	<b>TRAFFIC CONTROL DEVICE APPLICATION GUIDELINES</b>		
	<b>OFFICE OF TRAFFIC AND SAFETY</b>		
<b>Issuing Unit</b> TDS	<b>Application Guideline No.</b> 6-F9	<b>Originally Issued:</b> 03/01/2019	<b>Revision Date:</b> 05/06/2021

## **GUIDELINES FOR PORTABLE TRAFFIC SIGNAL (PTS)**

### **BACKGROUND AND PURPOSE**

This document should be used as a guideline for implementing portable traffic signals (PTS) on Maryland Department of Transportation State Highway Administration (MDOT SHA) roadway projects. Some examples of projects that might be suited for use of PTS are pavement repair, roadside maintenance, bridge repair, emergency road work, or special events. Any PTS used shall conform to the requirements of Special Provision 104.30.

The use of PTS on any project must have the approval of the Director, Office of Traffic and Safety (OOTS). For non-emergency use, a design request must be submitted to incorporate PTS design for maintenance of traffic on the project. For emergency use, the Assistant District Engineer – Traffic (ADE-T) should coordinate with OOTS for signal approval and timing.

The use of PTS shall conform to the current Maryland Manual on Uniform Traffic Control Devices (MdMUTCD). Refer to Part 4 and Part 6 of the MdMUTCD for references and guidance on the use of PTS.

### **SCOPE**

These guidelines apply to work performed along MDOT SHA owned and maintained roads.

### **EXCEPTIONS**

N/A

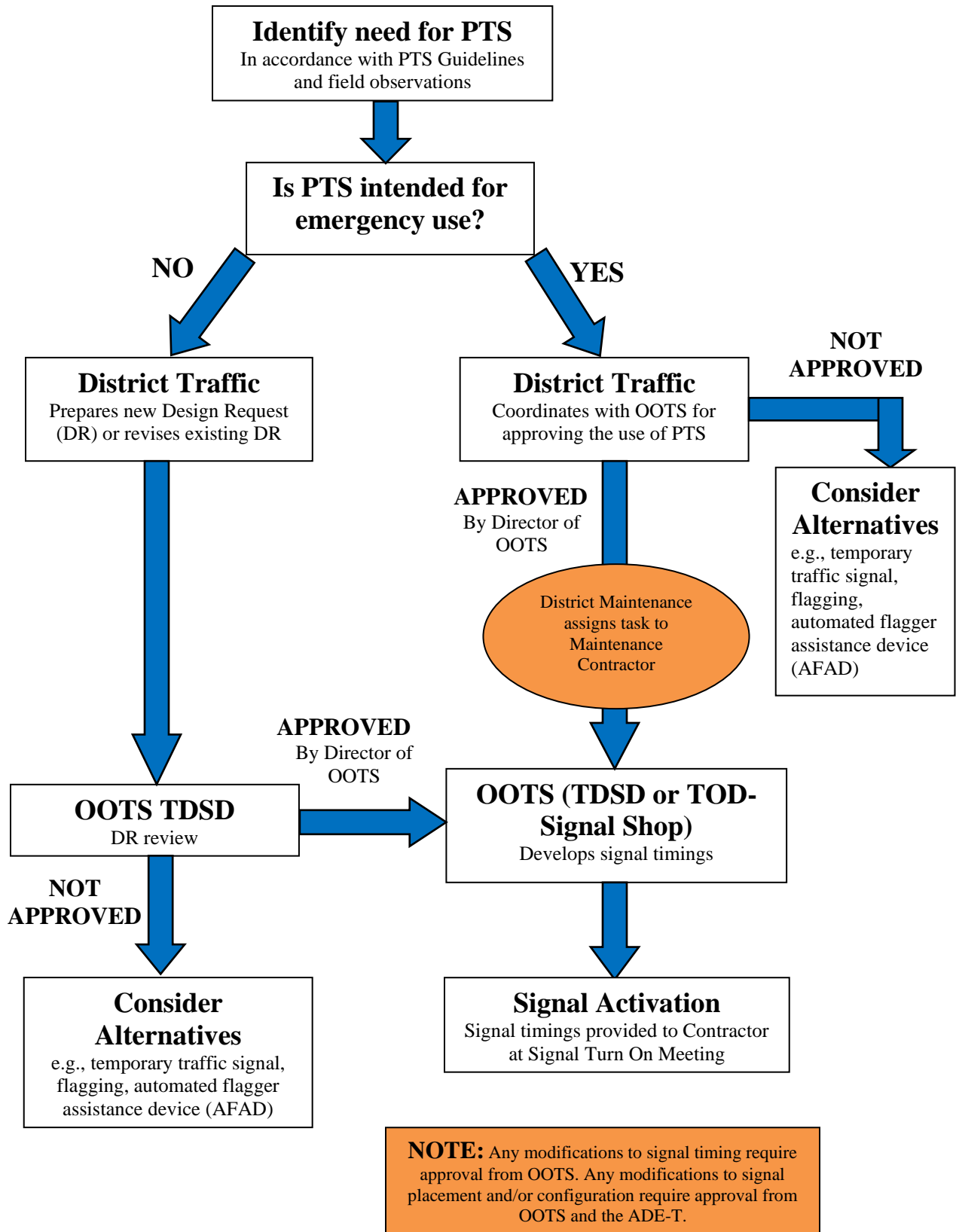
### **GUIDELINES**

#### **PTS Project Selection**

PTS should be used only in situations where alternate traffic control methods, such as the use of “STOP” or “YIELD” signs, flagging or temporary traffic signals are not feasible. Traffic conditions on site should be evaluated prior to construction to determine whether PTS installation is appropriate. Projects meeting the following criteria may be good candidates for PTS use:

- Maximum duration of PTS deployment on project site will not exceed 60 days, unless approved by OOTS.
- Project location has no more than one lane of travel in each direction.
- The posted construction speed limit, as determined by the District Engineer, should not be in excess of 40 miles per hour (MPH).
- The grade for each PTS approach should not exceed five (5) percent.

The provided flowchart should be used in assisting with the identification of project sites which may be good candidates for PTS utilization.



## **Placement Guidance**

A traffic study should be completed prior to deployment to determine the necessary sight distances needed for the PTS location(s). All sight distance requirements shall conform to the American Association of State Highway & Transportation Officials (AASHTO) geometric design standards.

The following additional considerations should be made when determining the placement of PTS in the work zone:

- No more than two (2) approaches to the work zone shall be controlled by PTS, unless the need for an access point is determined.
- Any intersections, driveways or other access points within the one-lane, two-way traffic section shall either be closed or signalized in coordination with the mainline PTS.
- Motorists should be able to see the entire work zone, including the opposing PTS, prior to entering the work zone. This will help reduce driver confusion and reduce congestion.
- Locations with at-grade railroad crossings within the one-lane, two-way traffic section and within 1/2 mile of each PTS will require additional review for site conditions. When necessary, the PTS should be provided with pre-emption for the railroad.

PTS should be placed in the closed lane during alternating one-lane, two-way traffic operations, at a minimum of two (2) feet off the edge of the travel lane or as directed by the Engineer, and be protected by channelizing devices. When not in operation, the signal heads shall be removed or covered such that the indications are not visible to traffic.

Field adjustments to the PTS placement and configuration need to be approved by OOTS and the Assistant District Engineer Traffic (ADE-T).

## **Signal Timings**

All signal timings will be developed by OOTS and have the approval of the OOTS Director. Signal timings developed by OOTS should consider the geometric constraints and traffic flow characteristics at the site. Field adjustments to the timing should be approved by OOTS prior to implementation.

## **Temporary Traffic Control, Signing and Marking**

Channelizing devices shall be used downstream of PTS to alert motorists to move into the open lane. A temporary stop line with a “Stop Here on Red” Sign (R10-6) shall be placed prior to the signal to alert motorists where to stop. As applicable, signing and marking for PTS locations shall be placed as per Figure No. 1, attached.

## **Remote Monitoring System (RMS)**

PTS shall be equipped with a remote monitoring system capable of reporting signal location, battery voltage and system default via text or email to responsible individuals. The RMS is a combination of a cellular or satellite-based device and service. The preferred option due to cost is for using cellular

communication; however, a satellite-based device may be needed in areas with poor cell service coverage. The ADE-T should coordinate the RMS installation with the contractor and develop an acceptable plan for monitoring signal operations and reporting on system default.

### **PTS Failure Protocol**

PTS shall be used on projects only for periods during which a lane closure is in effect and when the project is active. During these periods, contractor shall have signal personnel available at all times to maintain and operate or repair the PTS as needed. The contractor shall provide MDOT SHA with the name and telephone number of an emergency contact person to maintain and operate or repair the signals. Additionally, the contractor should identify who is available at all times during the use of the signal. The contractor shall be responsible for continually updating the contact information.

The following preparations shall be made prior to PTS deployment to ensure safety and mobility in the event of a PTS failure, or any event that involves deactivating the PTS:

- Signing for a flagging operation should be erected and covered in advance of the temporary signals or be available at the site for immediate display in the event that a flagging operation is required.
- The contractor shall ensure that certified flaggers have completed the MDOT SHA approved flagger training course and are immediately available at the PTS location. Police assistance may be used in maintaining traffic control until the signal is repaired or reactivated. Flagger assistance should also be considered for high volume locations, to ensure proper operation of signals.

In the event of a failure, the contractor shall notify the Engineer, the Statewide Operations Center (SOC), and the ADE-T.

The contractor shall keep a daily log at the signal site which shall include, but not be limited to, hours of operation, type and time of any equipment malfunctions, and type and time of any crashes or incidents that may have occurred during the PTS operation.

**NOTES:**

SIMILAR SIGNING, DENOTED BY A LETTER, FOR THE OPPOSITE APPROACH SHALL BE PLACED.








SIMILAR SIGN SPACINGS SHOULD ALSO BE USED AS SHOWN.

FOR PROPER BARRIER FLARE AND END PROTECTION, SEE STANDARD NO. MD 104.01-23.

LENGTH OF DOUBLE YELLOW CENTER LINES MAY BE INCREASED DEPENDING ON SITE CONDITIONS.

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

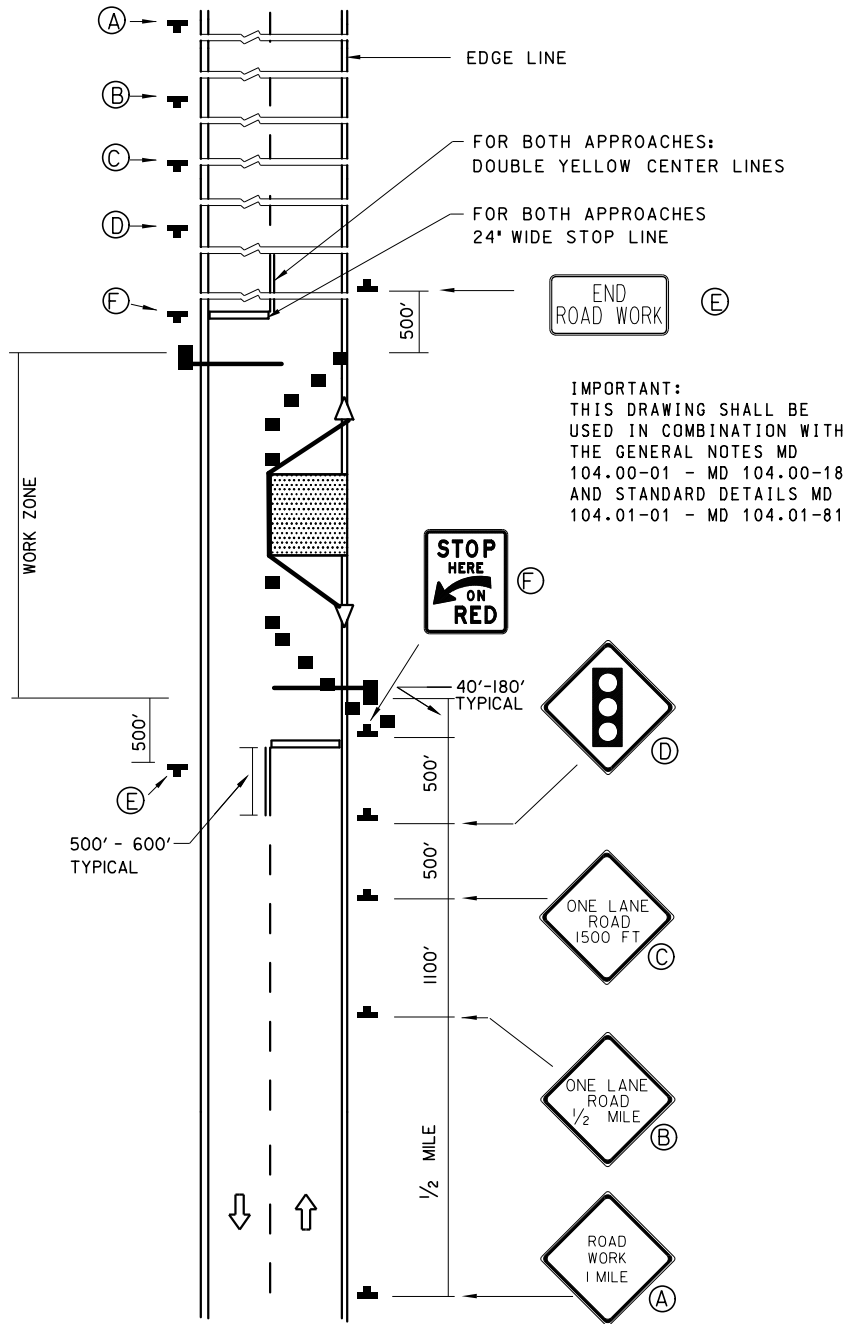
**KEY:**

-  SIGN SUPPORT FACE OF SIGN
-  PORTABLE TRAFFIC SIGNAL
-  APPROVED BARRIER
-  CHANNELIZING DEVICES
-  DIRECTION OF TRAFFIC
-  WORK SITE
-  PROPERLY DESIGNED CRASH CUSHION

SIGHT DISTANCE TO SIGNALS AT WORK ZONES SHOULD MEET, AND EXCEED WHENEVER POSSIBLE, THE VALUES SHOWN IN THE TABLE BELOW.

MINIMUM SIGHT DISTANCES TO TRAFFIC SIGNALS	
*85TH-PERCENTILE SPEED	MINIMUM SIGHT DISTANCE
25	215
30	270
35	325
40	390
45	460
50	540
55	625
60	715

\* PORTABLE TRAFFIC SIGNALS SHOULD NOT BE USED AT LOCATIONS WITH 85TH-PERCENTILE PREVAILING SPEEDS GREATER THAN 60 MPH.



**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

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.

SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL SHA REVISIONS	
APPROVAL 01-03-19	
REVISED 04-15-21	
REVISED	
REVISED	

**MDOT** MARYLAND DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

**GUIDELINES FOR THE USE OF PORTABLE TRAFFIC SIGNALS**

**TYPICAL APPLICATION**

