

## 325 Signing and Pavement Marking Plans

### 325.1 General

Signing and Pavement Marking (S&PM) Plans are usually a component set of plans. Component plans are assembled as a separate plans set complete with a Key Sheet, Tabulation of Quantities, and all other required signing and pavement marking sheets. Number the component plans with the sheet numbers prefixed by the letter “S”; e.g., S-1, S-2, S-3.

Modification for Non-Conventional Projects:

Delete the second sentence from the above paragraph and replace with the following:  
Component plans are assembled as a separate plans set complete with a Key Sheet and all other required signing and pavement marking sheets.

Projects with minimal signing and pavement marking improvements may show these features on signing and pavement marking sheets in the roadway plan set (lead component), or detailed on the Roadway Plan sheets. Do not use the prefix letter “S” when including signing and pavement marking sheets in the roadway plan set. See **FDM 307.1** for placing Tabulation of Quantities sheet in the Roadway plan set.

Modification for Non-Conventional Projects:

Delete the last sentence from the above paragraph

Comply with the requirements in **FDM 230** in the selection of the permanent pavement marking materials to be used.

#### 325.1.1 Signs Mounted on Signal Installations

Show, detail, and tabulate signs mounted on signal span wires or mast arms in the Signalization plans.

## 325.2 Key Sheet

The Key Sheet is the first sheet in the component plans set. The location map and Contract Plans Components list are not required on this sheet. Show the Index of S&PM Plans on the left side of the sheet. Assemble S&PM plans in the following order:

- (1) Key Sheet
- (2) Signature Sheet (if required)
- (3) Summary of Pay Items (when lead component)
- (4) Tabulation of Quantities
- (5) General Notes (if required)
- (6) S&PM Plan
- (7) Guide Sign Worksheet (if required)
- (8) Overhead Sign Cross Section (if required)
- (9) Overhead Sign Support Design (if required)
- (10) Foundation Details (if required)
- (11) Boring Data (if required)

Modification for Non-Conventional Projects:
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Delete item number (3) above.
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Signing and pavement marking plans may require insertion of sheets that were prepared early, or prior to the design process; i.e. early works. See **FDM 302.6.1** for instructions on including early works sheets.

See **FDM 302** for other Key Sheet requirements and **Exhibit 302-3** as an example Component Key Sheet.

## 325.3 Signature Sheet

See **FDM 303** for Signature Sheet requirements.

## 325.4 Tabulation of Quantities and Pay Item Notes

Prepare the Tabulation of Quantities sheet using the standard plan format showing quantities, standard sign numbers, pay item numbers (except for pavement markings pay items) and size of sign for all pay items. The sign size and standard sign number is not required if shown in the plans sheets. List pay items in numerical order and tabulate quantities per sheet or by station. When the number of pay item numbers exceed one page, the additional sheet is to be labeled using an alphabetic suffix; e.g., S-3 and S-3A, S-4 and S-4A. Provisions must be made to show the original and final quantities.

On contracts with multiple Financial Project ID numbers, or Federal Aid and non-Federal Aid quantities, provisions must be made to tabulate and summarize their respective quantities.

Show pay item notes and standard notes that refer to item numbers on this sheet.

For pay item 710-90 (Painted Pavement Markings (Final Surface) Lump Sum), the Tabulation of Quantities sheet should show the detailed description of the pay item and the quantities for each pay item, except in lieu of the pay item number substitute an "\*" in the Bid Item Number Column (see **FDM 325.4.1**).

When there is not a roadway component, see **FDM 307.1** for placing Summary of Quantities sheets in the Signing and Pavement Marking plan set.

### 325.4.1 Standard Notes

Add the following note at the bottom of the Tabulation of Quantities sheet:

- \* These quantities are paid for under Painted Pavement Markings (Final Surface), Lump Sum - Item No. 710-90. The quantities shown are for one application; see **Specification 710** for the number of applications required.

Modification for Non-Conventional Projects:
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Delete <b>FDM 325.4</b>
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## 325.5 General Notes Sheet

Show general notes on a separate General Notes sheet. See **FDM 311** for instruction in creating a General Notes sheet.

## **325.6 S&PM Plan Sheets**

Prepare S&PM Plan sheets on a standard plan format. The scale should be such that all details are clear and legible. See the requirements of **FDM 312.1** as a guide. For simple projects, or for narrow sections of a project, it may be possible to "stack" two plans on one sheet, one below the other. Stationing is to progress from left to right and be stacked from top to bottom.

Typical drawings may be used on rural projects with long sections of roadway that show only edge and lane delineation lines. Detail sheets should be used to depict markings at intersections. Signs may be tabulated to indicate location and disposition.

### **325.6.1 Required Information**

The basic information pertaining to roadway geometrics and project limits required on the signing and pavement marking plan sheets is the same as that required on the plan portion of the plan-profile sheets. Topography and construction details need not be shown.

Provide the following on the S&PM Plan sheet:

- (1) Flag and station the begin and end of the signing and pavement marking limits.
- (2) Place a north arrow and scale at a point of maximum visibility on the sheet. If two plans are "stacked" on one sheet, then show a north arrow and scale on each plan portion.
- (3) Show regulatory, warning and directional signs at the proper locations. Show each sign face in close proximity to its respective sign with a leader line connecting the sign location and sign face. Orient each sign face on the plan sheet to be read as viewed from the direction of travel along the roadway. Indicate the location of all signs by station or milepost.
- (4) Provide sign placement (offset) when installation may be in conflict with utilities, drainage, lighting, sidewalks, driveways, and landscape feature.
- (5) Indicate the pay item number, sign size, standard designation, or assigned number if nonstandard for each sign.
- (6) Show and label permanent pavement markings specifying width, color and spacing. Indicate begin and end pavement marking stations including offsets, or begin pavement marking station including offset and the total length of roadway pavement marking.

- (7) Indicate location of raised pavement markers and delineators by specifying the type, color, spacing, and limits of application by stations.

Modification for Non-Conventional Projects:

Replace number (5) with the following:

(5) Indicate size, standard designation, or assigned number if nonstandard for each sign.

## 325.6.2 Typical Pavement Marking Sheet

For simple projects, or sections of a project, it may be possible to show signing and pavement marking plan details schematically using straight-line format with station limits and typical markings. Show and identify all signs at their graphic location on the straight-line diagram. Show and label pavement markings on a typical marking plan. Include all necessary details for special areas; e.g., median crossovers, turn lanes.

## 325.7 Guide Sign Worksheet

Show the sign face, with the complete message layout with legend spacing (vertical and horizontal), margins, border widths, and corner radii on the guide sign worksheet.

Cross sections are not required for multi-support roadside signs; however the support data (size and average length) for each sign must be tabulated on the guide sign worksheet.

This sheet should be prepared on the standard plan sheet format to any convenient scale that will preserve clarity and legibility. The number of signs that may be shown on a single sheet depends on the sign size and complexity. The format of the sheet is flexible as long as the information listed above is shown. Output from the ***Transoft GuidSign Program***, or a similar format may be used.

## 325.8 Multi-Post Sign Supports

Standard foundations for multi-post signs are provided in the [Standard Plans](#). These foundations are based on the sign support size; however, the post size and length are not included in the [Standard Plans](#) and must be included as a part of the design and shown in the plans.

## 325.9 Overhead Sign Cross Section and Support Structure

The Sign Cross Section sheet shows the location of overhead sign(s) in cross section. A standard profile format should be utilized. Show and fully dimension the cross section of the roadway at the sign location.

The recommended scale for the cross section is 1" = 10' horizontally and vertically.

The design of the support truss, columns and foundations, along with the boring data information, must be included in the signing and pavement marking plans. The "Cantilever Sign Structures Data Table" and the "Span Sign Structures Data Table" work in conjunction with of the [Standard Plans](#), *Indexes 700-040* and *700-041*. These tables include the information noted above and should be completed by the Structures Engineer of Record (EOR) and inserted as a sheet in the plans.

A computer program for the design of overhead cantilever sign structures and a program for the design of overhead span sign structures are available. The programs were developed by the Structures Design Office and may be downloaded from the Structures Design web site.

The design of the attachment system for signs mounted on bridge structures is the responsibility of the Structures EOR. Include the design of the attachment system in the structures plans if bridge work is included in the project. If bridge work is not in the project, place the design details in the signing and pavement marking plans.