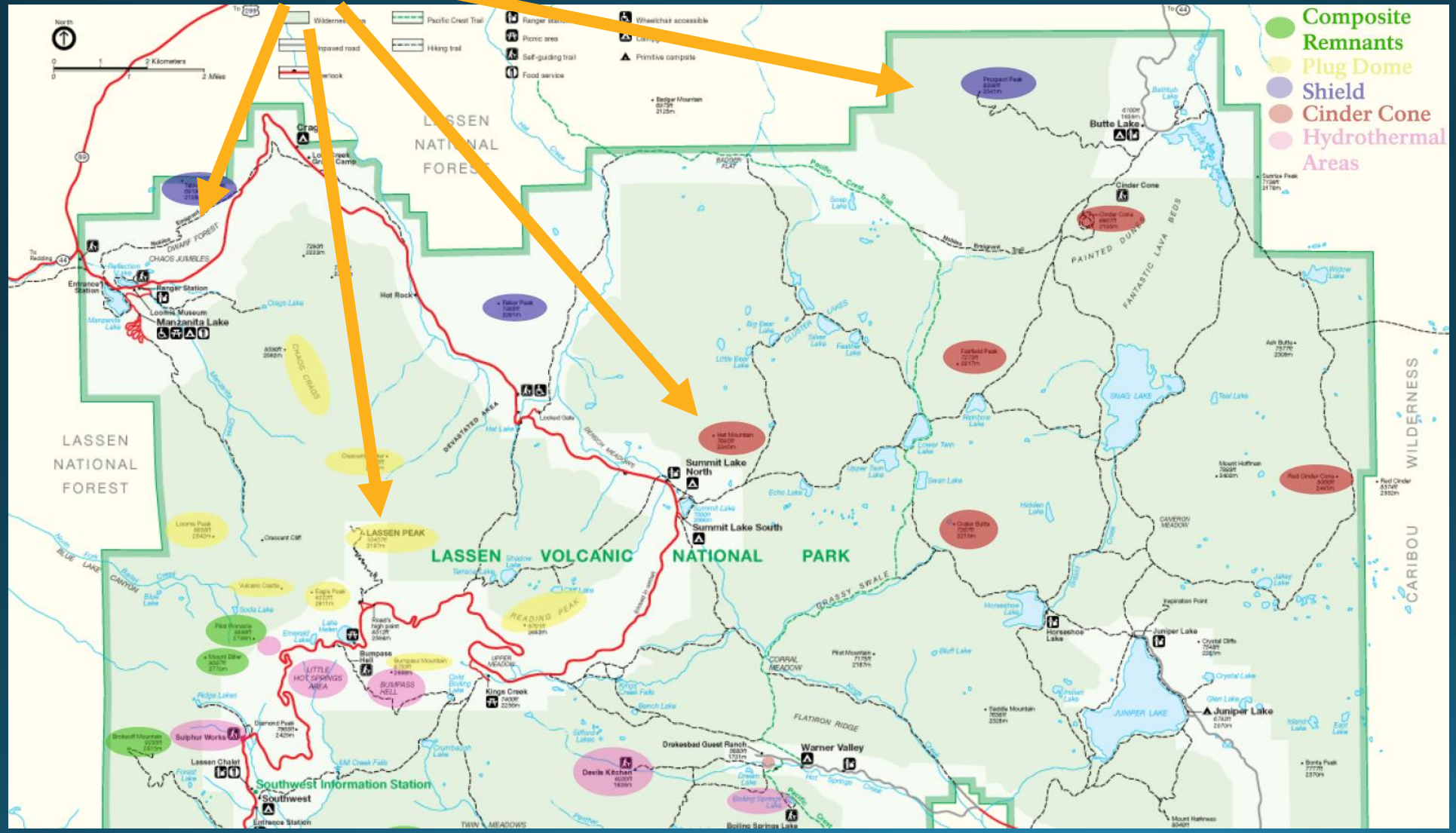
Using 3D Analyst, CityEngine & ArcGIS 360VR

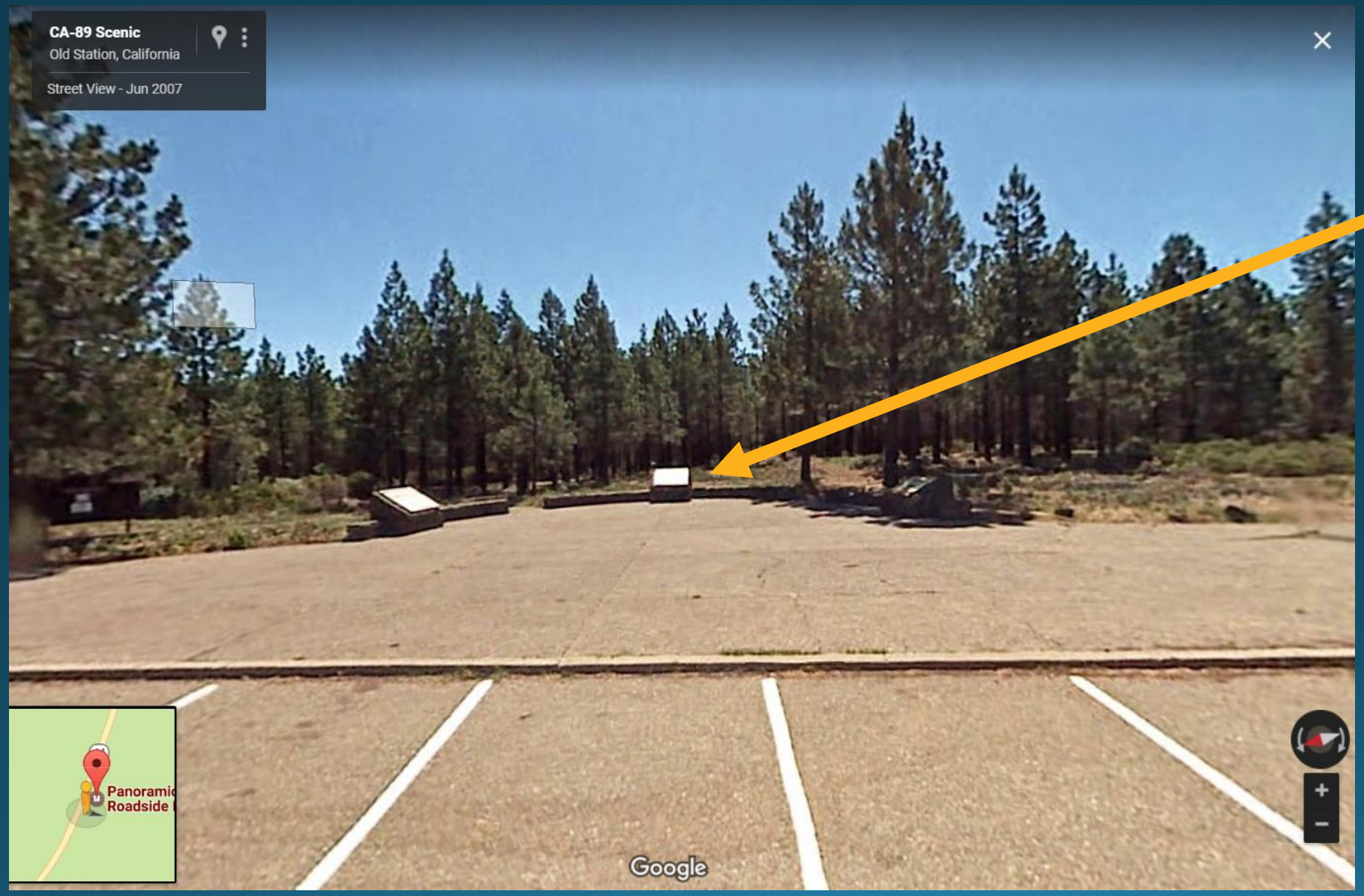
Visibility Analysis

Amber Wittner | GIS Analyst | 2017 International Users Conference

Unique Topography



Problem

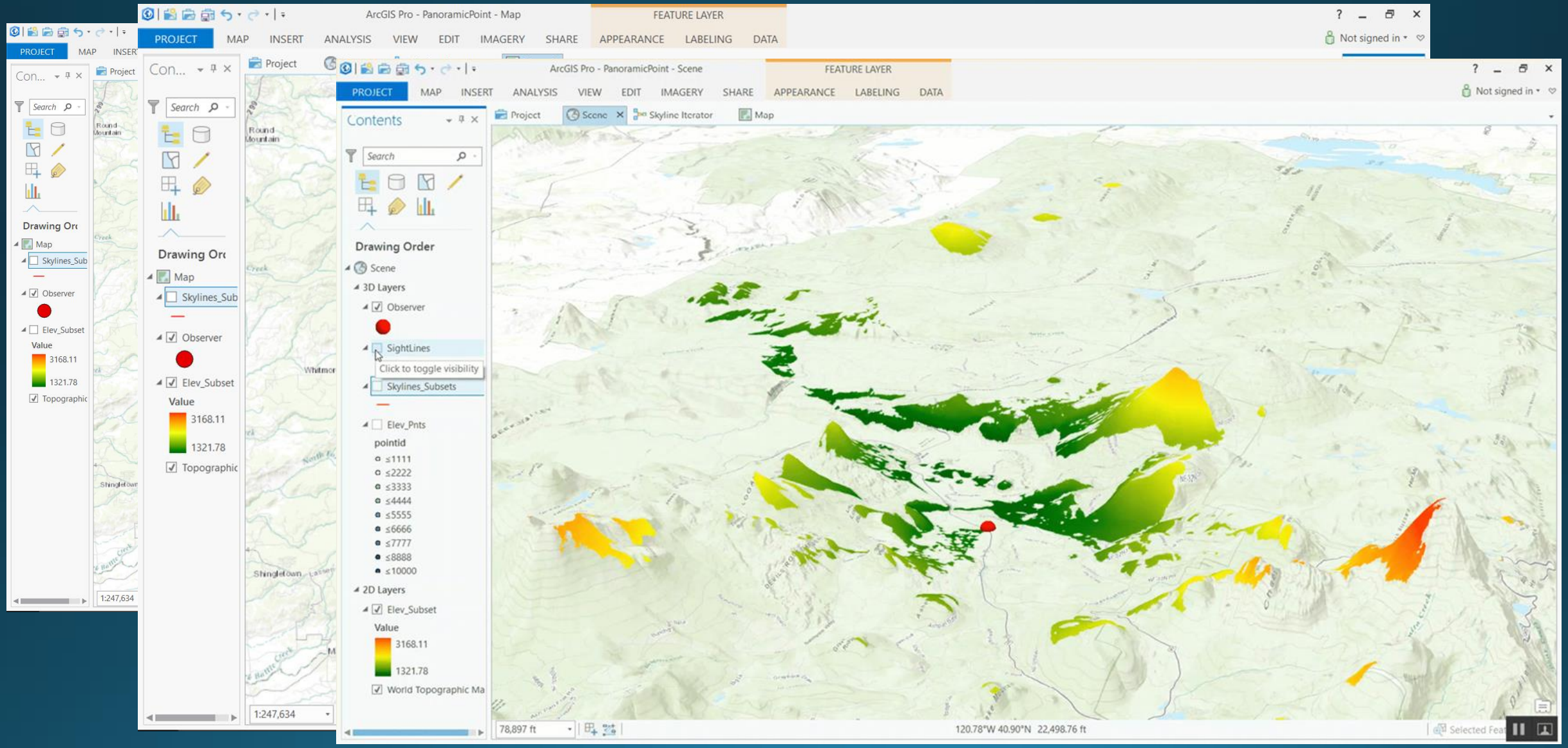


Present day 'blank' educational kiosk due to lack of view

Solution

- Determine possible viewsheds in ArcGIS Pro
- Identify key geographic features (mountains, peaks etc)
- Import visibility assessment into CityEngine
- Create 3D scene(s)
- Export to 360 VR Experience
- Team Review of scenarios

Workflow


ArcGIS Pro - PanoramicPoint - Map
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Topographic
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ArcGIS Pro - PanoramicPoint - Scene
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3D Layers
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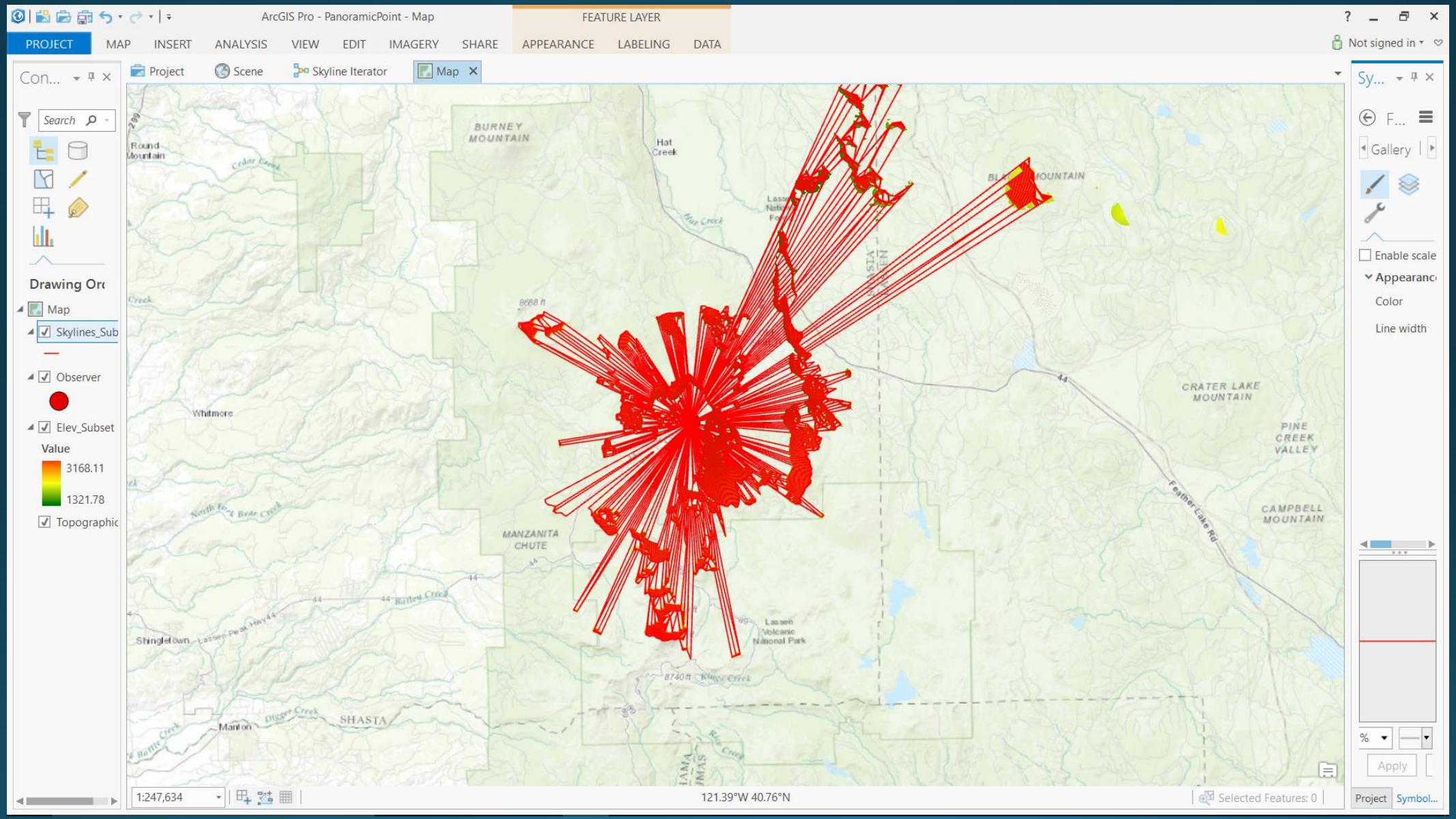
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Hat Creek
Round Mountain
Whitmore
MANZANITA CHUTE
Shingletown
Manton
SHASTA
Lassen Volcanic National Park
CRATER LAKE MOUNTAIN
PINE CREEK VALLEY
CAMPBELL MOUNTAIN
Featherlake Rd
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121.39°W 40.76°N
Selected Features: 0
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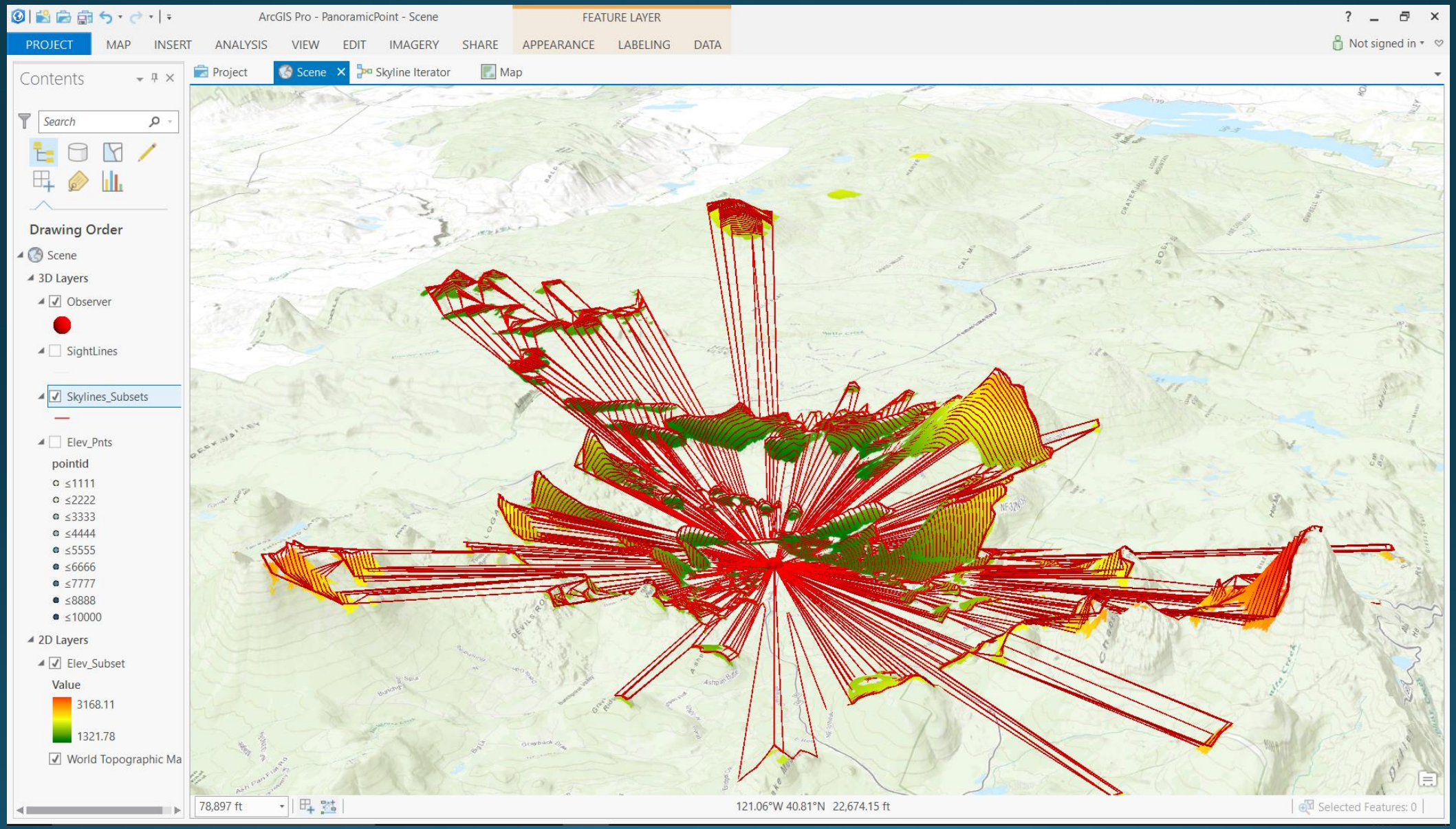
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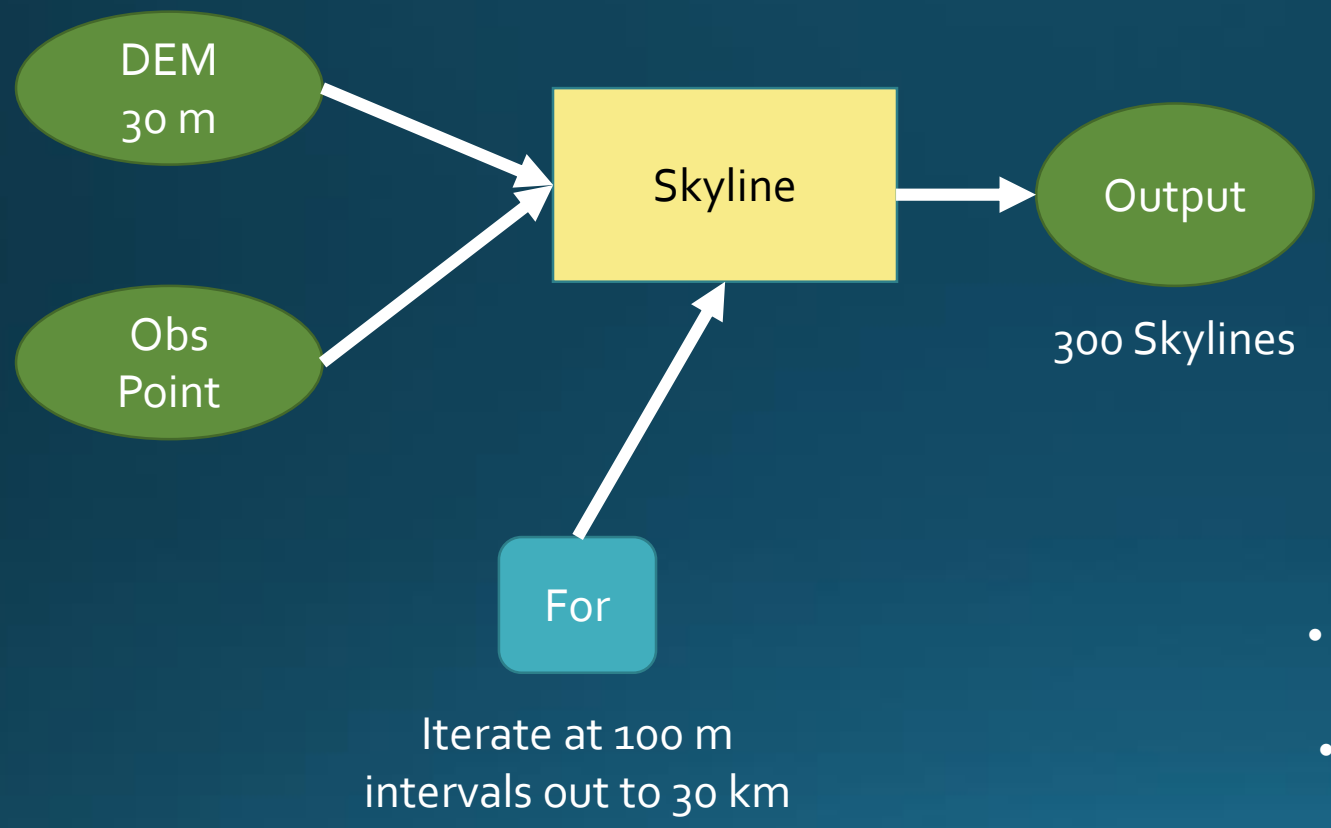
Selected Features: 0

Analysis Workflow



- Identify AOIs (Mtns/Peaks of interest)
- Raster to Point
- Construct sight lines from observer to points
- Line of sight with obstructing vegetation
- determination of max vegetation height to determine area of removal
- Import data into CityEngine
- Create 3D environment (trees etc)
- Export to .3VR format

Communicating Scenarios

- 2D maps don't define the reason for treatment location
- Passionate land stewards want the very best for the public and the environment – means for heated debate
- Visualization critical component to understanding scenarios
- Screen captures of analysis require ink, paper and a trained eye for printing the best angle

Enter Technology

Virtual Reality

Augmented Reality

VS

ArcGIS 360 VR

- Quick iterable workflow for reviewing scenarios
- No heavy 3D data processes to view
- Shareable with the pass of a device or a .3VR file
- Currently curated via CityEngine but plans for other apps
- Viewed using a Samsung Galaxy phone and GearVR headset
- Does not require GIS or 3D know-how

Screen captures from Headset

- Circulate headset around room

Issues defined/Resolved

- This process enabled determination of XXX NEPA approaches for restoration/maintenance plans
- Other uses:
  - Fire Watch Tower View shed assessment
  - Radio Coverage Gap Analysis

- Moving forward…

<Questions >

Amber Wittner

amberwittner@gmail.com