Class Summary

More and more construction companies are using Automated Machine Guidance (AMG) to build their projects. And, more and more, they are using AutoCAD Civil 3D® software to reverse-engineer the plans to get "The Model." This class presents scenarios of real-world projects that were built using Civil 3D and AMG. It examines projects where only plans were provided, projects where just an existing ground is provided, and projects where the data isn't provided in DWG™ format at all. We also discuss how to export and use the model in products such as Trimble Business Center. Come and learn how to use Civil 3D to make the models you need for AMG.
Learning Objectives

At the end of this class, you will be able to:

- How to build Civil 3D models
- Using non-Civil 3D formats to build a model
- How to develop models for Automated Machine Guidance (AMG)
- Exporting Civil 3D models to Trimble Business center
About Me

● **Worked for a consulting engineering firm in New England…**
  ● [Surveying](#) – Topo, boundary, as-built, landfill closure, GPS, etc. In field and in office.
  ● [Design Technician](#) – Worked on STP, bridge (roadway approach work), highway design and Bypass study projects for VTrans, MDOT (Maine) and NHDOT (New Hampshire)
  ● [CAD Manager](#) – Managed, trained and supported users in 3 offices, on company and DOT workflows.
  ● Software used - AutoCAD, Softdesk, LDT, MicroStation and InRoads

● **Work for CADmanage**
  ● [Vice President of Training / CAD Applications Specialist](#)
    ● Provide *Training, Consulting, Support*, and courseware development for Civil 3D, AutoCAD, Map 3D, MicroStation, InRoads.
    ● Train engineers at [Ford Motor Company](#) with their use of AutoCAD.
    ● Developed CAD and Design standards for [ITD](#) (Idaho DOT), and [ALDOT](#) (Alabama DOT).
    ● Work with [FDOT](#), providing documentation related to their implementation of Civil 3D.
    ● Worked with Devens Municipality of Massachusetts in the development of their GIS
    ● Work extensively with construction companies in helping them develop workflows for implementing Civil 3D models for AMG.

● **Presenter**
  ● National AUGI CAD Camps, Presented at AU
Thank You!

http://www.wwclyde.net
<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction of modules and class objectives</td>
<td>Module 1: Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Using the plans to build an alignment and define superelevation</td>
<td>Module 2: Building the model when all I have are plans – PROJECT 1 (alignment, superelevation)</td>
</tr>
<tr>
<td>3</td>
<td>Using the plans to define the profile, assembly, and build the corridor.</td>
<td>Module 3: Building the model when all I have are plans – PROJECT 1 (profile, assembly, and build the corridor)</td>
</tr>
<tr>
<td>4</td>
<td>Creating an existing ground from survey data, and creating an alignment from the existing points</td>
<td>Module 4: Building the model when all I have are plans – PROJECT 2 (using survey data to build the existing model and alignment)</td>
</tr>
<tr>
<td>5</td>
<td>Creating a profile, assembly, and building the proposed model</td>
<td>Module 5: Building the model when all I have are plans – PROJECT 2 (profile, assembly, and build the corridor)</td>
</tr>
<tr>
<td>6</td>
<td>Using Agency data to build models</td>
<td>Module 6: Using &lt;insert agency here&gt;.DGN files to build a model</td>
</tr>
<tr>
<td>7</td>
<td>Exporting Civil 3D models for AMG</td>
<td>Module 7: Best practices for exporting models for AMG</td>
</tr>
</tbody>
</table>
Next Steps

- This concludes:
  - Module 1: Introduction

- Please start the next module in this class
  - Module 2: Building the model when all I have are plans – PROJECT 1 (alignment, superelevation)

- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
Module 2 Objective

<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Using the plans to build an alignment and define superelevation</td>
<td>Module 2: Building the model when all I have are plans – PROJECT 1 (alignment, superelevation)</td>
</tr>
</tbody>
</table>

![Diagram of proposed typical section of a mainline](image_url)
Next Steps

- This concludes:
  - Module 2: Building the model when all I have are plans – PROJECT 1 (alignment, superelevation)
- Please start the next module in this class
  - Module 3: Building the model when all I have are plans – PROJECT 1 (profile, assembly, and build the corridor)
- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
Module 3 Objective

<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Using the plans to define the profile, assembly, and build the corridor.</td>
<td>Module 3: Building the model when all I have are plans – PROJECT 1 (profile, assembly, and build the corridor)?</td>
</tr>
</tbody>
</table>

![Diagram of I-84 Mainline with measurements and labels](image-url)
Next Steps

- This concludes:
  - Module 3: Building the model when all I have are plans – PROJECT 1 (profile, assembly, and build the corridor)

- Please start the next module in this class
  - Module 4: Building the model when all I have are plans – PROJECT 2 (using survey data to build the model)

- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
Module 4 Objective

<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Creating an existing ground from survey data, and creating an alignment</td>
<td>Module 4: Building the model when all I have are plans – PROJECT 2</td>
</tr>
<tr>
<td></td>
<td>from the existing points</td>
<td>(using survey data to build the existing model and alignment)</td>
</tr>
</tbody>
</table>
Next Steps

- This concludes:
  - Module 4: Building the model when all I have are plans – PROJECT 2 (using survey data to build the existing model and alignment)

- Please start the next module in this class
  - Module 5: Building the model when all I have are plans – PROJECT 2 (profile, assembly, and build the corridor)

- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
## Module 5 Objective

<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Creating a profile, assembly, and building the proposed model</td>
<td>Module 5: Building the model when all I have are plans – PROJECT 2 (profile, assembly, and build the corridor)</td>
</tr>
</tbody>
</table>

### Typical Section 1 - SR-39 (1200 West)

- **Existing Sidewalk**
- **Existing Park Strip**
- **Existing Curb and Gutter**

**Portion Provided:**

- **Portland Cement Concrete Pavement 10 Inch Thick**
- **Roadway Excavation (Plan Quantity)**
  - **(1)** INCHES
  - **(Profile, Grade, and Compact Remaining Road Base)**

**Notes:**

- **Shoulder Art Turn**
- **Median**
- **Lane**
- **2 LANE**
- **12 ft.**
- **MATCH EXISTING**

** kneeling bracing**

**-2.00%**

**-2.00%**
Next Steps

- This concludes:
  - Module 5: Building the model when all I have are plans – PROJECT 2 (profile, assembly, and build the corridor)
- Please start the next module in this class
  - Module 6: Using <insert agency here>.DGN files to build a model
- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
Module 6 Objective

Module 6: Using <insert agency here> .DGN files to build a model
Next Steps

- This concludes:
  - Module 6: Using <insert agency here>.DGN files to build a model
- Please start the next module in this class
  - Module 7: Best practices for exporting models for AMG
- Any questions related to this module, please feel free to e-mail me
  - scohen@cadmanage.com

Thank you for participating in AU Virtual
## Module 7 Objective

<table>
<thead>
<tr>
<th>Mod</th>
<th>Objective</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Exporting Civil 3D models for AMG</td>
<td>Module 7: Best practices for exporting models for AMG</td>
</tr>
</tbody>
</table>

![Image of Civil 3D models for AMG export](image_url)
Thank You!

CR5760-V

Real-World Construction Using AutoCAD Civil 3D®

Seth Cohen
scohen@cadmanage.com
www.cadmanage.com