



2026

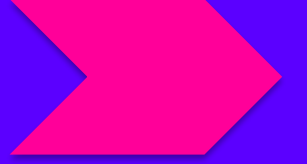
INSPIRE

GIS Solutions Pageant



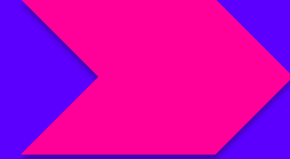
A MOUNTAIN OF INNOVATION!

Rules



5 Minutes and 5 Minutes Only!





Meet the Judges



Awards



Judges' Choice

People's Choice

“Well, That's Cool”



Judging Criteria



1. Problem Definition & Relevance
 2. GIS & Technical Implementation
 3. Innovation & Creativity
 4. User Experience
 5. Impact
- Bonus: Presentation Creativity
- 



Hannah Welker



How Do We Prevent Unnecessary Fatalies?

Hannah Welker, South Dakota Department of Public Safety

PROBLEM

- 23,556 crashes per year
- 140 fatal crashes per year



SOLUTION

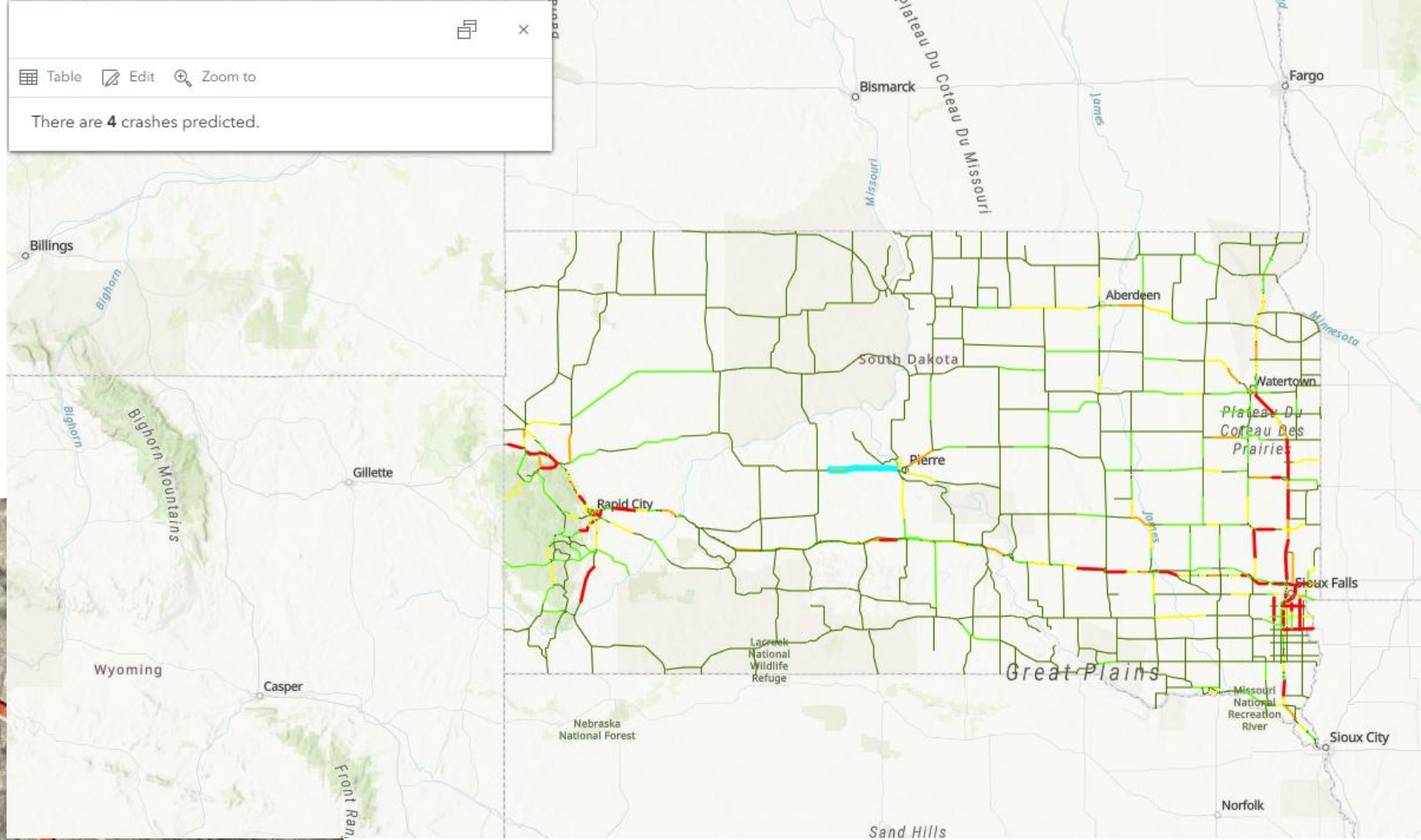
- Be proactive, not reactive
- Get our guys in positions to prevent crashes rather than respond to them



METHODOLOGY

- Random Forests algorithm-based predictions
- Shared via ArcGIS Enterprise
 - All our command staff have Viewer accounts

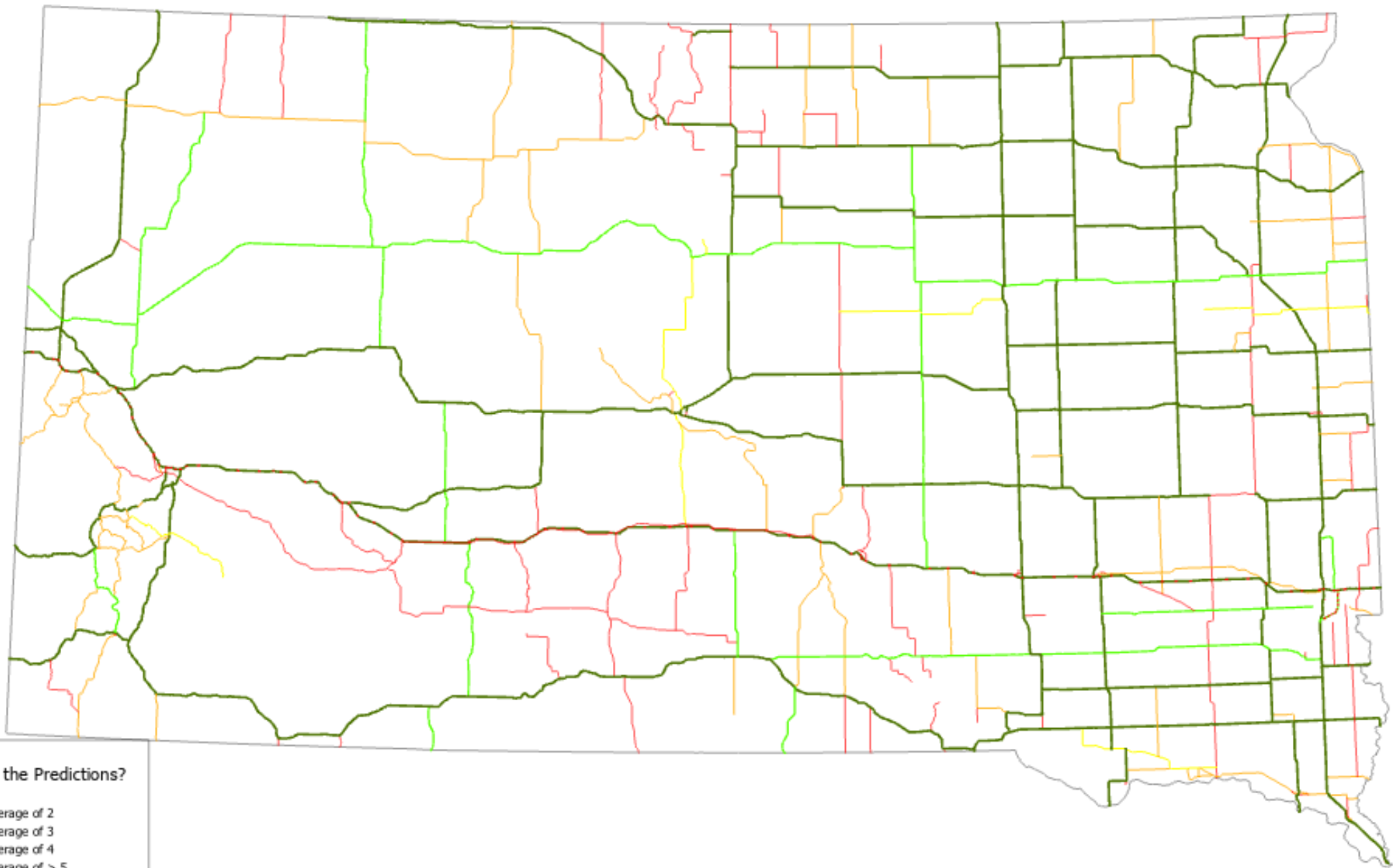




RESULTS

- Now averaging 19,345 crashes per year
- Now averaging 127 fatal crashes per year
- Over 4 years we statistically prevented 12 fatal crashes

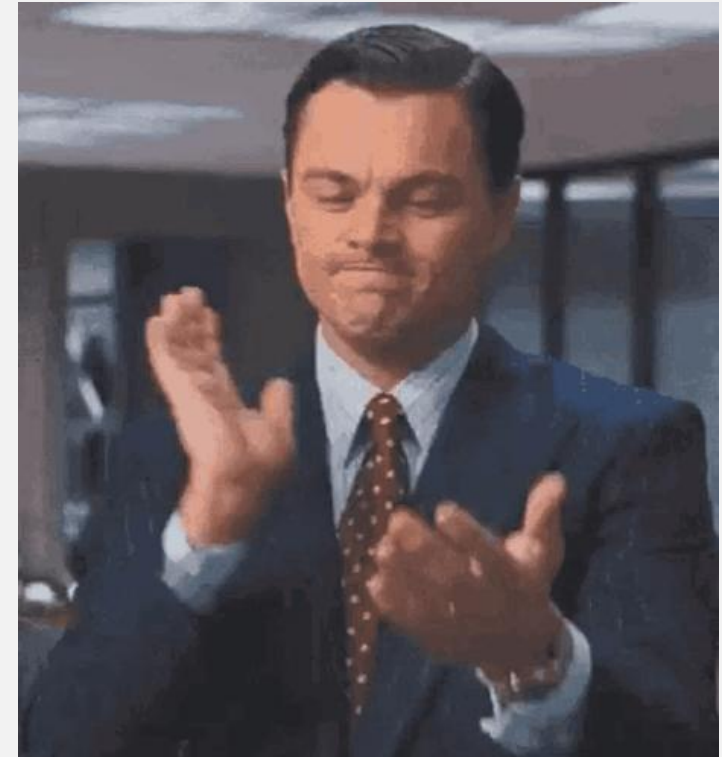




Did We Beat the Predictions?

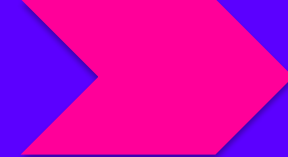
- No
- YES, by an Average of 2
- YES, by an Average of 3
- YES, by an Average of 4
- YES, by an Average of > 5
- Statewide Boundary for SD

Thank you





Hobie Willis



Tala Madigan





JD Jorgensen





RURAL PECO

GIS Infrastructure for Post-Emergency Canvassing Operations

Hurricane Helene Response | Haywood County, NC | 2024

JD Jorgensen

NAPSG InSPIRE GIS Solutions Pageant | May 2026

What is PECO?

Post Emergency/Event Canvassing Operation

Systematic door-to-door welfare checks after a disaster to ensure no one falls through the cracks. Especially functional and access needs populations.

Lifeline Needs Assessed

- Food
- Water
- Power / Fuel
- Communications
- Medical
- Transportation

Urban Origins

- Developed in Washington D.C. and NYC
- Grid streets
- Dense population
- Reliable cell coverage

PECO exists to close loops

Need identified

Resource delivered

Solution Documented

The Challenge

- Hurricane Helene
September 2024
- Estimated 10,000 addresses
to canvass
- Rural mountain terrain with
road and bridges impacted
- Poor cellular and network
connectivity



Volunteer process

PEOPLE (2)

- arrive at Location
- check in
 - sign HIPAA agreement/sign in
 - get J.I.T./education/training
- Get Route info
 - locations
 - family sizes
- Get clipboards + packet

TEAM LEAD

- Xtra water
- MRE blankets
- Paper peco forms
- pens
- clipboard
- Get food + water
 - based on # of households or vehicle size
 - MRE + canned food
- Go on route
 - fill out forms
 - identify unmet lifeline needs
 - give out food + water
 - give out info packets
- Return forms + unused items to

Location:
- check that out box is emptied in survey 1-2-3

IDENTIFY

- Dividing line for medical urgent care = Hatt, emergency room 911, IDK = 911
- Prescriptions
 - HRH can write for refills or lost
 - courier if needed
 - \$ is barrier
 - funding for uninsured

Site setup

Inside space for ppl
Outside food + water

SAFETY CONSIDERATIONS

- PPE
- Do not drive over.
- Vests

SHIFT LENGTH
Host church Food truck

Setup
Check in - 8
Training
Peco - 9-12
gather
lunch - 12-1
peco - 1-3
AM, PM or Both
- 2 trainings

Volunteer checklist (to provide)

- Clipboards
- Forms
 - daily resource sheet
 - PD list
 - DSMAP info
 - paper forms
 - EEI/reference sheet
- Food (MRE)
- water
- PECO specific sheet
- Follow up plan for volunteers to communicate

TEST

N. Canton
- 10 teams of 2 adults
can bring lot
can church sites provide daycare

PECO

post Event
Canvassing
Operations

- Inputs
- Paper forms
 - Survey 1-2-3 app
 - Web based form

DATA

Intake

- Call center
- DSMAP Call center
- Churches
- damage assessment
- social workers
- fire districts

Routes (1)

- Based off fire maps w/ major roads
- WHO BUILDS ROUTES
- How is that communicated
- can workers get a map + list of addresses?
- ROUTE ASSIGNMENT TRACKING

Database (3)

- will auto collect web form + 1-2-3 form
- will need data entry:
 - input forms
 - assign tags
- Database access

DASHBOARD/REPORTING (4)

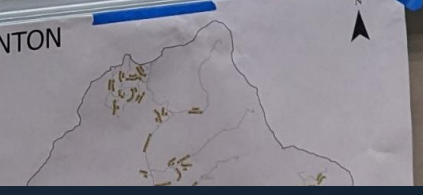
EEI's

- Immediate, urgent or life threatening health needs to 911 + supervisor
- Shelter + Housing needs - identify those w/ needs + if they have transport. Follow Diagram
- Utilities
 - electricity, heating + internet/phone
- Food + water

Forms

- Initial
- Follow up

NORTH CANTON



The Workforce

• Administration

- Haywood HHSA Personnel including volunteer and donated goods team
- Wesley Learey from HSEMA
- Natriefia Miller from NPS
- Destiny Perez from TDEM

• Field Staff

- Rotating church volunteers to start
- Eventual assignment of NC National Guard Troops -- Average 60/day

• GIS Staff

- One GIS specialist, also supporting other concurrent missions and serving as lead UAS pilot



Door-to-door visits underway countywide to make sure everyone's OK

By Aarik Long along@themountaineer.com

Oct 20, 2024



NC Guard Go Door to Door after Tropical Storm Helene

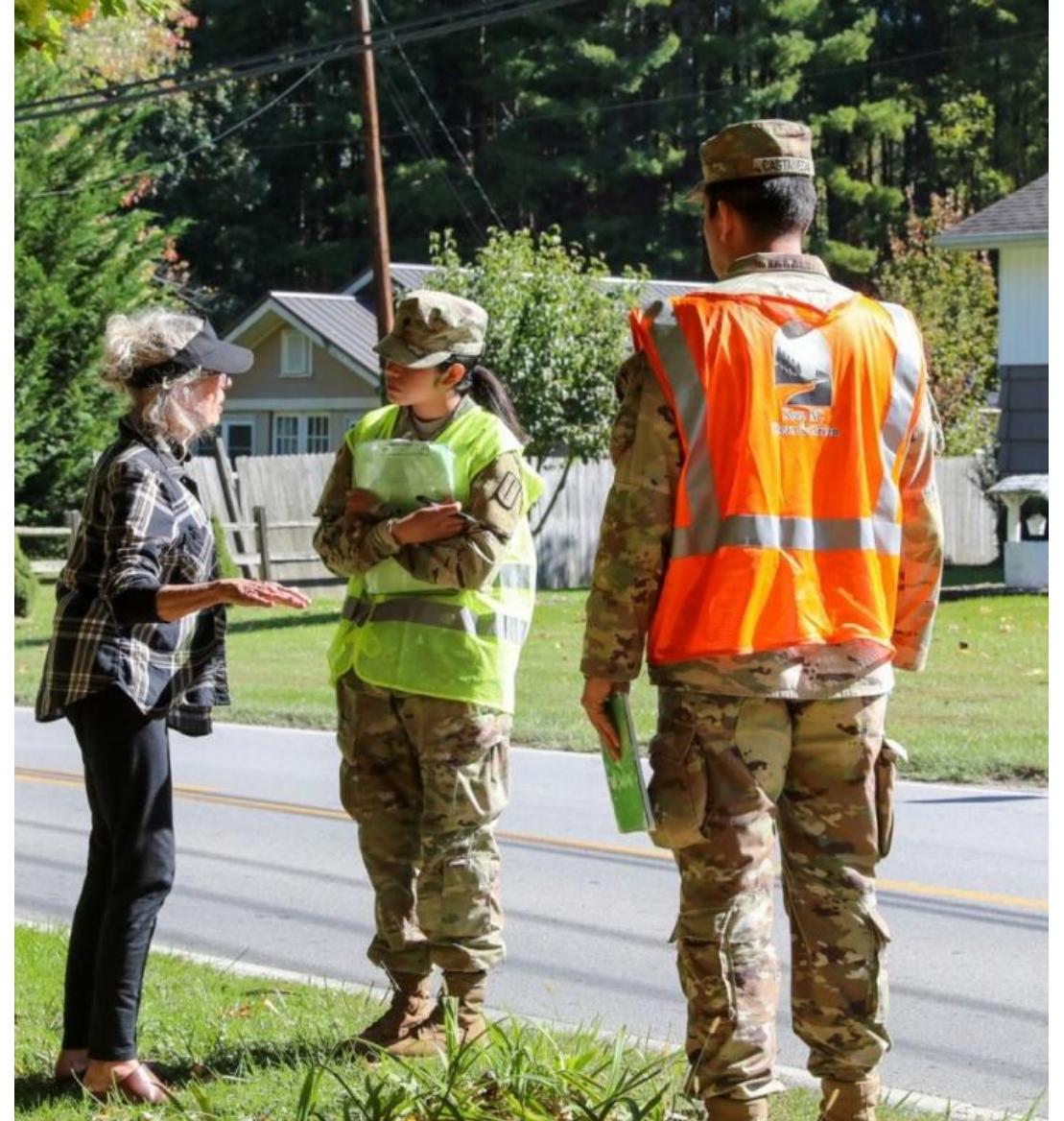
By Staff Sgt. Hannah Tarkelly October 22, 2024



[<https://api.army.mil/e2/c/images/2024/10/23/b000f22d/original.jpg>]

SHOW CAPTION +

1 / 13



1

Impact Area Mapping

Component 1 of 5

Search and Rescue Maps

Leveraged FOB Incident Management Team damage assessments as foundation layer

NC emPower Dataset

Power-dependent medically fragile population addresses integrated into coverage

100-Year Floodplain Overlay

Initial prioritization based on flood risk zones for systematic coverage

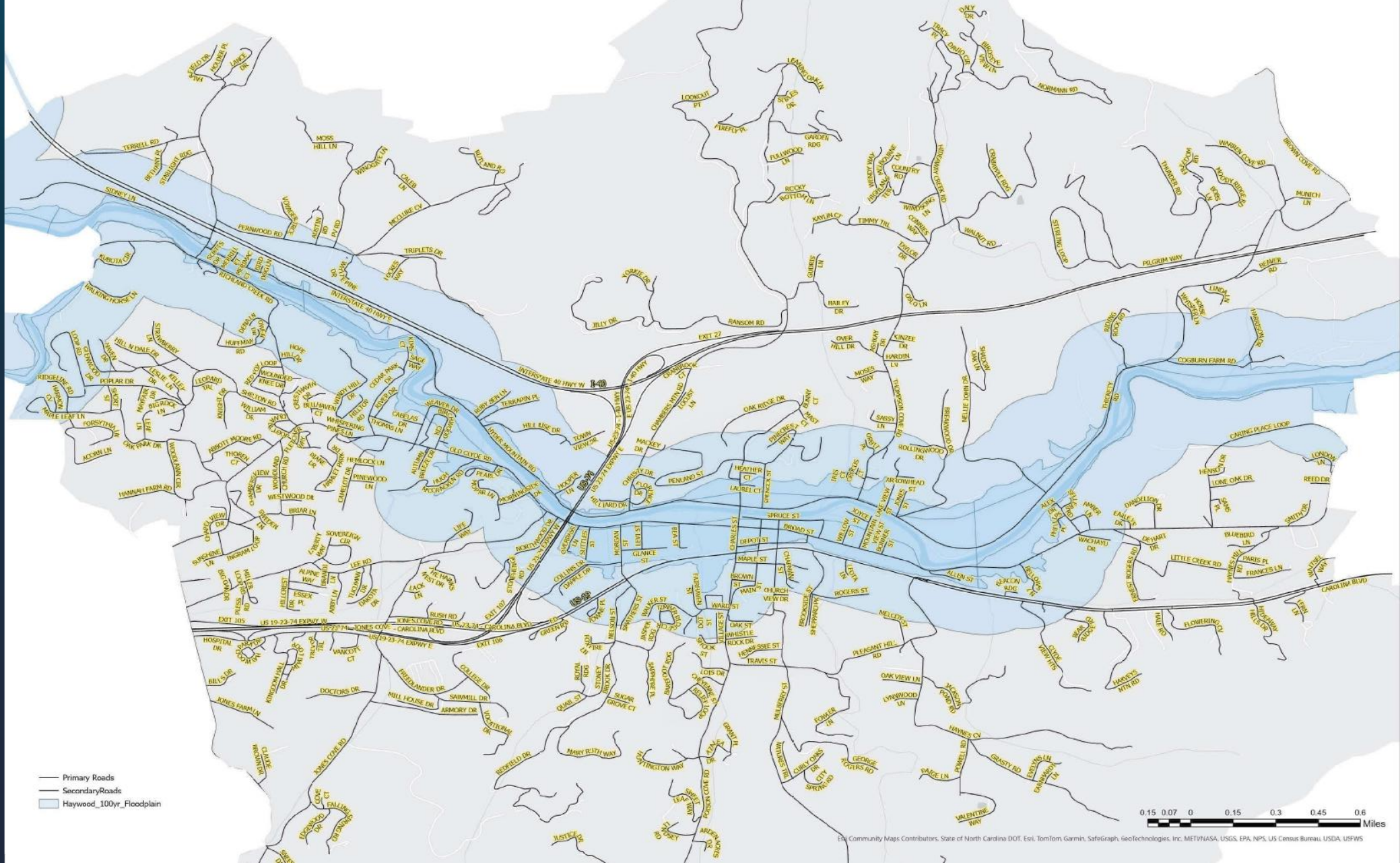
Fire District Boundaries

Organized by geography responders already knew - local knowledge as asset

Fire Chief Review

LOFR took maps to chiefs to verify, mark inaccessible areas

CLYDE



- Primary Roads
- Secondary Roads
- Haywood_100yr_Floodplain



2

Address List Generation

Component 2 of 5

1

Parcel Intersection

County parcel data intersected with verified impact areas

2

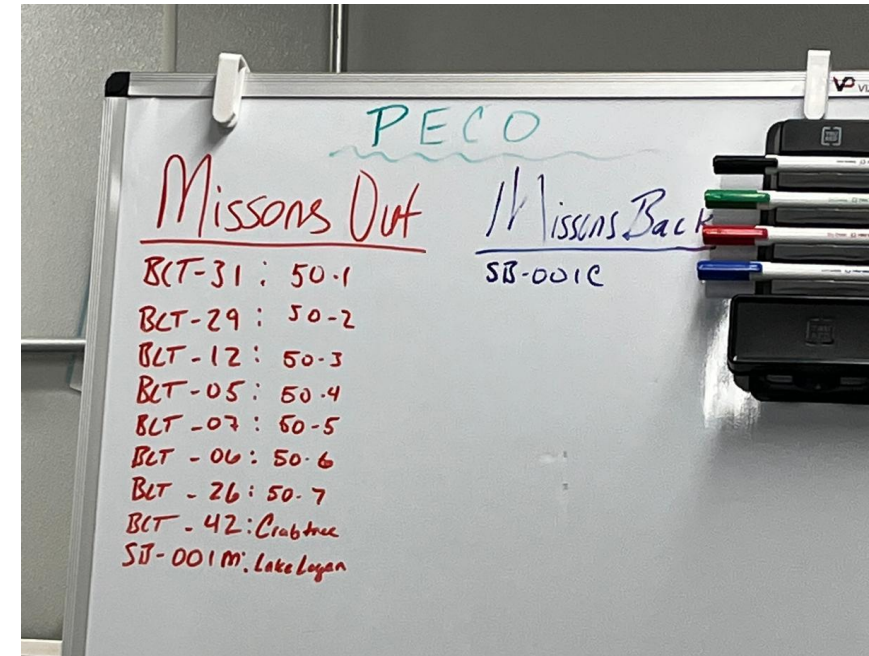
Export to Excel

Address lists pulled for assignment breakdown

3

Team Assignment

Guard staff broke lists into daily mission packages



3

Survey123 Field Collection

Component 3 of 5

Design Decisions

GPS Spatial Queries

Auto-populate fire district, zip, address from location when possible

Conditional Logic

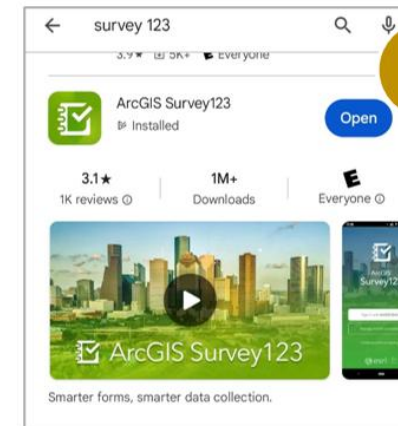
Contact status and needs identified determines which fields appear

Offline-First Architecture

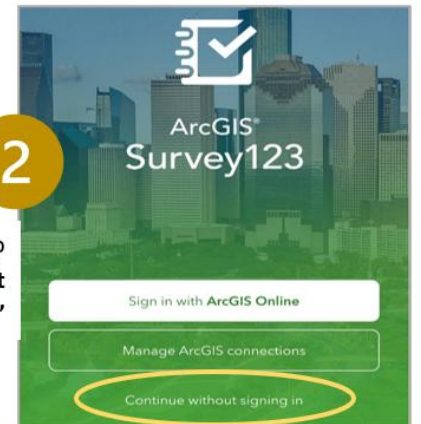
Designed for no signal; connectivity is a bonus

"If the person holding the phone has to think about GIS, we've already failed."

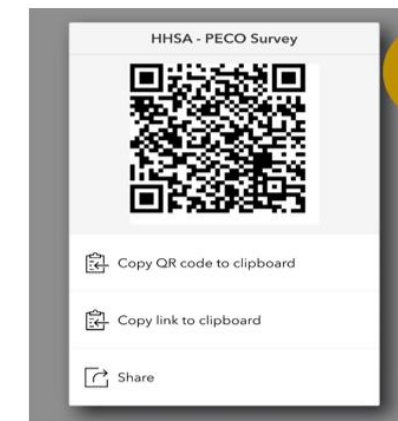
Paper backups sent with every team for device failures



Go to where you download apps and type in **"Survey123."** Click the icon that's a green notebook with white checkmark to download. The full name is **"ArcGIS Survey123."**



Once downloaded, open the app and click **"Continue without signing in."**



Download the **"HNSA – PECO Survey"** by scanning the QR code available.



To add information for a location, click the **"Collect"** button down at bottom of screen.

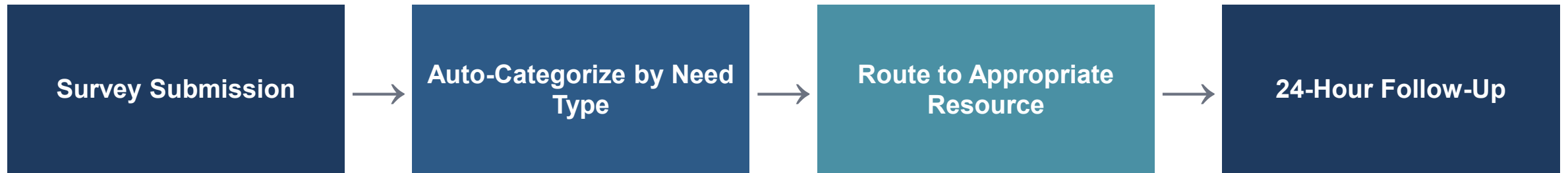


4

Power Automate Routing

Component 4 of 5

Automated Data Flow



Routing Logic

Urgent Needs

Oxygen, generators, medical, paramedics → Routed immediately to coordinator

Standard Needs

Food, water, supplies → Queued for VOAD agencies or 2nd-day volunteers

SCOPE + OBJECTIVES

1. IDENTIFY IMMEDIATE, UNMET LIFELINES-BASED NEEDS FOR ALL IMPACTED CITIZENS
2. MEET THOSE NEEDS OR CREATE ROUTE FOR FOLLOW UP
3. FOLLOW UP ON ACCESS + FUNCTIONAL NEEDS
4. CLOSE LOOPS.

ONCE WE HAVE AN IDENTIFIED NEED,
WE HAVE TO HAVE A RECORD OF THE
OUTCOME, ALL FOLLOW UP,
AND ANY RESULTS



5

Operational Visibility

Component 5 of 5

Who Saw What

Leadership

- Coverage by fire district
- Daily progress metrics
- Gap identification

Coordination Staff

- Pre-sorted submissions
- Need type categories
- Follow-up queue status

Field Teams

- Simple form interface
- Confirmation of sync
- No backend complexity

Real-time progress visible without waiting for end-of-day reports

Evidence It Worked

The Onboarding Test

National Guard arrived Day 4

**Productive by
Day 5**

No formal GIS training required

The Scale Test

- 4-90 personnel daily
- Force packages of 4-24
- Rotating volunteers

No bottleneck

The Hands-Off Test

System ran while GIS specialist supported other missions

Zero support calls

Field Innovation: Teams discovered "ask what your neighbors need" technique

Flexible GIS infrastructure made room for human improvisation

Impact

21

DAYS

~10K

ADDRESSES

3,419

CONTACTS

298

NEEDS ROUTED

546

FLAGGED

The PECO Outcome

- Loops closed: Need → Resource → Documentation
- Functional and access needs population covered via emPower dataset
- System sustained 21 days without refactoring
- PECO system now exists for future incidents

Ten Thousand Addresses.

One Committed Team.

Survey123 and Power Automate Ran
Without Babysitting.

Paper Maps for Route Planning Flexibility.

Simple GIS Infrastructure

+ Strong Partnerships Won The Day



Fabio Santos



TRAVIS COUNTY OFFICE OF EMERGENCY MANAGEMENT

oem.traviscountytx.gov

Using ArcGIS HUB to Promote Information Dissemination



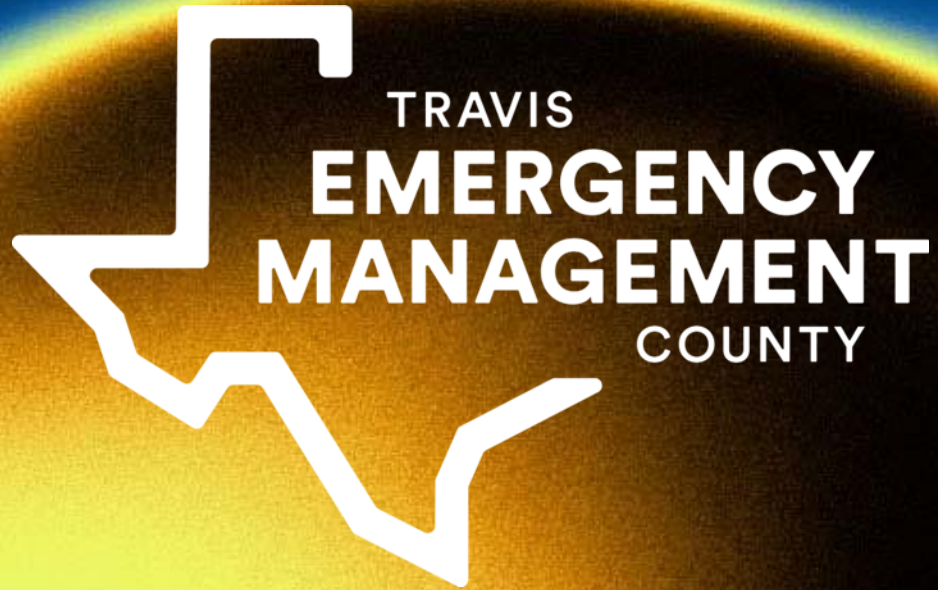


ArcGIS Hub

ArcGIS Hub is an easy-to-configure cloud platform that organizes people, data, and tools to accomplish projects and goals.

Learn More about ArcGIS Hub:

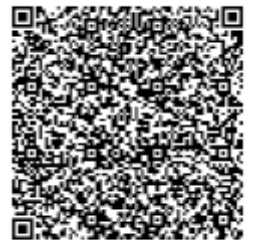


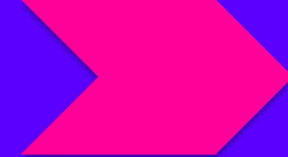


CONTACT INFORMATION

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Kevin Bell





Defensible
Space in the
Wildland
Urban
Interface

LiDAR for the win!

Light Detection And Ranging

Raw Data: (More than 8 Billion X, Y, Z's for Salt Lake City !!!)

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

Latitude, Longitude, Elevation

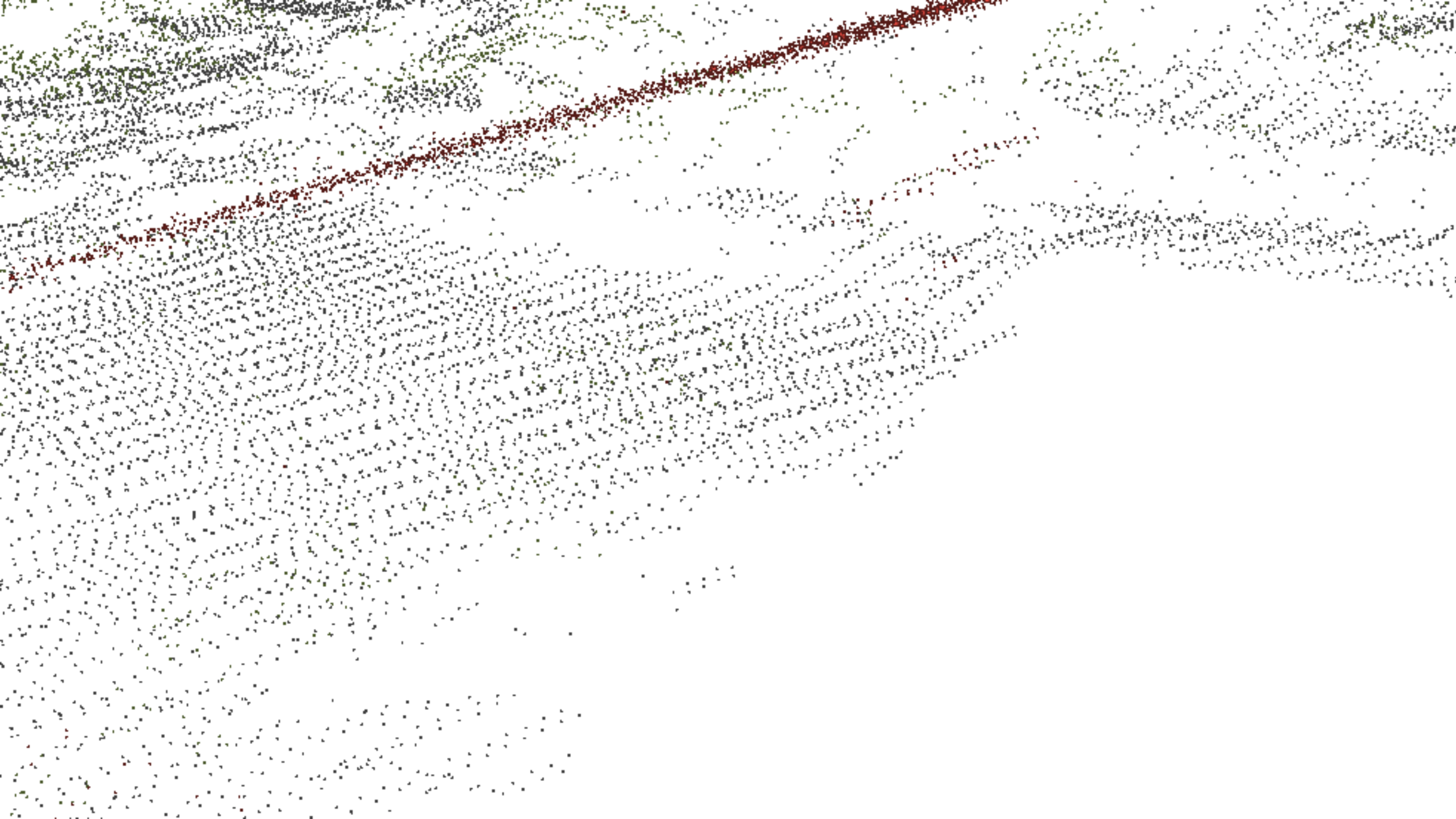
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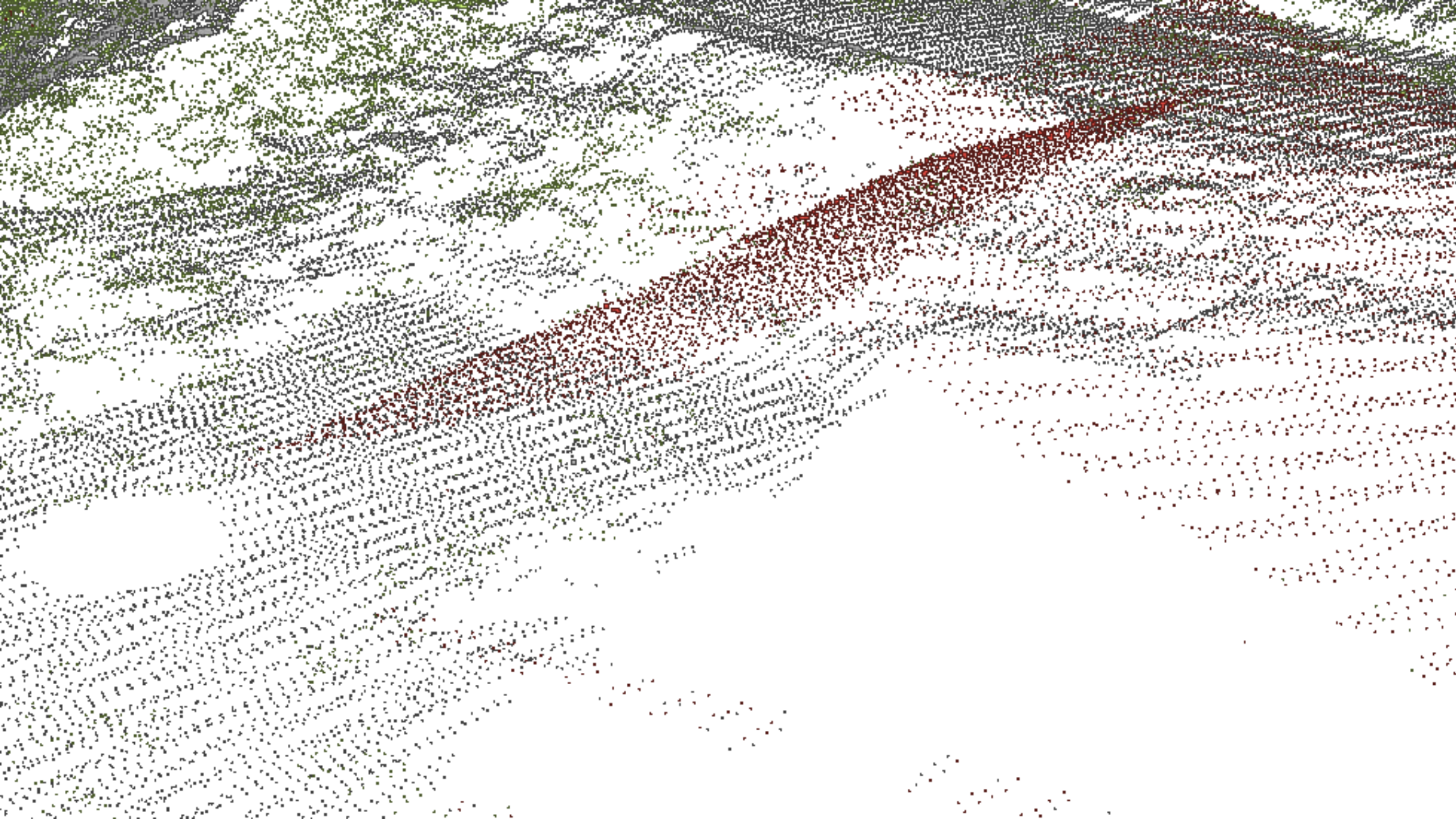
Latitude, Longitude, Elevation

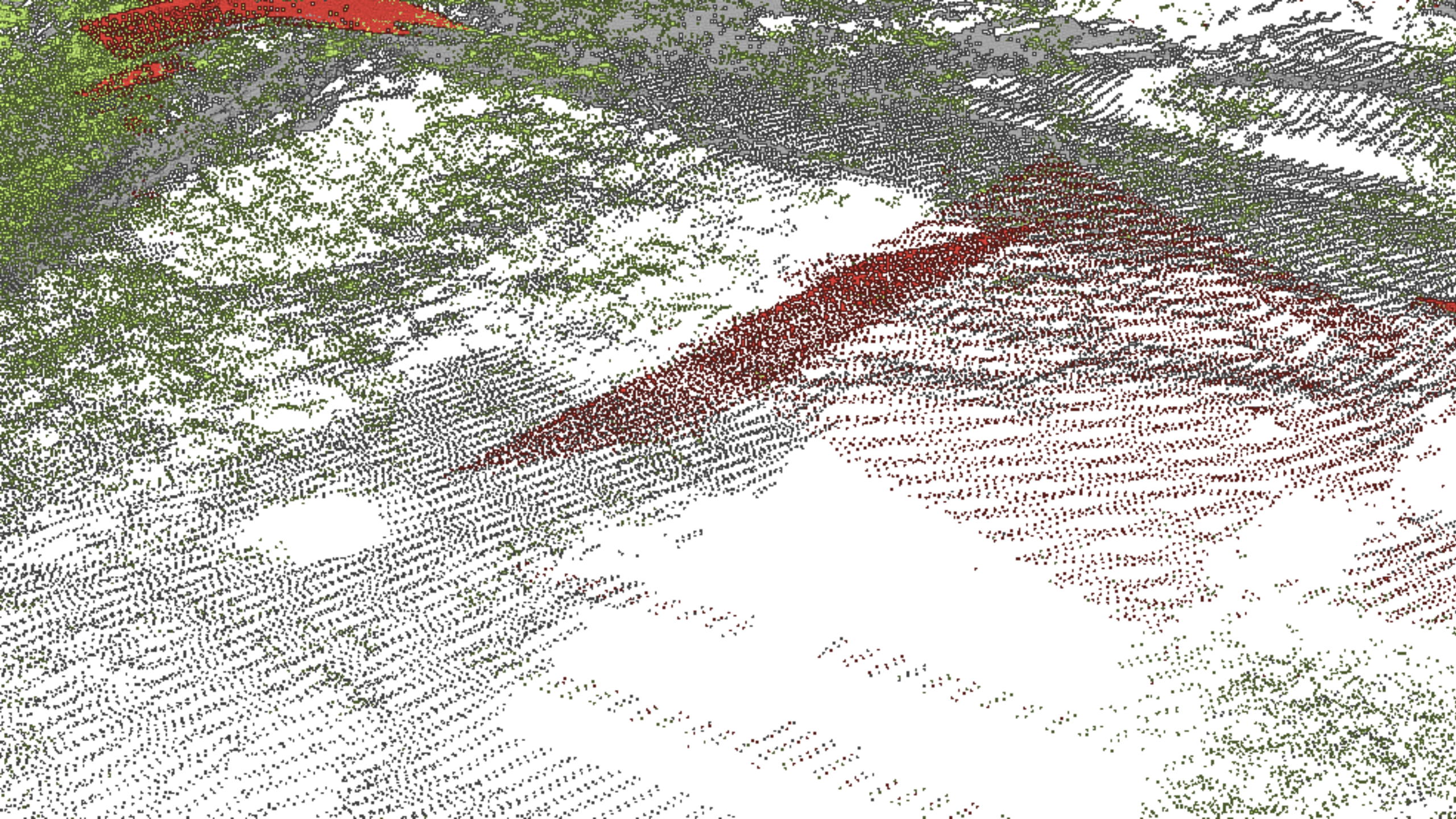
Latitude, Longitude, Elevation

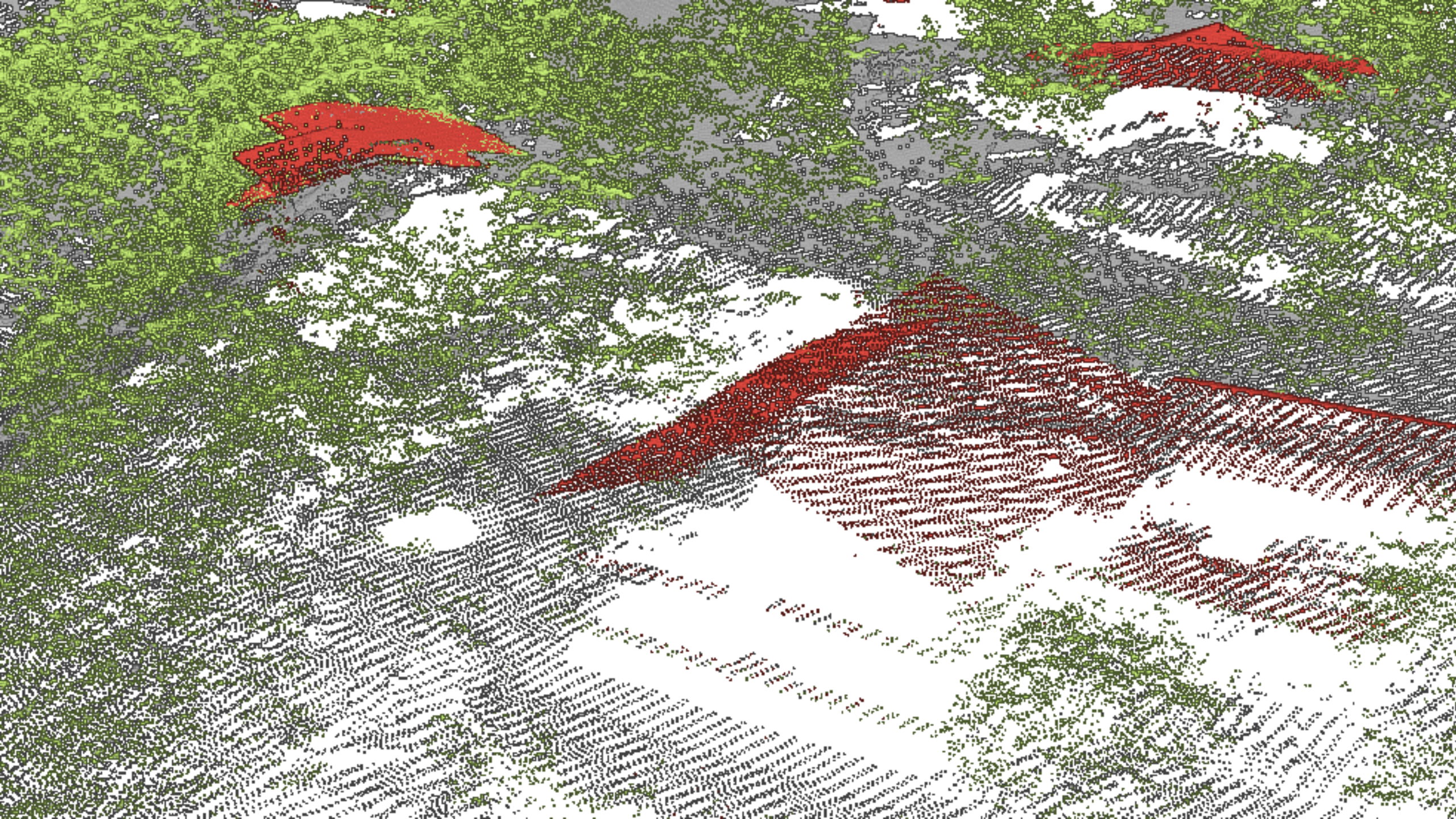
Latitude, Longitude, Elevation

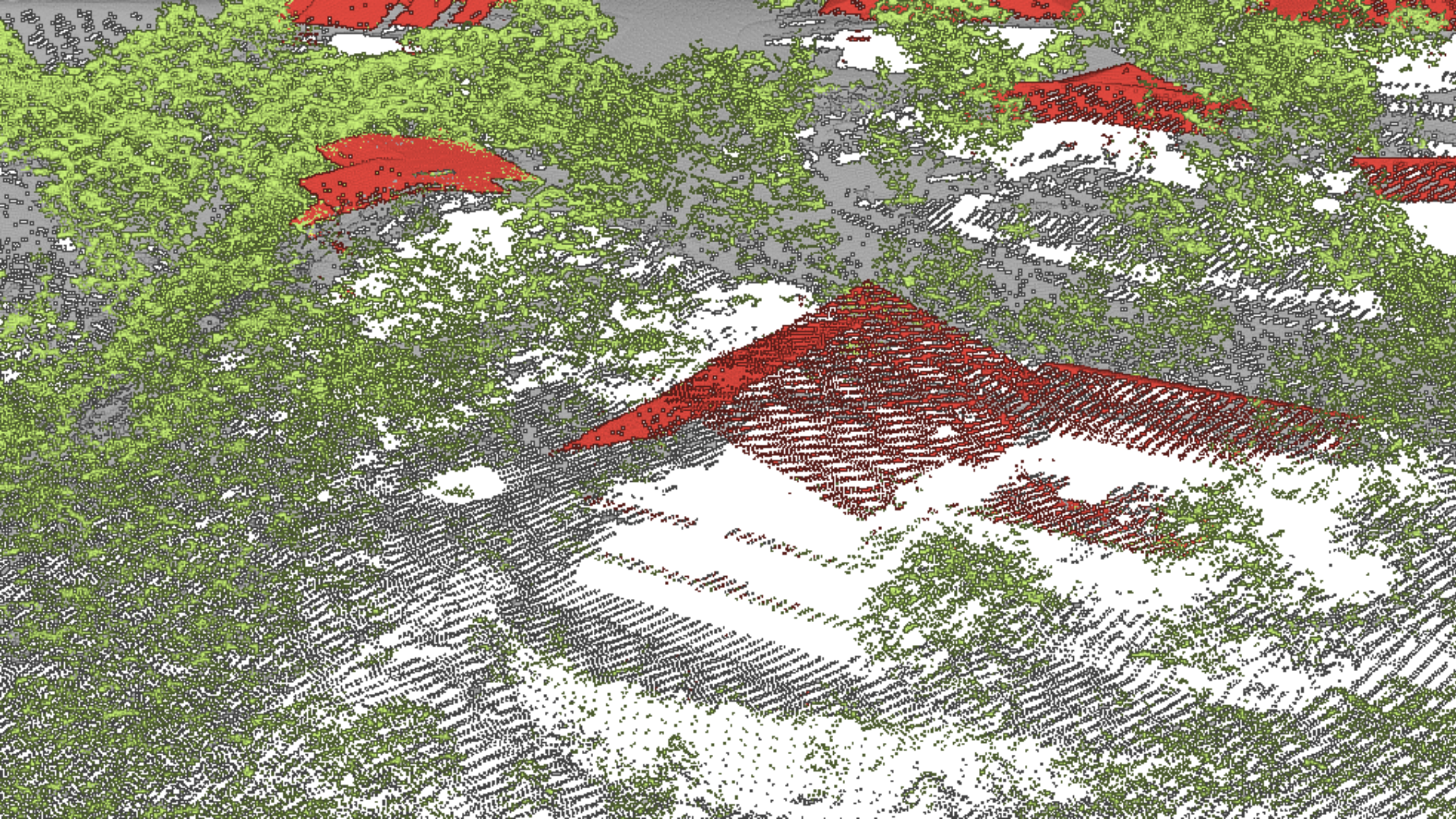
Latitude, Longitude, Elevation...

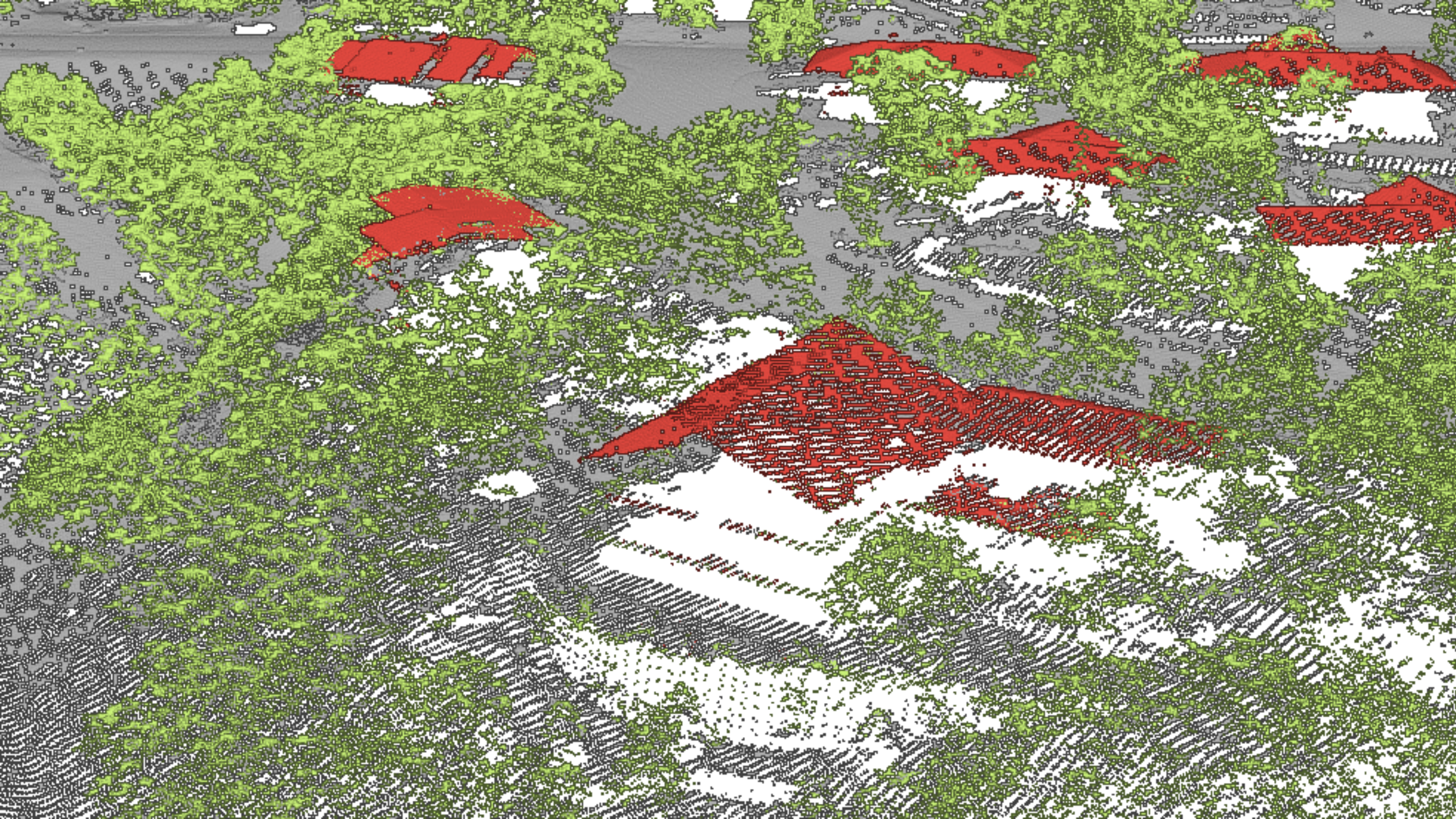


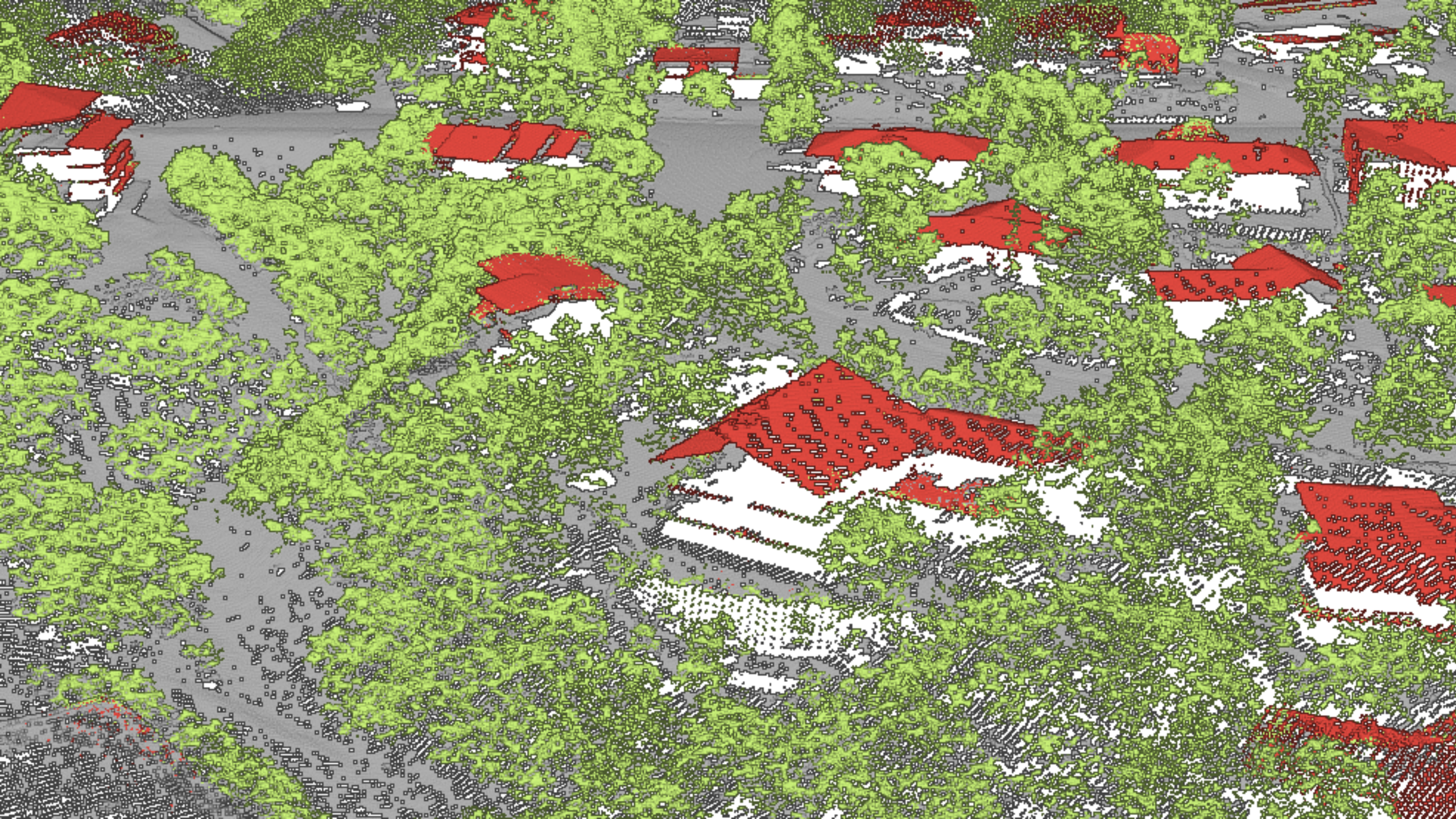


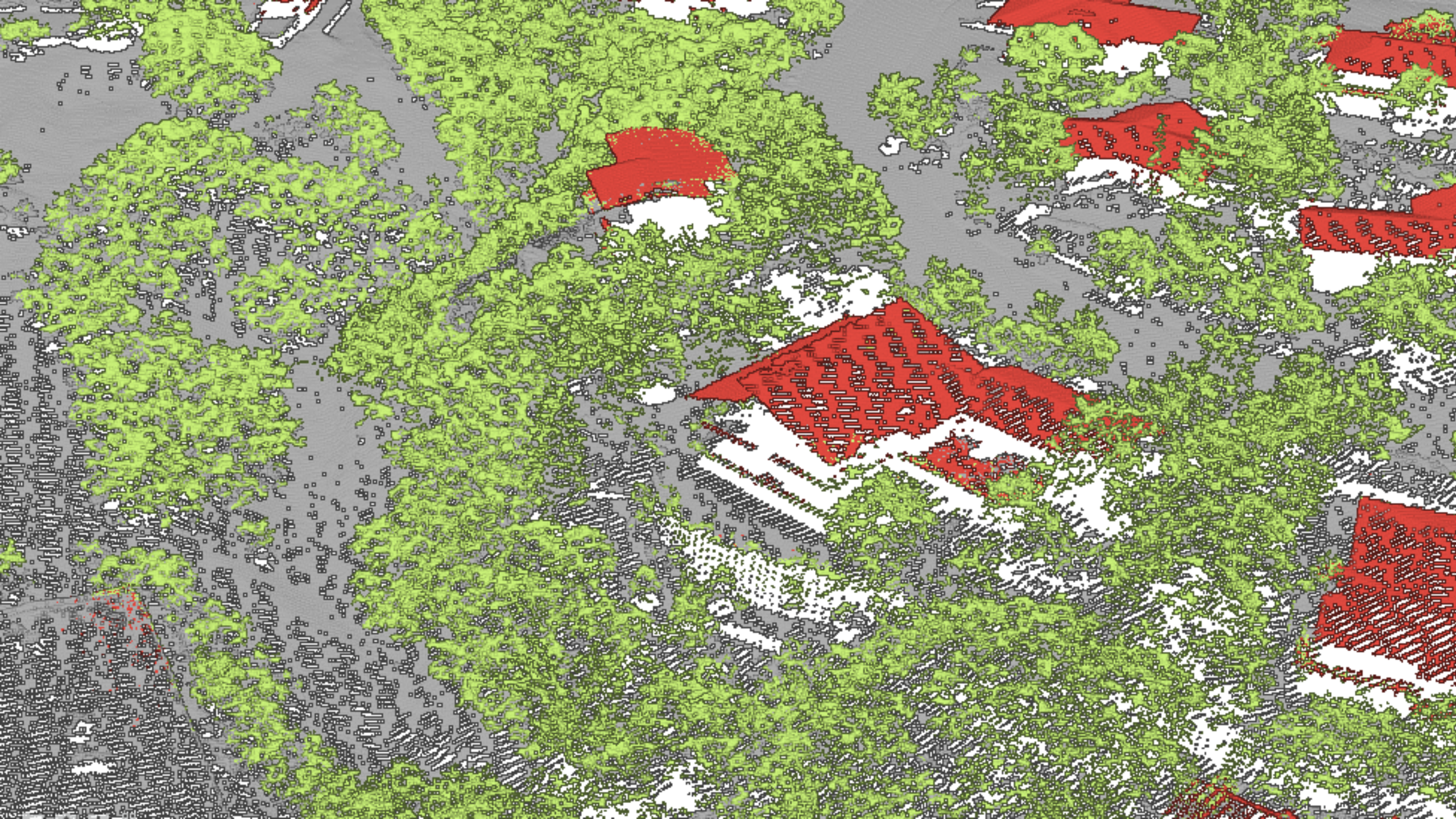


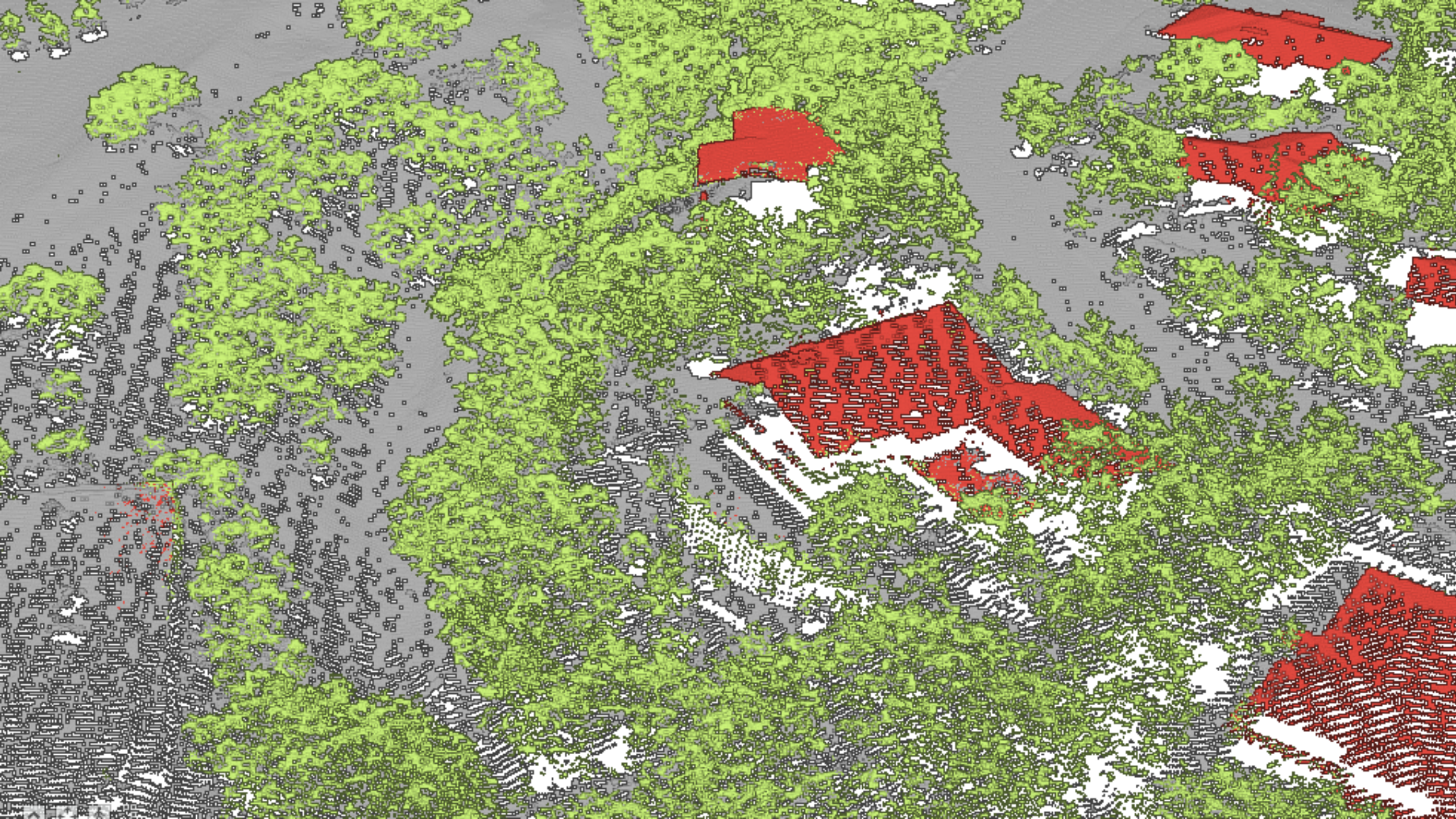


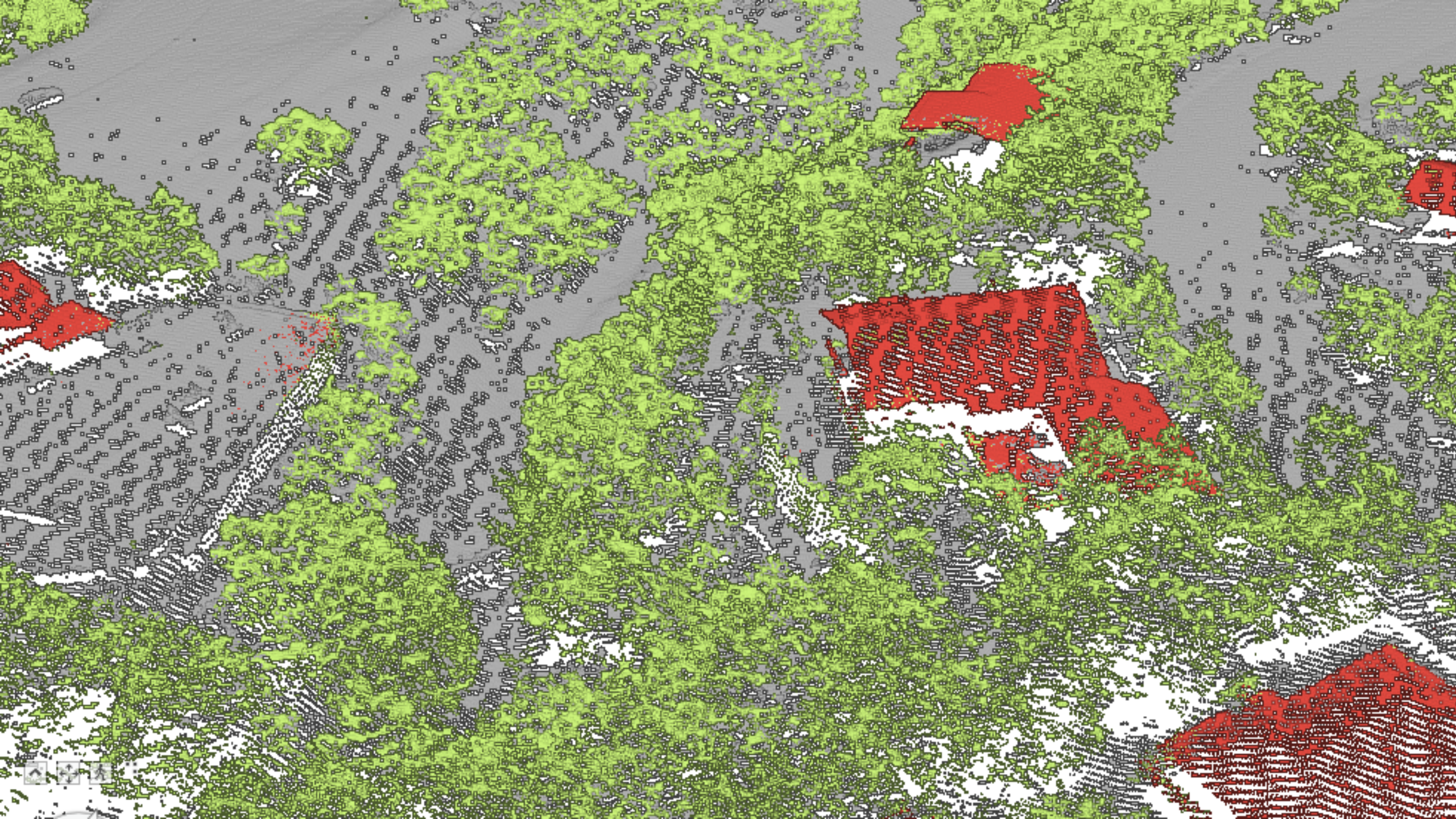


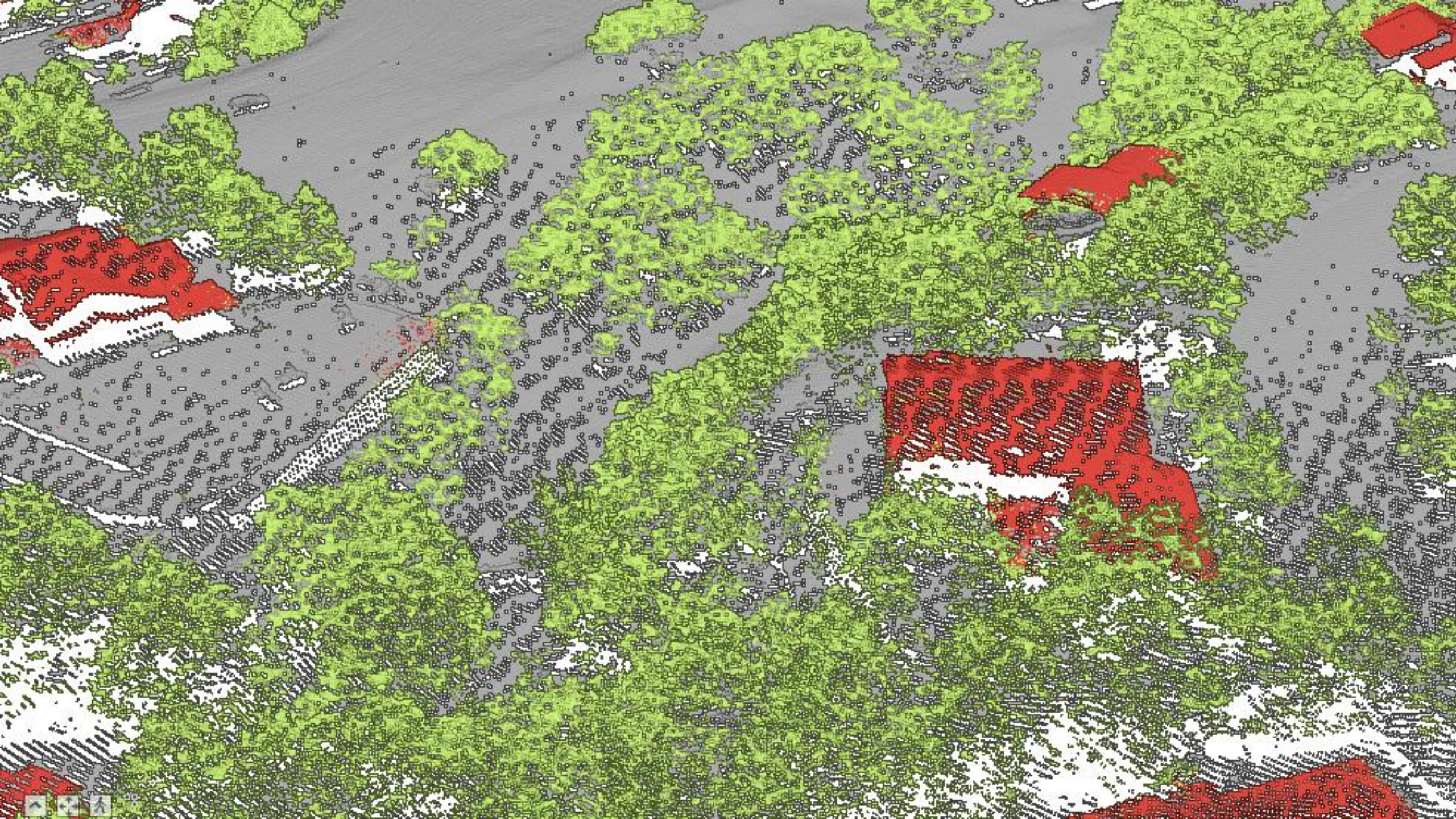


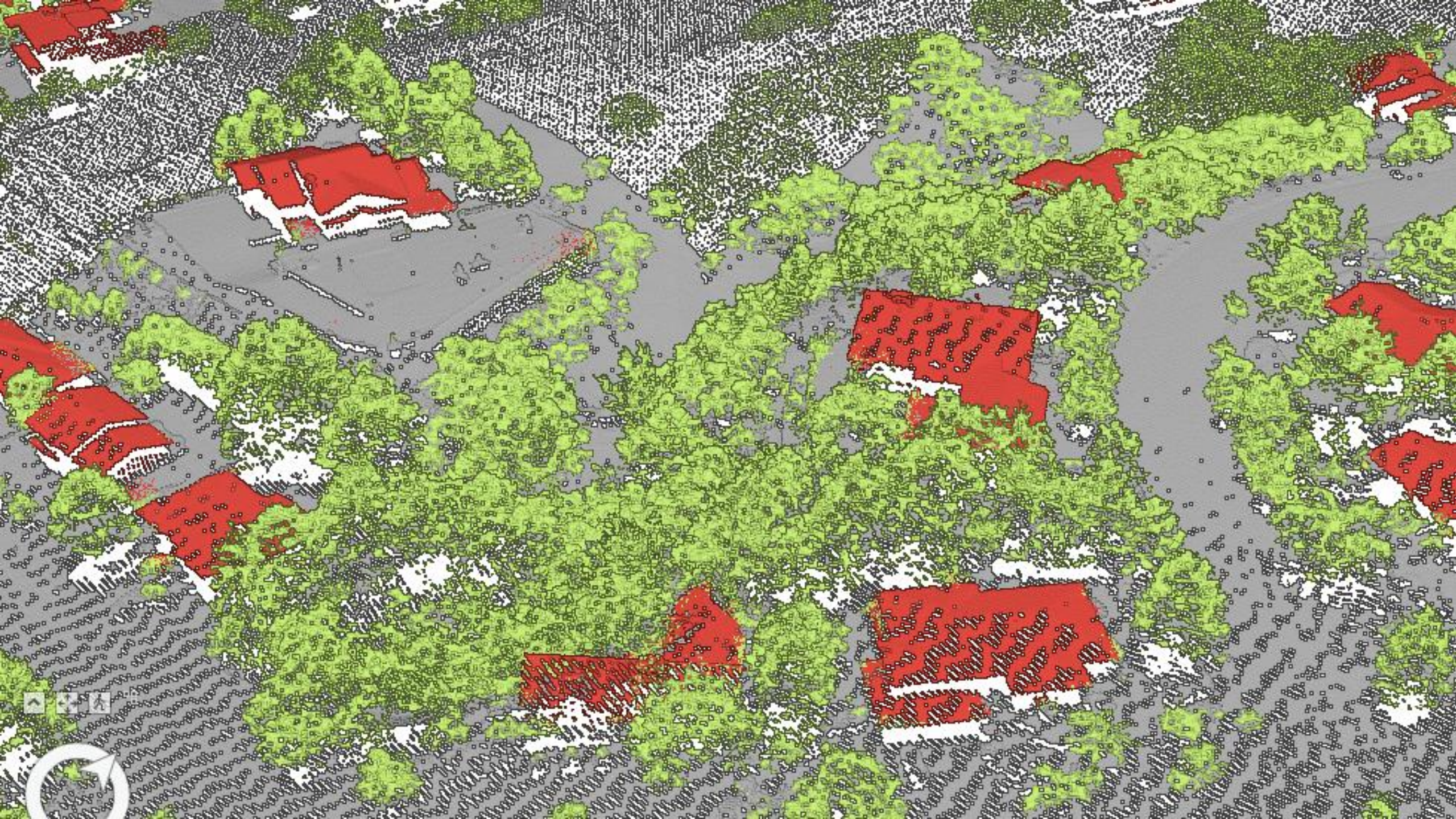


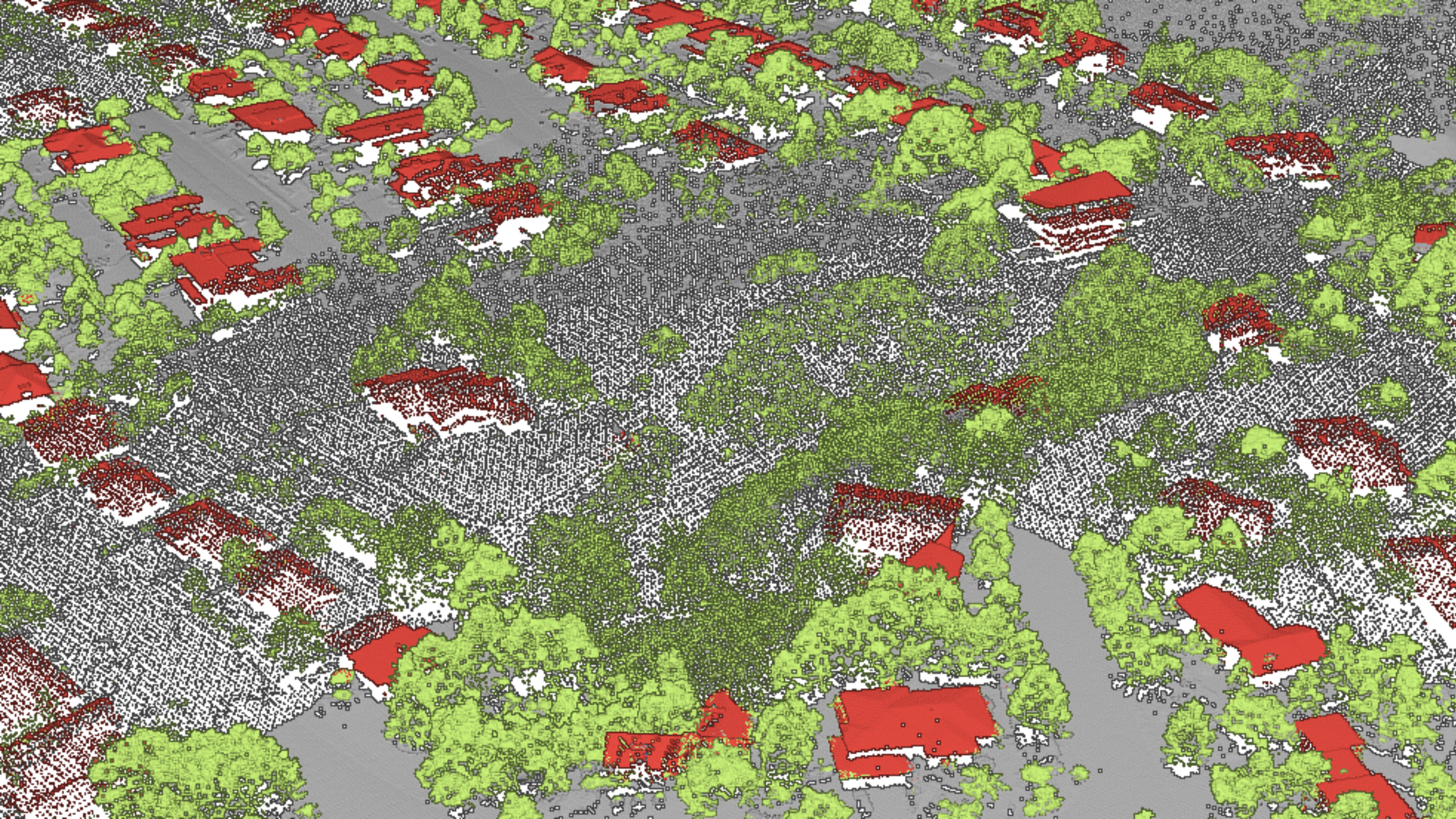


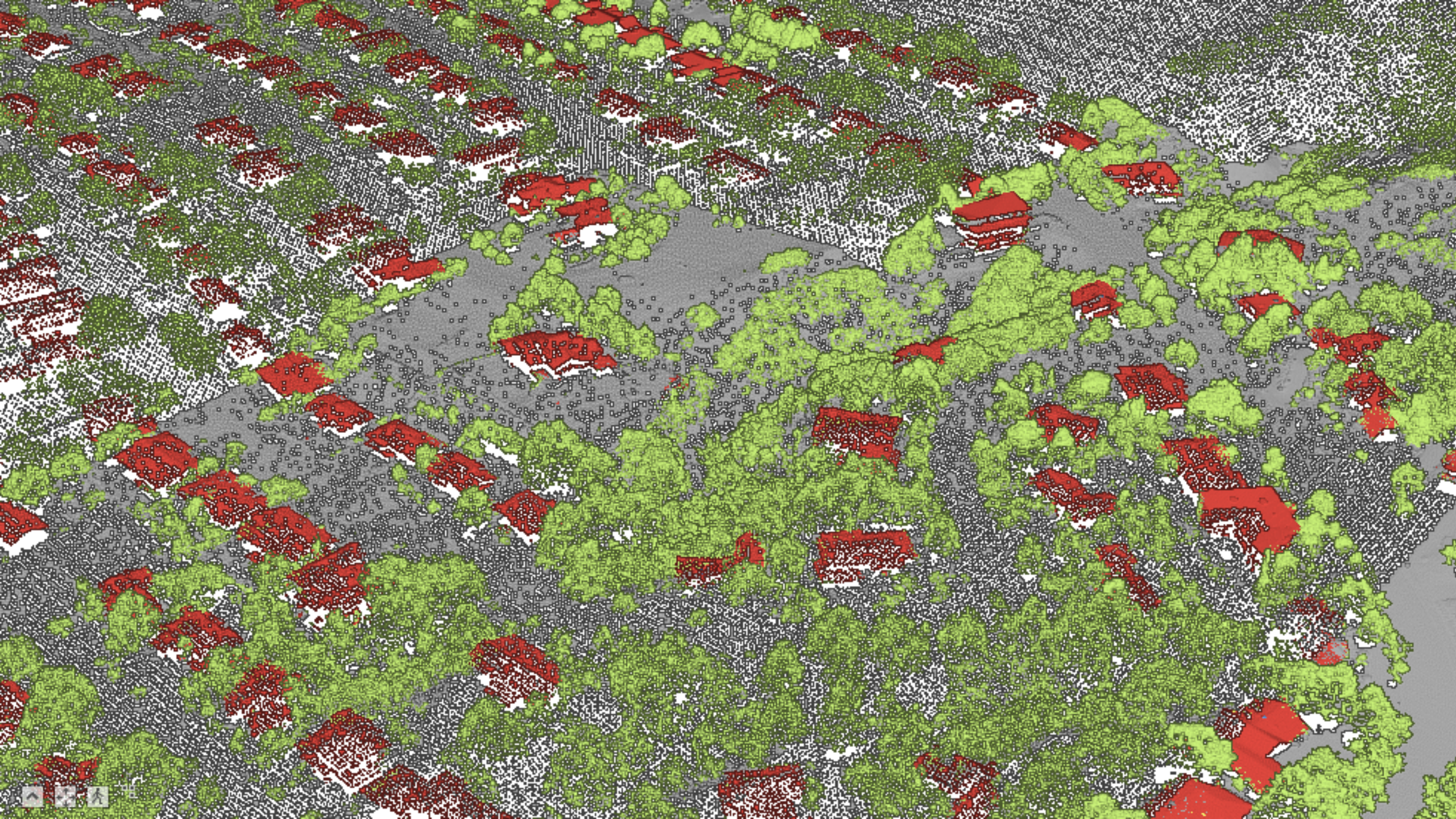




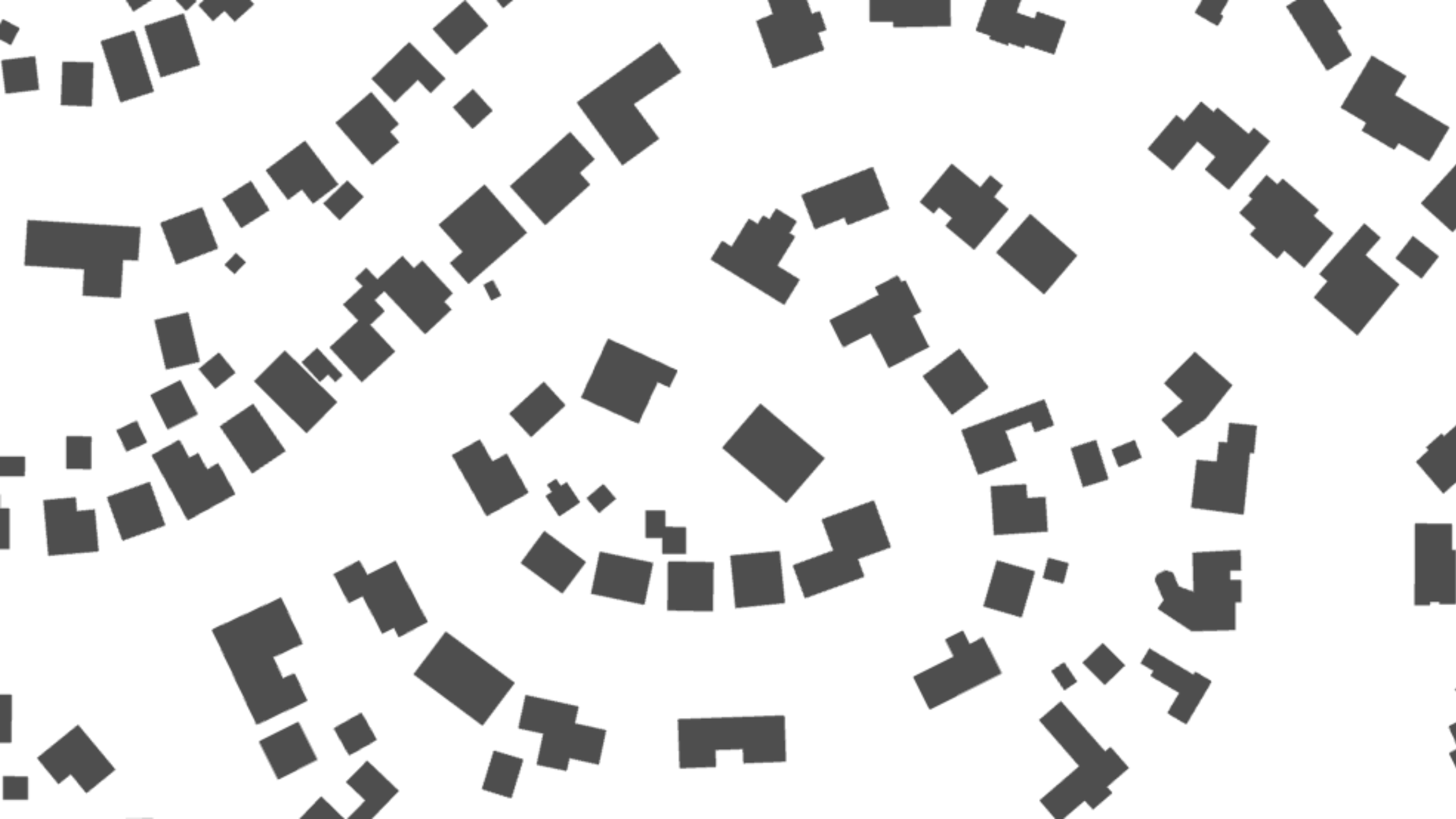


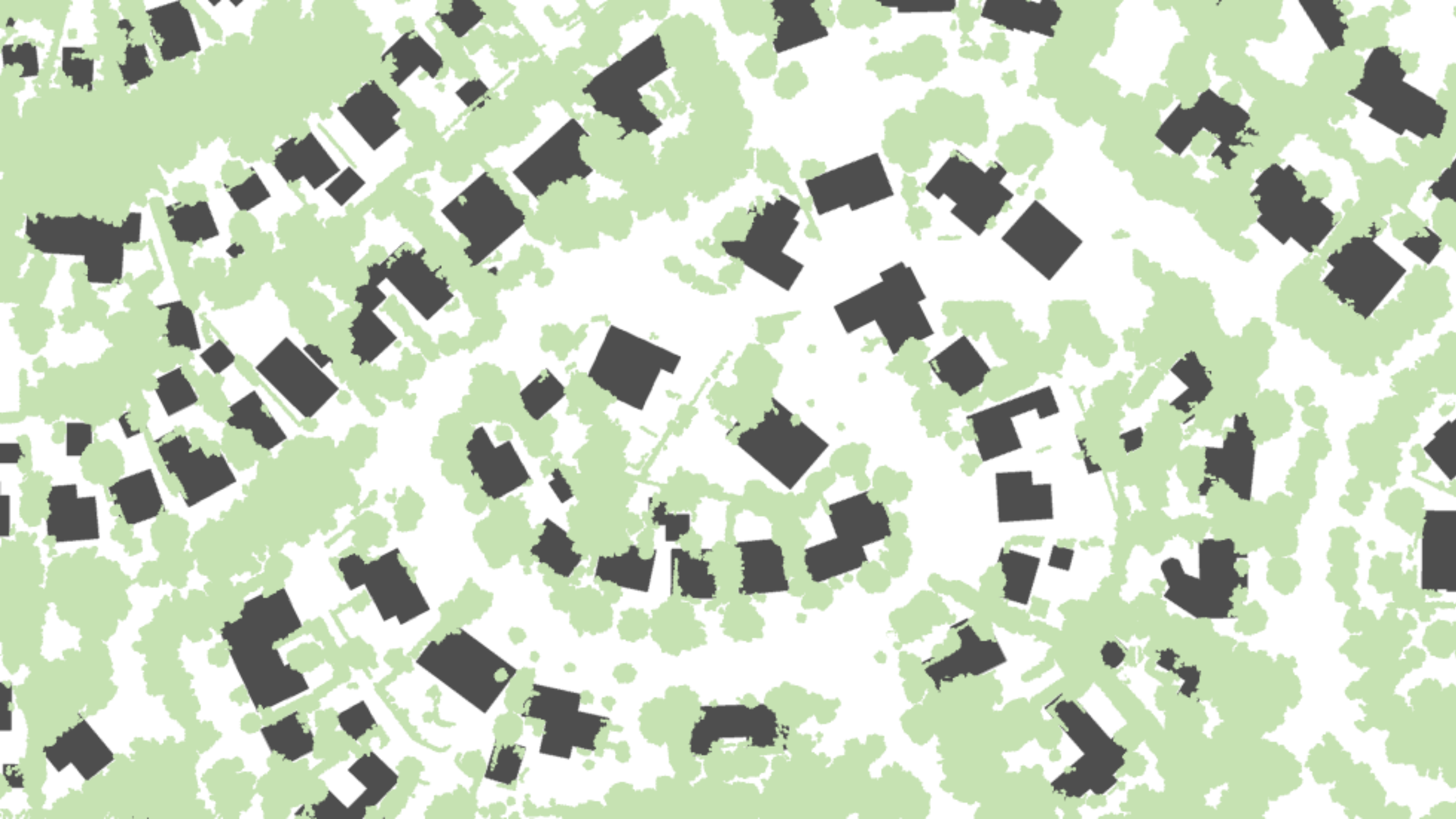
















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Hilary Crowly

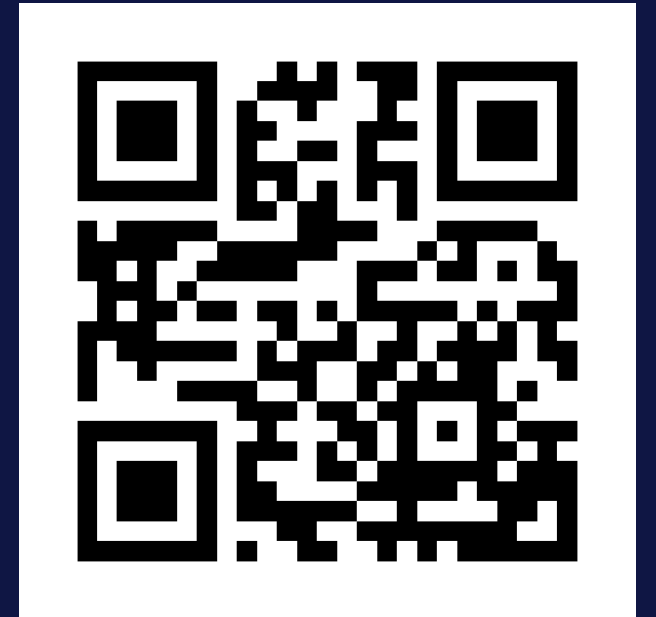


Victoria Celiberti

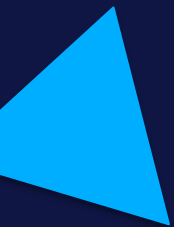


People's Choice

1. Problem Definition & Relevance
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- Bonus: Presentation Creativity



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EARTH ANALYTIC





“Well, That’s Cool”





People's Choice





Judges' Choice





InSPIRE

INNOVATION SUMMIT FOR PREPAREDNESS & RESILIENCE

