direction})}\times \text{Heavy Vehicle Factor}$$

For additional guidance on site specific designs refer to the Florida Department of Transportation, Volume 1 of the Traffic Design Manual.