

Key elements of an Engineering Workflow

(This document is not a chronological workflow but rather an Engineering Processes document related to establishing the Engineering workflow and may not be all inclusive.)

As related to MicroStation, OpenRoads (Geopak) and ProjectWise

Outline

- Create Project Documents in ProjectWise
 - Microsoft Office Documents
 - Bentley MicroStation
- MDOT's Standard Folder Structure
 - Discuss the different folders
 - Discuss Project Creation
 - Request form
- ProjectWise permissions
 - Project permissions
 - Folder permissions
 - Document permissions
- Preliminary Survey
 - Processing data with OpenRoads
 - Editing data with OpenRoads
 - Create Alignments with Civil Geometry
 - Create Surface Models
 - Editing Surface Models
 - Create Cross Sections
 - Create Existing Profiles
 - Labeling
 - Create Plan and Plan & Profile Sheets
 - Referencing Planning Divisions County Maps to Title Sheet
 - Title block Integration
 - Submittal of data to proper Divisions
- Existing Property Surveys
 - Use Bentley Map to plot Transportation Information data
 - Plot Existing Right of Way
 - Tie Right of Way to Alignments
 - Plot Deed Lines
 - Plot Assumed Property lines

ATTACHMENT A

- Labeling Property
- Create Eminent Domain Maps
- Environmental Division
 - EIS\EA type projects
 - Processing data with OpenRoads
 - Editing data with OpenRoads
 - Creating Alignments with Civil Geometry
 - Creating Surface Models
 - Editing Surface Models
 - Creating Cross Sections
 - Creating Existing Profiles
 - Labeling
 - Use Bentley Map to plot Transportation Information data
 - Plot Existing Right of Way
 - Tie Right of Way to Alignments
 - Plot Deed Lines
 - Plot Assumed Property lines
 - Labeling Property
 - Raster Aerial Photos with correct coordinate systems to MicroStation
 - Using OpenRoads to create new survey chains for buildings and driveways
 - Road design using Corridor Modeling
 - CE type projects
 - Receiving Preliminary ROW from Roadway Design Division
 - Receiving wetland boundaries from Surveyors (occasional)
 - Receiving cross-sections in urban settings to determine high-detail information for impact determinations
 - Placing CRS limits and resources relative to ROW to determine impacts
 - Placing Wetlands & Waters limits relative to ROW to determine impacts
 - Placing HazMat concern limits relative to ROW to determine impacts
 - Placing Relocation information relative to the ROW to determine impacts
 - Giving guidance to Bridge and Roadway so that designs can be adjusted accordingly.
 - Creating documents in ProjectWise
 - Folder structure review
 - Referencing drawings from ProjectWise
 - Raster aerial photos into MicroStation
- Road Design for Resurfacing
 - Create alignments using Civil Geometry
 - Offset alignments for edge of pavement
 - Create Profiles
 - Raster Aerial Photos with correct coordinate systems to MicroStation

ATTACHMENT A

- Using OpenRoads to create new survey chains for buildings and driveways
 - Create title sheet
 - Create other required sheets. (Detail index, general notes, quantities, etc.)
 - Title block Integration
- Road Design using OpenRoads
 - Create Proposed Alignments
 - Create Typical Sections
 - Create existing/proposed profiles
 - Create existing/proposed cross sections
 - Create working sheets
 - Create title sheet
 - Create right of way
 - Print Right of way plans
 - Calculate quantities
 - Create summary of quantity/estimated quantity sheets
 - Assemble plans into multipage PDF
- Geotech
 - Create documents in ProjectWise
 - Import Documents
 - Folder structure review
 - Reference drawings from ProjectWise
 - Raster aerial photos into MicroStation
 - Create PDF versions of Documents
 - Process field data
 - Create contours, cross sections and profiles
 - Calculate quantities
- Bridge Design
 - Folder Structure review
 - Reference drawings from ProjectWise
 - Raster aerial photos into MicroStation
 - ProjectWise permission overview for Managers
- Utility relocation
 - Location of plans in ProjectWise
 - Folder structure review
 - Create documents in ProjectWise
 - Create folders in ProjectWise
 - Send Web links to utility companies
- Right of Way
 - Folder structure review
 - Create documents in ProjectWise
 - Title abstracts

ATTACHMENT A

- Deeds
- As needed revisions on all documents
- Preparation of ROW Survey, Maps & Deeds Project file
- Produce Acquisition Maps
- Traffic Engineering
- Projects to Let Process
 - Who has permissions
 - When are permissions given
 - Final plans published
 - Addenda published
 - Email notifications
 - Print plans locally
- Field Construction
 - Folder structure review
 - Folder permissions
 - Create documents in ProjectWise
 - Export alignments and profiles for field use
 - Import field data using OpenRoads
 - Create surfaces for volume calculations
 - Misc payitem drawings
 - Model creation
 - Organization of documents
 - Various methods to calculate areas from DTM's
 - Cross sections from DTM's
 - Export surfaces for field use
- Planning Division
 - Create drawings in ProjectWise
 - Referencing SHP files
 - Geo-referencing
 - Warping images
 - Query oracle data for Bentley Map using Where Clauses
 - Labeling and Annotation with Bentley Map
 - Referencing dgns and models
 - Create saved views
 - Setting up Sheet Models
 - Printing Maps to various formats: Geo-referenced PDF and TIFF