3D Analyst: Working with 3D Analyst and CityEngine

Nathan Shephard
Gert van Maren
3D GIS Benefits

- Multiscale 3D Models
- ArcGIS for 3D Cities
- 3D Geodesign
- Surface modeling
- Native lidar support
- 3D Analysis
- Share 3D scenes
- Integrated 3D

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Share 3D Scenes
Share your 3D Scenes

Share your ArcScene Project as a Web Scene
“Clip and Share”

Supporting Defense, Local Government, Scientists, Urban Planners,
Facilities Managers, Geologists, Architects, Landscape Planners…
Export to 3D Web Scene

![Export to 3D Web Scene dialog box]

- **Scene Document**: C:\Temp\3DCity.sxd
- **Web Scene**: C:\Temp\3DCityWebScene.3ws
ArcScene Layer Types

- Feature layer (point, line, polygon and multipatch geometries)
  - Layer extrusion or 3D symbology
- Raster layer
- TIN layer

- Note: LAS dataset and Graphics layer cannot be exported to 3ws.
ArcScene document properties

- Scene coordinate system
- Area of Interest (AOI)
- Bookmarks
- Group Layers
- Vertical exaggeration
Demo
Teapot Dome
3D Zoning Queenstown
Wind Speed
Creating 3D objects in ArcGIS

- In ArcGIS 10.1
  - Via symbology (eg: point symbols)
  - Using GP tools (eg: Buffer 3D)
  - Importing external models (eg: COLLADA)

- In ArcGIS 10.2
  - Using pre-authored CityEngine rule packages

- In CityEngine
  - Using pre-authored CityEngine rules
  - Writing / adjusting new rules
  - Interactively editing new 3D models
Features From CityEngine Rules
ArcScene Layer Types

• At 10.2, Polygon source geometry only
  - Buildings (real and imagined)
  - Zoning regulations
  - ...

• Line support (eg: for streets) is coming later
• Until then, export features from CityEngine
Demo

Generating 3D content using a Rule Package
- ...for existing features
- ...as part of an editing / design effort
- ...with updated textures
- ...by adjusting / authoring a new rule
ArcGIS for 3D Cities solution

Create, manage and utilize your 3D city model

Benefits:

• Database driven 3D City model
• Based on Esri’s 3D City Information Model
• Supports different themes / views on the city
• Comes with ready use apps
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Manual 3D model creation

- Interactively create 3D models in CityEngine
  - Yes, it creates / edits multipatches

Steps
1) Bring contextual information into CityEngine
   - For background data and the coordinate system
2) Digitize your 3D model shape
3) Add interactive textures or procedural textures
4) Export back to the GIS database
Demo

Interactively creating 3D models in CityEngine
ArcGIS 10.2 – CityEngine 2013
Bringing easy 3D Content Creation to ArcGIS

ArcGIS 10.2
• 2 CityEngine-based GP tools

CityEngine 2013
• Rule Packages

Solutions
• 3D City Information Model
• Gallery of building and tree types

• CityEngine becomes interactive design and rule authoring environment