

ADD-ON LANE

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE (FT)
	A
MAJOR CONVENTIONAL	500
FREEWAY & EXPRESSWAY	1000

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	1/2 MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	PB FLARE RATE MINIMUM	BUFFER (D) (FT) MINIMUM	CLEAR ZONE WIDTH (E) (FT)
25	11:1	6:1	4:1	8:1	155	15
30	15:1	8:1	5:1	8:1	200	15
35	21:1	11:1	7:1	9:1	250	15
40	27:1	14:1	9:1	10:1	305	15
45	45:1	23:1	15:1	12:1	360	19
50	50:1	25:1	17:1	14:1	425	19
55	55:1	28:1	19:1	16:1	495	23
60	60:1	30:1	20:1	18:1	570	30
65	65:1	33:1	22:1	19:1	645	30
70	70:1	35:1	24:1	20:1	730	30

TABLE III (RAMP DESIGN SPEED)

MAINLINE DESIGN SPEED (MPH)	30	35	40	45	50	55	60	65	70	75
RAMP DESIGN SPEED (MPH)	25	30	35	40	45	48	50	55	60	65

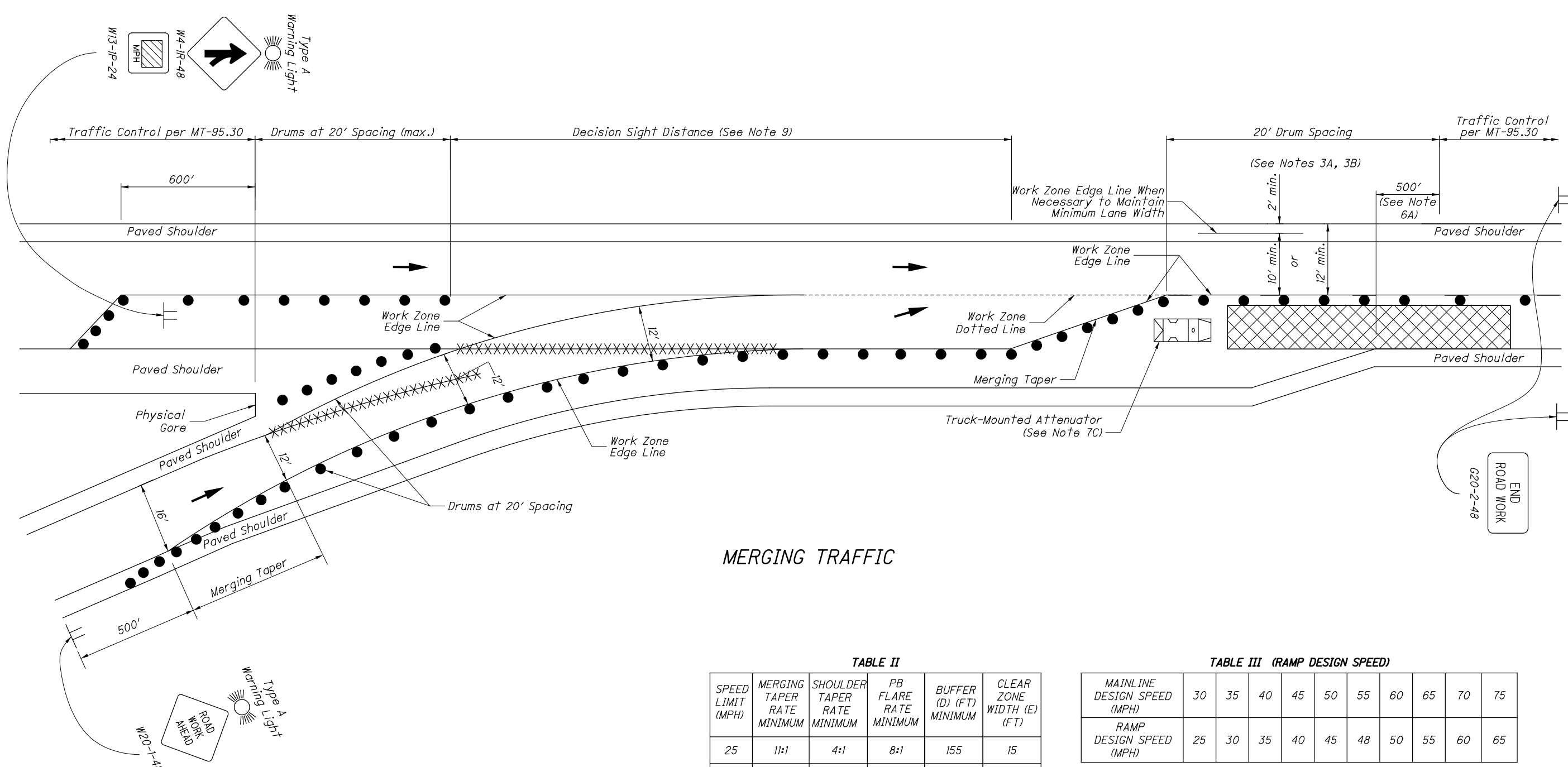
LEGEND

WORK AREA

DRUMS/CONES

DIRECTION OF TRAVEL

SHADOW VEHICLE WITH TMA



MERGING TRAFFIC

LEGEND

WORK AREA	
DRUMS/CONES	
REMOVE EXISTING MARKINGS	
DIRECTION OF TRAVEL	
SHADOW VEHICLE WITH TMA	

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	PB FLARE RATE MINIMUM	BUFFER (D) (FT) MINIMUM	CLEAR ZONE WIDTH (E) (FT)
25	11:1	4:1	8:1	155	15
30	15:1	5:1	8:1	200	15
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TABLE III (RAMP DESIGN SPEED)

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RAMP DESIGN SPEED (MPH)	25	30	35	40	45	48	50	55	60	65

THIS DRAWING REPLACES MT-98.11 DATED 04-19-2019.

SCD NUMBER
MT-98.11

STANDARD ROADWAY CONSTRUCTION DRAWING
LANE CLOSURE AT ENTRANCE RAMP ACCELERATION LANE

OFFICE OF
ROADWAY ENGINEERING

STATUS
ENGINEER
Soisson

STATE OF OHIO DEPARTMENT OF
TRANSPORTATION ADMINISTRATOR
David L. Holstein

REVISION DATE
01-17-2020

NOTES:

SIGNING

- 1A. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits. Any G20-2 sign which would fall within the limits of another work zone may be omitted.
- 1B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.
- 1C. The spacing between work zone signs, as shown in Table I, are minimums. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.
- 1D. When the ramp is not long enough to allow sign placement as specified above, they may be spaced proportionately within the space available as determined by the Engineer (a 200' minimum spacing must be maintained).
- 1E. For advance signing and marking, and any other traffic control procedures to be implemented approaching the subject location, see Standard Construction Drawings (SCDs) MT-95.30, MT-95.40, or the MT-102 series drawings as may be appropriate.
- 1F. It is intended that the Merge sign (W4-1-48 or W4-3-48 as appropriate for the specified condition) be located to the right of the through lane as shown. However, if the sign cannot be located as shown due to the activity at the location, the sign may be located to the left of the through lane as an alternate.

FLASHING WARNING LIGHTS

- 2. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) sign and on the Merge (W4-1-48 or W4-3-48) sign are required at night.

RAMP WIDTH

- 3A. Normally a 10' minimum ramp width is to be maintained on existing ramp pavement.
- 3B. Where the condition in Note 3A is not possible, a minimum width of 12' to the outside edge of the paved shoulder may be used only if the shoulder pavement buildup is adequate to carry the load. Where an edge line is required to designate a shoulder, the edge line shall be placed such that the minimum lane width is 10' and the minimum shoulder width is 2'.

PAVEMENT MARKING

- 4A. If the construction operation requires a lane closure for more than 1 day, the existing conflicting reflectors from the raised pavement markers shall be removed.
- 4B. Additionally, if a lane closure of greater than 3 days is required, the appropriate color work zone edge lines shall be applied along the taper, and the existing conflicting pavement markings shall be removed or covered as per CMS 614.11G.

4C. Where the temporary merging taper is to be in use for more than 3 days, work zone dotted lines shall be provided to identify the extension of the edge line.

4D. Work zone pavement markings which would conflict with the final traffic lanes shall be removable tape (CMS 740.06, Type I) unless the area will be resurfaced prior to project completion.

4E. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed to accordance with CMS 614.11I. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

(RESERVED FOR FUTURE USE)

5A. (intentionally blank)

DRUMS / CONES

6A. Drum spacing shall be as follows:

- a) 20' center-to-center along the mainline beginning at the physical gore, and continuing to a point 500' beyond the end of the merging taper;
- b) As shown on SCD MT-95.30 elsewhere along the mainline; and
- c) 20' center-to-center along the ramp.

6B. Cones may be substituted for drums as follows:

- a) Use of cones is permissible for either daytime operation or for nighttime operation, but shall not be used continuously, day and night. Upon completion of work within the work period, the cones shall be removed. They may again be placed on the highway in order to resume work in the following such work period.
- b) Cones used for daytime traffic control shall have a minimum height of 28".
- c) Cones used for nighttime traffic control shall have a minimum height of 42".
- d) Use of cones at night shall be prohibited along tapers.
- e) Cone spacing at night shall be at a maximum of 40', but shall never be greater than the drum spacing called for in Note 6A.
- f) Where cones are substituted for drums along tangents, intermixing of channelizing devices within the same run will not be permitted. Either cones shall be used for the entire length of the tangent section, or drums shall be used for the entire run.

6C. Provisions shall be made to stabilize the cones and drums per the manufacturer's specifications to prevent them from blowing over.

SHADOW VEHICLE

- 7A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.
- 7B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s), clearly visible a minimum of one-quarter mile.
- 7C. The shadow vehicle shall be equipped with a truck-mounted or trailer attenuator (TMA) in accordance with CMS 614.03.

PORTABLE BARRIERS (PB)

8A. A tapered end section may be used in place of the impact attenuator at locations where the last full section of NCHRP 350 PB can be extended outside of the clear zone for approaching traffic. See Table II for clear zone widths.

8B. If it is necessary to provide the Contractor with access to the work area behind the PB flare, the PB end treatment shall include an impact attenuator. The maximum width of opening shall be 9' between the impact attenuator and the outside edge of the paved shoulder.

8C. If Contractor access is provided per Note 8B, the length of PB shall be adequate to shield the work area from the motorist. This length of need of PB shall be determined from the calculations provided in SCD MT-101.75 and the L&D Manual, Volume I, Figure 602-1E, and shall require the approval of the Engineer.

8D. When used, impact attenuators shall be installed parallel to traffic. Also, the last full section of PB, adjacent to the impact attenuator, shall be located parallel to traffic.

8E. For installation procedures, refer to the manufacturer's installation instructions.

8F. For details on delineation of PB, see SCD MT-101.70.

8G. Where PB is located beyond the edge of the paved shoulder, the cross slope within the clear zone, including the surface on which the PB is placed, shall be graded at 10:1 or flatter. If the cross slope is steeper than 10:1, the PB shall be terminated on the paved shoulder. The PB shall be extended along the paved shoulder as necessary to satisfy the length of need, and then terminated using the impact attenuator.

DECISION SIGHT DISTANCE (DSD)

9. If the DSD is not specified in the plans, it shall be as determined by the Engineer (see ODOT Traffic Engineering Manual Section 607-15 the table below).

DECISION SIGHT DISTANCE

POSTED MAINLINE SPEED (MPH)	RURAL (FEET)	URBAN (FEET)
45	675	930
50	750	1030
55	865	1135
60	990	1280
65	DIAMOND RAMP = 1050 LOOP RAMP = 1220	1365
70	DIAMOND RAMP = 1105 LOOP RAMP = 1275	1445

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STANDARD ROADWAY CONSTRUCTION DRAWING

LANE CLOSURE AT ENTRANCE RAMP ACCELERATION LANE

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER
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