

## Chapter 23

### Signing and Pavement Marking Plans

The following are changes, additions or deletions to the January 2006, Topic #625-000-008, Plans Preparation Manual (PPM) - English, for use on Turnpike projects only:

#### 23.3 Tabulation of Quantities and Pay Item Notes

*Add the following paragraph*

The format of the quantity sheets shall include a breakdown of pay items by type. For example, quantities for RPM's shall be categorized by RPM type (mono-directional white, bi-directional yellow, bi-directional white/red, etc.)

#### 23.4 General Notes

*Add the following notes*

The following notes should be added when applicable:

1. The left edge of all sign panels mounted to cantilever structures shall be aligned flush with the end of the horizontal member of the cantilever structure.
2. All new overhead signs will require double nut on top of footer base.
3. Mechanical fasteners used to attach sign panels to wind beams, brackets and splice plates for single and multi-post signs shall be countersunk screws.
4. The contractor shall patch all countersunk screws on all new sign faces. Rivets on overlays and/or demounts shall be painted with color to match background sheeting.
5. The contractor shall energize sign luminaires within 24 hours of overhead lighted sign installation.
6. The sign lighting luminaires shall be "night aimed" to ensure proper illumination of the sign surface. The luminaires must be at an angle sufficient to prevent them from shining into the faces of drivers who are traveling in the opposite direction.
7. All sign overlays shall be a minimum of 0.08 inches thick.
8. Sign luminaires shall be similar or equal to Holophane Panel-vue or GE Versaflood. Maximum tilt from horizontal shall not exceed 10 degrees. Illumination for each sign shall be 25-30 foot candles (300 lux) average initial with an average-to-minimum uniformity ratio of 3:1 or less and a maximum-to minimum uniformity ratio of 6:1 or less. The contractor shall submit for approval a computer printout for each sign indicating that the selected luminaires meet or exceed the above criteria and an additional sheet with each computer printout showing the width and height of the sign.
9. Top mounted luminaires shall not be allowed on the mainline or ramps.
10. For partial panel overlays, the contractor shall be responsible for ensuring all existing copy to be overlaid is completely covered. The contractor shall also ensure the overlay does not cover any portion of the existing copy or border which is to remain visible.

11. All sign locations shall be field verified by the Engineer, prior to sign post fabrication, to ensure proper location and spacing is achieved (i.e., offset from travel lanes, sign post not in ditch bottom, spacing from other signs adequate where sign can be read, etc.). In addition, the field verification shall ensure that there are no utility conflicts. Minor adjustments shall and can be made by the Engineer if proper location or spacing is not met or if utility conflicts are incurred. All major adjustments shall be approved by the Designer of Record. In all cases, roadway safety shall be increased not diminished.

## 23.6 Guide Sign Worksheet

*Add the following paragraph*

The **FHWA Standard Highway Signs Manual** and **MUTCD** guidelines for sign panel design, font usage and letter spacing shall be used as a standard. The Turnpike encourages the use of the “GuidSign” software by Transoft Solutions (version 4.0 or later) software for sign panel layouts. However, this software includes numerous user options that must be set as described in the remainder of this paragraph to obtain acceptable output. Coordinate settings (i.e., x and y) shall not be used. Horizontal letter spacing shall be shown using the incremental spacing of the character and the trailing space, except for the last character in a word which will be the width of the character only. Spaces between words shall be denoted with an “X” in the appropriate box and providing the dimension for the width of the space. Sufficient vertical and horizontal dimensions shall be provided on the sign face graphic to specify proper location of all elements. Code names for symbols, shields and arrows in the spacing table shall not be used. All elements (shields, symbols, arrows, etc.) shall be properly dimensioned within the sign layout area. The panel dimensions in the summary table shall not include the size of the exit number panel. The Exit Panel is manufactured separately, so the details for this panel shall be shown separately.

### 23.7.1 Multi-Post Signs

*Add the following paragraph*

All multi-post signs shall have cross-sections. The cross sections shall include the location of ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities and lane lines for proper location of the signs. Sign cross sections should be drawn as viewed by approaching traffic. The edge of travel elevation of the roadway and all appropriate references to this point shall be clearly labeled. More than one multi-post cross section may be placed within a single cross section sheet as long as legibility is maintained. These types of cross sections do not require full roadway coverage. The recommended scale for the cross section is 1” = 10’ horizontally and vertically.

### 23.7.2 Overhead Sign Cross Section and Support Structure

*Add the following paragraph*

All overhead truss, overhead cantilever and bridge-mounted signs shall have cross sections. The cross sections shall include the location of ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities and lane lines for proper location of the signs. Sign cross sections should be drawn as viewed by approaching traffic. The grade elevation at the top of the foundation (along with its location), the elevation at the highpoint of the roadway and the vertical

clearance from the high point of the roadway to the bottom of the sign luminaries shall be clearly labeled. For overhead signs with down arrows, or other lane specific legends, for which lateral placement is critical, that portion of the legend should be shown to ensure correct placement relative to the roadway. Down arrows that designate lane assignments should be located within the center 1/3 of the associated lane.