940 Signing and Pavement Marking Plans

940.1 General

This chapter provides the requirements for the development of Signing and Pavement Marking Plans. See ***FDM 230*** for the requirements for signing and pavement marking designs.

Signing and Pavement Marking Plans are usually a component set of plans. Projects with minimal signing and pavement marking improvements (e.g., requires limited discipline-specific design, can be adequately documented on a small number of plan sheets, does not warrant a separate plan package) may include Signing and Pavement Marking Plan sheets in the Lead Component Plans set.

940.1.1 Signs Mounted on Signal Installations

Place details for signs mounted on signal span wires or mast arms in the Signalization Plans set.

940.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet of the Signing and Pavement Marking Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are created using the FDOT CADD Software.

Follow the same requirements contained in ***FDM 910*** for the development of a Key Sheet and Signature Sheet. Assemble the Signing and Pavement Marking Plans in the following order:

Index of Signing and Pavement Marking Plans

(1) Key Sheet

(2) Signature Sheet

(3) General Notes

(4) Signing and Pavement Marking Plan

(5) Traffic Monitoring Site Plan (when applicable)

(6) Guide Sign Worksheet

(7) Overhead Sign Cross Section

(8) Sign Structures Data Table

(9) Foundation Details

(10) Bridge Mounted Sign Details

(11) Report of Core Borings

Signing and Pavement Marking Plans may require the insertion of sheets that were prepared independently of the current design phase (aka early works). See ***FDM 910.2.6.1*** for guidance on including early works sheets.

For standalone signing or pavement marking projects, include the list of Contract Plans Components even if the Signing and Pavement Marking Plans are the only component.

See ***FDM 910*** for an example of a Key Sheet and Signature Sheet.

940.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by the ***Standard Plans*** or ***Standard Specifications***.

940.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined is contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by the basis of payment information contained in the ***Standard Specifications***, such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

940.4 Signing and Pavement Marking Plan Sheets

Signing and Pavement Marking Plan sheets convey a graphic depiction and the necessary information for the installation of signs and pavement marking elements.

Produce the Signing and Pavement Marking Plan sheets using sheets that are contained in the FDOT CADD Software.

When appropriate, the sheet may utilize multi-stacking (subdividing sheet horizontally); with each panel containing a plan view.

Use the following horizontal scales:

	Standard	Optional
Curbed Roadways	1″ = 40′	1″ = 50′
Flush-shoulder Roadways	1″ = 50′	1″ = 100’

940.4.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including roadway geometrics, project limits, street names, curb and gutter, drainage inlets, sidewalks, shared use paths, urban side paths, and R/W lines.

Show underground and overhead utilities, lighting structures, signal structures and ITS structures that may conflict with the installations of sign components. Identify potential conflicts with utilities, drainage, landscape features, sidewalks, and driveways in the plans.

Provide the following on the Signing and Pavement Marking Plan sheet:

(1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right. Flag and station the begin and end of the signing and pavement marking limits.

(2) Place proposed signs at the proper locations. Display the sign face near 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 next to each sign face the station (or mile post), pay item number, sign size, standard designation, or assigned number (if nonstandard). In addition, provide sign placement (offset) when its installation may conflict with utilities, drainage, lighting, sidewalks, driveways, or landscape features.

(3) Display existing signs in the same manner as proposed signs. Indicate next to each sign face the station (or mile post), disposition (remain, relocate, or remove), and pay item number.

(4) Display and label permanent pavement markings specifying width, color and spacing. Indicate begin and end pavement marking stations including offsets. Provide radii information and dimension lane widths at appropriate intervals or at changes.

(5) Label Ground-in Rumble Strips with the permanent pavement marking callout labels. It is not necessary to call out the array type (skip or continuous) for arterials and collectors.

(6) Display and label raised pavement markers and delineators specifying type, color, and spacing. Indicate begin and end of application by stations.

(7) Display and label tubular markers specifying color and spacing. Indicate begin and end of application by stations.

(8) Label the field-verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data) for overhead sign installations on the plan view. Include the following with the label (or in a summary table):

(a) V_{vh} number

(b) Utility type and owner

(c) Size and material

(d) Location (Sta/Offset/Lt or Rt)

(e) Existing ground and top of utility elevations

940.4.2 Typical Pavement Marking Sheet

For simple projects, or sections of a project, Signing and Pavement Marking Plan details may be conveyed using a typical section indicating the placement of pavement markings (in lieu of full plan sheets). Provide typical pavement marking plan details for median crossovers, turn lanes, or other similar features.

Proposed and existing signs may be tabulated to convey location, disposition, and other required information.

940.5 Guide Sign Worksheet

The Guide Sign Worksheet provides information necessary for sign panel fabrication. Each proposed sign panel must be shown with a complete message layout (sign face) and supporting information, including:

- panel color, dimensions, and corner radii
- border width and color
- lettering (copy) color, height, and spacing

For multi-post signs, include the number of posts needed and the column size and length.

The number of signs shown on a single sheet depends on the sign size and complexity.

Output from the Transoft GuideSIGN Program or a similar format may be used.

940.6 Overhead Sign Cross Section Sheets

Overhead Sign Cross Section sheets provide a sectional view of overhead signs (e.g., cantilever or span structures, bridge mounted) as viewed by approaching traffic.

The cross section must be at the station of the overhead sign and include ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities, and lane lines. Create the section using a horizontal and vertical scale of 1" = 10' or 1”= 5′.

Any arrow included on the sign panel that designates a lane assignment must be located within the center 1/3 of the associated traffic lane.

Display the foundation, sign structure and panel, and cross section on a background grid. Indicate the sign number, station, direction of travel, and scale used. Dimension and label the following:

- Highest elevation of the roadway surface
- Elevation of the foundation top
- Vertical distance from highest elevation of the roadway surface to the bottom of the sign panel
- Horizontal distance from the edge of the panel to the center of the foundation
- Horizontal distance from the edge of the travel lane to the closest edge of the foundation
- Width and height of the sign panel

When replacing signs on existing overhead sign structures, show the chord outside diameter and center-to-center distance between the chords.

940.6.1 Multi-Post Sign Cross Section Sheets

Muti-post sign cross sections, though not placed in plans, are often created to:

- Support the reported column size and length data on the Guide Sign Worksheet.
- Support the planning of future overlays of the rates on Toll Schedule Signs.

When created, place final cross sections in the PSEE Project Documentation module.

940.7 Sign Structures Data Table Sheet

Provide design information for the support truss, columns, and foundations on either the “Cantilever Sign Structures Data Table” or the “Span Sign Structures Data Table”. These tables should be completed by the Structures Engineer of Record (EOR).

The information shown on these sheets, along with details contained in ***Standard Plans***, ***Indexes 700-040*** and ***700-041*** provide all of the information necessary for sign structure fabrication and installation.

Computer programs for the design of overhead cantilever sign structures and overhead span sign structures were developed by the Structures Design Office and may be downloaded from the Structures Design web site.

940.8 Foundation Details Sheet

Required construction details for standard foundations are provided in ***Standard Plans, Index 700-040*** and ***Index 700-041***.

Provide a Foundation Details sheet when any of the following apply:

(1) Proposing a non-standard foundation.

(2) Project soil conditions are weaker than soil conditions which the standard foundation designs are based on.

(3) Unavoidable site restrictions (e.g., limited R/W, utility conflicts).

940.9 Bridge Mounted Sign Details Sheet

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 included in the project, place the Bridge Mounted Sign Details sheet in the Signing and Pavement Marking Plans.

940.10 Report of Core Borings Sheet

The Report of Core Borings sheets provide soil information for each proposed overhead sign structure. See ***FDM 920*** for additional information.

The following information is required:

(1) Depiction of the boring identifying the type and depth of soil strata encountered and the water level encountered. Provide boring number and location.

(2) Soil boring location map illustrating where boring was taken. Provide boring number.

(3) Soil properties and environmental classification.