

# Memo

## New Mexico Department of Transportation

**SUBJECT:** Infrastructure Design Directive  
IDD-2008-02  
(CADD Standards Design Directive – 1)

**DATE:** 06-13-2008

**TO:** Infrastructure Division  
Design and Drafting Community

**FROM:** Max Valerio, Chief Engineer  
Office of Infrastructure Divisions

**FILE REFERENCE:**  
PSESHARE: Design Directives

In order to provide a more consistent set of plans and improve the efficiency of the workflow in engineering design and drafting at NMDOT, a CADD Standard Committee was formed on January of 2008. The committee's focus was to assess the existing CADD standards and refine as necessary to present it to all the CADD users for consistent adherence and compliance.

The Department has set out the following Goals which are to:

- **Produce plans that look consistently the same.**
- **Devise a file management system that is logical and easy to follow.**
- **Establish plan structure that is organized and easy to decipher.**
- **Establish a naming convention that is understood by all the users.**
- **Provide a consistent electronic delivery system.**
- **Provide guidance to internal and external users.**

The latest CADD Standards are organized in three separate pdf format documents located on the NMDOT web site under **Doing Business with NMDOT/Plan, Specs & Estimates/CADD Standards**. The documents are named:

- 1. CADD Design Standards**  
Includes Survey Standards, Initialization Files, Digital Terrain Models, Geometry, Profiles and Cross sections, Corridor Modeling, Reports, and Translations
- 2. CADD Drafting Standards**  
Includes Directory Structure, Project Plan Sets, File Naming Conventions, Borders, Seed Files, Reference Files, Levels, Symbology, Annotation, Cell Libraries, Dimensioning, Plotting, Acceptable Delivery Formats, Translations, NMDOT Workspace, and Geo-referenced Imaging
- 3. Consultant CADD Deliverables**  
Includes File Format and Transfer Requirements and Design Section Requirements

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The initial step will be to examine the most basic and fundamental steps in establishing and managing the CADD Drafting Standards that lead to developing a set of plans. These basic guidelines are the basis of this initial Design Directive and are focused towards:

1. Establishing a Project Directory
2. Naming Conventions
3. Design Files Structure
4. PDE folder, and
5. Procedures for shelving projects

The guidelines are attached as an appendix to this Design Directive.

The Department is dedicated to compliance with these CADD Standards and every employee in NMDOT that produces or contributes to the production of plans is expected to comply with the design directive. As such, this first design directive must be adhered for all projects that have not completed the Pre-Final Design Milestone effective August 1, 2008.

Following are some procedures the CADD Standards Committee developed to insure successful implementation:

- The content of the first design directive will be rolled out through initial training to be scheduled for each functional area. Follow up training will be conducted as special needs will arise and will also be available through e-learning and the CADD IT support section.
- Certificates of proficiency will be issued to individual users by successful completion of training class and demonstrated abilities within one month after the class. CADD certification and compliance will need to become incorporated as part of an individual performance evaluation.
- An individual in each functional area will be designated as CADD coordinator to help all the users achieve proficiency. The coordinator is the first line of CADD support. Any concerns or need for support will be channeled through the coordinators to CADD committee for resolve. Once the issues are resolved the coordinator will be in charge of adherence by the functional area.
- CADD Conformance Software will ultimately be introduced in the future as a tool to examine compliance to CADD standards at each milestone for the projects.

The software works as follows:

Upon completing a set of drawings, the design coordinator runs the CADD conformance software. Like a spell-checker for standards, the software locates non-conformances and makes recommendations for corrections. After a drawing has been conformed, the coordinator can apply electronic seal, assurance of 100% conformance to the CADD standards.

- As a final check, the Design Quality Assurance Unit will conduct an additional cursory check of the plan set.

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Other subsequent CADD Drafting Standard guidelines will be addressed via future design directives.

General Office staff is to utilize the [\\aspen\pseshare](#) drive to access the Directive. District and Regional Office staff can access the Directive utilizing the appropriate District drive as indicated below:

District 1	\\D1Blade3\D1Design
District 2	\\D2flsv01\public\psesection
District 3	\\D3-blade1\District 3\PS&E_Section
District 4	\\d4flsv04\designshared
District 5	\\d5flsv02a\d5design
District 6	\\d6flsv06\d6_users\pse_section

In addition, the Directive will reside in the Department's external website. The web address is:

<http://www.nmshtd.state.nm.us>

# **APPENDIX**

## **First Administrative Directive on CADD Standards**

### **Subject: Folder (Directory) Structure**

Directive: All PDEs, Designers, and CADD users shall abide by the following:

### **1. Project Directory**

The IT has created new project directories for the north, south, and central region. Each project is recognized by its unique project control number (PCN) located in its proper geographical location. It is the intent of the department for this directory to be the one and only drive used for the storage of project related files including but not limited to survey, design files, raster files, work files, plan sheets, correspondence, analysis, and etc. CADD drafting standard specifies in detail the location of these project files.

The old project drives for each design regions will be phased out as we will be done with the current projects. All the road and district folders will be eliminated in the new drives. The new drives will be mapped as follows:

North Region staff will map- P:\\Eabr1\Projects

Central Region staff will map- P:\\Eabrc1\Projects

South Region staff will map- P:\\Eabrs1\Projects

In addition, the Engineering Support Division staff (e.g. Survey, Bridge, Traffic, and Drainage) will have access to Central and South Region projects because of the current workflow. The two additional drive letter mapping will be (Q: and R:) for Central and South Regions respectively.

We will have two project drives for the North Region until we phase out the current drives.

Absolutely no shared drives, personal drive, or local drive shall contain any of the design files, plan sheets or any project related files which is shared by the design teams. It means unless you have a personal work or junk file, nothing else is located outside the project drive. Survey and Lands Management are the only exception due to their work flow procedure.

### **2. Naming Conventions**

Naming convention is strictly enforced according to the Department's CADD Standards/CADD Drafting Standard section four on the web site. Refer to tables 4.1, 4.2, 4.3, and 4.4 for initial guidance.

### **3. Design Files Structure**

All the design files shall be located in their proper location according to the CADD Drafting Standards. The design file shall have the proper file extensions stored at their proper location and is assumed to be the most current version.

Example: **PCNdesign01.ref** is the only and the most current roadway design file for an alignment. It will be located at:

P:\Eabrn1\Projects\_N\PCN\Proposed\ Roadwaydesign\

The design file shall be clean and free of any other external files. Every other necessary file shall be referenced into a design file. Typical sections or cross section shall not be located in the design files. All the levels must be clean and maintained. Redundant or duplicate features should not be present in the design files.

New permissions shall be granted to the design team. This is done during project set up. IT will coordinate with PDE to grant permission to the appropriate personnel.

### **4. Project Development Engineer (PDE) Folder**

A PDE folder will be created under every Project Control Number (PCN). Vital project information will be stored in this folder. The current PDE folder under the Documentation folder will be eliminated.

The following content is proposed to be included in the folder, sub folders may also be created:

Folder - Project requests to include survey request, certification request, ISA, pavement recommendation, etc.

Folder - Certifications Environmental Documents, ROW, Utilities, railroad, etc.

Folder - Correspondence, file naming convention was suggested

Letters= From(name)# (counter).pdf

ie.= archuleta1.pdf

e-mail= from(name)date

Folder - Estimates per milestone to include preliminary, pre-final, final, PS&E, approved low bidder, and line item profile.

Folder -Schedule, Copy of Primavera Gantt chart

Document - Design diary to include Document summarizing design, criteria & decisions as an executive summary.

These are the types of information that should be stored in the PDE folder which relate to the project. Other pertaining information regarding the project may be stored in this folder also.

## **5. Procedures for Shelving Projects**

There may be projects in the project directory which are in the design process but for reasons deemed by the Department need to be shelved. This will allow preserving the efforts and finishing the project in the future. The shelving will keep the project intact until the time obstacles are removed or funding will be available. The following process shall be implemented in order to preserve the integrity of the design:

1. Each project is to be labeled with “\_s” at the end of the project PCN number.
2. All the privileges are to be taken away from the users except read feature.
3. PDE to provide a detail status report in the PDE file under the folder PCN/PDE to include project development stage and any outstanding deliverables or data submittals at the time of shelving.

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