

2019 Georgia Smart Communities Challenge

City of Columbus

Smart Uptown

Mid-term presentation

March 26, 2020



Project Goals



CONNECTIVITY INFRASTRUCTURE



ECONOMIC DEVELOPMENT



INCREASED SAFETY



EXPAND PARTNERSHIPS
BETWEEN PUBLIC AND
PRIVATE ENTITIES





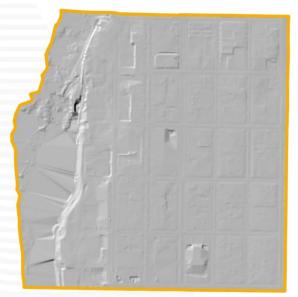


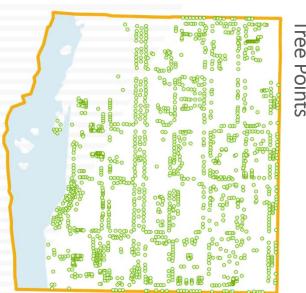
List of AoT Smart Community Projects

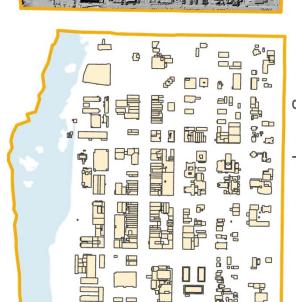
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Developing a Digital Twin

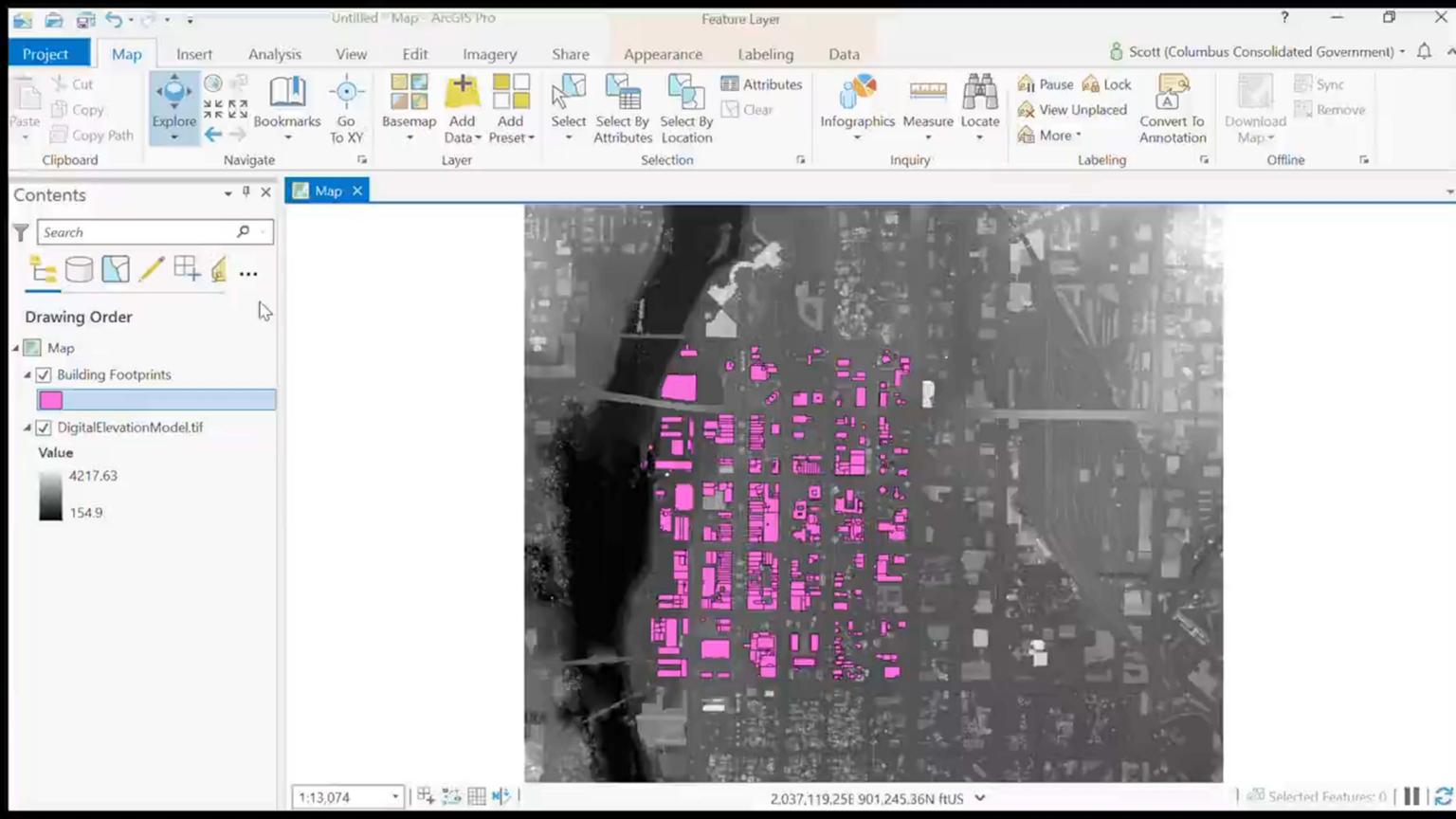
- GIS-centric data development process
- Some existing data, a lot of new data
- Data refinement was combination of automated and manual processes
- Focused primarily on applying height values to buildings and trees

















From 2D to 3D

Created and edited 2D in ArcGIS Pro



Imported 2D and terrain data into CityEngine



Converted data to 3D in CityEngine



Exported from CityEngine to FBX files



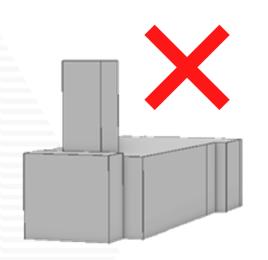
Imported FBX files into Unity

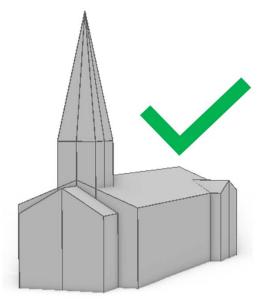




Future 3D Data Development

- Refine existing data
 - Adding 'textures'/more complex features (e.g. steeples)
 - Classifying trees by type (e.g. deciduous vs coniferous)
- Adding new features
 - Road width polygons
 - Street furniture elements
- Adding data from AoT nodes to digital twin











Smart Uptown Columbus Digital Twin



Ambient Air Quality
Carbon Monoxide
Hydrogen Sulphide
Nitrogen Dioxide
Ozone, Sulfur Dioxide
Air Particles

Sound intensity RMS Sound Level

Street conditions, traffic flow, events
Camera

Detect heavy vehicles, shock to street pole Magnetic Field Acceleration and Orientation Physical Shock/Vibration

Weather Condition
Barometric Pressure
Humidity, Temperature

Cloud cover, sunlight intensity, Infrared Light, Light, Ultraviolet Intensity, Visible Light



Smart Uptown Columbus Digital Twin



- PHASE 1: Discover relationships between mobility and their environmental impact.
- PHASE 2: Provide insights for making decisions that diminish collisions and increase human safety.
- PHASE 3: Evaluate the impact of mobility on business activities.



W 11th St 11th St PHASE Broadway, Front
Ave, and Bay Ave between 10th and 11th Street W 10th St magery: GA GIO/Google



Next Steps

- Continue developing digital twin model
- Continue conversation with Georgia Power about WiFi APs on poles and install
- Analyze data from AoT devices and correlate with data from other sources (financial, visual, etc.)





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