



NATIONAL TRANSPORTATION
PRODUCT EVALUATION PROGRAM

Portable Changeable Message Signs and Flashing Arrow Panels (PCMS/FAP) & Temporary Traffic Control Devices (TTCD)

Technical Committee Meeting Agenda

WORKING SESSION #8

Tuesday, May 10, 2016

Please complete the electronic attendance sheet

- 1) **3:35 PM-3:45 PM:** Call to Order and Introductions
 - a) **Panel Members (Attachment #1)**
List of members was presented with corrections being sent to Danny Lane.
 - b) **Brief summary of the technical committee**
Danny Lane
Tennessee will no longer be testing the delineator posts. TTI will be performing testing.
Talked about the various testing by Florida and North Carolina.
- 2) **3:45 PM-4:00 PM:** Update-Program Status for PCMS
 - a) **The addition of Warm weather evaluations in Florida (durability test)**
- 3) **4:00 PM-4:30 PM:** Update-Program Status for TTCD
 - a) **presentation by Dusty Arrington (TTI)**
Dusty Arrington with TTI presentation on delineator testing. Focus on Florida and Texas issues.
A copy of the presentation is attached.

Paul (Florida DOT) show a visual of sheeting from tested delineators at 200 impacts. Shheeting was virtually gone from all of the test specimens. Cannot hold delineator manufacturer liable for the sheeting since they do not make it. Paul does not want to remove marker to replace sheeting. Shheeting manufacturer commented on re-boundable sheeting. Cleaning is very important and



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industry will have to look at several options. Possible re-design of sheeting or even the delineator its self. Concern with safety of maintenance crews and additional costs of repair of sheeting. Nothing was really decided, sheeting manufacturer will met and get back with committee.

b) Workplan Changes for Flexible Delineator Evaluations (Attachment #2)

Work Plan change – new delineator testing (Paul with Florida DOT gave update on high performance delineators using the Texas study) 1.2 million cost for replacing delineators 36” at 200 cycles (hits).

Heather will be sending out the work plan changes for review to the committee and industry.

4) 4:30PM-4:40 PM: Discuss DataMine Items

a) DataMine Session on Wednesday, May 11th

5) 4:40PM-4:50 PM: Industry Concerns

Jim – can strength be tied to number of hits? TTI will be looking at several elements of testing and report back to the TC.

6) 4:50PM-5:00 PM: Open Discussion

Talk centered around QPL and categories under each list.

Danny will be setting up a call with industry to discuss testing.

7) 4:50PM-5:00 PM: Review of Action Items for 2016

Industry call

Work plan will be sent out

Webinar will be scheduled



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Standard Practice for
NTPEP Evaluation of Temporary
Traffic Control Devices: Flexible
Delineators

AASHTO Designation: [Number]



American Association of State Highway and Transportation Officials
444 North Capitol Street N.W., Suite 249
Washington, D.C. 20001



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Standard Practice for

NTPEP Evaluation of Temporary Traffic Control Devices Flexible Delineators

AASHTO Designation: [Number]



1. SCOPE

1.1 *This standard practice covers the requirements and testing criteria for the National Transportation Product Evaluation Program (NTPEP) evaluation of temporary traffic control devices under the category of Flexible Delineator Posts. NTPEP serves the member departments of the American Association of State Highway and Transportation Officials (AASHTO).*

1.2 *The results of this program may be used for product quality verification by individual member Departments. If used for quality verification, a letter of certification from the temporary traffic control devices (TTCD) manufacturer may be required by member Departments indicating testing was conducted by NTPEP that supports published values.*

1.3 This standard practice may involve hazardous materials, operations, and equipment. It does not purport to address all safety problems associated with its use. It is the responsibility of the user of this standard practice to establish the appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. PRODUCT requirements

2.1 *The manufacturer shall submit to the NTPEP Manager the electronic product evaluation form through DATAMINE. The form shall include product literature, technical literature, MSDS information, and program payment for each product submitted for testing.*

2.2 *Manufacturer's Documentation*

2.2.1 Submittal of Flexible Delineator Posts to NTPEP - the manufacturer shall supply manufacturer documentation showing the brand name and designation; the composition or description and physical characteristics of the product; the type of retroreflective sheeting and the bonding agent used for surface mounted delineators.

2.2.2 The manufacturer shall certify that as long as a device is furnished under the submitted brand name and designation, the device will be of the same composition and formulation as originally evaluated by the NTPEP. If any change in composition or formulation is made to a product under the submitted brand name and designation, the manufacturer will notify NTPEP and additional testing may be required.

2.2.3 The manufacturer shall certify that the Flexible Delineator Posts meet all requirements as set forth in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) as pertaining to such device.



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3. Sampling

3.1 *Flexible Delineator Posts: Ground Mount & Surface Mount*

The lead state contact person will make arrangements to have the products sampled. TTCD product sampling shall be performed in accordance with the NTPEP temporary traffic control devices protocol^{Note 1}. The manufacturer/supplier shall attach product/material literature and material data safety sheets to the Product Evaluation Form (PEF). All collected samples shall be labeled to show the manufacturer name, manufacturer's product code, type of material, and shall be shipped by and at the manufacturer's expense via a carrier with a freight tracking system. Samples shall be shipped to the NTPEP testing laboratory. Samples shall be labeled by the sampling agency with the testing center's reference number. The manufacturer will then be responsible for transportation of the samples to the appropriate testing facility.

3.1.1 Flexible delineator posts shall be randomly sampled by the testing agency or their appointed authority.

3.1.2 The manufacturer shall furnish, at no cost to the lead testing state, ten (10) flexible delineator posts with the appropriate delineator or retroreflectorized sheeting attached. Surface mount delineator posts shall be a minimum of 36" in height. Ground mount delineator posts shall be a minimum of 48" in height above the roadway.

3.1.3 Retroreflective sheeting shall be affixed to the post as recommended by the manufacturer. If there is no recommended sheeting, the manufacturer shall furnish the posts with 3" (wide profile) x 9" (length) retroreflectorized sheeting attached to the test samples. The sheeting shall be positioned 1/2" inch from the top of delineator.

4. Field Evaluations

4.1 Generic Test Specifications

4.1.1 Impact vehicle will be modified MASH 1100C small sedan of a model made within the last 10 years.

4.1.2 The impact velocity will vary based on the following categories:

- Low Durability Side of Roadway Applications (55 mph) – Maximum of 10 impacts.
- High Durability Metropolitan Delineator Applications (55 mph).
- High Speed High Durability Applications (70 mph).

4.1.3 A total number of samples tested will include 16 delineator posts and 8 bases for each hot and cold weather testing. The hot weather testing will take place at 82 degrees F or greater while the cold weather testing will take place at 35 degrees F or lower.

4.1.4 The delineator shall be tested at the manufacturer's suggested maximum installed height.

4.2 Test Installation

4.2.1 Installation of delineators for testing shall be configured in 4 rows. One row will be aligned with the vehicle tires for the wheel over impact and the other row shall be aligned with the opposing vehicle quarter point for the bumper impact. Each delineator will be spaced a minimum of 50", or 2" greater than the delineator height, from a subsequent delineator to prevent interaction.

4.2.2 Half of the bumper and wheel over impacts will be oriented parallel to the path of the impacting vehicle while the other half of the wheel over and bumper impacts will be oriented 25 degrees from the path of the impacting vehicle.



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4.3 **Surface Attachment**

4.3.1 All testing will be performed with the intended product and no substitutions will be allowed. Materials and technical specifications shall be submitted with each product.

4.3.2 At least four delineators must be attached with each type of proposed attachment method with at least two of each method being a bumper impact and at least two of each method being a wheel over impact. An equal number of bumper and wheel over impacts will be performed on each method.

4.3.3 If more than two attachment methods are proposed, the number of samples tested at one time can be increased at the testing facility's discretion and testing may be repeated with a new set of 4 or more delineator samples to qualify untested methods.

4.4 **Documentation**

4.4.1 Material classification data shall be submitted with test samples and will be retained by the testing lab. ASTM D5630 (Ash Testing) and Fourier Transform Infrared Spectrometry (FTIR) ASTM E168 and E1252 are preferred methods. Material and technical specifications shall be submitted with test samples and will be included in the report.

4.4.2 Complete fabrication drawings detailing all component dimensions and thicknesses shall be submitted with test samples. General drawings shall be submitted with test samples and will be included in the report.

4.4.3 Detailed instructions for installation shall be submitted for each attachment method to be tested. Two additional randomly selected samples shall be submitted for potential destructive testing to verify the documentation information submitted is accurate.

4.4.4 All tests will be videotaped using standard frame rate. A counter showing impact number should be in view of the standard rate camera during testing. The following lists the photos (at a minimum) that will be taken during testing:

- Photo of Counter showing impact number
- Photos of system: Longitudinal, Perpendicular, Oblique
- Delineator: Identifying label for test sample, frontal face of delineator, any damage to delineator, close up shot of reflective sheeting to document damage
- Impacting vehicle: Frontal, Perpendicular (wheel over side), Oblique

4.4.5 Photos will be taken at the following times:

- Prior to testing
- After first impact
- After 5th impact
- After 10th impact
- After 20th impact
- After 50th impact
- After 100th impact
- After 150th impact
- After 200th impact

4.4.6 Written documentation will list the following information at the specified times:

- Measurement of list and lean
 - Prior to testing
 - After 1st impact
 - After 10th impact
 - After 100th impact
 - After 200th impact
- Document any damage to delineator



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- Document any failures and on what impact they occurred
- Failure of delineator to self-restore to within 15° of vertical in any direction
 - Measurement will be taken within 5 minutes last impact
 - Testing will be postponed until either all samples are deemed within 15° of vertical or the suspect sample is deemed failed

4.5 Testing

4.5.1 All impacts shall be made in the same direction of travel and only fresh untested samples will be used. Bases may be reused at the discretion of manufacturer and testing lab. All 200 impacts will be performed on the same samples. All hot temperature impacts will occur at a temperature greater than 82°F and all cold temperature impacts will occur at a temperature less than 35°F. Hot temp testing will be qualified separately than cold temp testing.

4.6 Evaluation of Testing

4.6.1 If a representative attachment method fails prematurely, the attachment method can be reevaluated only once. A full installation of eight samples of the failed method must be tested. This method will be qualified separately from all other attachment methods. Samples are considered to have failed if they do not self-restore to within 15° from vertical within 5 minutes of being impacted.

4.7 Reported Values

4.7.1 The following values will be reported on the specified timeline:

- Number of impacts resisted by each sample
- Average number of impacts resisted for each surface attachment method
 - Average number of tire impacts resisted
 - Average number of bumper impacts resisted
 - Average number of impacts resisted
- Average number of impacts resisted for all samples
 - Average number of tire impacts resisted
 - Average number of bumper impacts resisted
 - Average number of impacts resisted
- Table of images for each delineator

4. evaluation facility requirements

7.1 The testing state facility must participate in the (AASHTO) Accreditation Program through the American Association of State Highway Transportation Officials and obtain a Certificate of Accreditation.

7.1.1 The scope can be obtained by viewing the AAP directories of accredited laboratories at www.nist.gov/amrl or by contacting AMRL.

5. report

The report shall include manufacturer's name, location, product information and description. The report will also include the initial and final data collected for the Field evaluations for the **Flexible Delineator Posts**.

5.1 *Test results will be reported to the NTPEP Manager in the web-based data base – DataMine as follows. Once the data is reported to the manager, the NTPEP Manager will forward each manufacturer's data to them for their review. When the manufacturer reviews and accepts the data, the NTPEP manager will release the data to the public.*



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5.2 *Evaluation data will be compiled and made available to all participating states and testing companies through the AASHTO/NTPEP DataMine. This report will include data only. No judgment as to a product's acceptability will be made in this report. End user participants will establish individual criteria for product acceptability.*

5.3 *DataMine – This web-based data base can be accessed through the AASHTO-NTPEP web site link at www.data.ntpep.org.*

6. evaluation Frequency

6.1 *If the TTCD does not perform adequately during the initial testing, the manufacturer may, at his option, withdraw the product from the current evaluation process. The report will show only the data of the evaluation process completed before withdrawal. The manufacturer may submit the device for retesting during the next, or any subsequent, testing cycle.*

7. Timeline



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