

Work Area Safe Entry/Exit for Work Vehicles

“DON’T FOLLOW ME”

**National Traffic Management &
Work Zone Safety Conference
March 12, 2009**



Maryland State Highway Administration
Office of Traffic and Safety



Overview

- Rule on Traffic Control Devices, Subpart K
- Current SHA Guidelines
- Additional Proposed Treatments
- Ongoing Assessment of Issues Related to Work Area Entry/Exit





Rule on Traffic Control Devices (23 CFR 630, Subpart K)

- Effective date of December 04, 2008
- Requires States to consider road user and worker safety by addressing:
 - Use of positive protection devices to prevent intrusions;
 - Exposure control measures;
 - Other traffic control measures to minimize crashes;
 - Safe entry/exit of work vehicles/equipment from the travel lanes
- Sparked SHA's evaluation of work zone related standards and guidelines related to entry/exit of work vehicles/equipment.



Current SHA Guidelines

Rule mandates addressing safe entry/exit of work vehicles/equipment to/from work area

- SHA's guidelines primarily deal with sign placement in the work zone
- SHA's guidelines are provided in:
 - General Notes, Book of Standards
 - Standard Details, Book of Standards
 - Standard Specifications

General Notes

4.17 TRUCK CROSSING (W11-(10)1) signs shall only be used during the following two situations:

- 1) A work area entrance is allowed along a controlled access highway.
- 2) A work area entrance is provided along highways other than controlled access, the entrance does not have adequate decision sight distance for approaching traffic, and the entrance cannot be relocated to provide adequate decision sight distance. Refer to Standard No. MD 104.00-03 of the General Notes for decision sight distance criteria.

TRUCK CROSSING signs shall be placed according to the Shoulder Work Typical Applications, with TRUCK CROSSING signs replacing all SHOULDER WORK signs.

Any distances to be displayed on the TRUCK CROSSING sign shall be installed using supplemental distance plaques.



SPECIFICATION	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES	
APPROVED	 DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	GENERAL NOTES	
	APPROVAL - SHA	APPROVAL - FEDERAL	
	REVISIONS	HIGHWAY ADMINISTRATION	
	APPROVAL 8-20-03	APPROVAL 9-23-03	
	REVISED	REVISED	
	REVISED	REVISED	
	REVISED	REVISED	
STANDARD NO.		MD 104.00-08	





General Notes – Safe Entry/Exit

- W 11-10(1) sign on controlled access facilities
- W11-10(1) sign on any facility where stopping sight distance is less than requirement and entrance cannot be relocated
- Place at same interval as “Shoulder Work” signage



W11-10(1)

Standard Detail

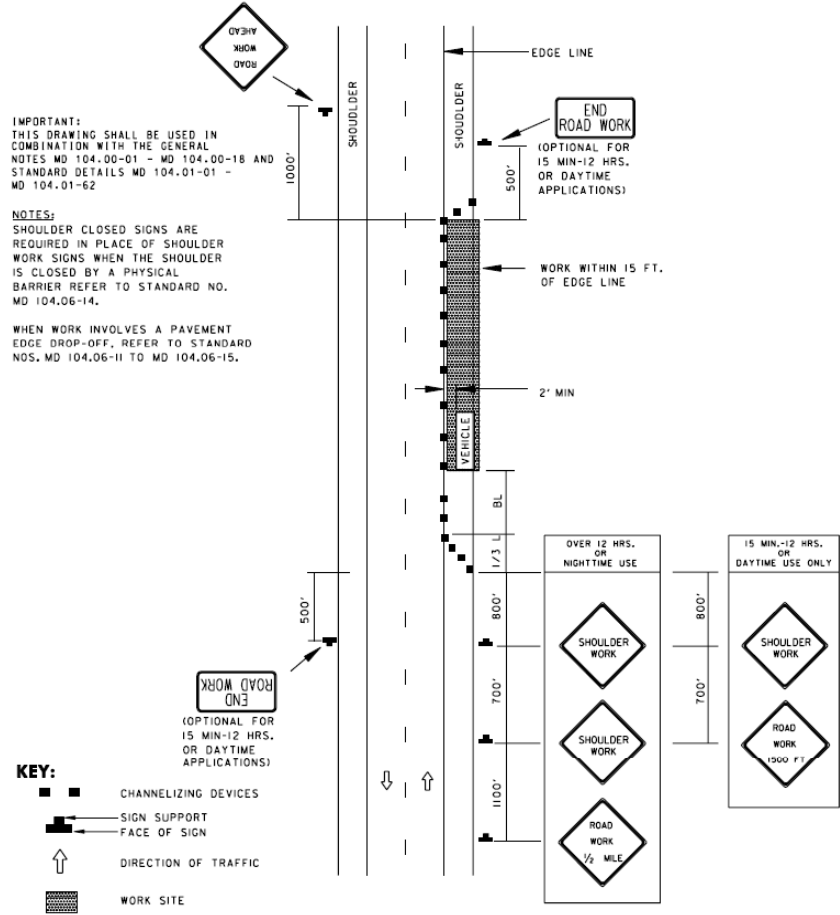


TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-62

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY A PHYSICAL BARRIER REFER TO STANDARD NO. MD 104.06-14.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-11 TO MD 104.06-15.



SPECIFICATION 104	CATEGORY CODE ITEMS										
APPROVED	<i>[Signature]</i> DIRECTOR - OFFICE OF TRAFFIC AND SAFETY										
SHA State Highway Administration	<table border="1"> <tr> <td>APPROVAL * SHA REVISIONS</td> <td>APPROVAL * FEDERAL HIGHWAY ADMINISTRATION</td> </tr> <tr> <td>APPROVAL 8-20-03</td> <td>APPROVAL 9-23-03</td> </tr> <tr> <td>REVISED</td> <td>REVISED</td> </tr> <tr> <td>REVISED</td> <td>REVISED</td> </tr> <tr> <td>REVISED</td> <td>REVISED</td> </tr> </table>	APPROVAL * SHA REVISIONS	APPROVAL * FEDERAL HIGHWAY ADMINISTRATION	APPROVAL 8-20-03	APPROVAL 9-23-03	REVISED	REVISED	REVISED	REVISED	REVISED	REVISED
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Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

**SHOULDER WORK /2-LANE, 2-WAY
GREATER THAN 40 MPH**

STANDARD NO. MD 104.02-01



Standard Specifications

MD 104.02.03 Construction

- Addresses movement of work vehicles in work zones
- Mandates vehicle entrance and exit in the direction of traffic flow



Additional Proposed Treatments

- Specific Vehicle Safety Light Requirements
 - Provides guidance on lighting packages to ensure proper visibility
 - Lighting packages arranged by “category” of vehicle
 - Improves motorist awareness of work vehicle movement

Vehicle Safety Light Detail



TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION VEHICLE LIGHTING SELECTION CHART

VEHICLE LIGHTING DEVICES										
LEVEL	VEHICLE TYPES	OPTION	SINGLE AMBER FLASHING LIGHT*	SINGLE AMBER LIGHT**	FLASHING BAR LIGHTS (NOT IN REAR)***	TWO REAR AMBER FLASHING BAR LIGHTS***	TWO AMBER FLASHING DOME LIGHTS***	FOUR-WAY FLASHERS****	WHITE STROBE LIGHTS IN GRILL OR TAIL LIGHTS	360 DEGREE VISIBILITY
1	PASSENGER CARS, SPORT UTILITY VEH., PICK-UP TRUCKS, ROLLERS, MINIVANS	1	X					X	X	X
		2		X				X	X	X
2	UTILITY VEHICLES, CREW CABS, DUMP TRUCKS, PAINT TRUCKS, BRIDGE INSPECTION VEHICLES, GRADERS, CRANES, SWEEPERS, SNOW PLOWS, LOADERS, EXCAVATORS, MOWERS, BACKHOES, FORKLIFTS, CARGO VANS, PASSENGER VANS, ETC.	1			X	X		X	X	X
		2					X	X	X	X
		3	X			X		X	X	X
3	VEHICLES RETROFITTED WITH ARROW PANEL OR PVMS	1				X		X	X	X
		2				X		X	X	X

USE
 * WARNING LIGHTS ON DURING WORK ZONE SET-UP/REMOVAL.
 * WARNING LIGHTS REMAIN ON IN HIGHWAY WORK ZONE.

SPECIAL INSTRUCTIONS
 * RED LIGHTS TO BE INSTALLED ONLY AFTER APPROVAL FROM THE OFFICE OF CHART.
 * WHITE STROBE INSTALLATION/USE MUST BE APPROVED BY ENGINEER.

* WARNING LIGHTS ON DURING WORK ZONE SET-UP/REMOVAL.
 * WARNING LIGHTS REMAIN ON IN HIGHWAY WORK ZONE.

* RED LIGHTS TO BE INSTALLED ONLY AFTER APPROVAL FROM THE OFFICE OF CHART.
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* WARNING LIGHTS ON DURING WORK ZONE SET-UP/REMOVAL.
 * WARNING LIGHTS REMAIN ON IN HIGHWAY WORK ZONE.
 * WARNING LIGHTS WITH ARROW PANEL OR PVMS SHALL BE TURNED OFF.

* RED LIGHTS TO BE INSTALLED ONLY AFTER APPROVAL FROM THE OFFICE OF CHART.
 * WHITE STROBE INSTALLATION/USE MUST BE APPROVED BY ENGINEER.

KEY : X -REQUIRED, / -OPTIONAL

- *FLASHING STROBE OR FLASHING ROTATING
- **FLASHING STROBE AND FLASHING ROTATING
- ***ONE STROBE/ROTATING LEFT AND ONE STROBE/ROTATING RIGHT
- NOTE: REAR AMBER FLASHING LIGHTS SHALL FLASH IN AN ALTERNATING MANNER
- ****IF A VEHICLE DOES NOT HAVE STANDARD EQUIPPED FOUR-WAY FLASHERS, THEY ARE NOT REQUIRED
- NOTE: ADDITIONAL LIGHTS SHOULD BE ADDED TO THE VEHICLE TO OUTLINE OBSTACLES ATTACHED TO THE VEHICLE SUCH AS A BLADE OR TRAILER

- DEVICE DESCRIPTIONS:**
- ROTATING LIGHTS - DEVICE DESIGNED TO PROJECT LIGHT ON A SWEEPING 360 DEGREE ARC.
 - LIGHT BAR - A HOUSING UNIT OR GROUP OF HOUSINGS OR UNITS CONTAINING AMBER LIGHTS OR LENSES WITH ONE OR MORE FLASHING WARNING LIGHTS IN EACH HOUSING.
 - STROBE LIGHT - DEVICE THAT EMITS LIGHT IN PULSES AT A RATE NOT TO EXCEED 5 PULSES PER SECOND (5 Hz).
 - 4-WAY FLASHERS - LIGHTS INSTALLED ON VEHICLES, REFERRED TO AS HAZARDS, THAT FLASH AT A CERTAIN RATE WHEN ACTIVATED.
 - NOTE: LIGHTS SHALL BE CLASS I AS DEFINED BY THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE).

SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED	
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
APPROVAL X-XX-08	APPROVAL X-XX-08
REVISED	REVISED
REVISED	REVISED
REVISED	REVISED

**Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION**
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

**TEMPORARY TRAFFIC CONTROL
VEHICLE LIGHTING SELECTION CHART**

STANDARD NO. MD 104.01-18 B



Additional Proposed Treatments

- Nighttime Signing of Delivery Vehicles
 - Increases motorist awareness of vehicular movement
 - Provides specific direction to following motorists
 - Protects workers from “errant” vehicles



Black Legend on
Fluorescent Orange



Additional Proposed Treatments

- Allowance for PVMS Supplemental Signing
 - Provides for use in “more complex” situations
 - Provides additional advance warning
- Recommendation for Delivery Coordination (arrange for off-peak hours)
 - Reduces probability for congestion-causing movements



Ongoing Issues Assessment

- Characteristics of the Facility
 - Speed (accel/decel, alignment constraints?)
 - Traffic Volumes and Queues
- Configuration of Access
 - How do vehicles gain access?
 - How is traffic affected?
- Motorist Expectancy
 - Is ample direction given to the motorist?
- Work Zone Signing
 - Is additional signing necessary?



For More Information...

- Visit SHA's Book of Standards Website:

<http://marylandroads.com/BusinessWithSHA/bizStdsSpecs/desManualStdPub/publicationsonline/ohd/bookstd/index.asp>

- Visit SHA's Standard Specifications for Construction and Materials Website:

<http://marylandroads.com/businesswithsha/bizStdsSpecs/desManualStdPub/publicationsonline/ohd/pdfs/spc2008/FrontPage.pdf>

Thank You!

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