

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT) MINIMUM
			TAPER SEC.	TANGENT SEC.	
25	11:1	4:1	25	40	155
30	15:1	5:1	30	40	200
35	21:1	7:1	35	40	250
40	27:1	9:1	40	80	305
45	45:1	15:1	45	80	360
50	50:1	17:1	50	80	425
55	55:1	19:1	55	80	495

LEGEND

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

THIS DRAWING REPLACES MT-95.32 DATED 07-21-2017.

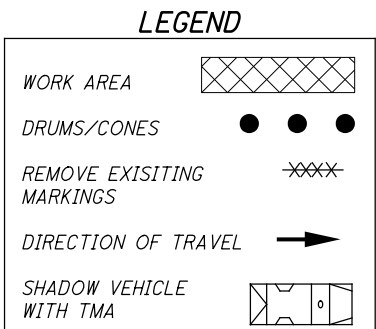
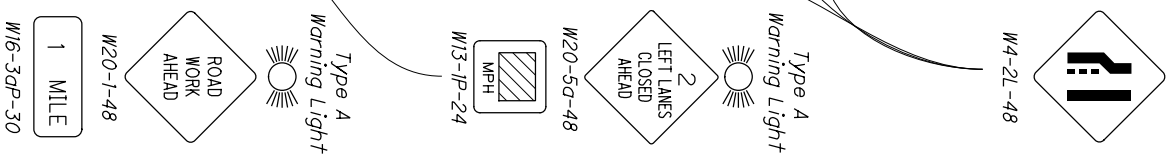
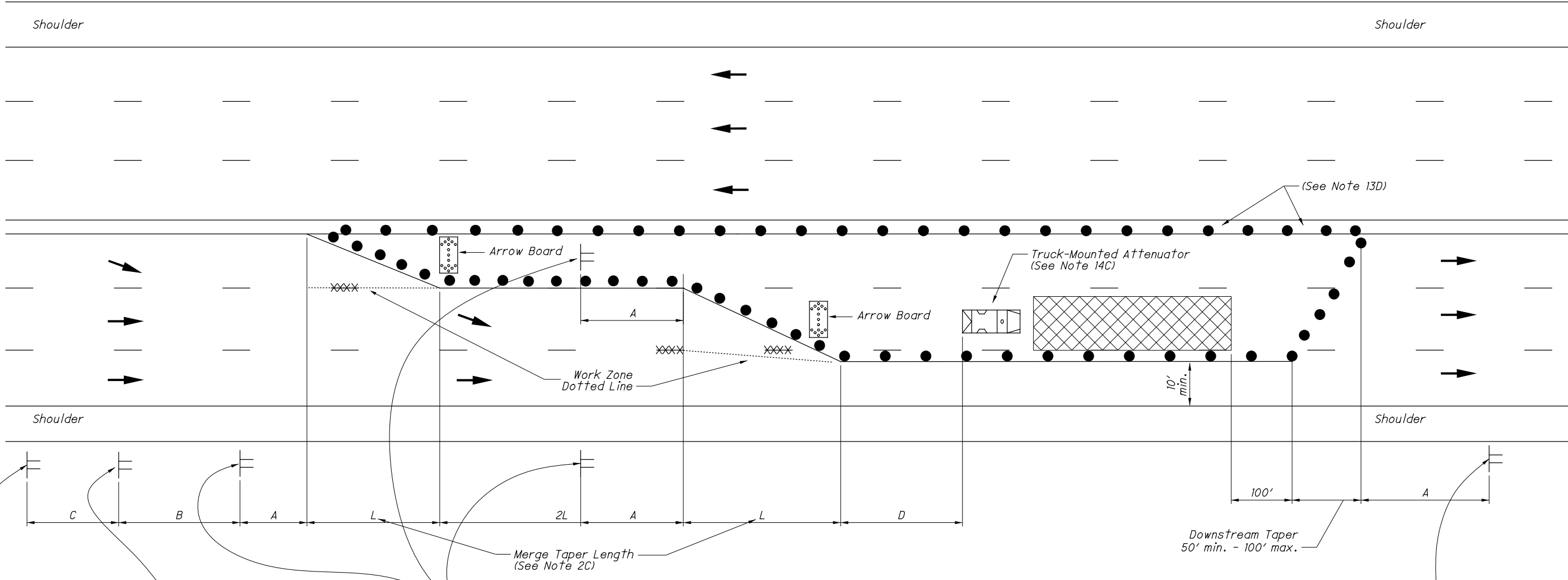
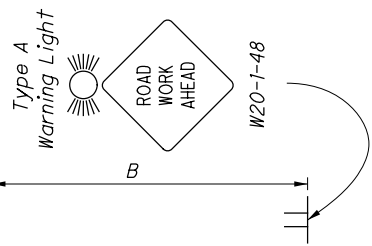
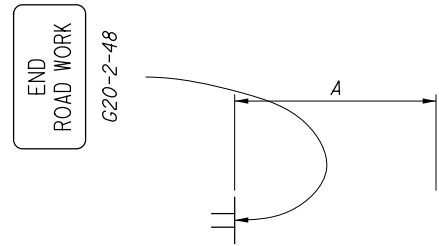


TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT) MINIMUM
			TAPER SEC.	TANGENT SEC.	
25	11:1	4:1	25	40	155
30	15:1	5:1	30	40	200
35	21:1	7:1	35	40	250
40	27:1	9:1	40	80	305
45	45:1	15:1	45	80	360
50	50:1	17:1	50	80	425
55	55:1	19:1	55	80	495

THIS DRAWING REPLACES MT-95.32 DATED 07-21-2017.

NOTES:

DESIGN SPEED

- 1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

- 2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.
- 2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.
- 2C. The tangent section between the two merge tapers should be two times the longer of the two merge tapers.

SIGN SPACING

- 3A. The work zone sign spacings shown in Table I are minimums. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.
- 3B. 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 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

- 4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

- 5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.
- 5B. 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.
- 5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 signs which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

- 6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.
- 6B. When the approach speed limit is 40 mph or less, 36" warning signs may be used.
- 6C. The distance plaque W16-3aP (or W16-2aP if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than 1 mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.
- 6D. Provide signing on the inactive side of the highway, as shown, when specified in the plans.

EXTRA ADVANCE WARNING SIGNING

- 7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5), LANES CLOSED AHEAD (W20-5a), and WATCH FOR STOPPED TRAFFIC (W3-H4b) signs plus Distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer (see Standard Construction Drawing (SCD) MT-95.50).

PAVEMENT MARKINGS / RPMs

- 8A. If the construction operation requires a lane closure for more than 1 day, the existing conflicting reflectors shall be removed from the raised pavement markers (RPMs).
- 8B. Additionally, if a lane closure of greater than 3 days is required, the following shall be performed:
 - a) The appropriate color work zone edge lines shall be applied along the taper and tangent sections.
 - b) The existing conflicting pavement markings shall be removed or covered per CMS 614.11G.
 - c) Work zone dotted lines, 3' in length separated by 9' gaps, shall be provided to identify the merge.
- 8C. Work zone pavement markings which would conflict with final traffic lanes shall be removable tape (CMS 740.06, Type I) unless the area will be resurfaced prior to project completion.
- 8D. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 614.11 I. 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)

- 9A. (intentionally blank)

ARROW BOARD

- 10. The arrow board shall be chosen from the ODOT approved list and follow the guidelines in Supplemental Specification 821.

FLASHING WARNING LIGHTS

- 11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

INTERSECTION / DRIVEWAY ACCESS

- 12. Within the length of the closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:
 - a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
 - b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in SCD MT-97.11. For barricades, see SCD MT-101.60.

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS / CONES

- 13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder. The downstream taper drum spacing shall be approximately 20'.
- 13B. 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'.
 - 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 length.

13C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

13D. Drums shall not encroach into the opposing lane of traffic. If drums encroach into the opposing lane, the lane shall be closed.

13E. All drums and cones should have a minimum offset from the edge of the traveled lanes of 1.5 feet.

SHADOW VEHICLE

- 14A. 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.
- 14B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).
- 14C. The shadow vehicle shall be equipped with a truck-mounted or trailer attenuator (TMA) in accordance with CMS 614.03.

BUFFER SPACE

- 15A. Where space constraints do not allow for the buffer space, a shorter length may be used.