Web3D

May 25, 2015

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What will we cover

- Introduction to AAM
- Describe 3D for the built environment
- Applications in 3D Smart Cities
- Describe 3D with points
- The 3D web experience

AAM experience

Geospatial services

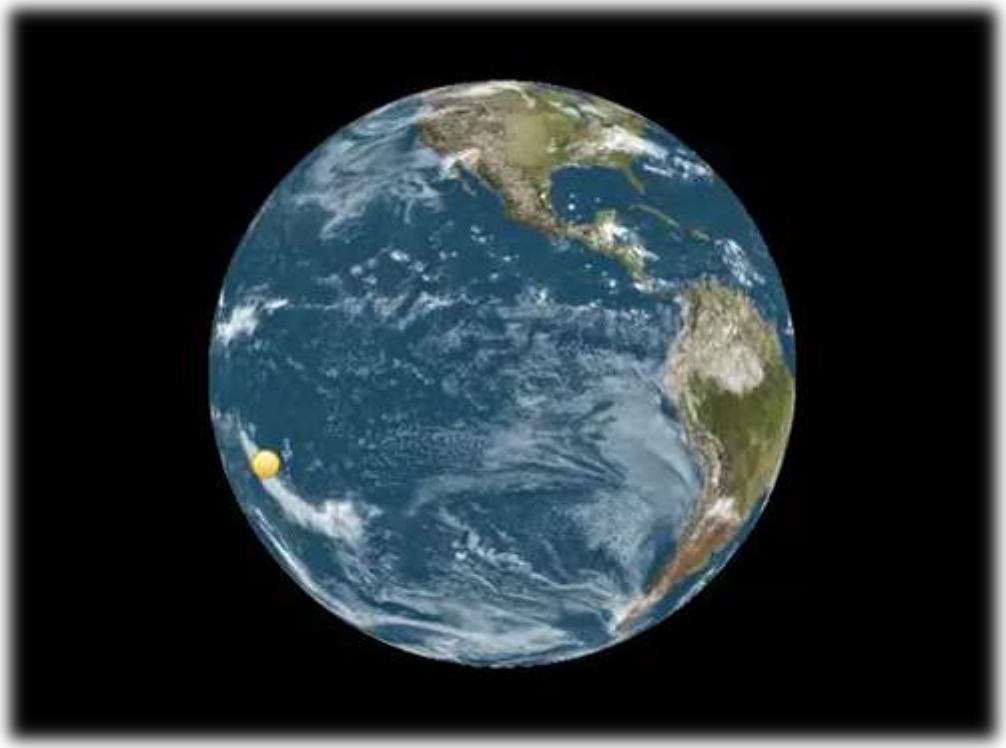
- Producer
- Provider
- Platform

geoCirrus

GeoExtra™
Geospatial Digital Content

K2Vi
key to virtual insight

Geocortex®



DESCRIBING 3D IN THE BUILT ENVIRONMENT

3D is more than visualisation

OGC Levels of Detail

OGC adopted CityGML

- as open data model
- for storage and exchange
- of virtual 3d city models
- to facilitate a higher level of data interoperability

OGC Levels of Detail

CityGML is

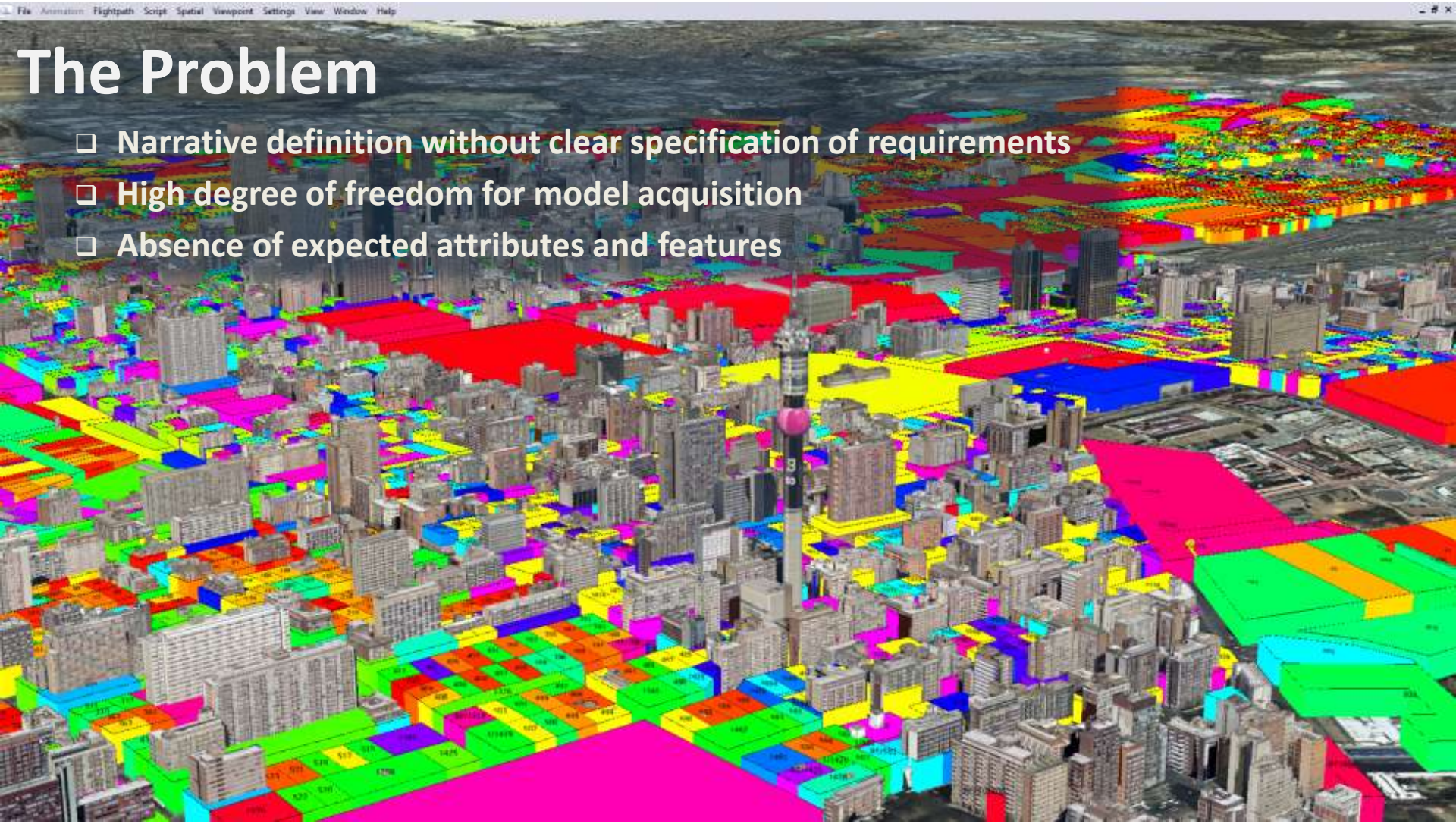
- an imprecise standard with
- varied 3D modelling techniques
- made for a range of users
- made for a range of hardware
- made for a range of software
- and data formats

OGC Levels of Detail

Which leads to

- challenging procedural generation
- varied data integration and interoperability
- perplexing exchange format
- And a large amount of storage

Problems with LOD's

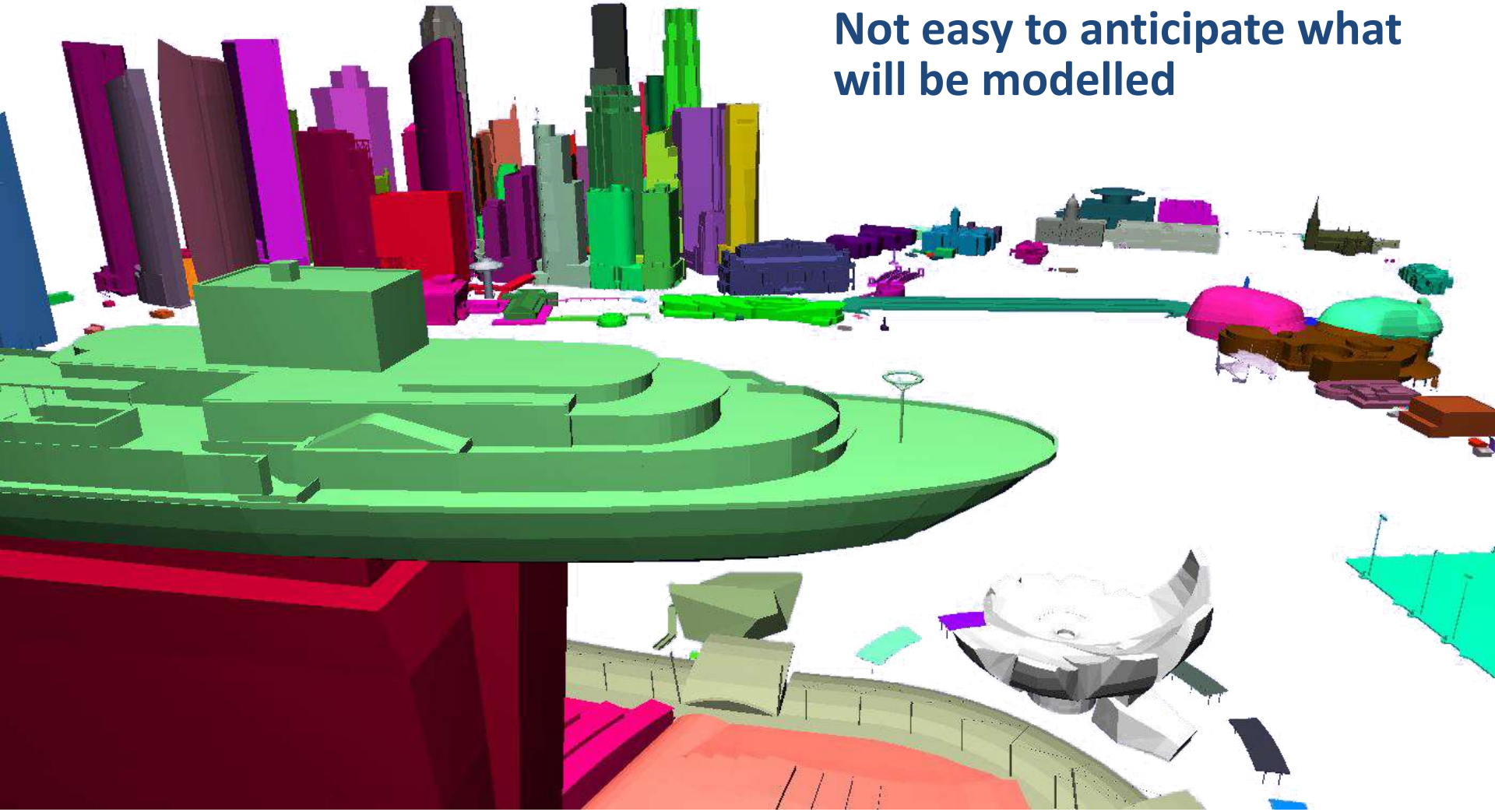


Application of LOD's

Which results in

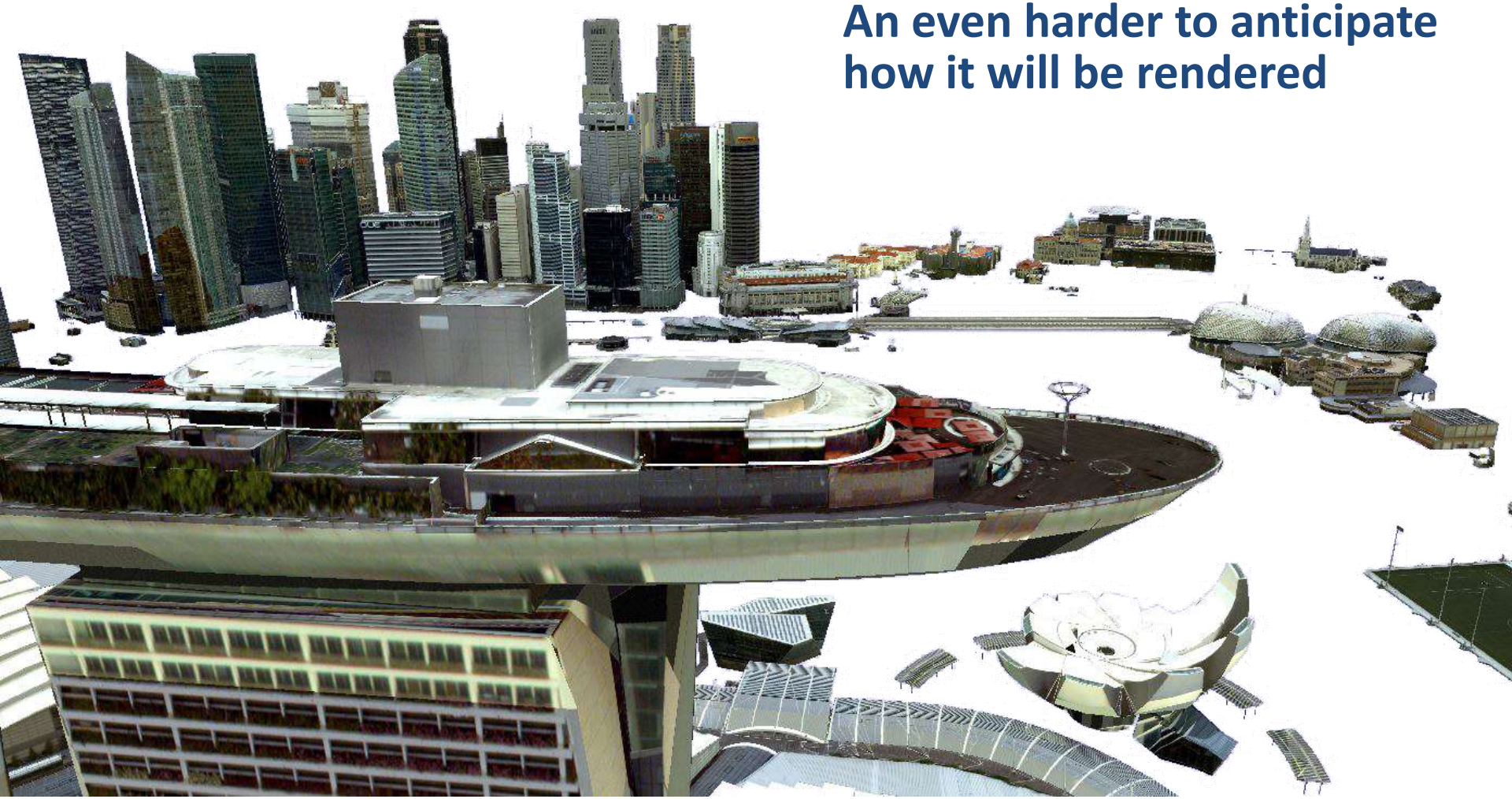
- data not fit for purpose
- variations making it illogical for an exchange format
- being difficult to estimate and compare costs
- LOD not granular enough to describe model to either expectation or need

LOD and Complex geometry



Not easy to anticipate what will be modelled

LOD and Complex geometry



An even harder to anticipate how it will be rendered

LOD and Complex geometry

LOD Model options

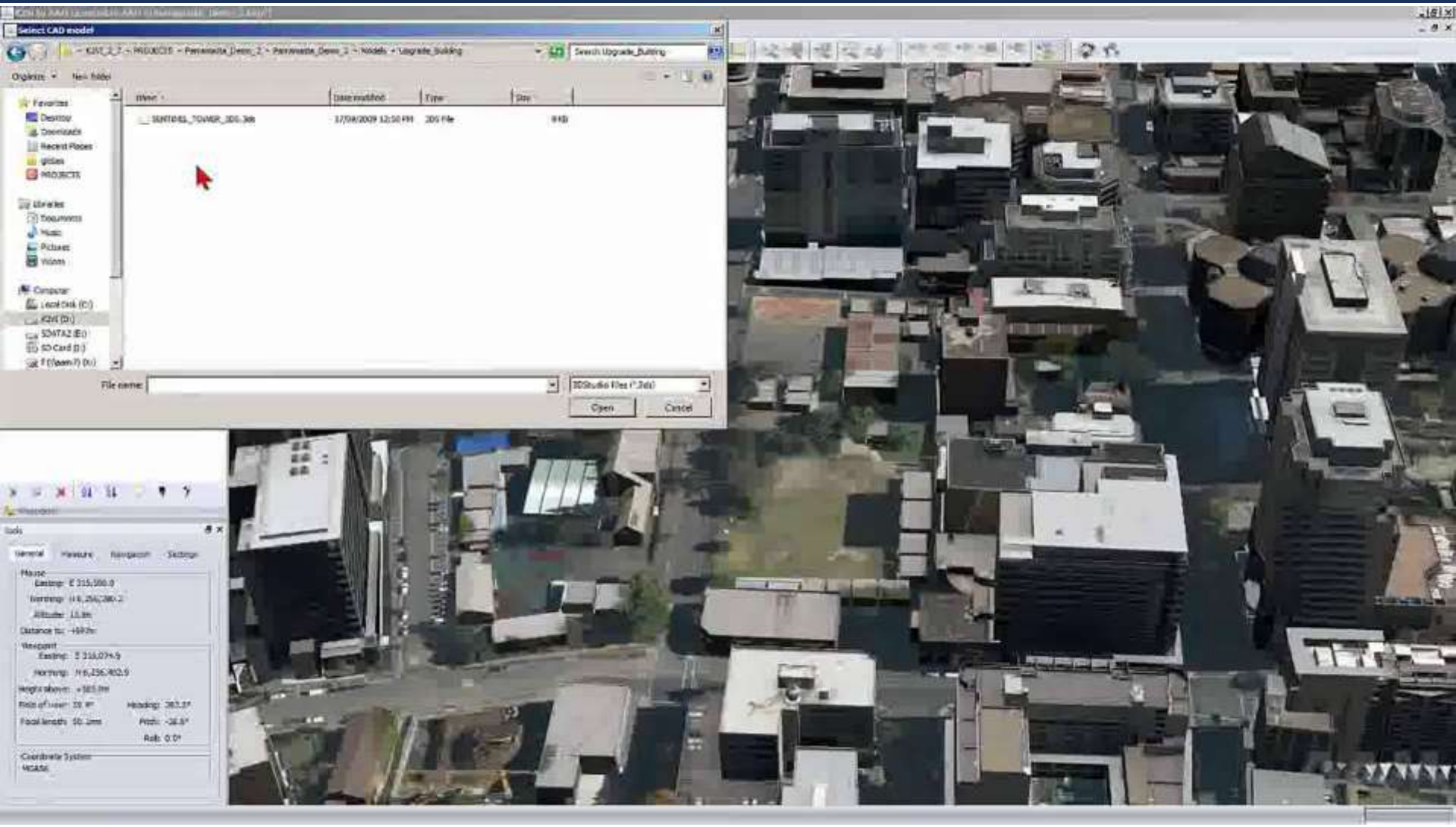
APPLICATIONS IN 3D SMART CITIES

Applied 3D in Smart Cities

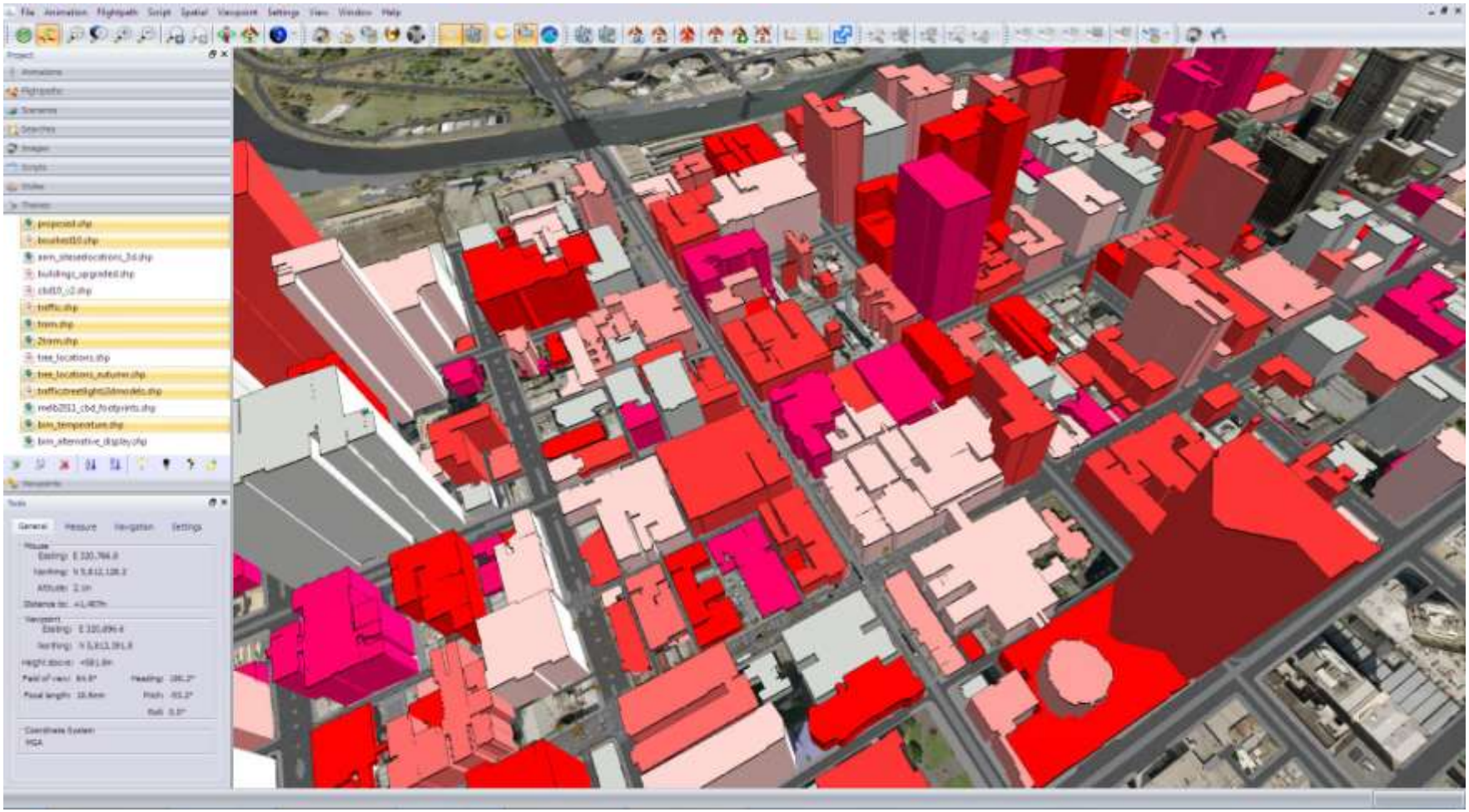
- Planning process reforms, such as
  - From Assessment to Compliance
  - Zoning changes – number of storeys
  - 3D GIS Tools to define proposed building envelopes

- Visual assessment – Workflows
  - “can it be seen from here”
  - Planning and design
  - 3D GIS tools to test assumptions and decisions

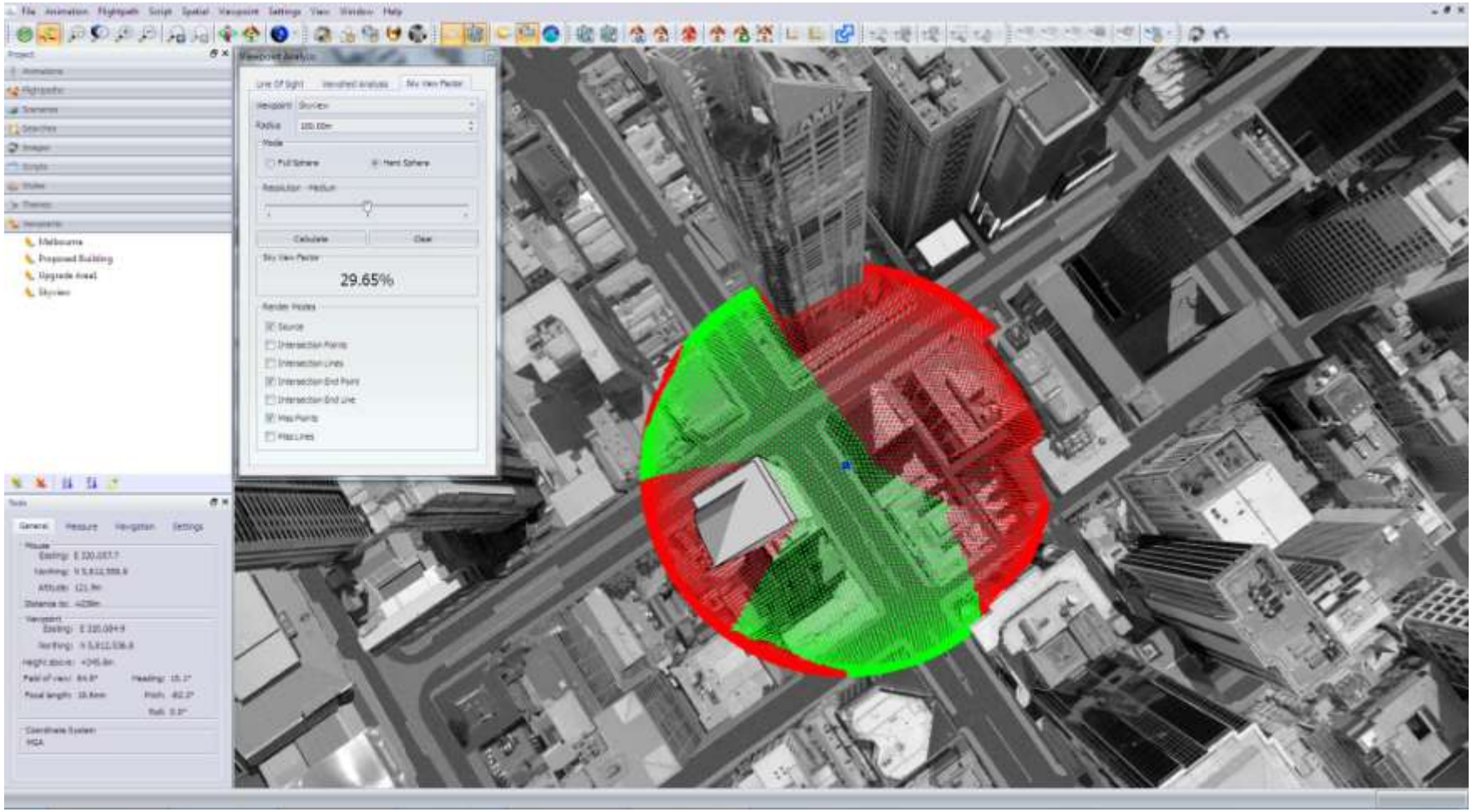
Planning assessment



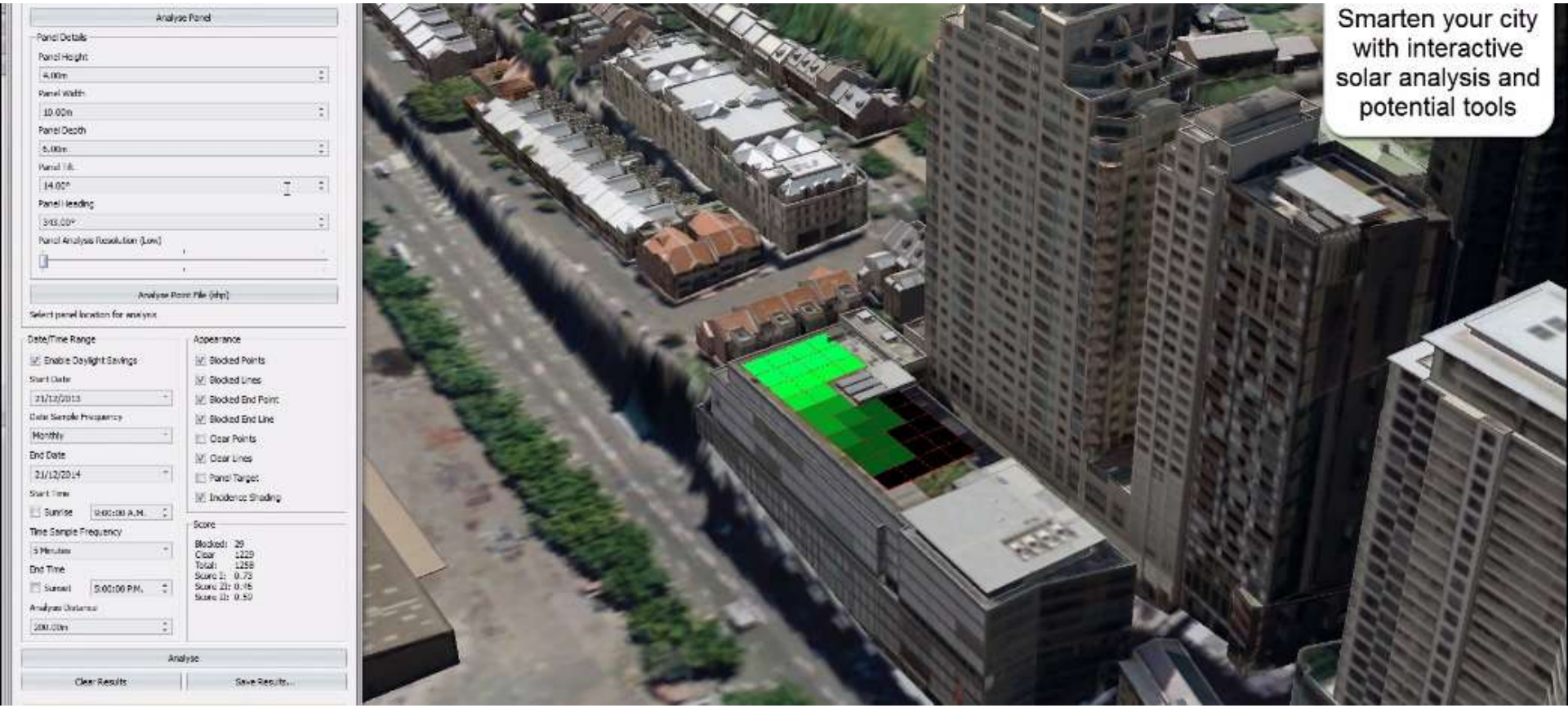
Thematic display of building energy data



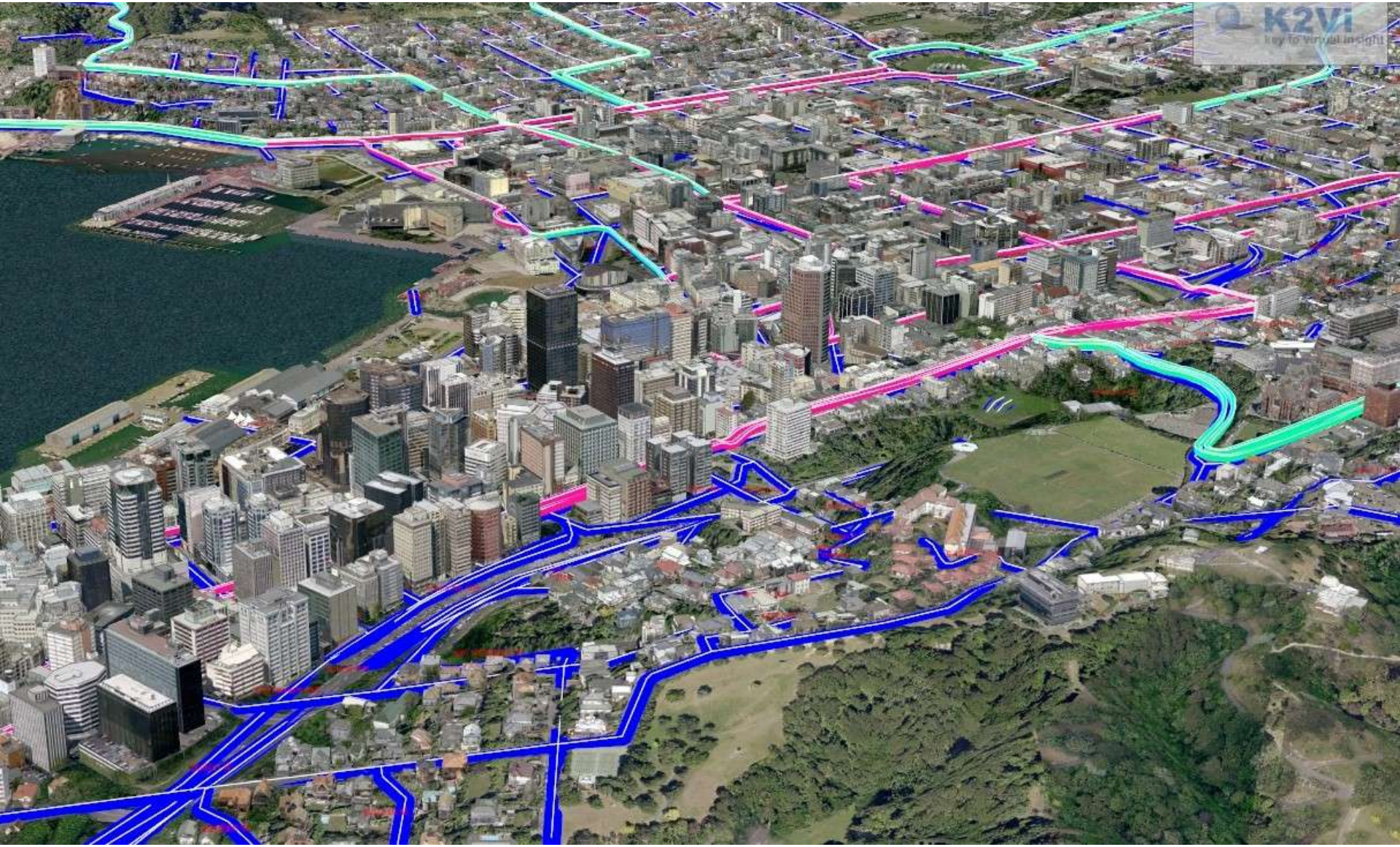
Solar Potential Assessment tools



Solar PV Mapping and Array Siting

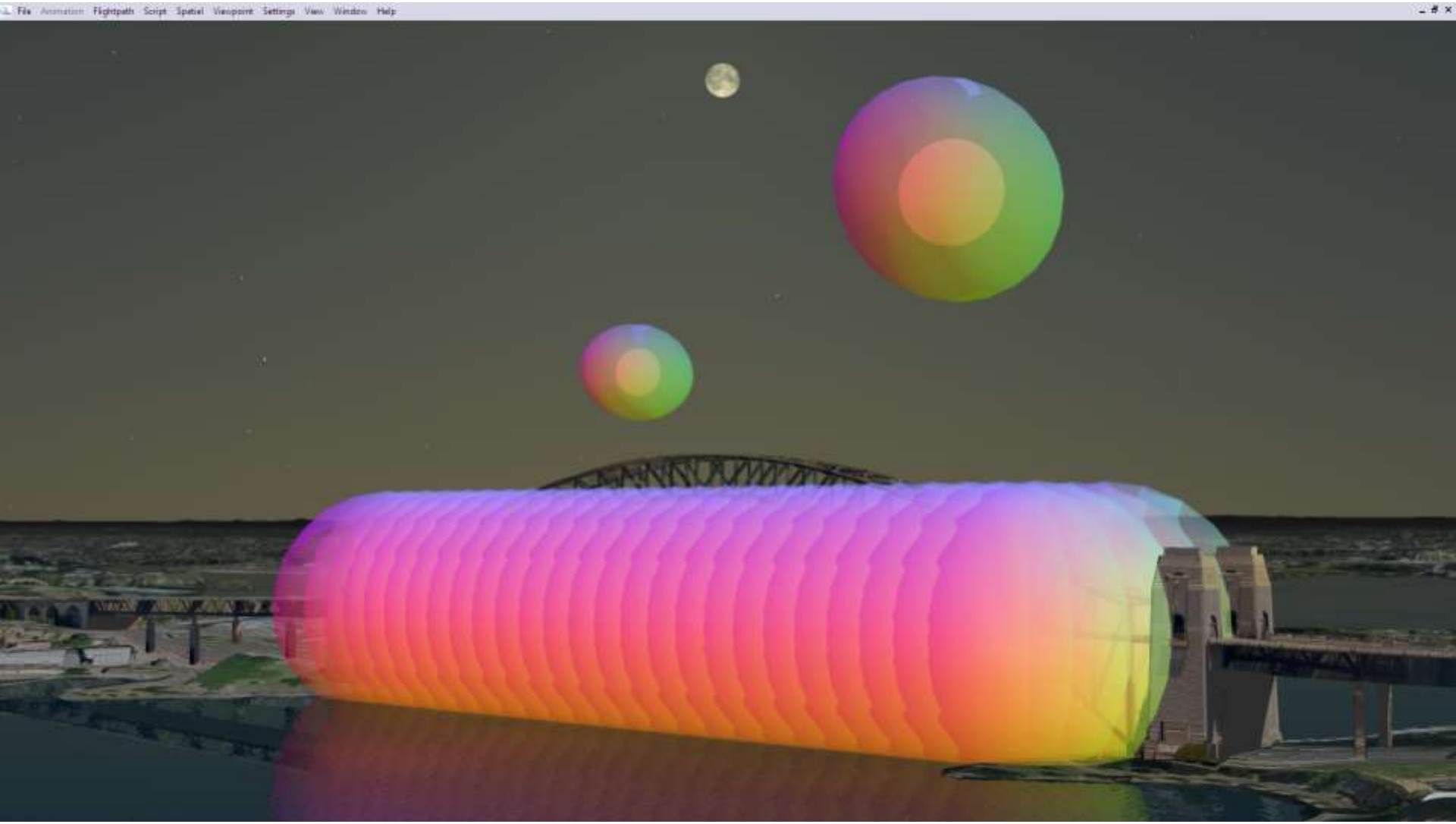


Transport planning

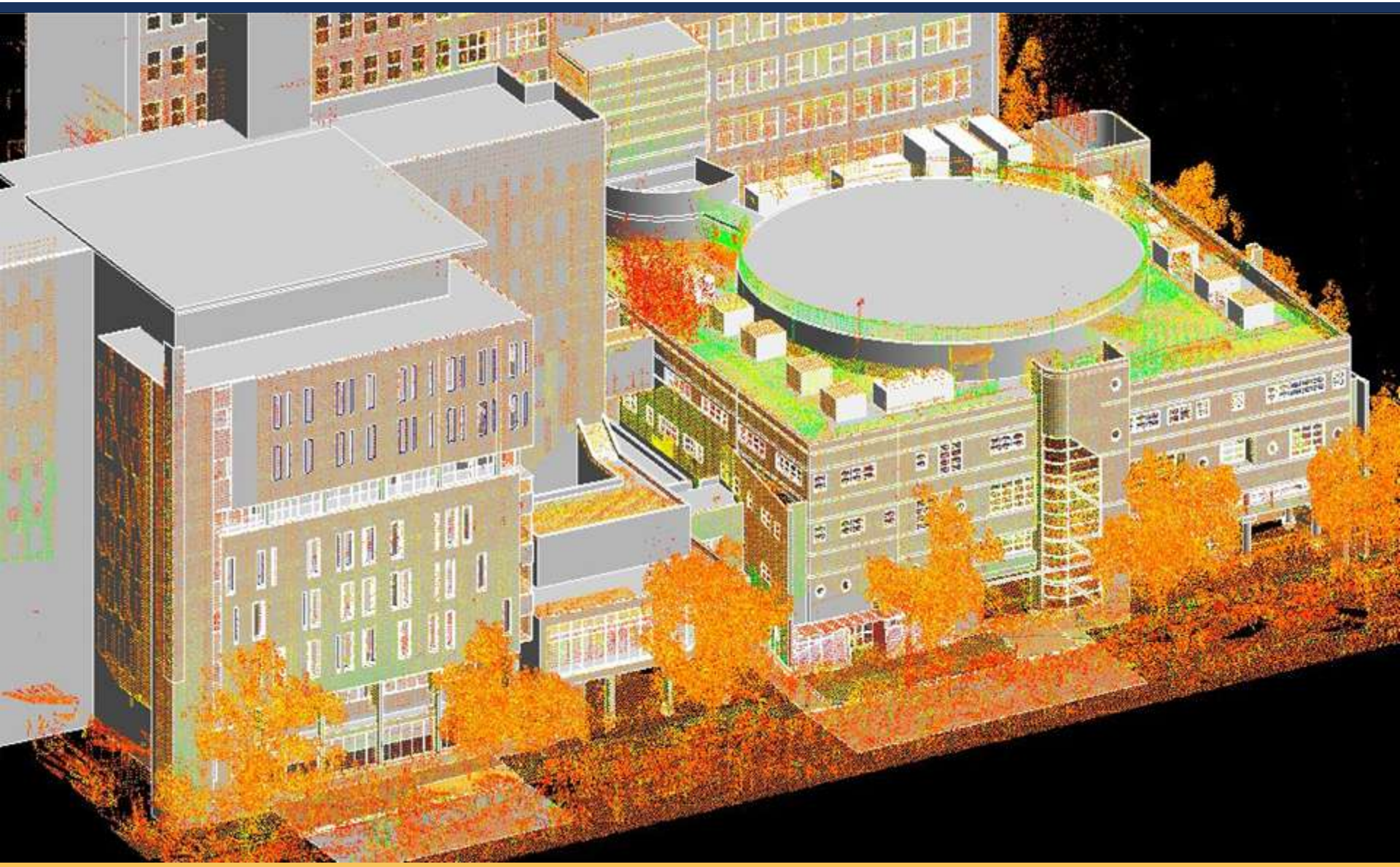


Flood inundation

Fireworks safety planning



BIM data integration

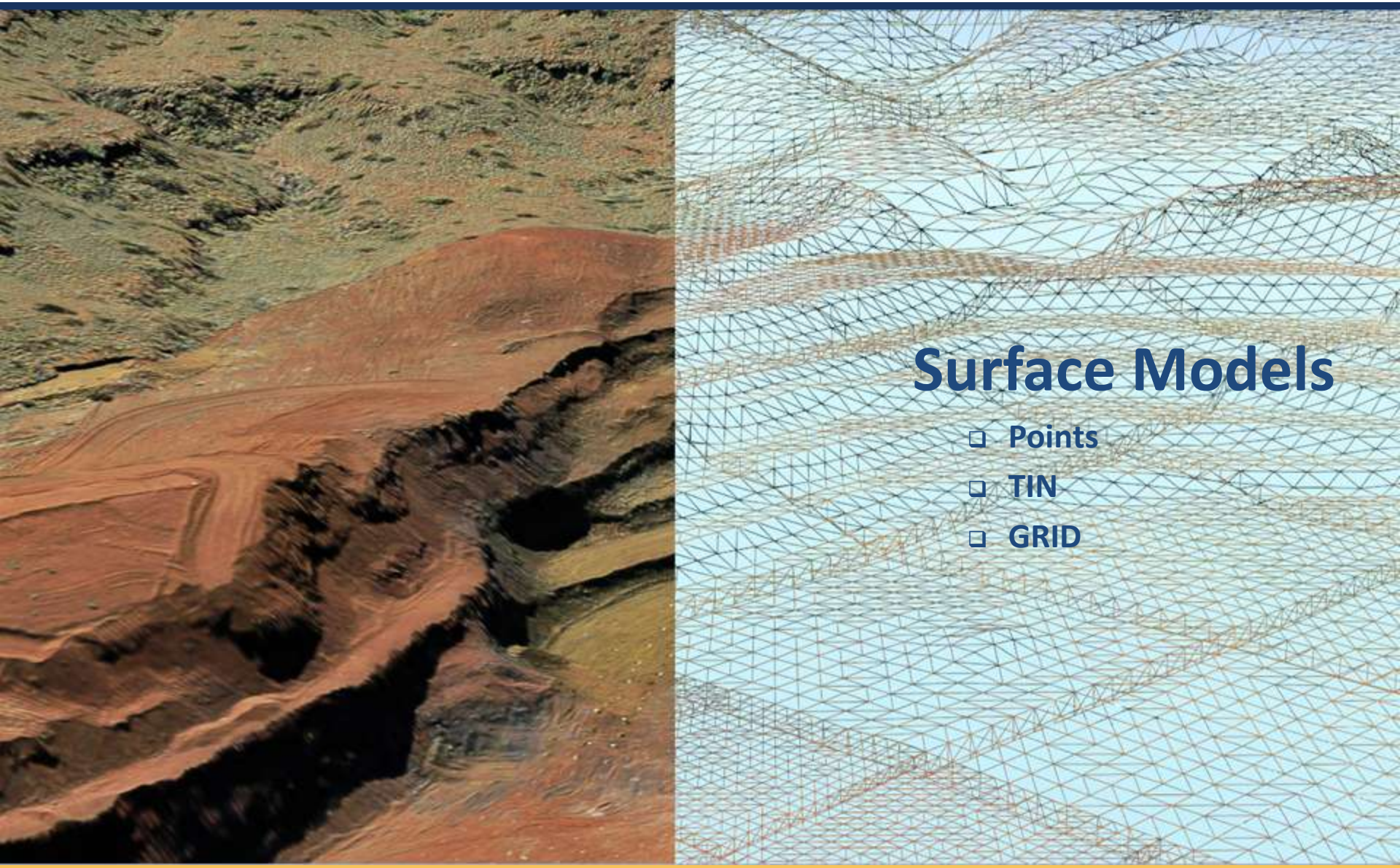


Community consultation

- Development of BIM for use as foundation for redevelopment project
- Requires information on Fly-overs, pedestrian and road access ways
- Performed discretely and with minimal impact to public

DESCRIBING 3D WITH POINTS

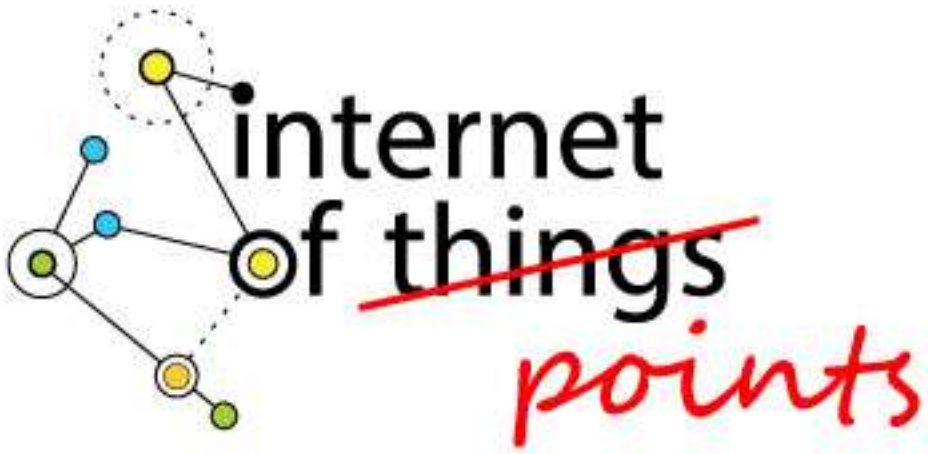
Other 3D representations



Surface Models

- Points
- TIN
- GRID

Internet of points



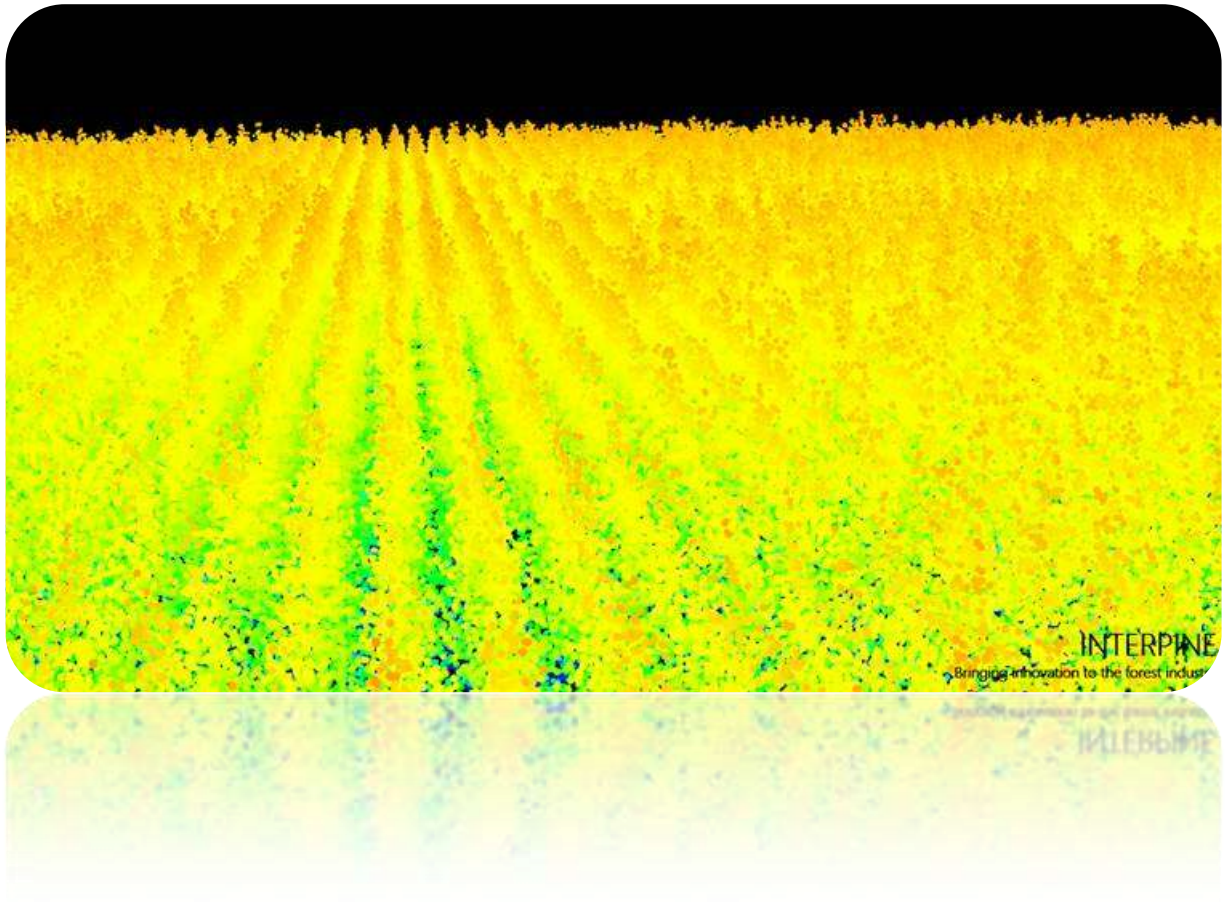
Other 3D representations

The Internet of Points

- Delivering x y and Z requires bandwidth and graphics
- Indexing, Indexing, and more Indexing

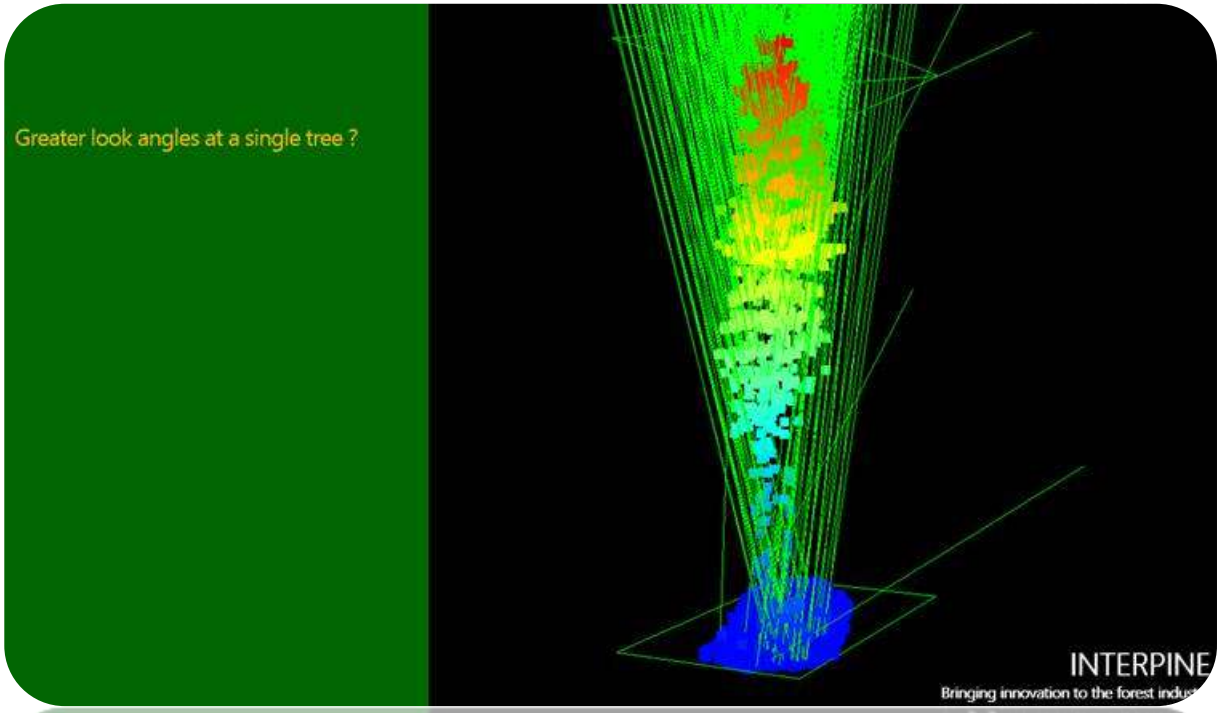
Indiscrete point cloud

- Take the example of Dense LiDAR of forest cropping stock
- How do we describe a single tree



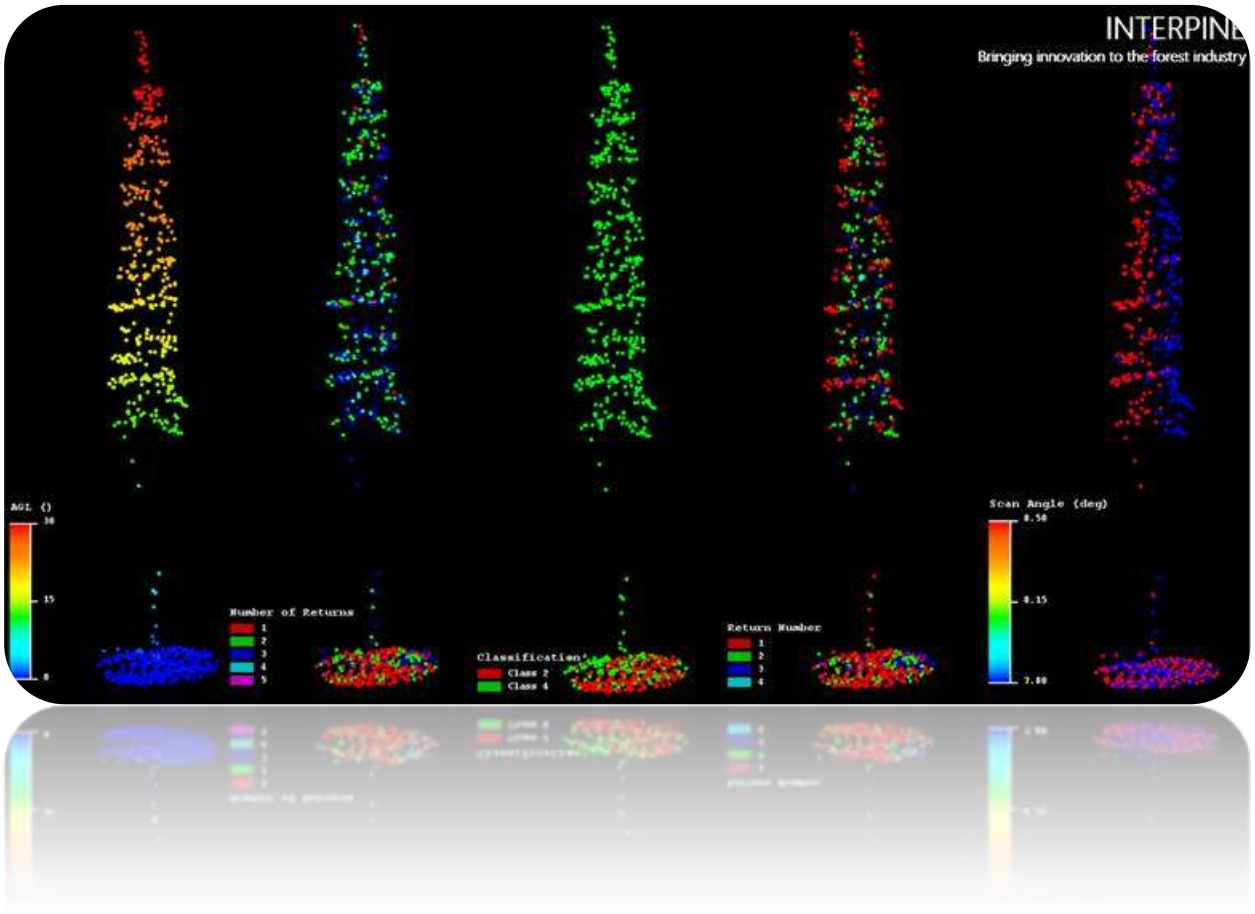
Discrete point cloud

- With a 50% overlap and dual scanner heads we get to see the trees from all sides



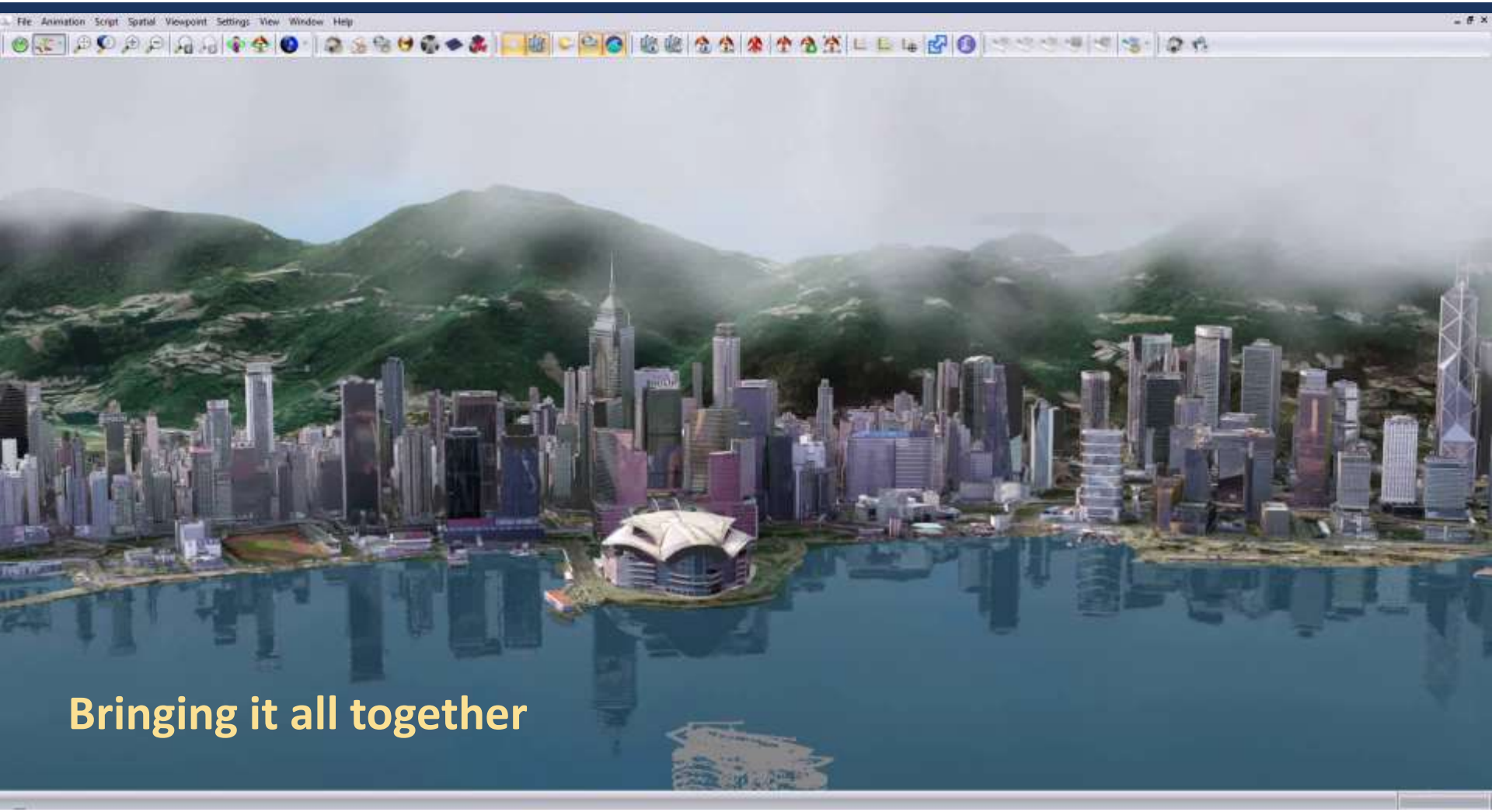
Applications of the discrete point cloud

- The outcome of single tree cropping stock



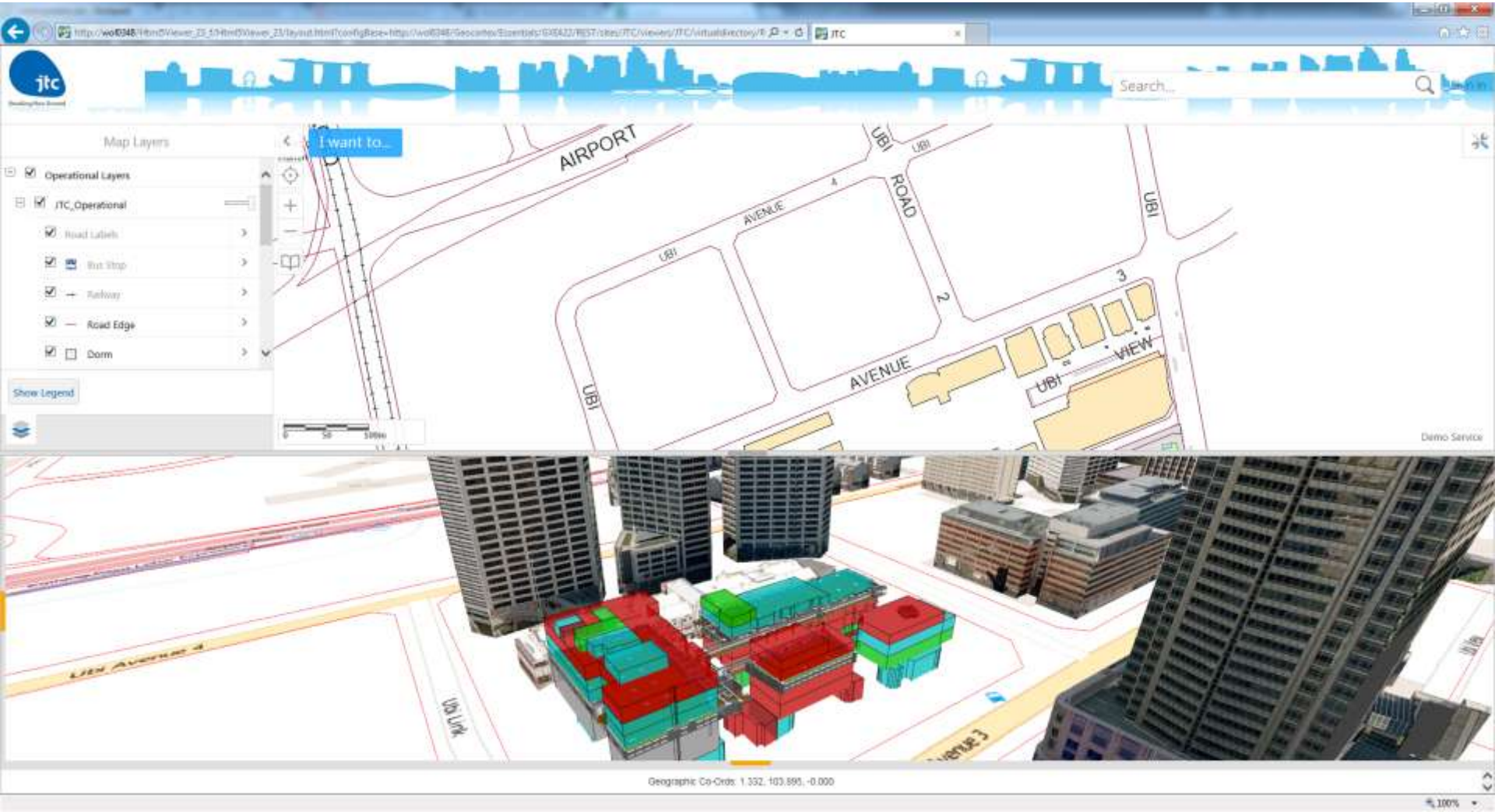
Describing built environment

Combining geometry and points



THE 3D WEB EXPERIENCE

AAM WEB 3D


jtc
Search...
Map Layers
I want to...
Operational Layers
JTC_Operational
Road Labels
Bus Stop
Railway
Road Edge
Dorm
Show Legend
AIRPORT
UBI
AVENUE
ROAD
VIEW
Demo Service
Geographic Co-Ords: 1.332, 103.895, -0.000

AAM WEB 3D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Search...
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I want to...
ROAD
AVENUE
Demo Service
Viewpoints
Layers
L4_Room3
L4_Room2
L4_Room1
AAM_3d_Models
Scenarios
Navigation
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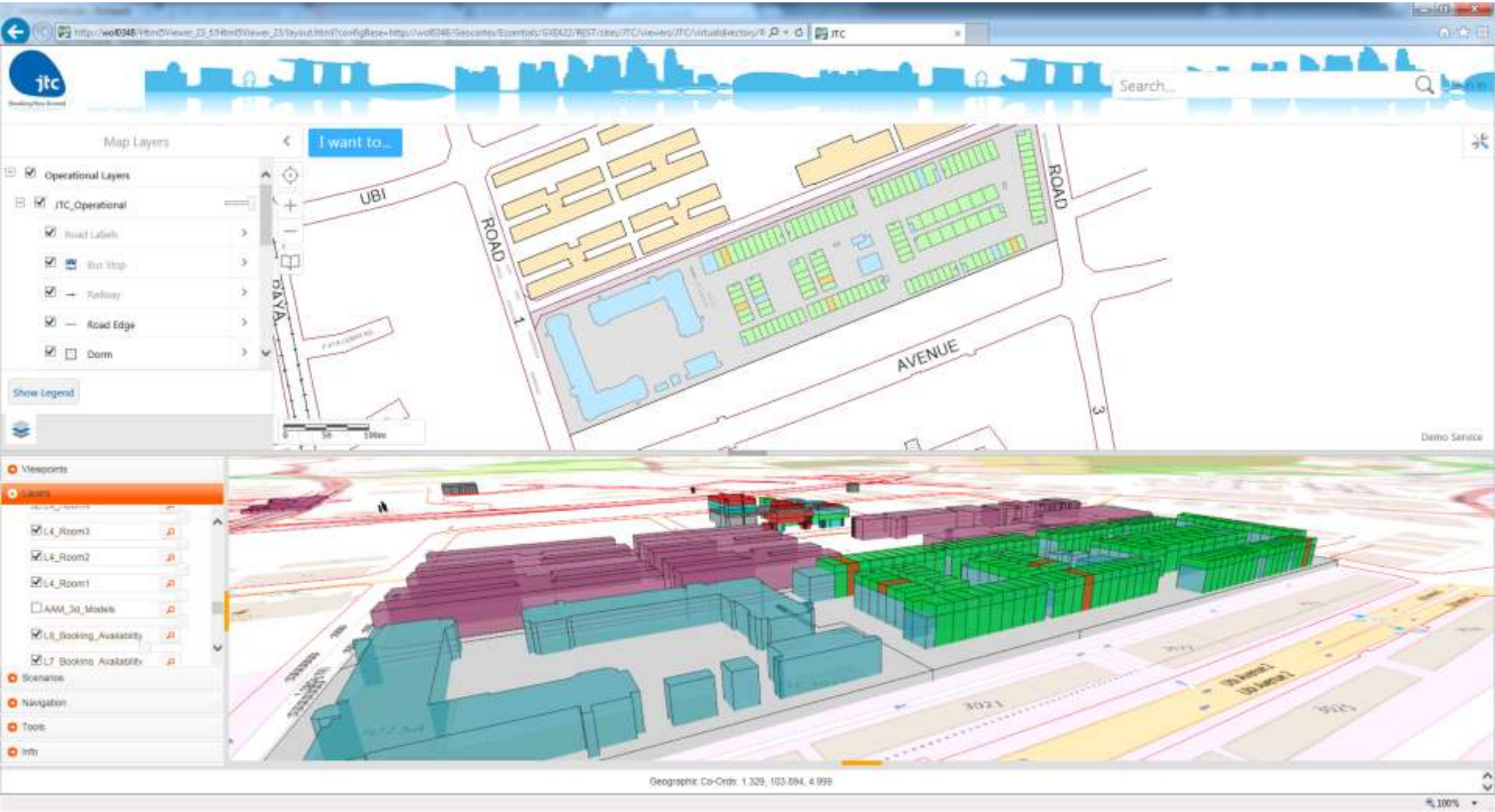
AAM WEB 3D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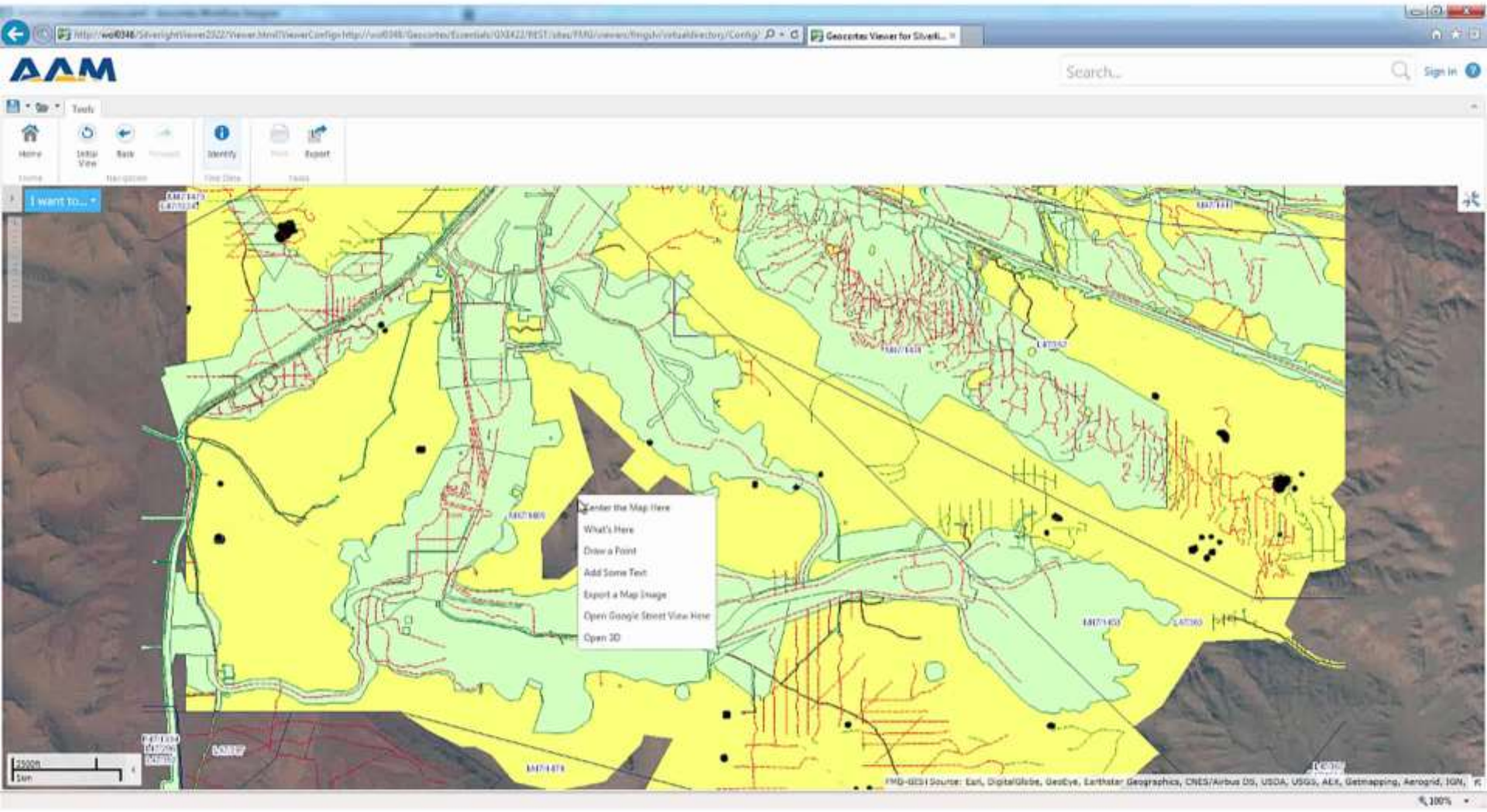
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Initial View
Back
Identify
Export
I want to...
Center the Map Here
What's Here
Draw a Point
Add Some Text
Export a Map Image
Open Google Street View Here
Open 3D


Thank you