

**GENERAL**

IN ADDITION TO 614, TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

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. 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.

THE ENGINEER MAY SUSPEND WORK IN ORDER TO RELIEVE TRAFFIC CONGESTION AT ANY TIME. NO WORK SHALL BE DONE DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

VEHICLES TRANSPORTING FLAMMABLE PAVEMENT MARKING MATERIALS (MATERIAL SUPPLY VEHICLES) SHALL NOT BE UTILIZED FOR LEAD OR TRAIL VEHICLES OR FOR POWER BROOM EQUIPMENT. ALL PAVEMENT MARKING APPLICATION, PROTECTION AND SUPPORT EQUIPMENT FOLLOWING THE LINE MARKING MACHINE SHALL HAVE THE TRAFFIC CONTROL EQUIPMENT OF A TRAIL VEHICLE.

LINE MARKING MACHINES SHALL NOT BE USED FOR SIGN AND CONE PLACEMENT.

**LEAD VEHICLE**

A LEAD VEHICLE IS TO 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. THE LEAD VEHICLE SHALL PRECEDE THE "LEFT OF CENTER" MARKING EQUIPMENT A DISTANCE THAT WILL PROVIDE ADVANCE SAFE WARNING TO APPROACHING TRAFFIC. 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 122 m TO 183 m.

A LEAD VEHICLE SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL DEVICES:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF 400 m.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
3. A KEEP RIGHT SIGN (OC-31R-48) AND WET PAINT SIGN (OC-52-48) MOUNTED A MINIMUM OF 1.5 m ABOVE THE ROAD SURFACE MEASURED TO THE BOTTOM OF THE SIGN, AND VISIBLE TO OPPOSING TRAFFIC.

**POWER BROOM EQUIPMENT**

POWER BROOM EQUIPMENT SHALL BE EQUIPPED AND OPERATED DURING PAVEMENT PREPARATIONS WITH THE FOLLOWING TRAFFIC CONTROL DEVICES:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF 400 m.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
- \* 3. A FLASHING ARROW PANEL 1.4 X .76 m CONFORMING TO MT-35.10M (TYPE B) VISIBLE TO THE REAR MOUNTED A MINIMUM OF 2 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS.

**LINE MARKING MACHINE**

ALL TRAFFIC LINE MARKING MACHINES SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL EQUIPMENT:

1. THREE 360° ROTATING OR FLASHING AMBER BEACONS CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF 400 m; MOUNTED A MINIMUM OF 2 m ABOVE THE ROAD SURFACE, ONE FORWARD, ONE ON THE RIGHT REAR AND ONE ON THE LEFT REAR OF THE VEHICLE.
- \* 2. (A) A FLASHING ARROW PANEL 1.4 X .76 m CONFORMING TO MT-35.10M (TYPE B) DISPLAYED TO THE REAR MOUNTED A MINIMUM OF 2 m ABOVE THE ROAD SURFACE, MEASURED TO BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS, OR  
(B) A DO NOT PASS SIGN (R-33A-48) VISIBLE TO THE REAR DURING CENTER LINE MARKING ON TWO-LANE, TWO-WAY ROADWAYS AND MOUNTED A MINIMUM OF 2 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN. THIS SIGN MAY BE USED TO COVER THE ARROW PANEL WHICH SHALL NOT BE USED ON TWO-LANE, TWO WAY ROADWAYS.
3. A WET PAINT WITH ARROW SIGN (OC-50-24 OR OC-51-48) SHALL FACE THE REAR. THE SIGN SHALL BE POSITIONED WITH THE ARROW POINTING TO THE WET LINE. WHEN USED, OC-50-24 SHALL BE MOUNTED ON THE SIDE OF THE VEHICLE NEAREST THE WET MARKING MATERIAL. OC-50-24 AND OC-51-48 SIGNS SHALL BE MOUNTED A MINIMUM OF 0.3 m ABOVE THE ROAD SURFACE.
4. A KEEP RIGHT SIGN (OC-31R-48) AND WET PAINT SIGN (OC-52-48) MOUNTED A MINIMUM OF 1.5 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN FACING OPPOSING TRAFFIC WHEN THIS UNIT EXTENDS INTO THE ADJACENT OPPOSING TRAFFIC LANE.
5. THE GUIDE AND SIDE MOUNTED MARKING CARRIAGES SHALL EACH BE EQUIPPED WITH A CLEAN RED FLAG NOT LESS THAN 0.4 m SQUARE AND FASTENED TO A STAFF OF SUFFICIENT LENGTH SO AS TO PERMIT THE FLAG TO MOVE FREELY OF ANY OBSTRUCTION.

**TRAIL VEHICLE**

WHEN REQUIRED, A TRAIL VEHICLE SHALL BE POSITIONED AT THE TRACK FREE END OF THE WET LINE.

TRAIL VEHICLES SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL EQUIPMENT:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF 400 m,
- \* 2. (A) A FLASHING ARROW PANEL 1.4 X .76 m CONFORMING TO MT-35.10M (TYPE B) VISIBLE TO THE REAR MOUNTED AT A MINIMUM HEIGHT OF 2 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS; OR  
(B) A DO NOT PASS SIGN (R-33A-48) VISIBLE TO THE REAR DURING CENTER LINE MARKING ON TWO-LANE, TWO-WAY ROADWAYS AND MOUNTED A MINIMUM OF 2 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN. THIS SIGN MAY BE USED TO COVER THE ARROW PANEL, WHICH SHALL NOT BE USED ON TWO-LANE, TWO-WAY ROADWAYS.
3. A WET PAINT WITH ARROW SIGN (OC-50-24 OR OC-51-48) SHALL FACE THE REAR. THE SIGN SHALL BE POSITIONED WITH THE ARROW POINTING TO THE WET LINE. WHEN USED, OC-50-24 SHALL BE MOUNTED ON THE SIDE OF THE VEHICLE NEAREST THE WET MARKING MATERIAL. OC-50-24 SHALL BE MOUNTED A MINIMUM OF 1.4 m ABOVE THE ROAD SURFACE AND OC-51-48 SHALL BE MOUNTED A MINIMUM OF 1.5 m ABOVE THE ROAD SURFACE, BOTH MEASURED TO THE BOTTOM OF THE SIGN.

\* WHEN A VEHICLE IS OPERATING ON A TWO-LANE TWO-WAY ROADWAY THE FLASHING ARROW PANEL SHALL BE TILTED HORIZONTALLY OR COVERED.

**CONES AND WET PAINT-KEEP OFF SIGNS**

CONES AND WET PAINT-KEEP OFF SIGNS (R-87-24) SHALL BE PLACED TO PROTECT THE LINE WHENEVER THE TRACK FREE TIME EXCEEDS 2 MINUTES. THESE DEVICES SHALL NOT BE REMOVED UNTIL THE LINE HAS DRIED TO A TRACK FREE CONDITION. RETRIEVAL EQUIPMENT SHALL HAVE THE TRAFFIC CONTROL EQUIPMENT OF A TRAIL VEHICLE. CONES SHALL HAVE A MINIMUM HEIGHT OF 0.46 m. THEY SHALL BE SPACED TO PROTECT THE WET LINE NORMALLY BETWEEN 37 m AND 61 m. IN AREAS OF TRAFFIC CONGESTION, ON CURVES AND AT OTHER LOCATIONS WHERE TRACKING OF THE WET LINE IS EXPECTED SPACINGS AS CLOSE AS 6.1 m MAY BE REQUIRED. THE WET PAINT-KEEP OFF SIGNS (R-87-24) SHALL BE PLACED FACING TRAFFIC AT:

- A. THE BEGINNING AND END OF LINE APPLICATION,
- B. ALL SIDE AND CROSS ROADS, AND
- C. MAXIMUM INTERVALS OF 1.6 km.

WHEN LANE LINE MARKINGS REQUIRE GREATER THAN A TWO MINUTE DRYING TIME, THE LANE FROM WHICH THE LINE MARKING MACHINE APPLIES LANE LINE MARKINGS SHALL BE CLOSED UNTIL THE LINE HAS DRIED TO A TOTALLY TRACK FREE CONDITION.

**IMMOBILE OPERATIONS**

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. WHEN IT BECOMES NECESSARY TO ENTER UPON PRIVATE PROPERTY, PERMISSION SHALL BE OBTAINED IN ADVANCE. 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.

TWO-WAY TRAFFIC SHALL BE MAINTAINED. FLAGGERS SHALL BE EQUIPPED IN ACCORDANCE WITH ITEM 614.03.

**AUXILIARY MARKINGS**

PAVEMENT PREPARATION AND PLACING OF AUXILIARY MARKINGS (SEE ③) 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).

**LAYOUT AND PREMARKING**

THE VEHICLE USED IN LAYOUT AND PREMARKING SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING EQUIPMENT:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF 400 m.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
3. A KEEP RIGHT SIGN (OC-31R-48) MOUNTED A MINIMUM OF 1.5 m ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, AND VISIBLE TO OPPOSING TRAFFIC.

**NIGHTTIME OPERATION**

NIGHTTIME OPERATION IS DEFINED TO INCLUDE THE TIME FROM ONE-HALF HOUR AFTER SUNSET TO ONE-HALF HOUR BEFORE SUNRISE, AND AT ANY OTHER TIME WHEN THERE ARE UNFAVORABLE ATMOSPHERIC CONDITIONS OR WHEN THERE IS NOT SUFFICIENT NATURAL LIGHT TO RENDER DISCERNIBLE PERSONS, VEHICLES, AND SUBSTANTIAL OBJECTS ON THE HIGHWAY AT A DISTANCE OF 305 m.

DURING NIGHTTIME CONDITIONS THE FOLLOWING TRAFFIC CONTROL SHALL BE PROVIDED:

1. CONES SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY (SEE 7F-5, OMUTCD), AND
2. THE GUIDE AND SIDE-MOUNTED CARRIAGES SHALL BE ILLUMINATED.

THE PRESENCE OF HIGHWAY LIGHTING DOES NOT WAIVE THESE REQUIREMENTS.

**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
TRAIL VEHICLE	D	A	D	A	LANE CLOSURE REQUIRED (0.7 m CONES REQUIRED)	A
TRAIL VEHICLE (ADDITIONAL)	C	B	C	B		A
TRAIL VEHICLE (SIGN & CONE RETRIEVAL)	A	C	A	C		C
TRAIL VEHICLE (SHADOW FOR RETRIEVAL)	A	C	A	C		C

① FOR EQUIPMENT REQUIREMENTS FOR AUXILIARY MARKING OPERATIONS SEE THE PLANS AND PART 7, OMUTCD.

② INCLUDES BOTH DASHED AND SOLID LANE LINES.

③ CHANNELIZING LINE SEGMENTS OF 61 m 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 & CONE PLACEMENT

# METRIC

BUREAU OF DESIGN SERVICES  
DIVISION OF HIGHWAYS  
OHIO DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC	DATE
TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS	01/30/95

STANDARD CONSTRUCTION DRAWING **MT-99.20M**

APPROVED *[Signature]* ENGR. OF DESIGN SERVICES