

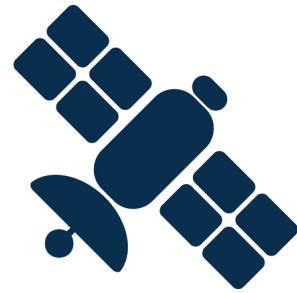


CAPE

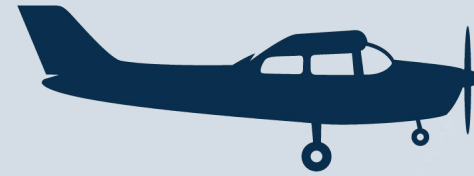
Remote Intelligence For Property Risk

Topics For Today's Discussion

1. Fundamentals of Geospatial Imagery & Cape
2. Principles For Using Geospatial AI
3. Industry Themes & Use Cases
4. Rate Filings & Regulation
5. Operational Considerations






Satellite



Aerial



Drone

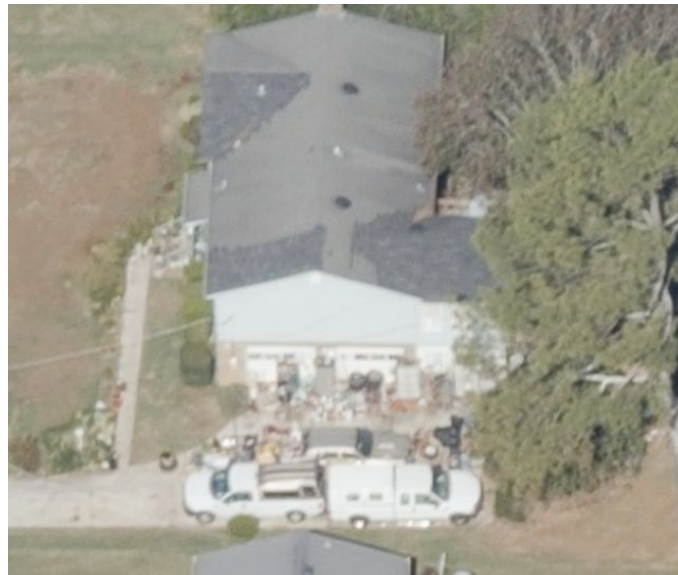
	Satellite	Aerial	Drone
 Spatial resolution	Low	High	Very High
 Geographic coverage	High	High	Very Low
 Image Frequency	High	Moderate	Very Low



Geospatial Content Types



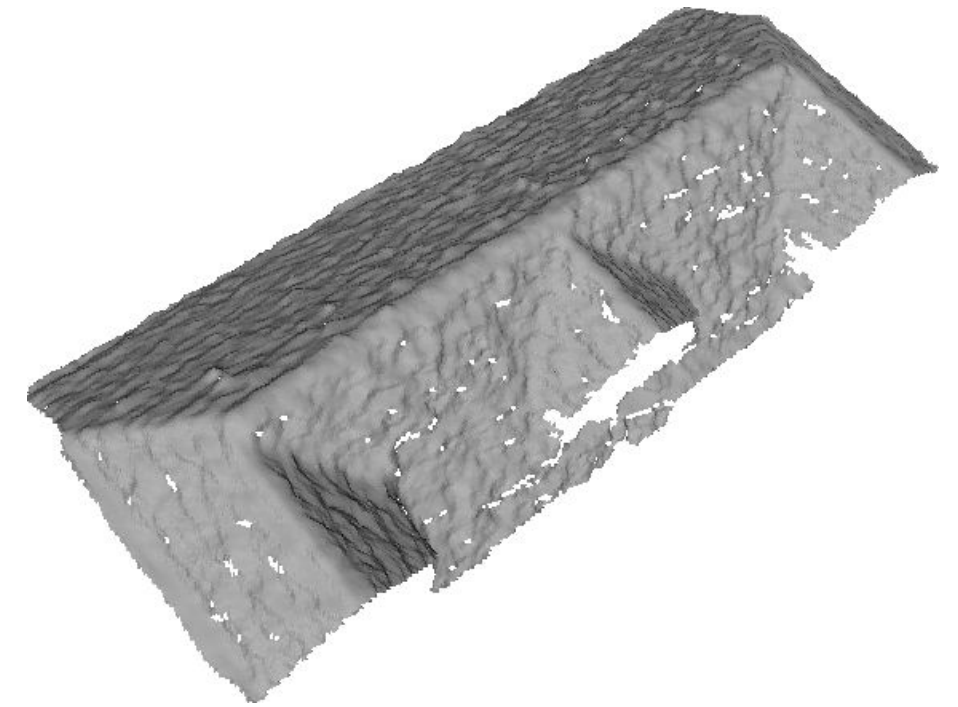
Orthogonal



Oblique



**Near Infrared /
Multispectral**


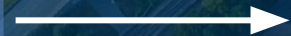


DSM/DEM



We Turn Geo-Imagery Into Property Intelligence

LATEST GEOSPATIAL
IMAGERY

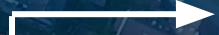


**SCALABLE ARTIFICIAL
INTELLIGENCE**

10101010
01010101
101

RISK-RELEVANT DATA

LIVING DATABASE ACROSS TIME
*ENABLES CHANGE MANAGEMENT
AND TREND IDENTIFICATION*



**QUOTE ENGINES &
PRICING**



**UNDERWRITING
ELIGIBILITY**



**RENEWAL
MONITORING**



**TARGETED
MARKETING**



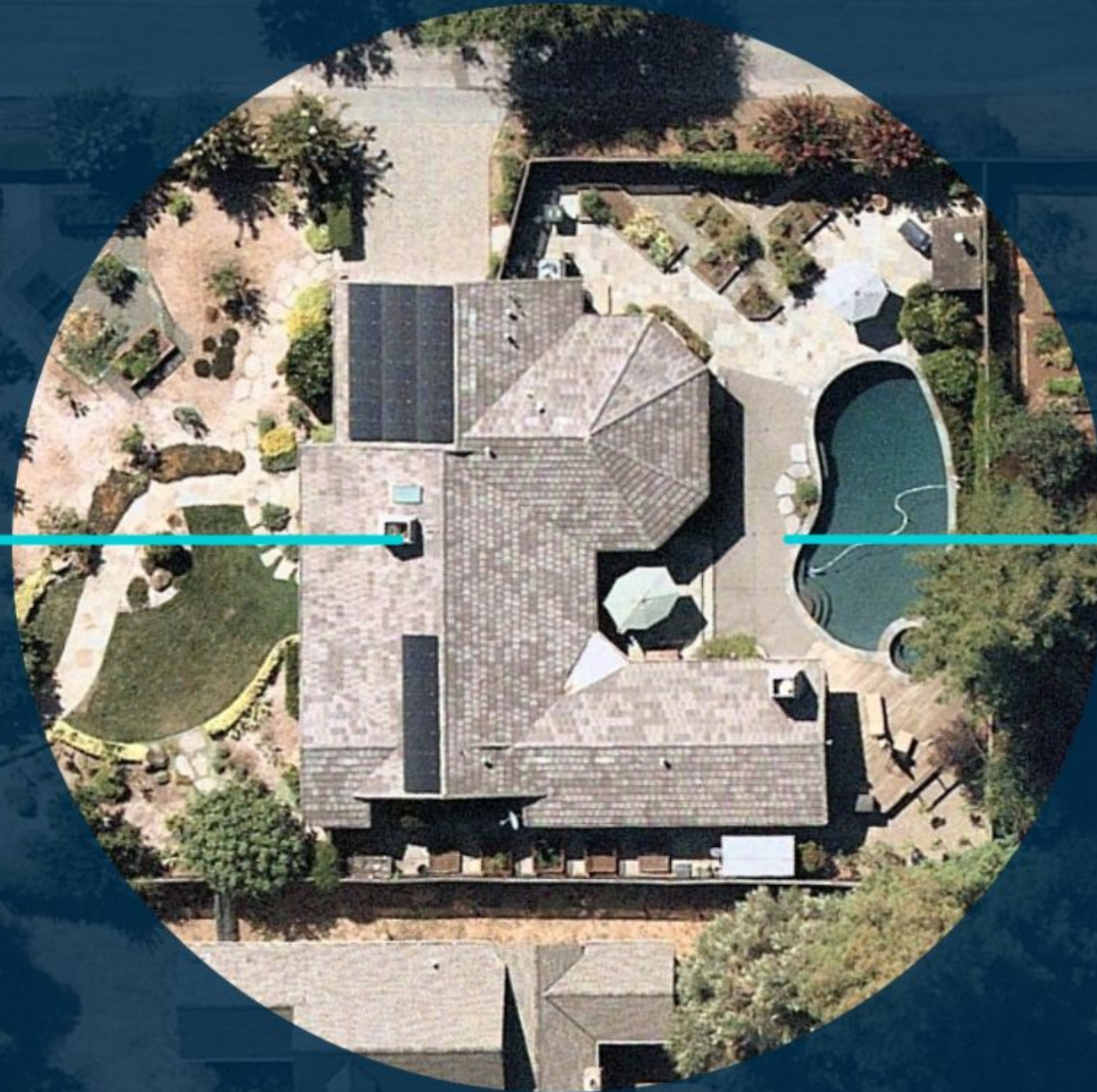
Instant, Actionable Property Attributes

Roof Attributes

- Rooftop Centroid
- Roof Condition
- Geometry
- Covering Material
- HVAC
- Extension
- Footprint
- Complexity

Vegetation

- Tree Overhang
- Distance to Vegetation
- Vegetation Coverage
- Wildfire Hazard Score



Parcel Views

- Parcel Size
- Yard/Lot Debris
- Pool Detection
- Pool
- Pool Condition
- Diving Board
- Deck
- Driveway Condition
- Trampoline
- Solar Panels
- Accessory Structures

Neighborhood Views

- Distance to Neighbor
- Building Density
- Building Count



Technology Requirements



Security & Recovery

Providers should have SOC2 (Types I and II) certifications, Disaster Recovery plans (including Disaster Recovery sites that are not located in the same geographic region), and follow information security and data integrity best practices.



Speed

To work for a comparative rater or create a good user experience for Underwriters, API requests should be under two seconds.



Scale

Providers should be able to handle enterprise-scale and practices in terms of handling large and many data inputs in a timely fashion.





Principles for Using Geospatial AI





Principle #1: Optimized outcomes, at scale

Understand risks at scale to augment decision-making and tailor workflows

The goal: Complete information for every risk decision

The obstacle: An inability to scale leads to a reliance on assumptions, such as using roof age in place of roof condition

The solution: AI can efficiently provide granular data at scale



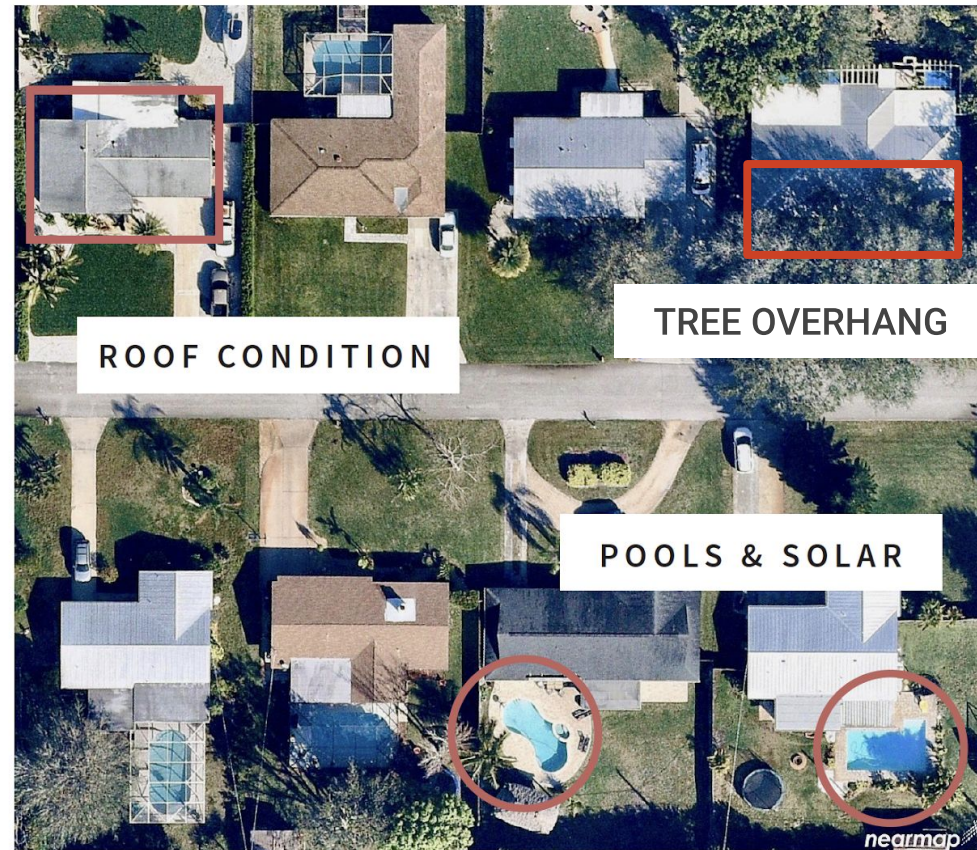


Principle #2: Property condition as an indicator of loss

Utilize advanced AI to understand condition at scale

AI can not only be used to tell you **what** is in an image (a pool or solar panel), it can also learn to tell you **condition** --the quality of a roof, or if a yard has significant debris.

Condition is a leading indicator of loss and can be used to augment and support underwriting decision making





Principle #3: AI cannot replace people

We are not living in The Matrix.

AI is complementary to human underwriters, and can make them more efficient. It cannot necessarily make a better judgement on the condition of a roof than a person, but it can review all the roof conditions rapidly and at scale, allowing humans to winnow down to data to risks they should actually review.

This is why, while accuracy is important, the quality of AI data should actually be judged on whether it is **actionable**.

Can you make decisions to review or not review risks based on the quality of the data?



Industry Themes & Use Cases





Where Our Customers Are Seeing Success Today



STARTING WITH CAPE



Integrate Cape data as a key ingredient into your decisioning workflows. For example, today, Cape data is being utilized by carriers at the top of the U/W process to triage undesirable risks and as an input to inspection models.

CHANGE DETECTION FOR EFFICIENT SPEND



Cape Change Detection identifies manageable subsets of existing book of business that require action (good or bad).

INSTANTLY ASSESSING PROPERTY CONDITION



New Cape data points like yard/lot debris and Roof Condition Rating are creating the foundation for a holistic view of a property's condition.

GOING BEYOND ROOF AGE FOR RATING



Cape Roof Condition Rating is enhancing segmentation in many states today, with national expansion in the months to come.

BUILD A FOUNDATION FOR DIGITIZATION



Cape provides exact property location and parcel boundaries for every submission, in tandem with a set of objective property facts. This 'Observed Truth' provides a foundation on which carriers can build automated workflows.



Impact on Quoting & Eligibility Workflows



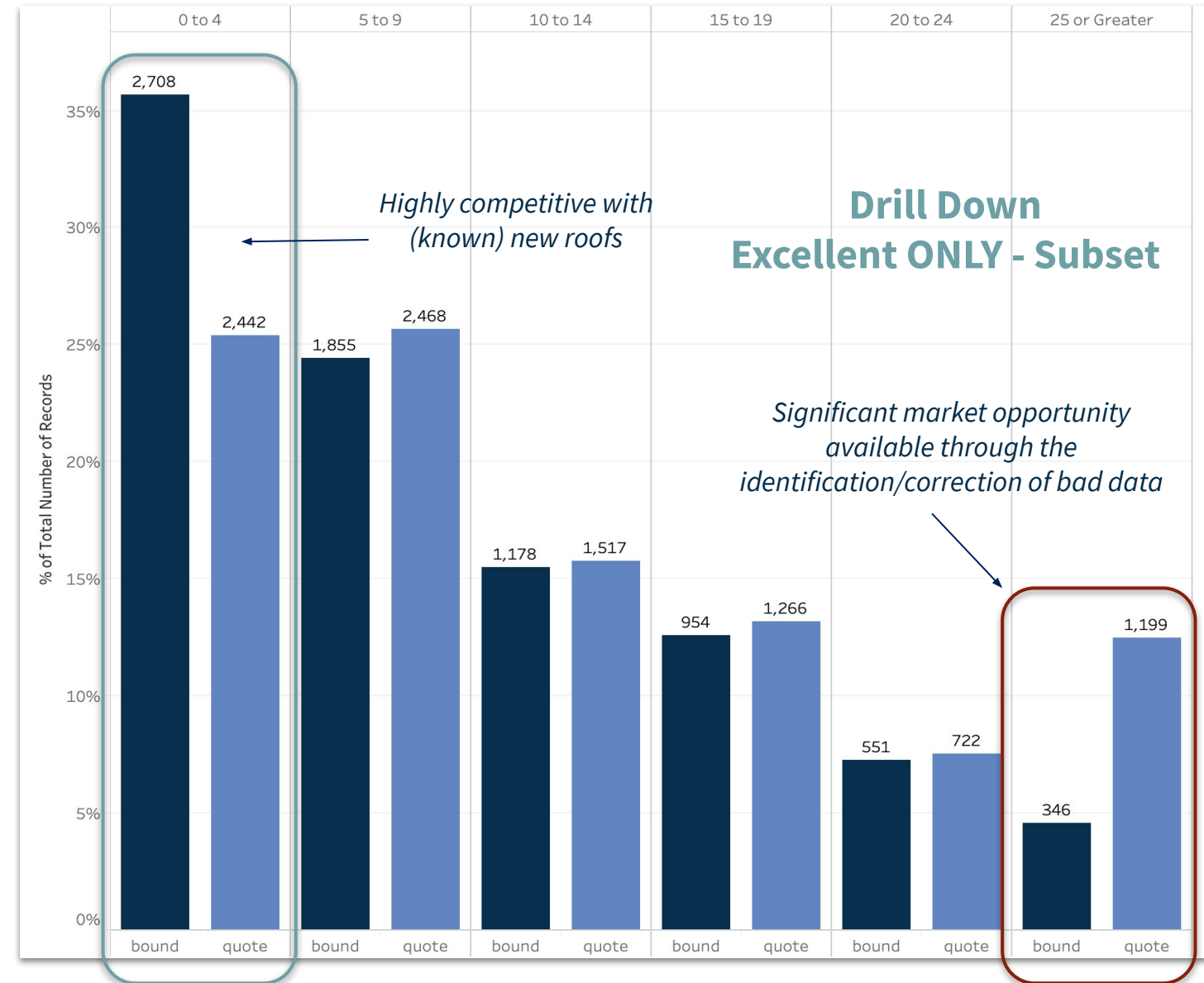
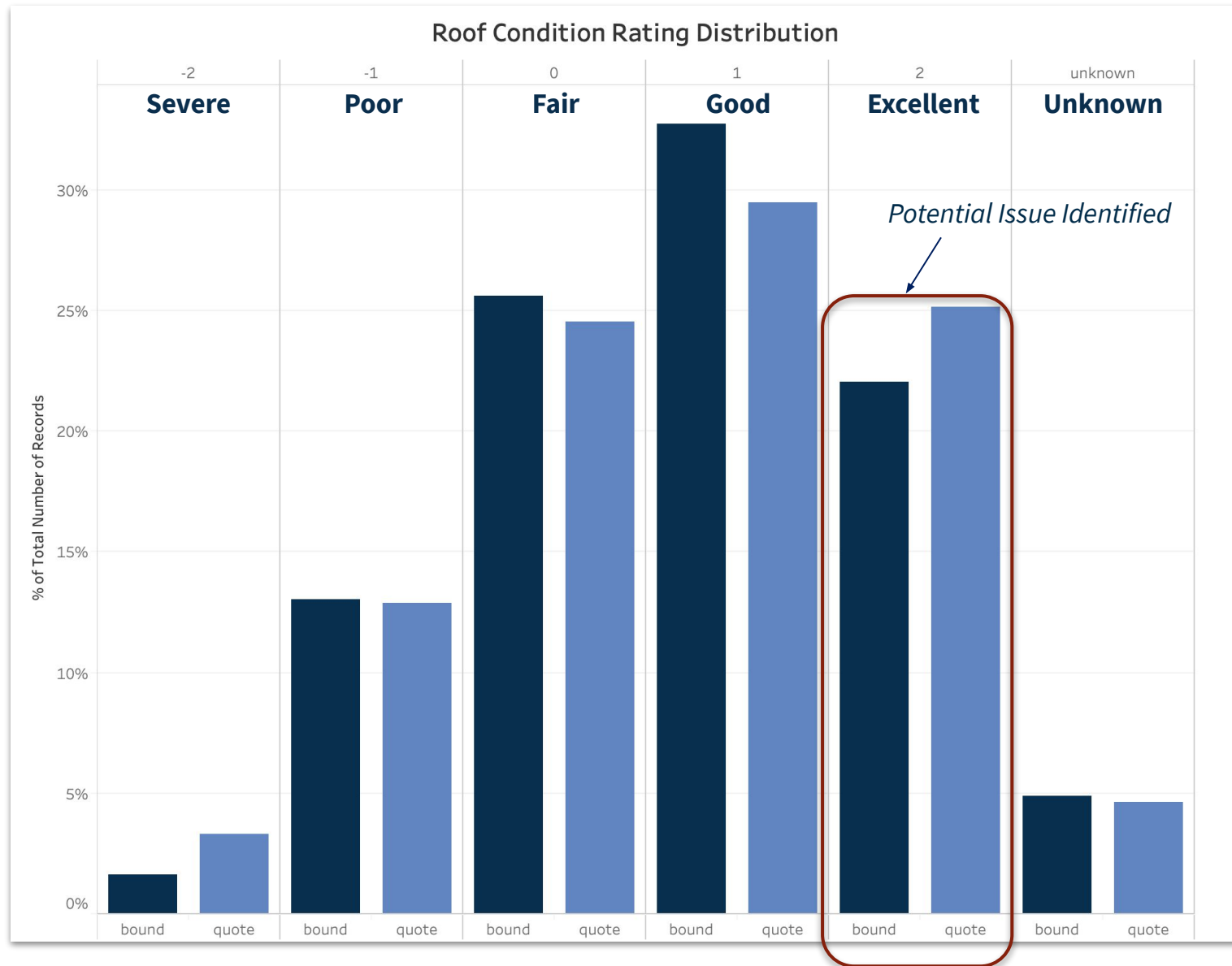
Provide Instant Quotes That More Accurately Reflect Risk

- ✓ Catch undesirable risks earlier in the funnel and eliminate unnecessary cycles
- ✓ Fast-track desirable risks and mitigate adverse selection
- ✓ Minimize reliance on agent or insured data
- ✓ Improve customer and agent experience by providing an accurate quote upfront



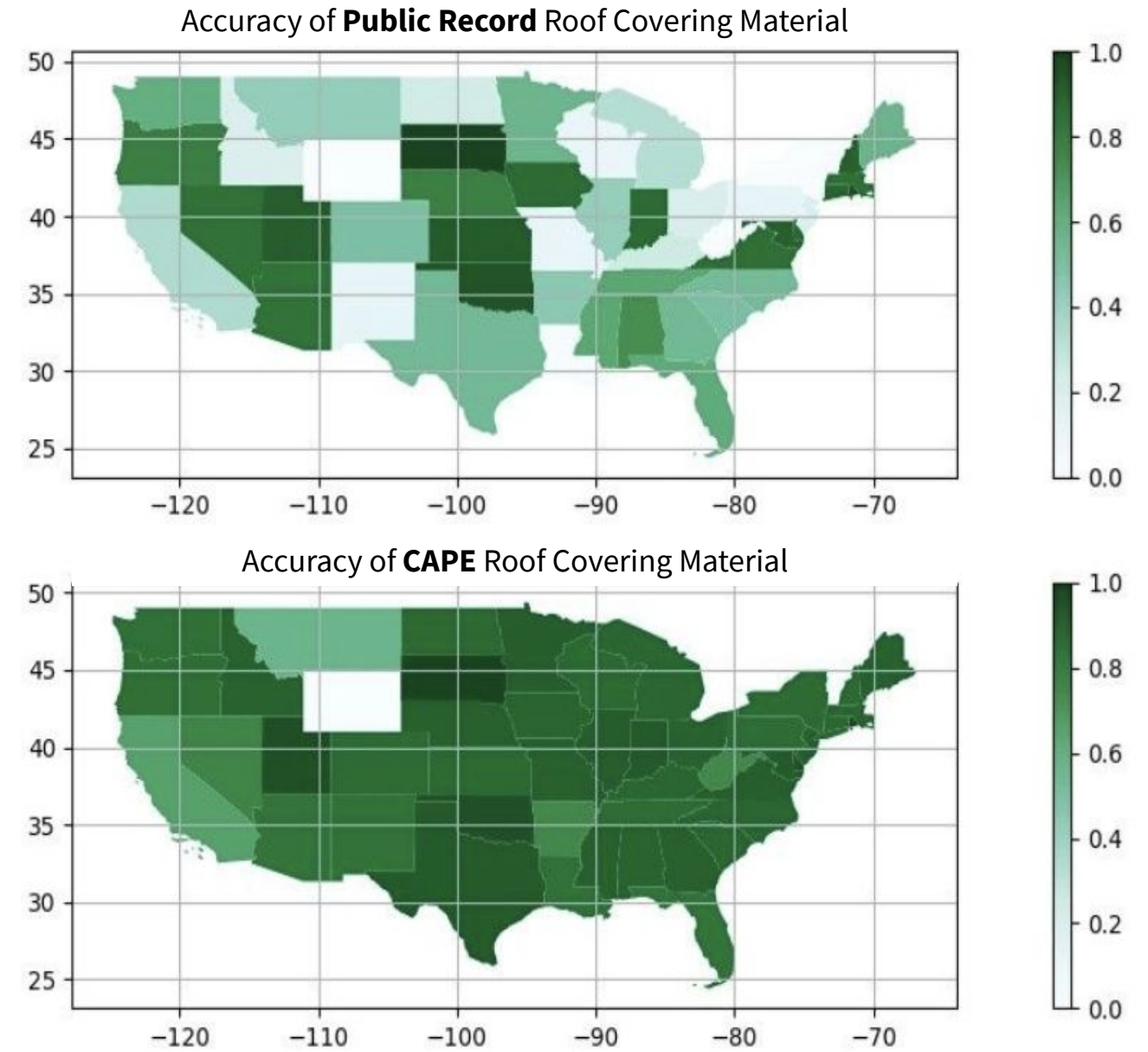
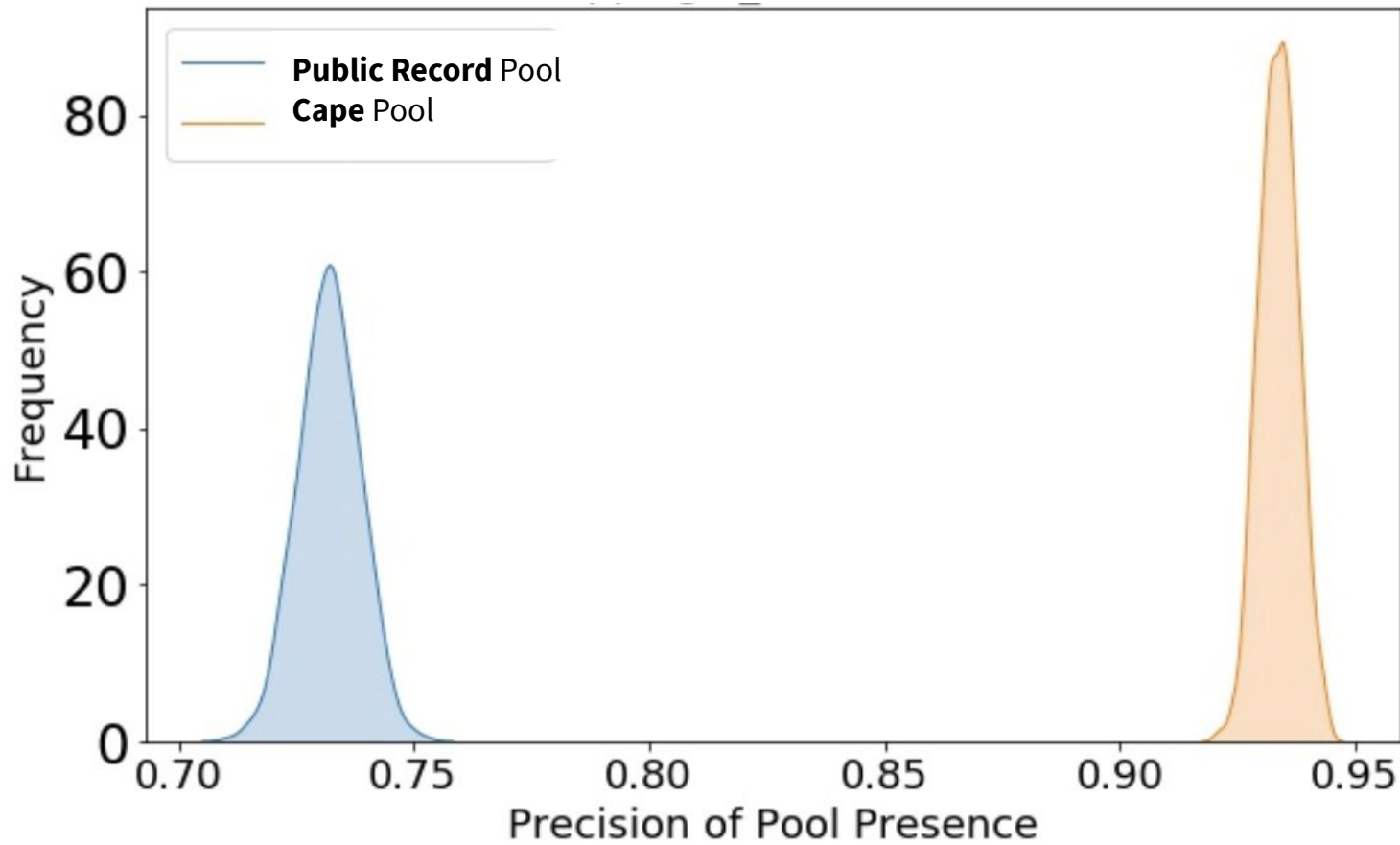
Example: Identified Data/Customer Attraction Issue

Example: missing out on significant opportunities with “Excellent” roofs at the time of quote





Prefill Augmentation: Recent Findings (Pools, Roof Covering)





Single structure, multiple risk



Single risk, multiple structure





Objective property condition, at scale



Property ID



Condition

Increase action rate by prioritizing risks for U/W review, inspection, etc.

Fast track desirable risks and mitigate adverse selection

CAPE Scott Strogatz

Enter Address > Confirm/Change Property Boundary > Roof Condition Summary

Strogatz Apartments
816 Burlington Drive
Flint, MI 48503

Property Summary

Structures	6
Pools	0

Roof Condition Summary

<input checked="" type="checkbox"/> Excellent	1
<input checked="" type="checkbox"/> Good	0
<input checked="" type="checkbox"/> Fair	1
<input checked="" type="checkbox"/> Poor	3
<input checked="" type="checkbox"/> Severe	1
<input checked="" type="checkbox"/> Unknown	0

mapbox Imagery from 2020-04-02

CAPE Scott Strogatz

Enter Address > Confirm/Change Property Boundary > Roof Condition Summary

Moore Condominiums
332 S Hubbard Ct
Westland, MI 48186

Property Summary

Structures	17
Pools	1

Roof Condition Summary

<input checked="" type="checkbox"/> Excellent	16
<input checked="" type="checkbox"/> Good	1
<input checked="" type="checkbox"/> Fair	0
<input checked="" type="checkbox"/> Poor	0
<input checked="" type="checkbox"/> Severe	0
<input checked="" type="checkbox"/> Unknown	0

mapbox Imagery from 2020-07-10



Price Based on True Risk Profile & Increase Profitability

- ✓ Pre-fill or validate attributes currently used in rating
- ✓ Segment with greater granularity and identify additional premium opportunities.
- ✓ Develop new rating factors utilizing Cape condition attributes such as Roof Condition Rating or yard debris.



Impact on New Business Inspections



Assess Remotely, Optimize Inspections

- ✓ Access to better information up front leads to faster and more accurate decisions
- ✓ Identify bad risks immediately
- ✓ Prioritize properties more likely to result in actionable inspection discovery
- ✓ Avoid using inspection dollars on properties that meet underwriting guidelines





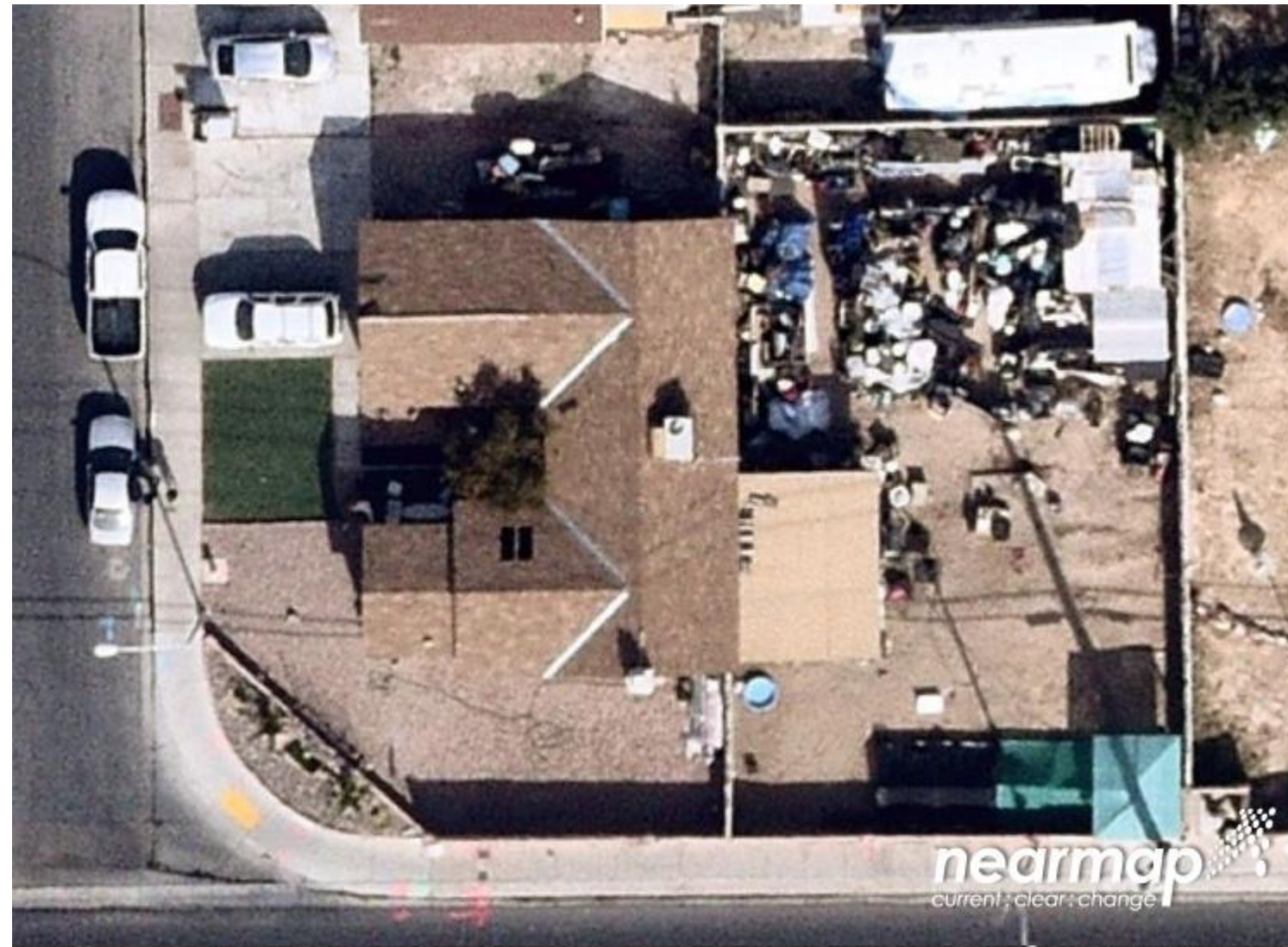
Monitor Your Portfolio With Change Detection



Be alerted to important changes across your PIF

Advantages

- Prioritize reinspections for higher risk properties
- Streamline renewal decision making and passthrough good risks
- Provide best-in-class customer experience



2016
0 ft² | 0%

2017
212 ft² | 5%

2019
1187 ft² | 28%

2020
1251 ft² | 31%

Rate Filings & Regulation





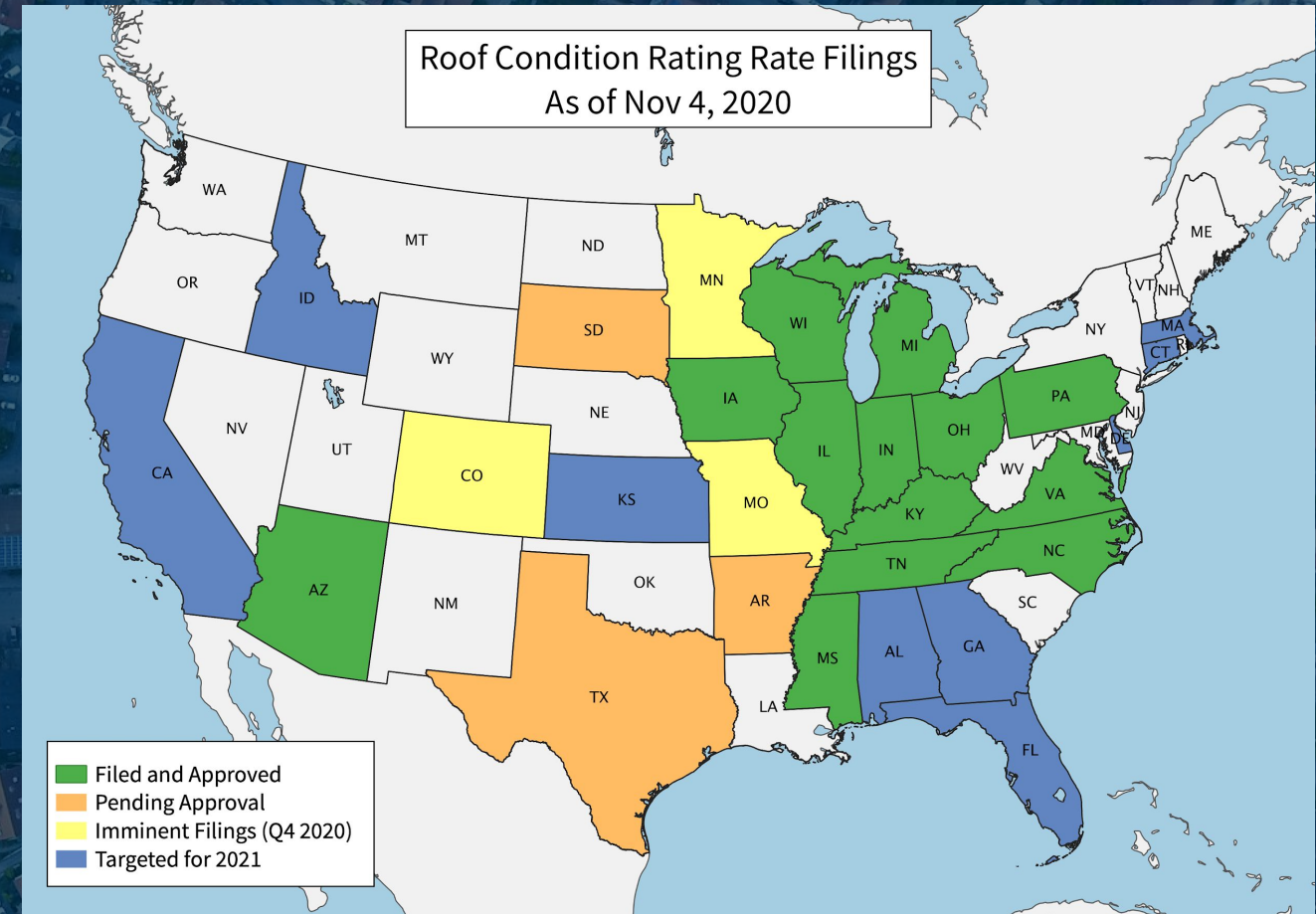
Rating: Milestones & Challenges To Date

- **Milestones:** Roof Condition approved in 13 states

- Roof Condition Rating, Roof Geometry, Combination Roof Score
- Tree Overhang also approved in 3 states, with several pending
- ASOP-38 and 23 documentation prepared in partnership with 3rd-party actuarial consultant
- Roof Condition Predictive Signal White Paper Published

- **DOI Inquires:** Gaining understanding of coverage and model taxonomies

- Attribute definitions and examples
- Typical coverage and relativities

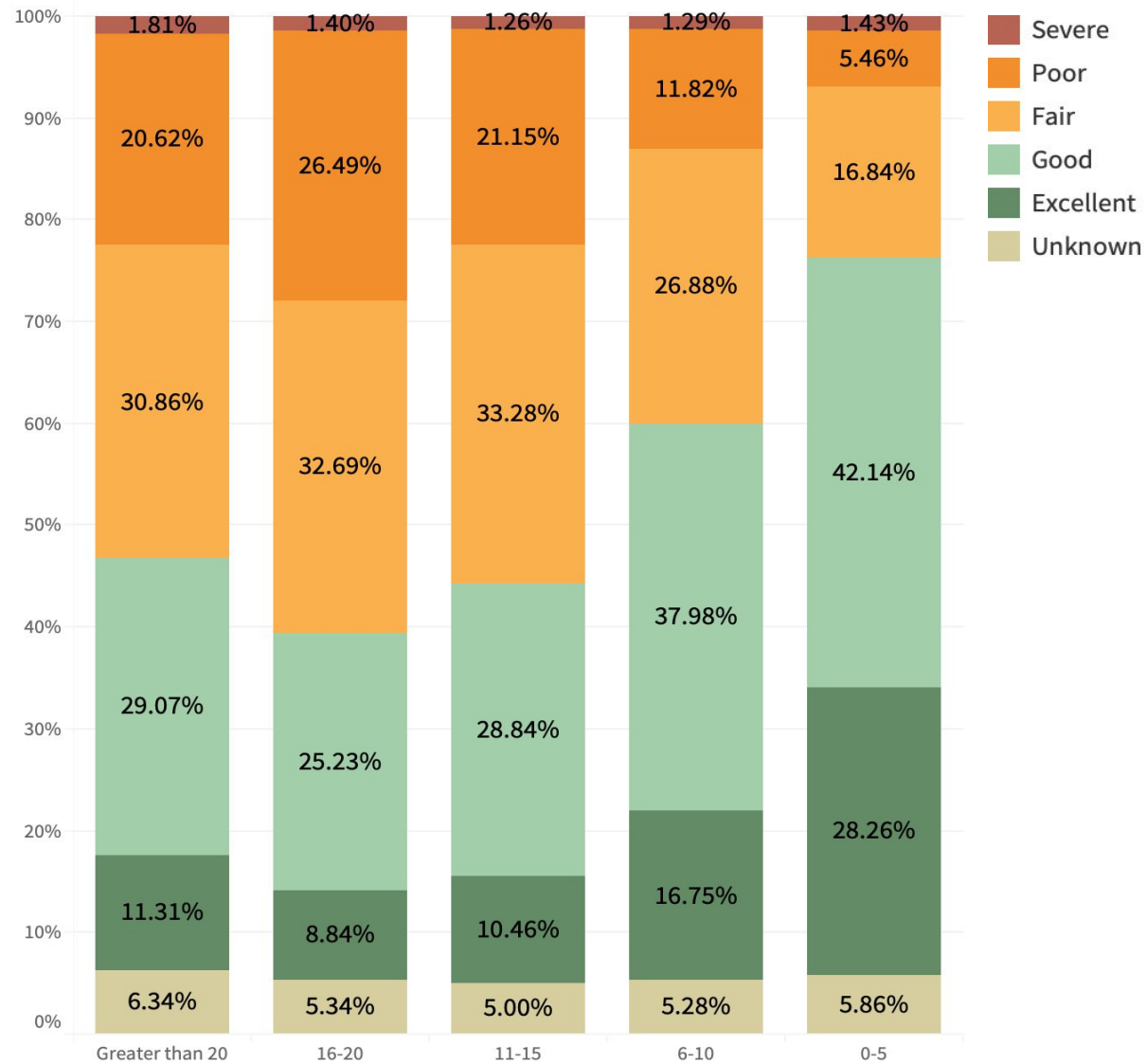




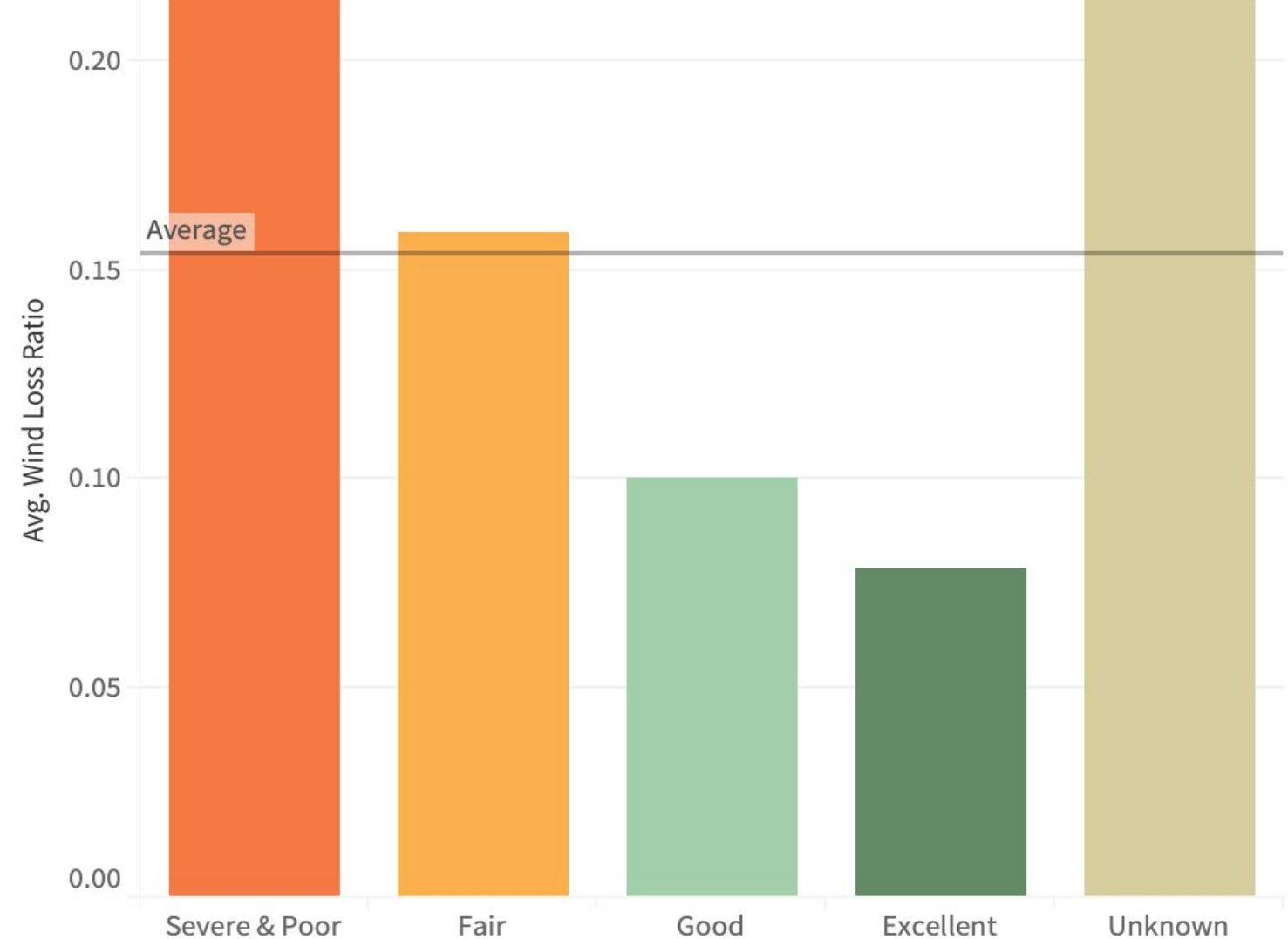
Roof Condition's Predictive Signal Drives Clear Segmentation

Over **10M** historical exposures and **500K claims** used to demonstrate Cape's predictive power

Roof Age Versus Cape's Roof Condition Rating



Roof Condition Rating - Wind Loss Ratio





Roof Condition's Predictive Signal Drives Clear Segmentation

Layering **multiple Cape attributes** together enables differentiated segmentation for Roof Scores

Condition, along with roof area, geometry, covering, can quantify the amount of risk for **wind and hail perils**

Roof Condition and Roof Area - Non-Cat Wind and Hail



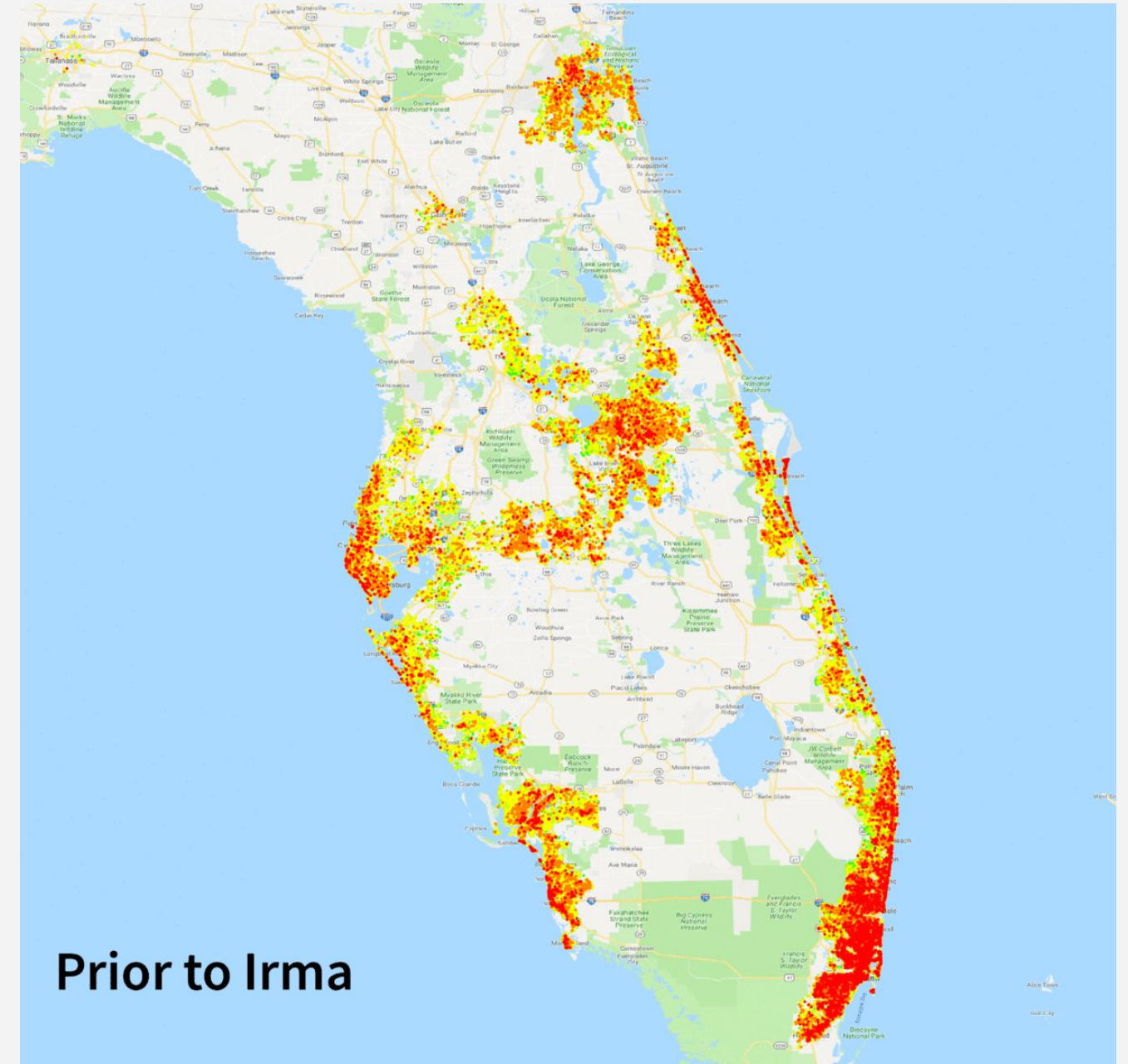


Roof Condition Rating: Applicability for Hurricane Risk

Cape analyzed 210,000 claims from Hurricane Irma:

- **10% suffered major roof damage**, according to **change detection** of Cape's Roof Condition Rating
- Severe condition roofs suffered a **45% higher claim frequency** compared to excellent roofs

Cape Roof Condition Rating	Relative Frequency
Excellent	79.4%
Good	97.7%
Fair	111.6%
Poor	113.4%
Severe	115.6%





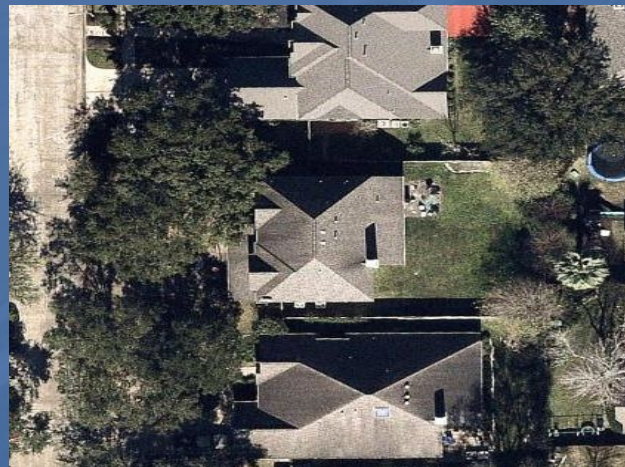
Early Results: Tree Overhang, Yard Debris, & Defensible Space



Major



Moderate



Minor



None

Based on Cape insurance loss experience studies:

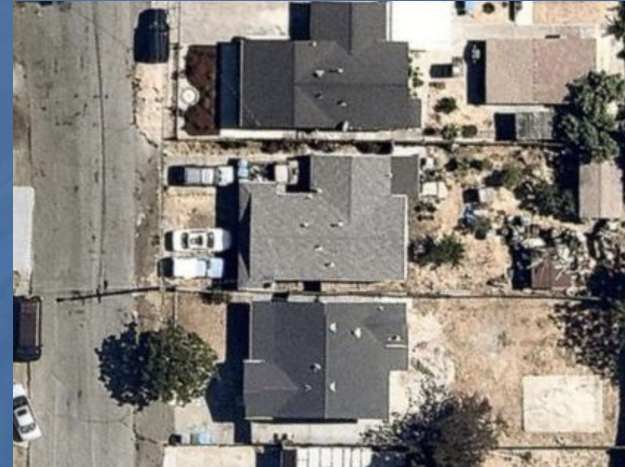
- Major/Moderate Tree Overhang
 - **45% higher** loss ratio relative to homes with no tree overhang in Wind-exposed states
 - Possible protective influence, as results suggest a **40% lower** loss ratio than average in extreme hail-exposure state (e.g. OK/TX)



Early Results: Tree Overhang, Yard Debris, & Defensible Space



1418 sqft



621 sqft



865 sqft



2113 sqft

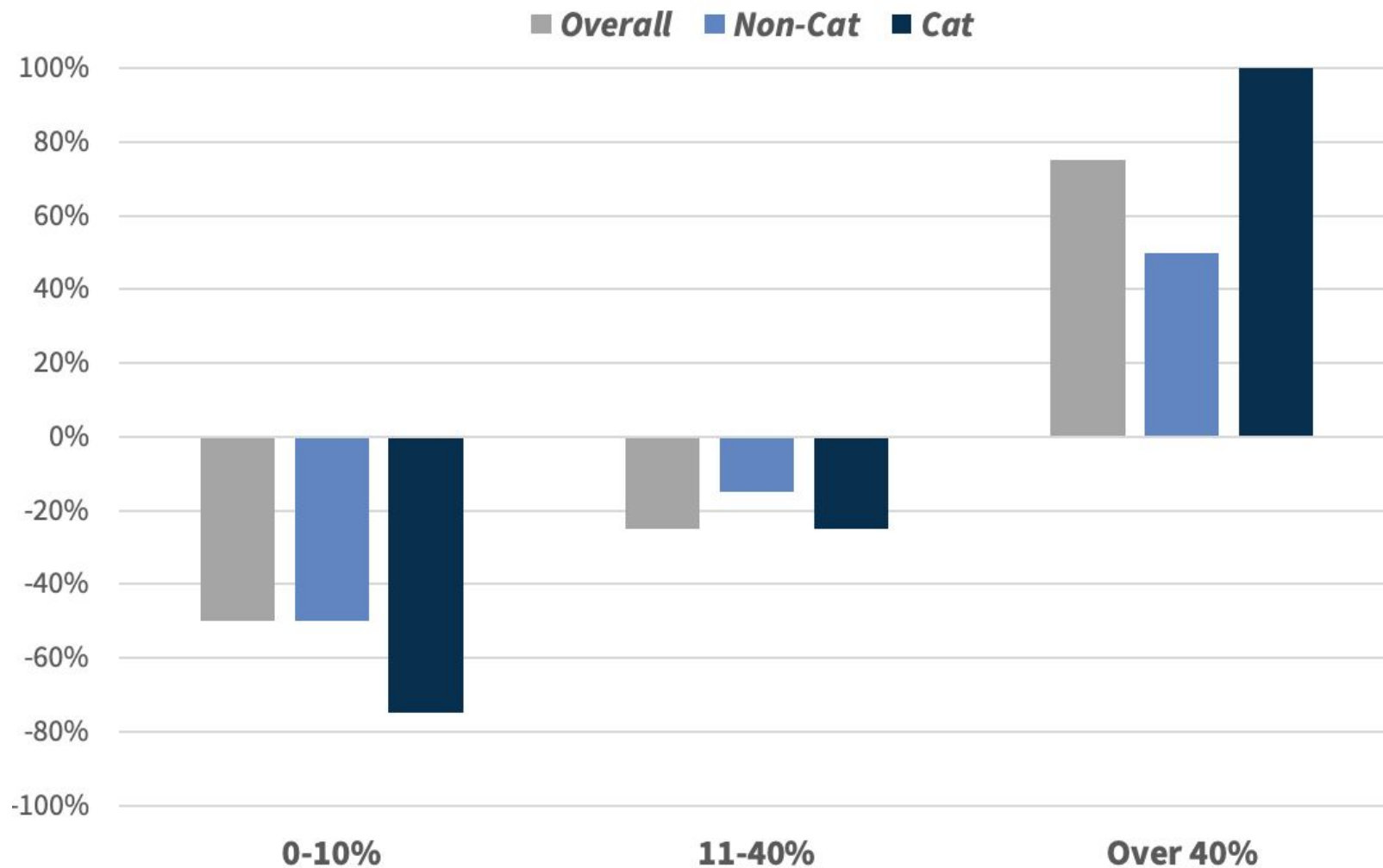
Based on Cape insurance loss experience studies:

- 100 - 500 ft² of yard debris
→ **26% higher** loss ratio relative to homes with no yard debris
- 500 ft² or more
→ **37% higher** loss ratio relative to homes with no yard debris



Early Results: Tree Overhang, Yard Debris, & Defensible Space

Zone 1 Vegetation Coverage - Fire Loss Ratio Relativity



Defensible Space is known to be highly correlated with fire susceptibility. Early loss comparisons suggest **Firescape** defensible space attributes are **predictive of claims and losses** in Western states.

- Homes with *greater than 40% of vegetation in Zone 1* (i.e. within 10 feet of the roof) have **~75% higher loss than average**
- Homes with *less than 10% of vegetation in Zone 1* have **~50% lower loss than average**



Important Considerations





Important Considerations



Coverage and Imagery Type *Tradeoff between coverage and resolution (and derivable attributes)*

- Satellite: Complete coverage, low resolution
- Fixed wing: Lower coverage (but still very high for high population regions), medium resolution
- Drones: Very low coverage, extremely high resolution



Expertise and Ecosystem

- Industry expertise and rigor in implementation
- Critical ecosystem partnerships in place for complementary property information



Ethics and Regulations

- Is there awareness around International, National, and State regulations pertaining to using this kind of data?
- Has there been any thinking around unintentional bias in the AI?



Thank you!