THE MOST INCREDIBLE THING
WE'VE ENGINEERED IS OUR TEAM

Why UAS will help your organization

Mapping with UAS, LiDAR and GIS

KCI

Technology Changing the World of Surveying

Combined Technologies

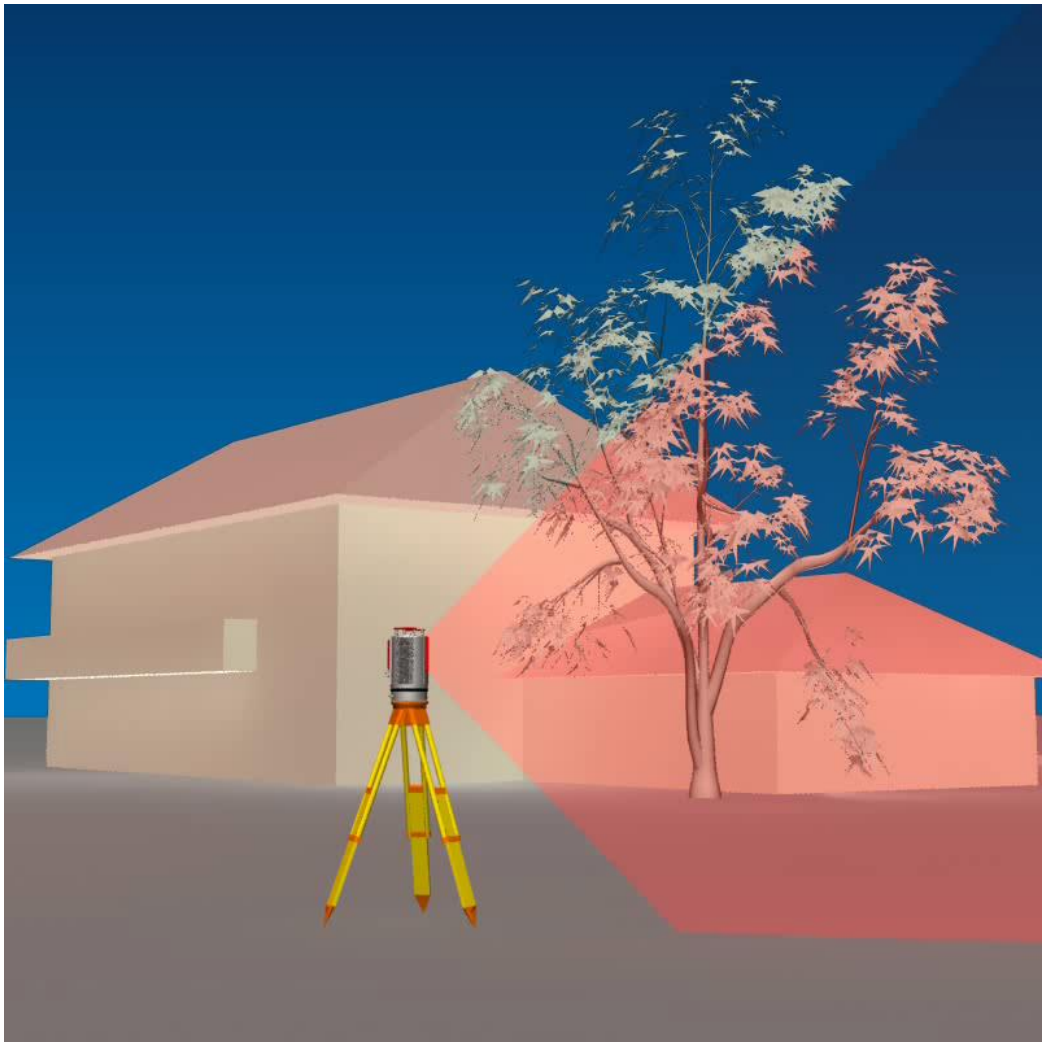
LiDAR Platforms

TERRESTRIAL 

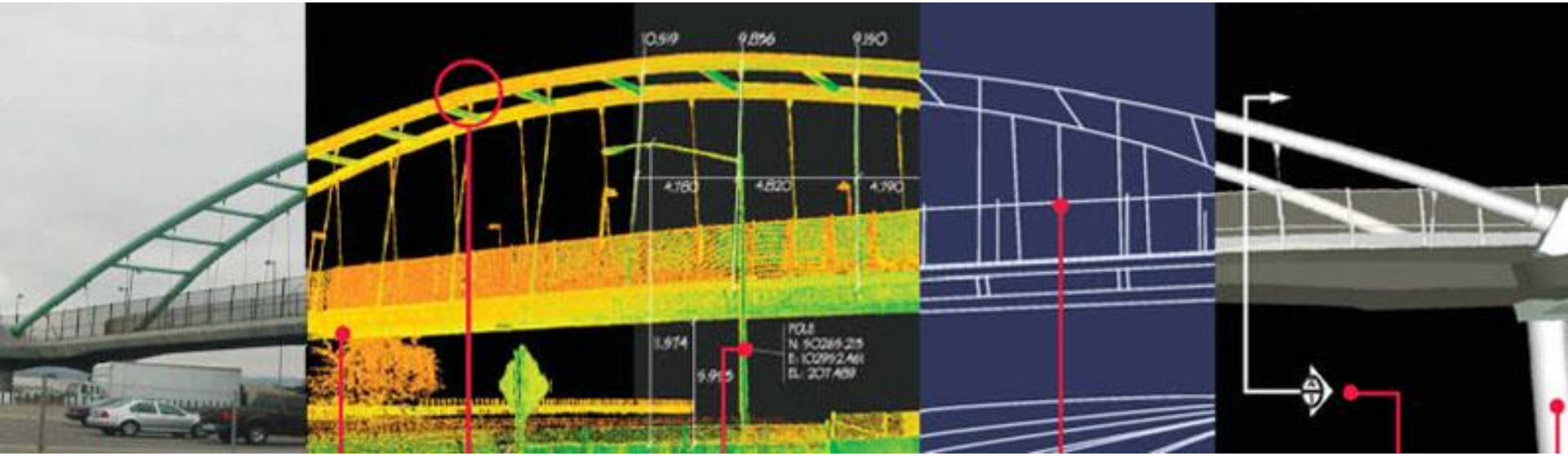
MOBILE 

AIRBORNE 

UAV 

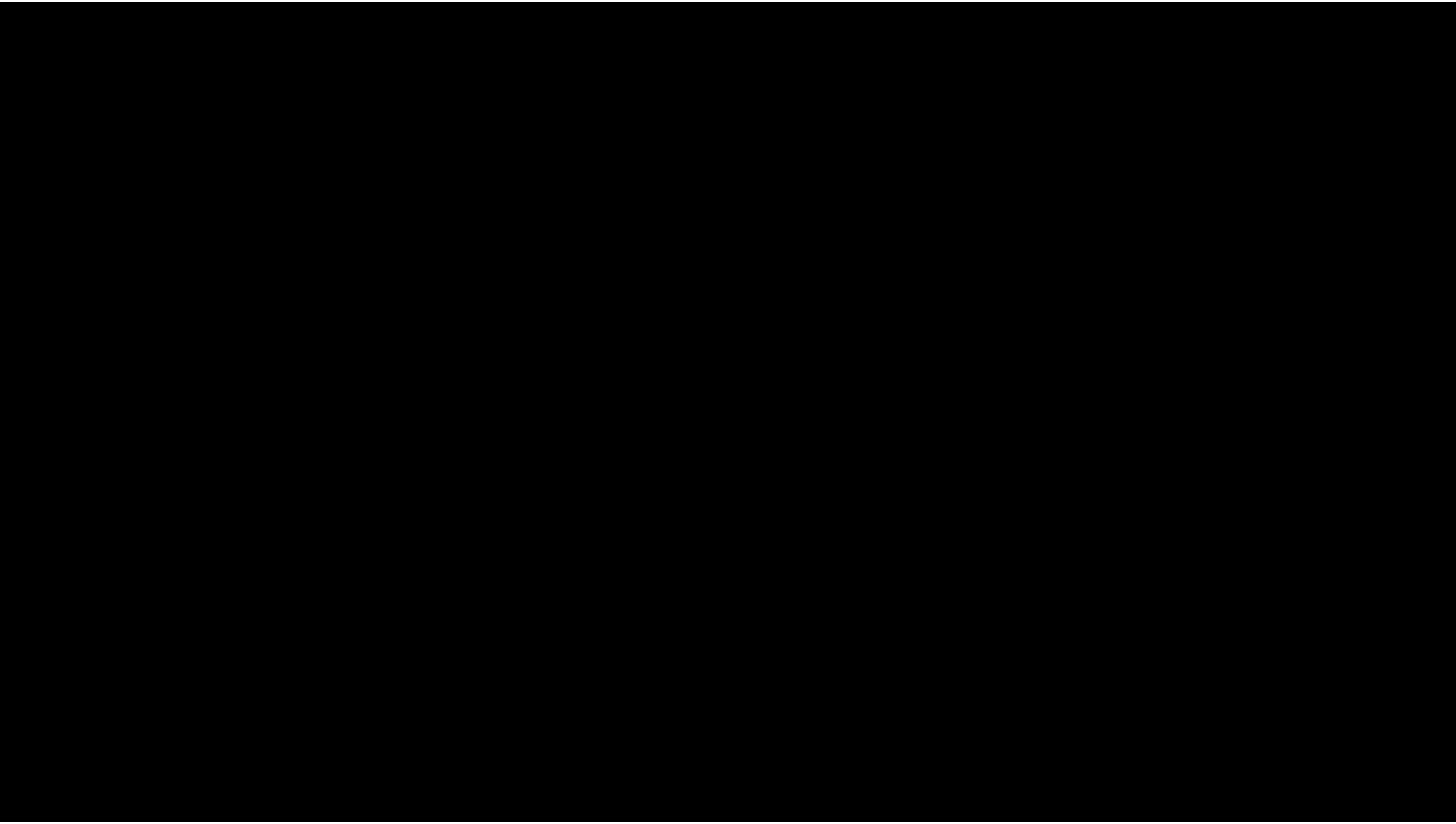


Data Capture Coverage



- Revolution = Data capture coverage
- Pointcloud = Millions of points collected
- Any Coordinate System
- Unlocks All 3D Tools

Reality Mesh – Small Facility



Safety Considerations

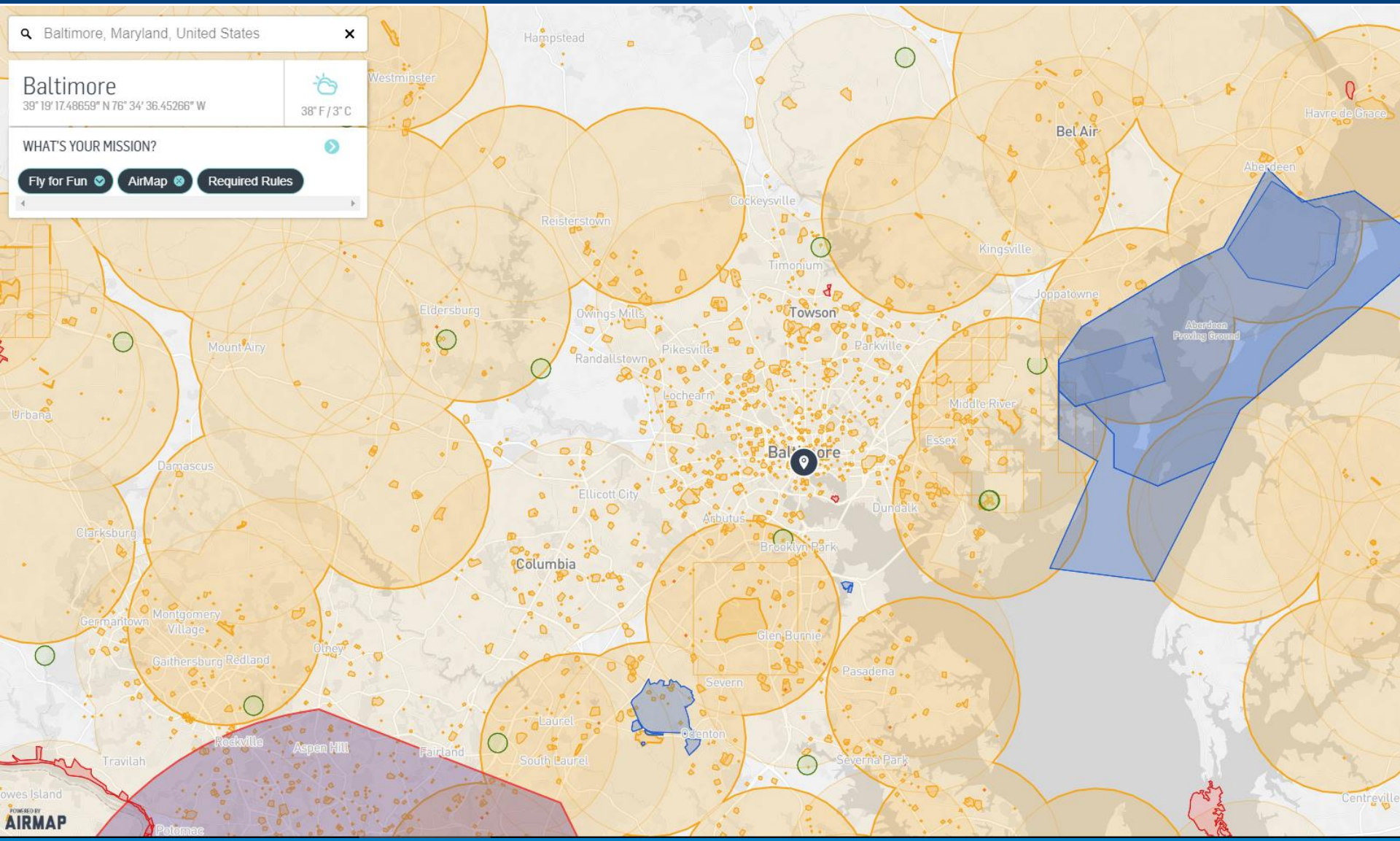
Bringing the field work into the office

- Remote Data Capture
- Reduced field exposure time
- Reduced staff needed onsite
- Increased overall data collected
- Fewer re-mobilizations

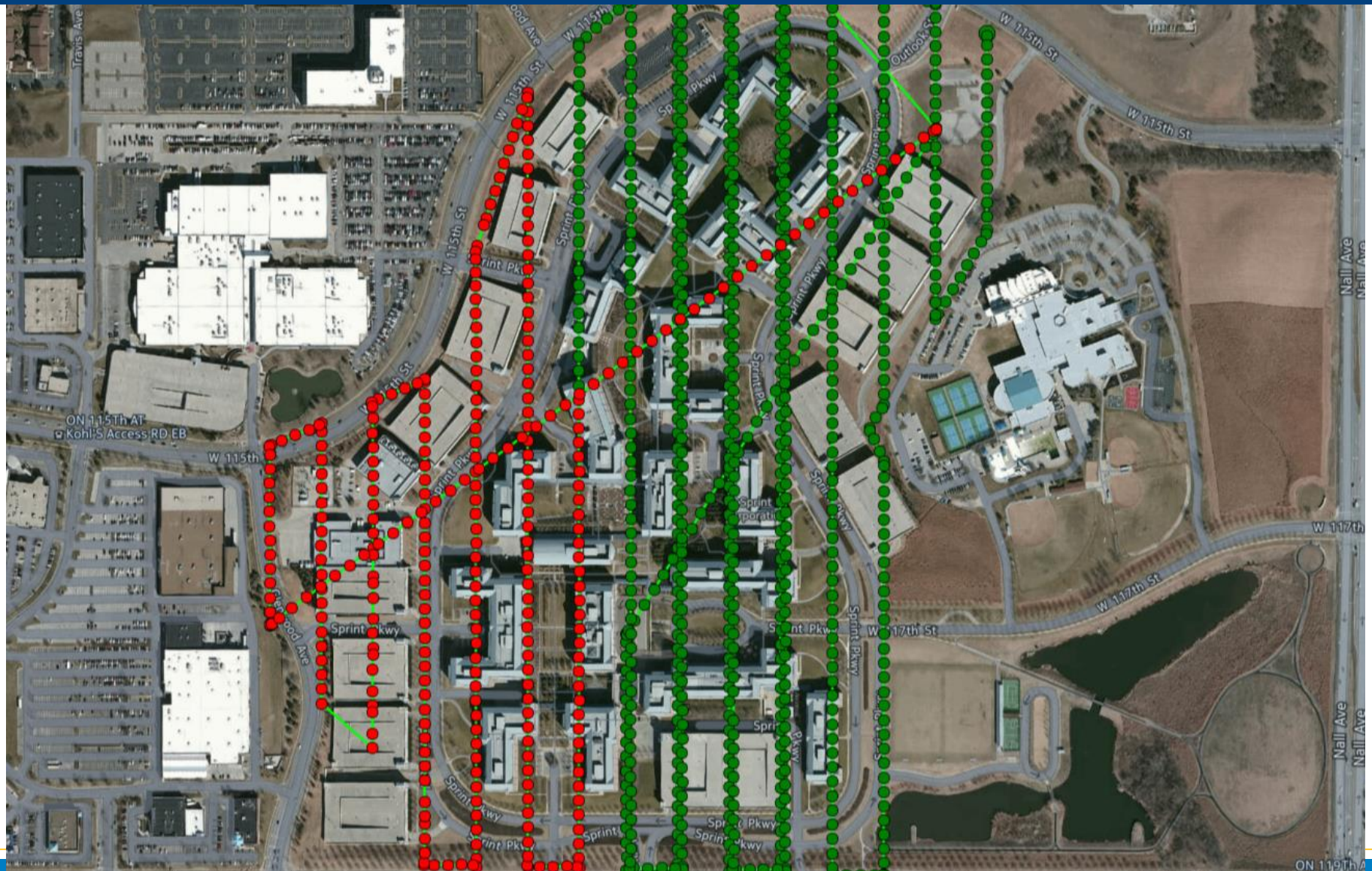
KCI Drone Qualifications

- Federally registered drones
- Federally certified pilots
- FAA flight approval
- State Prequalification
- Experience and Testing

FAA Fly Zones



Pre-programed Flight Paths



Drone Data Outputs

Scaled orthophotography

Videos

Pointclouds

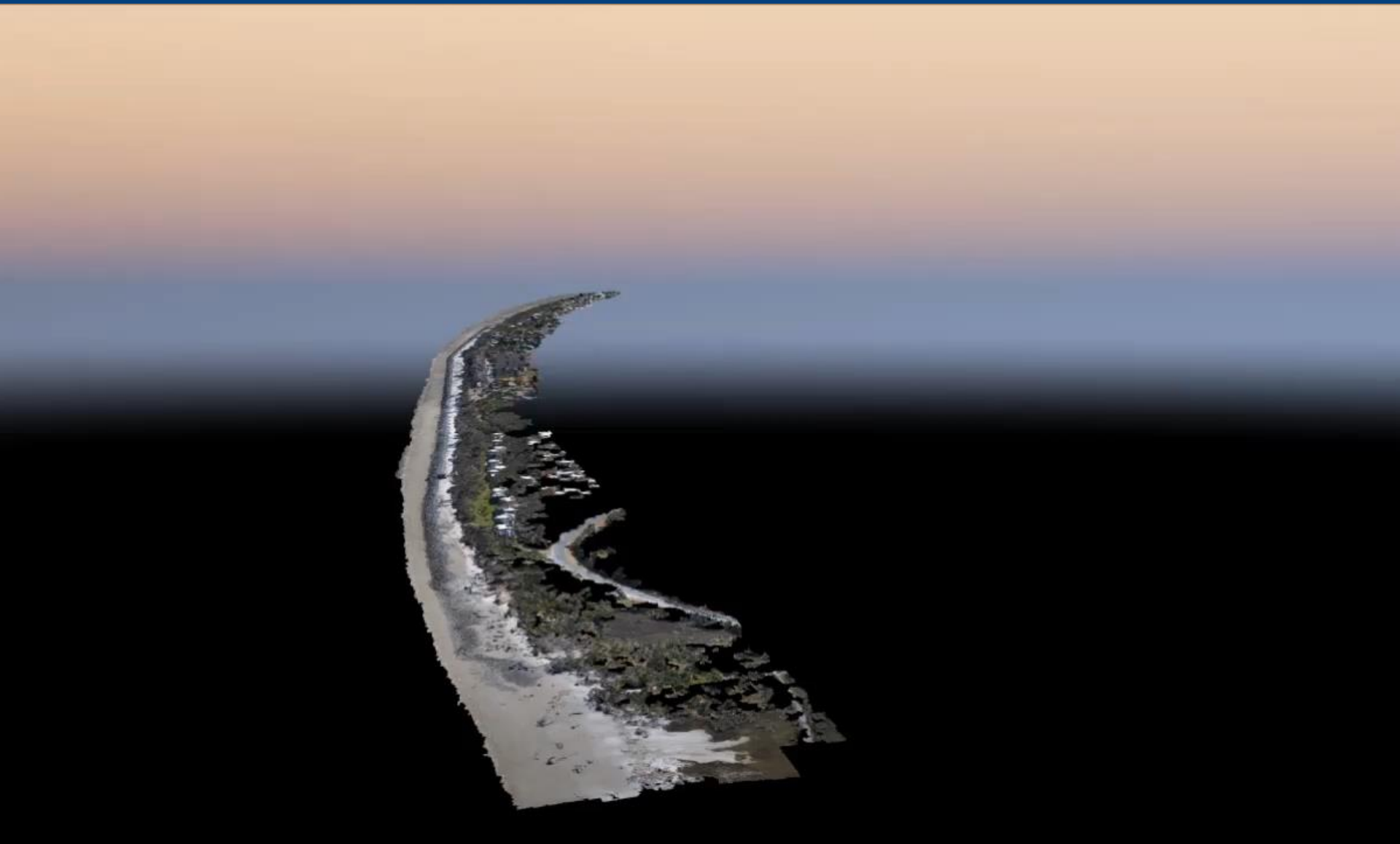
Survey-grade 3D surface data for:

- AutoCAD
- Civil 3D
- Microstation
- TopoDOT
- 3D Reshaper

Combined Technologies

Reality Mesh – Transp. Corridor

Surveying for Topo and Volumetrics



Rail Line Lidar Data

KCI Case Study:
BG&E Trash Chute Collector

- Client: Baltimore Gas & Electric (BG&E)
- Objective: Collect preproject visual information on the Patapsco River basin before the trash collector chute came on line
- Output: Orthophotos of the collector and canal. High resolution video of the banks of the entire basin.

BG&E Collector and Canal

BG&E Collector and Canal

BG&E Collector and Canal

KCI UAS Case Study: Western Maryland Railway Bridge

- Client: Sagamore Development
- Location: Patapsco River in Baltimore City

Challenging Location

Objectives and Challenges

- Objectives
  - Connect Westport Homes and Port Covington
  - Bridge carrying a multi-use path
  - Bridge emphasizes sense of historic context
  - Documentation for planning and design
- Challenges
  - 220 foot span - 2 rail lines
  - Built in 1903 - Abandoned in 1980’s
  - Only accessible by boat – Very shallow
  - Bridges unfit for use

Riegl RiCOPTER

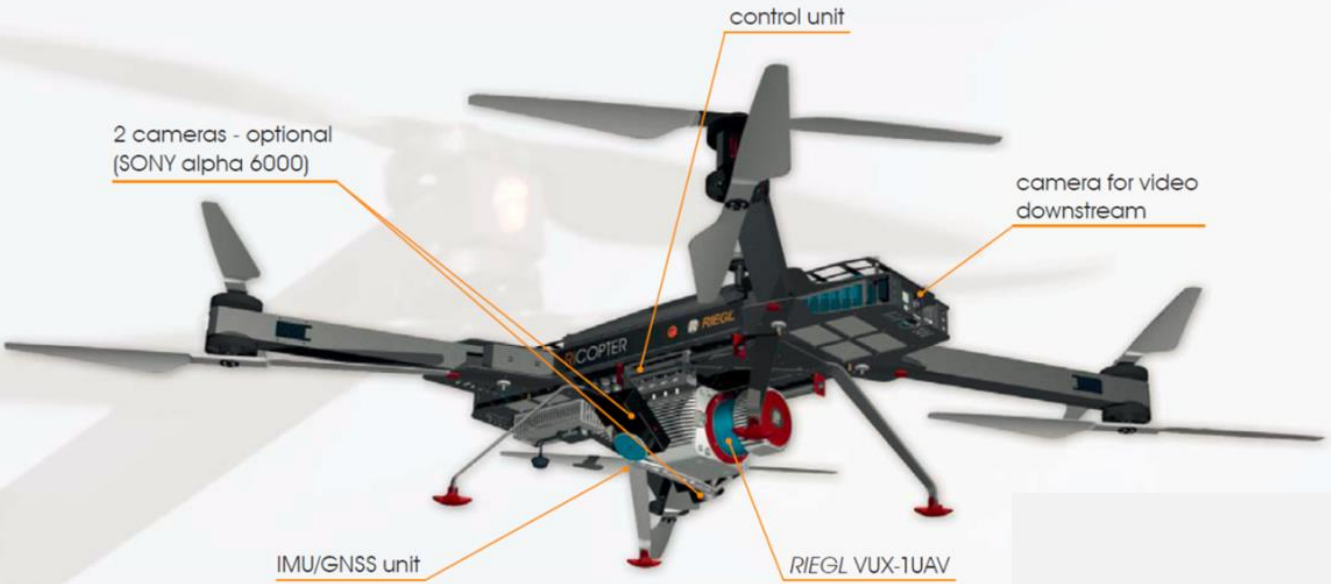
Transportation Case:
foldable arms facilitate
easy transportation and storage

RiCOPTER
Ground Station

RiCOPTER
Charging Control Unit

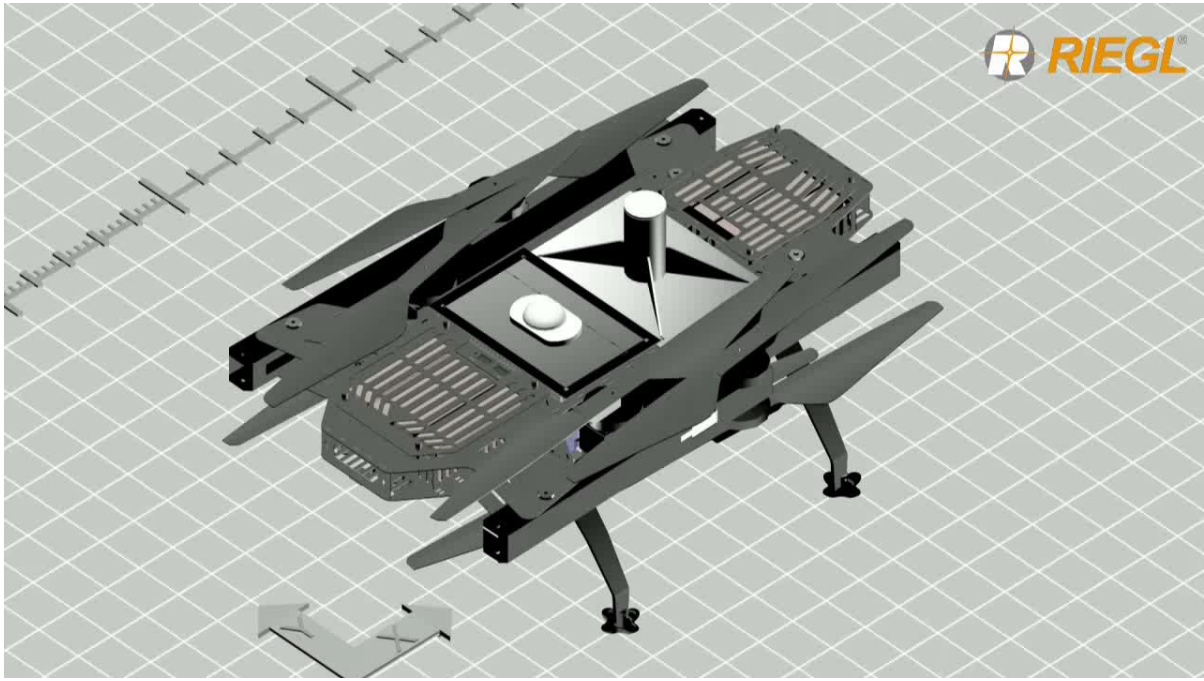
Remote Control Graupner MC32

easy to carry with integrated handle

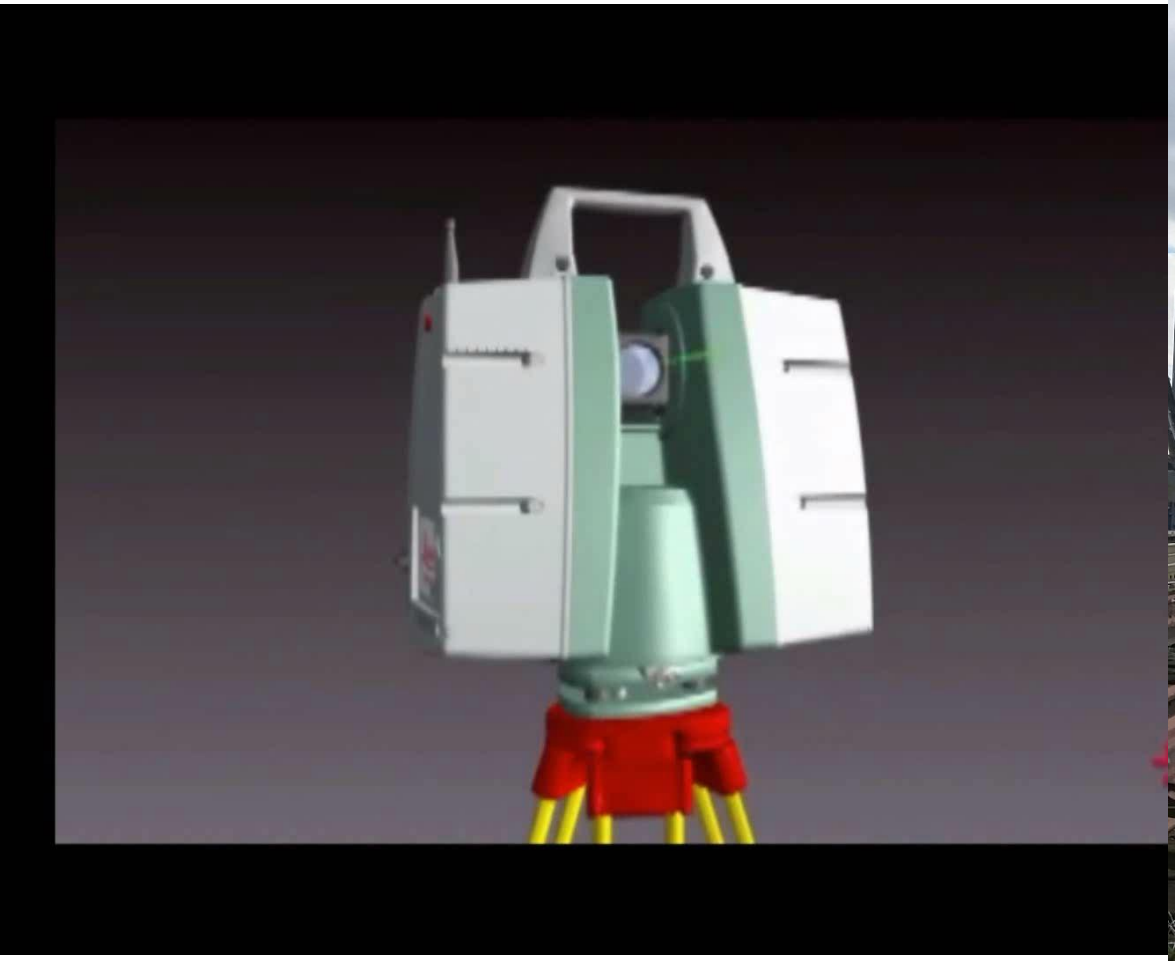


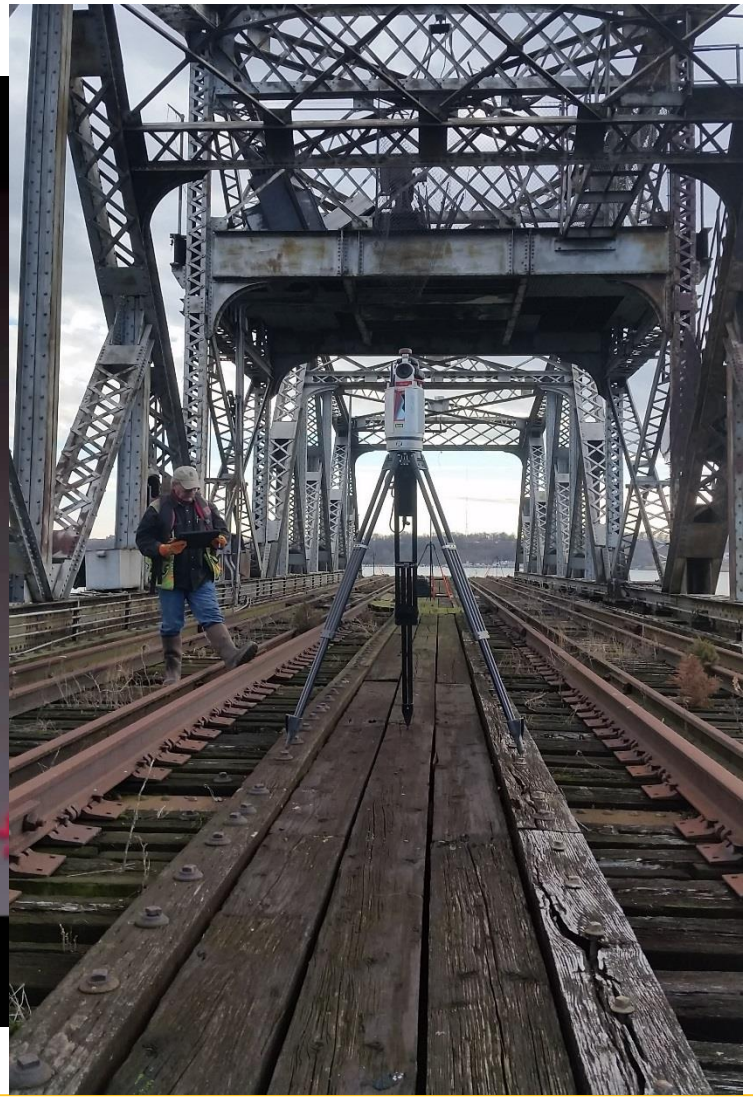
Riegl RiCOPTER

- Sensor payload capacity of 6.5kg and a max take off weight of 25kg.
- 30 minutes endurance
- Max. Speed: 60 km/h
- 500,000 points per second
- 12 MP camera for color

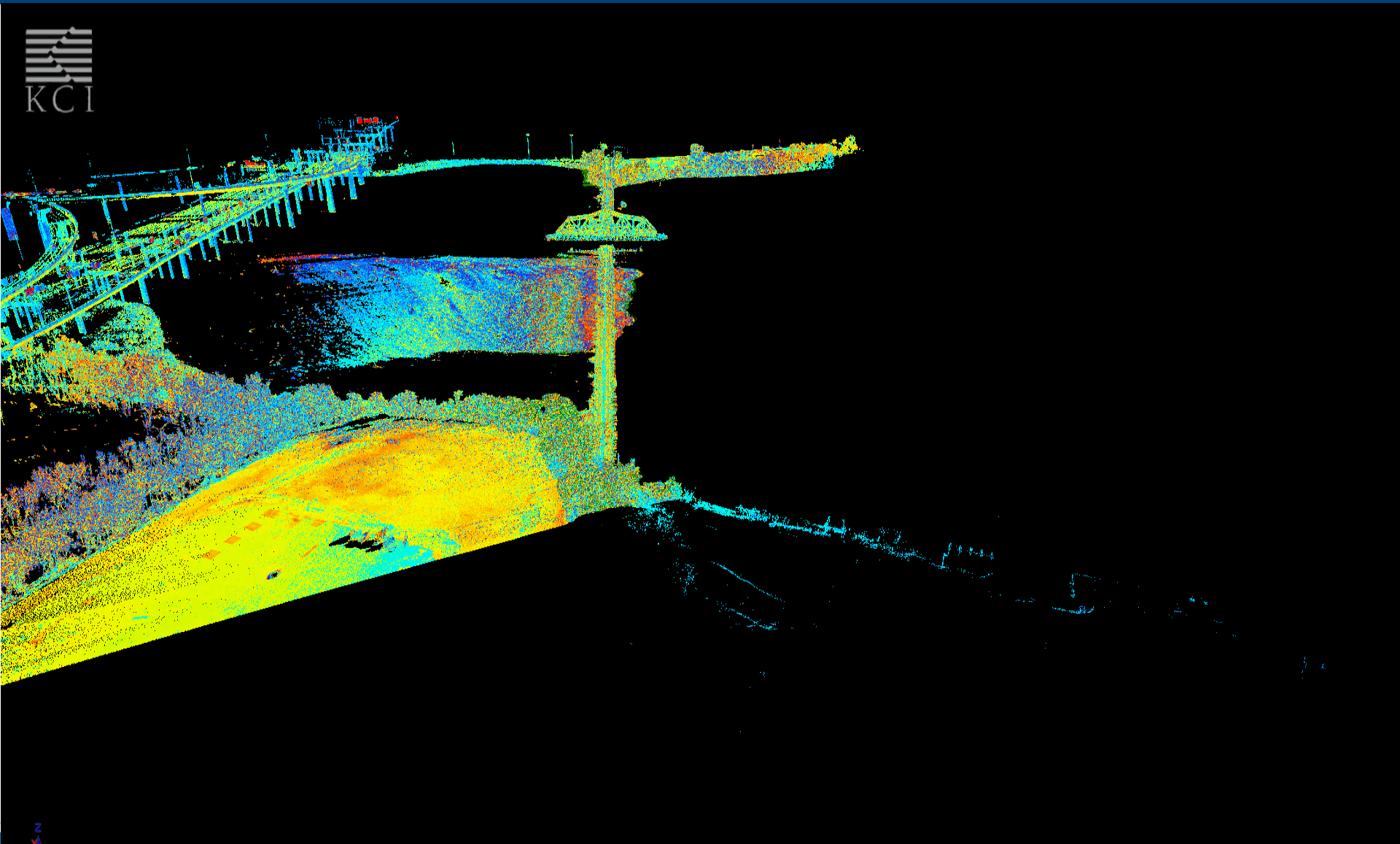


3D Laser Scanning



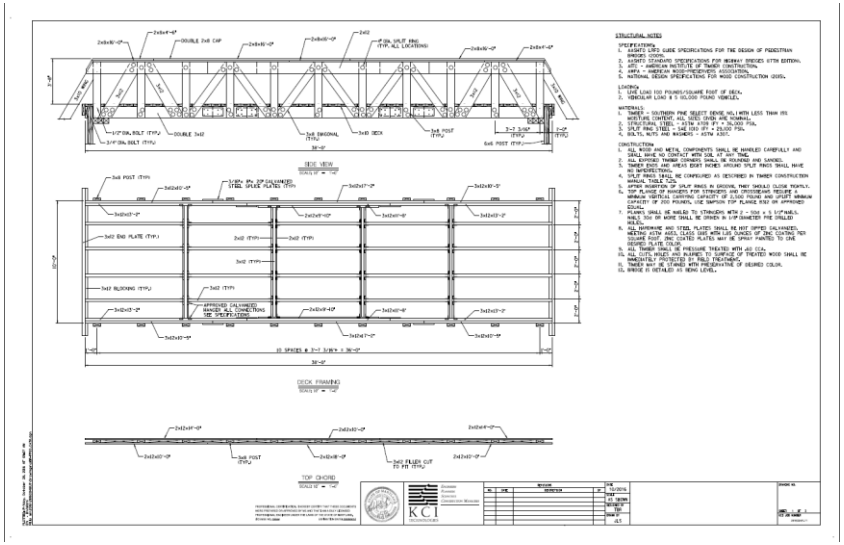


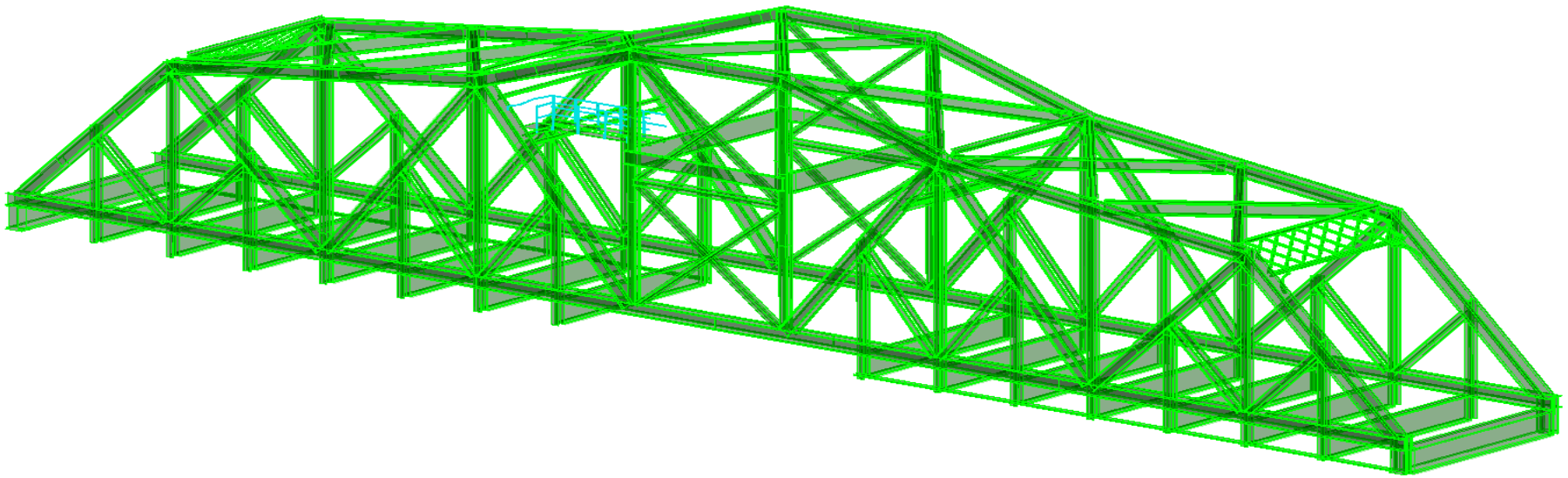
Pointcloud Deliverable



3D BIM Model

- Microstation V8i
- “Steel” tools
- Beams, connections, supports





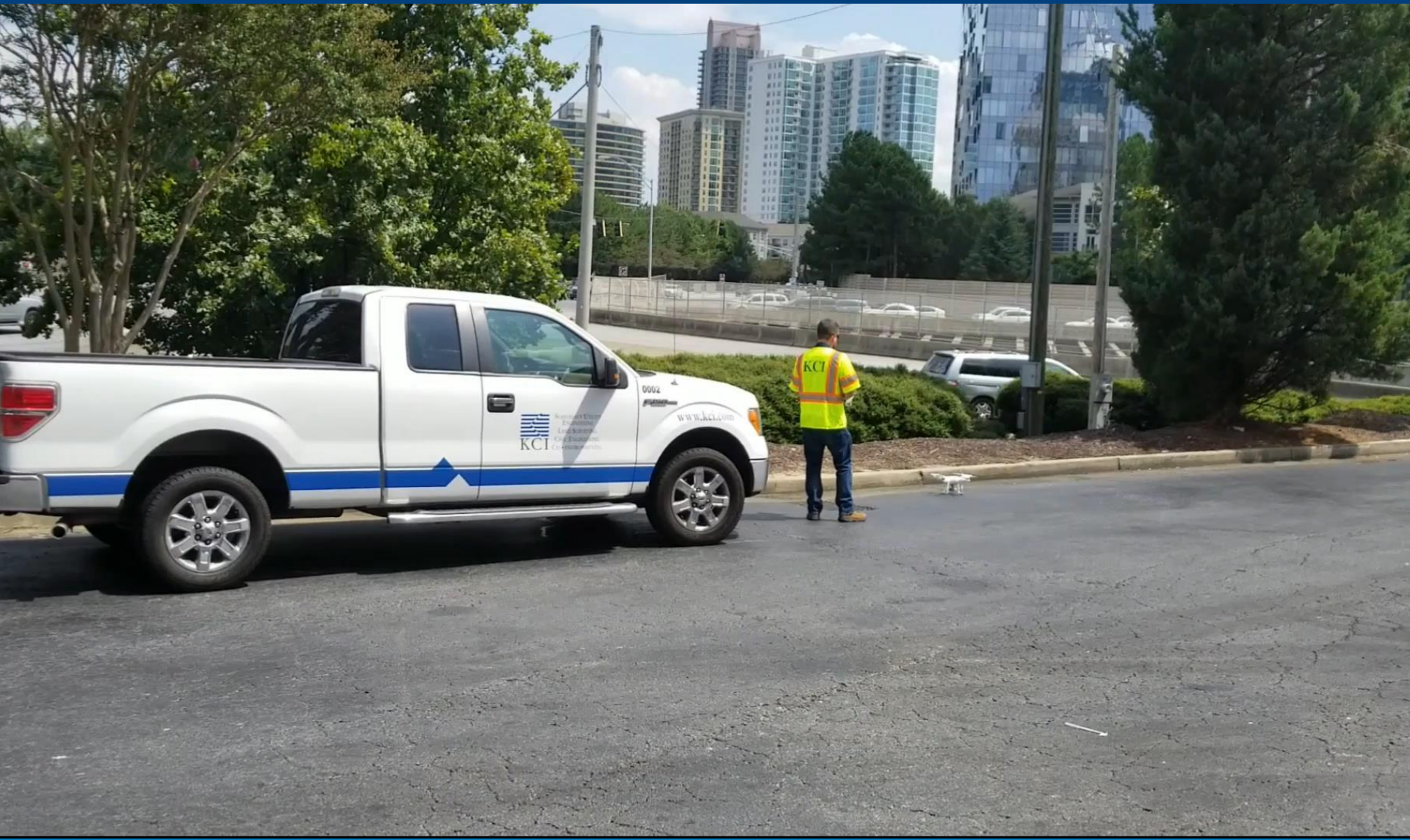
KCI UAS Case Study 3: Atlanta Park Over 400

KCI UAS Case Study 3: Atlanta Park Over 400

Objectives and Challenges

- Client: Buckhead CID
- Objectives
  - Park Over 400
  - Pedestrian park located over crowded corridor
- Challenges
  - Inaccessible space
  - Unrelenting traffic
  - Challenging engineering and construction
  - Precise asbuilt information mandatory

Capturing Inaccessible Areas

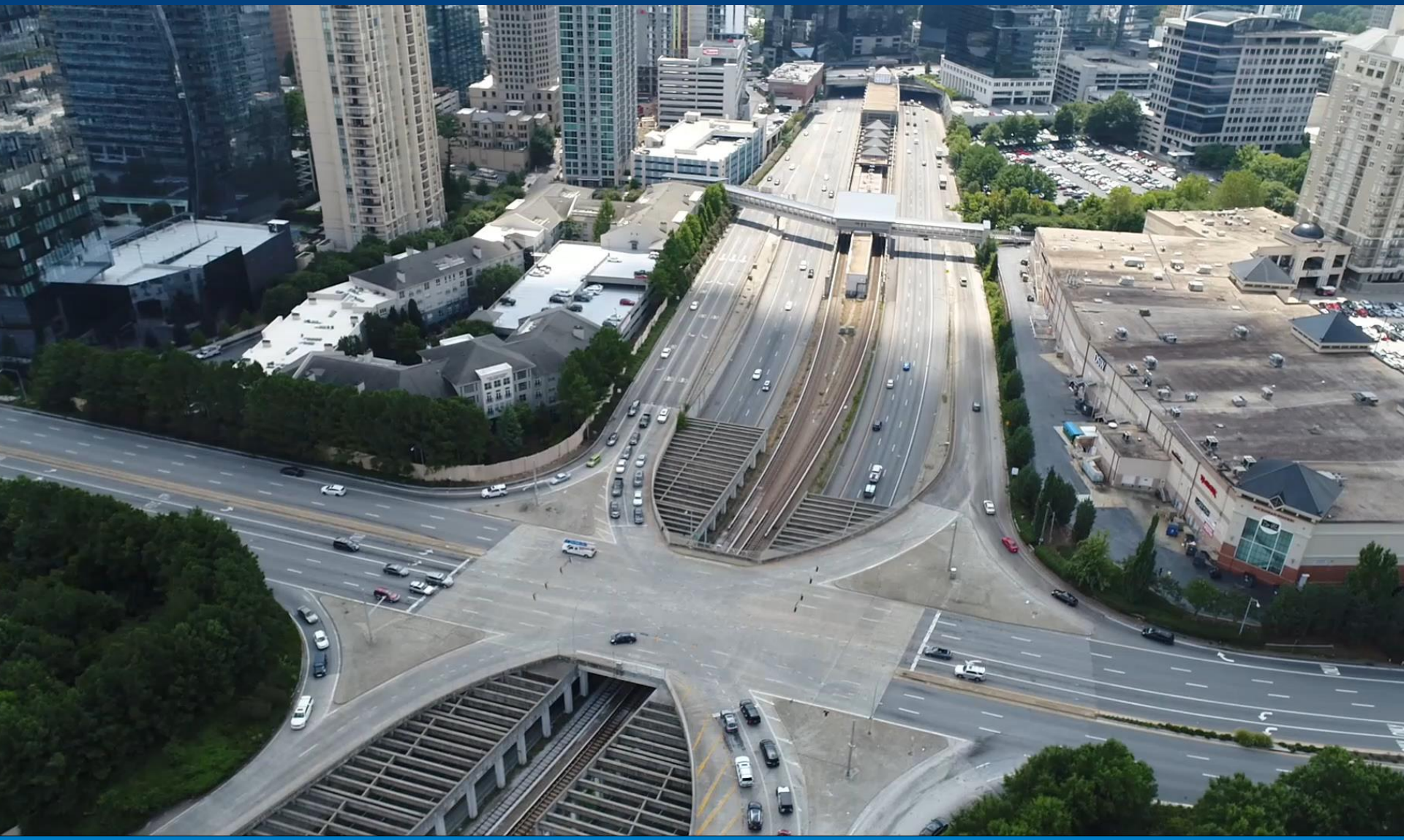


Mobile LiDAR

- Up to 1,100,000 measurements per second
- Up to 5000 points per square meter
- Geo Referenced Digital Color Imagery
- Spot Elevation Accuracy: +/- .05 ft (95% Absolute)

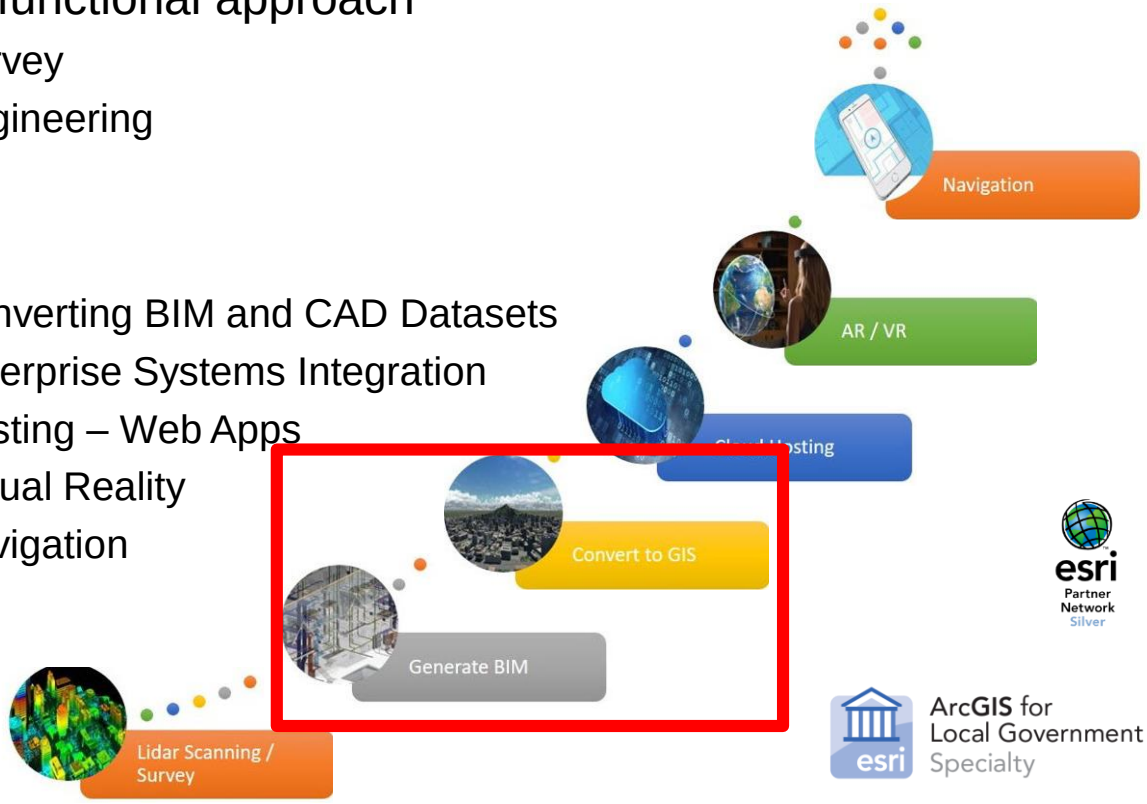
Mobile LiDAR
Riegl VMX-450

Mobile LiDAR



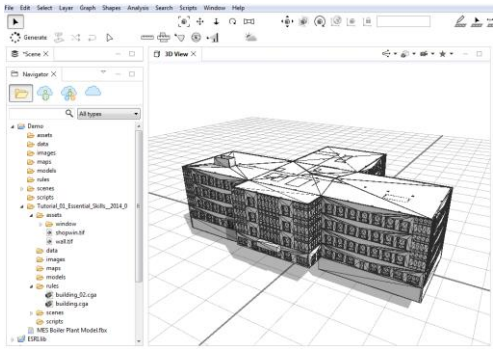
UAS GIS Projects

- Cross-functional approach
  - Survey
  - Engineering
- GIS
  - Converting BIM and CAD Datasets
  - Enterprise Systems Integration
  - Hosting – Web Apps
  - Virtual Reality
  - Navigation



UAS /GIS Value

- Asset Inventory from scanned data
- Incorporation of vertical and horizontal assets
- Simple Web-viewers



vGIS - Viewable 3D Field Data

- Utilizes spatial data to render field data in 3D
- Field data capture
- View data “over space”
- Highly configurable
- Safety

https://www.youtube.com/watch?v=ZKYUWEW6Z4E&feature=youtu.be

Conclusion

- UAS + GIS = Comprehensive mapping
- KCI leverages a multidisciplinary team of Lidar/UAS specialists and GIS to offered a complete solution.
- Full team picture and organization

Questions?

Thank you!