327 Signalization Plans

327.1 General

Signalization plans include construction details, electrical circuits, signal phasing, and other data relevant to signalization projects.

Signalization 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 signalization sheets. Number the component plans with sheet numbers prefixed by the letter “T”; e.g., T-1, T-2, T-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 signalization sheets.

Projects with minimal signalization improvements may show these features on signalization sheets included in the roadway plan set (lead component), or detailed on the Roadway Plan sheets. Do not use the prefix letter “T” when including signal 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

327.1.1 Signs Mounted on Signal Installations

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

327.1.2 Rectangular Rapid Flashing Beacons (RRFBs)

Show, detail, and tabulate RRFBs mounted overhead or as a standalone assembly in the Signalization Plans

327.2 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 Signalization Plans on the left side of the sheet. Assemble signalization 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

(6) Signalization Plan

(7) Interconnect/Communication Plan

(8) Mast Arm Details

(9) Foundation Details - Mast Arms

(10) Boring Data Sheets- Mast Arms

Modification for Non-Conventional Projects:
Delete Item (3) from the above paragraph.

Signalization 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.

327.3 Signature Sheet

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

327.4 Tabulation of Quantities and Standard Notes

The Tabulation of Quantities sheet lists the item numbers, description and quantity of materials. List pay item numbers in numerical order. Provisions must be made to show the original and final quantities per sheet or by station.

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

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.

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

Modification for Non-Conventional Projects:
Delete ***FDM 327.4***

327.5 General Notes Sheet

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

Include on the General Notes sheet special signal design information such as controller operations, loop installations, signal heads, interconnect cable, and computer interface that is generally not covered in the ***Standard Specifications***, or Supplement and Special Provisions.

327.6 Signalization Plan Sheet

Prepare Signalization Plan sheets on standard plan format at a scale large enough to show all details clearly and legibly. The recommended scale is 1" = 40' or 1" = 50'. The complete intersection is typically shown on one plan sheet; however, for large intersections more sheets may be used with appropriate match lines.

Use symbols in accordance with the requirements of the FDOT CADD Software. Prepare a separate Plan Sheet for each signalized intersection included in the construction project.

327.6.1 Required Information

The basic information requirements include roadway geometrics, street names, construction stationing or milepost, curb and gutter, drainage inlets, sidewalks and R/W lines as similarly required on the plan portion of the Roadway Plan-Profile sheets. Show underground and overhead utilities, signing structures, and lighting structures that may cause construction conflicts with signal components. Check signing and pavement marking features, drainage, landscape features, sidewalks, and driveways for conflicts. Identify those that may cause conflicts in the plans.

Provide the following on the Signalization Plan sheet:

(1) North arrow and scale at a point of maximum visibility on the sheet.

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

(3) Details of signal heads in tabular form with pay item numbers.

Modification for Non-Conventional Projects:
Delete Item (3) and replace with the following: (3) Details of signal heads in tabular form.

(4) Phasing diagram/signal operating plan. If the SOP conforms to the ***Standard Plans*, *Index 671-001***, then a reference to the index is all that is required. For all other operating plans, the plan must be shown.

(5) Signal controller timing chart.

(6) Loop detectors.

(7) Electrical service location.

(8) Location of signal poles and span wires, include ground and roadway crown elevations.

(9) Signal wire signs.

(10) Pedestrian signals.

(11) Turning radii.

(12) Median nose locations.

(13) Location of "stop bars" and pedestrian crosswalks.

(14) Coordination unit-timing chart.

(15) Lane lines with orientation arrows.

(16) Location of conduits.

Label all equipment shown with their respective pay item numbers and quantity indicated.

Modification for Non-Conventional Projects:
Delete the above sentence and replace with the following: Label all equipment shown.

327.7 Interconnect/Communication Plan Sheet

The Interconnect/Communication (I/C) Plan sheet is required when signal equipment is being coordinated with other signal installations or with a computerized system. The I/C Plan sheet shows pictorially the placement of I/C cable, either underground or aerial, pull boxes or aerial junction boxes, and tabulates all related interconnect quantities. The I/C Plan sheet must indicate signal poles, service poles, and joint-use poles to which I/C cable will be attached.

Modification for Non-Conventional Projects:
Delete the above sentence and replace with the following: The Interconnect/Communication Plan sheet shows pictorially the placement of interconnect/communication cable, either underground or aerial, and, pull boxes or aerial junction boxes.

Prepare the I/C Plan sheet on standard plan format. Use a scale 1" = 100' for underground cable, and 1" = 200' for aerial cable. For simple projects, or sections of a project, "stacking" two plans on one sheet is generally permitted if clarity and legibility are maintained. Stationing must progress from left to right and multiple plan views be stacked from top to bottom.

Place a north arrow and scale at a point of maximum visibility on the sheet. If two plans are "stacked" on one sheet, include a north arrow and scale in each plan portion.

The basic plan information requirements include roadway schematic, showing cross streets and driveways, cable information, pole location, pole number, utility pole identification number, pay item number and quantity.

327.8 Mast Arm Details Sheet

See ***Standard Plans*****, *Index 649-030*** (Standard Mast Arm Assemblies) or ***Index 649-031*** (Special Mast Arm Assemblies) and the associated ***Standard Plans Instructions*** (***SPIs)***.

327.9 Foundation Details Sheet

Foundations for non-standard mast arm poles and foundations in soil conditions weaker than those shown in the ***Standard Plans*** must be designed by the responsible structures design engineer of record. The construction details for the non-standard design are shown on the Foundation Details sheet.

The foundation design for standard mast arm poles is shown in the ***Standard Plans*****, *Indexes 649-030,*** and ***649-031***. These foundations do not need to be shown in the signalization plans.

327.10 Boring Data Sheet

Boring Data sheets provide the boring data for mast arm poles and non-standard foundation details.