Test Procedure for

DETERMINING FUNCTIONAL CHARACTERISTICS OF PAVEMENT MARKINGS

TxDOT Designation: Tex-828-B

Effective Date: August 1999

1. SCOPE

1.1 This method details the visual procedures for determining the functional characteristics of pavement markings in daylight and at night. Use these procedures to determine criteria for replacement of existing striping and/or acceptance of new striping installations.

1.2 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

2. PROCEDURES

2.1 *Daytime Functionality:*

2.1.1 While traveling down the roadway, observe and estimate the distance ahead or the number of skip lines that are distinctly yellow or white in contrast to the pavement surface. (The section of roadway should be relatively free of vertical curvature.)

2.1.2 Periodically observe the markings in the rearview mirror and estimate if the markings are less, equally, or more visible ahead or behind.

Note 1—Due to the diffraction of sunlight by beads incorporated into markings and the varying color and texture of pavements, markings are sometimes more visible in one direction than in the opposite direction. If this characteristic is noted on a roadway in the morning, it will reverse in the afternoon when the sun is at about the same angle from the horizon. The maximum visible distance is the distance in the direction at which the most stripes are visible.

2.2 *Nighttime Functionality (Daytime Test):*

2.2.1 Use the daytime test only as a guide while application is in progress.

2.2.2 When the sun is from 20–80 degrees above the horizon, view the stripe along a plane parallel to your shadow.

2.2.3 Adjust your distance from the stripe so that the shadow of your head touches the stripe area being observed.

2.2.4 From this position, evaluate the retroreflective qualities of the stripe.

2.3 *Nighttime Functionality (Nighttime Test):*

Note 2—Conduct the nighttime test at any time during the hours of darkness when headlights are necessary for roadway visibility and the road surface is free of moisture. The test vehicle can be any vehicle using either the two-lamp or four-lamp headlight system and exhibiting a valid Texas Department of Public Safety safety inspection sticker for motor vehicles.

2.3.1 Align the vehicle on the roadway, in the proper lane and direction of travel, so that the vehicle's line of travel will be parallel to the pavement-marking stripe to be observed.

2.3.2 While traveling down the roadway, maintain a vehicle-to-stripe alignment distance so that you view the stripe that is visible nearest to the front of the vehicle. The front fender nearest you will intersect your line of sight to the stripe. Maintain this vehicle alignment as nearly as possible, as roadway conditions permit.

2.3.3 With the vehicle in the described alignment, travel down the roadway observing the pavement marking stripe, alternating from low to high beam periodically.

2.3.4 Periodically fix your view on a particular area of stripe at a distance down the roadway near the effective distance of the headlights. Continue to observe that area until the view is obscured by the front of the vehicle. Also alternately observe the marking some 4.5 to 15 m (15 to 50 ft.) in front of the vehicle and down the roadway to the effective distance of the headlights for both low and high beams.

2.3.5 Record the following retroreflectance characteristics:

- Alternating bright, dim, or dark bars or areas across the stripe
- Dark or non-reflecting lines or strips parallel to the length of the stripe
- Dark and non-reflecting sections
- Smooth, uniform retroreflectance that makes the entire surface of the pavement-marking stripe appear to glow, regardless of the observation distance, from immediately in front of the vehicle to the effective distance of the headlights on high beam.

3. CLASSIFICATION OF PAVEMENT MARKING STRIPES (RECENT OR NEW PLACEMENTS)

3.1 *Uniform and distinctive retroreflecting*—pavement marking stripes that have smooth, uniform retroreflectance, making the entire surface of the pavement marking stripe appear to glow, regardless of the observation distance, from immediately in front of the vehicle to the effective distance of the headlights on high beam.

3.2 *Non-uniform and non-distinctive retroreflecting*—pavement marking stripes that exhibit alternating bright, dim, or dark bars or areas across the stripe; dark or nonreflecting lines or strips parallel to the length of the stripe; or dark and nonreflecting sections.

4. CHARACTERISTICS FOR REPLACEMENT SCHEDULING

4.1 *Schedule Using Daytime Inspection:*

Table 1—Replacement Schedule Using Daytime Inspection

Number of Stripes Visible	Replacement Schedule
6 or fewer*	As soon as practical
7 to 9	At 1/2 of current life**
10 or more	No scheduling needed

* Check markings failing the criterion to determine if accumulation of dirt or grime has caused the failure. On some roadways, markings will just barely meet or fail this criterion yet will exhibit good to excellent night performance.

4.2 *Schedule Using Nighttime Inspection:*

Table 2—Schedule Using Nighttime Inspection

Number of Stripes Visible	Replacement Schedule
3 or fewer	As soon as practical
4 or 5	At 1/2 of current life**
6 or more	No scheduling needed

** EXAMPLE: If current markings have been in place for eight months, schedule the stripe replacement in approximately four months. Recheck markings prior to actual replacement because markings frequently drop to this level of visibility within four months. The markings should remain constant for an extended period, especially on roadways of less than 3,000 average daily traffic (ADT).