

February 10, 2004

TRAFFIC ENGINEERING DIRECTIVE
103-3

Supersedes TED 103-2

SUBJECT: PREPARATION OF CONTRACT SIGN PLANS

Roadway signing design shall conform to current West Virginia Division of Highways specifications (Sections 657, 658, 659, and 661) and standard drawings (TE's and TP's) pertaining thereto.

Additional specifications will seldom be necessary and the signing designer should avoid their use. Many special problem areas, such as special attachments to bridges or retaining walls, may be covered by plan notes and/or special details. However, any additional specifications that the signing designer deems necessary should be submitted to the Traffic Engineering Division for approval as early as possible during plan development. Consultants should make such submissions through Engineering Division if working for such.

All roadway signing design shall be in accordance with the latest edition of the following:

1. Manual on Uniform Traffic Control Devices (MUTCD).
2. "West Virginia Division of Highways Design Guide for Signing."
3. "West Virginia Division of Highways Sign Fabrication Manual."
4. Traffic Engineering Directives regarding signing.
5. West Virginia Division of Highways' specifications (Sections 657, 658, 659, and 661).
6. West Virginia Standard Details Book, Volume II, Signing, Signals, Lighting, and Marking.

Signing Construction Contract Plans shall show all proposed (or existing if applicable) pavement areas, bridges, retaining walls, guardrails and stations within the Division of Highways' right of way. The plans shall also show all existing or proposed overhead bridges and retaining walls, etc. and other objects such as existing overhead signs that may affect the line of sight to the proposed signs.

A. The plan assembly shall consist of:

Standard Title Sheet (If separate construction contract).

- 1. Summary of Quantities Sheet, Signing Notes and Legends.**
- 2. Estimate of Quantities Sheets (Tables). Includes assembly number, sign number, station, sign dimensions, sign type and square feet, support type and length, and foundation. Also include post removal (as required), installation of reusable signs (if required), Remove and Save and Remove and Discard items. When assigning sign assembly numbers, overhead signing should preferably receive the first numbers regardless of their physical location. Also, sign lighting shall have the same assembly number as the associated overhead sign assembly. Individual signs on overhead sign structures shall have the assembly number plus A, B, C, etc.**
- 4. A delineator tabulation (with appropriate backup data) will be included here if delineators are required.**
- 5. Plan Sheets – use scale as necessary to adequately show generally 1:200 or 1:400 on the mainline showing the following:**
 - a. Miniature drawing of all signs (reasonable scale).**
 - b. Sign location as illustrated to scale.**
 - c. Sign number for each sign.**
 - d. County lines.**
 - e. Names of crossroads, railroads, and stream crossings.**
 - f. Signs for all weigh stations and rest areas.**
 - g. Urban area and/or city limits.**
 - h. Guardrail locations.**
 - i. R/W limits and North arrows.**
 - j. Pavement edges**
 - k. All overhead bridges, retaining walls, etc. that may affect line of sight. Also include all overhead bridges and retaining walls since they will affect placement.**
 - l. Existing overhead signs and existing ground mounted signs if required.**

6. Interchange Plan Sheets– use scale as necessary. Generally 1:200 or 1:100 to point where ramps tie into mainline.
 7. Sign Fabrication Details (generally for signs not in "WV Sign Fabrication Manual").
 8. Overhead sign support schematics (Full spans, Half spans or Cantilevers). For decisions about when to use, see MUTCD and contact Traffic Engineering Division. Schematics (cross-sections), use 4 feet minimum offset as noted on Standard Details or 2 feet behind curb line for urban low speed situations. For guardrail design see Guardrail Standards (G.R.S.). Bid Items to include sign lighting (if required); concrete (as required); special foundation on median barriers (as required); for locations on bridges, walls and median barriers also include the following:
 - a. Structural connection details (Special attachments).
 - b. Sign lighting details (including conduits, junction boxes, service).
 - c. For median or barrier attachments, the top mounted method is to be used with transition in barrier.
 - d. For right side, pilasters are preferred.
 - e. For median, build appropriate widened section with appropriate transition (bubble).
 9. Other Special Details (as required).
 - a. Overhead Sign Direct Bridge attachments (e.g. portal mounted or cross-frame mounted).
 - 1) Structural connection details (special attachments)
 - 2) Schematics (cross-sections)
 - 3) Sign lighting details, if applicable (including conduits, junction boxes, service).
 - b. Post Mounted Signs attached to bridges or walls. Includes:
 - 1) Structural connection details (special attachments)
 - 2) Schematics (cross-section) (as required).
- B. General**
1. Each sign shall be designated according to the "WV Fabrication Manual".
 2. Overhead signs represent a substantial investment and should therefore be

carefully evaluated. Designers should be careful in lateral placement of uprights for overhead sign supports in order to protect them according to the latest FHWA-AASHTO-DOH requirements.

3. Sign lighting will normally be used on all overhead signs except for lane-use control signs and two-way left turn only signs. These two situations still require an 18'-3" vertical clearance in case of future lighting. Sign lighting wattage shall be 250W and voltage shall be 120V if at all possible. If part of roadway lighting circuits use parent voltage, the Designer (consultant) is responsible for coordinating and arranging the appropriate power service for sign lighting with the power company.
4. The single arm cantilever (TE4-4) is primarily intended for use for smaller signs, e.g., lane use control signs and two-way left turn only signs.
5. The one-tube span (TE3-2) will not be used for spans greater than 50 feet.
6. The box span used shall normally be the steel-aluminum combination (TE5-1) near to its maximum limits before using the steel box truss span (TE5-7).
7. Overhead sign foundations are normally not included in the Estimate of Quantities (Signing Tables)
8. Small sign supports (U Channels, breakaways, pipe posts, etc.) shall be located and constructed according to the details as illustrated in the Standard Drawings. The supports shall be protected by yielding/bending, or slip base as illustrated in the Standard Drawing which only allow these devices/systems that meet current AASHTO breakaway criteria. All small sign supports within 7 feet of each other in multiple post sign post structures are considered as acting together.
9. Pipe posts are intended for use for special situations only, e.g., pedestrian problems if using two supports, narrow sidewalks, bridges, walls, etc. Types 6, 7, 8, and 9 pipe posts are to be protected by guardrail or used when speeds are below 40 mph.
10. Reusable signs quantities and post removal quantities are included.
11. Pavement marking plans may be included as part of the signing plans if sufficient detail can be provided so as not to detract from the effectiveness of the signing plans.

The procedure for Submissions and Distributions is to be as follows:

1. In general conformance with latest copy of DD-202 for DT to receive 1 copy of construction drawings plus 2 additional copies of signing drawings.

- (a) Preliminary Field Review**
Submissions are to include plan sheets showing location of signs including overhead signs. Also includes existing signs inventory if applicable.
- (b) Final Field Review:**

 - 1) Quantities, Notes and Legends**
 - 2) Estimate of Quantities Table**
 - 3) Delineator Table**
 - 4) Completed plan layout sheets**
 - 5) Sign Fabrication details**
 - 6) Overhead Sign Support Schematics**
 - 7) Special Details**
- (b) Final Office Review**
The entire revised signing portion of plans is to be submitted at this review including all quantity tabulations.

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