VDOT CADD MANUAL
CHAPTER 2

CONTENTS

TABLES

FIGURES

2 PROJECTWISE DOCUMENT MANAGEMENT

2.1 ABOUT PROJECTWISE

ProjectWise is a software application that manages and facilitates project collaboration between VDOT and consultant project team members. The ProjectWise Explorer application is provided free of charge for consultants working on VDOT projects.

All project related files shall be stored in ProjectWise under the folder for the project's individual UPC number. Project folders for individual UPC numbers are found within ProjectWise under \Documents_Projects\ in the project's VDOT District sub-folder.
(See IIM-LD-118)

VDOT has a ProjectWise webpage where links are provided for account setup processes, frequently asked questions, download and installation instructions, and job aids.

- Link to VDOT's ProjectWise webpage

2.1.1 ESTABLISHING PROJECTWISE ACCOUNT ACCESS

VDOT employees must follow the instructions provided to request access to ProjectWise using VDOT's System Access Request Application (SARA).

- Link to ProjectWise – How to request access via SARA (For VDOT employees only)

External users must first establish a VDOT ProjectWise Account to access VDOT's ProjectWise database. Login information will be provided once the appropriate forms have been completed (LD899 and ITD36E) and processed by VDOT. Detailed instructions are provided on VDOT's ProjectWise webpage.

- Link to Establishing ProjectWise Access for External Customers webpage

2.1.2 INSTALLING PROJECTWISE

VDOT employees should send an email requesting the installation of ProjectWise Explorer to the CADD Support Section at CADDSupport@vdot.virginia.gov after receiving notice that their SARA request has been processed. This email request should include the computer asset tag number, a good contact number, and the employee's District. VDOT employees may also access ProjectWise using an internet browser to access the ProjectWise Web Server.

For external users, VDOT has developed detailed instructions for installing, configuring, and accessing ProjectWise via the ProjectWise Explorer desktop application and the ProjectWise Web Server. The instructions are provided to external users with and without ProjectWise Explorer installed on their machines.

- Link to ProjectWise Software Download and Instructions webpage (for external users)

2.1.3 ACCESSING PROJECTWISE

ProjectWise is accessible by using the ProjectWise Explorer desktop application or by accessing the ProjectWise Web Server via an internet browser. For external users, the instructions referenced above include the required configurations for the ProjectWise Datasource to automatically be displayed in ProjectWise Explorer. Additionally, the provided instructions include the required configurations in order to use an internet browser to access the ProjectWise Web Server.

- Link to VDOT's ProjectWise Web Server (ProjectWise Account access required)

2.1.4 USING PROJECTWISE

VDOT has developed Job Aids which provide instructions for completing specific tasks which will likely need to be completed within ProjectWise during the project lifecycle. Links are provided to VDOT's Job Aids at the bottom of VDOT's ProjectWise webpage.

- Link to VDOT's ProjectWise webpage

2.1.5 PROJECTWISE TRAINING

After gaining access to VDOT's ProjectWise, users may access additional training including videos and PDF documents. These training resources are separated by category based on the user's role with VDOT.

- Link to VDOT's ProjectWise Training Videos

2.2 PROJECTWISE STRUCTURE

With the implementation of ProjectWise, VDOT has consolidated data from multiple environments and locations into one central database. This includes project data, standards data, Central Office data, and data from VDOT's Plan File Room which has been distributed into the folder structure shown in Figure 2-1.

Figure 2-1: ProjectWise High Level File Structure
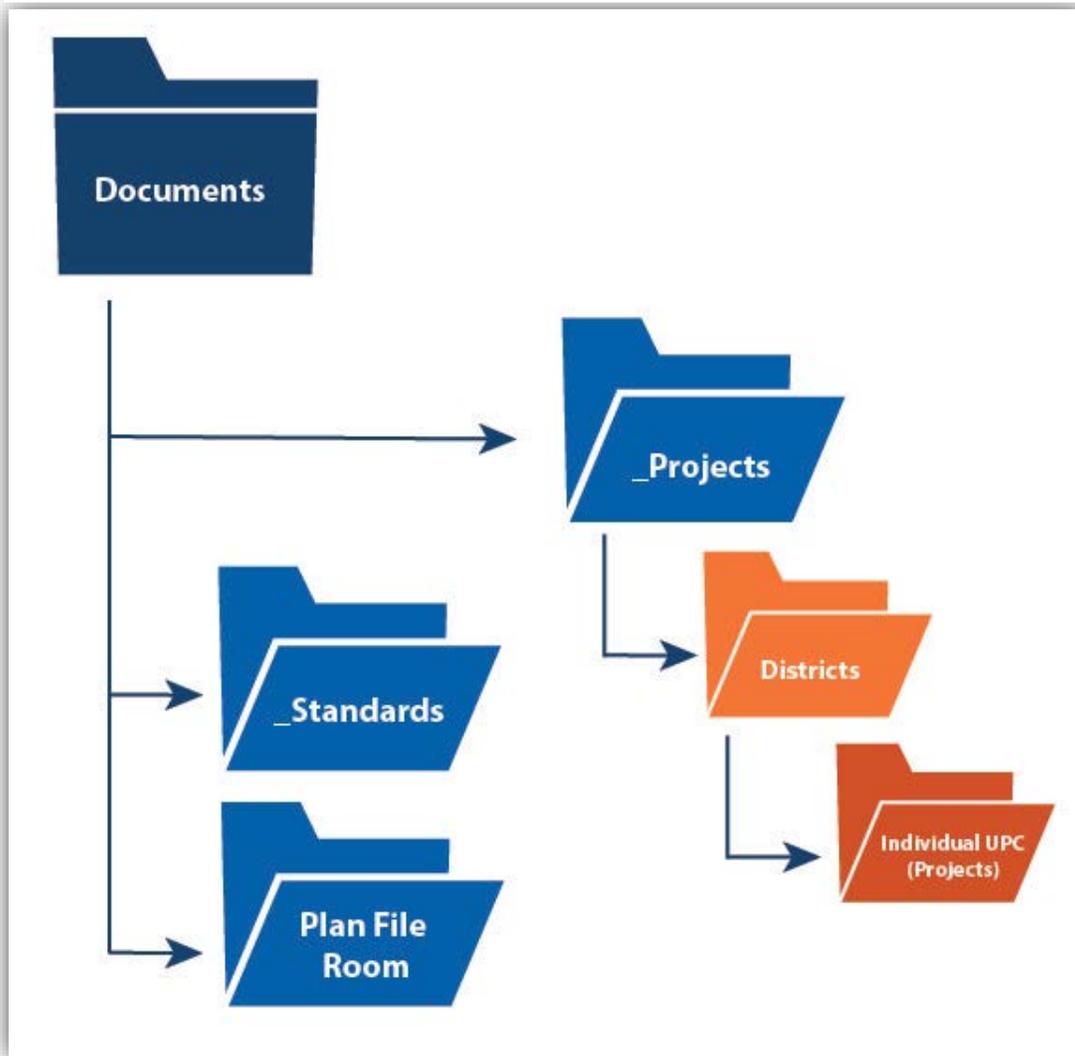
2.2.1 _PROJECTS FOLDER

This folder contains a series of sub-folders representing the nine VDOT Districts as well as a Statewide section. Within each District folder are individual folders for each project with folder names based on the VDOT UPC assigned to the project. The individual project folders are created by the CADD Support Section at the request of the VDOT Project Manager or VDOT Designer. The project's UPC Folder contains all the project related files.

An example ProjectWise Project folder path for a project in the Bristol District with UPC# 123456 is shown below.

- pw:\\WAP04113.cov.virginia.gov:PW\Documents_Projects\Bristol\123456\

The folder structure for the individual projects (UPC#) located under the _Projects folder is described in more detail in Section 2.3 below.

2.2.2 _STANDARDS FOLDER

This folder contains a series of sub-folders which contain ProjectWise documentation, ProjectWise installation files, CADD installations and configuration files, and VDOT's ProjectWise based CADD workspace.

2.2.3 PLAN FILE ROOM FOLDER

This folder contains the archived submissions of Right of Way and Construction Plans for VDOT projects. This folder structure and file naming convention is described in more detail in Section 2.4.

2.3 PROJECT FOLDER STRUCTURE

VDOT's ProjectWise structure includes a folder for each project by UPC and sub-folders for each discipline. All files must be placed in the appropriate folder or sub-folder to ensure that they can be located by all divisions needing to reference them. Consistency in file organization is key to effective coordination. As part of the consolidation of VDOT project data into ProjectWise, VDOT has moved the following data that previously resided in separate locations into the individual project folders:

- Current Drawings Folder
- Archives Folder
- Project Documents (includes Project Management Documents, former iPM)
- Project Design (CADD Files)

Because of legacy projects, two folder structures are currently in use, the old and the new. A description of the new project folder structure and old structure are provided below.

2.3.1 NEW PROJECT FOLDER STRUCTURE (NEW PROJECTS)

VDOT developed a new detailed folder structure in ProjectWise that simplifies the storage of project data based on type. In October 2018, VDOT began using this new project folder structure on new projects created in ProjectWise. This new project folder structure became necessary as projects have become more complex, involve more disciplines, and generate more data. The new structure provides a single repository for all project data and makes the data accessible to everyone with the appropriate access rights.

Figure 2-2: New Project Folder Structure
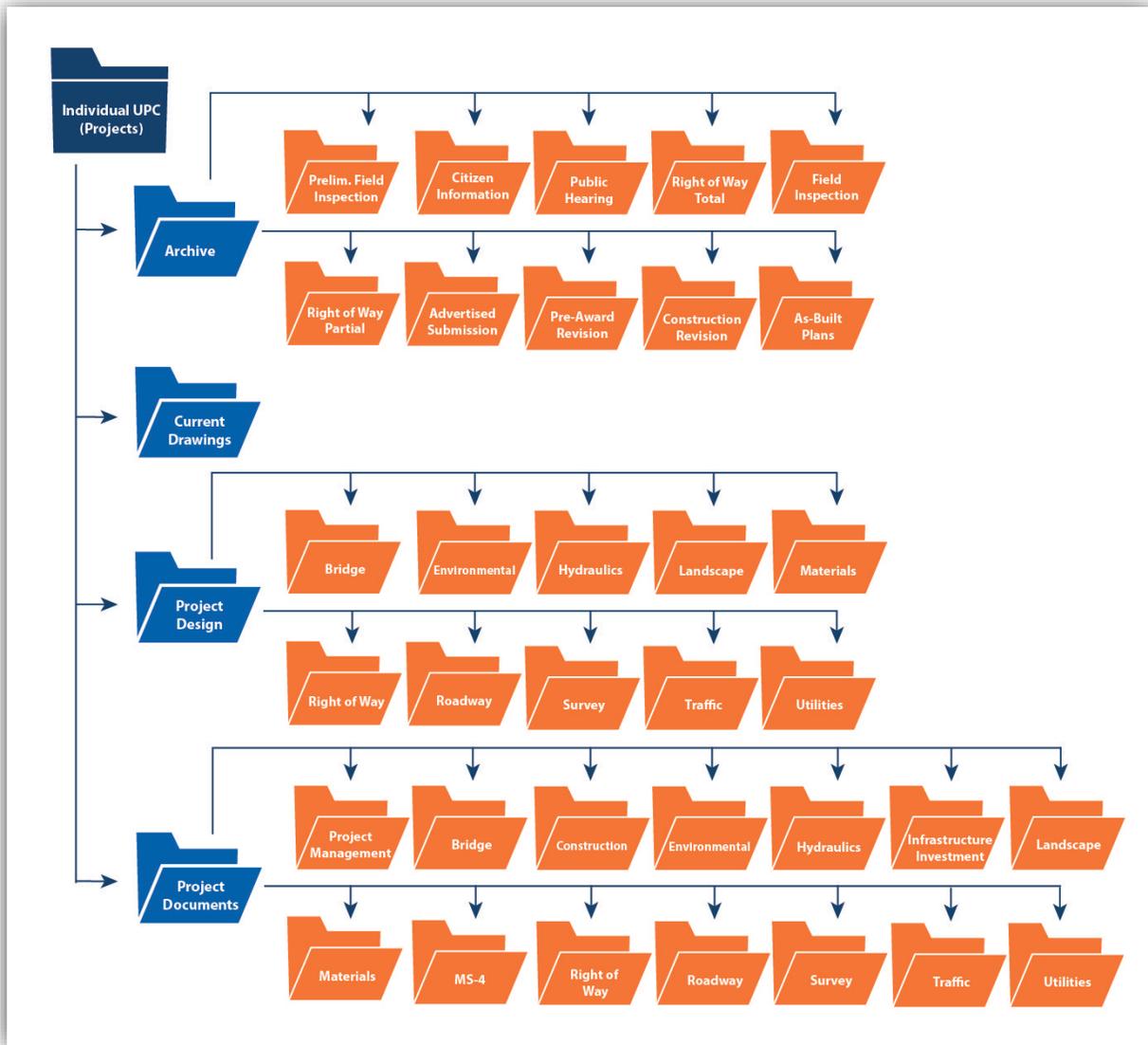
2.3.1.1 ARCHIVE

The Archive folder is the location where DGN and GEOPAK/OpenRoads files along with other project files are archived upon the completion of specific Project Development stages. The archive folder has sub-folders for each stage at which files must be archived. These files provide a snapshot of the files at the point in time that the project was submitted for the particular milestone submission.

For Design-Bid-Build projects, all DGN and associated files must be archived in the matching archive sub-folder at each project milestone noted below in order to maintain a digital trail of the project files throughout the project lifecycle. These archived files may also prove to be very

useful if a previously submitted design layout or alternative needs to be revisited during the project.

- Preliminary Field Inspection
- Citizen Information
- Public Hearing
- Right of Way Total
- Field Inspection

- Right of Way Partial
- Advertised Submission*
- Pre-Award Revision
- Construction Revision
- As-Built Plans

It is imperative that all DGN and associated files are archived at the Advertisement Submission milestone in the Advertised Submission folder. These archived files are the files that are made available on the Construction Advertisement Bulletin Board (CABB) for contractors to access when bidding on the project. If these files are not properly archived, the project's Advertisement Date could be delayed putting the project funding in jeopardy.

For Design-Build projects, all PDF, DGN (and associated files), and other submittal documents must be archived in the matching archive sub-folder for the project milestones shown below.

- RFQ
- RFP
- ROW Submittals
- CN Submittals
- As-Built Plans

Additional details regarding specific archiving requirements for Design-Bid-Build and Design-Build projects are discussed further in Chapter 5 of this manual.

2.3.1.2 CURRENT DRAWINGS

The Current Drawings folder is the location where the current PDF files of plans are generated and maintained during the design and the review phases of a project. Only one set of the most current individual PDF files of the plans are stored in this folder at any given time. The PDF files in this folder are updated as the design progresses and will overwrite the previous PDF files. The PDF files of the plans in this folder should follow the same standard naming convention described in Section 2.4 for PDF files to be placed in Plan File Room. Plan sheet PDF files with correct standard file names are automatically created and/or updated in Current Drawings when using the Create Renditions printing process described in Chapter 4. PDF files can also be manually added, deleted, or replaced by anyone with write access to the files in the Current Drawings folder. Only PDF files should be stored in Current Drawings.

2.3.1.3 PROJECT DESIGN

The Project Design folder is where the DGN and GEOPAK/OpenRoads files required for the development of the plans in CADD are stored and maintained throughout the survey, design, and construction phases. This folder includes named sub-folders for each discipline typically involved in the development of design files. Additional sub-folders are provided under each discipline sub-folder as necessary to further separate design files based on plan components and source. Only files related to the production of the project in CADD are stored in Project Design. Reports, studies, calculations, and other documents are stored in the Project Documents folder described in Section 2.3.1.4. Below is a list of discipline sub-folders included in the Project Design folder.

- Bridge
- Environmental
- Hydraulics
- Landscape
- Materials
- Right of Way
- Roadway
- Survey
- Traffic
- Utilities

2.3.1.4 PROJECT DOCUMENTS

The Project Documents folder is the location where other non-CADD project files are stored. This folder includes a Project Management sub-folder as well as named sub-folders for each discipline typically involved in the development of project documents. Additional sub-folders are provided under the Project Management and discipline sub-folders as necessary to further separate project documents. By default, access to the Project Documents folder is initially restricted to VDOT employees only. Consultants requiring read-only access to the information contained in the subfolders under Project Documents should make the request for access through their VDOT Project Manager. Access to the Project Management folder is restricted to VDOT staff only. Below is a list of sub-folders included in the Project Documents folder.

- _Project Management (VDOT employees only)
- Bridge
- Construction
- Environmental
- Hydraulics
- Infrastructure Investment
- Landscape
- Materials
- MS-4
- Right of Way
- Roadway
- Survey
- Traffic
- Utilities

2.3.2 OLD PROJECT FOLDER STRUCTURE (PREVIOUSLY CREATED PROJECTS)

Projects created in ProjectWise prior to October 2018 utilize the old project folder structure. Under the old project folder structure, the sub-folders for each discipline are not stored under a single Project Design folder. These discipline sub-folders are instead found directly under the Project folder along with _Archives, _Current Drawings, and _Project Documents. The discipline sub-folders are named with a discipline prefix followed by the project's UPC number.

2.3.2.1 _ARCHIVE

The _Archives sub-folder is the same as that of the Archive folder in the new folder structure described in Section 2.3.1.1. However, in this case, "Archive" is prepended with a "_" and is displayed as "_Archive".

Figure 2-3: Old Project Folder Structure
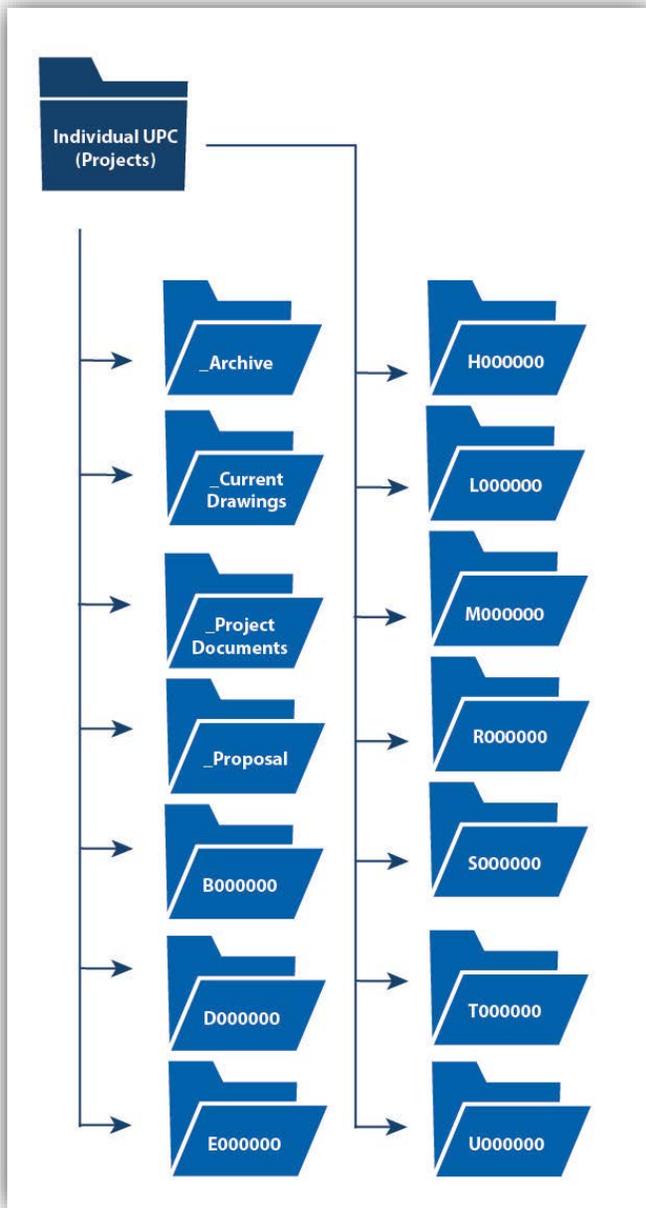
2.3.2.2 _CURRENT DRAWINGS

The _Current Drawings sub-folder is the same as that of Current Drawings in the new folder structure described in Section 2.3.1.2. However, in this case, "Current Drawings" is prepended with a "_" and is displayed as "_Current Drawings".

2.3.2.3 _PROJECT DOCUMENTS

The _Project Documents sub-folder is the same as that of the Project Documents folder in the new folder structure. However, in this case, "Project Documents" is prepended with a "_" and is displayed as "_Project Documents".

2.3.2.4 _PROPOSAL

The _Proposal folder contains the proposal documents prepared for Advertisement of the project.

2.3.2.5 DISCIPLINE FOLDERS

The individual discipline folders are where the DGN and GEOPAK/ OpenRoads files required for the development of the plans in CADD are stored and maintained throughout the survey, design, and construction phases. Folders are provided for each discipline and are identified with prefixes as shown in Table 2-1.

Table 2-1: Discipline Folders

Discipline Folder	Folder Contents
B000000	DGN files used to prepare the structure and bridge plans
D000000	DGN files used to prepare the roadway plans
E000000	DGN files used to prepare the environmental plans
H000000	DGN files used to prepare the hydraulics and erosion and sediment control plans
L000000	DGN files used to prepare the landscape plans
M000000	DGN files used to prepare the materials plans
R000000	DGN files used to prepare the right of way plans
S000000	DGN files used to prepare the survey
T000000	DGN files used by to prepare the traffic plans
U000000	DGN files used to prepare the utility plans

2.3.3 SCAN REFERENCES AND LINK SETS TOOL IN PROJECTWISE

All projects should be designed within VDOT's ProjectWise Datasource (See IIM-LD-118). There are rare instances that projects may need to be imported into ProjectWise. Projects and project files which have been dragged and dropped, imported, or otherwise added into ProjectWise or worked on outside of ProjectWise will often need the paths to the reference files corrected so that they will attach correctly in MicroStation. ProjectWise includes a tool which provides users the ability to scan a ProjectWise folder searching for master DGN documents and reference files within a specified location(s). This process is handled by the CADD Support Section due to the access control needed to every reference file. This process should be limited to only once per project. Please send an email request to the CADD Support Section including the project's UPC number, project description or project name, a link to the specific project folder in ProjectWise, the name of the VDOT Project Manager, and an explanation and list of the files and folders that need to be addresses with this tool.
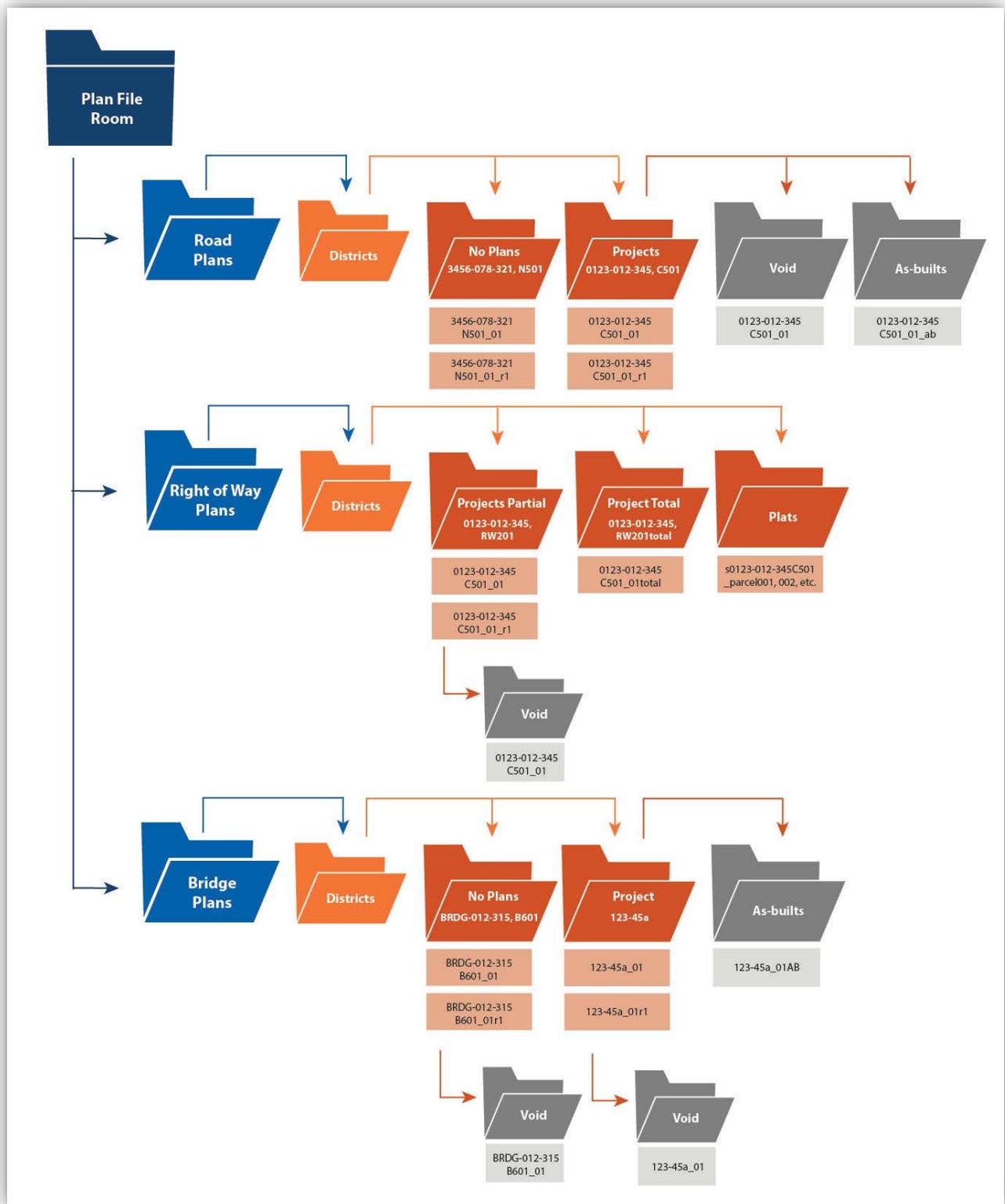
2.4 PLAN FILE ROOM

As discussed above, the Plan File Room contains the archive of Right of Way and Construction Plans for VDOT projects, no matter which folder structure described above is used. The naming convention and folder structures for the Plan File Room are described in further detail below.

2.4.1 PLAN FILE ROOM FOLDER STRUCTURE

VDOT's Plan File Room is divided into three separate folders: Bridge Plans, Right of Way Plans, and Road Plans. Each of these folders contains of a series of sub-folders representing the nine VDOT Districts. Folders for each project are located under their respective District sub-folder.

Figure 2-4: Plan File Room Folder Structure

Figure 2-4: Plan File Room Folder Structure

2.4.1.1 ROAD PLANS

Project folders for "No Plan" projects and standard projects will be present within the individual District sub-folder in the Road Plan File Room folder. The folder and file naming convention for each folder type are described below.

No Plans (Folder)

- Folder Name will be the project number: 3456-078-321, N501
- Files will be named project number underscore sheet number: 3456-078-321 N501_01
- Formal Construction Revisions – File names will be same as above. Existing files will be overwritten.

Projects (Folder)

- Folder Name will be the project number: 0123-012-345, C501
- Files will be named project number underscore sheet number: 0123-012-345 C501_01
- Formal Construction Revisions – File names will be named project number underscore sheet number appended with _r1, _r2, _3, etc. to each sheet: 0123-012-345 C501_01_r1
- The revision number will be depicted on the revision data sheet in the upper right corner of each revision with this symbol (R1) containing (revision) r number inside.
- In the event of a Formal Construction Revision, the old files must be moved to a Void sub-folder under the project folder.

As-builts (Sub-Folder)

- Only required for Structure & Bridge and Design Build Projects
- Files will be named project number underscore sheet number appended with _ab to each sheet: 0123-012-345 C501_01_ab

2.4.1.2 RIGHT OF WAY PLANS

Project folders for Partial-Take projects and for Total-Take projects may exist within the individual district sub-folder in the Right of Way Plan File Room folder. The folder and file naming convention for each folder type are described below.

Projects (Folder) Partial

- Folder Name will be the project number: 0123-012-345, RW201
- Files will be named project number underscore sheet number: 0123-012-345 C501_01

- Formal Right of Way Revisions – File names will be named project number underscore sheet number appended with _r1, _r2, _r3, etc. to each sheet: 0123-012-345 C501_01_r1
- The revision number will be depicted on the revision data sheet in the upper right corner of each revision with this symbol (R1) containing (revision) r number inside.
- In the event of a Formal Right of Way Revision, the old files must be moved to a Void sub-folder under the project folder.

Projects (Folder) Total

- Folder Name will be the project number: 0123-012-345, RW201total
- Files will be named project number underscore sheet number: 0123-012-345 C501_01total

Plats

- Plat files will be placed in the projects Right of Way Plans folder
- Files will be named s project number underscore parcel number: s0123-012-345 C501_parcel001, 002 and so on
- Plats are only used in certain situations. In these situations, they should be named as shown below. For more information, see the VDOT Survey Manual.

2.4.1.3 BRIDGE PLANS

Project folders for "No Plan" projects and standard projects may exist within the individual district sub-folder in the Bridge Plan File Room folder. The folder and file naming convention for each folder type are described below.

No Plans (Folder)

- Folder Name will be the project number: BRDG-012-315, B601
- Files will be named project number underscore sheet number: BRDG-012-315 B601_01
- Formal Construction Revisions – File names will be named project number underscore sheet number appended with r1, r2, r3, etc. to each sheet: BRDG-012-315 B601_01r1

Projects (Folder)

- Folder Name will be the plan number: 123-45a
- Files will be named plan number underscore sheet number: 123-45a_01

- Formal Construction Revisions – File names will be named project number underscore sheet number appended with r1, r2, r3, etc. to each sheet: 123-45a_01r1
- In the event of a Formal Construction Revision, the old files must be moved to a Void sub-folder under the project folder.

As-builts (Sub-Folder)

- Sub-Folder Name will be As-builts. The sub-folder will be located under the project folder.
- Files will be named plan number underscore sheet number appended with AB to each sheet: 123-45a_01AB

2.4.2   VDOT PROJECT NUMBER AND BRIDGE PLAN NUMBER NAMING CONVENTIONS

Project folders within the Plan File Room folder structure are uniquely named using either the project's VDOT project number or the project's VDOT bridge plan number, depending on the type of project and which Plan File Room the project documents are stored in. Plan sheet PDF files with correct standard file names are automatically created and/or updated in Plan File Room when using the Create Renditions printing process described in Chapter 4.

2.4.2.1 PROJECT NUMBER (ROAD AND RIGHT OF WAY PLANS)

The VDOT project number consists of a series of numbers and letters that describe the project.

Figure 2-5: Example Project Number

Example Project Number:
0123-012-345, c501

0123	012	345	c501
Route number	County Code	Project Section	Job Number
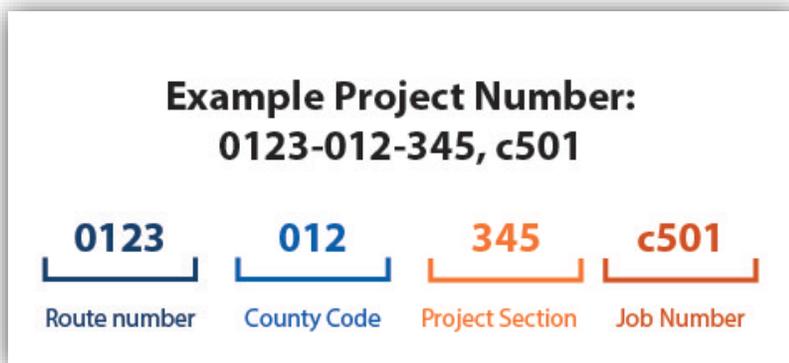
An annotated example is illustrated below.

Example Project Number: 0123-012-345, c501

- First four digits (0123) – Route Number
- Next three digits (012) – County Code
- Following three digits (345) – Project Section
- Alpha character with three digits – Job Number

All project folders and file names will have a space after the comma and before the Job Number beginning with c, rw, m, or n. Folders and files within the Road Plan and Right of Way Plan File Rooms use the project number described above in their naming conventions.

Route Numbers

Route numbers are assigned to each road in the Commonwealth. An example is 0640 which refers to route number 640. Route numbers for secondary roads are 600 and above. Route number 600 and above are not unique within the state, and instead only unique within a specific county. For example, Route 612 in one county will not necessarily be the same road in another county, although that county may have a different Route 612. Route numbers below 600 are Primary routes.

County Codes

Codes have been assigned to each county and city and are used to identify the location of the project. For example, Chesterfield County is 020. City and County codes are provided in Chapter 1C of the VDOT Road Design Manual.

- Link to VDOT's Road Design Manual Chapter 1C

Project Section

Project section numbers are assigned as a part of the project number by VDOT in order to identify a specific project on a route within a city or county. This is necessary as multiple projects will occur on the same route within a city of county over time.

Job Number

The Job Numbers are also included in the project number and are listed below.

- 100 - Preliminary Engineering (Coded PE) – Example: PE101
- 200 - Right of Way (Coded RW) – Example: RW201
- 300 - Grading & Drainage (Coded G) – Example: G301
- 400 - Paving (Coded P) – Example: P401
- 500 - Construction (Coded C) – Example: C501
    - Minimum Plan (Coded M) – Example: M501
    - No Plan (Coded N) – Example: N501
- 600   Bridges (Coded B) or Major Drainage Structures (Coded D) – Example: B601
- 700 - Flashing Light Signals (Coded FS) – Example: FS701
- 800 - Landscaping (Coded L) – Example: L801

- 900 - Signing (Coded S) – Example: S901

The three-digit job numbers are reserved for various phases of work to enable the various VDOT divisions to identify and record the breakdown of charges on a project. Future phases of a project will result in the indexing of the job number (i.e. Phase 1 – PE101, Phase 2 – PE102).

No Plan Projects are simple projects where plans may or may not be necessary. Instructions and necessary sketches for these projects are in the Road Design Manual, Appendix A7.

- Link to VDOT's Road Design Manual Appendix A7
- ProjectWise link to VDOT's Central Office No Plan folder

2.4.2.2 BRIDGE PLAN NUMBER
The VDOT bridge plan number is a unique number assigned to each set of bridge plans and is provided by the Structure and Bridge Division. Folders and files within the Bridge Plan File Room use the bridge plan number in their naming conventions except for No Plan projects.

- Example Bridge Project Plan Number: 123-45a

2.4.2.3 BRIDGE PROJECT NUMBER (NO PLANS)
For projects with bridge work where no plans are prepared (No Plan project), the folders and files will use the bridge project number in their file naming conventions. This number follows the same format as the project number format shown above for road and right of way plans except for the route number portion which is replaced by a bridge number portion. Files and folders for "No Plan" bridge projects are also stored within the Bridge Plan File Room.

- Example "No Plan" Bridge Project Number: BRDG-012-315, B601