HEXAGON
empowering an autonomous future

Unlock Deeper Insights with High-Resolution Statewide Aerial Data

Rob Eadie
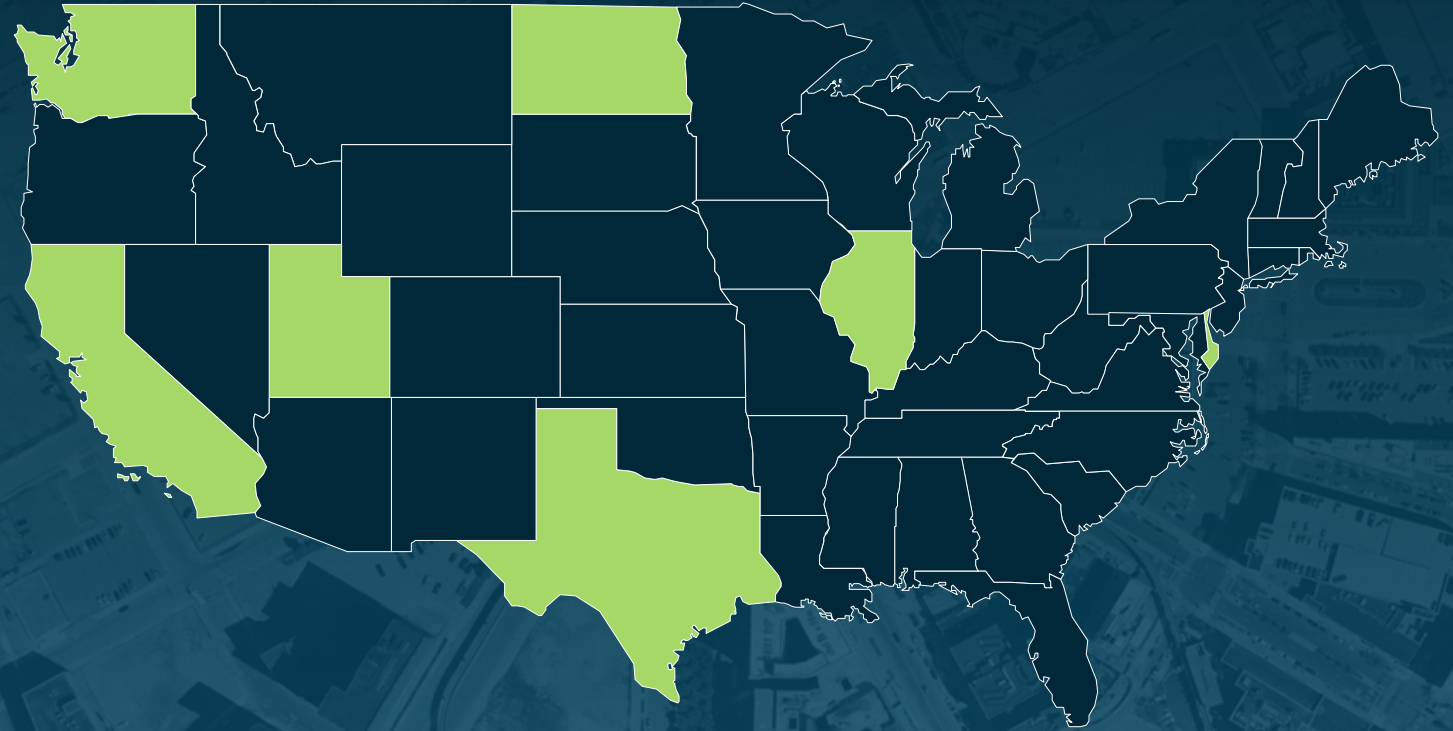
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HxGN Content Program

The largest library of high-resolution aerial imagery, elevation data, 3D models and analytics across North America and Europe.

The aerial data is orthorectified, accurate and available at multiple resolutions.

Seattle, Washington, US

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HxGN Content Program's U.S. state partners

USDA — United States Department of Agriculture
Natural Resources Conservation Service

TNRIS

NORTH Dakota
Be Legendary.™

Caltrans

Puerto Rico

DelDOT

Illinois Department of Transportation

Hawaii

Puerto Rico & US Virgin Islands

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10 years of continuous data collection

2014

Start of U.S. data program at 30 cm resolution.

11 states captured in the first season including Texas and California.

2015

20 new U.S. states captured.

Start of European data program at 30 cm resolution.

Captured Italy, Portugal, Denmark and most of Spain.

2016

Start of U.S. urban program at 15 cm resolution.

Includes all U.S. cities above 50k population, making this the largest urban data acquisition year to date at 225 cities.

31,112 km^2 total area captured.

2017

First cycle of continental coverage in the U.S. completed with 20 states refreshed.

2018

Our biggest year in history. Refreshed half the continental U.S. and a third of European coverage in one season.

5,123,779 km^2 total area captured.

Availability of the data through GSA schedule.

2019

aws

Content hosting migrated to AWS in North America and Europe

HD

Start of Metro HD city program acquisition in the U.S.

USDA

16th consecutive year of collection for NAIP, now at 60 cm resolution.

2020

Start of U.S. data collection at 15 cm resolution. Third U.S. refresh cycle.

Completion of European coverage.

2021

16 states refreshed in the U.S.

Start of European city program at 5 cm resolution.

2022

9 states refreshed in the U.S.

Commitment to 15 cm statewide collection.

HD

Start of Metro HD city program acquisition in the U.S.

Hx**DR**

Orthoimagery available on Hexagon's Digital Reality

2023

13 states to be refreshed in the U.S. at 15 cm resolution.

Hx**DR**

Metro HD city data available on Hexagon's Digital Reality

30 cm resolution program

15 cm resolution program

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Data products and features

Ground Controlled

Consistent Sensor Tech & Flight Plans

Photogrammetric Quality Standards

4-Band Data (RGBN)

Machine Learning Ready

Cloud Hosted (AWS)

Orthophotos (4-band)

- 1.0 ft. GSD wide area coverage
- 0.5 ft. GSD urban area coverage
- Available for streaming & download
- Ideal as a land base for GIS applications

Elevation Products & Stereo Imagery

- DSM and Stereo imagery available in 1.0 ft. and 0.5 ft. GSD data
- Broad coverage of the US and Europe
- Ideal to extract 3D vector maps and clutter

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Hexagon Content Program

Licensed
off-the-shelf
statewide aerial data

Leaf-on, 4-band orthoimagery of the United States

15 cm / 30 cm resolution statewide in the US

2-4 year refresh schedule

Variety of 2D and 3D aerial data products

Eliminate the need for IT and data storage

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Content+
offering for state governments

Licensed data tailored to your needs

- Leaf-off imagery acquisition

- Increased refresh cycle per AOI or statewide

- Higher imagery resolution

- Flexible buy-ups for additional geospatial data products

- Eliminate the need for IT and data storage

- Leverage existing or new data specifications

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State Government

Imagery Use Cases

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Verifying and Updating Feature Position

State of Texas Content Program

Addressers use the imagery streaming service to verify and improve address points for emergency vehicle entry. Also, deploy the streaming service to utility customers that map data on top of the imagery to verify correct location of water meters and other infrastructure.

Further uses include zoning applications and building site selection.

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GIS Application Support

State of Texas Content Program

Relies on the imagery service to support surveying group as well for their land and lease and offshore structures and stormwater applications.

Up-to-date imagery prior to an environmental event aids assessment, clean up and recovery efforts.

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Land Management Assistance

State of Texas Content Program

Application, based on the image streaming service allows a user to outline an area to understand the number and type of deer.

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Study Wetlands and Plant Life

State of North Dakota state water commission using 4-band orthophotos

The State Water Commission entered into a three-year HxGN Content Program agreement, covering over 187,000 km2, to support a statewide wetlands and plant life study. Integral to the study is the false color infrared imagery allowing for precise vegetation analysis.

Both physical delivery of data and streaming services included.

Managing Transportation Assets

California Department of Transportation (CalTrans)

The HxGN Content Program provides RGB/CIR orthoimage data to CalTrans covering the 80,000 km2 of California's highway, freeway, intercity rail lines and over 400 public use airports.
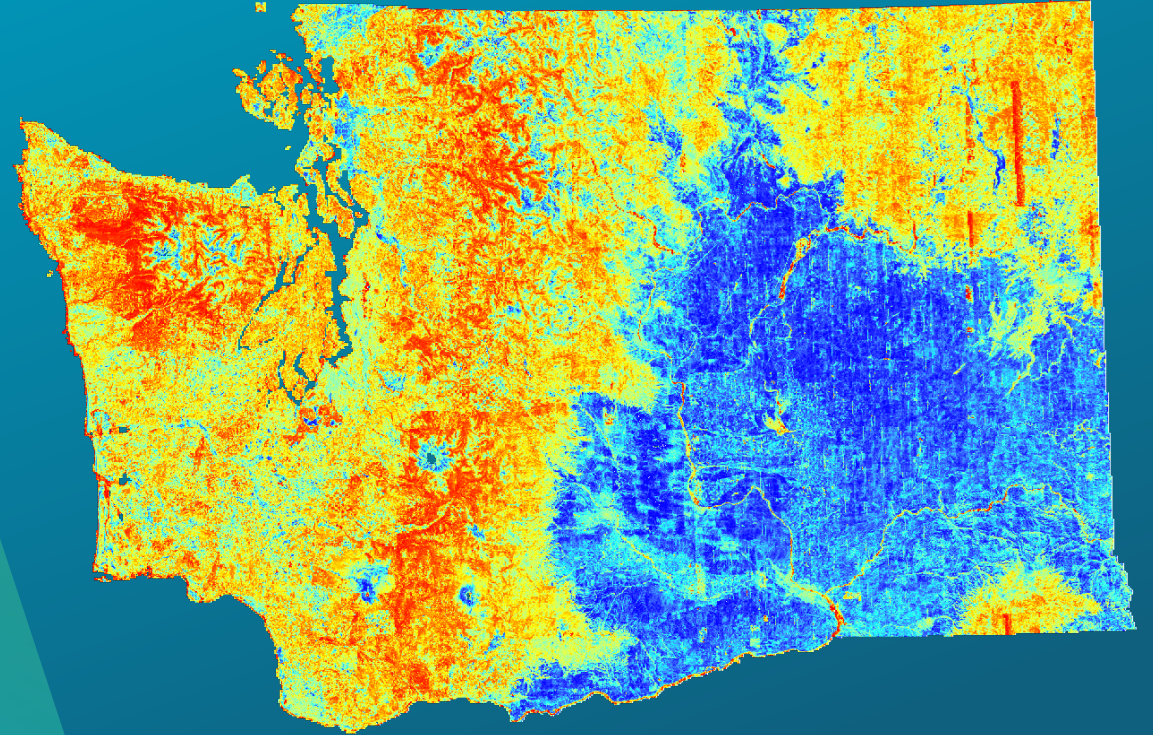
The aerial data provided by Hexagon is used for various GI, engineering, asset monitoring and long-range planning activities.

Elevation Data Help Forests Grow

United States Forest Service (USFS) Pacific Research Station partners with the WA DNR to aid forestry dynamics research

Digital Aerial Photogrammetry and the resultant DSM is emerging as the go-to resource for large scale mapping of forest structure.

Statistical analyses have Implications on forest inventory, habitat mapping, fire fuels mapping, growth rates, productivity and site index.

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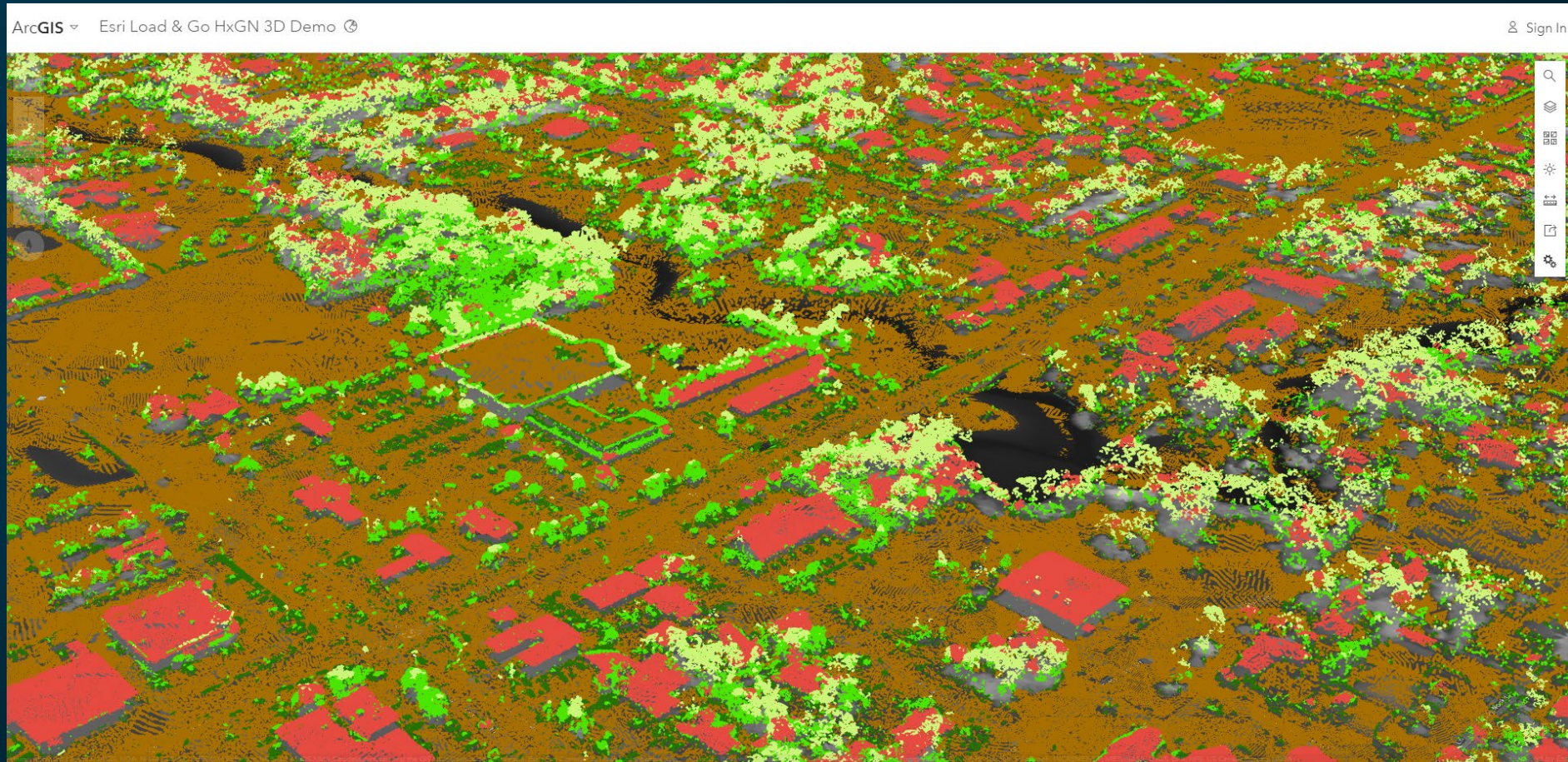Olympia,·WA·98512¤

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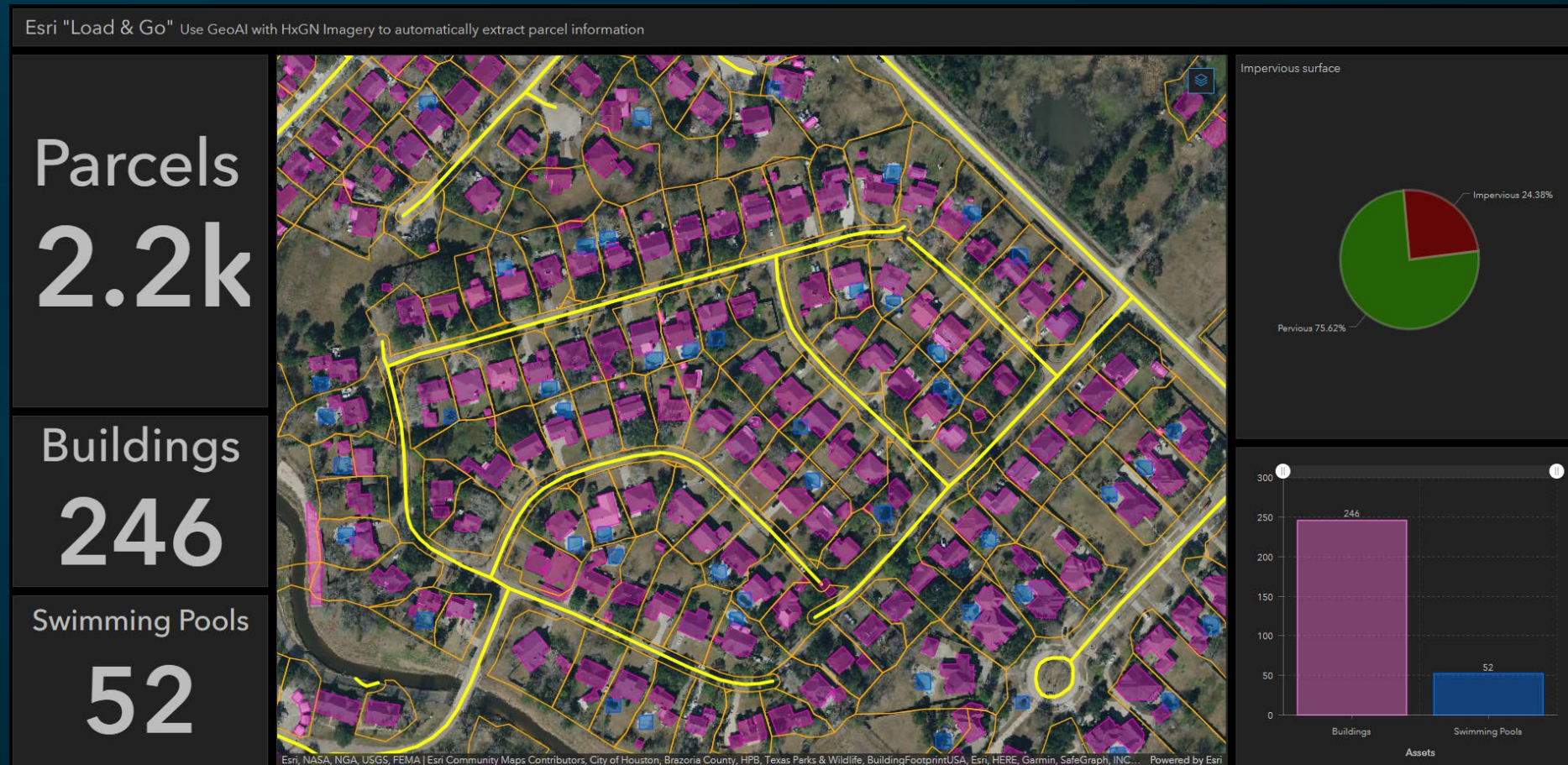
Extended Use Cases

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ESRI Workflows

ArcGIS Pro and 3D Analyst – DSM Data Integration, Processing and Usage
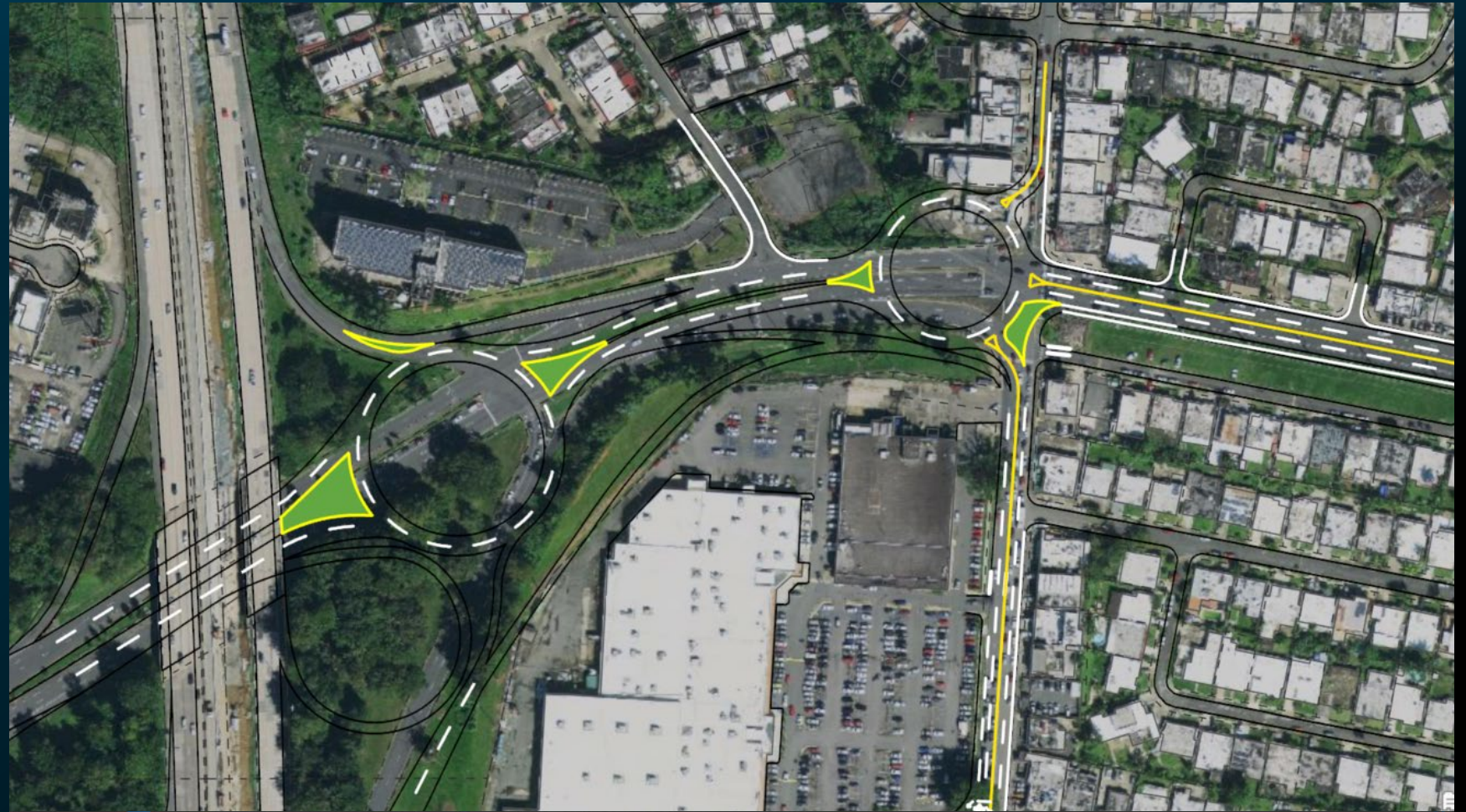
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ESRI Workflows

ArcGIS Pro Web Applications – Deep Learning Results from 4-band Imagery

Metric Engineering

PRX Solutions (Reseller)

- Recently purchased Hexagon Content Program imagery for a variety of uses.

- Specialize in conceptual and final designs, field inventories of transportation infrastructure, intelligent transportation systems, traffic safety, and the mitigation and reconstruction of areas affected by natural disasters.
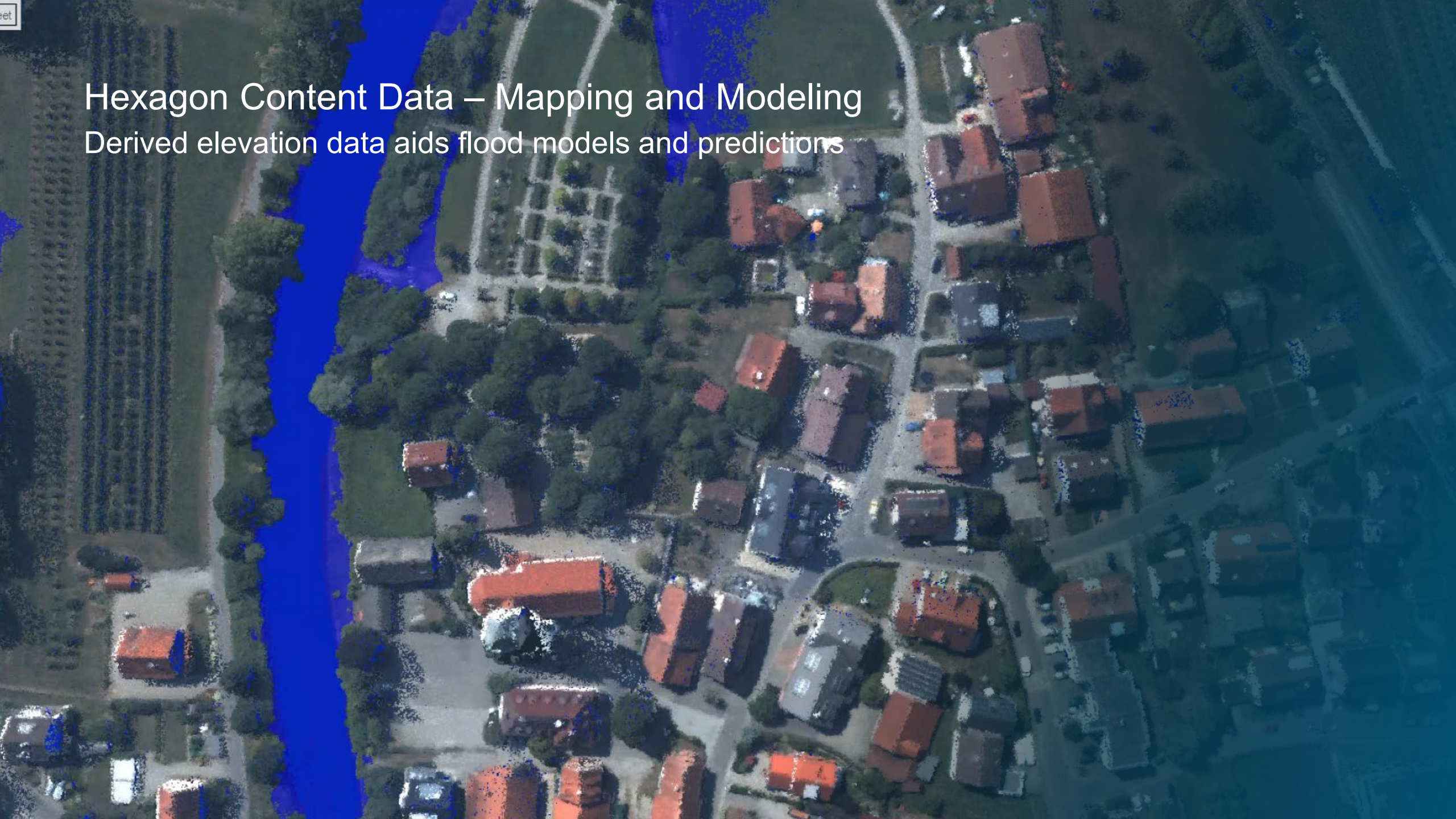
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Utilities Sector

Utilities need authoritative base maps to derive true ground position for distribution assets

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Vegetation Management

High resolution 4 band imagery and derived elevation aid vegetation management

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Hexagon Content Data – Mapping and Modeling
Derived elevation data aids flood models and predictions

Machine Learning for Road Network Extraction

Fast automatic feature extraction from data sets covering wide areas

High-resolution aerial orthoimages combined with machine learning can effectively be used to extract digital content.
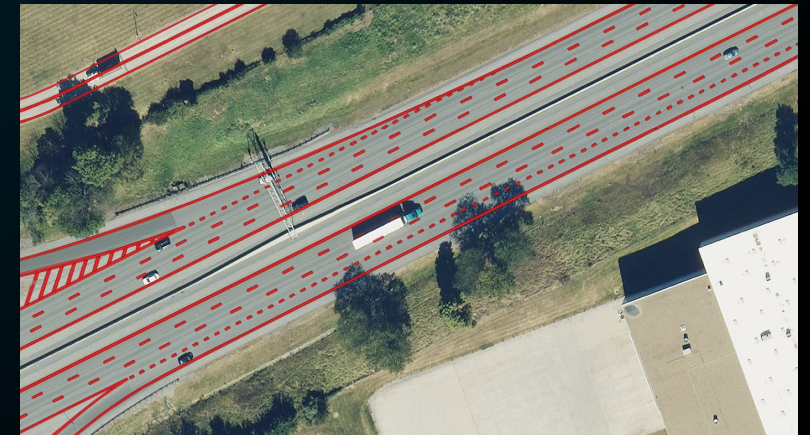
Analysed with artificial intelligence aerials are a new source for fast, accurate and large scale HD map creation.

Aerial data works very well for the detection of

- Roads
- Road markings
- Center lines
- Buildings
- Off-street parking

Semantic lane model created out of detected lane markings based on 15cm GSD data.

Automatic addition of lane & road markings in not detectable areas is done by estimation.

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Machine Learning for Ancillary Data At Scale

Semantic Information builds comprehensive interplay of important scene elements

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Semantic Information builds comprehensive interplay of important scene elements
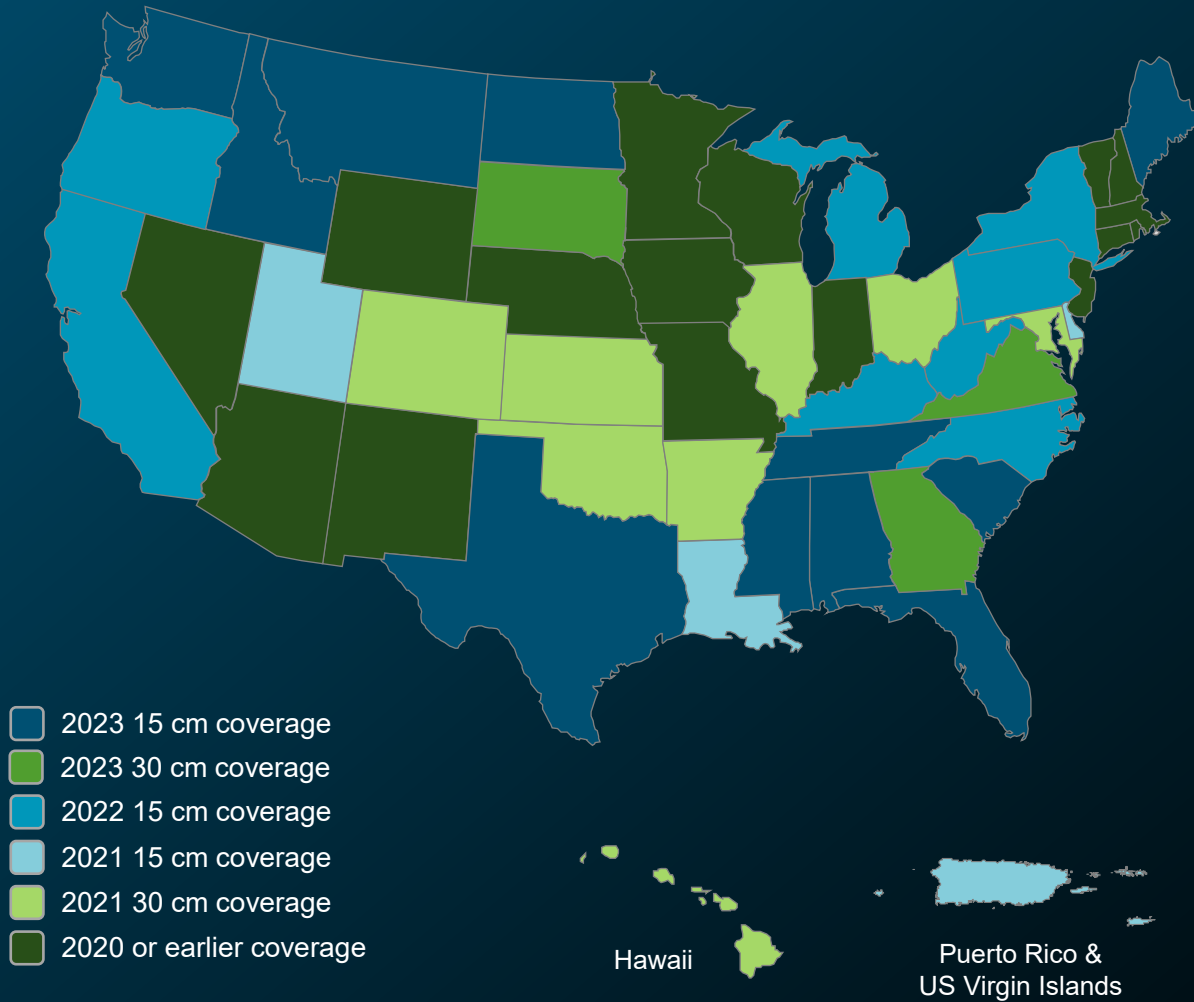
Feature Extraction from Imagery

Machine Learning and Artificial Intelligence for solar potential analysis

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Hexagon Content Program

United States coverage map

Legend:
- 2023 15 cm coverage
- 2023 30 cm coverage
- 2022 15 cm coverage
- 2021 15 cm coverage
- 2021 30 cm coverage
- 2020 or earlier coverage

Hawaii

Puerto Rico &
US Virgin Islands

100%
complete
coverage of
contiguous
United States

8,052,144 mi²
total 30 cm resolution coverage

1,601,311 mi²
total 15 cm resolution coverage

2022 Refreshed Data

657,337 mi²
updated data

10
updated states

2023 Planned Collection

1,150,677 mi²
planned collection

14
planned states

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Thank You

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