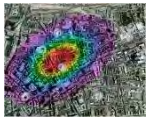
Geoscape

Capturing Australia's built environment

Michael Dixon

November 2016

Introducing PSMA



ACT Government
Queensland Government
Tasmanian Government
NSW Government Land & Property Information
Government of South Australia Department of Environment, Water and Natural Resources
Northern Territory Government
Landgate
State Government Victoria Department of Environment, Land, Water & Planning

aerometrex

Australian Government

DigitalGlobe

PSMA AUSTRALIA

Data Custodians

Collect → Standardise → Integrate → Extract → Deliver

Interactive systems availability

CGI

geometry

Solution Providers

PSMA Australia

Our Purpose

"To provide our customers with the core location related content they need and in a way that enables them to effortlessly improve their business."

What is Geoscape?

Geoscape

- A digital dataset
- A national (spatial) representation of Australia's built environment, including…
- Buildings and related building characteristics
- Solar Panels, Swimming Pools
- Surface cover
- Linkages to other data
- More…

Why Geoscape?

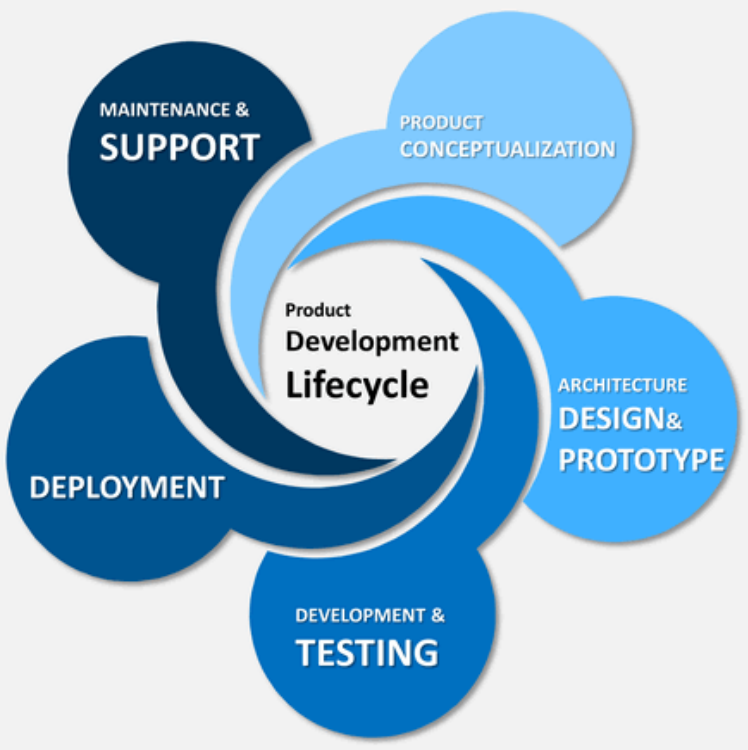
2.7m km of road centreline
Rail and air infrastructure
Hydro layer
Greenspace layer

14m cadastral polygons
10m property polygons
Land Tenure

13.5m addresses
0.5m alias addresses
95% geocoded at an address level

Why Geoscape?

Geoscape Development Path



Emergency Services

Telecommunications

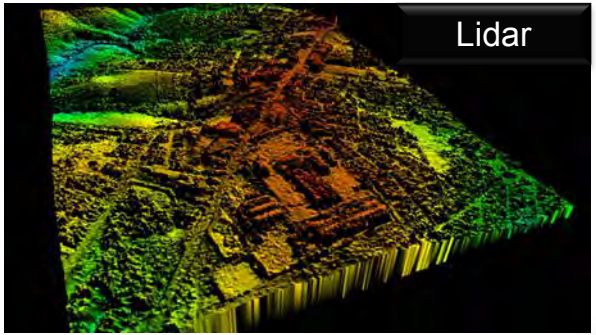
Utilities

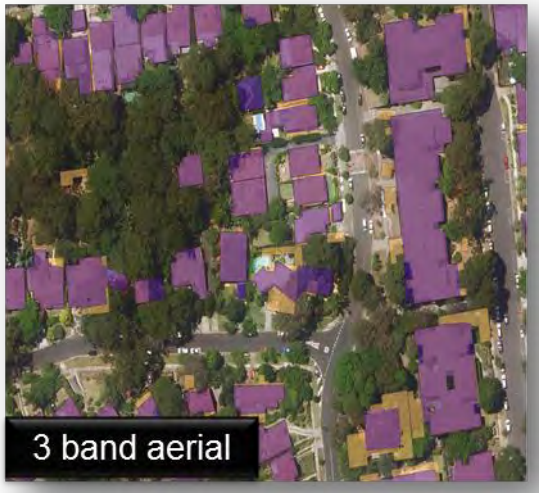
Insurance

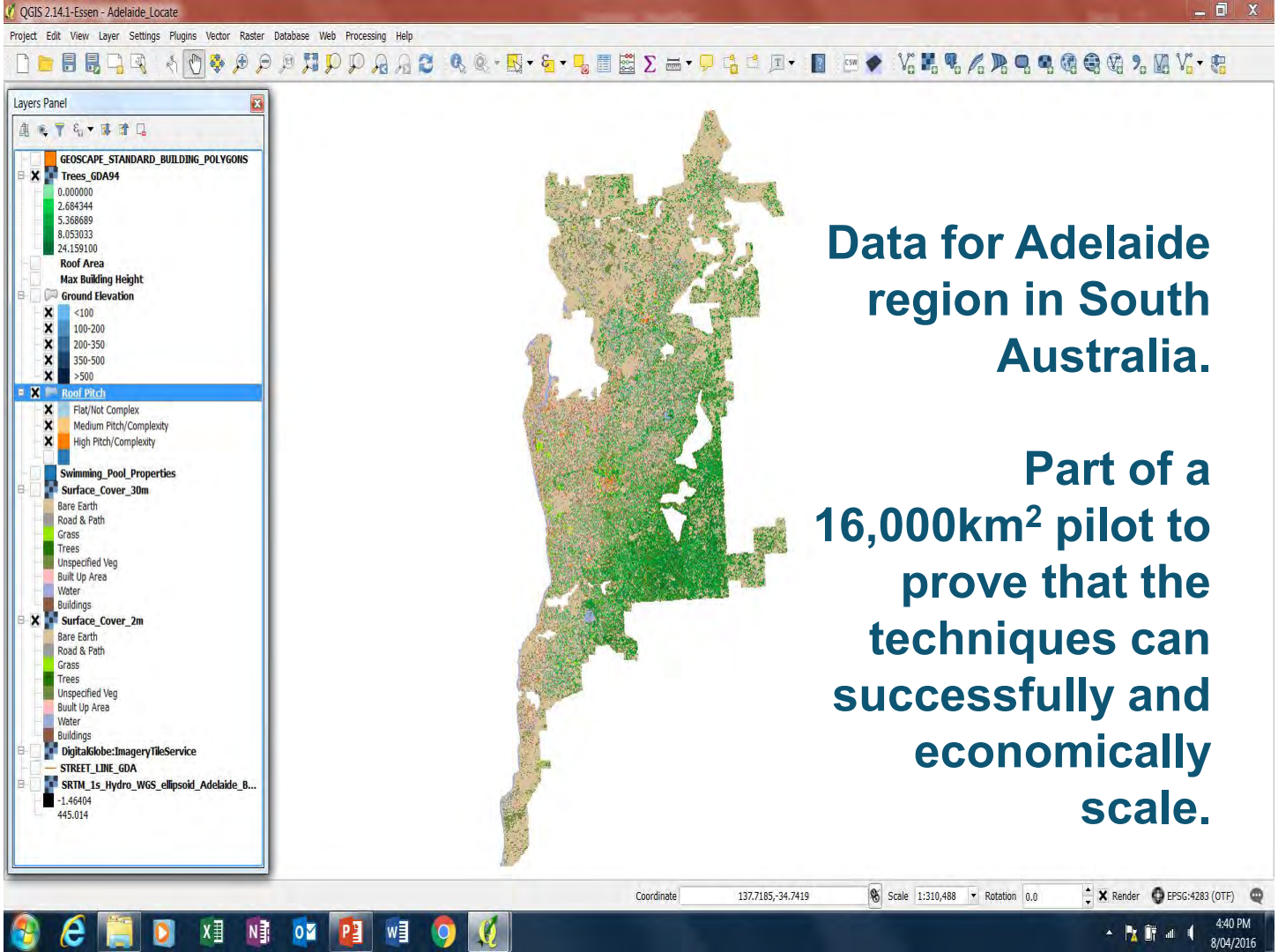
Government Policy & Service Delivery

Real Estate

Prototyping Capability






QGIS 2.14.1-Essen - Adelaide_Locate
Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help
Layers Panel
GEOSCAPE_STANDARD_BUILDING_POLYGONS
Trees_GDA94
0.000000
2.684344
5.368689
8.053033
24.159100
Roof Area
Max Building Height
Ground Elevation
<100
100-200
200-350
350-500
>500
Roof Pitch
Flat/Not Complex
Medium Pitch/Complexity
High Pitch/Complexity
Swimming_Pool_Properties
Surface_Cover_30m
Bare Earth
Road & Path
Grass
Trees
Unspecified Veg
Built Up Area
Water
Buildings
Surface_Cover_2m
Bare Earth
Road & Path
Grass
Trees
Unspecified Veg
Buult Up Area
Water
Buildings
DigitalGlobe:ImageryTileService
STREET_LINE_GDA
SRTM_1s_Hydro_WGS_ellipsoid_Adelaide_B...
-1.46404
445.014
Data for Adelaide region in South Australia.
Part of a 16,000km² pilot to prove that the techniques can successfully and economically scale.
Coordinate 137.7185,-34.7419
Scale 1:310,488
Rotation 0.0
Render
EPSG:4283 (OTF)
4:40 PM
8/04/2016

Geoscape

Geoscape

Buildings and Feature Linkages

- Polygon
- Roof area
- Roof pitch/complexity
- Ground level coordinates for roof vertices
- Number of roof vertices
- Ground level building centroid
- Maximum roof height
- Swimming pool indicator
- Roof material
- Solar panel indicator
- Residential land use indicator
- Feature level quality information

Landcover

- Impervious surfaces
  - *Built up areas*
  - *Road and path*
  - *Bare Earth*
  - *Buildings*
- Vegetation
  - *Tree coverage*
  - *Grass coverage*
  - *Unspecified vegetation*
- Water

Related Property Information

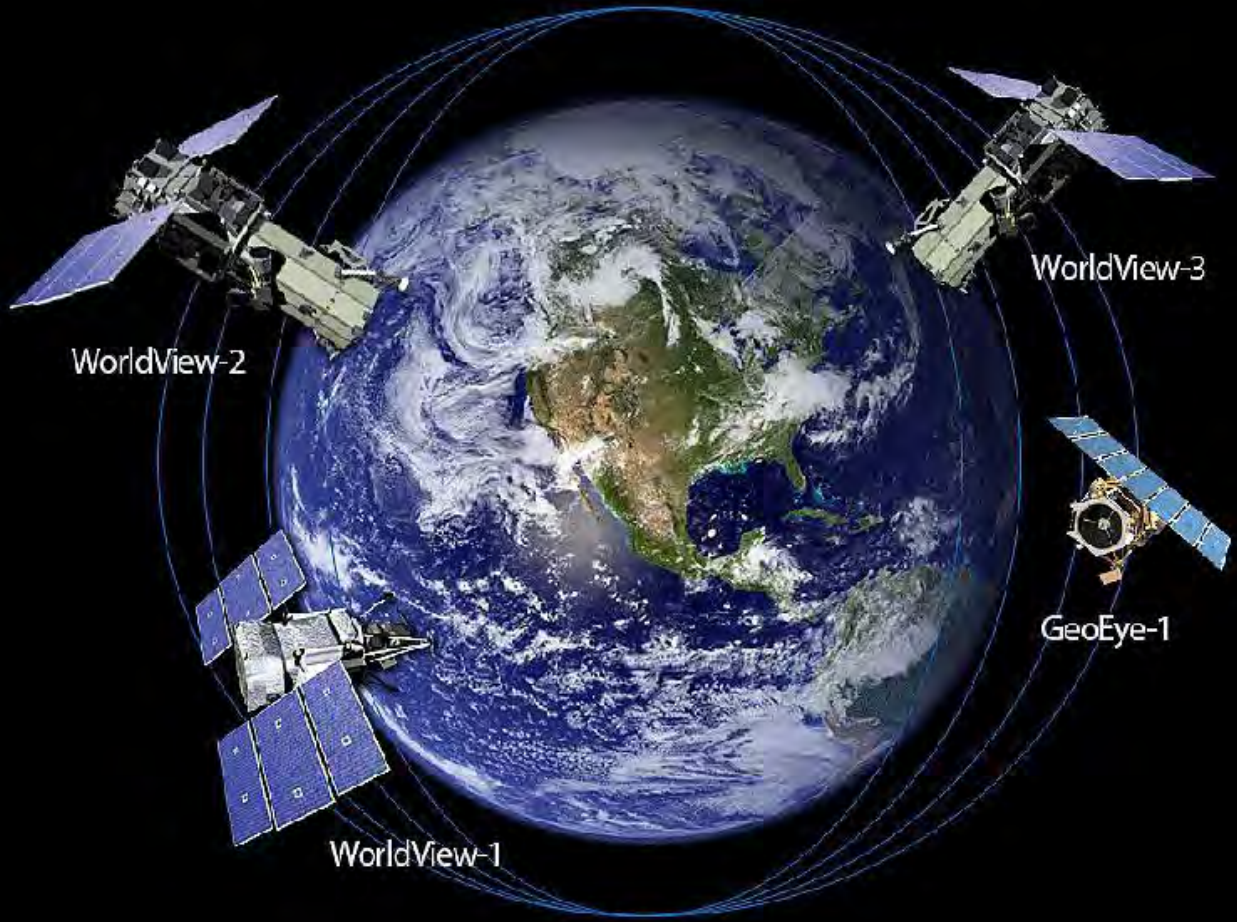
- Geocoded Address
- Cadastre boundary
- Property boundary
- Zoning
- ABS ASGS

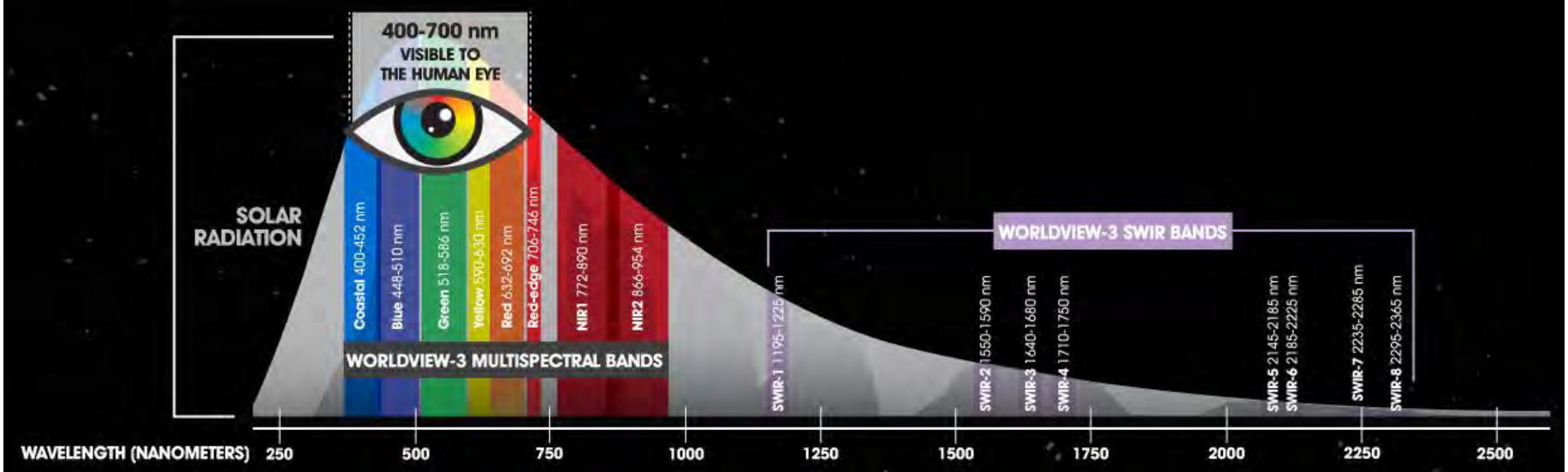
Vegetation Height

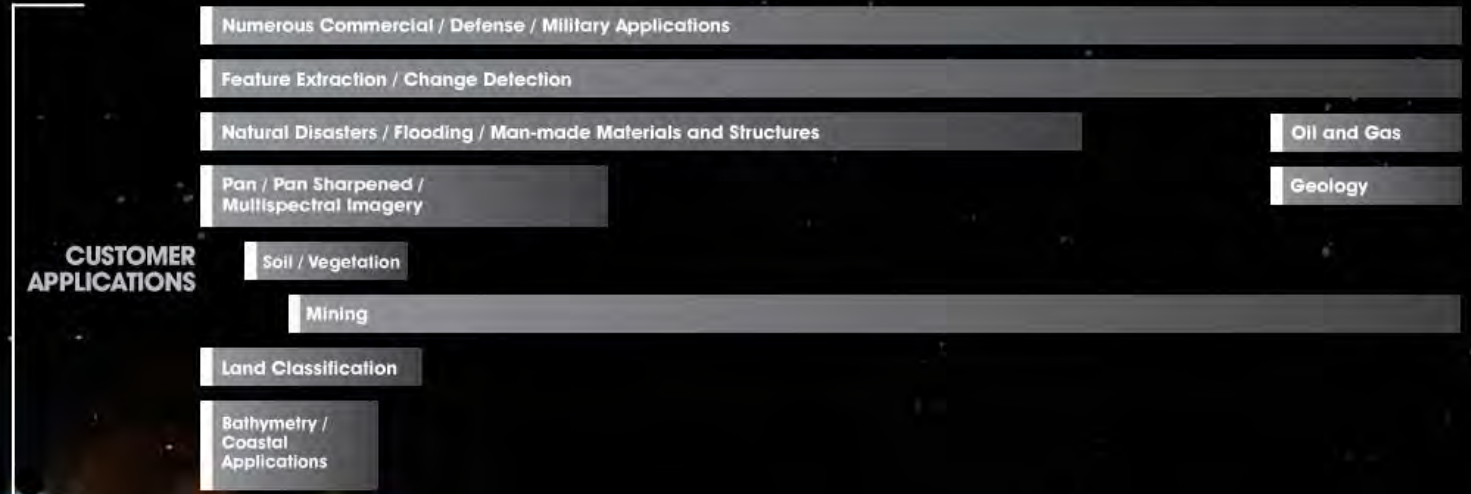
- Tree height

What is required to make this a reality?

DigitalGlobe

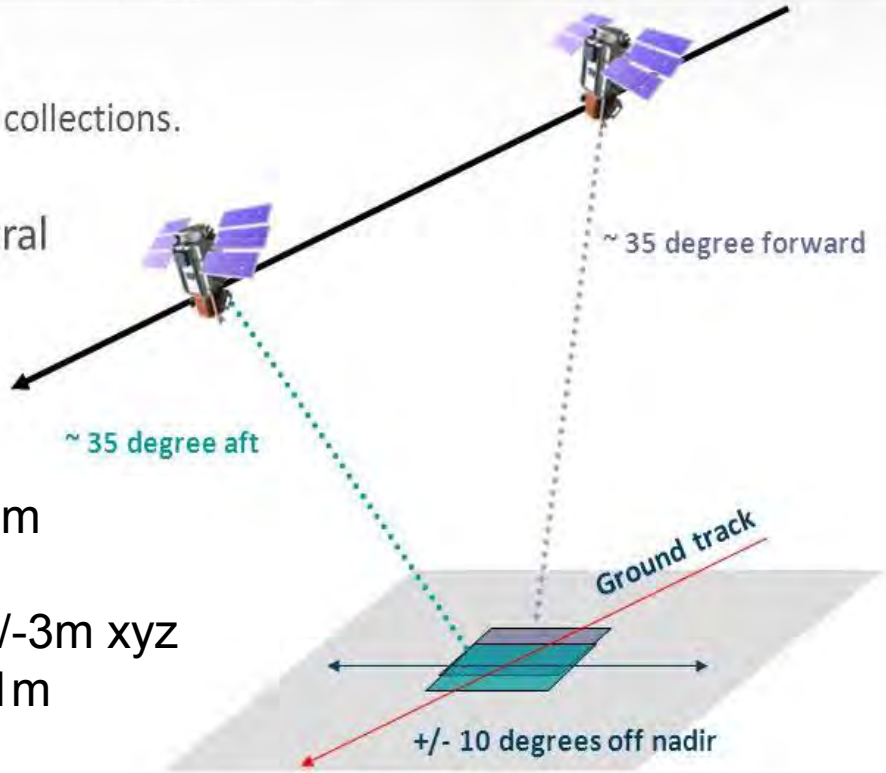

WorldView-2
WorldView-3
GeoEye-1
WorldView-1


400-700 nm
VISIBLE TO
THE HUMAN EYE
SOLAR
RADIATION
Coastal 400-452 nm
Blue 448-510 nm
Green 518-586 nm
Yellow 590-630 nm
Red 632-692 nm
Red-edge 706-746 nm
NIR1 772-890 nm
NIR2 866-954 nm
WORLDVIEW-3 MULTISPECTRAL BANDS
WORLDVIEW-3 SWIR BANDS
SWIR-1 1195-1225 nm
SWIR-2 1550-1590 nm
SWIR-3 1640-1680 nm
SWIR-4 1710-1750 nm
SWIR-5 2145-2185 nm
SWIR-6 2185-2225 nm
SWIR-7 2235-2285 nm
SWIR-8 2295-2365 nm
WAVELENGTH (NANOMETERS)
250
500
750
1000
1250
1500
1750
2000
2250
2500


CUSTOMER
APPLICATIONS
Numerous Commercial / Defense / Military Applications
Feature Extraction / Change Detection
Natural Disasters / Flooding / Man-made Materials and Structures
Oil and Gas
Pan / Pan Sharpened /
Multispectral Imagery
Geology
Soil / Vegetation
Mining
Land Classification
Bathymetry /
Coastal
Applications

Satellite Stereo Collection

- Stereo derived from:
  - Single pass fore and aft collections.
  - Adjacent passes
- Coincident multispectral imagery.



Spatial resolution ~2m

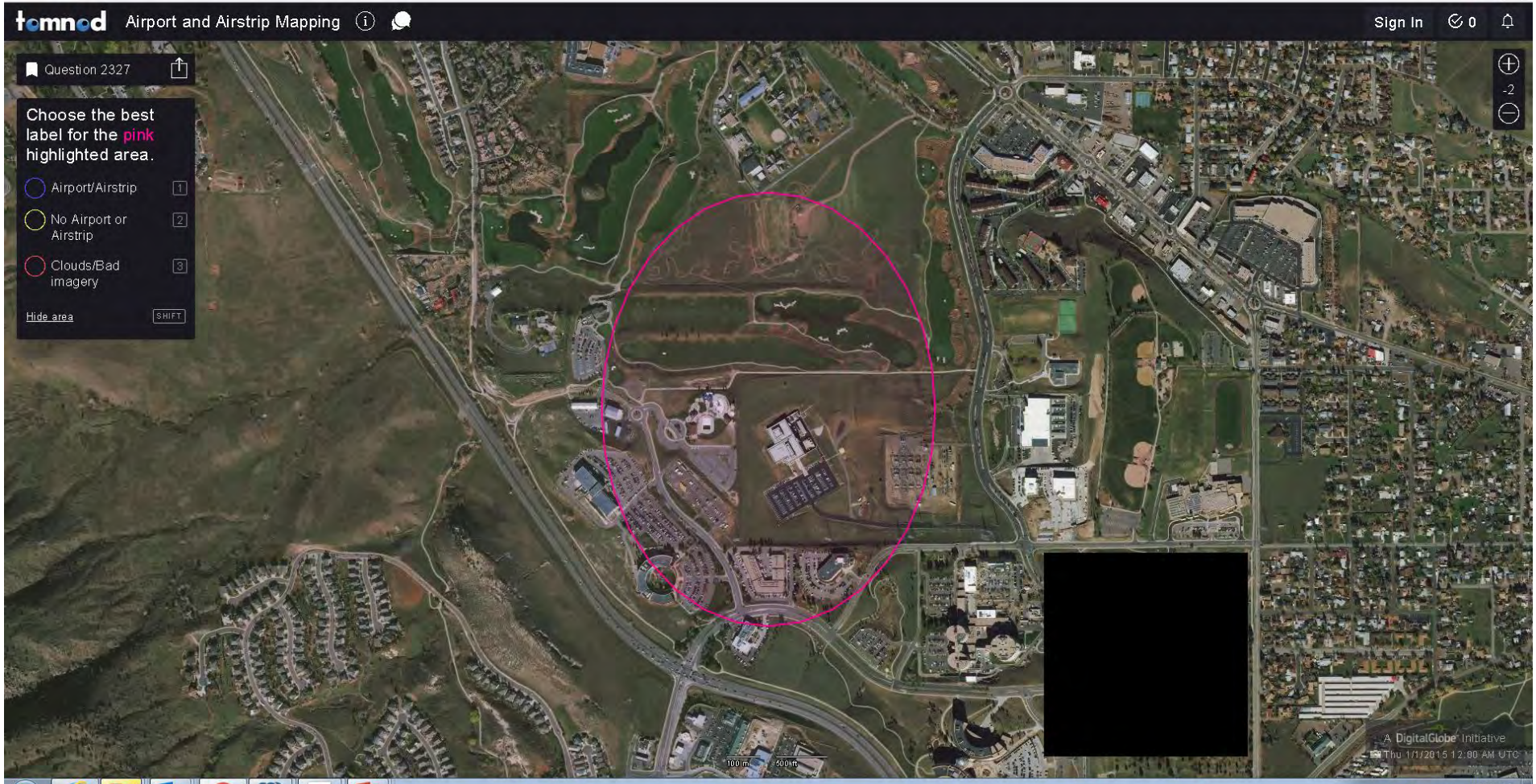
Absolute accuracy +/-3m xyz
Relative accuracy ~1m

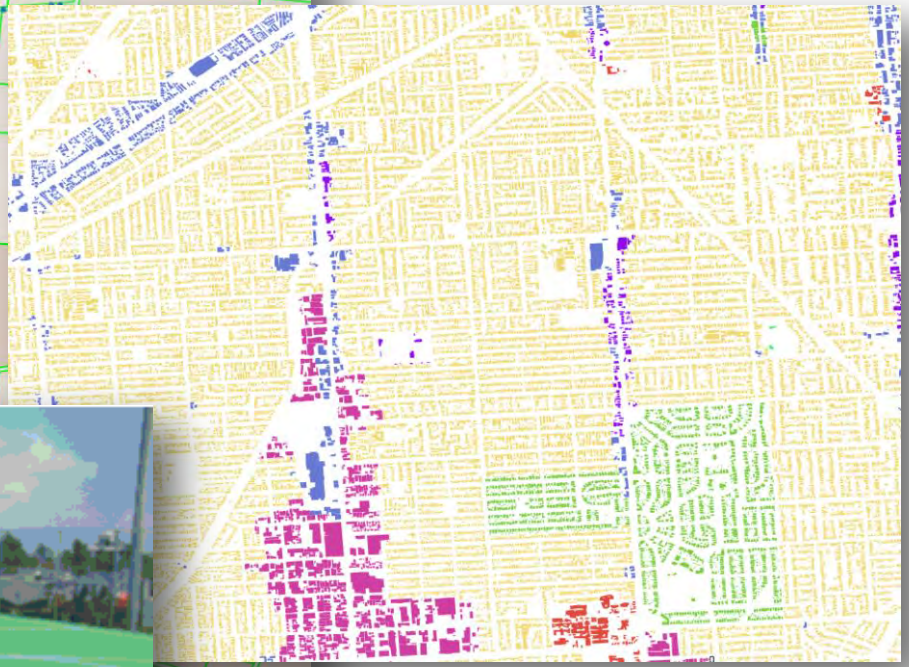
IDENTITY PROTECTION
Name:
Password:
IDENTITY PROTECTION
Name:
Password:

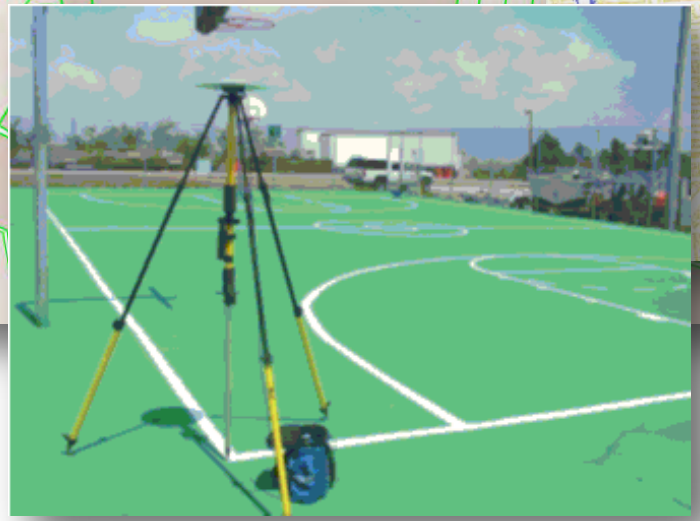
- It is self-learning
- It assumes
- It adapts
- It predicts
- It finds typical and untypical patterns
- It analyses and suggests the most valuable decisions for the user

NEWS

tomnod


Tomnod
https://www.tomnod.com/campaign/campaign_1436/question/2327
tomnod
Airport and Airstrip Mapping
Sign In
0
Question 2327
Choose the best label for the pink highlighted area.
Airport/Airstrip 1
No Airport or Airstrip 2
Clouds/Bad imagery 3
Hide area SHIFT
-2
100 m
500 ft
A DigitalGlobe Initiative
Thu 1/1/2015 12:00 AM UTC
10:20 AM
7/11/2016





PSMA Data Linkages

Building

Building PID
BDNSW186

Building Polygon

Building Polygon PID
BDPNSW186

Building Address

Building Address PID	Address Detail PID	Process Type
BDANSW2452	GANSW703948029	1

Building CAD

Building CAD PID	CAD PID	Process Type
BCNSW223	NSW17421808	1

Building Property

Building Property PID	Property PID	Process Type
BPNSW200	NSW1754552	1

Building Planning Zone

Building Zone PID	Planning Zone Code
BPZNSW186	Residential

PSMA Data Linkages

Building Polygon

Building Polygon PID
BDPNSW188

Building

Building PID
BDNSW188

Building Address

Building Address PID	Address Detail PID	Process Type
BDANSW2471	GANSW710597600	2
BDANSW2468	GANSW710597589	2
BDANSW2469	GANSW710597596	2
BDANSW2464	GANSW718140286	2
BDANSW2467	GANSW710597597	2
BDANSW2465	GANSW710597599	2
BDANSW2470	GANSW710597598	2
BDANSW2466	GANSW710597601	2
BDANSW2472	GANSW710597602	2
BDANSW2473	GANSW715626566	2

PSMA Data Linkages

Building Polygon

Building Polygon PID
BDPNSW189

Building

Building PID
BDNSW189

Building Address

Building Address PID	Address Detail PID	Process Type
BDANSW8573	GANSW710597600	4
BDANSW8570	GANSW710597589	4
BDANSW8571	GANSW710597596	4
BDANSW8566	GANSW718140286	4
BDANSW8569	GANSW710597597	4
BDANSW8567	GANSW710597599	4
BDANSW8572	GANSW710597598	4
BDANSW8568	GANSW710597601	4
BDANSW8574	GANSW710597602	4
BDANSW8575	GANSW715626566	4

SMA Data Linkages

Building Zone PID	Planning Zone Code
BPZNSW188	Residential

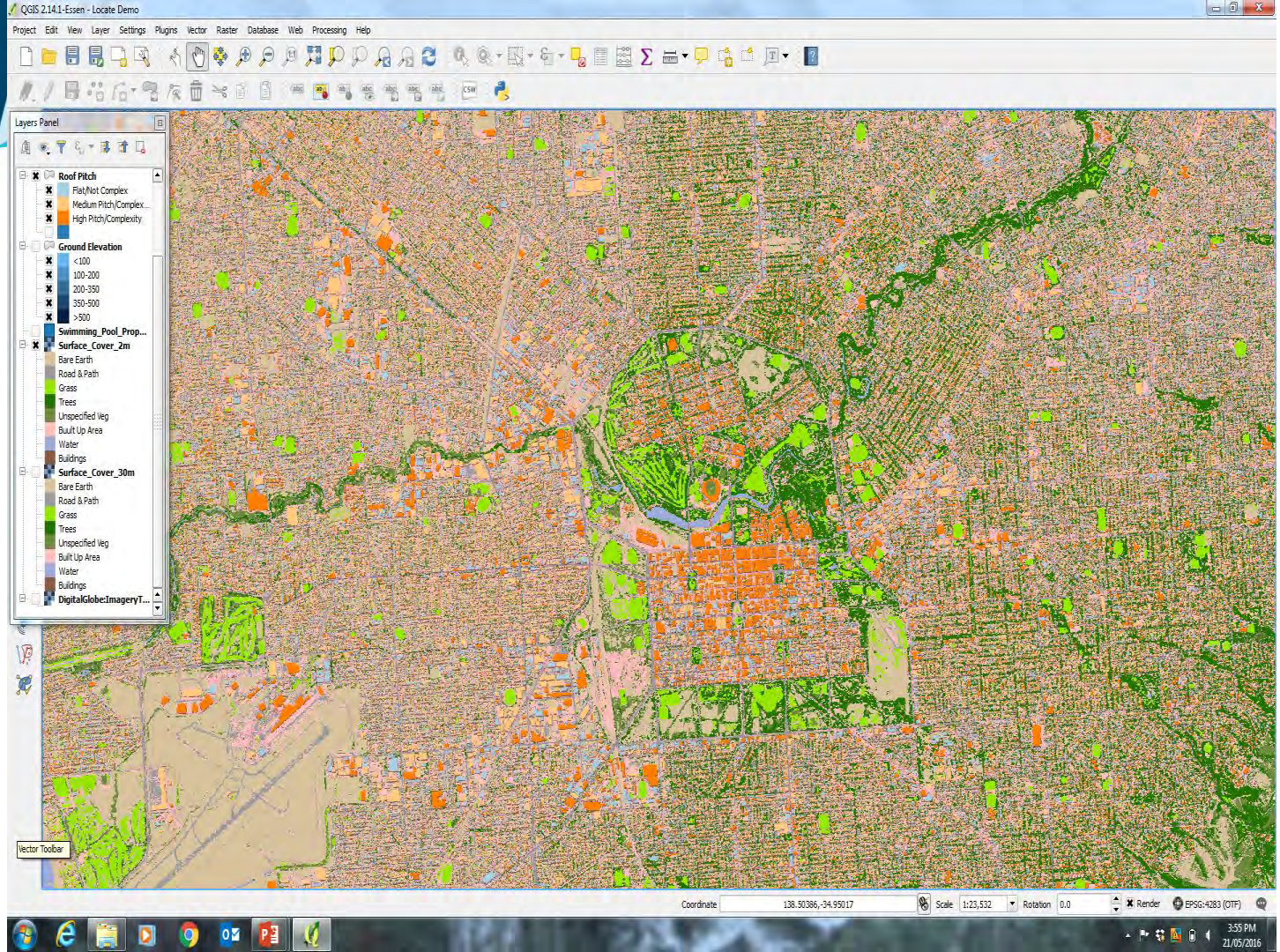
Building CAD

Building CAD PID	CAD PID	Process Type
BCNSW225	NSW17422279	1
BCNSW6665	NSW15347322	3
BCNSW6660	NSW15347318	3
BCNSW6664	NSW15347319	3
BCNSW6666	NSW15347320	3
BCNSW6662	NSW15347317	3
BCNSW6661	NSW15347323	3
BCNSW6979	NSW15347324	3
BCNSW6667	NSW15347321	3
BCNSW6663	NSW15347325	3

Building Property

Building Property PID	Property PID	Process Type
BPNSW202	NSW1985175	1

Foundation Data Alignment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Flat/Not Complex
Medium Pitch/Complex...
High Pitch/Complexity
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Swimming_Pool_Prop...
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Bare Earth
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Unspecified Veg
Built Up Area
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Surface_Cover_30m
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Trees
Unspecified Veg
Built Up Area
Water
Buildings
DigitalGlobe:ImageryT...
Vector Toolbar
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Scale 1:23,532
Rotation 0.0
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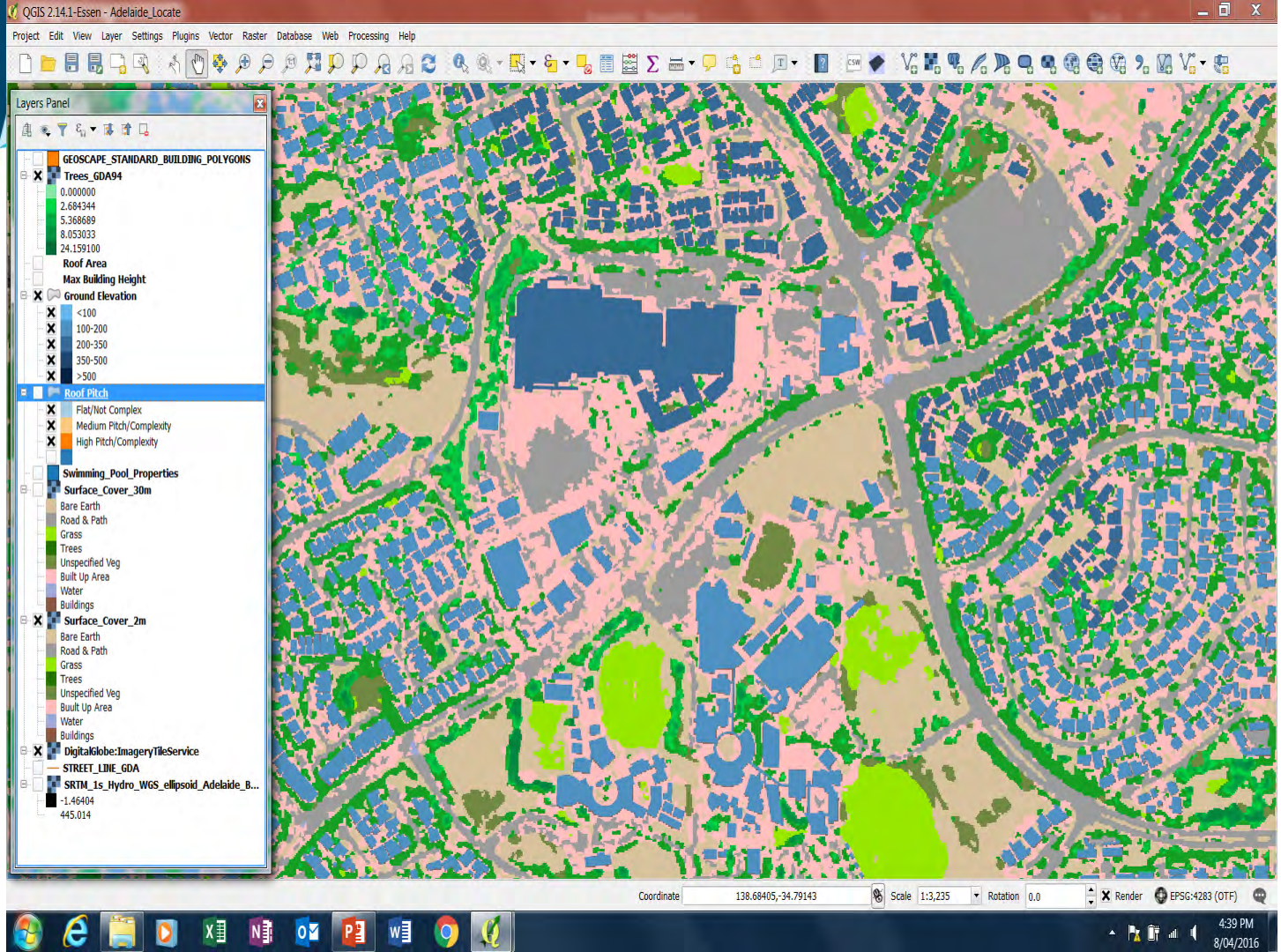
21/05/2016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Buildings
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SRTM_1s_Hydro_WGS_ellipsoid_Adelaide_B...
-1.46404
445.014
Coordinate 138.68405,-34.79143
Scale 1:3,235
Rotation 0.0
Render
EPSG:4283 (OTF)
4:39 PM
8/04/2016

PSMA
AUSTRALIA
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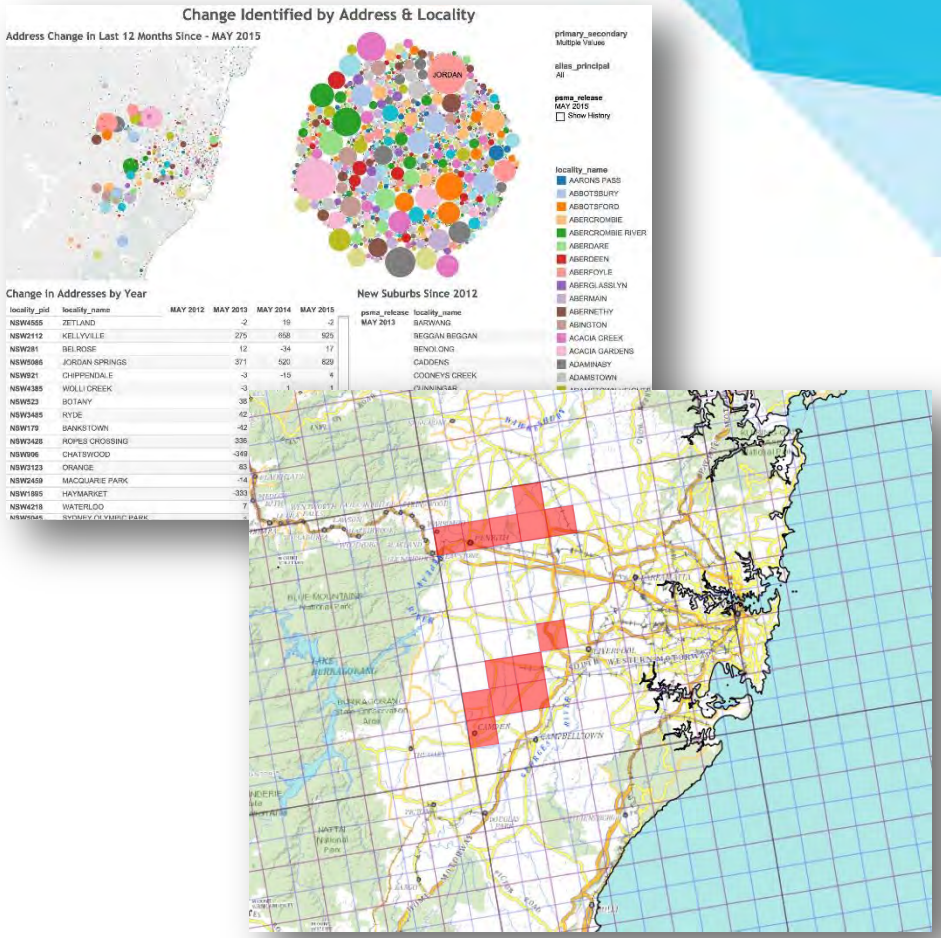
Maintenance Schedule

Commencing mid/late 2017

- Flexible maintenance regions based on a grid based maintenance model
- Flexible model focused on areas of highest demand from the marketplace
- Complete product specifications for each area based on region
- Customer prioritisation/tasking possible (lead time required varies depending on currency of data requested)



Further Information

https://www.psma.com.au/geoscape

PSMA Australia
Unit 6, Level 2, 113 Canberra Avenue
Griffith ACT 2603
02 6260 9000 | enquiries@psma.com.au
www.psma.com.au