Creating, Managing and Utilizing a 3D Virtual City

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Honolulu Transit Oriented Development

- Simulating Alternative Futures using CityEngine and ArcGIS
3D Cities: Common Data Themes

**Built Environment**
- *Created and actively managed by people*
  - Structures, utilities, transportation networks, installations

**Legal Environment**
- *Defines restrictions on land use*
  - Land use zones, property ownership boundaries, maximum buildable heights

**Natural Environment**
- *Naturally occurring features on, above, or below the earth’s surface*
  - Land cover, subsurface geology, atmosphere/climate/weather
3D City: Pouring Data In

- Demo: Use the Database Schema Generator and ETL tools to localize and populate your 3D City geodatabase
3D City: Asset Editing

• Demo: Use LiDAR and the 3D City Asset Editing map to extract feature heights
3D City: Modeling Façades in CityEngine

- Demo: Create 3D facades from 2D footprints in CityEngine

Building footprint

CGA building rule

Textured 3D façade

Key attributes:
- Height
- Base elevation
- Number of floors
- Land use
3D City: Editing Building Geometry

• Demo: Create or update building designs in CityEngine
3D City Analysis: Zoning Regulations

- Demo: Apply tabular zoning regulations to parcels in CityEngine to generate 3D buildable volume features
3D City Analysis: Skyline and Skyplane

- Demo: Using 3D Analyst to conduct 3D analysis
3D City Analysis: Shadow and Solar

- Demo: Sun shadow volumes over time, rooftop solar potential

![3D City Analysis demo](image)
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Understanding our world.