WORLD LEADERS IN GEOSPATIAL SERVICES

HOW LOCATION INSIGHT MAKES THE WORLD A BETTER PLACE

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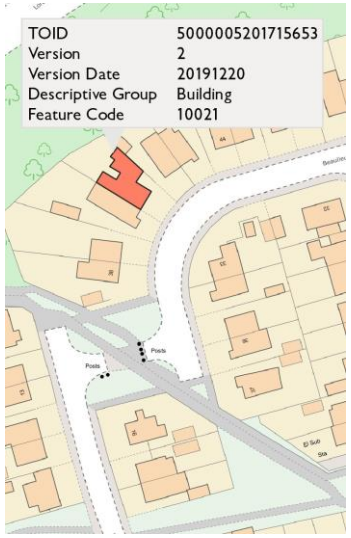
Ordnance Survey
SEE > BETTER PLACE

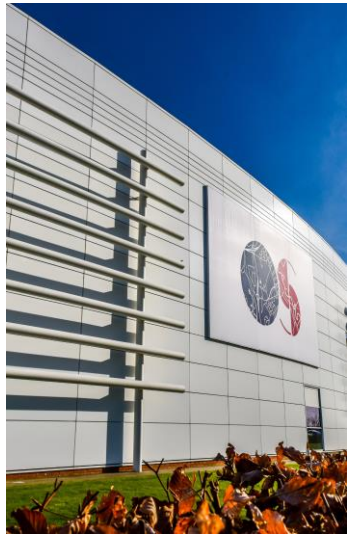
Our experience

Providers of National Mapping Services for Great Britain

UK Government organization - trustworthy, stable and assured

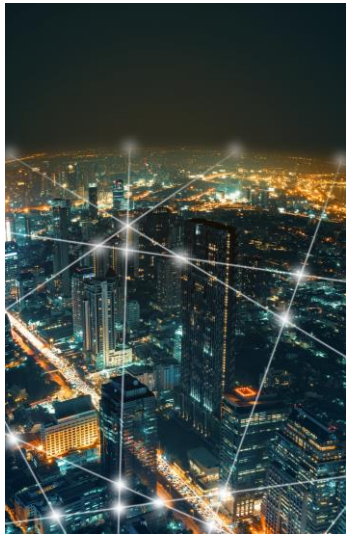


Creates and maintains one of the largest geospatial databases in the world – quality guaranteed



Unrivalled geospatial expertise on a national scale – knowledge transfer and self-dependency

Long-term partnership - focus on sustainable outcomes



Leading member of Global Geospatial Governance

UN-GGIM
United Nations Committee of Experts on Global Geospatial Information Management

OGC®
Making location count.

eurogeographics

SUSTAINABLE DEVELOPMENT GOALS

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Case study - Basemap of Lusaka, Zambia

Challenges of rapid urbanisation, improving the quality of life for residents in informal settlements.

Tackling urbanisation with detailed data in Lusaka, Zambia – YouTube

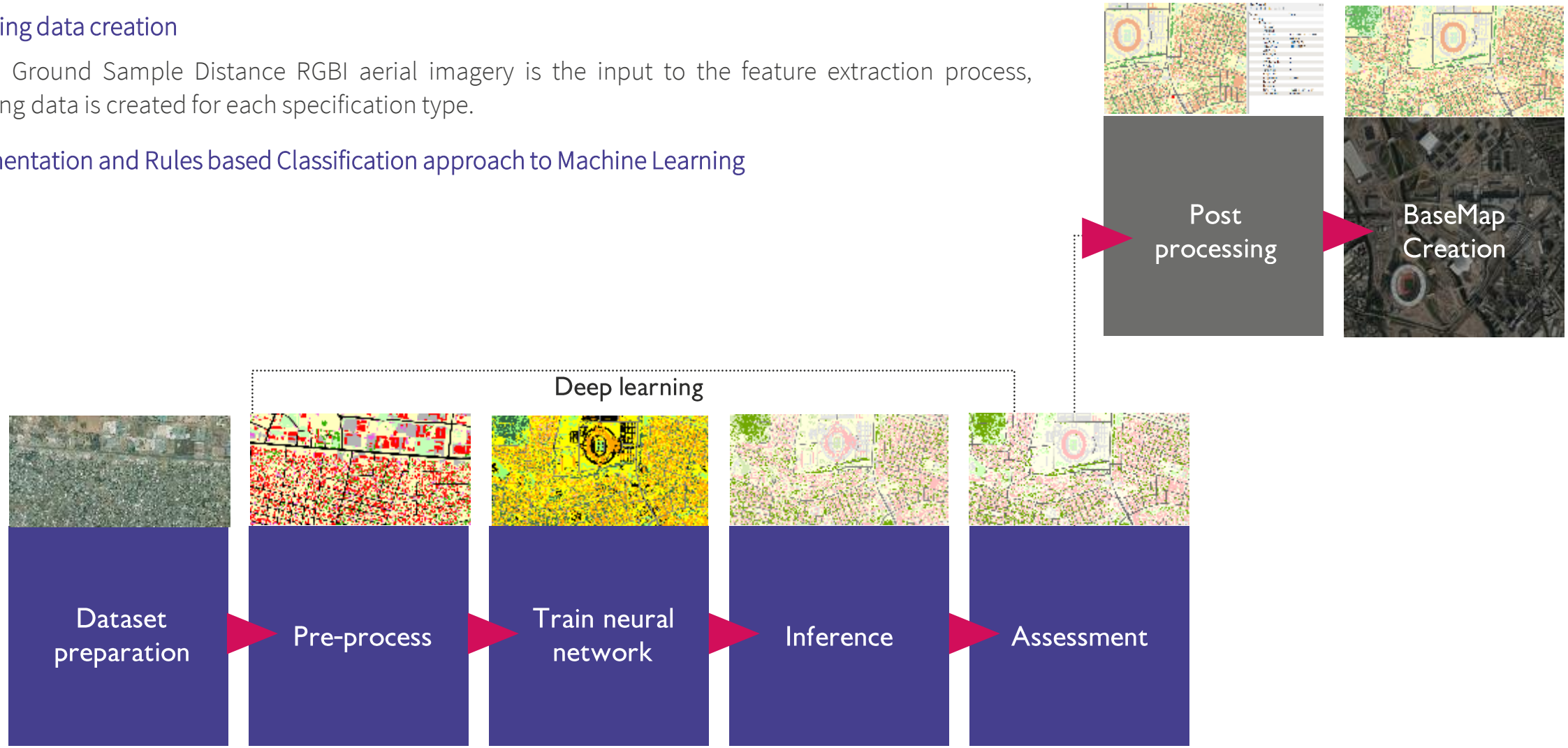
Digital Base Map Creation & approach

Creation of new Digital Base Maps through an Automatic Feature Extraction (AFE) process so that informal settlements in Lusaka can be identified and monitored.

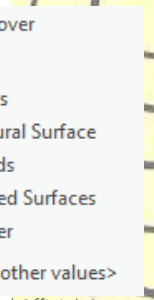
Training data creation

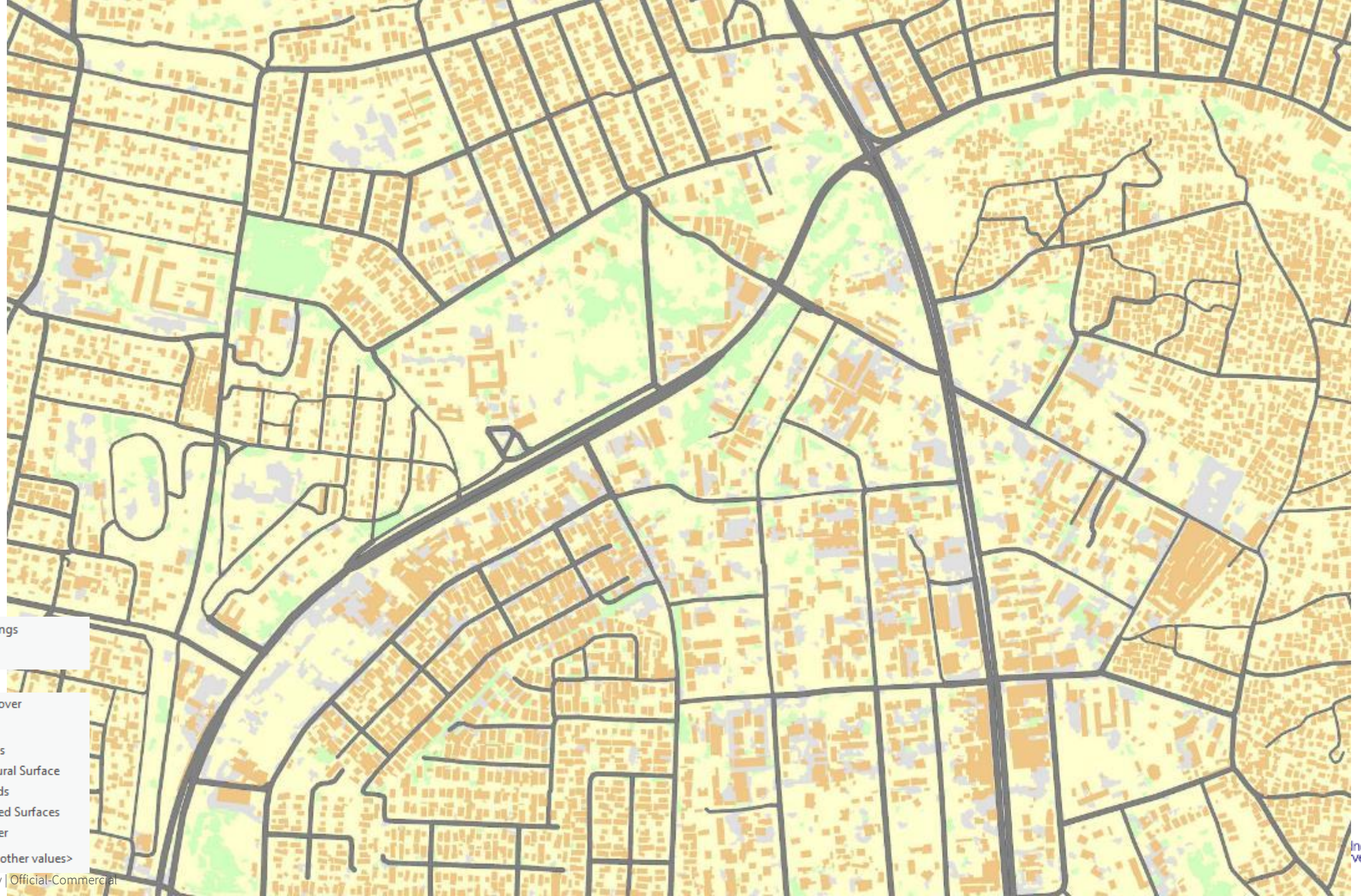
20cm Ground Sample Distance RGBI aerial imagery is the input to the feature extraction process, training data is created for each specification type.

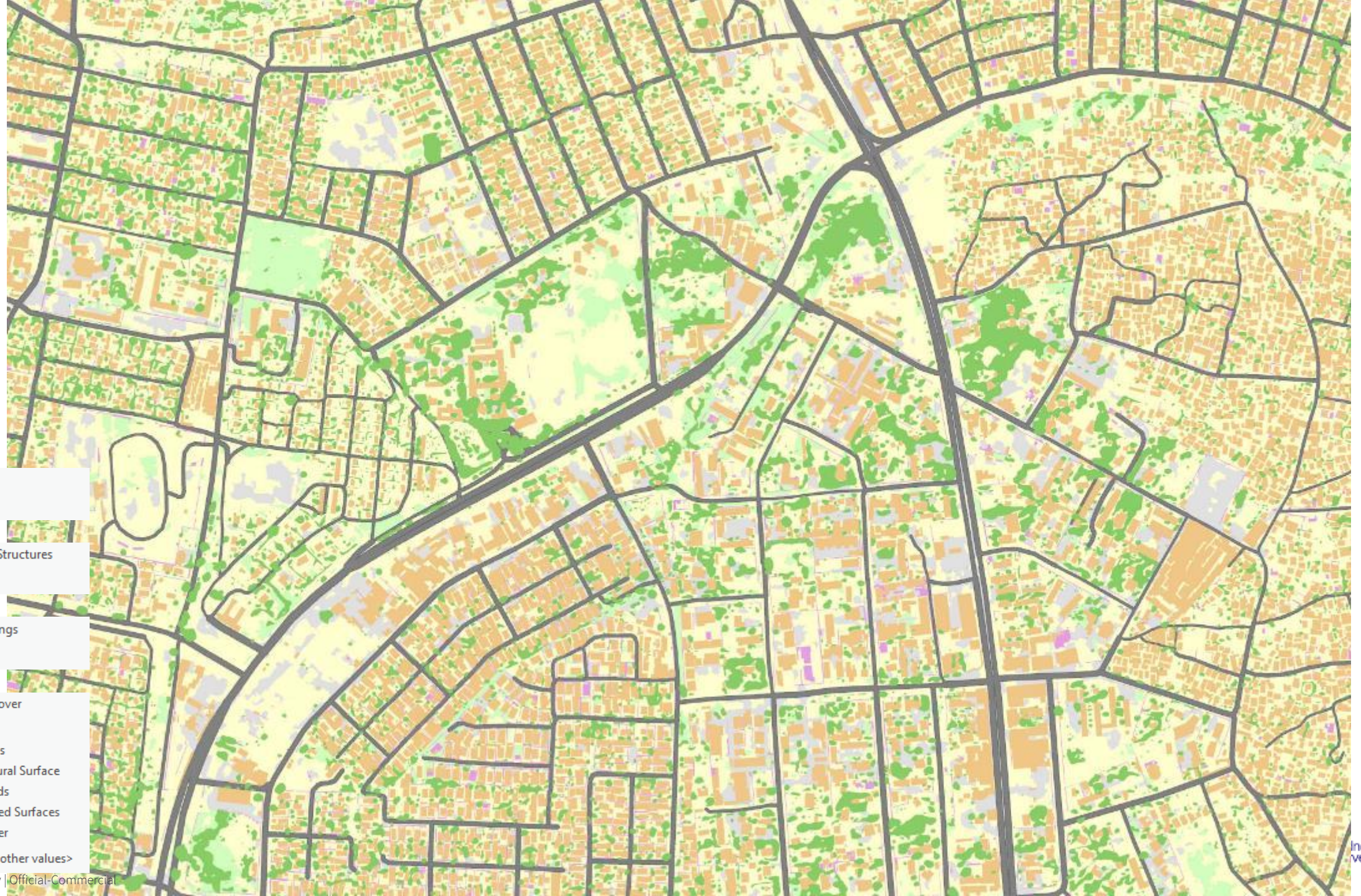
Segmentation and Rules based Classification approach to Machine Learning

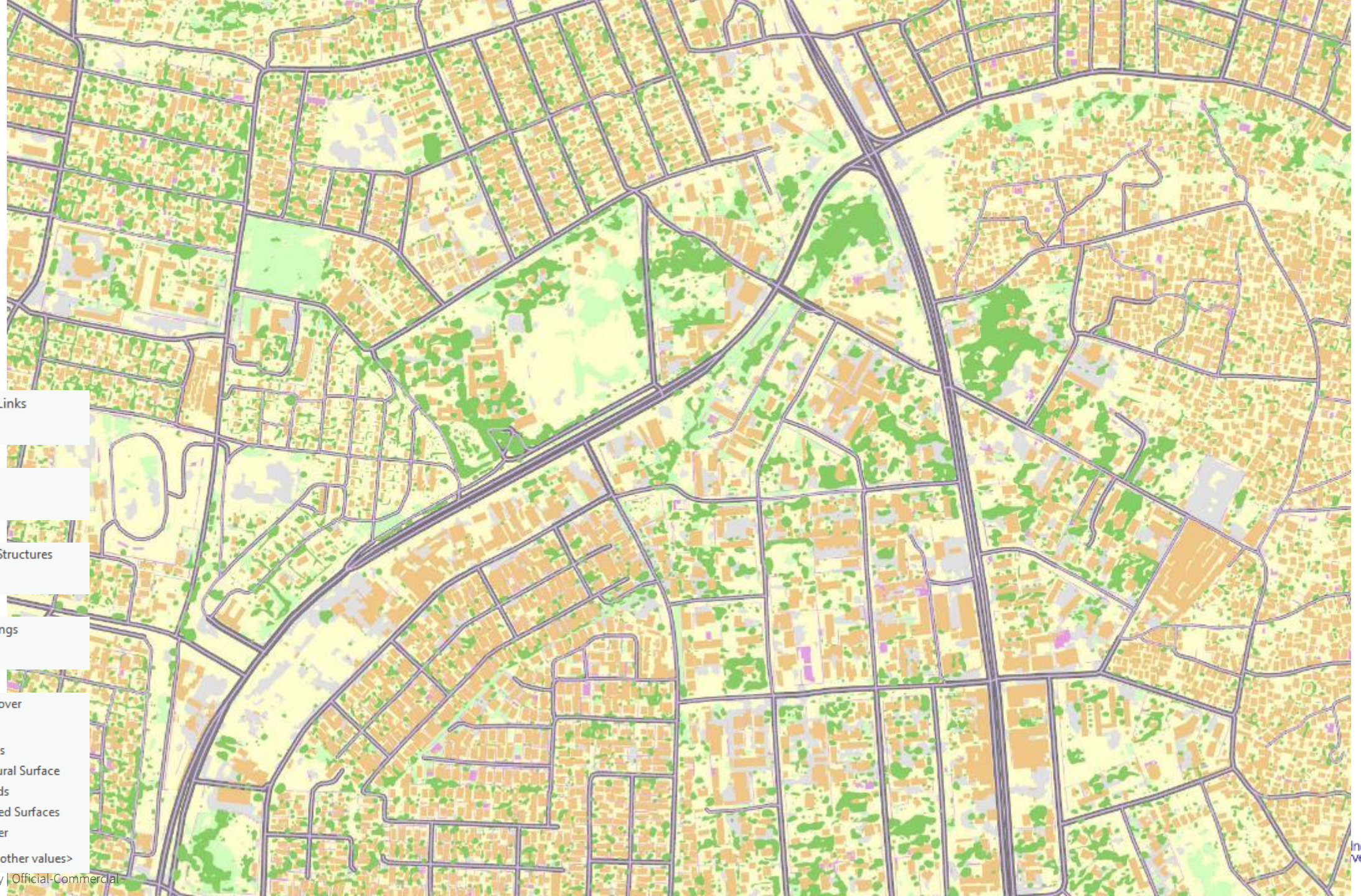


Final Output





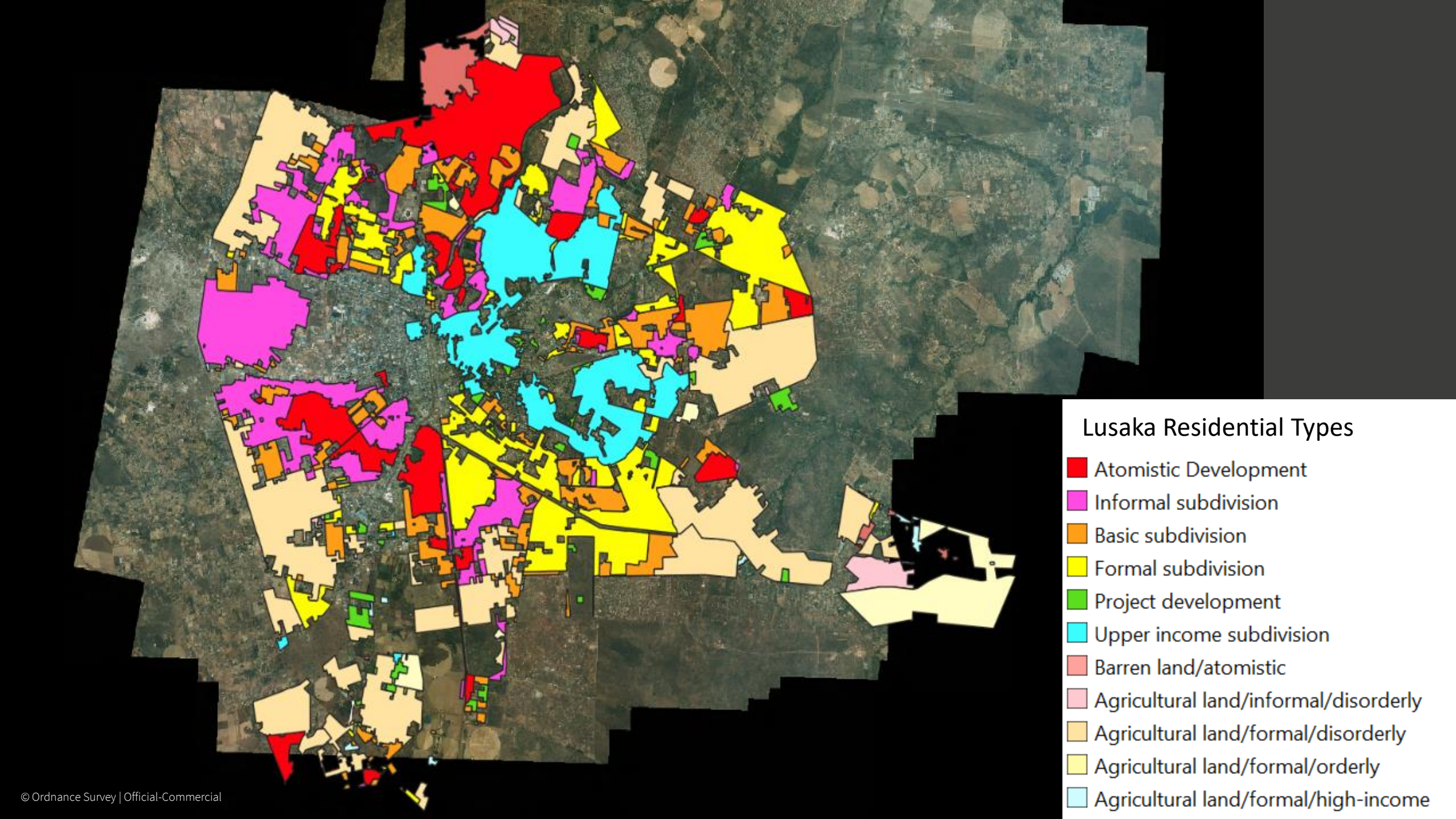




Identify Results

Feature	Value
Buildings	
SettlName	
(Derived)	
(Actions)	
FeatureID	AA3AF6BD-A419-4362-...
Theme	Buildings
ImgCapDate	2017-01-01
BldingArea	141.4398401
SettlName	
StructType	
NumOccups	0
NYUTypCode	0
NYUTypDesc	
ParcelNum	0
TshipName	
TshipPlnnd	Unplanned
TshipLegSt	
TshipUpgr	
TshipType	Squatter Settlement
WaterProxM	0.0000000

Post Processing Attributed



High level statistics

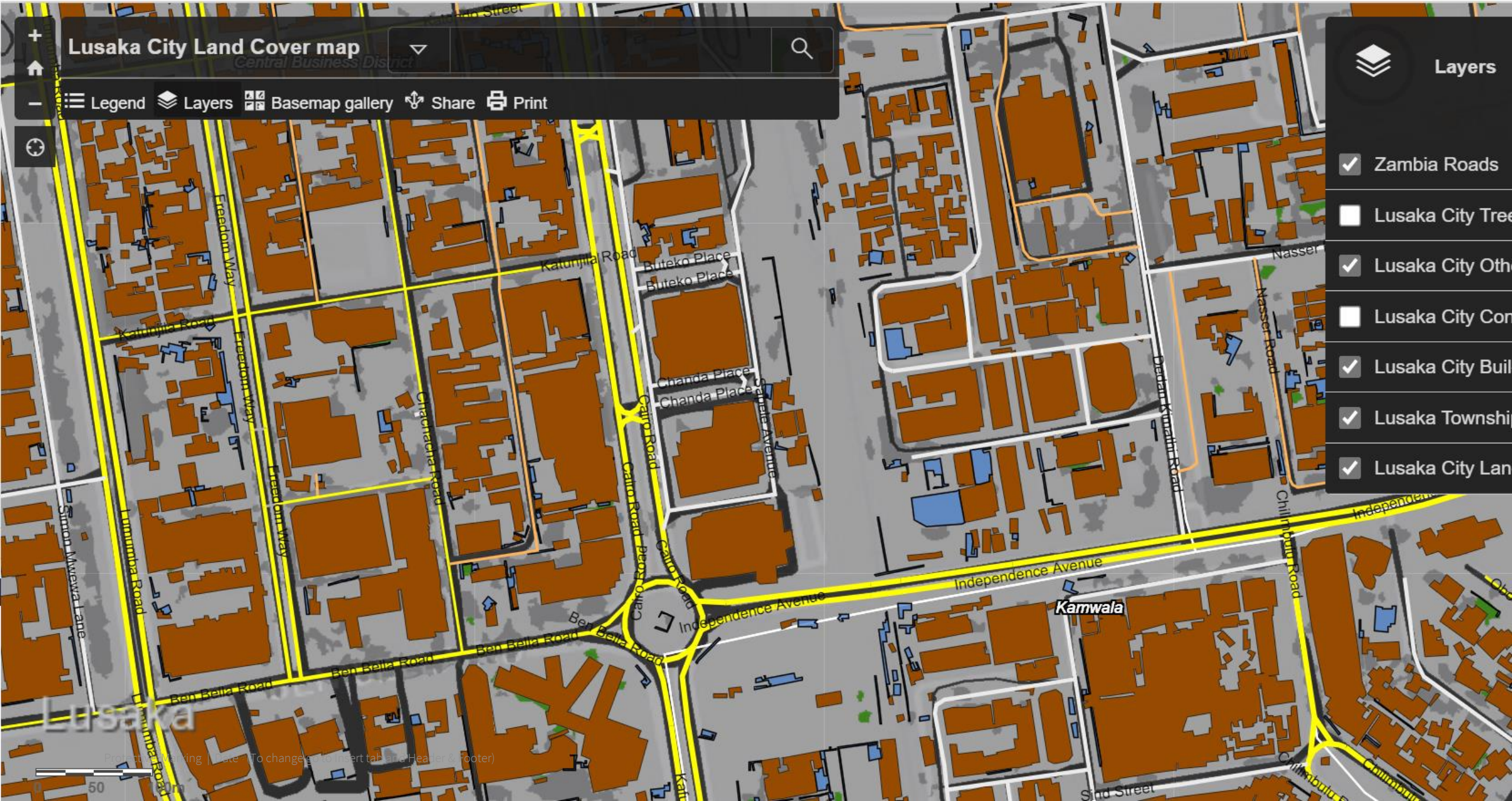
- Over 420kms^2 of highly detailed mapping delivered in a 10th of the time when compared to traditional techniques
- More than 4,000kms of roads
- More than 300,000 buildings
- 74kms^2 of trees
- Informal settlement population – 1.4m – 70% of Zambia population

Automated Feature Extraction benefits:

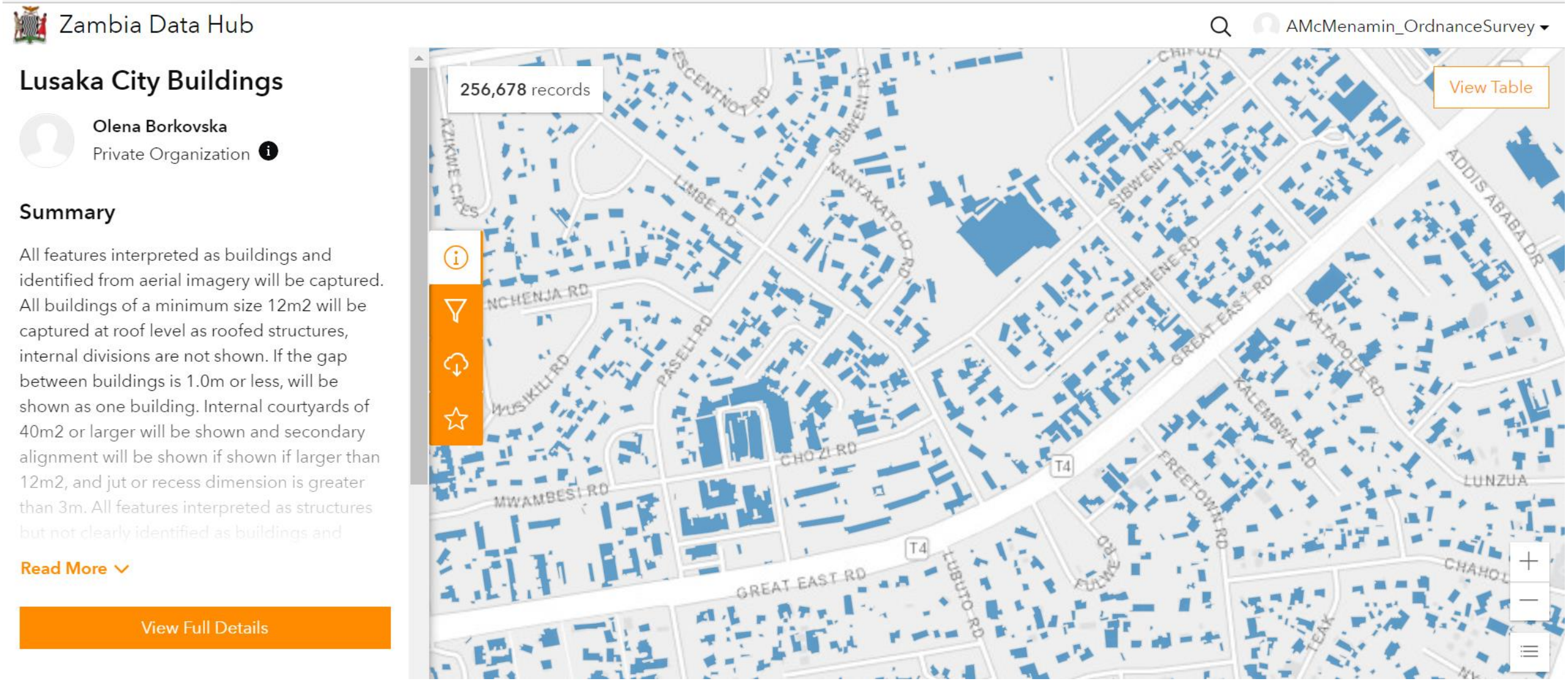
- Scalable → Suitable for different geographies and volumes – from town to countrywide
- Automated → Reducing costly and timely manual effort
- Re-useable → Re-purposed to different use-cases with minimal effort

Using the data

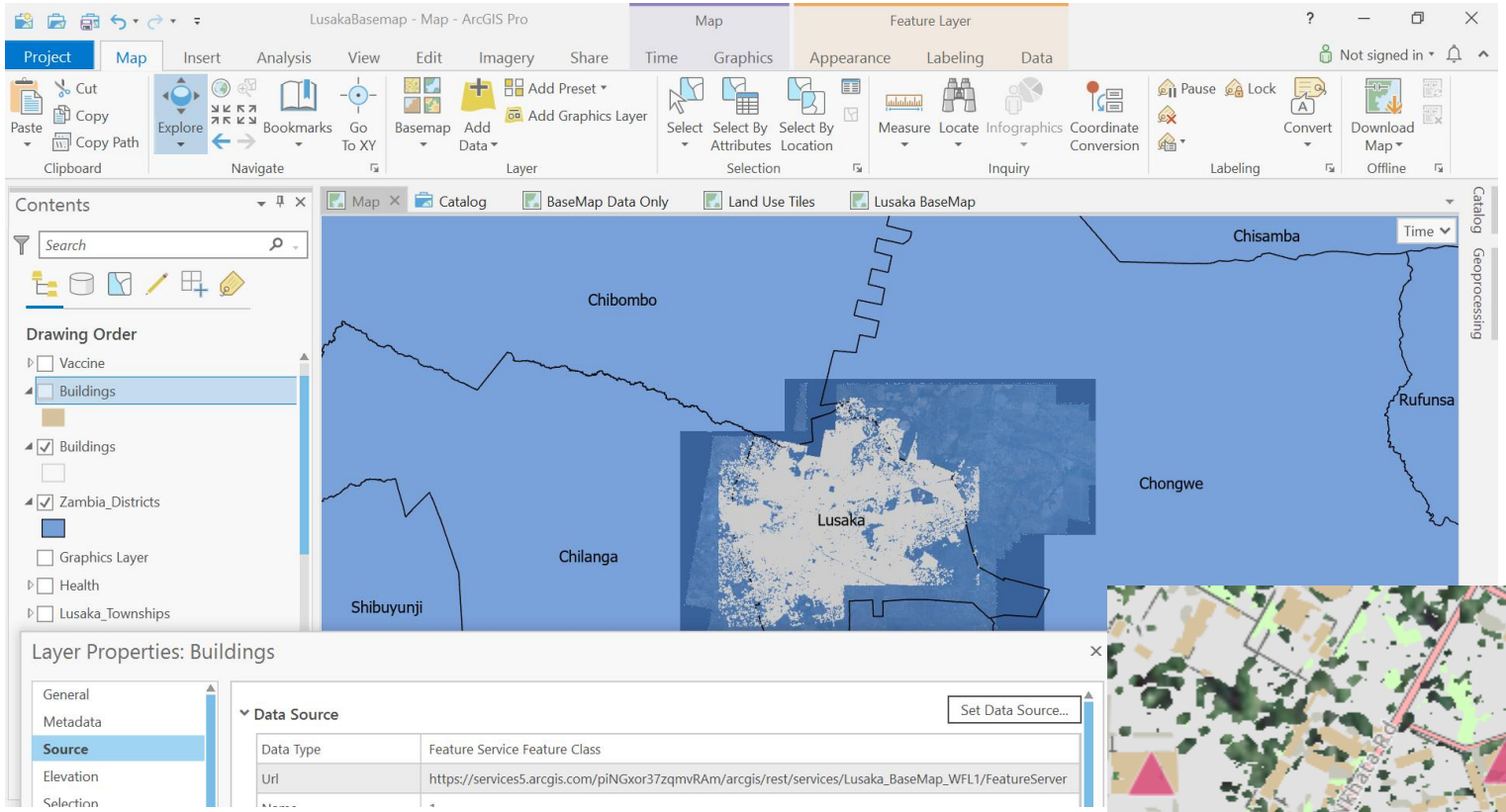
https://nsdi-mlnr.maps.arcgis.com/apps/View/index.html?appid=67d091b7e8d34582a4c Zambia Data Hub (arcgis.com)

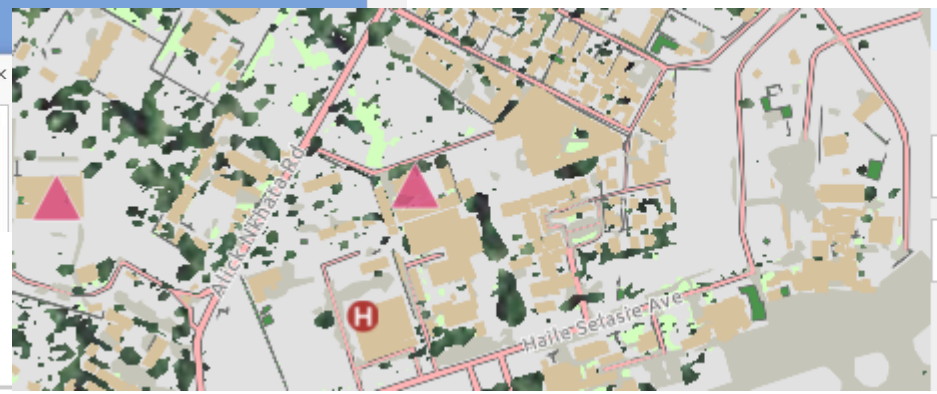


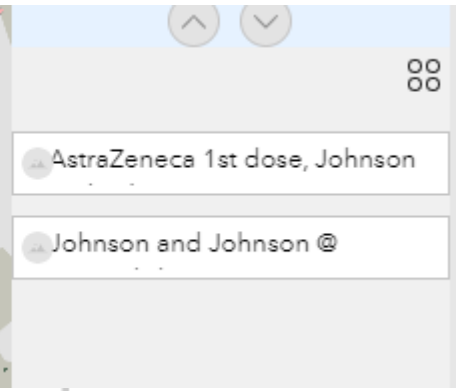
Metadata and Licence requirements available on the Zambia Data Hub



Using the data – maps and services







Integration with GIS and Web Maps

Data Source

Data Type	Feature Service Feature Class
Url	https://services5.arcgis.com/piNGxor37zqmvRAm/arcgis/rest/services/Lusaka_BaseMap_WFL1/FeatureServer

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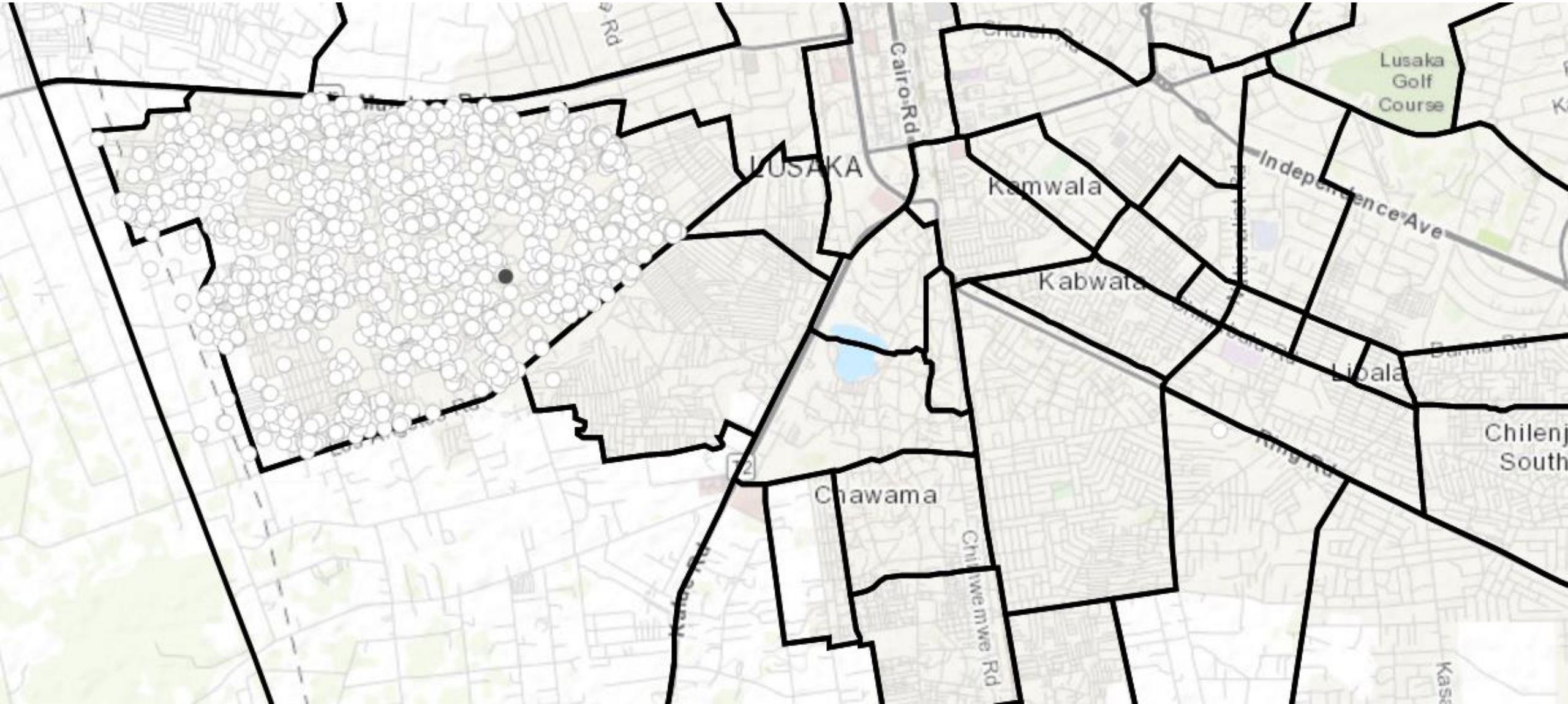
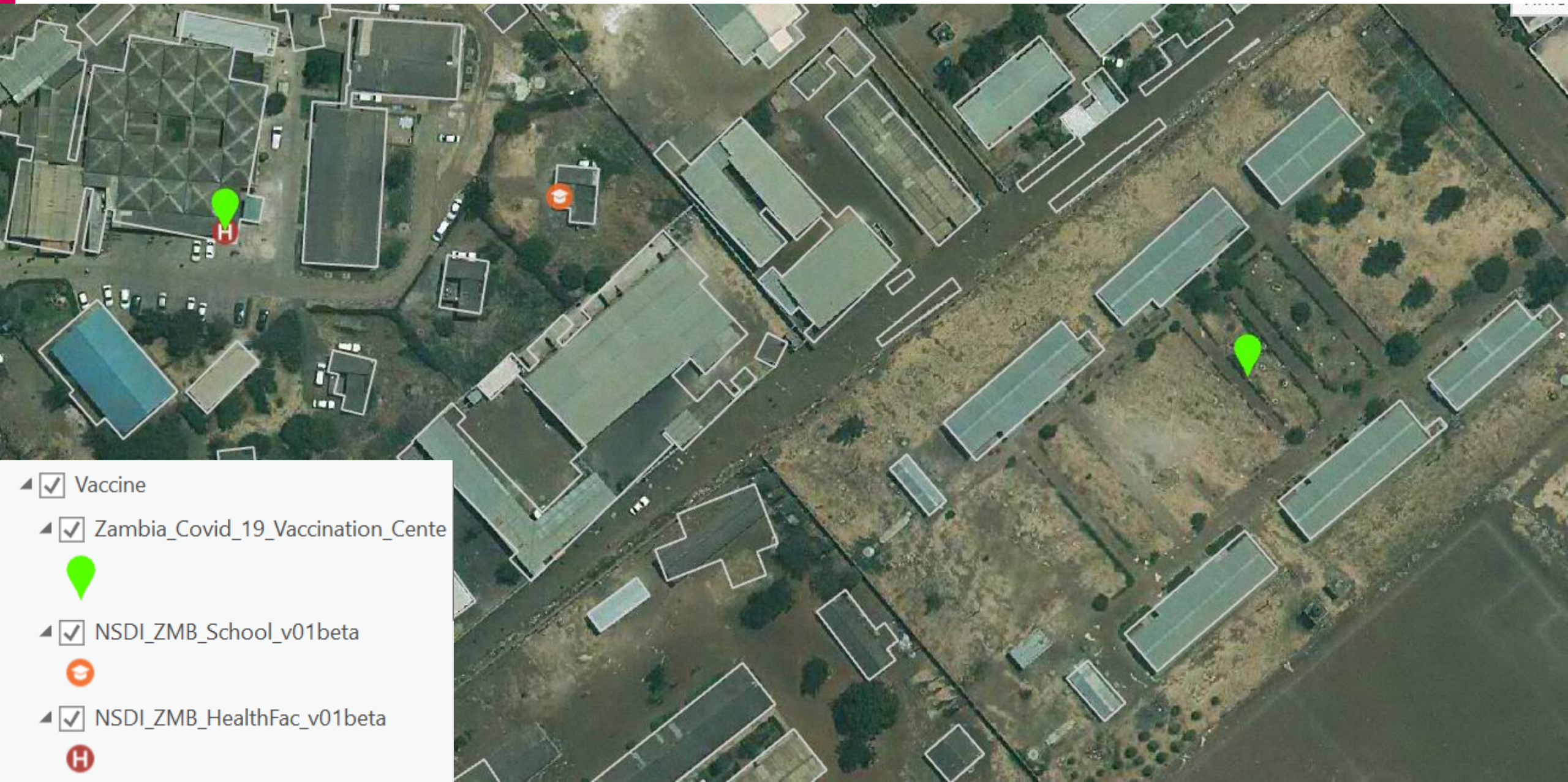
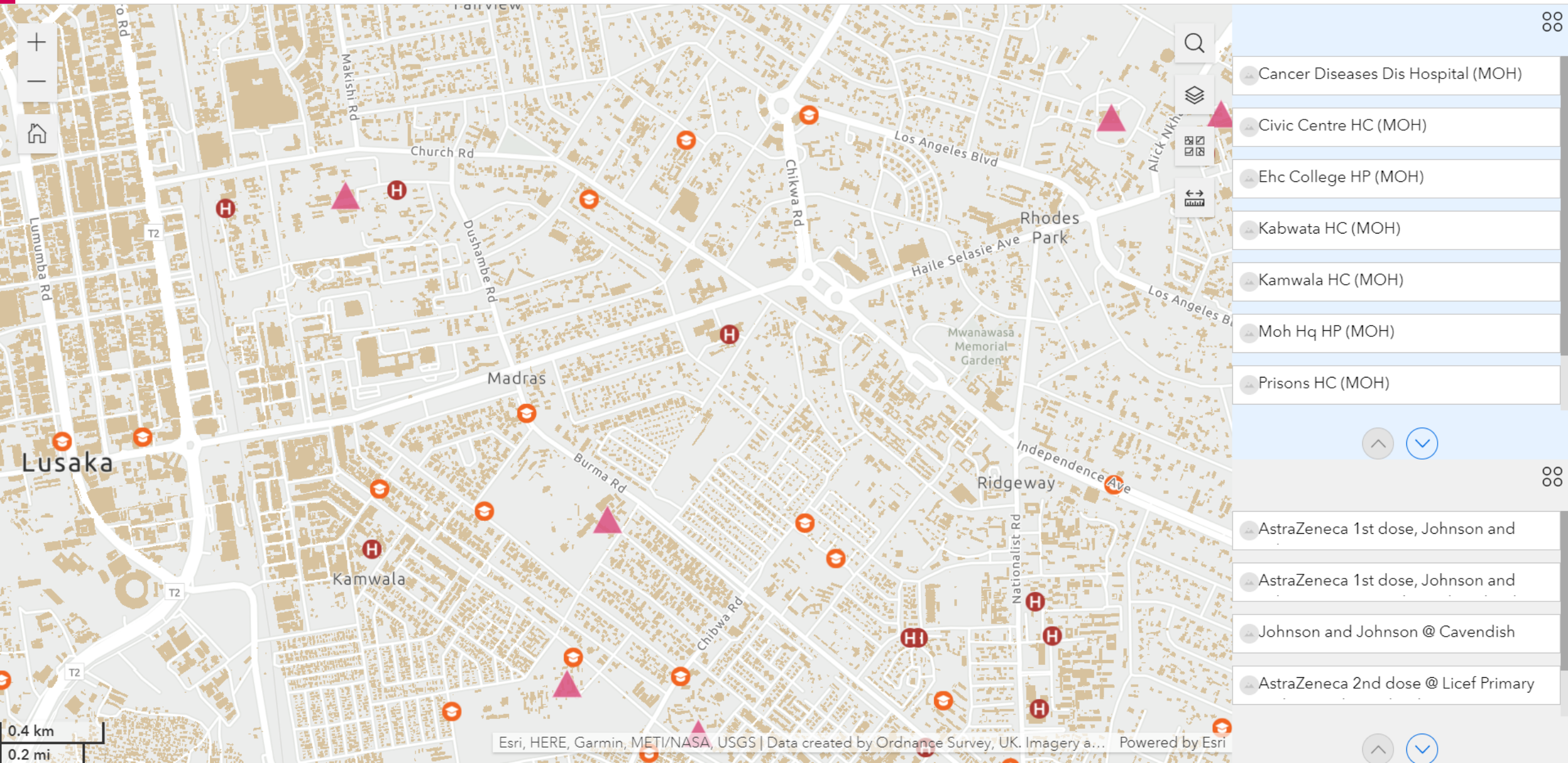
Example OSM Amenities - Project Data: Water points



Integrating datasets – Vaccine Centres, Hospitals and School locations

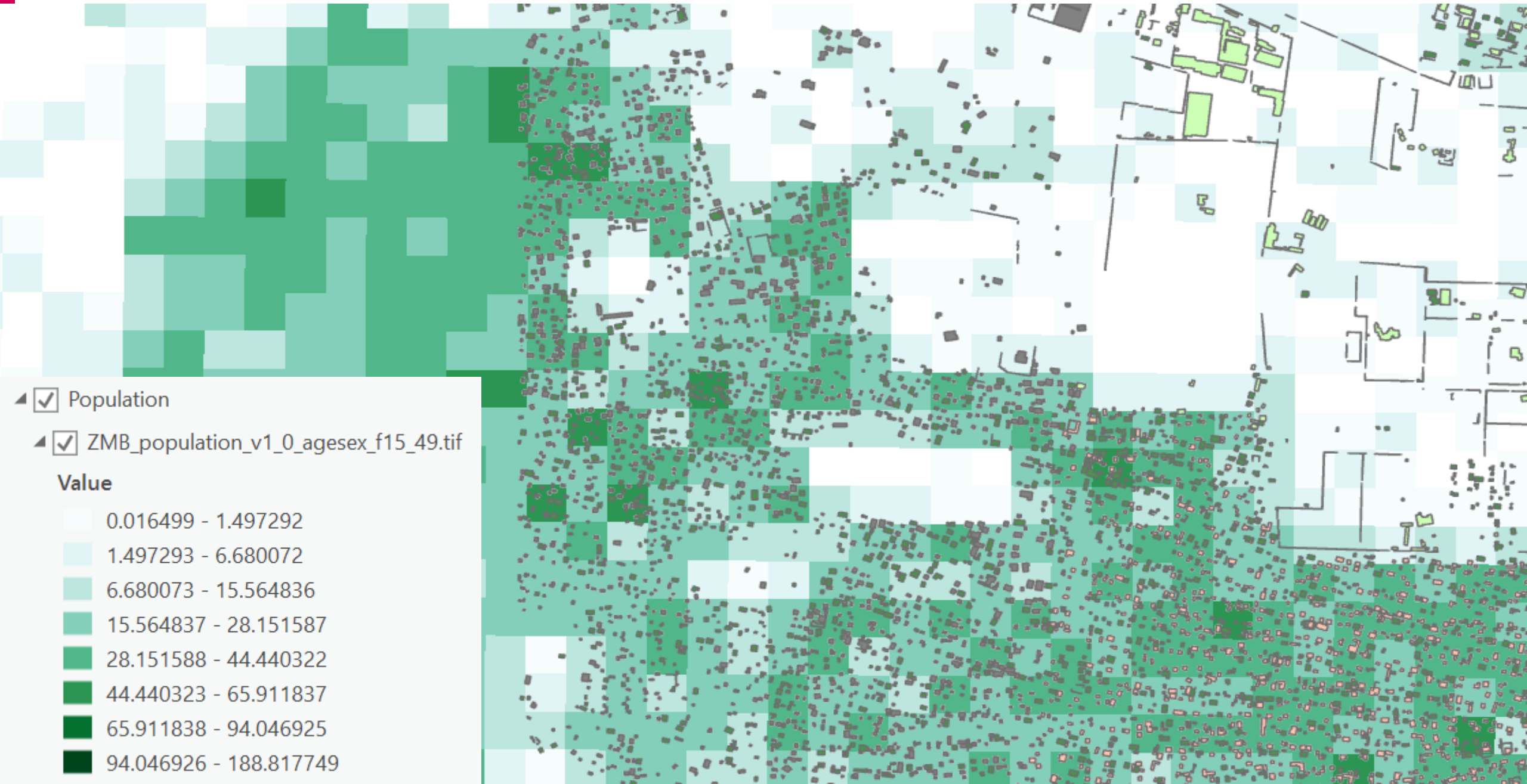


Building Apps around themes – Vaccine sites

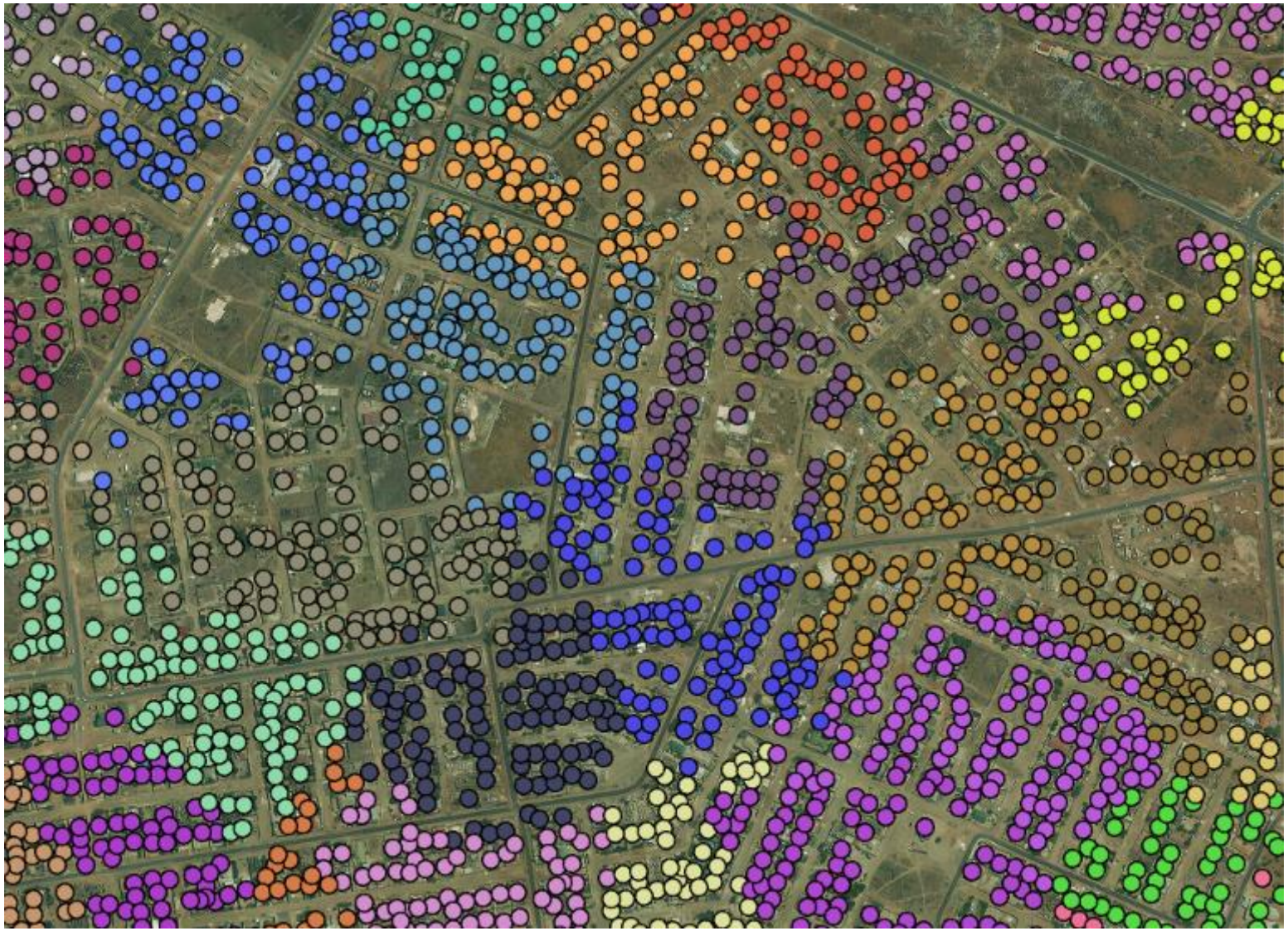


Mapping out data – Urban Topology example

Mapping out data – Population density and buildings



Clustering Building into groups of 100 for data collection zones



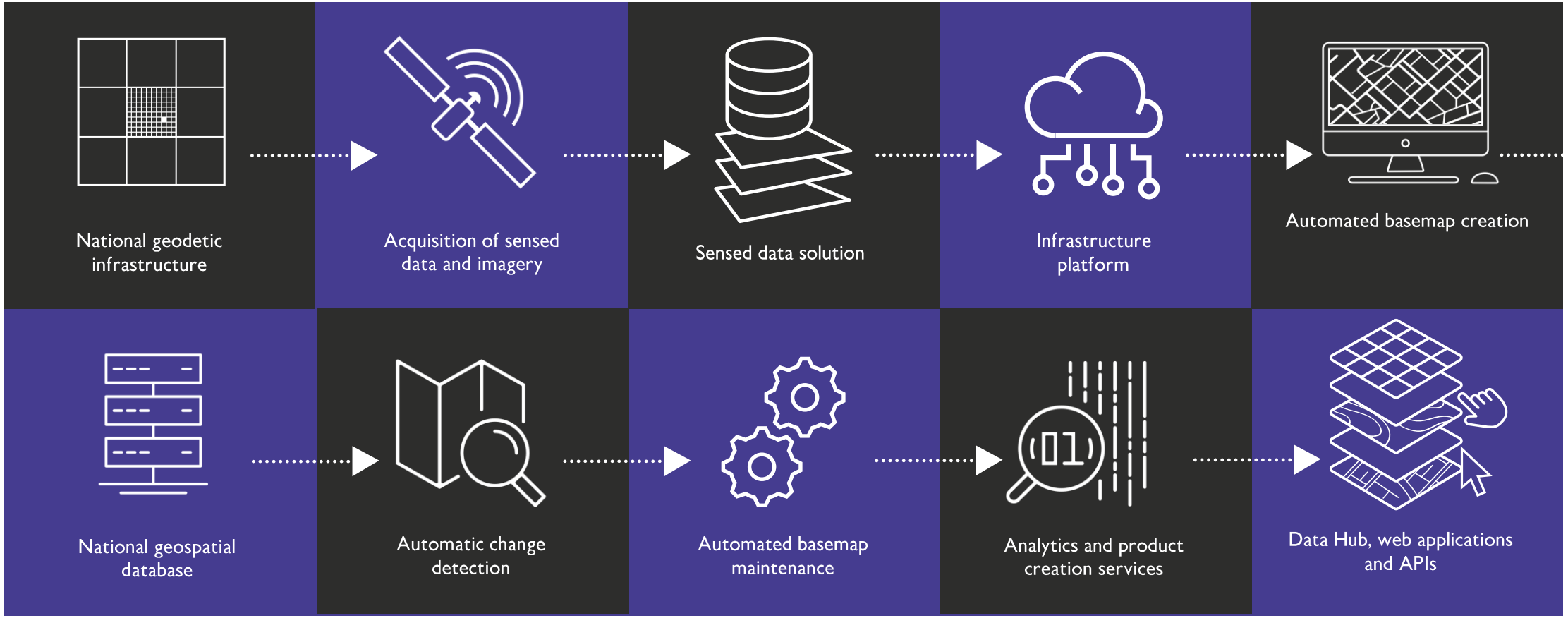
Zambia extended use cases

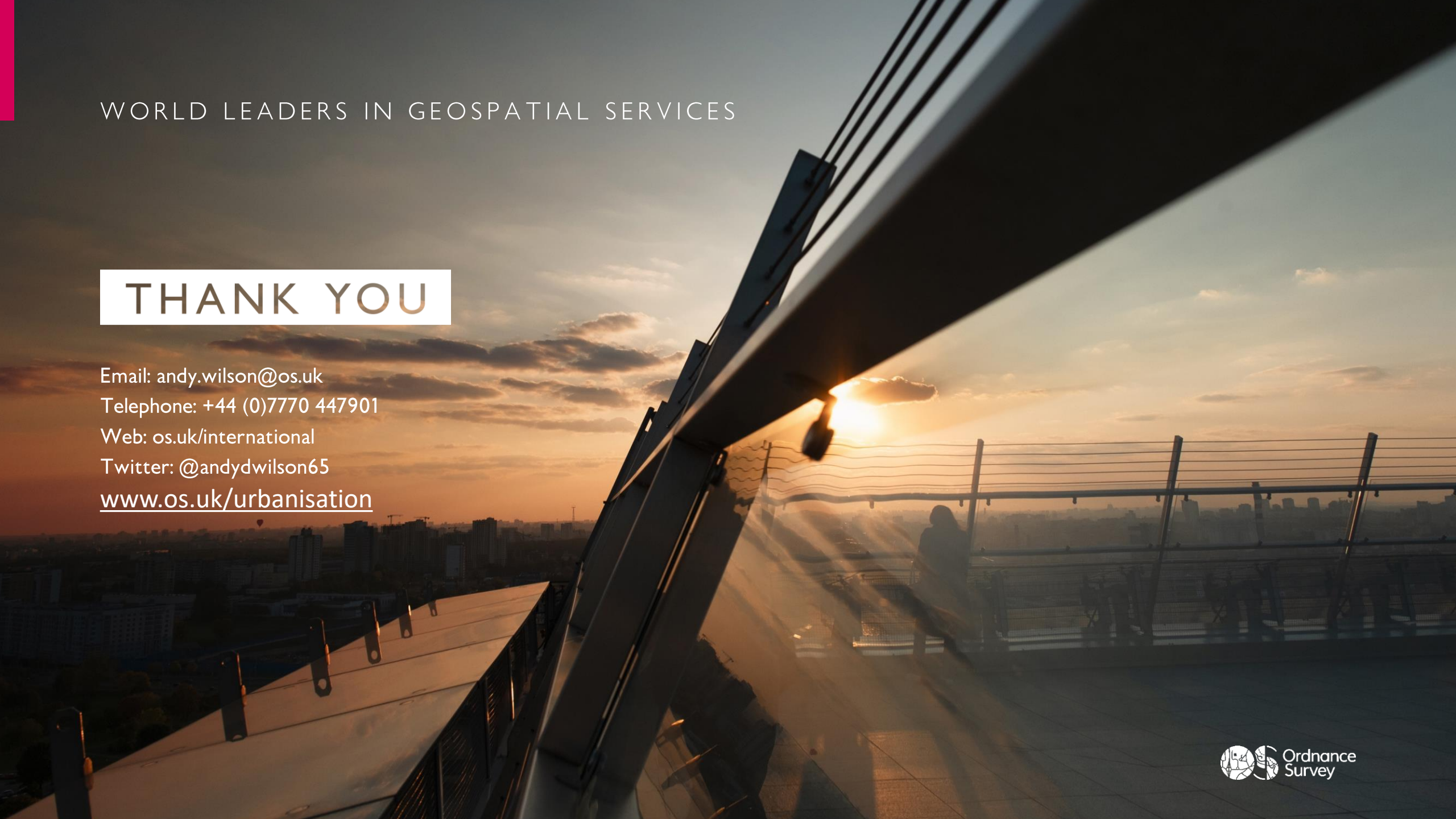
The driver for the data generated for Zambia was the identification and monitoring of informal settlements to support government planning and service provision.

Additional uses of this data are now being explored and additional value extracted.

Census	Use of building level information to better plan enumeration area, undertake the census and analyse the data collected
Transport	Provision of transport services to/from informal settlements to support population in travelling to/from business district area to help with employment opportunities
Health	Provision of appropriate health and WASH services to meet demands/needs of those living within informal settlements
Disaster Management	Flood, Pandemic management of multiple emergency responders
Energy and Infrastructure	Provision of energy services into informal settlements and public infrastructure to support them

Maintain value through long term maintenance

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