

## MDOT – Roadway Design Modeling Learning Path

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### General Information

This training path is intended to provide guidance and training resources for roadway designers to achieve the necessary competency with the Bentley OpenRoads Edition Design Software (Power GEOPAK or Civil Suite SS4) to be productive. Roadway Designers unfamiliar with OpenRoads Edition Software should begin the training path according to the following experience levels:

- Begin at Part 1: For prior experience between Zero to 3 months with Power GEOPAK\MicroStation drafting
- Begin at Part 2: For prior experience between 3 months and 1 year with Power GEOPAK \MicroStation drafting and between zero and 3 months with OpenRoads Technology.
- Begin at Part 3: For prior experience between 3 months and 6 months with OpenRoads Technology
- Begin at Part 4: For experience between 6 months and 1 year with OpenRoads Technology

### Roadway Design Modeling Training Path

#### **Part 1: Power GEOPAK\MicroStation:** (On Demand - Available through Bentley LEARN)

- MicroStation Basics – 2D Drafting and Detailing (Approx. 30 hrs. Self-Paced Hands-On)

**OR** individuals without access to Bentley LEARN should have a basic understanding of the following topics prior to continuing to Part 2:

- i. DGN File Creation
- ii. Workspace Selection
- iii. Text Placement and Editing
- iv. Line Style Usage
- v. Dimensioning
- vi. File Referencing
- vii. Snapping

#### **Part 2: [MDOT OpenRoads Basics](#)** (On Demand - Available in ProjectWise)

- Section 1: Basic Horizontal Geometry (Approx. 30 min. Hands-On)
- Section 2: Basic Vertical Geometry (Approx. 30 min. Hands-On)
- Section 3: Basic Template Creation (Approx. 1hr. Hands-On and Lecture)
- Section 4: Basic Corridor Creation (Approx. 30 min. Hands-On)
- Section 5: Superelevation Basics (Approx. 1.5 hrs. Hands-On and Lecture)
- Section 6: Model Review (Approx. 30 min. Hands-On)



### **Part 3: OpenRoads Beginner Learning Path** (On-Demand - Available through Bentley LEARN)

- Terrain Modeling (Approx. 2 hrs. Lecture and Hands-On)
- Creating Centerline Geometry (Approx. 1.5 hrs. Lecture and Hands-On)
- Templates - Using and Editing (Approx. 1.5 hrs. Lecture and Hands-On)
- Templates – Defining Template Backbone (Approx. 1.5 hrs. Lecture and Hands-On)
- Templates - Defining End Conditions (Approx. 2 hrs. Lecture and Hands-On)
- Pad and Parking Lot Modeling (Approx. 2 hrs. Lecture and Hands-On)
- Using Civil Cells in OpenRoads (Approx. 1.5 hrs. Lecture and Hands-On)

**OR** individuals without access to Bentley LEARN should have a basic understanding of the following topics prior to continuing to Part 4:

1. Terrain Model Creation
2. Civil Geometry Creation
3. Template Creation and Editing
4. Corridor Creation
5. Corridor Design Stages

### **Part 4: MDOT 02 OpenRoads Intermediate Training Course** (Classroom – Provided by MDOT Staff)

(Approx. 12 hrs. (2 days) of Course Material, lunch and breaks not included – See the [MDOT Roadway Design Modeling Intermediate Training Course](#) outline for a more detailed breakdown of the topics covered in the course.)

- Model File Organization and Setup
- Understanding the application of MDOT Design Standards
- Horizontal Geometry – Best Practices and Civil AccuDraw
- Vertical Geometry – Best Practices and Civil AccuDraw
- Advanced Template Creation
- Advanced Corridor Creation and Manipulation
- Corridors verse Linear Templates
- Civil Cell Manipulation and Best Practices

### **Part 5: MDOT OpenRoads Expert Training Course** (Classroom – Provided by MDOT Staff)

(Approx. 12 hrs. (2 days) of Course Material, lunch and breaks not included – See the [MDOT Roadway Design Modeling Expert Training Course](#) outline for a more detailed breakdown of the topics covered in the course.)

- Existing Pavement Modeling for Earthwork and Cross Sections
- Advanced Corridor Editing and Manipulating
- Advanced Model Creation
- Advanced Civil Cell Editing
- Cross Sections and Earthwork
- Reporting Tools

### **Part 6: MDOT OpenRoads RID for Roadway Models** (On Demand - Available in ProjectWise)

- RID File Creation for Roadway Models