Arkansas Roads & Streets

Volume 3, Issue 1
Fall - 2008

Technology Transfer Brief

2003 MUTCD Pavement Markings: Digest Requirements Common for Two-Lane Roads

General Pavement Marking Requirements

Each standard marking **shall** be used *only* to convey the meaning prescribed for that marking in the MUTCD [3A.02].

Markings that must be visible at night **shall** be ***retroreflective*** unless ambient illumination assures that the markings are adequately visible [3A.02].

Materials used for markings **should** provide the specified color throughout their useful life [3A.03].

The widths and patterns of longitudinal lines **shall** be as follows [3A.05]:

A normal line is 4 to 6 in. wide. (A wide line is twice the width of a normal line.)

A double line is two parallel lines separated by a discernible space.

A broken line **should** consist of 10 ft. line segments and 30 ft. gaps, or dimensions in a similar ratio of line segments to gaps as appropriate for traffic speeds and need for delineation.

Centerline Markings [Section 3B.01, except where noted]

When used, **shall** be yellow lines, delineating lanes of ***opposite*** directions of travel [3A.04 & 3B.01].

Shall be placed on all paved urban arterials & collectors with traveled way width of 20 ft. or more *and* an average daily traffic (ADT) of 6,000 vehicles per day (vpd) or greater.

Shall be placed on all paved streets & highways that have three or more traffic lanes.

Should be placed on all paved urban arterials & collectors with traveled way width of 20 ft. or more *and* an ADT of 4,000 vpd or greater.

Should be placed on rural arterials & collectors with traveled way width of 18 ft. or more *and* an ADT of 3,000 vpd or greater.

Should also be placed where an engineering study indicates such a need [3B.01 & 5E.02].

As an option, **may** be placed at a location that is not the geometric center of the roadway.

As an option, on roadways without continuous centerline pavement markings, *short sections **may** be marked* with centerline pavement markings to control the position of traffic at specific locations, such as around curves, over hills, on approaches to highway-railroad grade crossings, at highway-railroad grade crossings, and at bridges.

Engineering judgment **should** be used in determining whether to place centerline markings on traveled ways that are less than 16 ft. wide.

If a traffic count is not available, the ADT's described in this Section **may** be estimates that are based on engineering judgment.

Where centerline markings are installed, no-passing markings **shall** be used at vertical and horizontal curves and other locations where passing must be prohibited because of inadequate sight distances, rail crossings, or other special conditions [3B.02 & 5E.02].

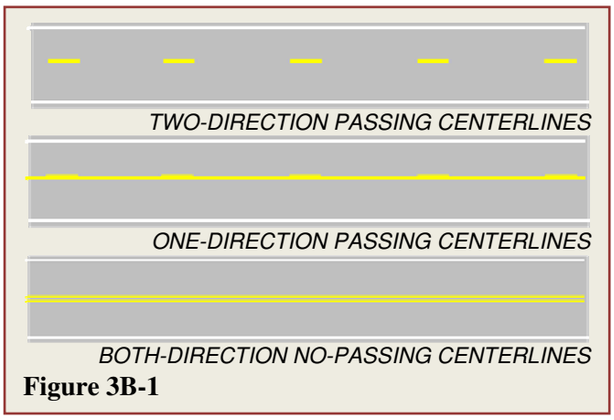


Figure 3B-1

The centerline markings on two-lane, two-way roadways **shall** be one of the following (shown in Figure 3B-1 above):

- Two solid yellow lines for both-direction no passing zones.
- A broken yellow line and a normal solid yellow line for one-direction passing zones.
- A broken yellow line for two-direction passing zones.

Right-Side, White Edge Lines [3B.07 except where noted]

When used, they **shall** be white solid lines, delineating the right edge of a roadway [3B.06].

Shall be placed on rural arterials with a width of 20 ft. or more *and* have an ADT of 6,000 vpd or greater.

Should be placed on rural arterials & collectors with a width of 20 ft. or more *and* have an ADT of 3,000 vpd or greater.

Should be placed at other paved streets and highways where an engineering study indicates a need for edge line markings [3B.07 & 5E.03].

May be placed on streets and highways that do not have centerline markings.

Should not be placed where an engineering study or engineering judgment indicates that providing them would decrease safety.

May be placed on paved low-volume roads for roadway features such as horizontal curves, narrow bridges, pavement width transitions, curvilinear alignment, and at other locations based on engineering judgment or an engineering study [5E.03].

Should not be broken for driveways [3B.06].

Lane Lines [3B.04 except where noted]

When used, they **shall** be white lines, delineating lanes that have the ***same*** direction of travel [3A.04 & 3B.04].

Should be used on all roadways with two or more adjacent travel-lanes in the same direction.

Should be used at congested locations where the roadway will accommodate more traffic lanes with lane line markings than without markings.

Stop and Yield Line Markings [3B.16 unless noted]

Stop and Yield Line Markings **shall** be white [3B.15].

Stop lines **should** be 12 to 24 in. wide.

If used, yield lines **shall** consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made. The individual triangles comprising the yield line **should** have a base of 12 to 24 in. wide and a height equal to 1.5 times the base. The space between the triangles **should** be 3 to 12 in.

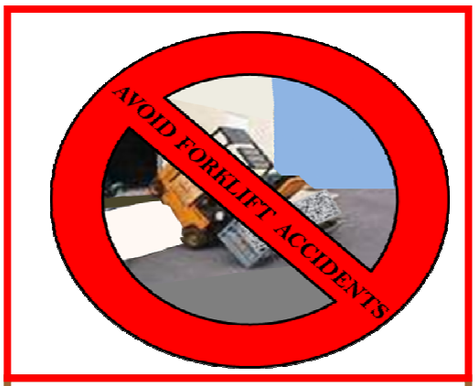
Article (modified) provided courtesy of author Jim Olson, P.E., Jefferson County Engineer. Indiana LTAP Newsletter, Vol. 26, No. 3, Summer 2008

SAFETY TIP

CHANCE TAKERS ARE ACCIDENT MAKERS

Forklift Operation

OSHA has developed extensive regulations detailing operator training requirements, forklift inspection needs, safe driving rules, and requirements for charging and changing batteries. The regulations even spell out what type of vehicle must be used in certain types of work areas. For example, if you have an area with flammable gases or combustible dusts, it makes a difference how the forklift is powered. The following tips will help you minimize potential accidents:



Federal safety standards call for all forklift operators to be trained. Do all operators on your site have a documented card or certificate?

- High-lift-rider industrial trucks should be equipped with overhead guards.
- Anyone operating a forklift needs to have been trained and be able to show a valid certificate.
- Rated capacity of the lift should be clearly marked for the operator.
- When general lighting is less than 2 lumens per square foot, auxiliary lights should be provided.
- Steering knobs or spinners should not be installed on steering wheels where the steering hand wheel may spin in rough terrain, such as construction ruts or curbing.
- Battery-powered industrial trucks need designated charging areas with eye wash available, fire protection, and adequate ventilation.
- Operators should always wear seat belts and look out for other workers in the area.

Safety tip provided by the University of Minnesota, Center for Transportation Studies, LTAP Program. For more worker safety tips visit: www.mnltap.umn.edu.

New Technology Transfer (T^2) Program Manager

We would like to welcome Mr. Bill Ryan who became our new T^2 Program Manager on May 22, 2008. Bill has both a bachelor's degree and a master's degree in sociology from Henderson State University in Arkadelphia, AR. Bill has worked at the Arkansas State Highway and Transportation Department as a full-time employee for over 22 years and has held various positions such as, Single Axle Truck Driver/Mower Operator, Area Headquarters Attendant, Planning Analyst, and Railroad Crossing Coordinator.

2008 REGIONAL ASSET MANAGEMENT CONFERENCE

November 13-14, 2008
Marriot Memphis Downtown
250 North Main Street • Memphis, TN 38103 • (901) 527-7300

You are cordially invited to attend a **free** regional conference hosted by the *FHWA Office of Asset Management*

Presenting the latest asset management technologies, research, and training, including the following:

- Optional Asset Management 101 Training workshop
- What transportation agencies in the region are doing in asset management, and what we need in order to fill in the gaps
- Data integration collection
- Management systems (PMS, BMS, MMS, etc.)
- Engineering economics analysis tools (HERS-ST, LCCA, BCA)
- System preservation

***RSVP* at http://www.fhwa.dot.gov/infrastructure/asstmgmt/ramc.cfm**

Develop a positive attitude

If you want to become a positive force in the workplace, you need a strategy. Follow the suggestions below to get yourself on your way:

- Ask three people you consider positive forces how they maintain their attitudes.
- Consider your use of language and change it when necessary.
- Change your negative words and thoughts into positive ones.
- Surround yourself with as many positive people as possible.
- Appreciate yourself. Accept yourself for who you are, not who you think you ought to be.
- Don't worry about something that has already happened. If there is a lesson to be learned, learn it and move on.
- Accept that you are going to make mistakes.
- For one entire day, commit yourself to using all of your energy to be positive.
- Realize that how you feel about something is your choice.
- Take charge of your life, and give yourself credit when you do.

Reprint courtesy of Nevada Milepost • Vol. 16, No. 4, Winter 2006

Contact Information:
Bill Ryan, Technology Transfer (T^2) Program Manager
P.O. Box 2261, Little Rock, Arkansas 72203 • (800) 344-1285 • (501) 569-2380 • FAX (501) 569-2070
Bill.Ryan@arkansashighways.com or LTAP@arkansashighways.com