

Engineering/CADD Systems Office

Presented by



Engineering CADD  
Florida's Transportation Engineers

FDOT Corridor Modeler and Roadway Designer Templates

WELCOME TO THE FDOT/ECSO GEOPAK



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## Visualization

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## AGENDA

- Introduction to Rendering
- Creating 3D Models
- Changing View Display Mode
- Materials & Rendering
- Drape Elements
- 3D Drainage
- Clip Volume
- Analysis Tools
- Item Browser
- 3D Cells/Google Warehouse
- Drive Roadway/Walk Utility



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### Introduction to Rendering

*Rendering is the process of depicting a 3D model through the display of shaded surfaces. How to approach rendering will depend largely on what is required as the finished result.*

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### Creating 3D Models

*The Roadway Designer combines alignments, surfaces, and templates to create a model of the proposed roadway. It's also where superelevation is created and applied to the design.*

*Templates are assigned to station ranges along the alignment which are called Template Drops. The Roadway Designer connects the points of the Template Drops to create a model and subsequently a surface from the model.*

**NOTE:** The top points in the surface model are triangulated and all subsurface points are "Excluded from Triangulation".

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### Changing View Display Mode

*The options can be set from the View Attributes dialog. Setting a view to a shaded mode lets you work in a "rendered" view.*

**NOTE:** It can be difficult to determine the orientation of a model when viewed in wireframe display.

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## Materials & Rendering

**The Material Editor is used to create materials or modify a material palette. The Materials toolbox contains tools to define and apply materials to a 3D model.**

*NOTE: FDOT has already configured materials to be assigned to some \_px levels in the fdot\_v8\_levels.dgnlib. Materials can be overridden manually to set those levels to change the material assignments in case the configured materials are undesirable.*

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## Drape Elements

**Referencing 2D elements, the Drape Elements tool draws into a 3D file maintaining their X, Y coordinate values, while modifying the Z coordinate coincident with a TIN model (plus optional offset).**

*NOTE: The tool must be invoked while in a 3D file.*

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## 3D Drainage

**This tool draws the links and nodes into the 3D file. The links are drawn as solids with no setup required, however, in order to draw the structures, the cell representing the structure must have an ad hoc attribute attached. To accomplish this, select the Ad Hoc Attribute Viewer, enter the Name as Structure, Type as String and Value as Yes. This must be attached to every element which is extruded in the 3D file. The structure must also be a closed shape. The extruded structure height is from the top of structure to the lowest invert elevation.**



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### Clip Volume

*Can be used to cut a cross section directly from the model within MicroStation.*

*This is useful for focusing on specific region of the 3D Corridor Model to assess conflicts with under ground utilities and drainage.*

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### Analysis Tools

*Because corresponding TIN files are created along with the DTM's, you have access to all of your current DTM Analysis tools.*

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### Item Browser

*When you create a surface and plot components, the components are tagged with EC Attributes. These attributes can then be browsed using the Items Browser in MicroStation.*

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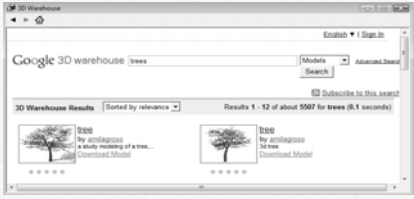
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### 3D Cells/Google Warehouse

*A variety of 3D Cells can be accessed from Google Warehouse and can be utilized for enhancing the visualization of the rendered 3D Corridor Models.*



The screenshot shows a web browser window titled "3D Warehouse". It features a search bar with "Google 3D warehouse" and a search button. Below the search bar, it displays "3D Warehouse Results" sorted by relevance, showing results 1-12 of about 5567 for trees. Two tree models are visible, each with a "View" button and a "Download Model" link.

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### Drive Roadway Utility

*The tool can be set to view the path a driver would take along a roadway. It also generates a 3D line string along the path which might be used to control camera position along the roadway.*

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### Walk Utility

*Used to interactively walk through a 3D view of a the 3D Corridor Model design.*

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***Thank you for attending!!!***

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***QUESTIONS?***

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