



Civil Visualization with Google Earth

Thomas Taylor, Bentley



What is Google Earth?

Google Earth is a virtual globe program that was originally called Earth Viewer and was created by Keyhole, Inc. It maps the earth by the superimposition of images obtained from satellite imagery, aerial photography and GIS 3D globe.

<http://earth.google.com/>



MicroStation Google Earth Tools

- Google Earth tools permits the export of geometric data to Google Earth so that it can be viewed in the context of satellite data, aerial photography, maps and other geographical data.

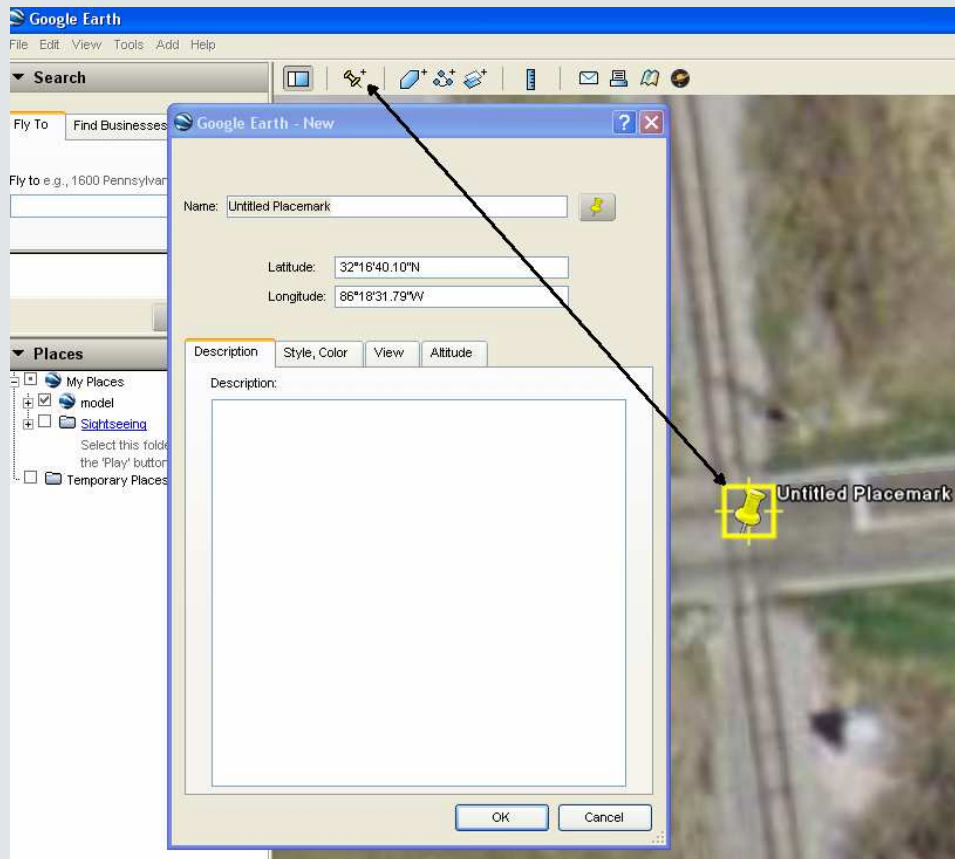
Basic steps to export to Google Earth:

- *Define Placemark Monument*
- *Export 2D and 3D KML files*
- *Synchronize MicroStation and Google Earth Views*



Define Placemark

- Define placemark in Google Earth

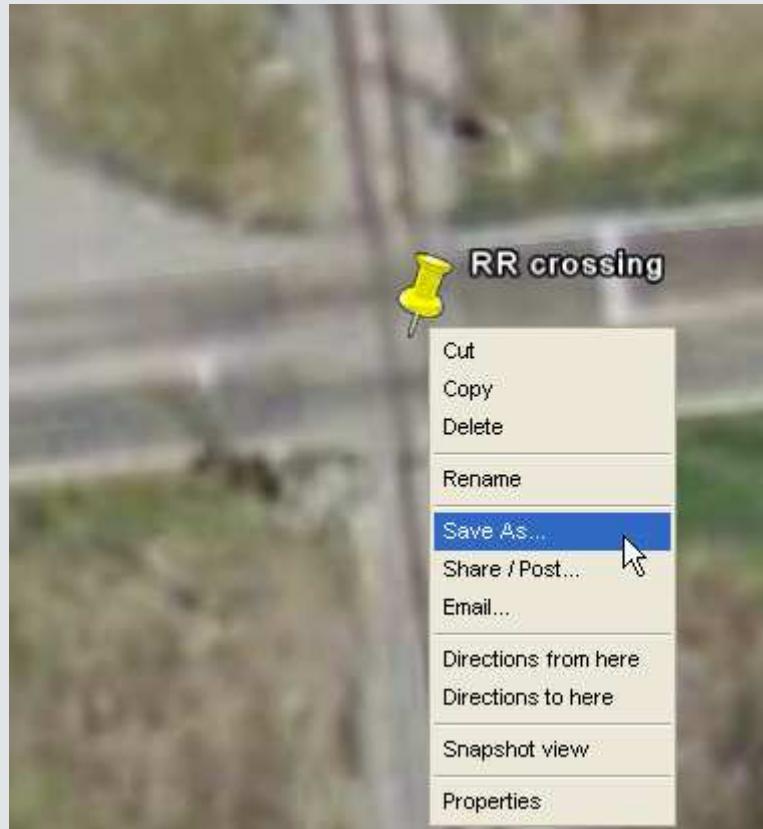


- Requires a minimum of 2
4 placemarks



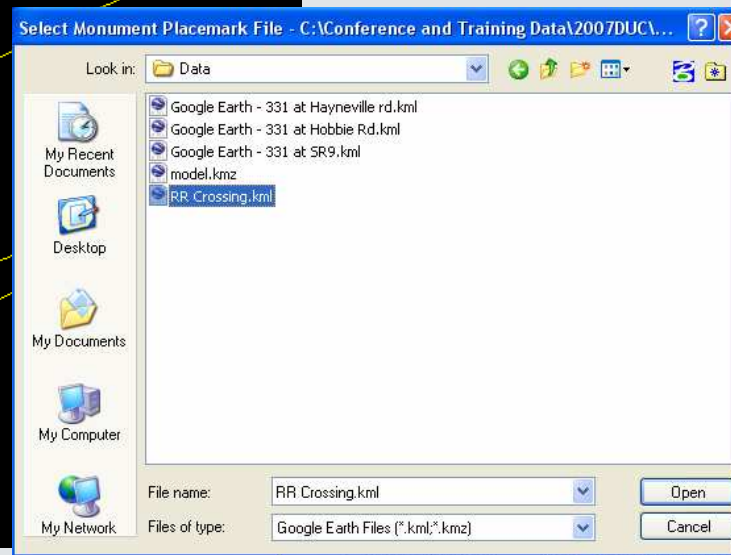
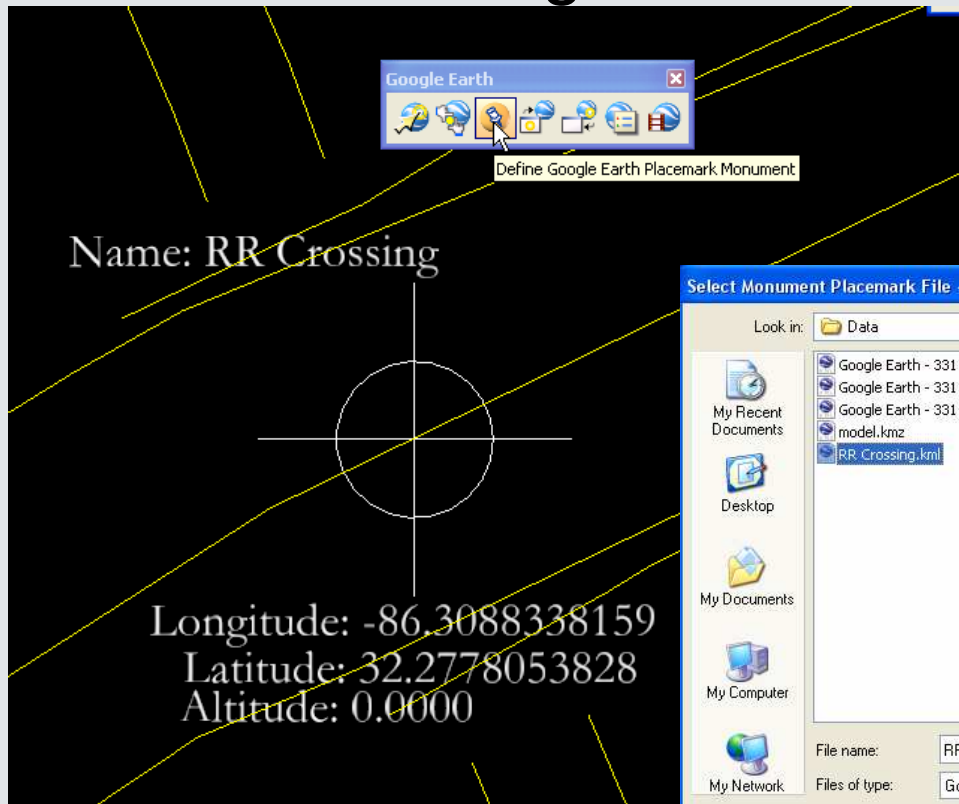
Export Placemark data

- Save As *.KML file



Define Placemark in MicroStation DGN file

- Access the Google Earth tools from Tools > Google Earth



Google Earth Tools Settings

Google Earth Tools Settings

General

Google Earth Version: 4

Stroke Tolerance (Meters): 0.100

Transparency Override: 0.000000

Convert Undisplayed Levels

Convert Custom Line Styles

Convert Raster References To Ground Overlays

Include Raster References in KMZ File

Open File After Export

3D

Render Mode: Smooth

Altitude Mode (3D only): Absolute

Altitude Bias (Meters): 0.10

Convert Wireframe Geometry in Rendered Views

Captured Geometry

Capture As: Mesh

Capture Detail: Medium

Use Google Earth View to Determine Rotation

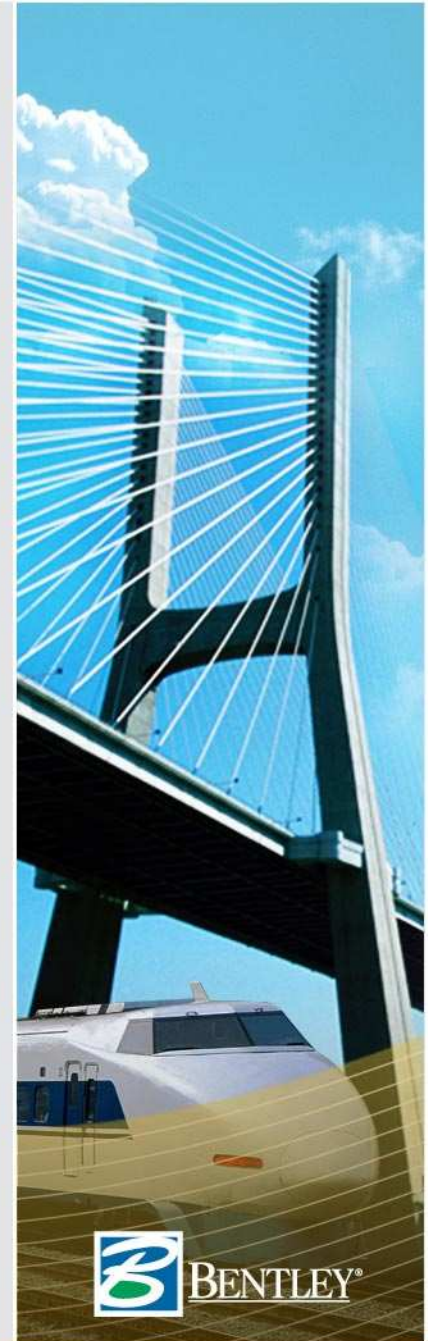
View Terrain

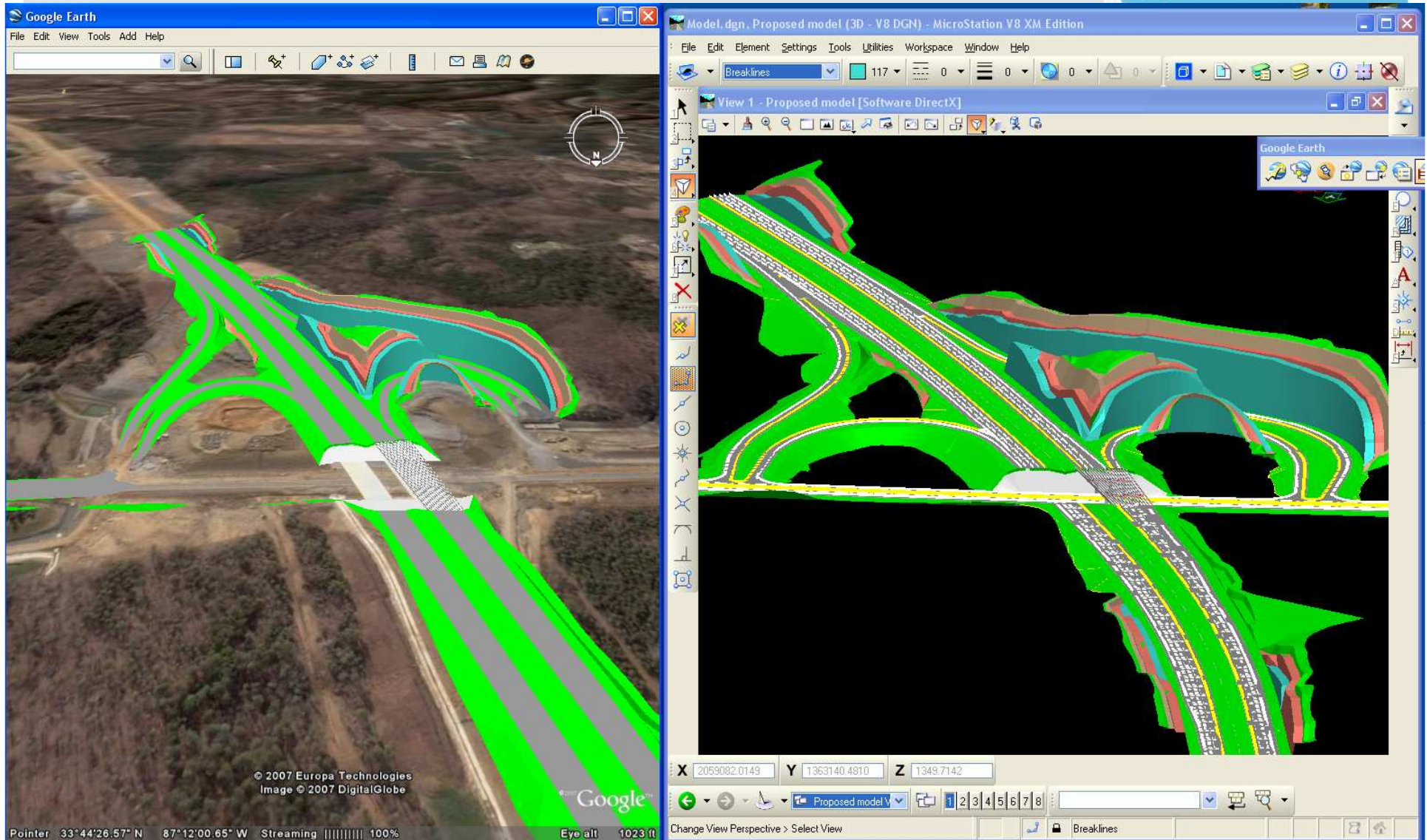
OK Cancel



Export KMZ file

- Compressed KML file that adds the MicroStation object to Google Earth
- Automatically generates the Google Earth view synchronized based on MicroStation View.





Animation and Rendering

- Can assign materials and lighting to designs.
- Can use the InRoads > Modeler > Drive Roadway command to define an animation path.
- Set animation cameras and actors.
- Play the animation in Google Earth.



Simplified method

- Use Bentley Map!
- Set coordinate systems automatically.
- Create coordinate transformation.
- Export to KMZ



Demonstration



Video Clip



Conclusion

- Google Earth Tools are easy to use.
- They integrate your MicroStation Designs into the Google Earth virtual globe.
- Excellent for presentation and visualization.



Questions?

