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Construction Memorandum

To: District Construction Engineers

From: Paul Jagoda, P.E.
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Subject: Temporary Traffic Control Signals Guidance

This Construction Memo develops guidance for the uniform use and application of temporary traffic control signals. Please find the subject attachment.

For assistance or questions related to this subject, please contact the District's Construction Engineering Services Reviewer or myself.

PJ/pj

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MDT Guide for the use of Temporary Traffic Control Signals
5-5-05

This guide provides a summary of the general requirements from the Manual of Uniform Traffic Control Devices (MUTCD) on temporary traffic control signals in Part 1 and the Department's recommendations for the use of portable traffic control signals on construction projects in Part 2.

Part 1
MUTCD

Reference the MUTCD for the complete information on Temporary Traffic Control Signals, below is a summary of information.

2003 MUTCD Section 4D.20 Temporary Traffic Control Signals

“Temporary traffic signals are for specific purposes such as one lane, two way facilities in temporary traffic control zones, or for a haul road intersection.

The signal shall:

- Meet the physical display and operational requirements of a conventional signal.
- Be removed when no longer needed.
- Be placed in flashing mode when not being used if it will be operated in the steady mode within 5 working days; otherwise it shall be removed.
- Be placed in flashing mode during periods when it is not desirable to operate the signal, or the signal heads shall be covered, turned, or taken down to indicate that the signal is not in operation.

A temporary traffic control signal should be used only if engineering judgment indicates that installing the signal will improve the overall safety and/or operation of the location.

Temporary traffic control signals should not operate longer than 30 days unless associated with a longer-term temporary traffic control zone project.

2003 MUTCD Chapter 4G. Traffic Control Signals for One-Lane, Two-Way Facilities

Adequate means, such as interconnection, shall be provided to prevent conflicting signal indications, such as green and green, at opposite ends of the section.

When in flashing mode, the signal indications shall flash red.

Adequate time should be provided to allow traffic to clear the narrow facility before opposing traffic is allowed to move. Engineering judgment should be used to determine the proper timing for the signal.

2003 MUTCD Section 6F.80 Temporary Traffic Control Signals

Temporary traffic control signals are typically used in temporary haul road crossings; temporary one-way operations along a one-lane, two-way highway; temporary one-way operations on bridges and intersections.

One-lane, two way vehicular traffic flow requires an all red interval of sufficient duration for road users to clear the portion of the temporary traffic control zone controlled by the traffic control signals. Safeguards shall be incorporated to avoid possibility of conflicting signal indications at each end of the work zone.

Where pedestrian traffic is detoured to a temporary traffic control signal, engineering judgment should be used to determine if pedestrian signals or accessible pedestrian signals are needed for crossing along an alternate route.

The supports for temporary traffic control signals shall not encroach into the minimum required width of a “pedestrian access route” of 1200 mm (48”) or an “alternate circulation path” of 900 mm (36”).

Temporary traffic control signals should only be used in situations where they are preferable to other means of traffic control, such as changing the work staging or work zone size to eliminate one-way vehicular traffic movements, using “STOP” or Yield signs, and using warning devices alone.

Factors related to the application of temporary traffic control signals include;

- Safety and road user needs;
- Work staging and operations;
- The feasibility of using other strategies; (flaggers, providing two-lanes, detouring road users, including bicyclists and pedestrians;
- Sight distance restrictions;
- Human factors such as lack of driver familiarity with temporary traffic signals;
- Road user volumes including roadway and intersection capacities;
- Affected side streets and driveways;
- Vehicle speeds;
- Placement of other TTC devices;
- Turning restrictions;
- Pedestrians;
- Adjacent land uses;
- Full or part time operation;
- Power failures or other emergencies;

Temporary traffic signals not in use should be covered or removed.

Additional references are MUTCD Typical Applications #12 (Figure 6H-12) and #14 (Figure 6H-14).

Part 2 MDT Guide for Temporary Traffic Control Signal Use

General:

Temporary traffic control signals are preferable to flaggers for long term work activities and work that would require flagging at night.

Assure all advance warning signs related to the signal are in the traffic control sign series and that it meets current department and MUTCD standards.

Provide a well defined (delineated) traveled way between the signals that equipment does not encroach on during the work.

Reference the MUTCD Typical Applications #12 (Figure 6H-12) and #14 (Figure 6H-14) until a Detailed Drawing is developed for Temporary Traffic Control Signal application.

When the contractor plans on using temporary traffic control signals, these signals are to be included in their traffic control plan that is submitted.

Do not use temporary traffic control signals for temporary haul road crossings.

Application of Temporary Traffic Control Signals:

Rural Applications:

Use temporary traffic control signals on projects where each end of the controlled section of roadway is visible to both directions of travel. Exceptions can be made where a vehicle traveling a short distance past the signal (approx. 200 feet), can see the signal controlling the opposing traffic.

Place a temporary stop bar (or temporary painted stop bar) at least 12 m (40 feet) in advance of the temporary signals. Remove the stop bar when the signal is not in operation or has been removed.

Verify that the placement of the STOP HERE ON RED sign does not obscure the signal face. The STOP HERE ON RED sign should ordinarily be placed at least 40-feet in advance of the signal.

Set the signals on fixed time. Monitor traffic queues at the signals and adjust the signal time appropriate to the queues.

In heavy or steady traffic, vehicles approaching the back of a recently departed queue may see a red indication and be uncertain about stopping or joining the departing queue. Consider adding a flagger to assist and serve for walk back. Assure the flagger's vehicle is outside the clear zone. Flaggers may be more appropriate to control traffic in those situations rather than signals.

Temporary signals may be used on non-interstate chip seal projects; include a walk-back flagger when the traffic queue is high, i.e. more than 10 vehicles stopped at the station 50% of the time. These signals should improve safety for nighttime operations.

Urban Applications:

When temporary traffic signals are used at urban intersections, place the signals as close to the intersection as possible to assure a clear view of all intersection approaches.

Place the temporary stop bar meeting the MUTCD.

If the signal location will not permit traffic a clear view of all intersection approaches, use flaggers or stop signs.

In urban areas consider the pedestrian movements at intersections. Typically, temporary signals do not provide control for pedestrians. At high use pedestrian intersections a flagger may be more appropriate to control both vehicular and pedestrian movements. Signing an alternate pedestrian route to a nearby intersection may also be appropriate based on the location, work activity and duration.

Follow-Up Items:

1. Review this guidance after the 2005 construction season and update it to incorporate “lessons learned” in the use of temporary traffic control signals.
2. Develop detailed drawings for the use of temporary traffic control signals.