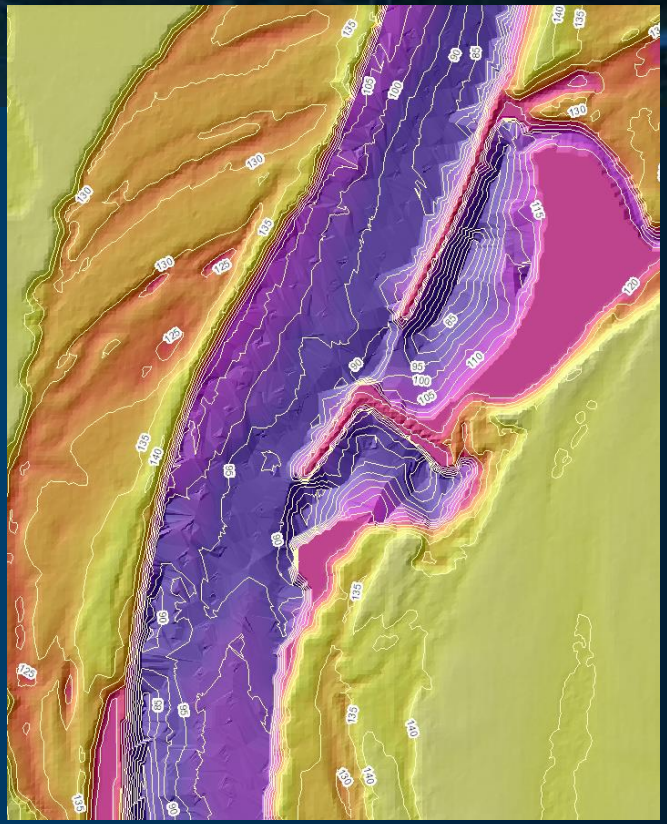
Utilizing Geospatial Data and Tools for Pipeline Applications

Pipeliners Association of Houston meeting

Wesley Palmer, CP, CMS-Lidar, GISP
Geospatial Manager
Hunt Guillot and Associates (HGA)

Discussion Topics

- Utilizing Geospatial data to aid in pipeline routing
- Using remote sensing (LiDAR / Imagery) to supplement survey and pipeline operations
- Leveraging Artificial Intelligence (AI) to support integrity management.
- Online GIS platforms to enable Geospatial data access to project managers and stakeholders

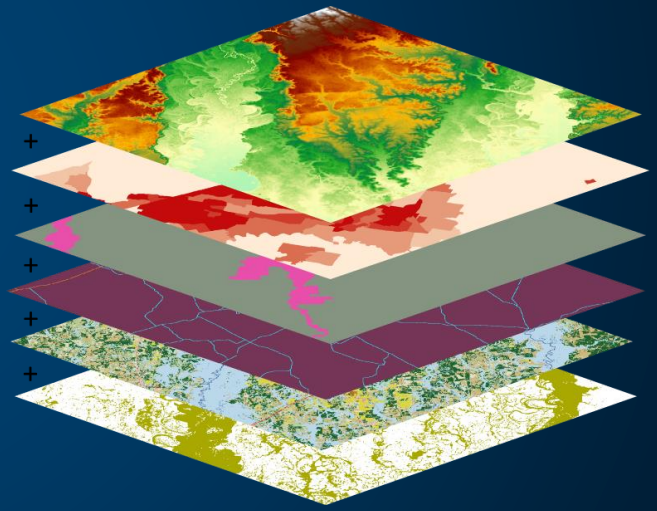


(LiDAR/Sonar Fusion)

Pipeline Routing - Data

- Data, Data, and More Data!
- Sources of GIS data
  - USGS
  - National Wetlands Inventory
  - State and Local Databases
  - USDA
  - Commercially available datasets

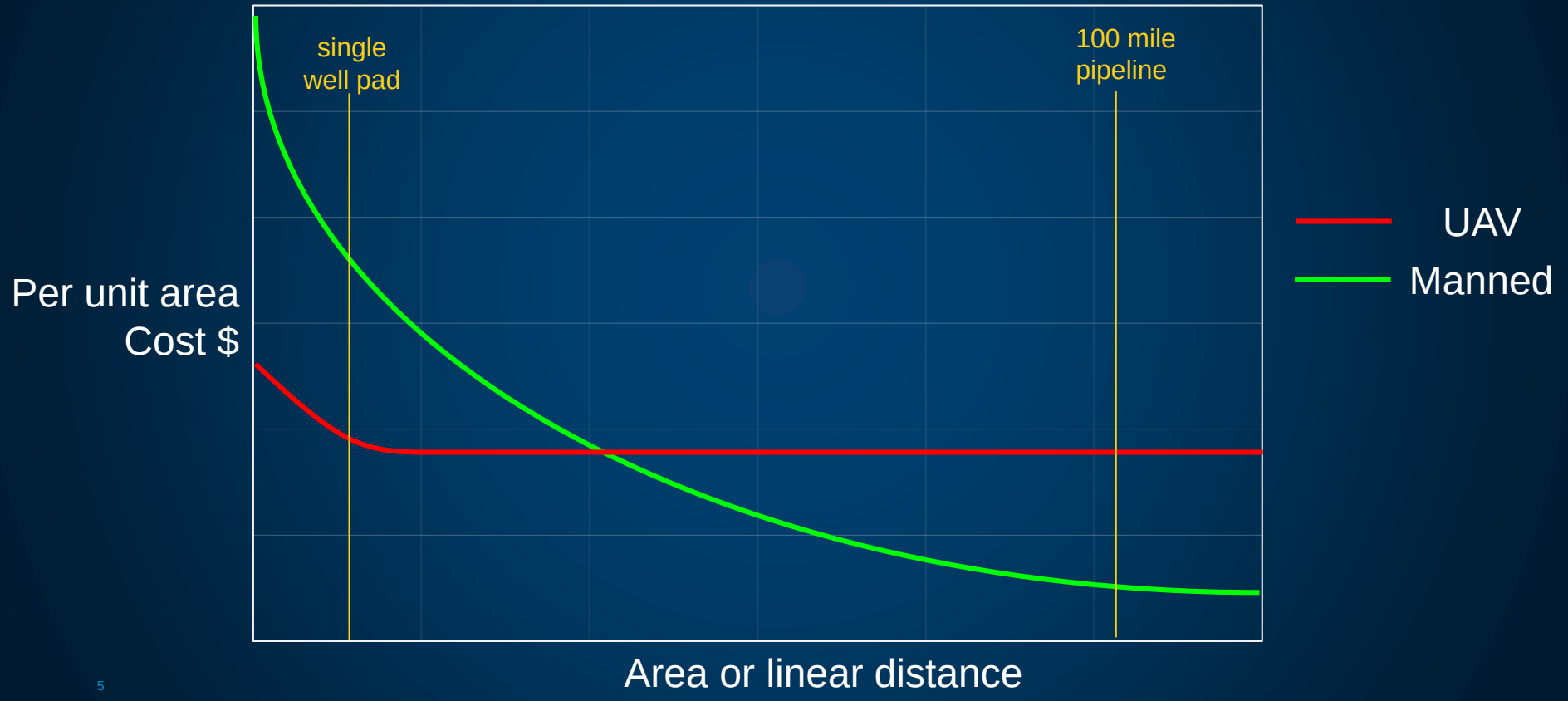
Geospatial Data



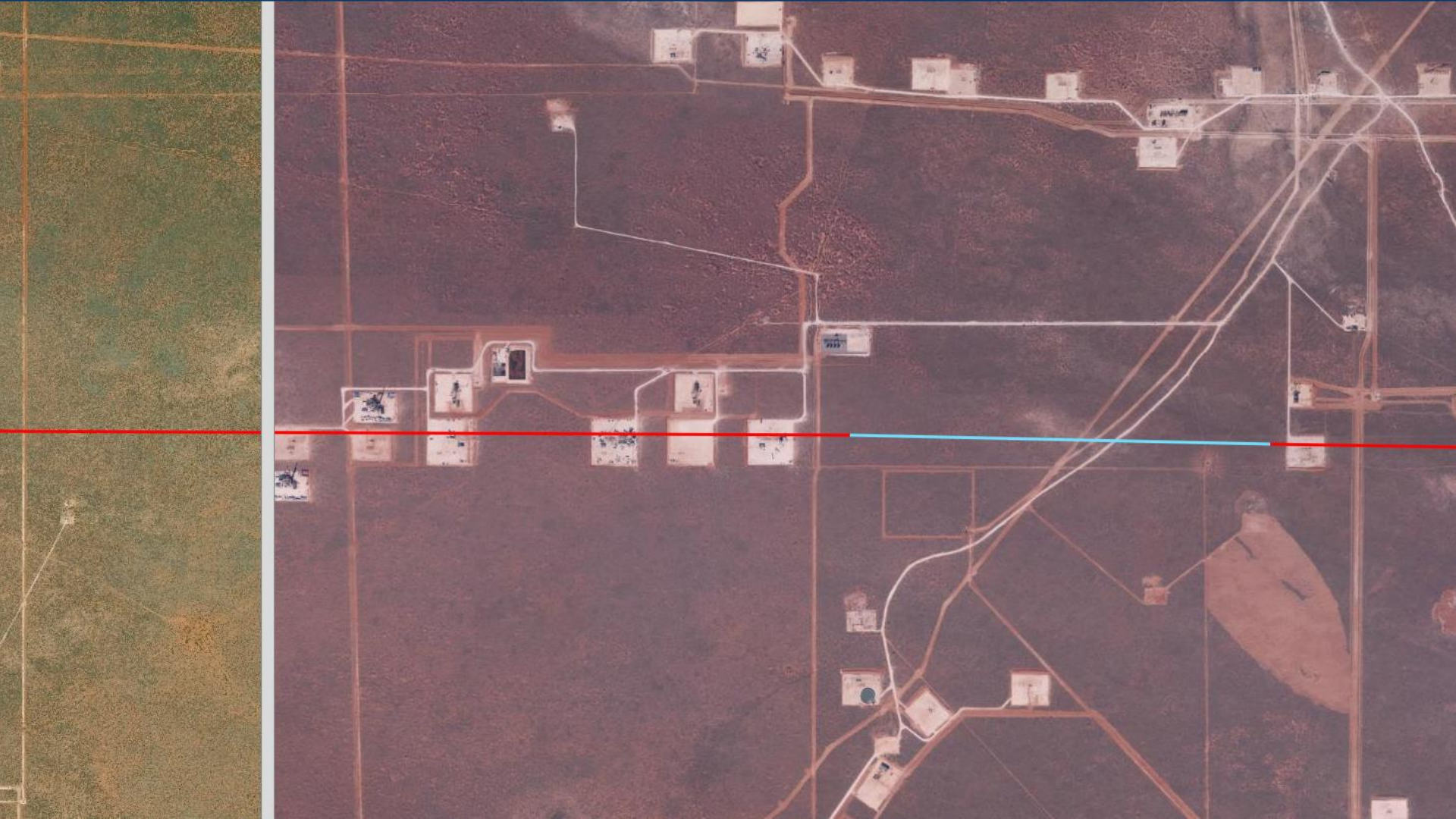
Pipeline Routing - Imagery

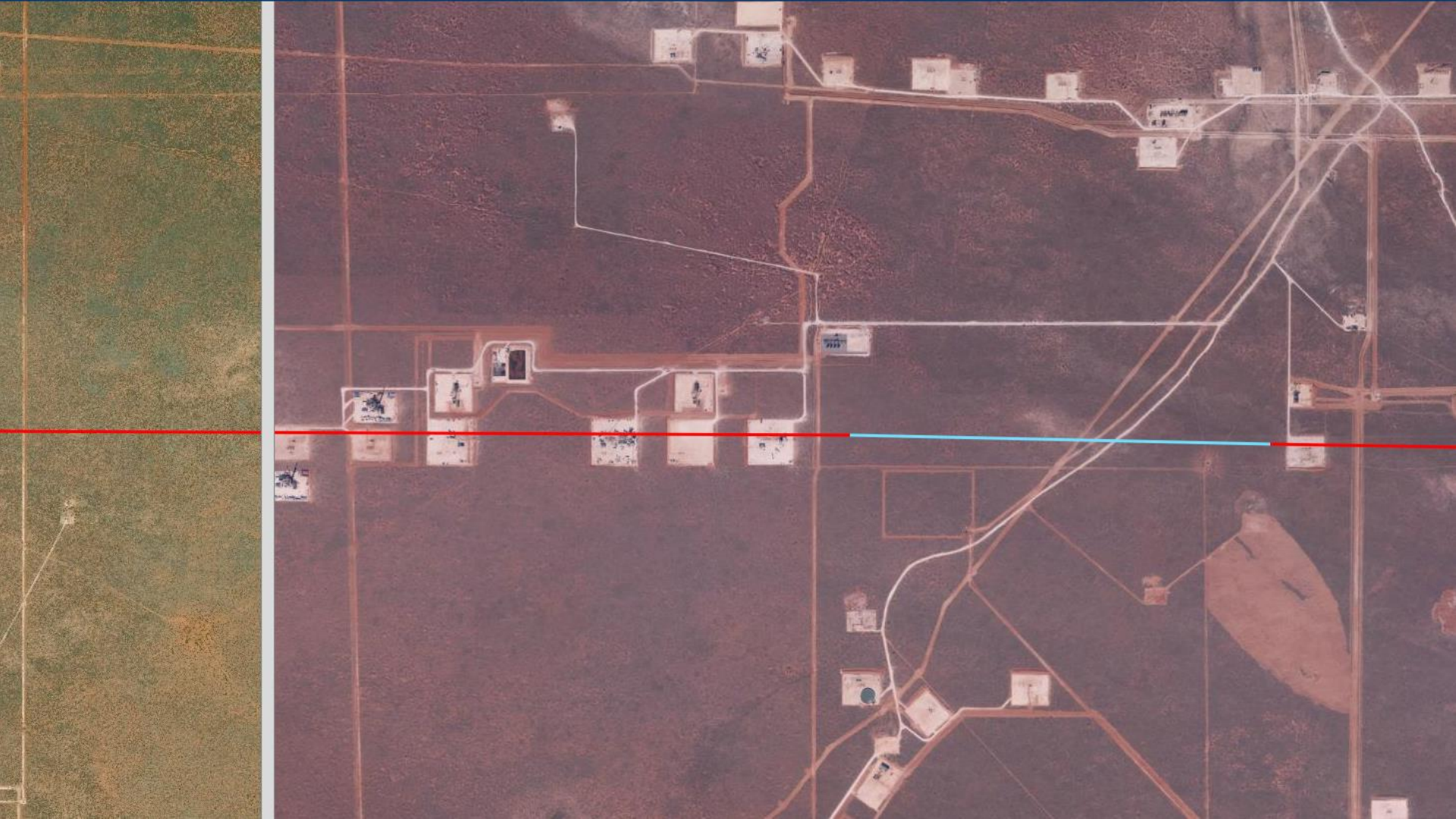
- Acquiring up to date imagery
  - Satellite?
  - Manned?
  - Unmanned?
  - Resolution?

(side note!) UAVs vs Manned Aircraft Cost comparison



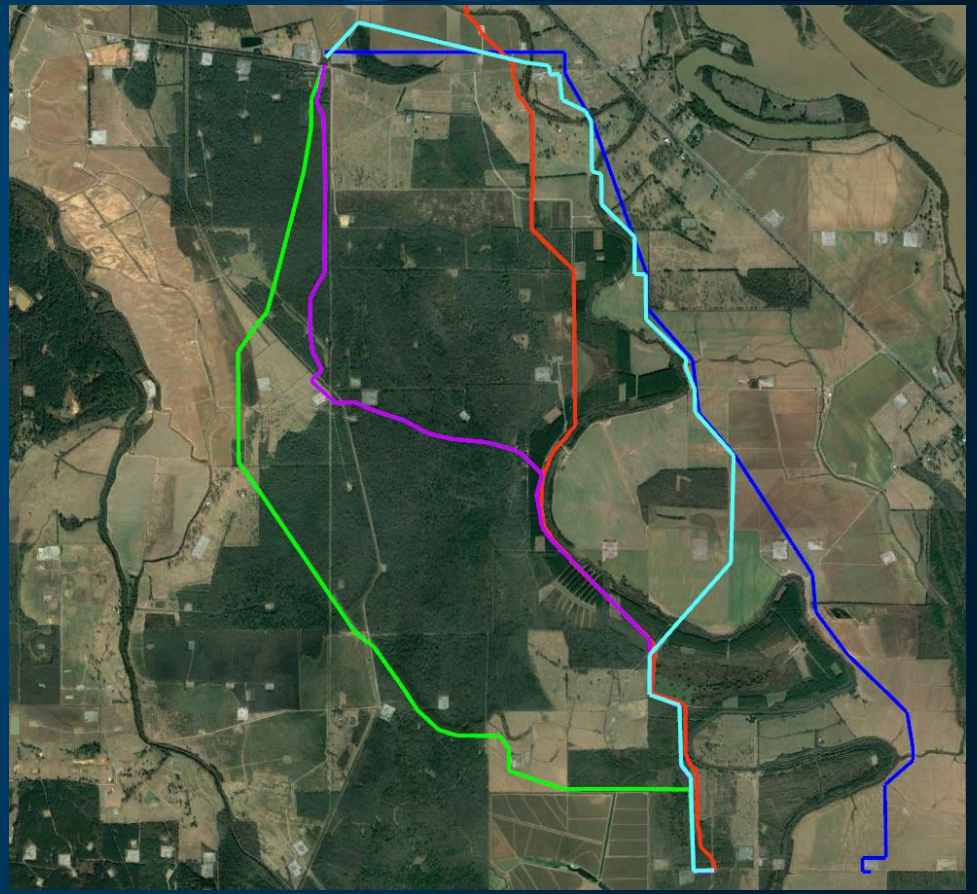
Existing vs Current Imagery Comparisons





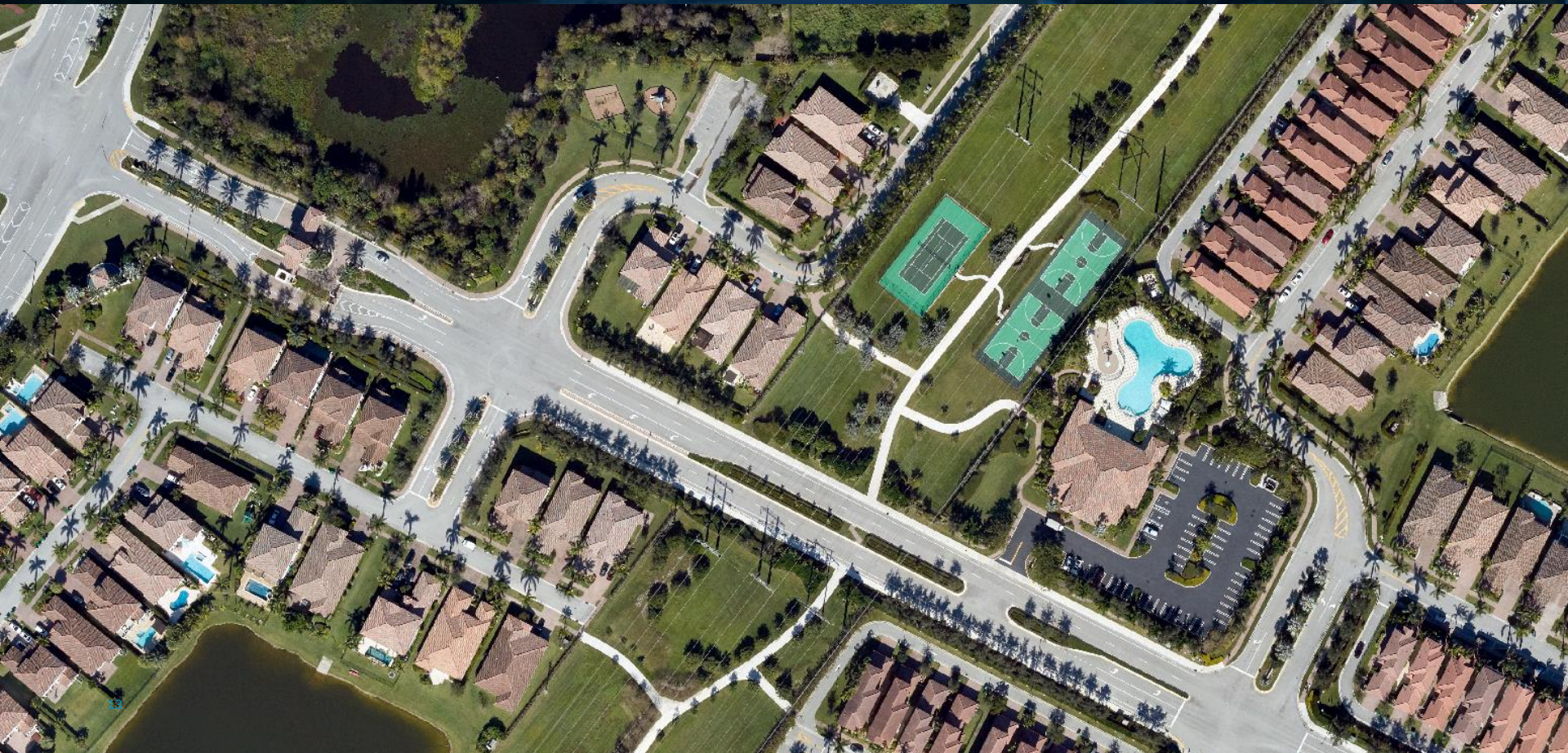
Routing Development

- Utilizing GIS data and updated imagery
- Leveraging those datasets with a GIS routing platform and pipeline experience
- Produce constructible routes

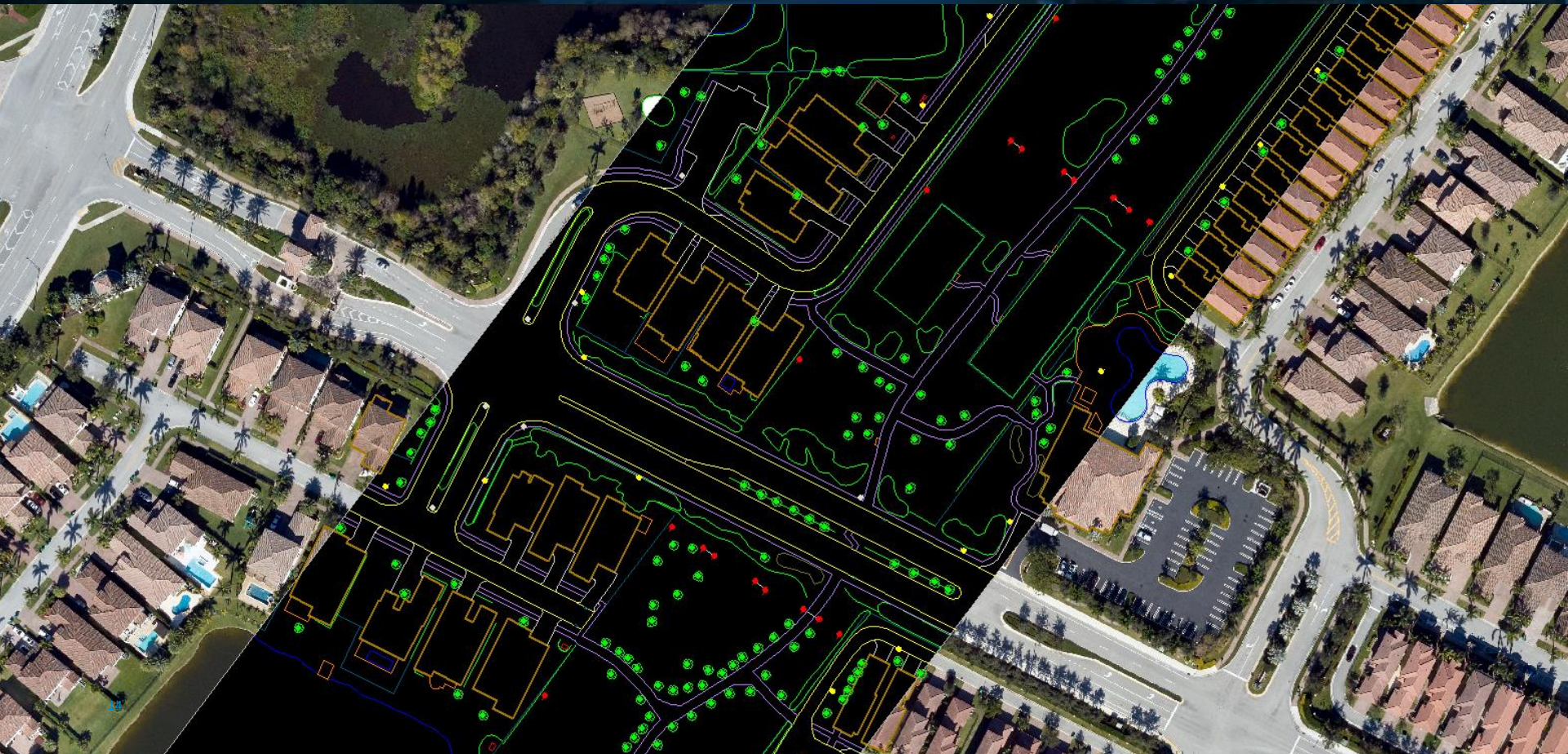


Using remote sensing (LiDAR / Imagery) to supplement survey and pipeline operations

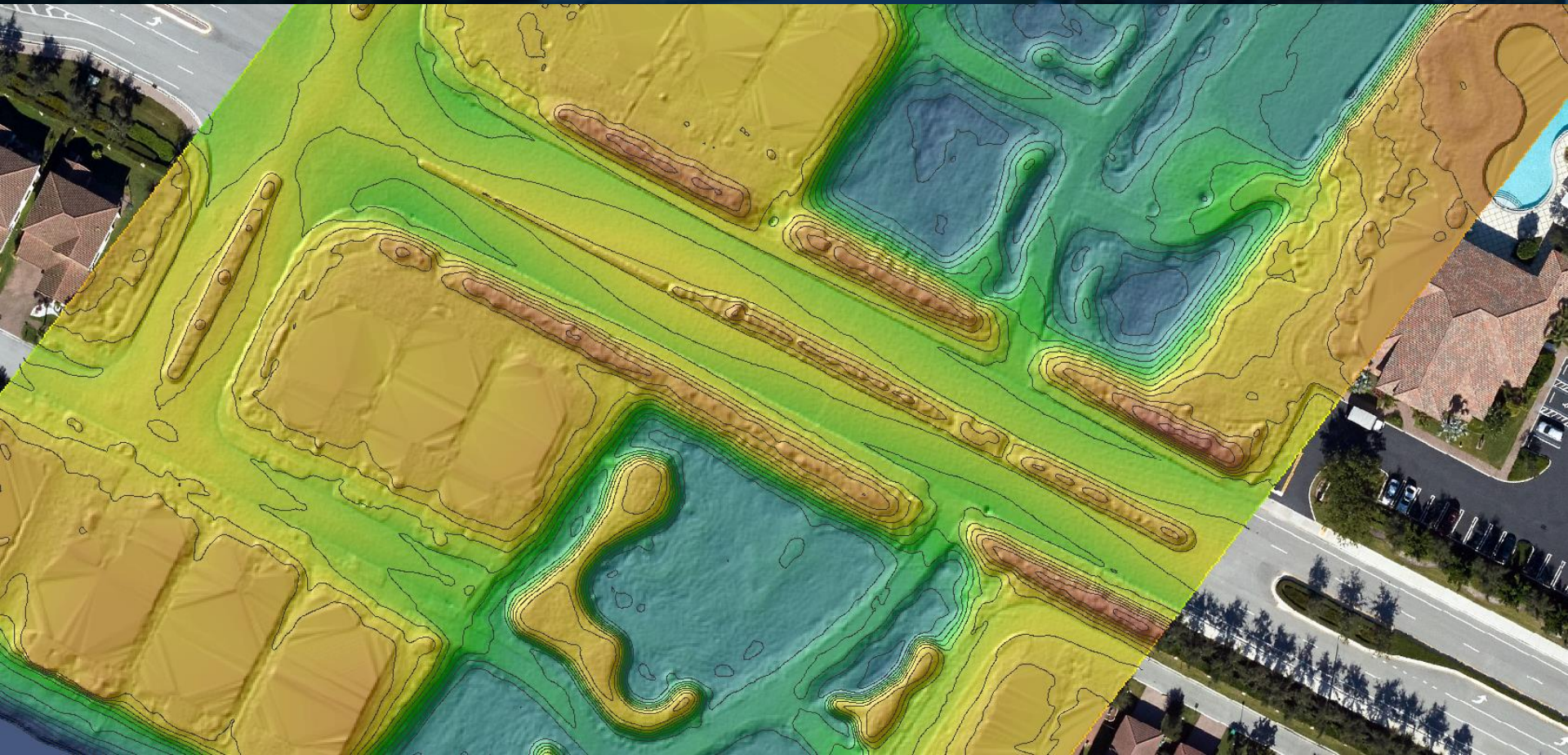
High Resolution Orthoimagery



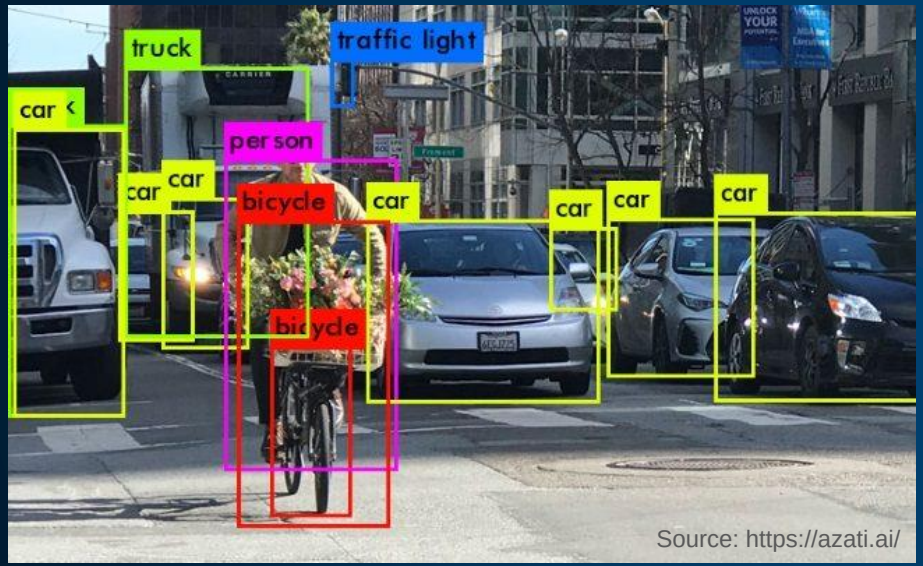
Detailed Planimetric Data



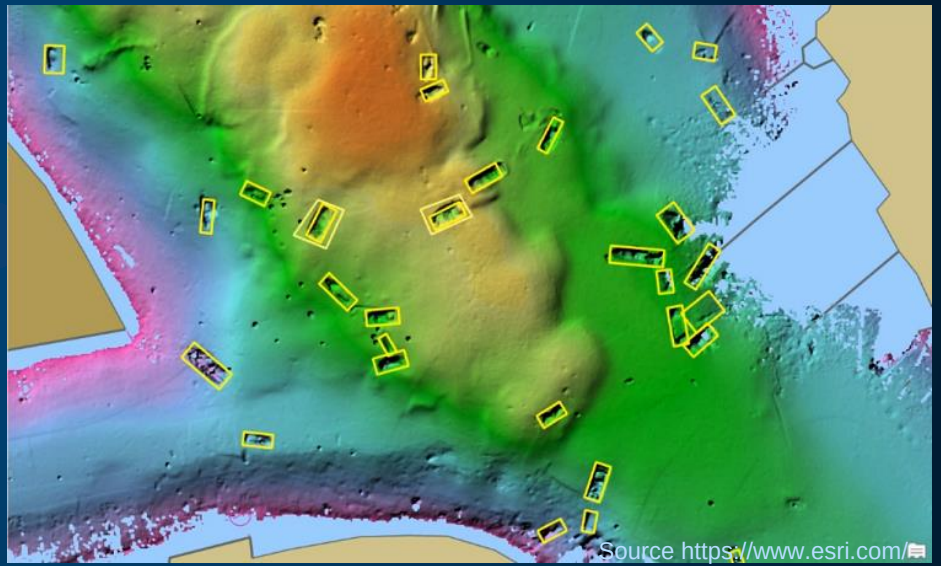
Detailed LiDAR Elevations and Contours



Leveraging Artificial Intelligence (AI) to support Integrity Management Programs.



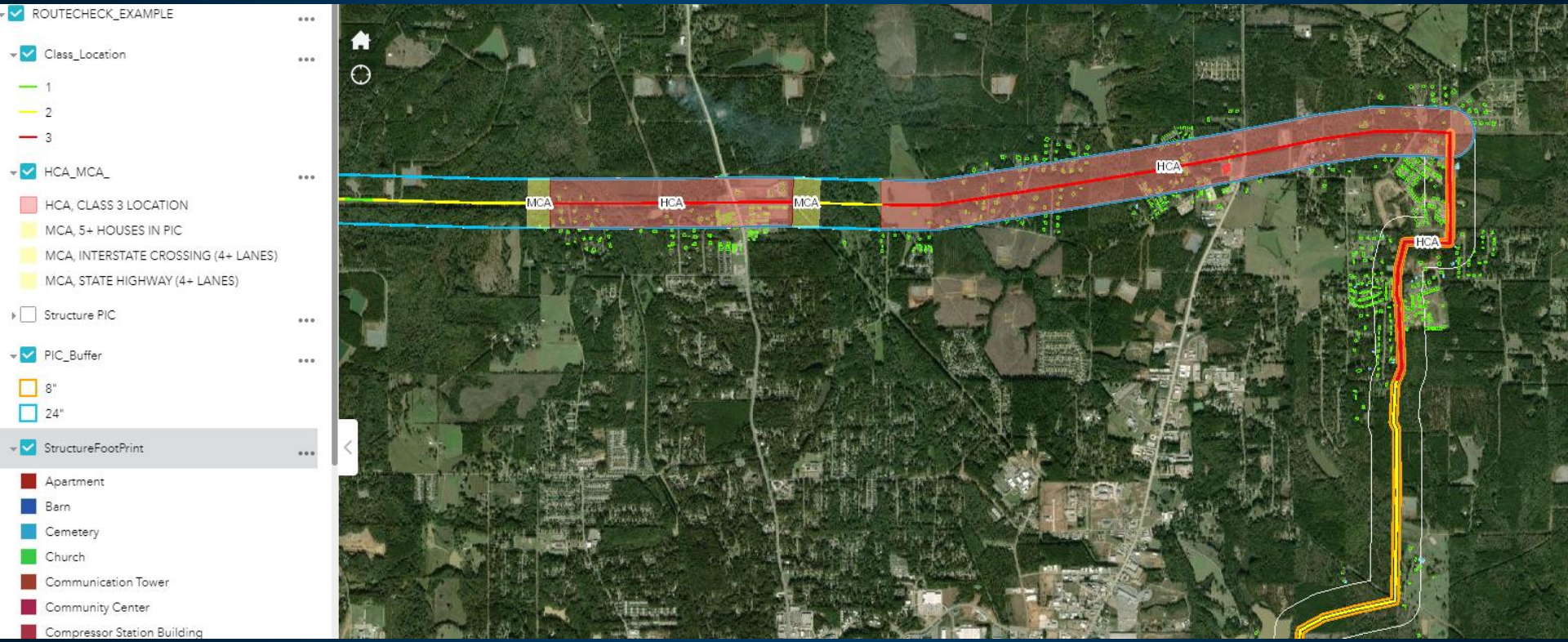
Source: https://azati.ai/


Source https://www.esri.com/

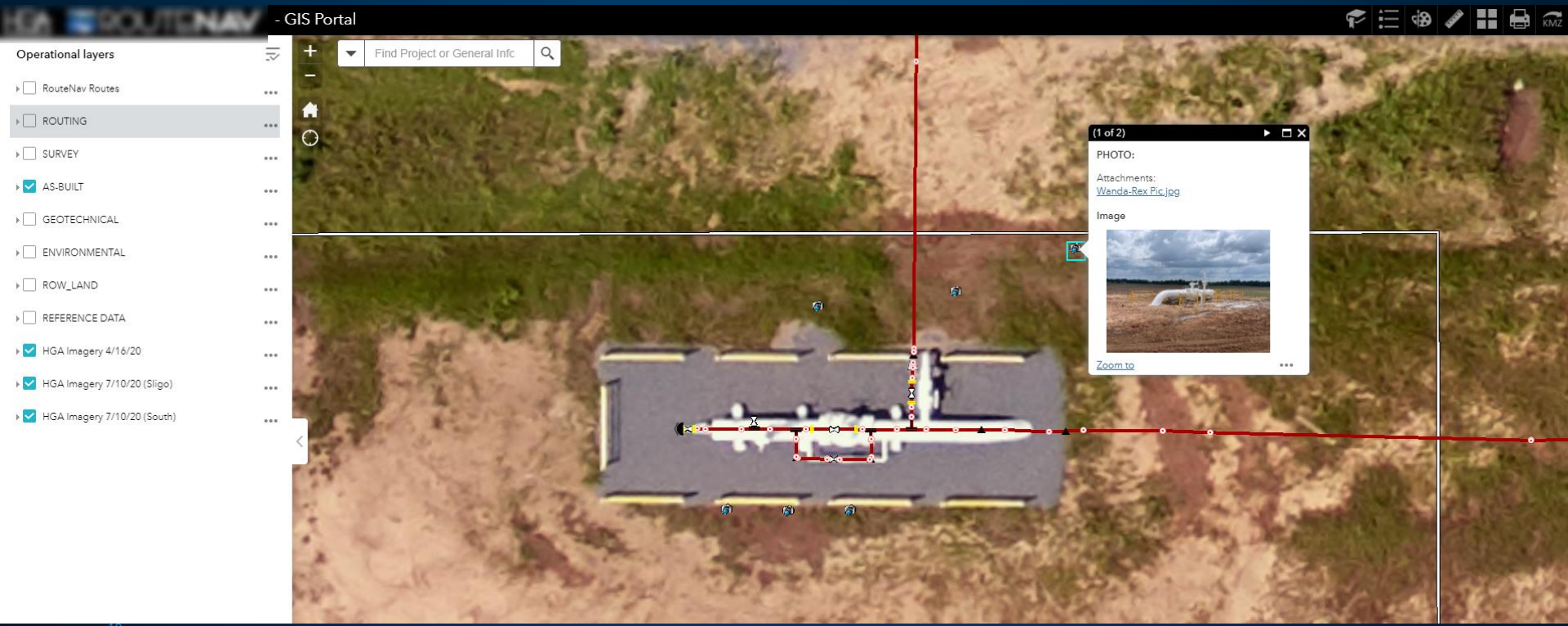
Class Location, HCA, MCA

Utilizing AI, structures can be automatically extracted and then classified to support Class Location, HCA, and MCA Studies

Algorithms to Support Compliance



Web based platforms



Thank you!

Any questions?

Contact:
Wesley Palmer, CP, CMS-Lidar, GISP
Geospatial Manager
wpalmer@hga-llc.com
(318) 220-1258