Esri Southwest User Conference

January 19–21, 2016
Phoenix, Arizona
Workshop Agenda

• Why 3D?
• Data requirements for 3D
• 3D City information model
• The process for creating a 3D City
• Sharing your 3D City
• Additional Resources
Why 3D?

Across all industries ArcGIS users are going 3D to:

• **Visualize within the context of the real world**
• **Present with more realism and remove interpretation**
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• Communicate with non-technical audiences
• **Drive more informed decisions faster**
Operational Areas of Government for 3D GIS

Government Departments that can immediately benefit from 3D GIS

- Economic Development
- Public Works
- Planning Department
- Utilities
- Public Safety
Perceived Barrier

- Too Hard!
- Too Expensive!
- No Usage!
Smart 3D City Model
Modeling 3D Cities using ArcGIS

Software Applications

- **ArcGIS PRO**
  64-bit GIS Application enabling Massive 3D City Creation

- **CityEngine**
  3D Modeling Software for Creating Procedural Rules & GeoDesign

- **3D Scene Services**
  Share your 3D City Models in the Cloud on ArcGIS Online

- **Procedural Rules**
  Code that leverages GIS attributes to automatically model 3D Features

- **Feature Extraction**
  Attribute Existing GIS Data or Extract 3D & 2D Geometries from LiDAR

**ArcGIS — Integrated 3D Web GIS Platform**
ArcGIS Pro – Creating and managing your 3D City

- 64-bit Desktop GIS Application
- Design & Edit in 2D + 3D at the Same Time
- Publish web maps to ArcGIS Online and Portal
- Run Procedural CityEngine Rules as Symbology
3D Scene Services – Sharing your 3D City

- Combine 2D & 3D Datasets to tell a story
- View & Share scenes created in ArcGIS Pro
- Explore 3D Features from all angles
- Create Pop-up windows and infographics
Demo: ArcGIS Pro 3D City
CityEngine + Procedural Rules in ArcGIS Pro

Costs vs. Number of Iterations

- CityEngine Procedural Rules
- Traditional 3D
- Esri 3D

Diagram showing the relationship between costs and number of iterations, with CityEngine Procedural Rules, Traditional 3D, and Esri 3D at different points on the graph.
Get Started using 3D Cities

Collection of best practices workflow:
- Step-by-step instructions
- Tools
- Sample data
- Example scenes

esriurl.com/3DCities
3D City Base Layers

3D Buildings

Multiple Levels Of Detail
3D City Base Layers

Trees
3D City Base Layers

Terrain

[Diagram showing 3D city base layers with DSIM, DTM, and nDSM layers]
3D City Base Layers

- 3D Buildings
- Trees
- Basemap
- Terrain
Workflow for creating your 3D City...

- Download the 3D Cities template
- Add elevation data
  - Lidar used to create DTM, DSM, nDSM
- Import your buildings into the 3D CIM Buildings feature class
  - 2D – run the calculate building heights tool
- Add Trees
  - 2D – run the calculate tree heights tool
3D Cities Template
Local Government Scene Template
Resources
