# Chapter 22 – Intelligent Transportation Systems (ITS)

## CADD Production Criteria Handbook

## 22.1 GENERAL

ITS Plans are usually a component set of plans. Projects with minor ITS involvement may include these features on various applicable sheets in the Roadway plans set (See Chapter 13.1). They can also be shown in the signalization plans set or on applicable signalization sheets. When prepared as component plans they shall be assembled as a separate plans set complete with a key sheet, tabulation of quantities and all other relevant ITS sheets. The sheets shall be numbered consecutively with the sheet numbers prefixed by the letters “IT”.

A complete set of ITS Plans shall include the following sheets:

1. Key Sheet
2. Tabulation of Quantities
3. General Notes
4. Plan Sheets
5. Detail Sheets (as required)

The ITS Plans show the construction details, electrical circuits, and other data relevant to an ITS project. Some of the different systems that may be produced under the ITS Component set of plans include, but are not limited to the following:

- Freeway Management System
- Incident Management System
- Arterial Management System
- Emergency Management Systems
- Transit Management Systems
- Electronic Toll Collection
- Electronic Fare Payment
- Highway Rail Intersections (under electronic surveillance)
- Regional Multimodal Traveler Information

## 22.2 STANDARD FILE NAMES

Florida Department of Transportation (FDOT) utilizes standard naming conventions for all of its files. Some of the automation implemented in various tools provided by FDOT depends on naming conventions being met. More importantly, the naming convention confers information to the downstream customer of the data.

Standard file names should follow this format: ***AAAABB##.ext***
Where **AAAA** = *abbreviated file description*, **BB** = *Discipline Denotation*, ## =S*equence number.*

**NOTE:** Please see CADD Production Criteria Handbook (CPCH) Chapter 4 for more information.

The following table lists the file name standards that apply to FDOT projects with regard to Intelligent Transportation Systems Plans. If the need arises to create a file that is defined by another discipline chapter, use the first 4 characters of the standard file name and append the Intelligent Transportation Systems filename designation (IT), followed by the file sequence numbers. An example is topoit01.dgn

| File Type | File Name | Model Name | File Description | Rule File | Seed File | Critical File |
|---|---|---|---|---|---|---|
| Border Plan | BDPLIT.dgn | default | Border Sheet Reference Model for Plan Sheet | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Border Cross Section | BDXSIT.dgn | rdxsrd | Border Cross-Section Sheet when Referenced | rdxsrd.rul | $(MX_SEEDIR)fdotseedxs.dgn | |
| Summary of Pay Items | CESSIT.dgn | default | Summary of Pay Items | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Clipping Borders | CLIPIT.dgn | default | ITS Clipping Borders | cliprd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Proposed Design | DSGNIT.dgn | default | Proposed ITS Signalization Design & information | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | X |
| Proposed Design | DSLTIT.dgn | default | Proposed ITS Lighting Design | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | X |
| Proposed Design | DSPMIT.dgn | default | Proposed ITS Signing & Pavement Marking Design | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | X |
| General Notes | GNNTIT.dgn | default | General ITS Notes Sheet | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Guide Sign Details | GSWKIT.dgn | default | Guide Sign Work Sheet and Details | gswksp.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Intersection Details | INTDIT.dgn | default | Intersection / Interchange Details | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Jacking Detail | JCDTIT.dgn | default | ITS Jacking Detail Sheet | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Key Sheet | KEYSIT.dgn | default | ITS Key Sheet | keysht.rul | $(MX_SEEDIR)fdotseedkeymap.dgn | |
| Luminaire Detail | LUDTIT.dgn | default | ITS Luminaire Detail Sheet (All Types) | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Mast Arm Detail | MSSGIT.dgn | default | Mast Arm Detail and Tables | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | X |
| Clipping | MTPLIT.dgn | default | Motif files for plan sheets | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Clipping | MTPRIT.dgn | default | Motif files for profile sheets | plprrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Communications Network Details | NWDTIT.dgn | default | Communications Network Details | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Communications Network Layout | NWLYIT.dgn | default | Communications Network Layout / Block diagram | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Plan Sheet | PLANIT.dgn | default | ITS Plan Sheet | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Plan Layout Sheet | PLAYIT.dgn | default | Plan Layout Sheet | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Pole Details | PLDTIT.dgn | default | Pole Tabulation & Details for All Types | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Special Details | SGDTIT.dgn | default | Special Signal Details | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Soil Borings | SLBRIT.dgn | default | Soil Borings for Poles and Overhead Structures | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Splice Details | SPDTIT.dgn | default | Splice Diagrams | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Splice Layout | SPLYIT.dgn | default | Splice Layout Sheets | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Special Sign Details | SPSGIT.dgn | default | DMS Detail for Overhead Signs | spdtrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Service Point Detail | SRPTIT.dgn | default | Service Point Detail Sheets | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Special Details | SSDTIT.dgn | Default | Special Sign Detail and Miscellaneous Detail | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |

| File Type | File Name | Model Name | File Description | Rule File | Seed File | Critical File |
|---|---|---|---|---|---|---|
| Cross Section | SSXSIT.dgn | rdxsrd | Sign Support Cross-Sections | rdxssp.rul | $(MX_SEEDIR)fdotseedxs.dgn | X |
| Tabulation Sheet | TABQIT.dgn | default | ITS Tabulation Quantity Sheet | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Traffic Control Design | TCDTIT.dgn | default | Traffic Control Design Sheet | Itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Text labels | TEXTIT.dgn | default | Text Labels and Misc. Details, Misc. Descriptions | planrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Utility Adjustment Sheets | UTADIT.dgn | default | Utility Adjustment Sheets | utadrd.rul | $(MX_SEEDIR)fdotseed2d.dgn | |
| Vehicle Detector l Details | VHDTIT.dgn | default | Vehicle Detector Details & Instructions | itssp.rul | $(MX_SEEDIR)fdotseed2d.dgn | |

## 22.3 RESOURCE FILES

FDOT Engineering/CADD Systems Office (ECSO) provides the standard resource files for Computer Aided Design and Drafting (CADD) Intelligent Transportation Systems Plans using MicroStation, GEOPAK and other FDOT approved software for the production of an electronic project data delivery. If a custom line style or font is needed that is not standard, this file must be included as part of the electronic delivery and the justification noted in the appropriate discipline journal file.

## 22.4 ENGINEERING DATA

The ITS discipline directory contains an additional sub-directory named \eng_data. This sub-directory is designated to contain the following:

- PostScript image files of the plan sheets for the ITS design
- Quality control reports
- ASCII Engineering Data output files
- All computer input and output files (PostScript and Native File Formats) used in the structural design of ITS-related structures.
- All supplemental hand calculation (scanned and saved in PDF and PostScript Formats)
- Other data pertinent to the overall ITS design.

## 22.5 PROFESSIONALS' ELECTRONIC DATA DELIVERY SYSTEM (PEDDS)

PEDDS shall be used to Secure and Authenticate project data. When projects are received, the FDOT authenticates the data on the delivered CD. Each time data is transmitted to or received by FDOT the data shall be secured and authenticated. PEDDS shall also be used to authenticate any project specific data received as part of a delivery from an outside source or discipline. For example, an electronic delivery to Roadway from Survey or EMO should be secured and authenticated. Roadway shall electronically secure all files for delivery.

## 22.6 SYMBOLOGY STANDARDS

Symbology Standards that apply to FDOT Projects are set up under a listing of Standard Level Names with specific ByLevel Color, Style and Weight attributes. These levels are grouped under specific Rule Files which are associated to each valid Standard Filename of each Discipline for the purpose of performing the Quality Control check for FDOT Standard compliancy of each FDOT project design file. Section 22.2 of this chapter provides for the complete Standard File Name listing with associated Rule File.

**Note:** Refer to Chapter 3 FDOT Resource and Support Files to review the Level names listing for each associated Rule File.

The following are the basic level naming convention rules to follow to always know what level an element should be placed on:

1) Level Names have 18 maximum characters.
2) The format of the name is: ***object*_*sv***

***object*** (represents element type)_ ***s*** (represents state) ***v*** (represents view)

| states | views |
|---|---|
| **p** (proposed) | **x** (cross section) |
| **d** (drafting element) | **r** (profile) |
| **e** (existing) | **p** (plan) (DTM is the same as plan) |

**Note:** Level Names without including the **"_sv"** portion in the name are assumed proposed plan view elements.

**Example:** With this information one can determine the following about the Level names below:

| | |
|---|---|
| gas | - Proposed Plan view elements for "gas" related items |
| gas_ep | - Existing Plan view elements |
| gas_px | - Proposed cross section view elements |

## 22.7 MODEL REFERENCING

Every project will utilize and incorporate the entire FDOT standard directory structure regardless of the project requirements. Data for each discipline will be maintained in its sub-directory and stored on the TIMS server (In-House). **If a discipline requires information from another discipline, the needed design files or individual model(s) shall be referenced from the original directory and not copied**.