941 Signalization Plans

941.1 General

This chapter provides the requirements for the development of Signalization Plans. See ***FDM 232*** for the requirements of signalization designs.

Signalization Plans are usually a component set of plans. Projects with minimal signalization 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 Signalization Plan sheets in the Lead Component Plans set.

941.1.1 Signs Mounted on Signal Installations

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

941.1.2 Rectangular Rapid Flashing Beacons (RRFBs)

Place details for RRFBs mounted overhead or as a standalone assembly in the Signalization Plans.

941.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet of the Signalization 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 Signalization Plans in the following order:

Index of Signalization Plans

(1) Key Sheet

(2) Signature Sheet

(3) General Notes

(4) Signalization Plan

(5) Traffic Monitoring Site Plan (when applicable)

(6) Interconnect/Communication

(7) Mast Arm Details

(8) Foundation Details

(9) Service Point Details

(10) Internally Illuminated Street Name Sign Details

(11) Mast Arm Assemblies Data Table

(12) Report of Core Borings

Signalization 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 signalization projects, include the list of Contract Plans Components even if the Signalization Plans set is the only component.

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

941.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by the ***Standard Plans*** or ***Standard Specifications***. See ***FDM 914*** for additional information concerning general notes.

General notes often include signal design information for the following:

- controller operations
- signal heads
- computer interface
- loop installations
- interconnect cable

941.3.1 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.

941.3.2 Signals Legend

Place a signals legend (i.e., symbol and description) and other abbreviations used in the Signalization Plans on the General Notes sheet, or on a separate “Signals Legend” sheet. Use symbols in accordance with the requirements of the FDOT CADD Software.

941.4 Signalization Plan Sheet

Signalization Plan sheets convey a graphic depiction, and necessary information for the installation of signals, including:

- Construction details
- Electrical circuits
- Signal phasing
- Pay item number and quantity for each element of the signal design.

Produce the Signalization Plan sheet using sheets that are contained in the FDOT CADD Software. Use a horizontal scale of 1" = 20' or 1" = 40' to display the entire intersection on one plan sheet.

941.4.1 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, and R/W lines.

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

Provide the following on the Signalization Plan sheet:

(1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display the 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 signalization limits. Provide the bearing on each roadway approach.

(2) Signal head locations with orientation arrows and movements (movements 2 and 6 are the major streets).

(3) Details of signal heads in tabular form.

(4) Phasing diagram or signal operating plan (SOP). If the SOP conforms to the Standard Plans, Index 671-001, only a reference to the index is required.

(5) Signal controller timing chart.

(6) Display loop detectors, stop bars, and pedestrian crosswalks. Indicate the locations and orientations of pedestrian push buttons.

(7) Identify electrical service locations and routing to the power source.

(8) Display signal wire signs.

(9) Identify conduits and pull boxes.

(10) Locations of signal poles and span wires. Label ground and roadway crown elevations.

(11) Locations of pedestrian signals. See Standard Plans Instructions for Index 665-001 for additional information on pedestrian detector assembly installation.

(12) Lane lines with vehicle orientation arrows and median nose locations with turning radii.

(13) Coordination unit-timing chart.

(14) Label field-verified vertical elevation and horizontal location (Vvh) of existing utilities (SUE data) for signal pole or mast arm installations in the plan view. Include the following with the label (or in a summary table):

  (a) Vvh number

  (b) Utility type and owner

  (c) Size and material

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

(15) Existing ground and top of utility elevations

(16) Label signalization equipment, including applicable pay item numbers.

941.5 Interconnect/Communication Plan Sheet

Provide an Interconnect/Communication (I/C) Plan sheet when signal equipment is being coordinated with other signal installations.

Prepare the I/C Plan sheet using sheets that are contained in the FDOT CADD Software.

Use a horizontal scale of 1" = 100' for underground cable and 1" = 200' for aerial cable.

941.5.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including a graphic display of the roadway, cross streets, driveways, sidewalks, and R/W lines.

Provide the following on the I/C Plan sheet:

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

(2) Display and label the signal controller, I/C cable, and pull boxes or aerial junction boxes. Labels must include the pay item number and quantity for each I/C element.

(3) Identify signal poles, service poles, and joint-use poles to which I/C cable will be attached.

941.6 Signalization Details

Construction details for mast arm assemblies and foundations are provided in ***Standard Plans, Index 649-030*** (Standard Mast Arm Assemblies) and ***Index 649-031*** (Mast Arm Assemblies).

Use signalization detail sheets to provide project-specific requirements and construction details not covered by the ***Standard Plans*** or ***Standard Specifications***.

FDM 941.6.1 through ***942.6.4*** are common details provided in plans. Other details, such as video detection, controller cabinets or service poles may be required.

941.6.1 Mast Arm Details

Provide a Mast Arm Details sheet when proposing a non-standard mast arm assembly.

941.6.2 Foundation Details

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

(1) Proposing a non-standard mast arm assembly.

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

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

941.6.3 Service Point Details

Provide a one-line diagram and panel schedule for each service point. Panel schedules must include the following:

(1) Panel ratings: voltage, phases, capacity (main lugs or main circuit breaker) and short circuit current rating.

(2) Enclosure type.

(3) Neutral bus and ground bus requirements.

(4) Capacity of the circuit breakers.

(5) Circuit loads.

(6) Total and demand loads.

941.6.4 Internally Illuminated Street Signs Details

Provide an Internally Illuminated Street Signs Details sheet when proposing illuminated street signs placed on mast arm assemblies.

941.7 Mast Arm Assemblies Data Table

The Mast Arm Assembly Data Table provides the necessary arm, pole, and foundation information for each mast arm assembly.

The table and required notes are available through the CADD tools.

941.8 Report of Core Borings Sheet

The Report of Core Borings sheets provide soil information for each proposed mast arm assembly. See ***FDM 920*** for additional information.

The following information is required:

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

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

(3) Soil properties and environmental classification.