



DIGITAL TWINS: REDEFINING THE FUTURE OF AIRFIELD MANAGEMENT

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Digital Twins - Lidar – Imagery – Geospatial Analytics

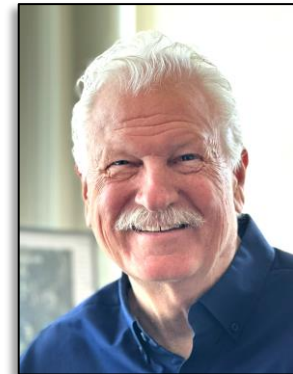
Agenda

- Digital Twin Ideas
- Virtual Reality Experience
- Technology Trends
- From 2D to 3D
- Passenger Experience
- Airfield Maintenance Automation
- Anticipating issues before they happen
- Simulating emergency scenarios
- Augmented Reality
- Next Steps

A digital twin is a fully functional digital replica of the built world.

Digital twins are the link between the virtual and physical worlds... providing organizations with the ability to simulate, predict, and optimize real-world outcomes in a digital environment, leading to improved decision making, reduced costs, and enhanced customer experiences.

What problem are we trying to solve?



Ron Chapple
VP Strategic Solutions
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3D MODELS FOR EXPLORATION & PRESERVATION

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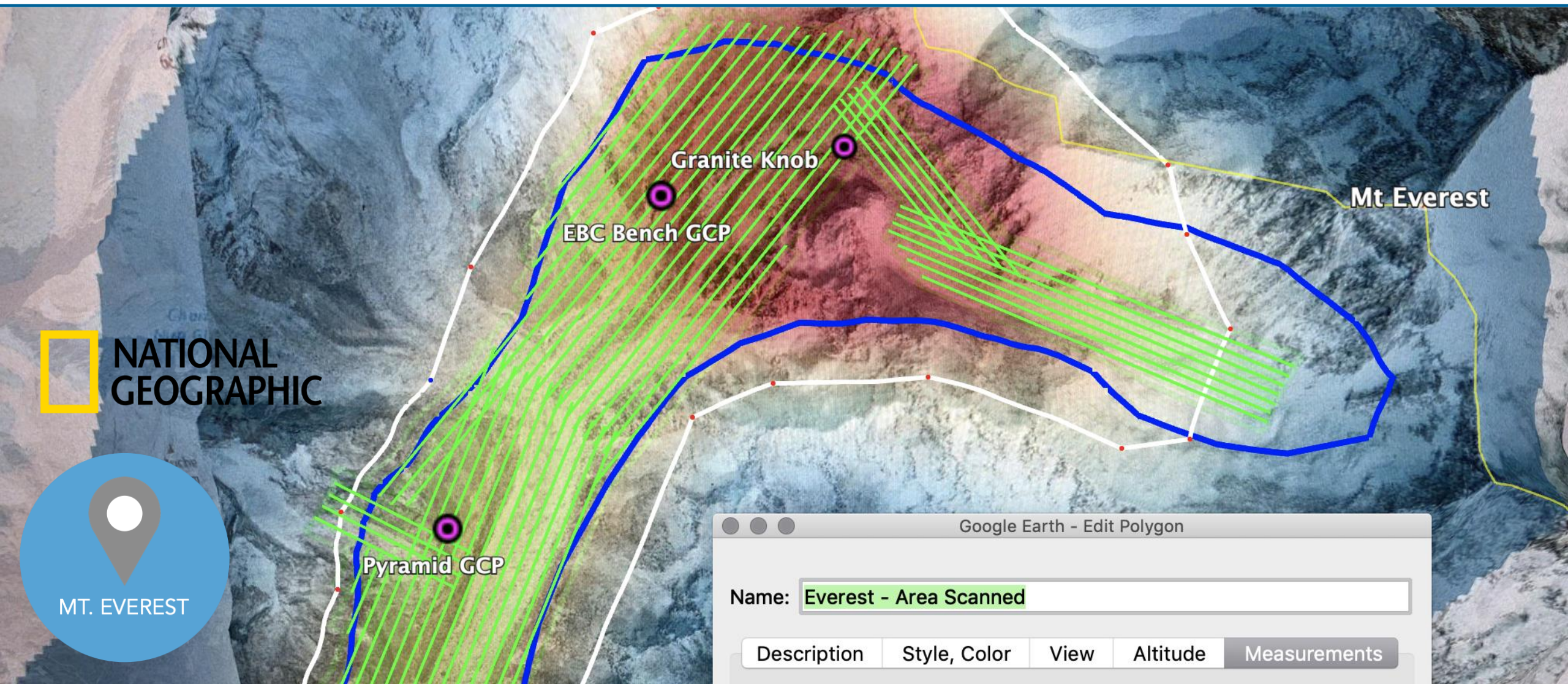


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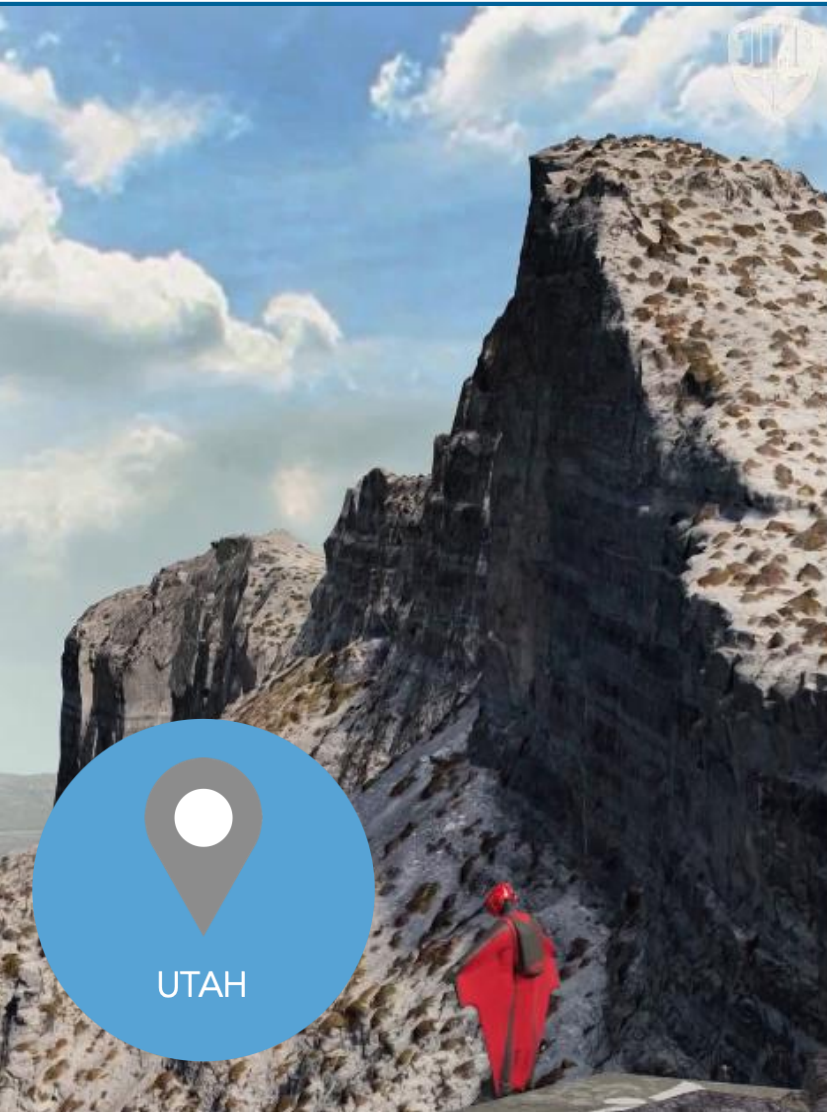
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3D MODELS FOR EXPLORATION & PRESERVATION



VIRTUAL REALITY EXPERIENCES

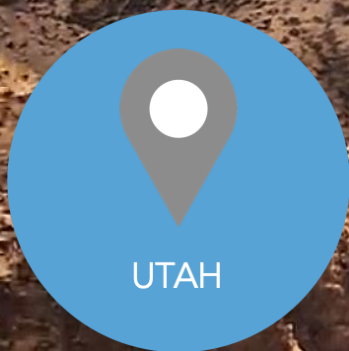
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MISSION POSSIBLE– FLYING THROUGH DATA

This is not a real photo.

This is a screenshot of a 1cm GSD resolution 3D model created from 100,000 150 mp images.



HIGHER DATA RESOLUTION DRIVES MORE OPPORTUNITY

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AIRPORT DIGITAL TWINS

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3D Model created by GeoSim Cities. Data acquired by NV5 Geospatial.

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Digital Twin

HD Imagery

Big Data

Social Media

Data Driven Analytics

Artificial Intelligence

Mobile/Wearable Devices

Cloud Computing

Location Intelligence



DATA ACQUISITION OPTIONS

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Mobile



Terrestrial



Robot



Helo/Fixed Wing



Backpack



Marine



UAS



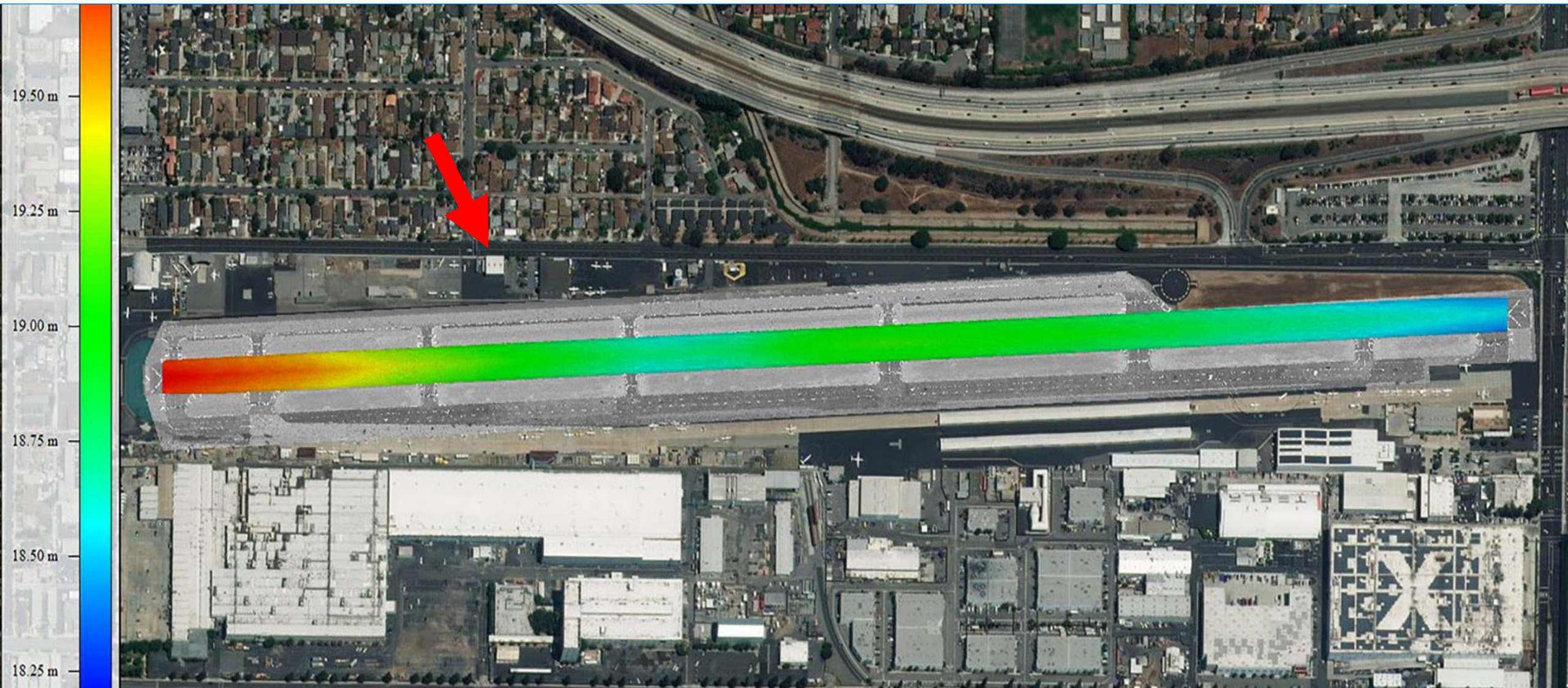
HAWTHORNE AIRPORT



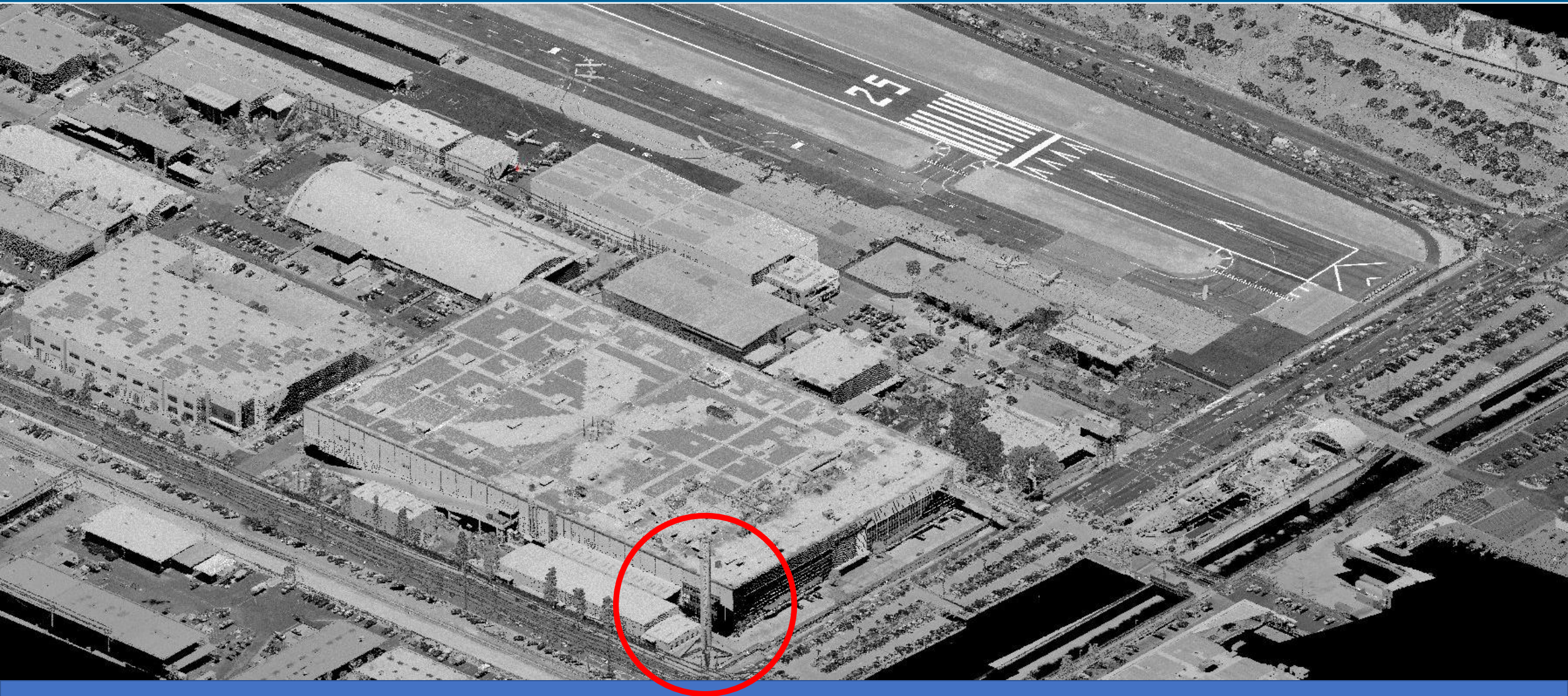
LAX

HHR

HAWTHORNE AIRPORT: 2D LIDAR ANALYSIS



HAWTHORNE AIRPORT: ENTERING THE 3D WORLD

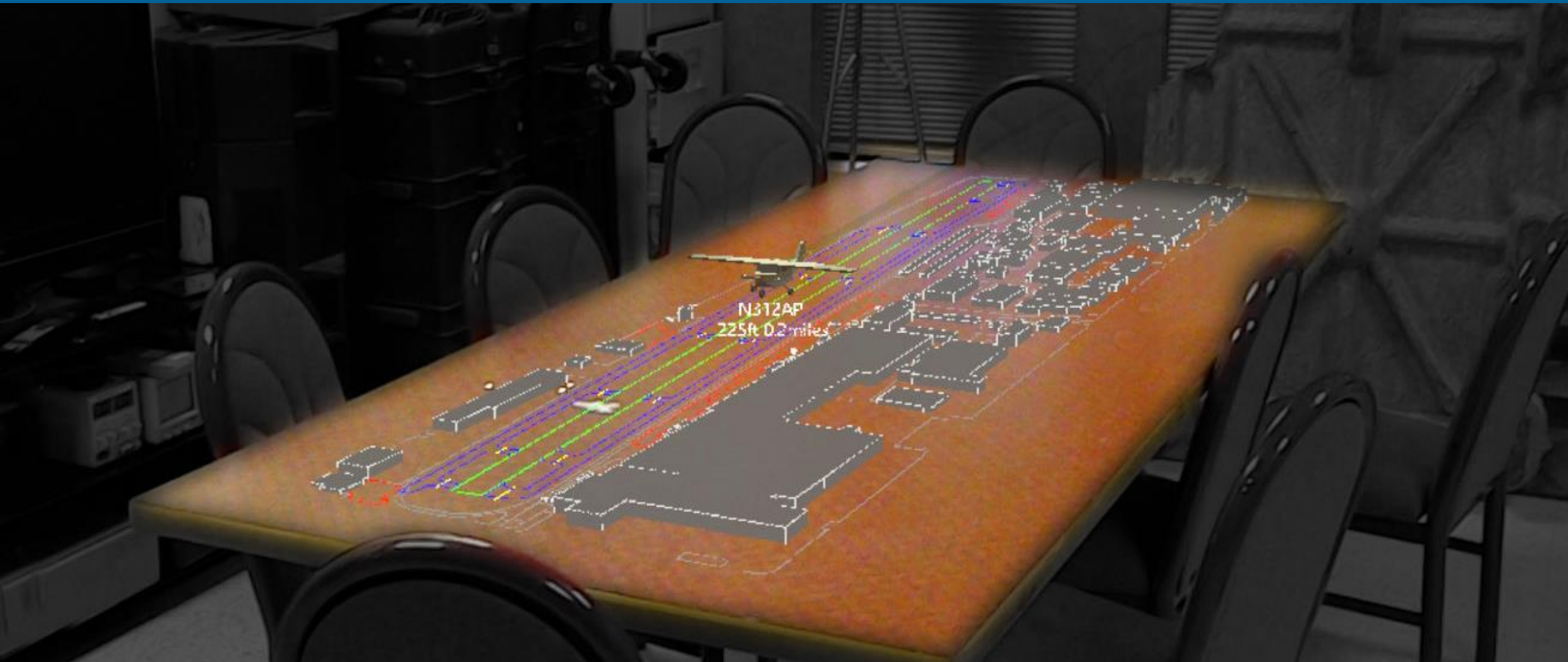


HKG: 3D MODEL WITHIN THE ENVIRONMENT



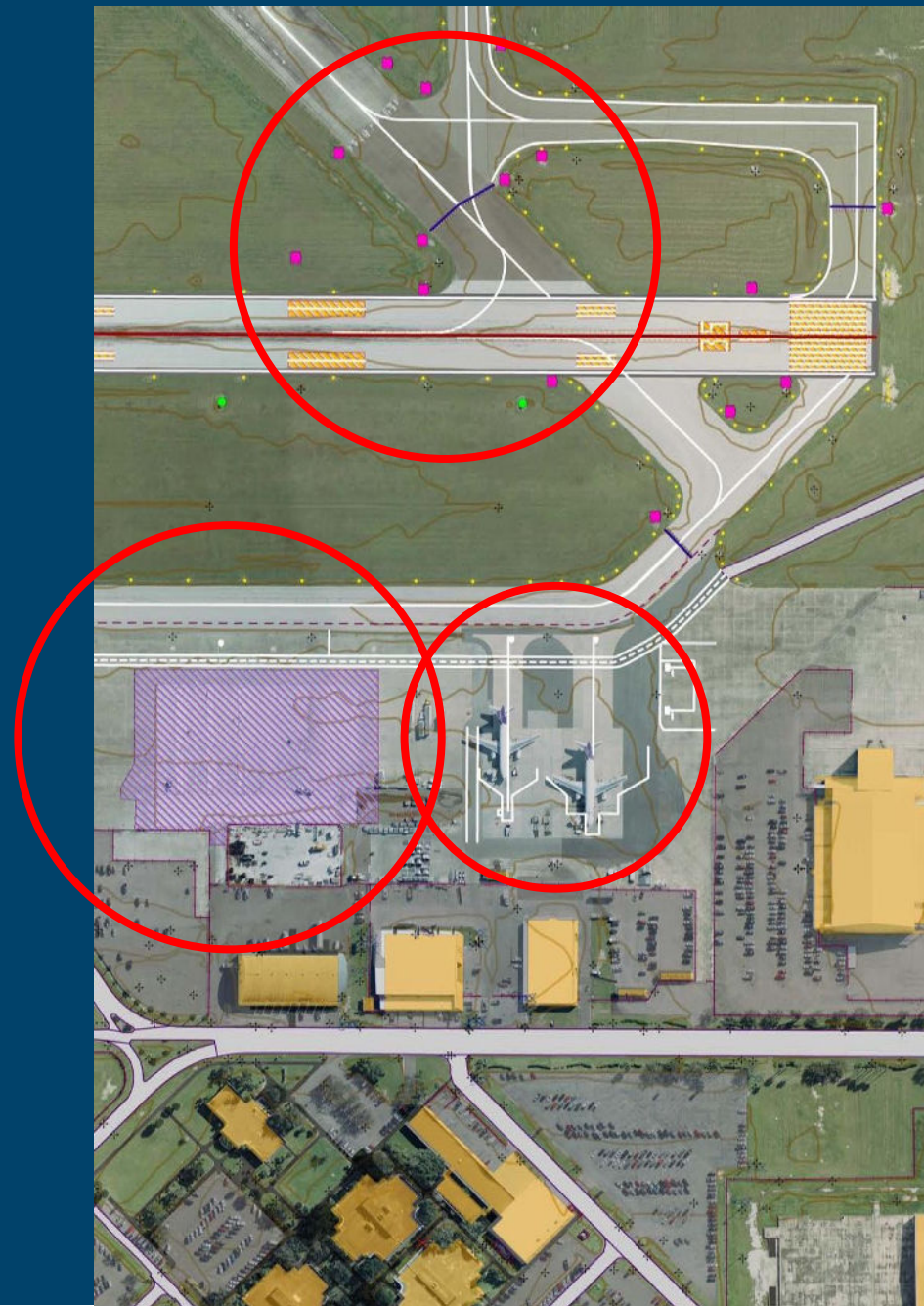
AUGMENTED REALITY FOR AIRPORTS

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AIRPORT MASTER PLANS & AIRPORT LAYOUT PLANS

- Planimetrics
- Imagery Acquisition
- Ground Survey
- Digital Orthophotography
- High-accuracy Base-mapss
- Airspace Analysis
- GIS Mapping & Attribution



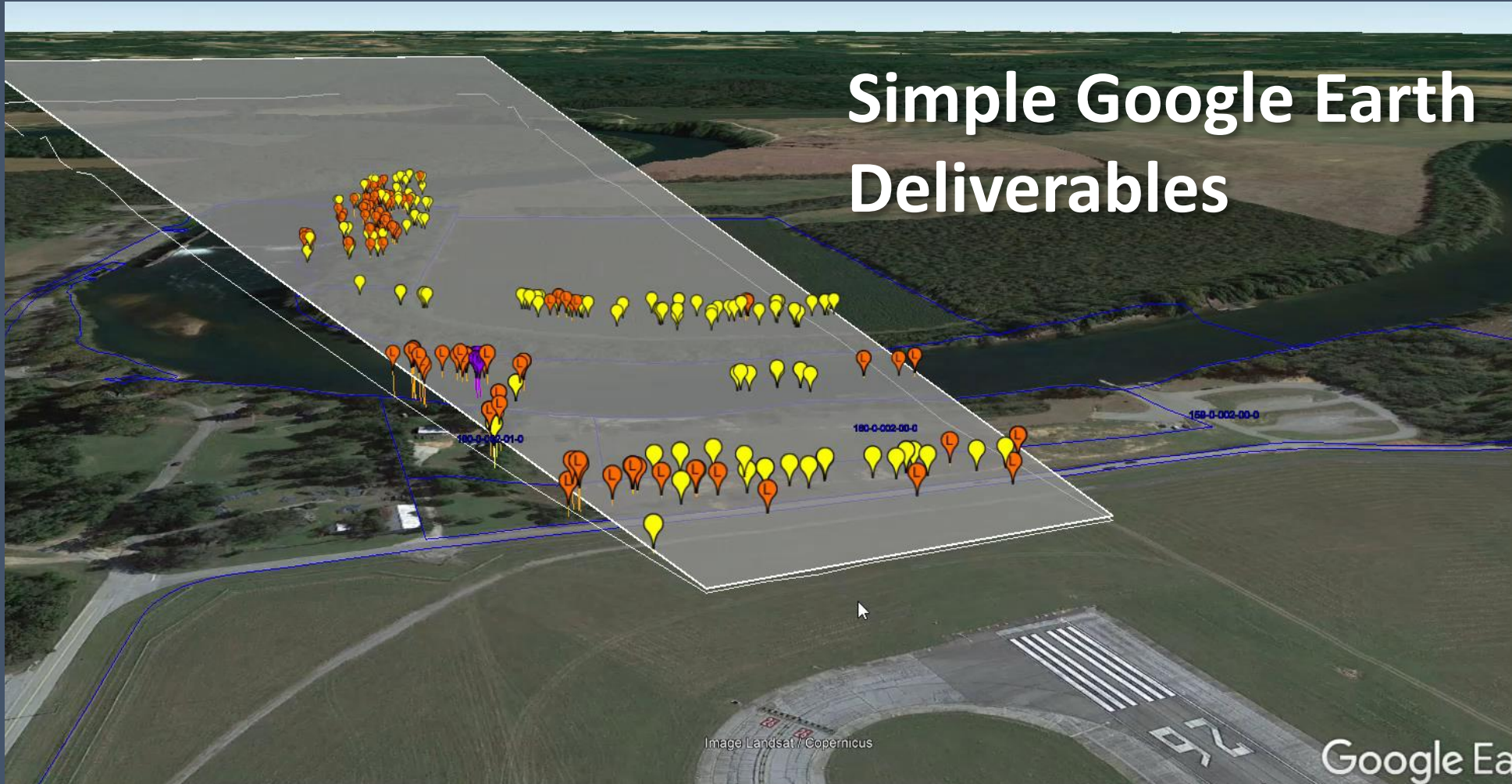
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OBSTRUCTION MANAGEMENT WITH LIDAR

- Vegetation management
- High accuracy
- Identify & measure obstructions
- Detailed contours
- GIS data

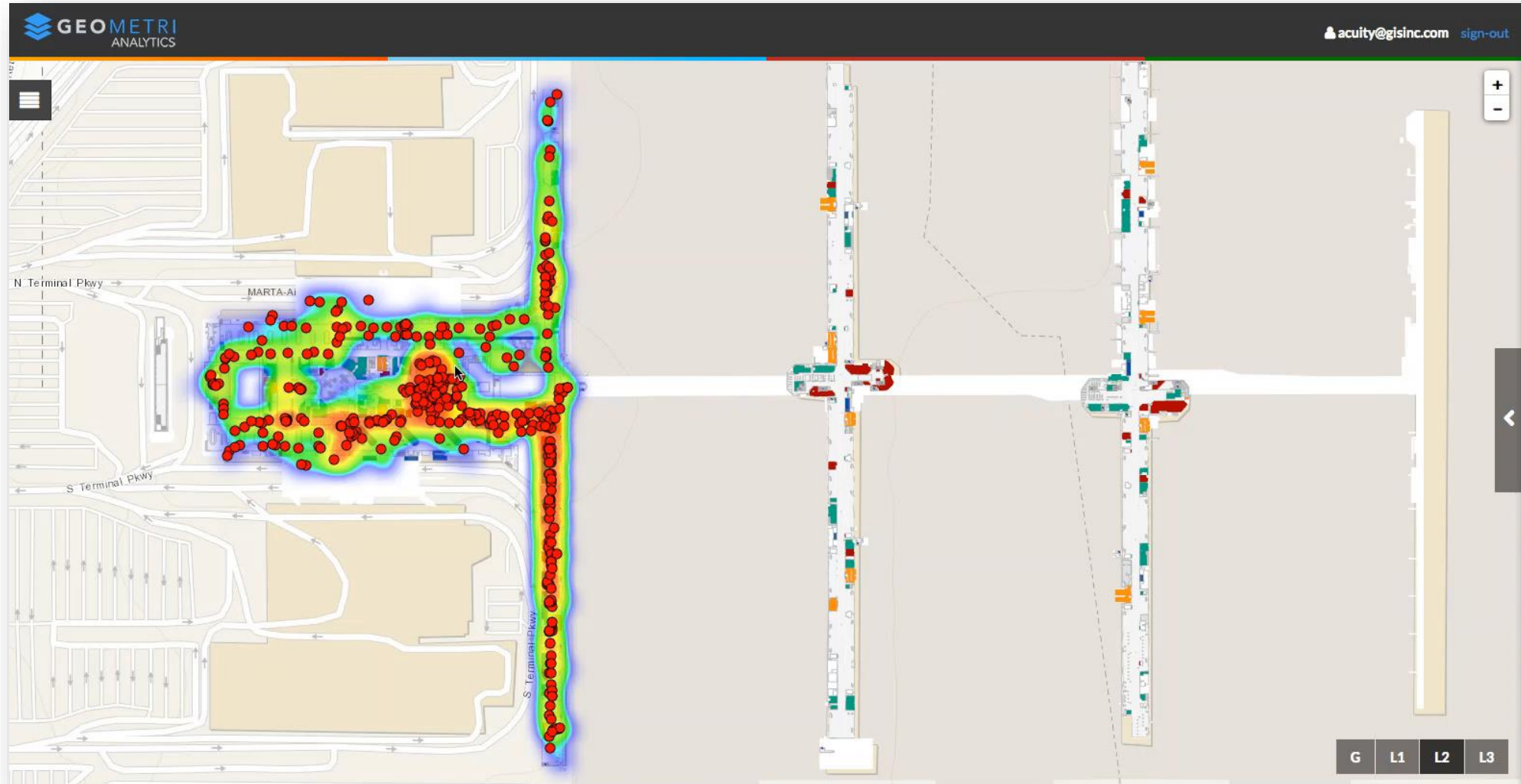


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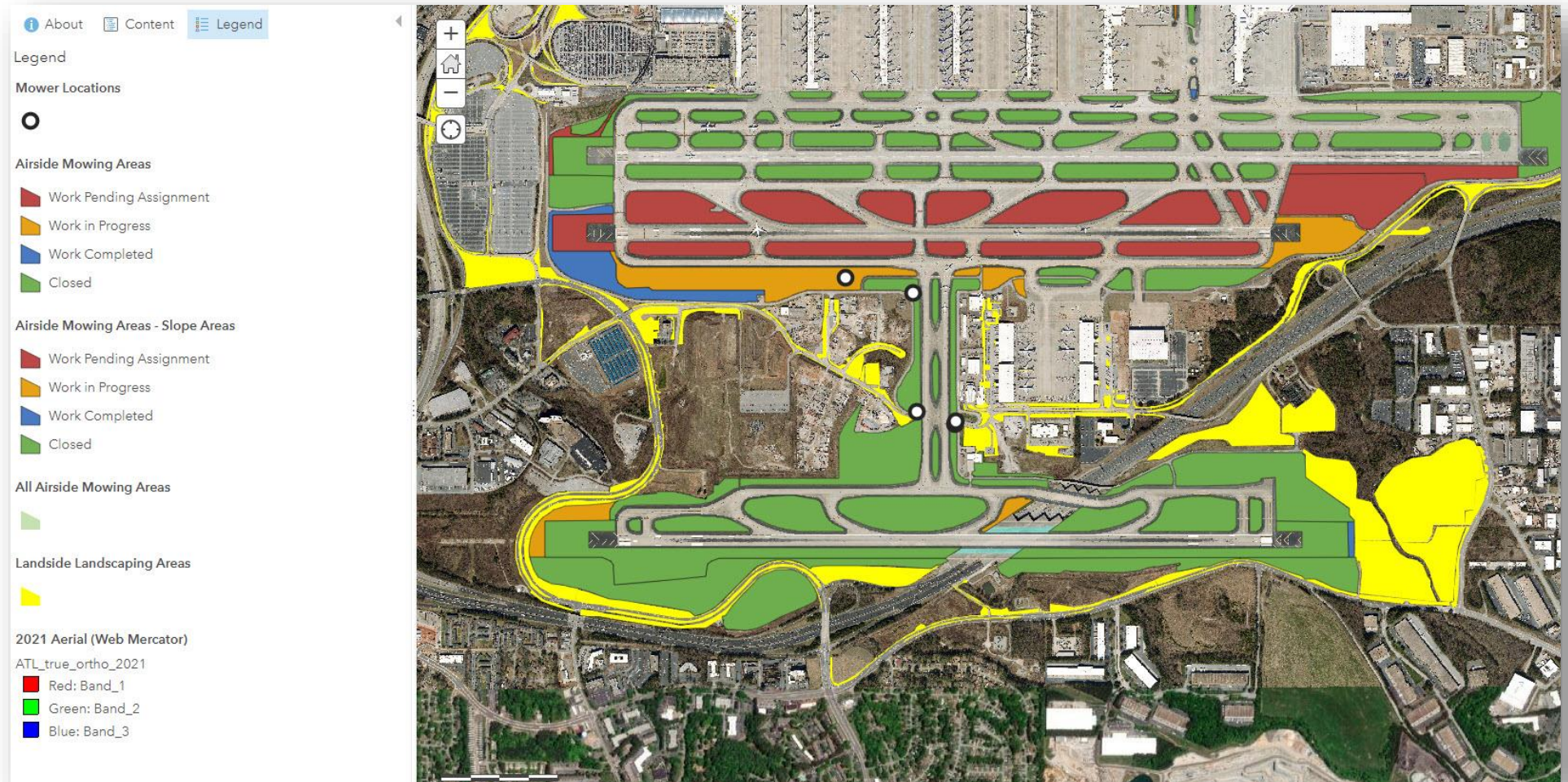
ATL – AIRPORT ENTERPRISE ASSET MANAGEMENT

- Enterprise GIS in the AWS Cloud
- Cityworks in the Cloud



ATL – AIRFIELD AUTOMATION & MANAGEMENT

- Real-time Tracking
- Auto Work Orders



- Choose partners thoughtfully – long term relationship
- Don't rush to buy shiny toys
- Line-item commitment. Budget for the long term.
- Build internal support
- **Higher resolution increases assessment options**
(if you can't see it, you can't assess it)
- Demonstrate return on investment:
 - Improve safety
 - Improve passenger experience
 - Create efficiency

THANK YOU!

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