

PAVEMENT MARKING OPERATION PROCEDURES

NOTES:

GENERAL

- 1A. In addition to CMS 614, traffic shall be maintained in accordance with the following requirements.
- 1B. The purpose of the following requirements for traffic control for pavement marking operations is to provide safety for highway users, workers and equipment and to protect the markings from damage during application.
- 1C. These requirements are the required minimums. If at any time during the application of markings it is found by the Engineer that these minimum traffic control requirements are not achieving the necessary safety and marking protection, additional traffic control shall be implemented at no additional cost.
- 1D. The Engineer may suspend work in order to relieve traffic congestion at any time.
- 1E. No work shall be done during peak hours or during any other times which could result in excessive queuing, as determined by the Engineer.
- 1F. Vehicles transporting flammable pavement marking materials (material supply vehicles) shall not be utilized for lead or trail vehicles or for power broom equipment.
- 1G. All pavement marking application, protection and support equipment following the line marking machine shall have the traffic control equipment of a shadow vehicle.
- 1H. Line marking machines shall not be used for sign and cone placement.

CONES AND WET PAINT - KEEP OFF SIGNS

- 2A. Cones and WET PAINT - KEEP OFF (R11-H6-24) signs shall be placed to protect the line whenever the track-free time exceeds 2 minutes.
- 2B. These devices shall not be removed until the line has dried to a track-free condition.
- 2C. Retrieval equipment shall have the traffic control equipment of a shadow vehicle.
- 2D. Cones shall have a minimum height of 28".
- 2E. Cones shall be spaced at a maximum distance of 200' to protect the wet line. In areas of traffic congestion, on curves, and at other locations where tracking of the wet line is expected, closer spacings may be required.
- 2F. The WET PAINT - KEEP OFF (R11-H6-24) signs shall be placed facing traffic as follows:
 - a) The beginning and end of line application,
 - b) All side and cross roads, and
 - c) Maximum intervals of one mile.
- 2G. When line markings require greater than a two minute drying time or when the actual field conditions exceed two minute drying time, the lane from which the line marking machine applies line markings shall be closed until the line has dried to a totally track-free condition.

IMMOBILE OPERATIONS

- 3A. When loading material, cleaning or performing other operations in the field, every effort shall be made to have all equipment completely off of the traveled way.
- 3B. When it becomes necessary to enter upon private property, permission shall be obtained in advance.
- 3C. When the Contractor cannot remove his equipment from the traveled way, all traffic control devices on the vehicles shall be in operation and flaggers and vehicles shall be stationed to protect the work site and the traveling public.
- 3D. Two-way traffic shall be maintained.
- 3E. Flaggers shall be equipped in accordance with CMS 614.08.

AUXILIARY MARKINGS

- 4. Pavement preparation and placing of auxiliary markings are considered to be stationary operations and traffic control shall be in accordance with plan details, standard construction drawings and the Ohio Manual of Uniform Traffic Control Devices (OMUTCD).

NIGHTTIME OPERATION

- 5A. Nighttime operation is defined to include the time from sunset to sunrise, and at any other time when there are unfavorable atmospheric conditions or when there is not sufficient natural light to render discernable persons, vehicles, and substantial objects on the highway at a distance of 1000'.
- 5B. During nighttime conditions the following traffic control shall be provided:
 - a) Cones shall be reflectorized or equipped with lighting devices for maximum visibility (see OMUTCD 6F.64), and
 - b) The guide and side-mounted carriages shall be illuminated.
- 5C. The presence of highway lighting does not waive these requirements.

ARROW BOARD

- 6A. A Type B arrow board shall be from the ODOT approved list. For more information, refer to Supplemental Specification 921 "Arrow Boards."
- 6B. Arrow boards, when used on two-lane, two-way roadways shall be displayed only in the caution mode.
- 6C. When not in use, arrow boards shall be tilted horizontally or covered.

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STANDARD ROADWAY CONSTRUCTION DRAWING

TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER

Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR

David L. Holstein

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PAVEMENT MARKING VEHICLES AND EQUIPMENT

LEAD VEHICLE

- 8A. A lead vehicle shall be used to warn opposing traffic of the approach of center line and other marking equipment when this equipment extends into the adjacent opposing traffic lane.
- 8B. The lead vehicle shall precede the "left-of-center" marking equipment a distance that will provide advance safe warning to approaching traffic.
- 8C. The operator of this unit shall drive ahead of the crest of a vertical curve or around a horizontal curve and wait until the "left-of-center" marking equipment nears and then proceed, maintaining an advance location of 400' to 600'.
- 8D. A lead vehicle shall be equipped with the following traffic control devices:
- A high-intensity yellow rotating, flashing, oscillating, or strobe light(s), clearly visible a minimum of one quarter mile.
 - Lighted headlights and taillights, and
 - A KEEP RIGHT (W24-H4-48) sign and WET PAINT (W24-H3-48) sign mounted a minimum of 5' above the road surface measured to the bottom of the sign, and visible to opposing traffic.

POWER BROOM EQUIPMENT

9. Power broom equipment shall be equipped and operated during pavement preparations with the following traffic control devices:
- A high-intensity yellow rotating, flashing, oscillating, or strobe light(s), clearly visible a minimum of one quarter mile.
 - Lighted headlights and taillights, and
 - A Type B arrow board, displayed to the rear, mounted a minimum of 7' above the road surface, measured to the bottom of the board.

VEHICLE FOR LAYOUT AND PREMARKING

10. The vehicle used in layout and premarking shall be equipped and operated with the following equipment:
- A high-intensity yellow rotating, flashing, oscillating, or strobe light(s), clearly visible a minimum of one quarter mile.
 - Lighted headlights and taillights, and
 - A KEEP RIGHT (W24-H4-48) sign mounted a minimum of 5' above the road surface measured to the bottom of the sign, and visible to opposing traffic.

LINE MARKING MACHINE

- 11A. All traffic line marking machines shall be equipped and operated with the following traffic control equipment:
- Three high-intensity yellow rotating, flashing, oscillating, or strobe lights, clearly visible a minimum of one quarter mile, one forward, one on the right rear and one on the left rear of the vehicle.
 - Any one of the following two:
 - A Type B arrow board displayed to the rear, mounted a minimum of 7' above the road surface, measured to the bottom of the board.
 - A DO NOT PASS (R11-H7-48) sign visible to the rear during center line marking on two-lane, two-way roadways and mounted a minimum of 7' above the road surface, measured to the bottom of the sign. This sign may be used to cover the arrow board when used on two-lane, two-way roadways.

- 11B. A WET PAINT with Arrow (W24-H2a-24 or W24-H2-48) sign shall face the rear as follows:
- The sign shall be positioned with the arrow pointing to the wet line.
 - When used, a W24-H2a-24 sign shall be mounted on the side of the vehicle nearest the wet marking material.
 - W24-H2a-24 and W24-H2-48 signs shall be mounted a minimum of 1' above the road surface, measured to the bottom of the signs.

- 11C. A KEEP RIGHT (W24-H4-48) sign and WET PAINT (W24-H3-48) sign mounted a minimum of 5' above the road surface, measured to the bottom of the sign facing opposing traffic when this unit extends into the adjacent opposing traffic lane.

- 11D. The guide and side-mounted marking carriages shall each be equipped with a clean red flag not less than 24" square and fastened to a staff of sufficient length so as to permit the flag to move freely of any obstruction.

SHADOW VEHICLE

- 12A. When required, a shadow vehicle shall be in place whenever workers are in the work area. The vehicle shall be removed from the pavement whenever workers are not in the work area. The shadow vehicle shall be positioned at the track-free end of the wet line.

- 12B. Shadow vehicles shall be equipped and operated with the following traffic control equipment (Also see Figure 6H-17 & 6H-35 in the OMUTCD):

- A high-intensity yellow rotating, flashing, oscillating, or strobe light(s), clearly visible a minimum of one quarter mile.
- Any one of the following two:
 - A Type B arrow board, displayed to the rear, mounted a minimum of 7' above the road surface, measured to the bottom of the board.
 - A DO NOT PASS (R11-H7-48) sign visible to the rear during center line marking on two-lane, two-way roadways and mounted a minimum of 7' above the road surface, measured to the bottom of the sign. This sign may be used to cover the arrow board when used on two-lane, two-way roadways.
- On multi-lane highways (45 mph and above), a truck-mounted or trailer attenuator (TMA) in accordance with CMS 614.03.

- 12C. A WET PAINT with Arrow (W24-H2a-24 or W24-H2-48) sign shall face the rear as follows:
- The sign shall be positioned with the arrow pointing to the wet line.
 - When used, W24-H2a-24 shall be mounted on the side of the vehicle nearest the wet marking material.
 - W24-H2a-24 signs shall be mounted a minimum of 1' above the road surface and W24-H2-48 shall be mounted a minimum of 5' above the road surface, both measured to the bottom of the sign.

MINIMUM PAVEMENT MARKING TRAFFIC CONTROL EQUIPMENT REQUIREMENTS

This table indicates the traffic control equipment which shall be furnished for each type of long line pavement marking operation. In addition, the type of traffic control equipment which shall be furnished when directed by the Engineer is indicated.

EQUIPMENT	PAVEMENT MARKING LINE TYPE ①					
	CENTER LINE		EDGE LINE		LANE LINE ② CHANNELIZING LINE ③	
	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY
LEAD VEHICLE	A	A	C	C	C	C
POWER BROOM EQUIPMENT	B	B	A	A	B	B
LINE MARKING MACHINE	A	A	A	A	A	A
SHADOW VEHICLE	D	A	D	A	LANE CLOSURE REQUIRED (DAYTIME: 28" MIN HEIGHT CONES REQ'D; NIGHTTIME (MULTI-LANE HIGHWAYS): 42" MIN. HEIGHT CONES REQUIRED IN TANGENT WITH DRUMS REQUIRED IN TAPER)	A
SHADOW VEHICLE (ADDITIONAL)	C	B	C	B		A
SHADOW VEHICLE (SIGN AND CONE RETRIEVAL)	A	C	A	C		C
SHADOW VEHICLE (SHADOW FOR RETRIEVAL)	A	C	A	C		C

- ① For equipment requirements for auxiliary marking operations see the plans and OMUTCD Part 6.
- ② Includes both dashed and solid lane lines.
- ③ Channelizing line segments of 200' or less shall be considered auxiliary markings, except when applied as components of gore markings sprayed in moving operations separate from the application of transverse lines.

A	Required equipment
B	Equipment required when directed by the engineer
C	Not required
D	Required equipment for sign and cone placement