eagleview

Aerial Photography
Ortho & Oblique Imagery

Joe Wilson, Clark Williams, EagleView

September 16, 2019

During this session, we will cover:

- Aerial Photography – Orthogonal and Oblique Imagery overview, examples, and usage
- Change Detection – Change Finder and Sketch Check processes
- Public Access – Surry County example
- Change Finder example – Guilford County
- Open Discussion, Q&A

About Eagleview

98%

coverage in the U.S.
in terms of population

135

planes at
our disposal

130

domestic & international
patents granted

673

Eagleview
employees

1,800+

jurisdictions flown
in North America

2,362

terabytes of
imagery storage

3,750

terabytes of
data storage

25,000

reports delivered
per 24-hour period

34,500

hours spent
flying per year

350 Million

images in our
image library

Orthogonal Imagery Definition

Orthogonal Imagery Definition

Orthogonal Imagery A True Top-Down View

Orthogonal imagery provides a true top-down view and is aligned to a map grid. This imagery easily integrates into your GIS data for a comprehensive understanding of properties, land features, local topography, and more.

Orthogonal Imagery Definition

Oblique Imagery Definition

Oblique Imagery Definition

Oblique Imagery

See The World From Different Angles

Pioneered by EagleView, oblique imagery is aerial imagery captured at an angle, providing a more natural perspective and making objects easier to recognize and interpret.

With Pictometry imagery captured from four simultaneous directions, you can see a 360-degree view of every property. Interact with, measure, and extract data from georeferenced images.

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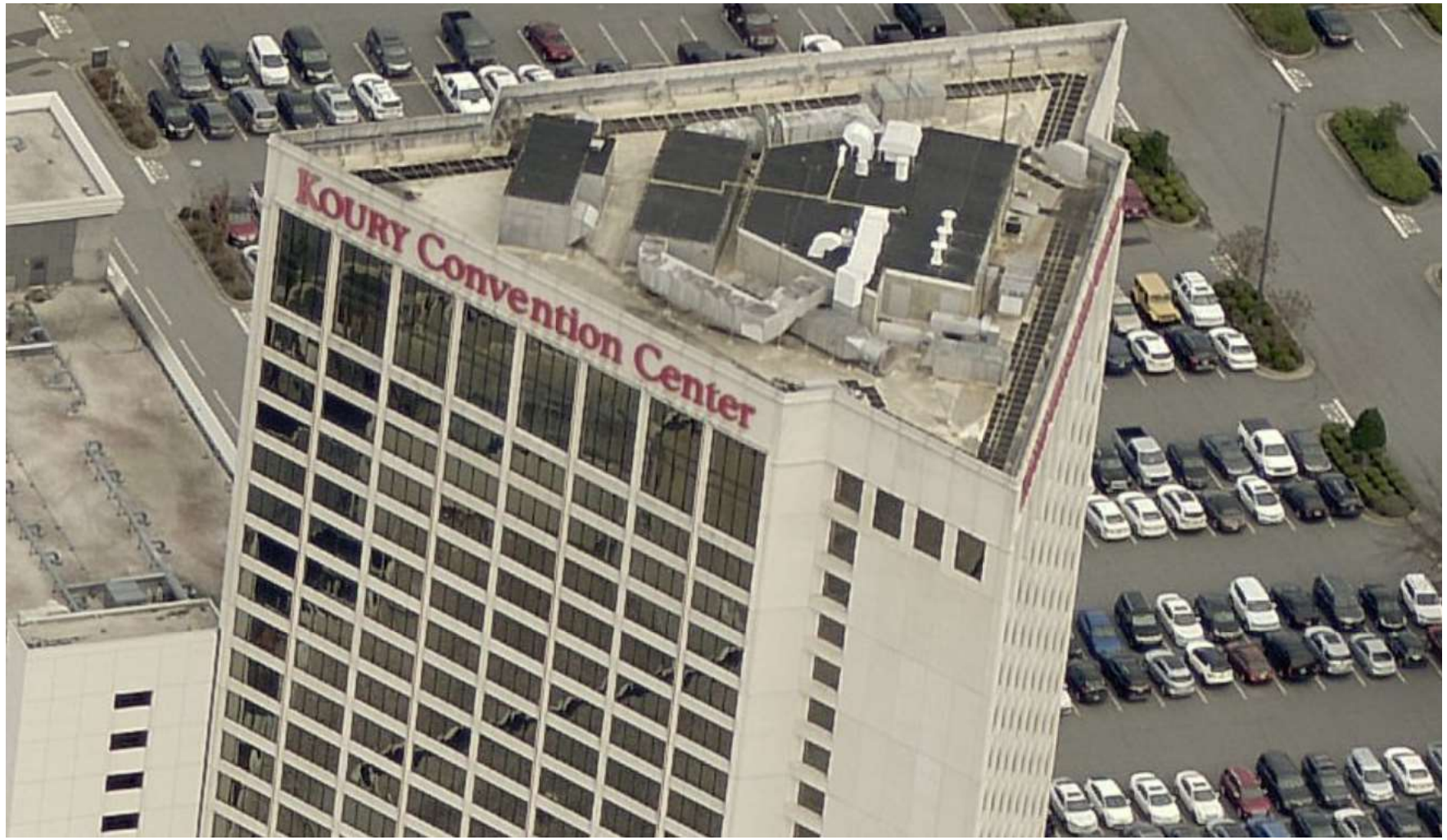
Oblique Imagery Definition



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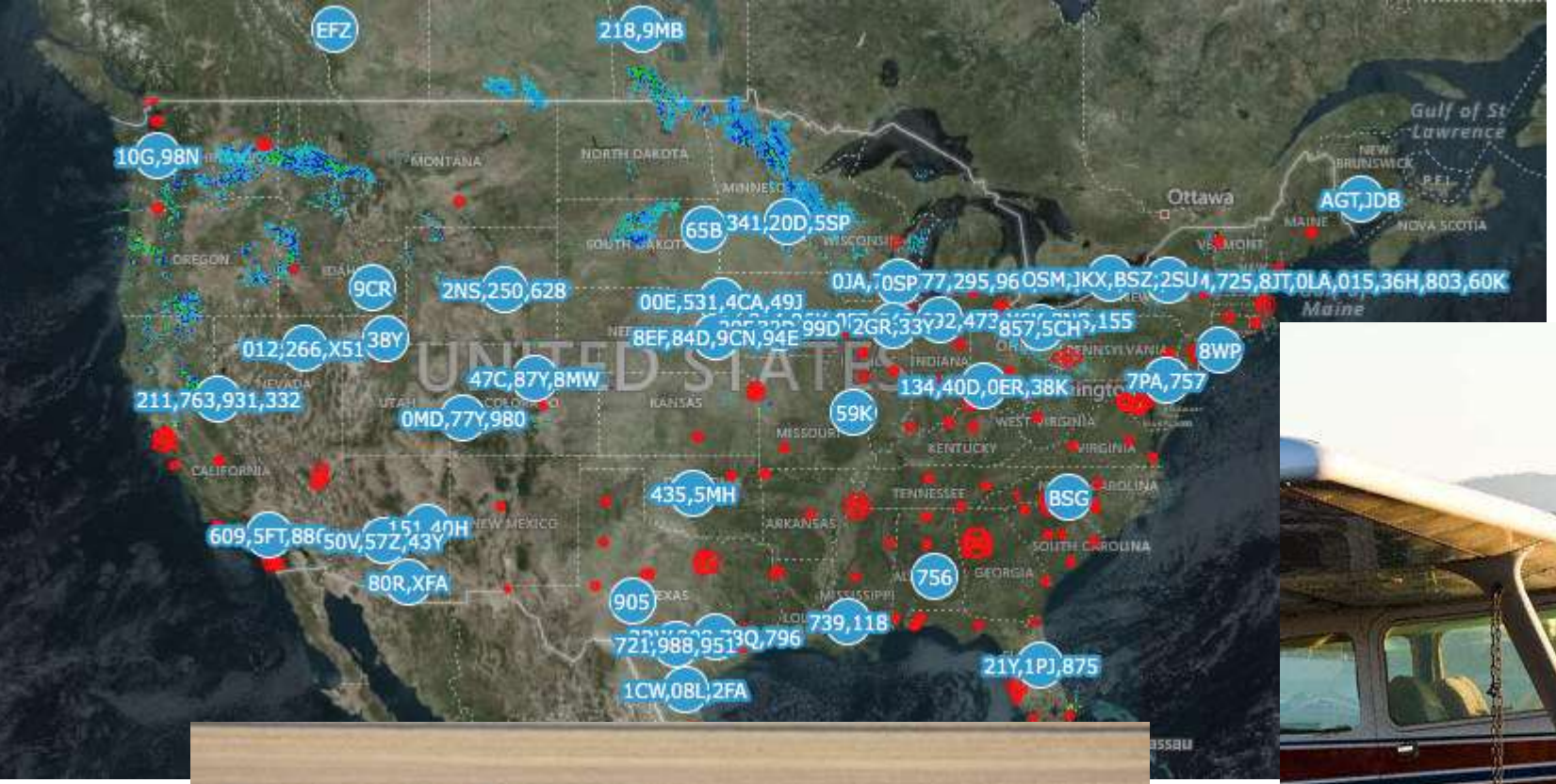
How is it done?

- Patented 5 camera system; invented, manufactured and maintained by EagleView.

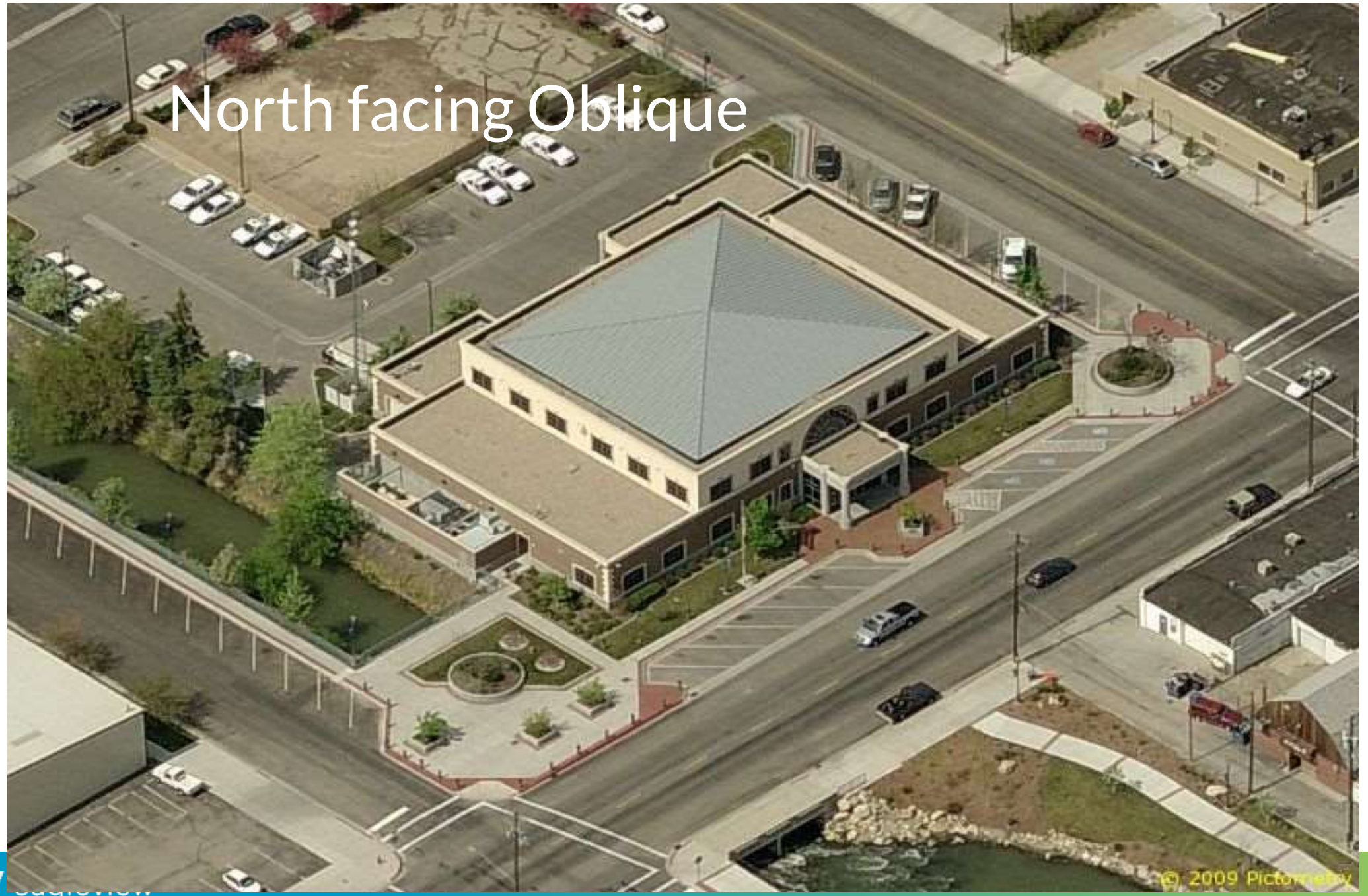
How is it done?



5-way coverage


Standard Ortho Image

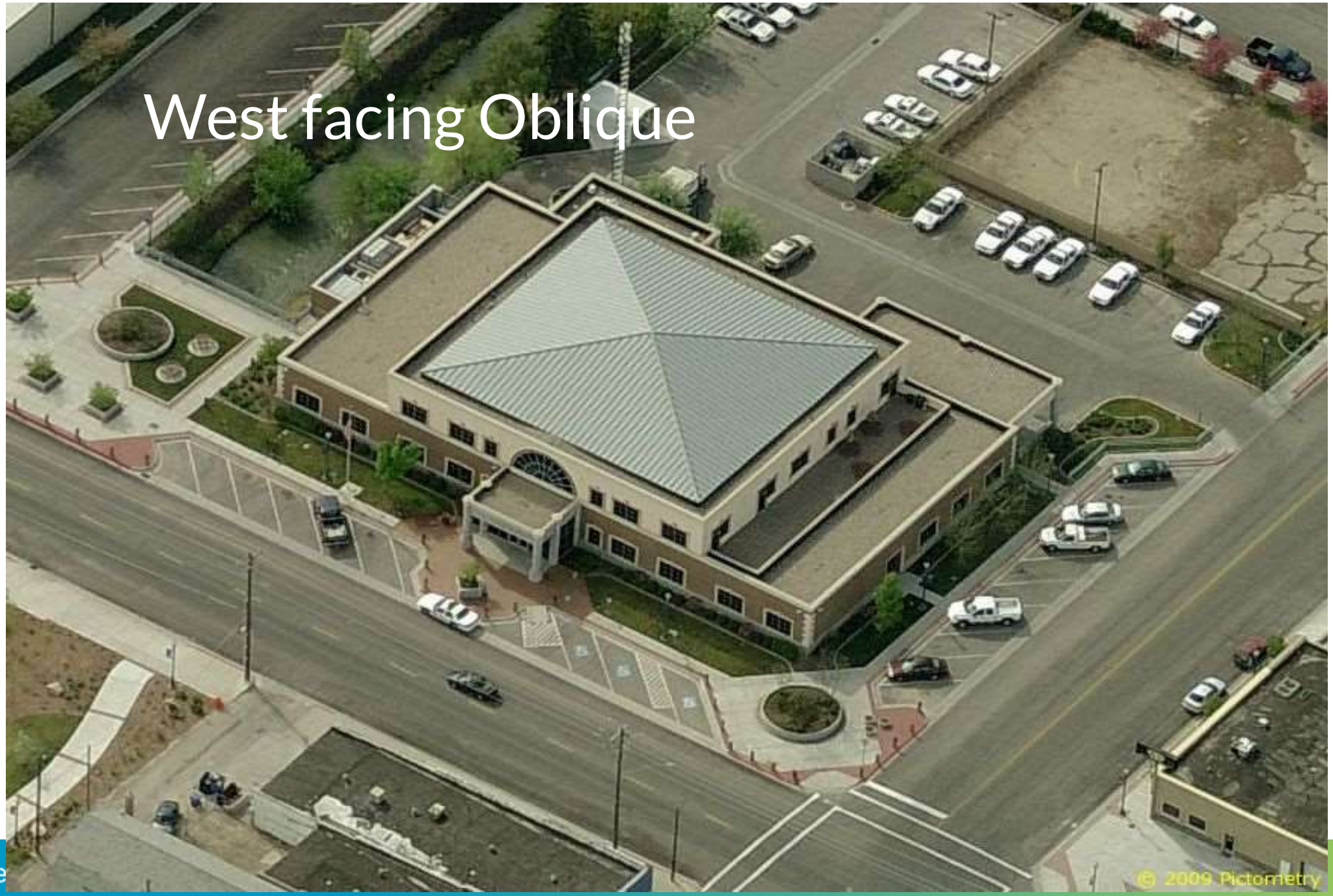
North facing Oblique



East facing Oblique

South facing Oblique

West facing Oblique



Specialized capture process

Focused on three key areas:

ACCURACY & CLARITY

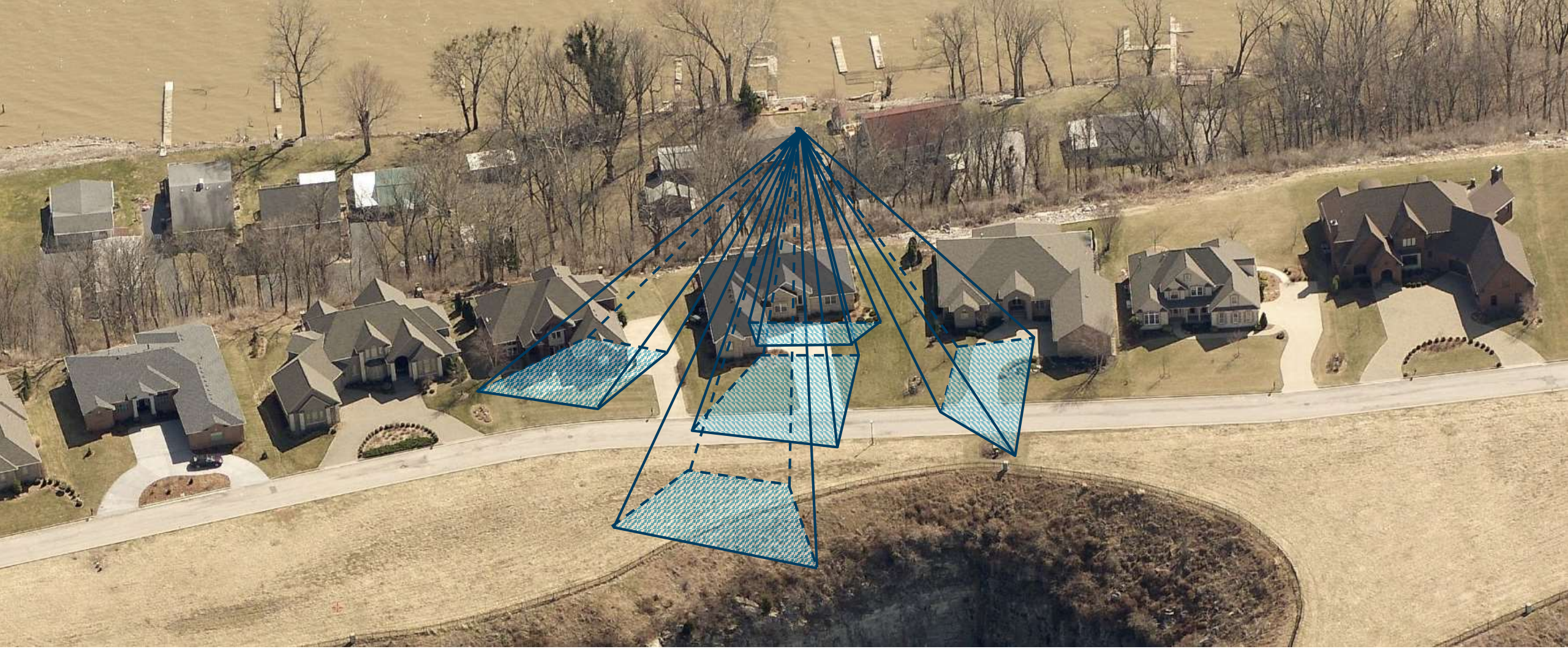
- Low altitude capture to ensure clarity and natural color
- Geo-referenced for accuracy and data standards

DELIVERY TIME

- Imagery delivered in less than 60 days
- Early access to imagery available in 2-3 days

IMAGERY PROCESSING

- Captured imagery is post-processed, QC'ed, and tested to ensure speedy delivery, image clarity, and accuracy.



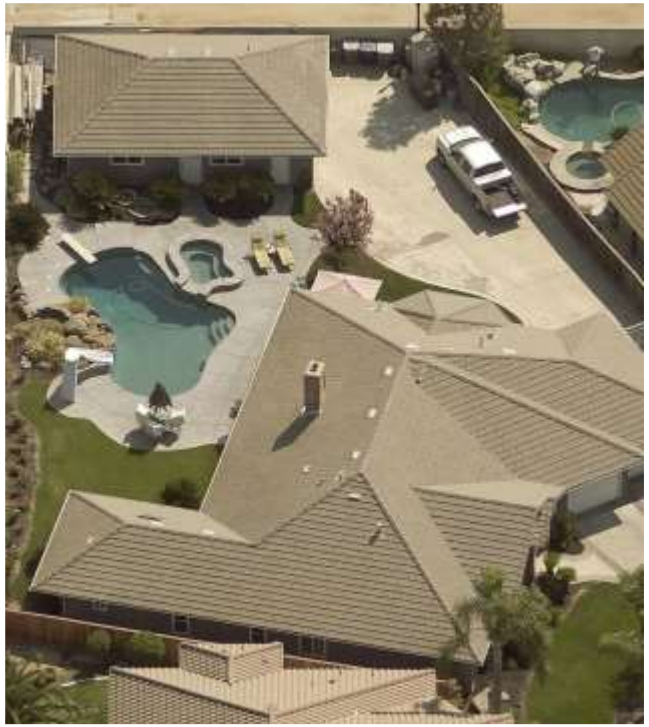
Specialized Capture Process

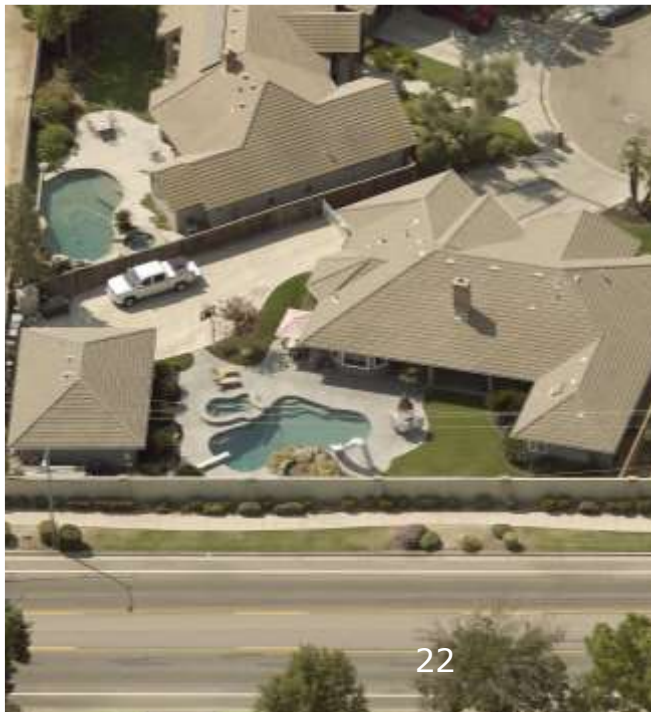
So In Addition to orthos....

- Traditional Ortho Image
- Oblique North
- Oblique South
- Oblique East
- Oblique West

Ortho Imagery works great with GIS Layers, but can fail to identify:

- Key property details
- Livable Space
- Condition, especially areas with specific damage
- Height

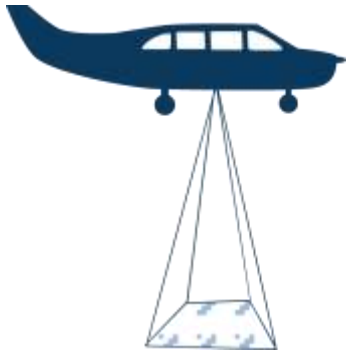


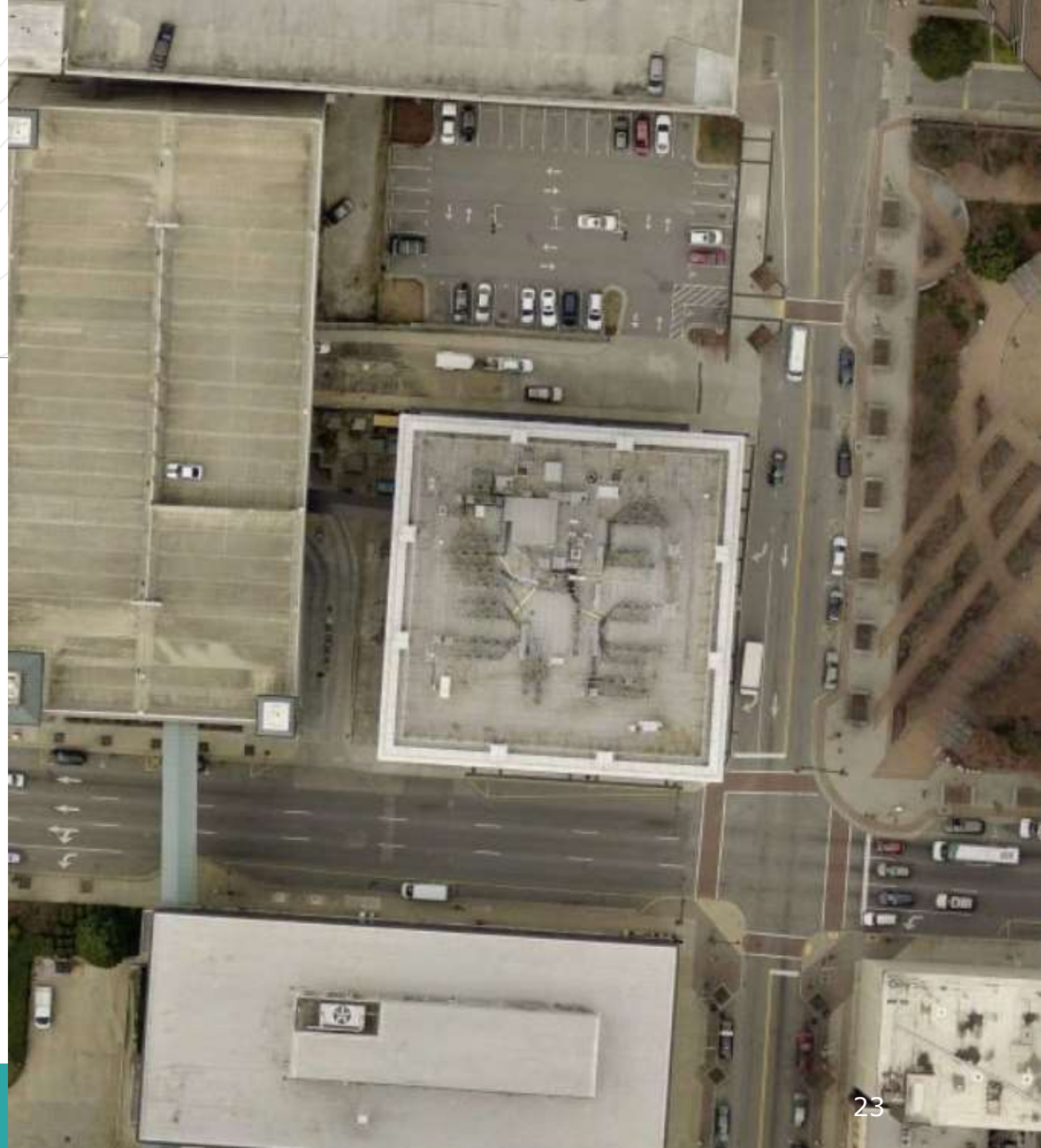


Traditional Ortho Imagery vs. Pictometry

What type of structure is this? How tall?

Traditional Ortho Image



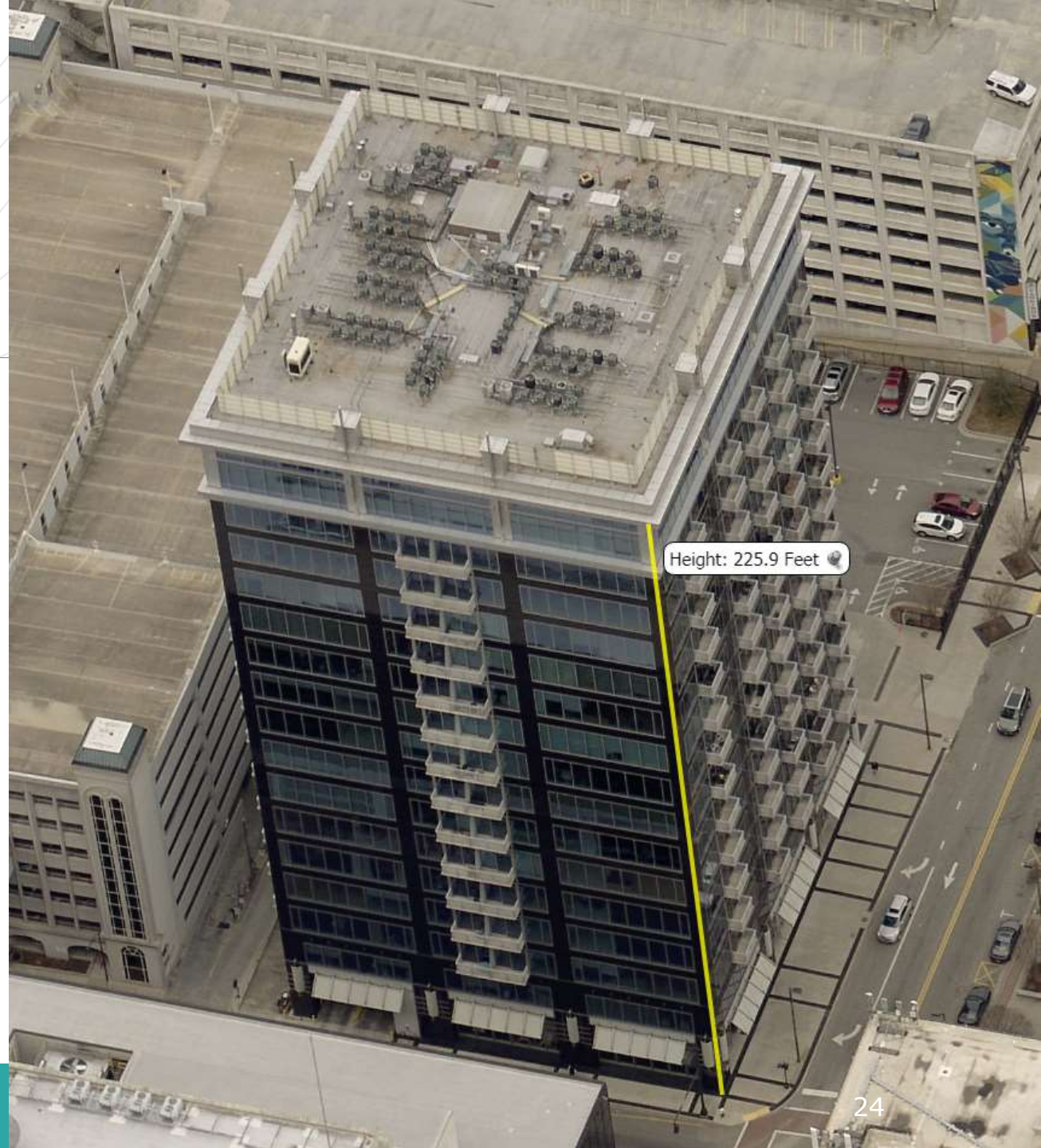


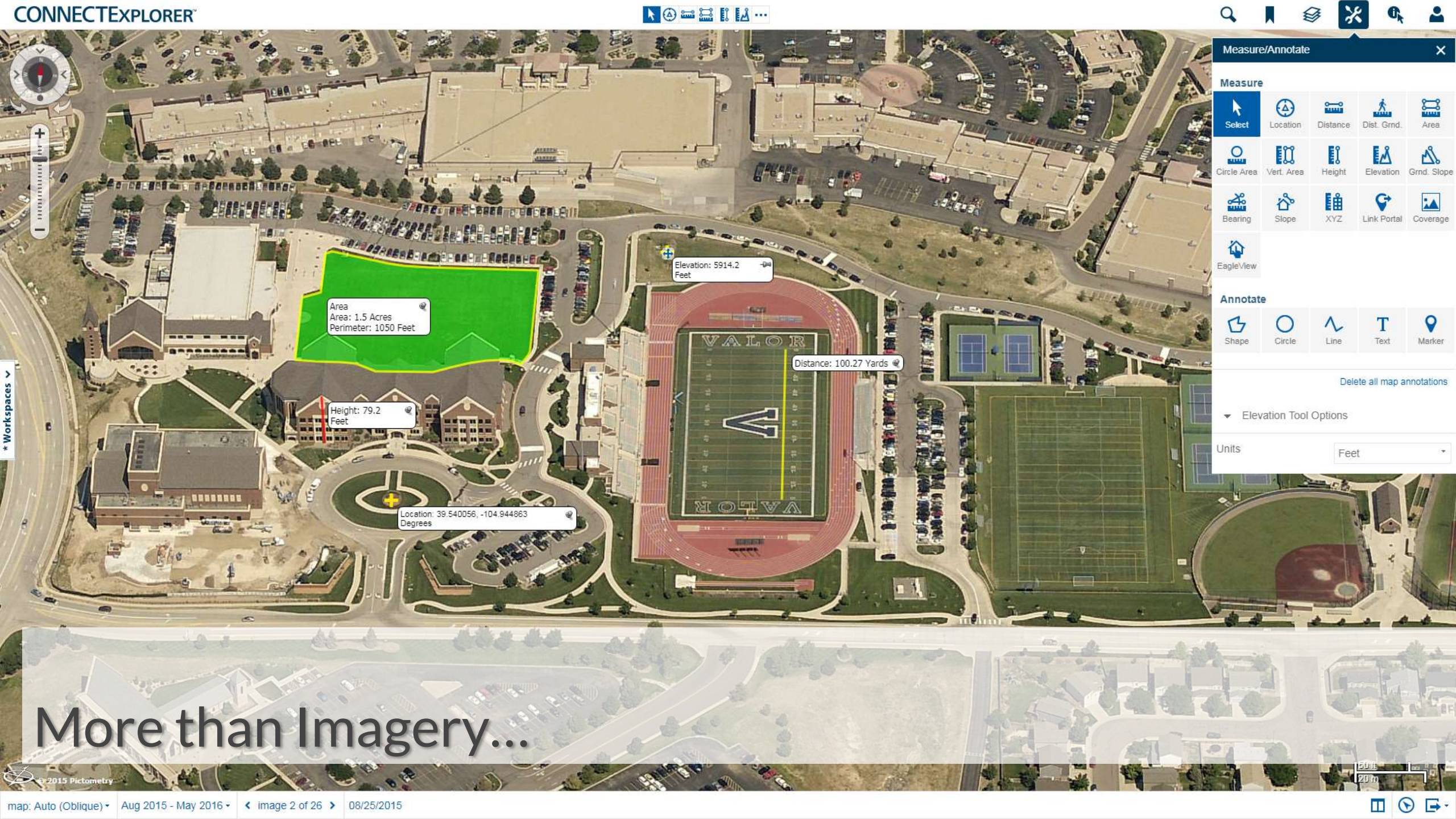
Traditional Ortho Imagery vs. Pictometry

Center Pointe Greensboro

Oblique imagery brings a natural perspective to a location that allows a user to view the environment as if they were there.

And it’s not just a pretty picture… you can also measure height, distance, area, etc.




CONNECTEXPLORER
Measure/Annotate
Measure
Select
Location
Distance
Dist. Grnd.
Area
Circle Area
Vert. Area
Height
Elevation
Grnd. Slope
Bearing
Slope
XYZ
Link Portal
Coverage
EagleView
Annotate
Shape
Circle
Line
Text
Marker
Delete all map annotations
Elevation Tool Options
Units
Feet
Area
Area: 1.5 Acres
Perimeter: 1050 Feet
Elevation: 5914.2
Feet
Distance: 100.27 Yards
Height: 79.2
Feet
Location: 39.540056, -104.944863
Degrees
VALOR
* Workspaces
More than Imagery…
© 2015 Pictometry
map: Auto (Oblique)
Aug 2015 - May 2016
image 2 of 26
08/25/2015

Now that we are all experts with ortho and oblique aerial imagery…

CHALLENGE #1

CHALLENGE #2

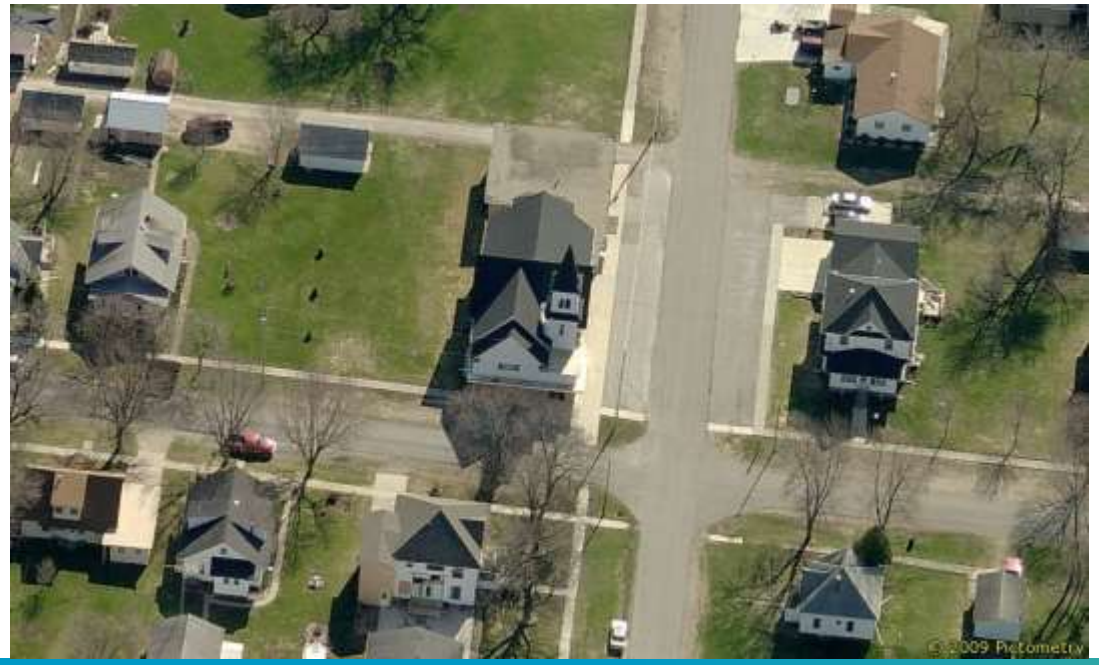
What is this?

Deodorant!

CHALLENGE #3


© 2009 Pictometry


© 2009 Pictometry


© 2009 Pictometry


© 2009 Pictometry

CHALLENGE #4 (JUST FOR FUN)

Views from 5 directions

How many county and city departments are authorized users?

Key government applications

Agencies and departments within a county can access high-resolution imagery and integrate it into existing workflows.

Key Government Applications

PROPERTY APPRAISAL & ASSESSMENT

- Remote inspection saves times and money
- View property details to assess accurate value and determine tax rates
- Rely on imagery when processing appeals and collections

When Do You Capture?

Imagery capture with leaf-off conditions and no snow on the ground (Late Fall through Early Spring)

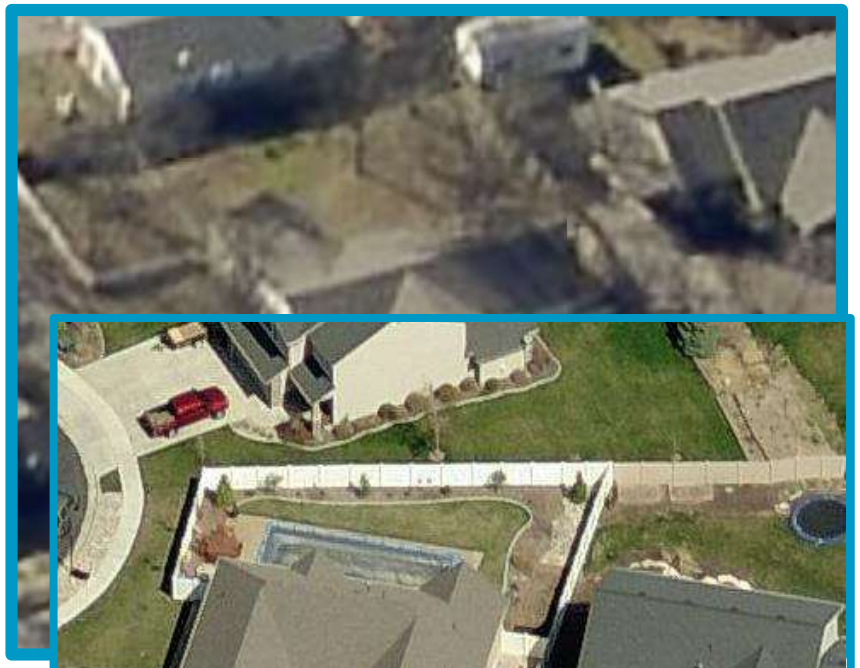
January Flight

July Flight

Choice of Resolution

Choose the right resolution that is best for you

9 “



6 “

4 “

3 “

Sub-inch resolution now available…

Ultra-high resolution for more clarity and detail

4 Inch Resolution

REVEAL – sub 1”

4”

Sub 1”

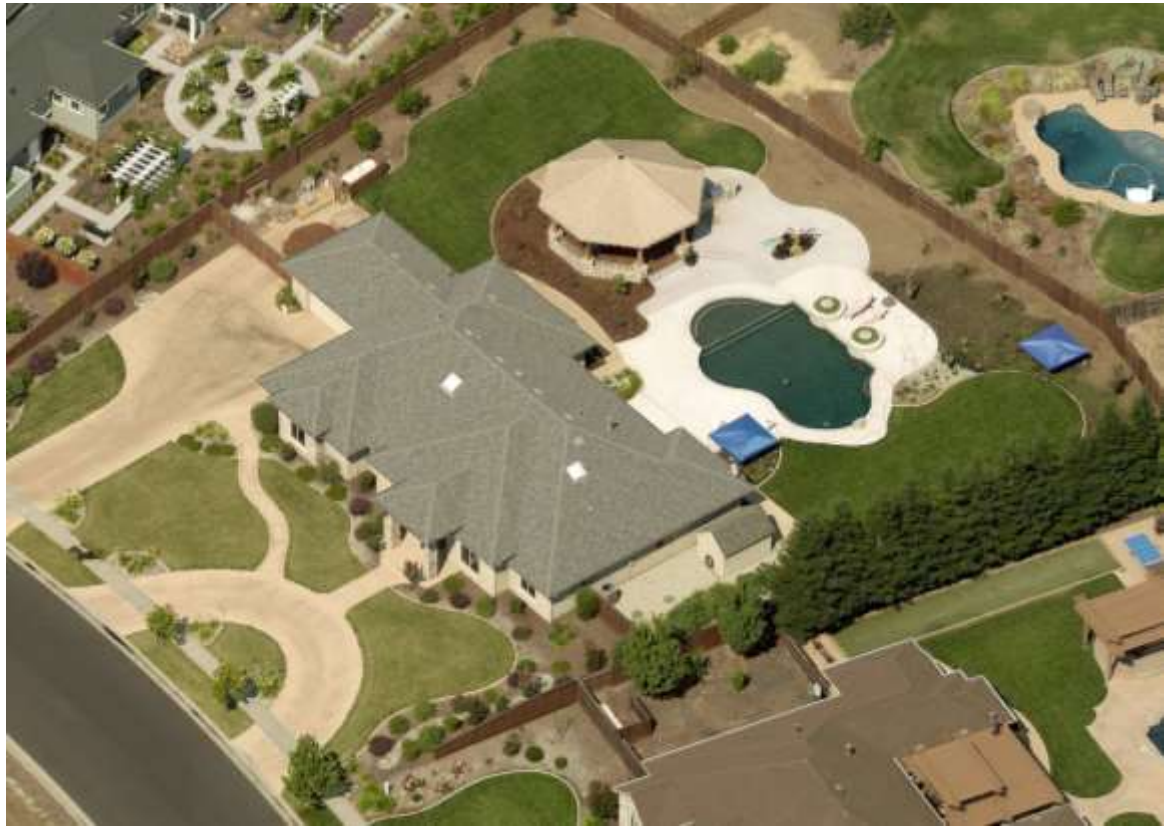
More clarity

View features never seen before in aerial imagery

More detail

Assess grade and relative condition without leaving the office

More certainty



Justify your decision regarding property valuation and asset condition with confidence


Roof Damage

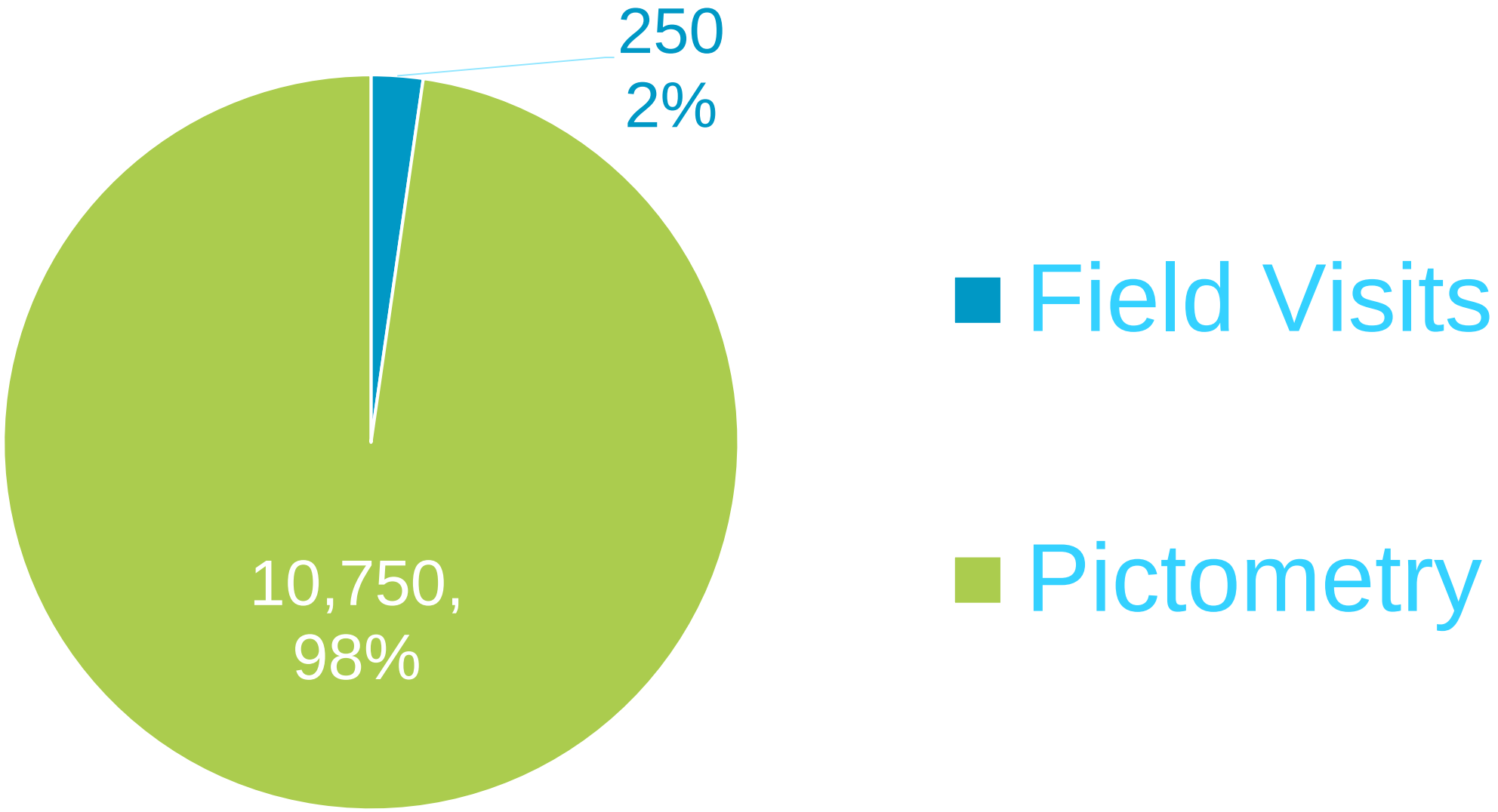

Crack in Wall


Rock Formation
Dog
Pool Hose

Why Oblique Imagery?

- Effective Use of Time
  - Sketch into CAMA system faster
  - Less Time Traveling for field inspections
  - Review more properties in shorter amount of time
  - Keep track of movable property
- Saves County Money
  - Salaries and Benefits of Full Time Employees
  - Hourly pay during field visits in distant locations
  - Cost of Fuel
  - Wear/Tear on Vehicles
  - Liability

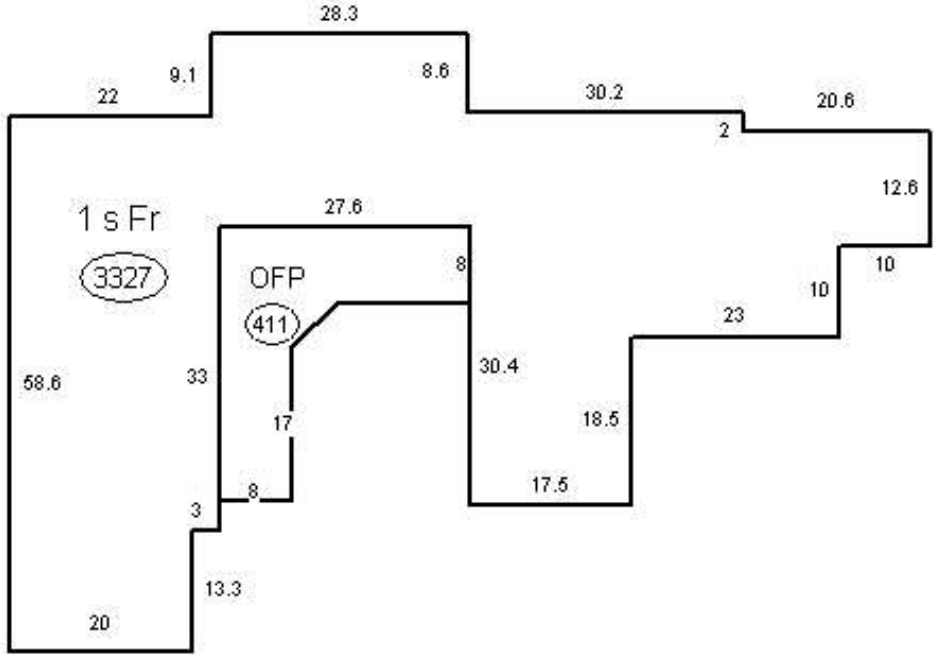
Reviewed properties

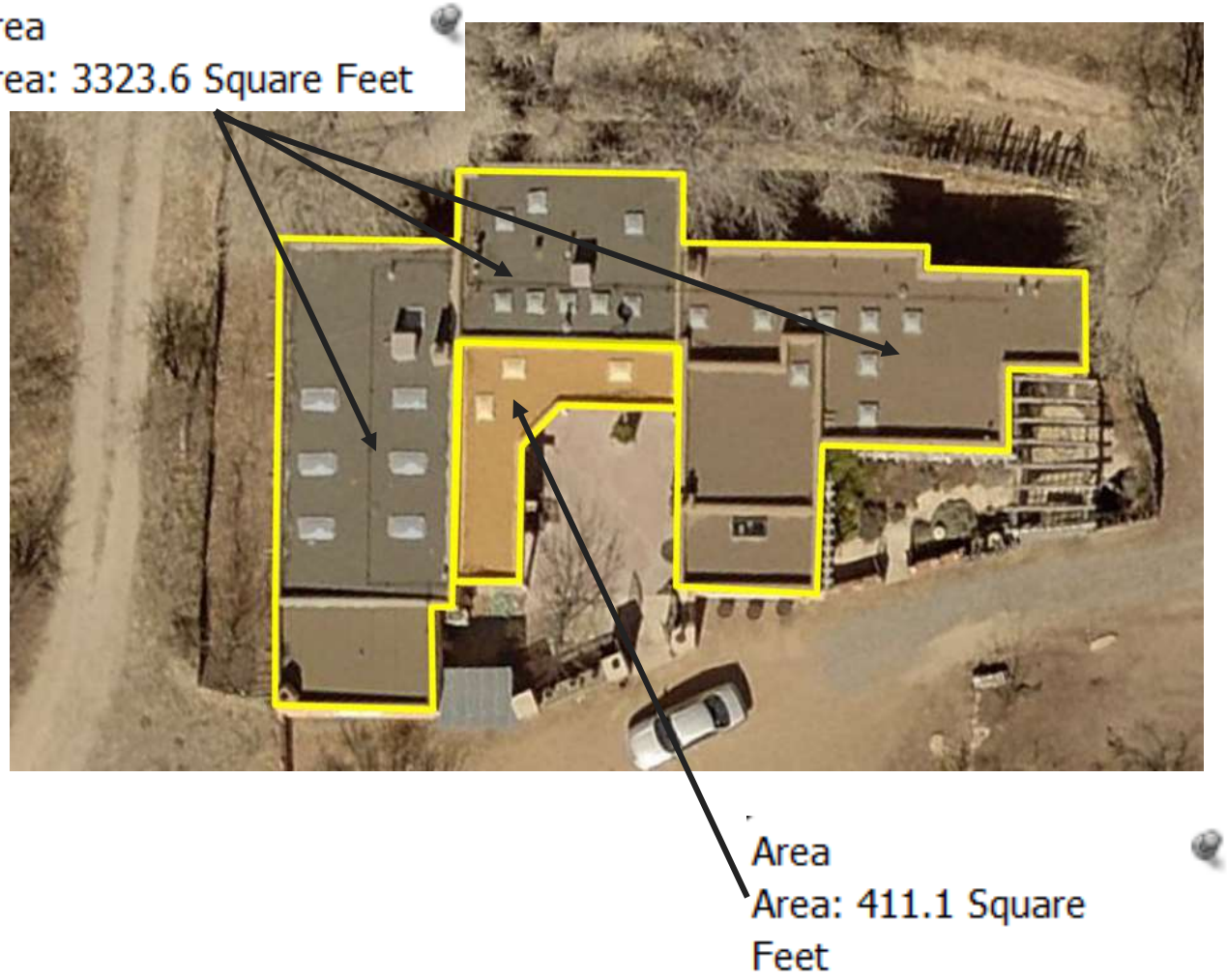


Benefits of Oblique Imagery

- Tools and Accuracy
  - Oblique Imagery
  - Distance
  - Search
  - Area
  - Bearing/Angle
  - Annotations
- Ability to measure structures in areas with gates
- Access to Structures When Not Physically Allowed on the Property

Measured on site vs Pictometry

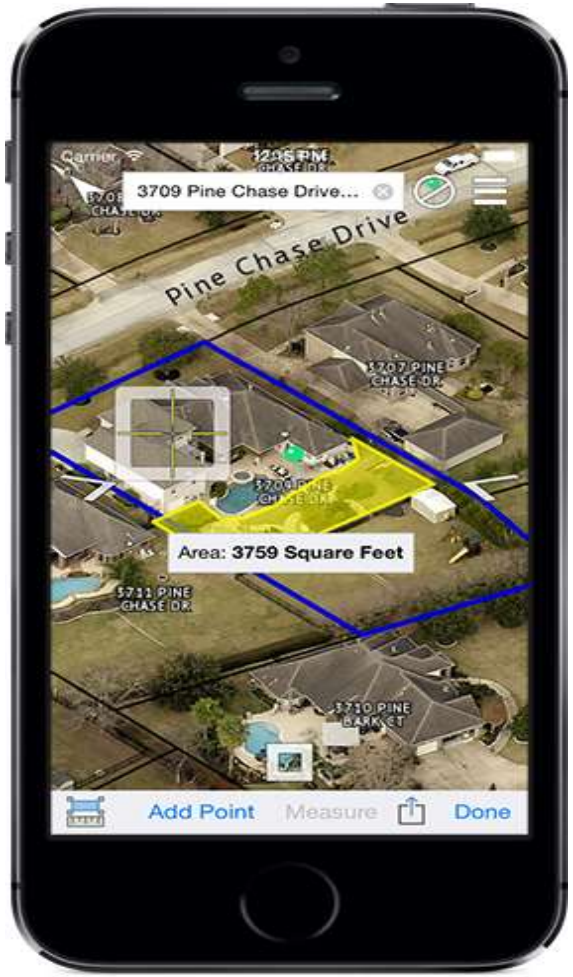


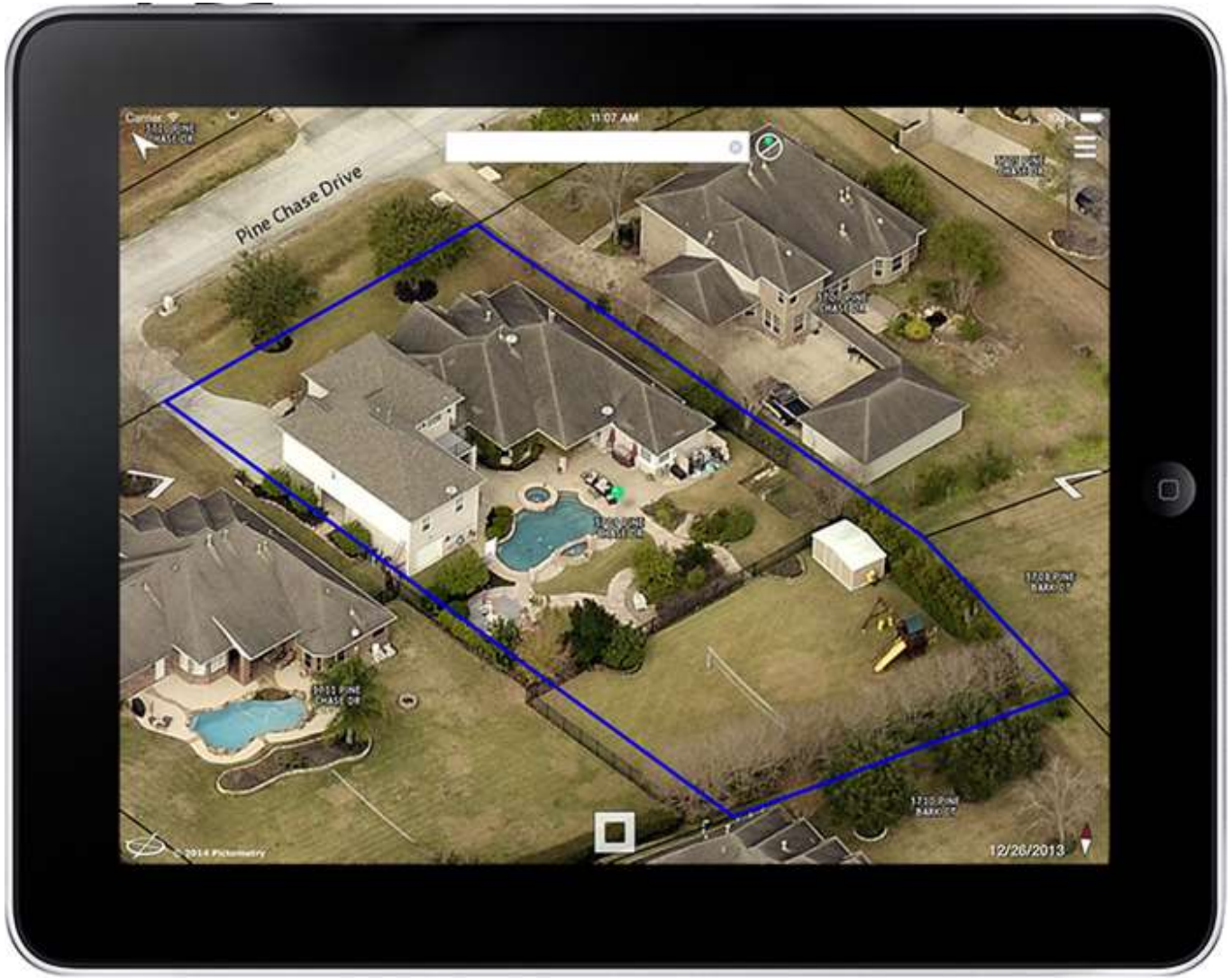


Access to Imagery

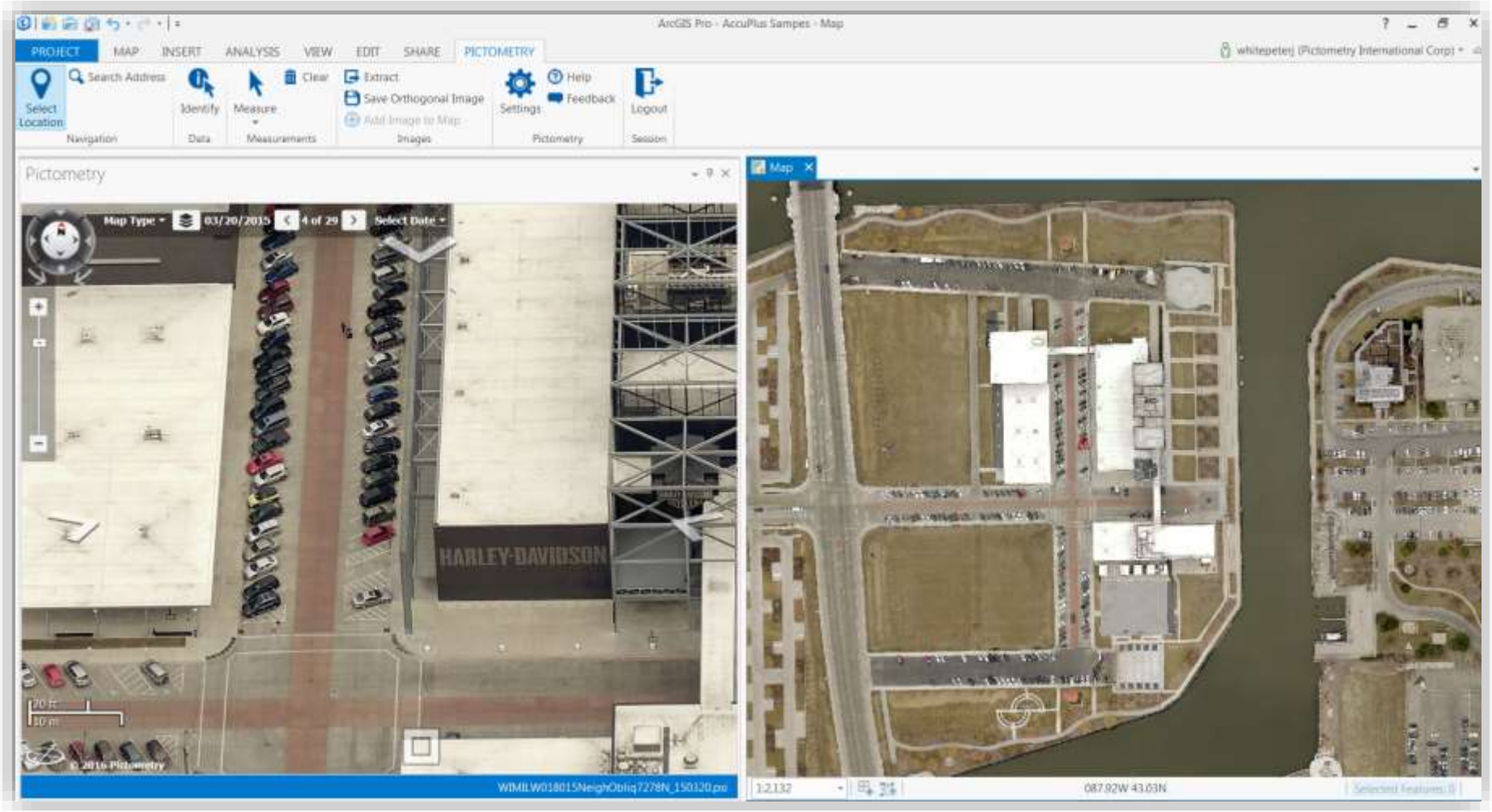
CONNECTExplorer - Demonstration

Mobile Apps


3709 Pine Chase Drive...
Pine Chase Drive
Area: 3759 Square Feet
Add Point
Measure
Done


Pine Chase Drive
12/26/2013

Pictometry for ArcGIS (Desktop & Pro)



Change Detection

ChangeFinder

Flags parcels that have undergone change and allows assessment teams to review and validate the information from the desktop, reducing the amount of field time

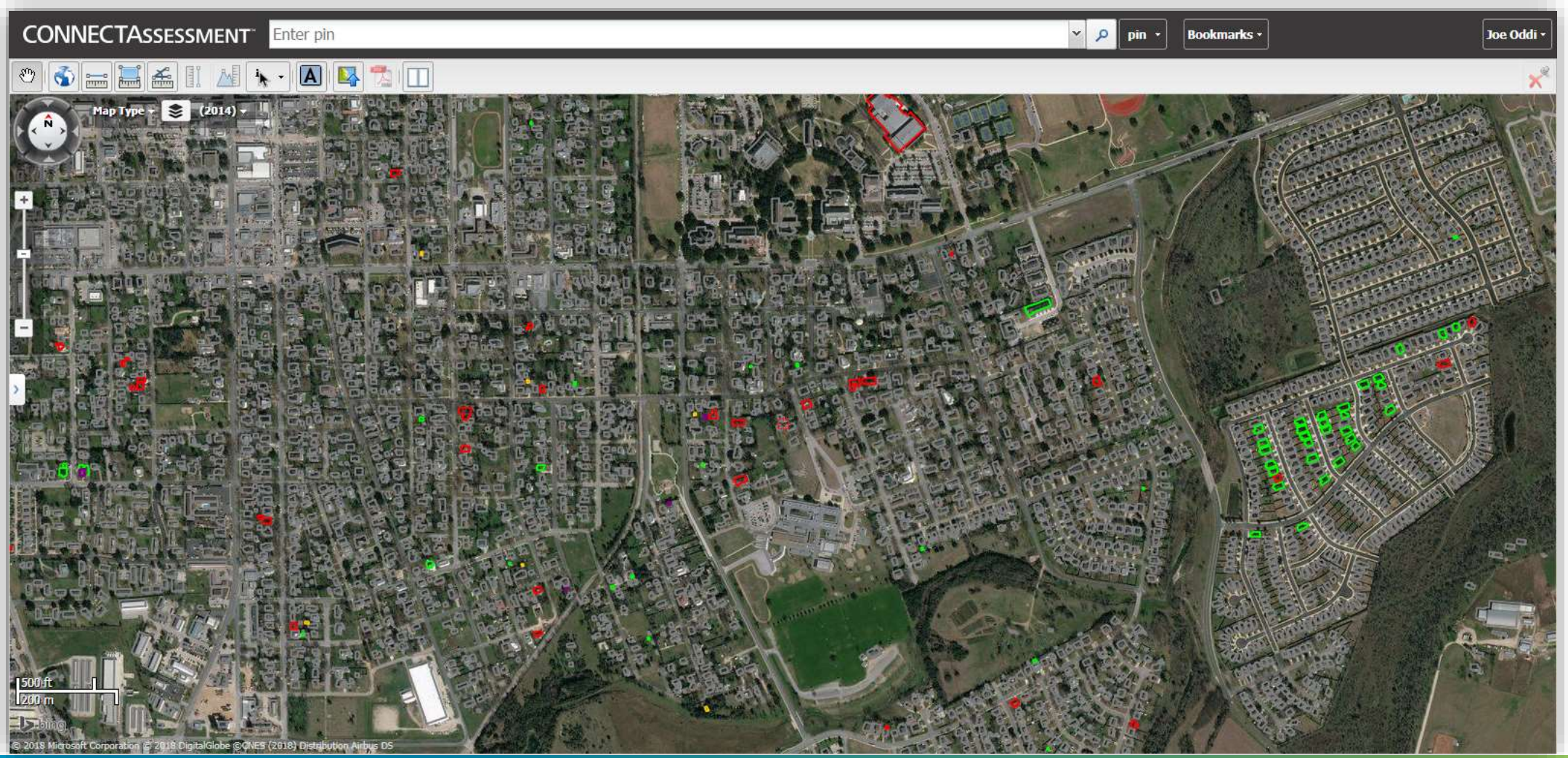
ChangeFinder

ChangeFinder

Picks up everything greater than 150 sq. ft.

Pictometry ChangeFinder

Easily find change amidst a sea of unchanged buildings

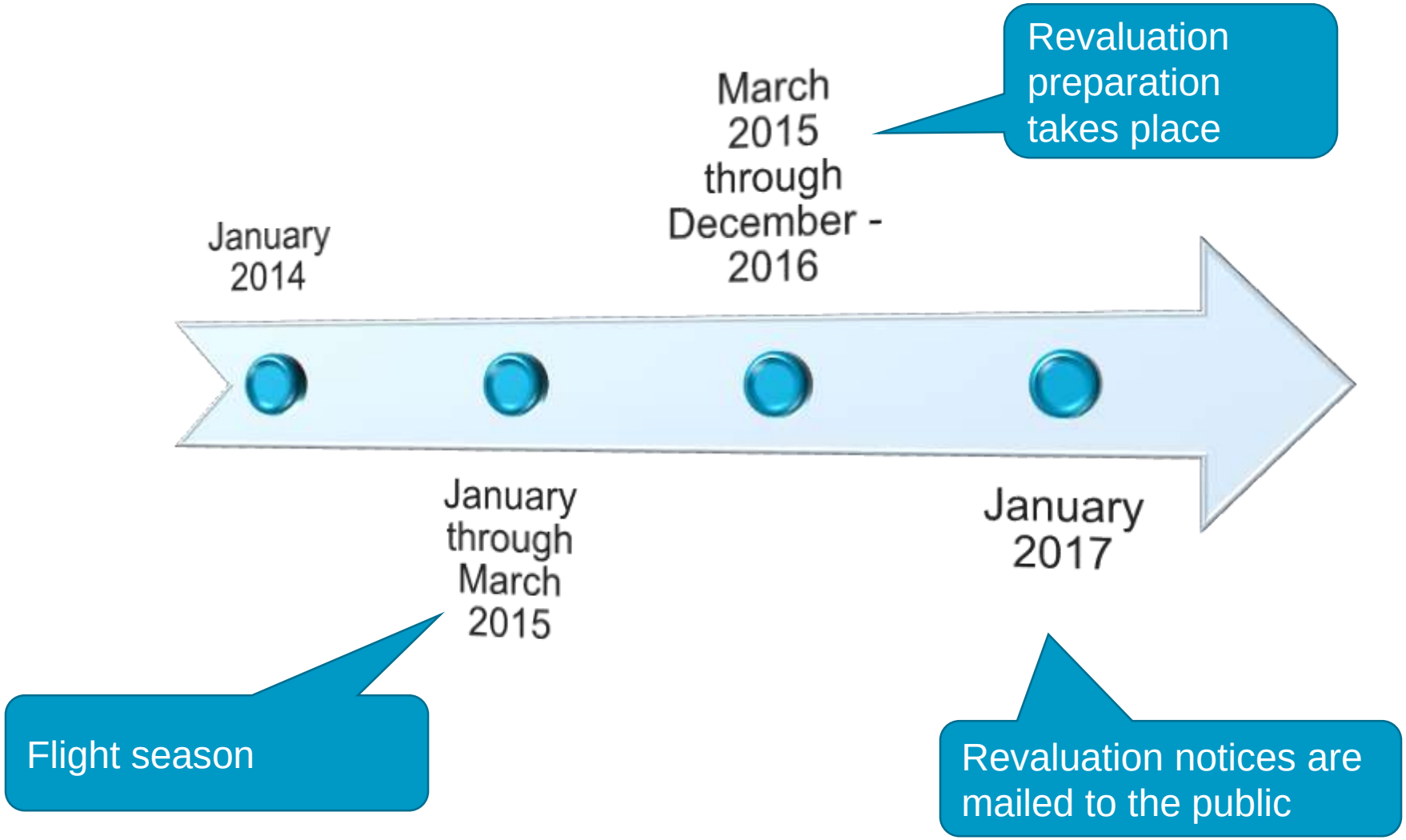


Tax Department

Ben Chavis, Tax Director
Alan Myrick, Real Property Supervisor

Building Data Integrity and the Tax Base Utilizing Oblique Imagery

2017 County Revaluation Timeline



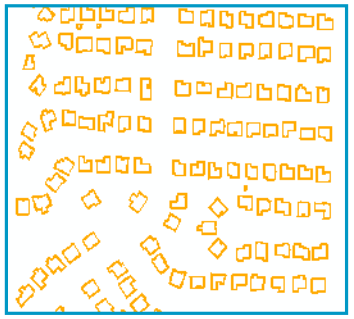
Anticipated Benefits of Pictometry & ChangeFinder

- Discovery of previously unknown properties
- Increased tax revenue and accuracy of assessment records
- Reduced time & expense of field review
- Less appraisal staff needed to conduct Revaluation
- The 2013 IAAO Standard on Mass Appraisal of Real Property recommends that “a physical review including an on-site verification of property characteristics should be conducted at least every 4 to 6 years.”
- Recoup investment within two years

Oblique Photography

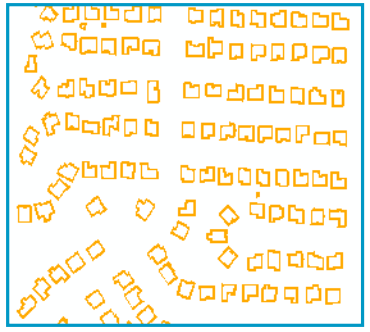
Change Detection Process

2015 Imagery

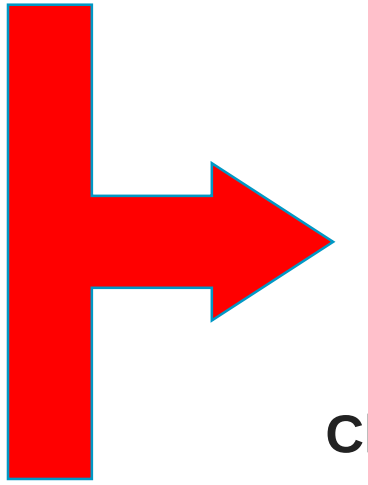


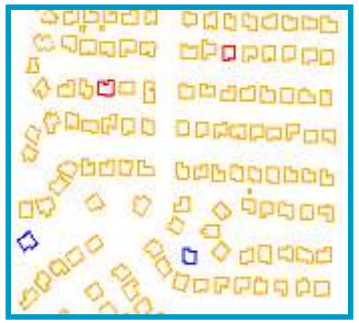
Generated Building Outlines

2007 Imagery



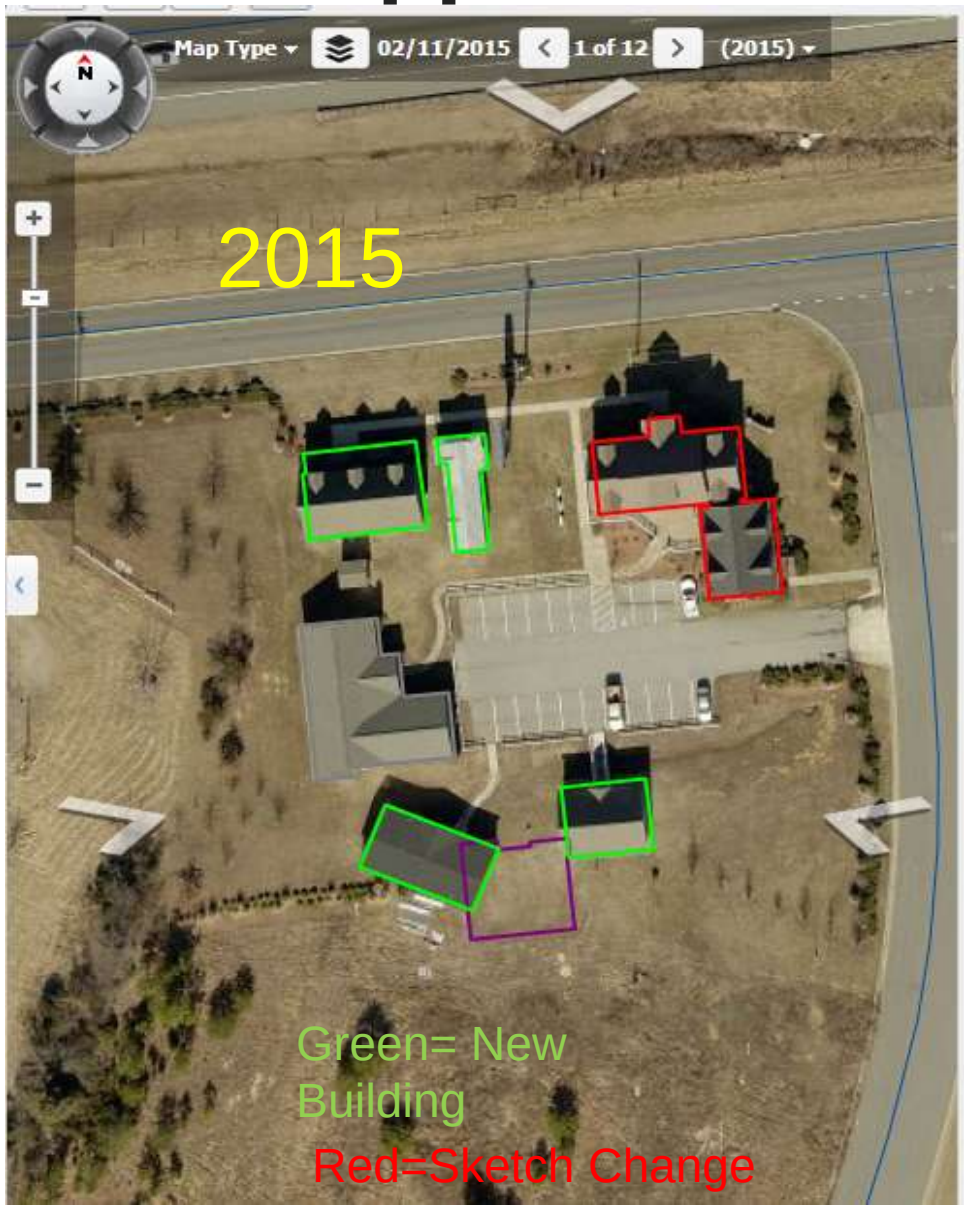
Generated Building Outlines

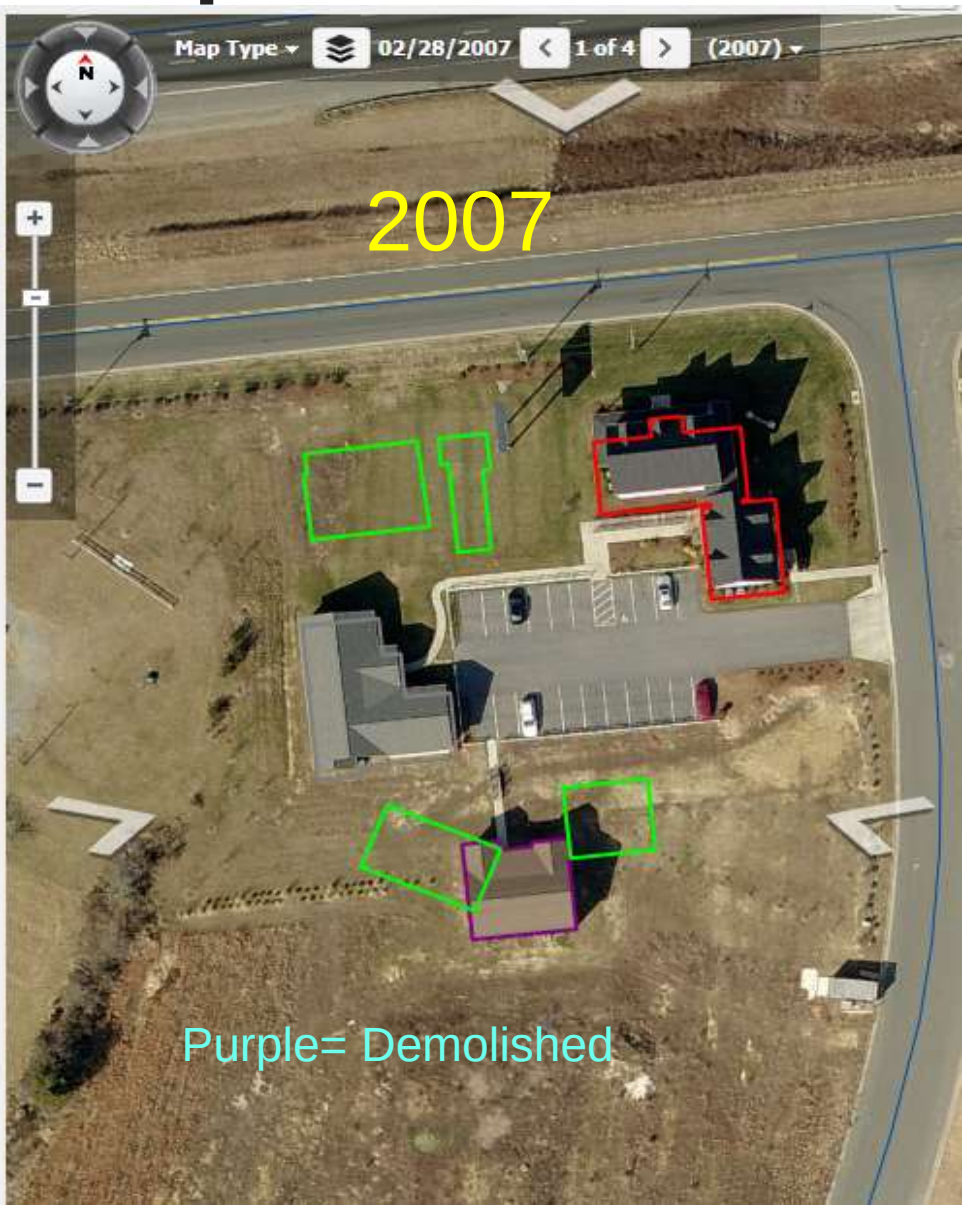




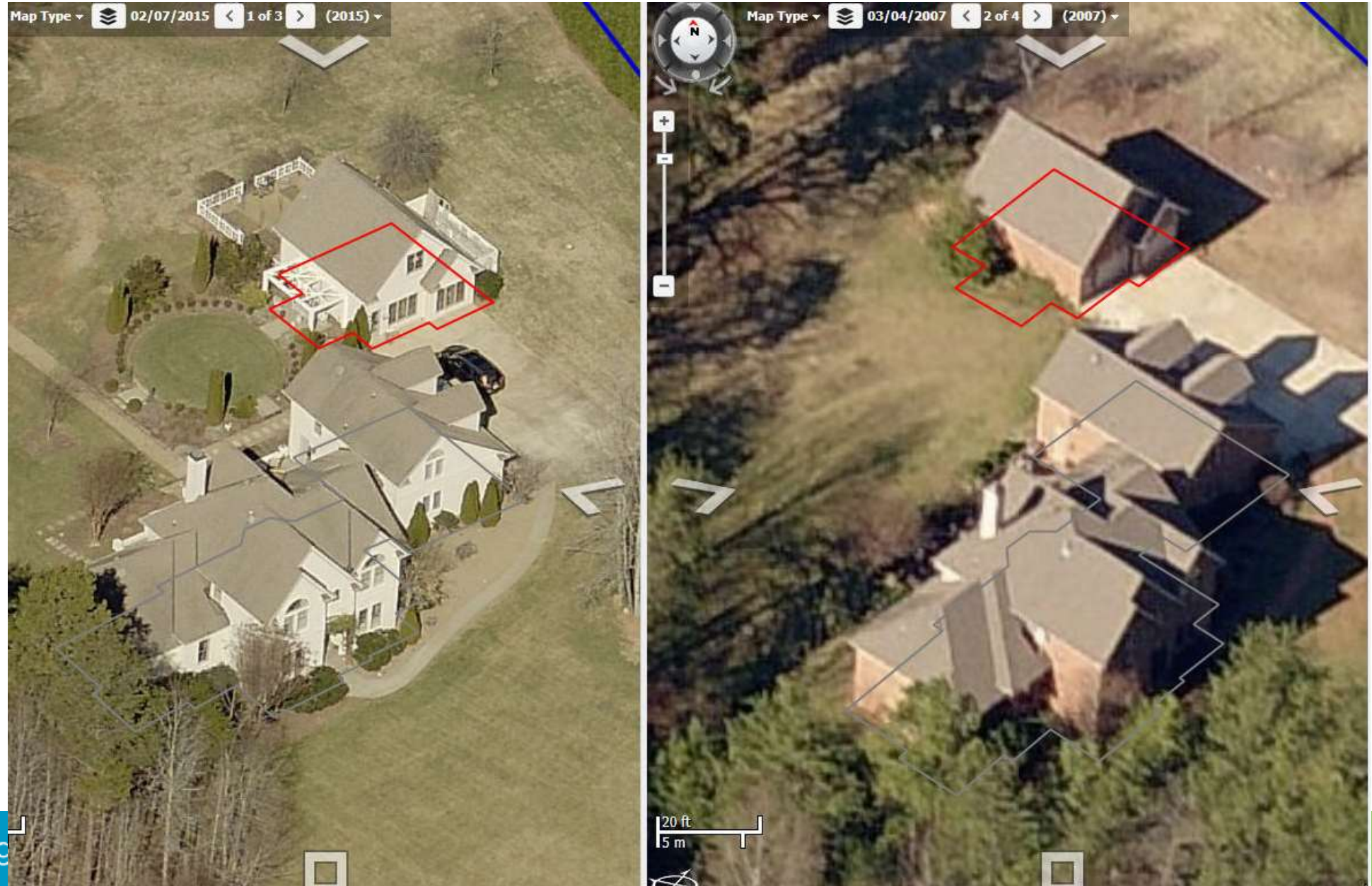
Change Candidates

Appraisers Desktop View

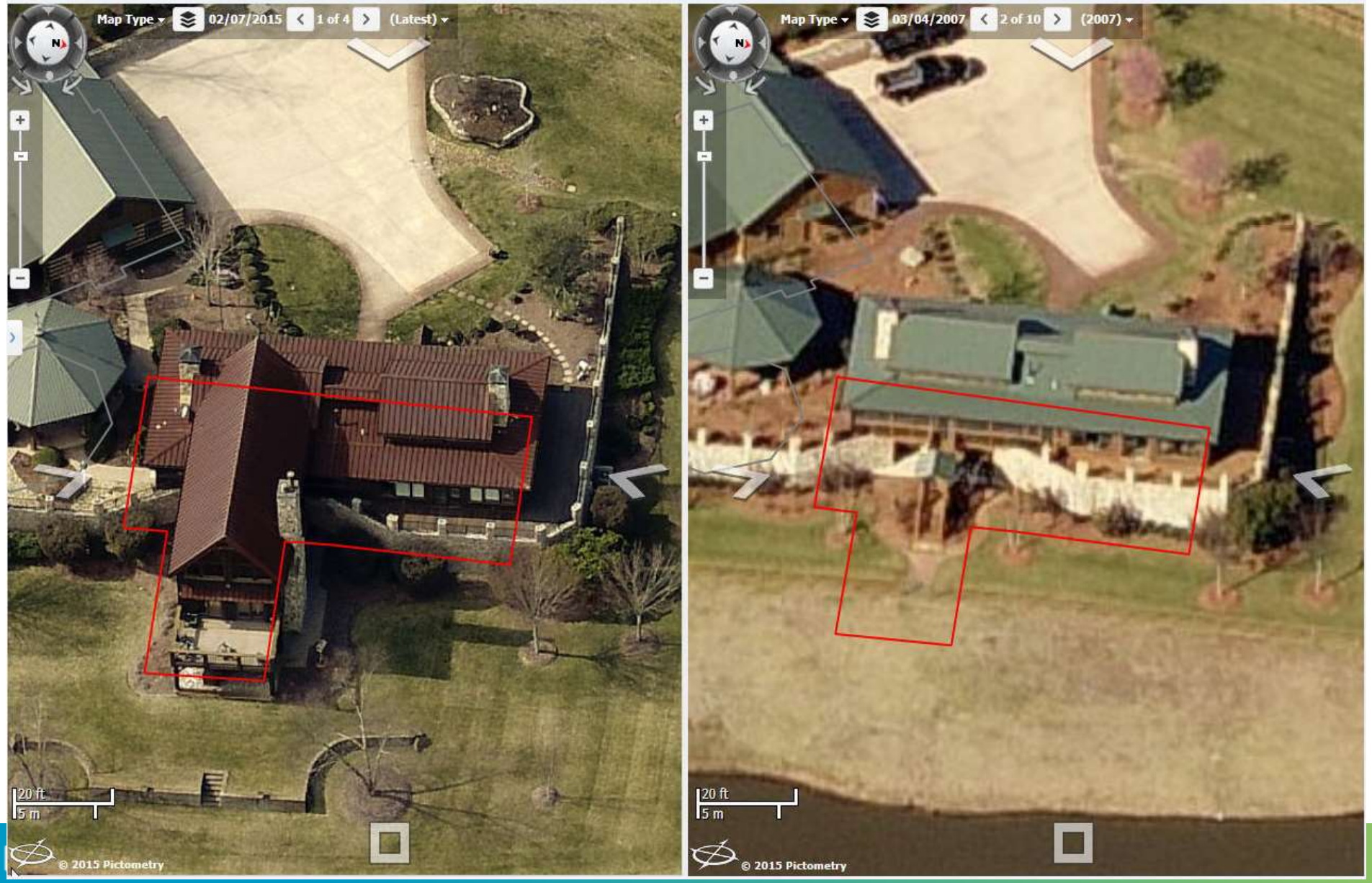




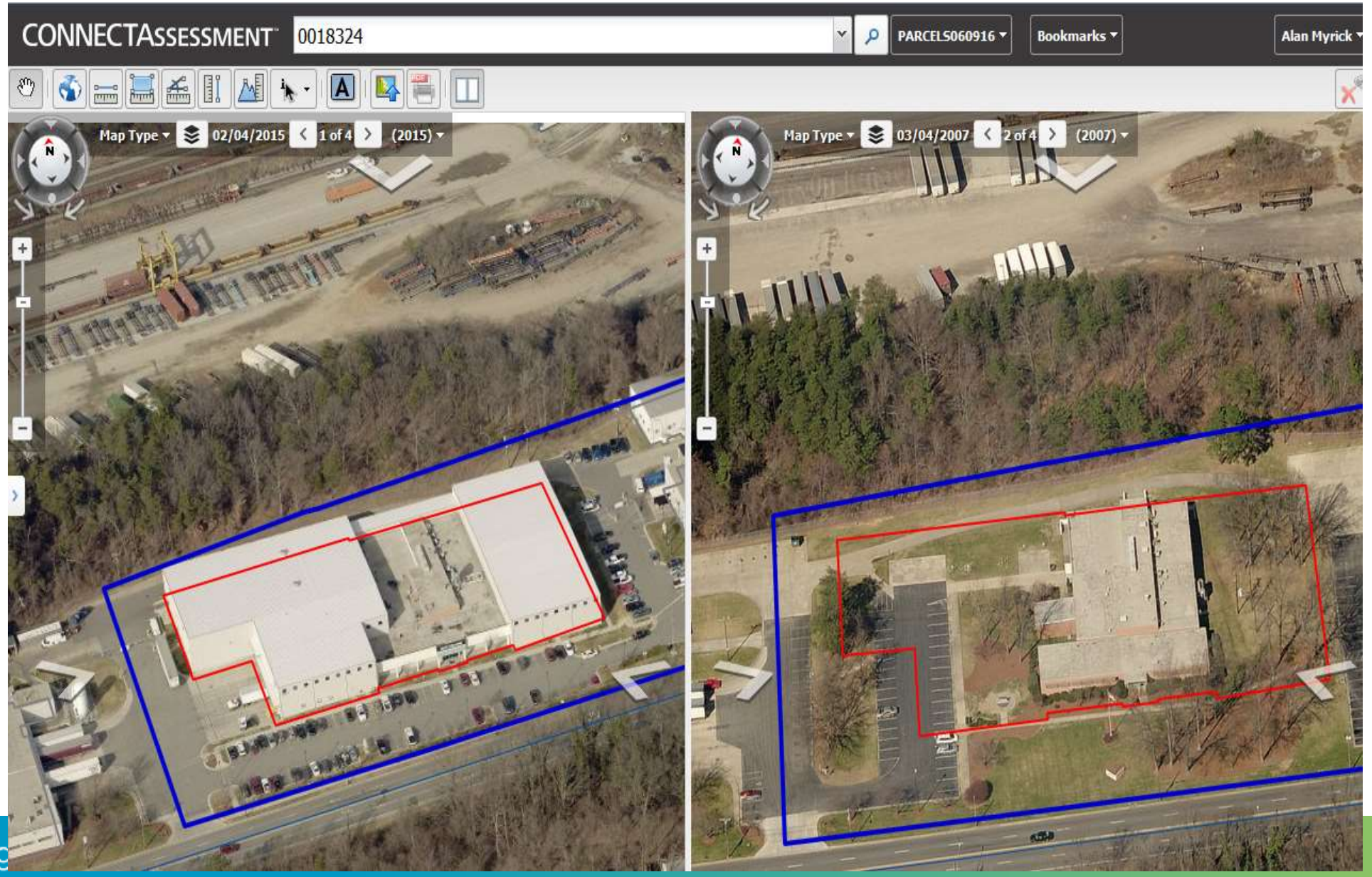
Things we found



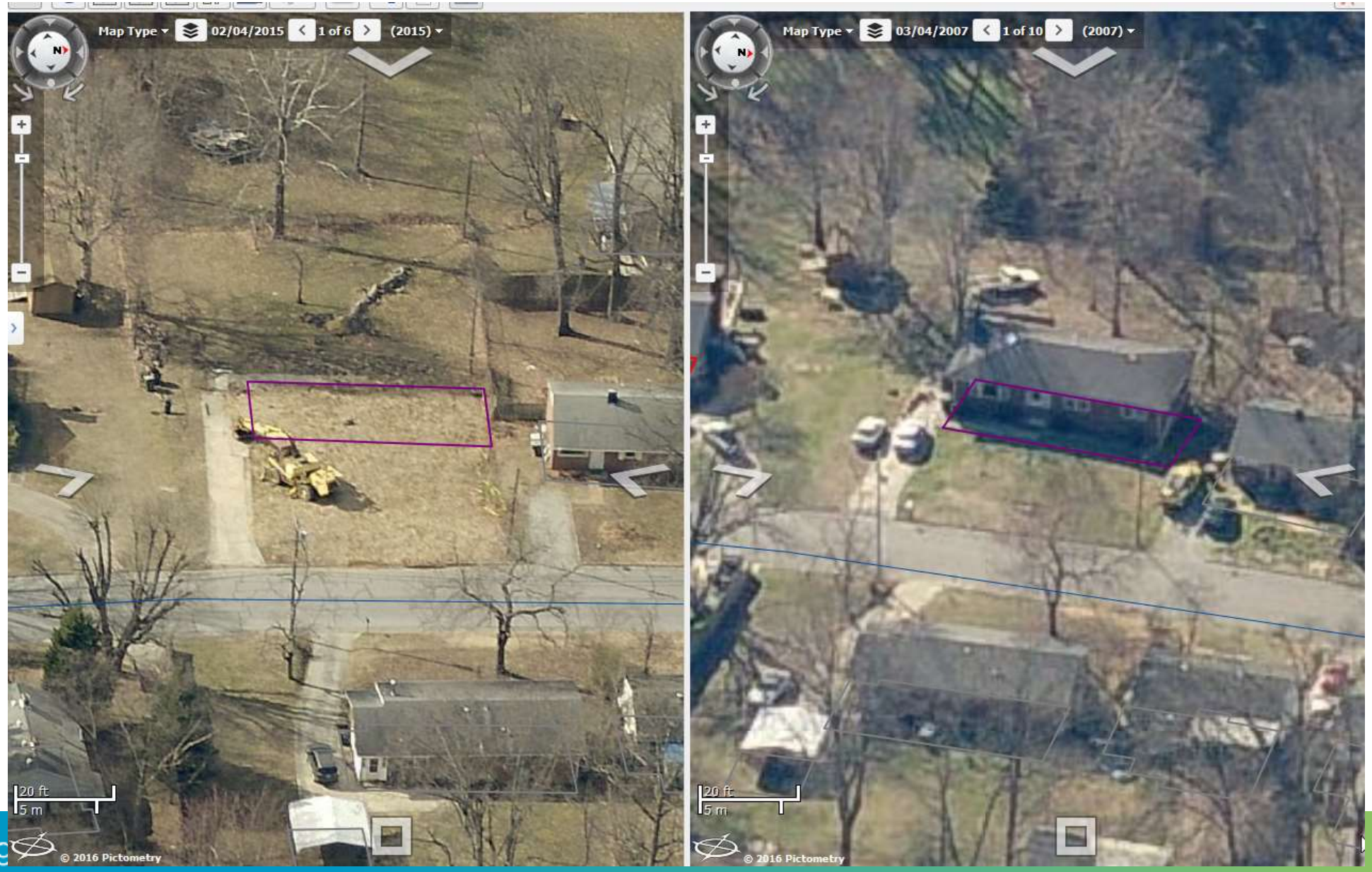
Things we found



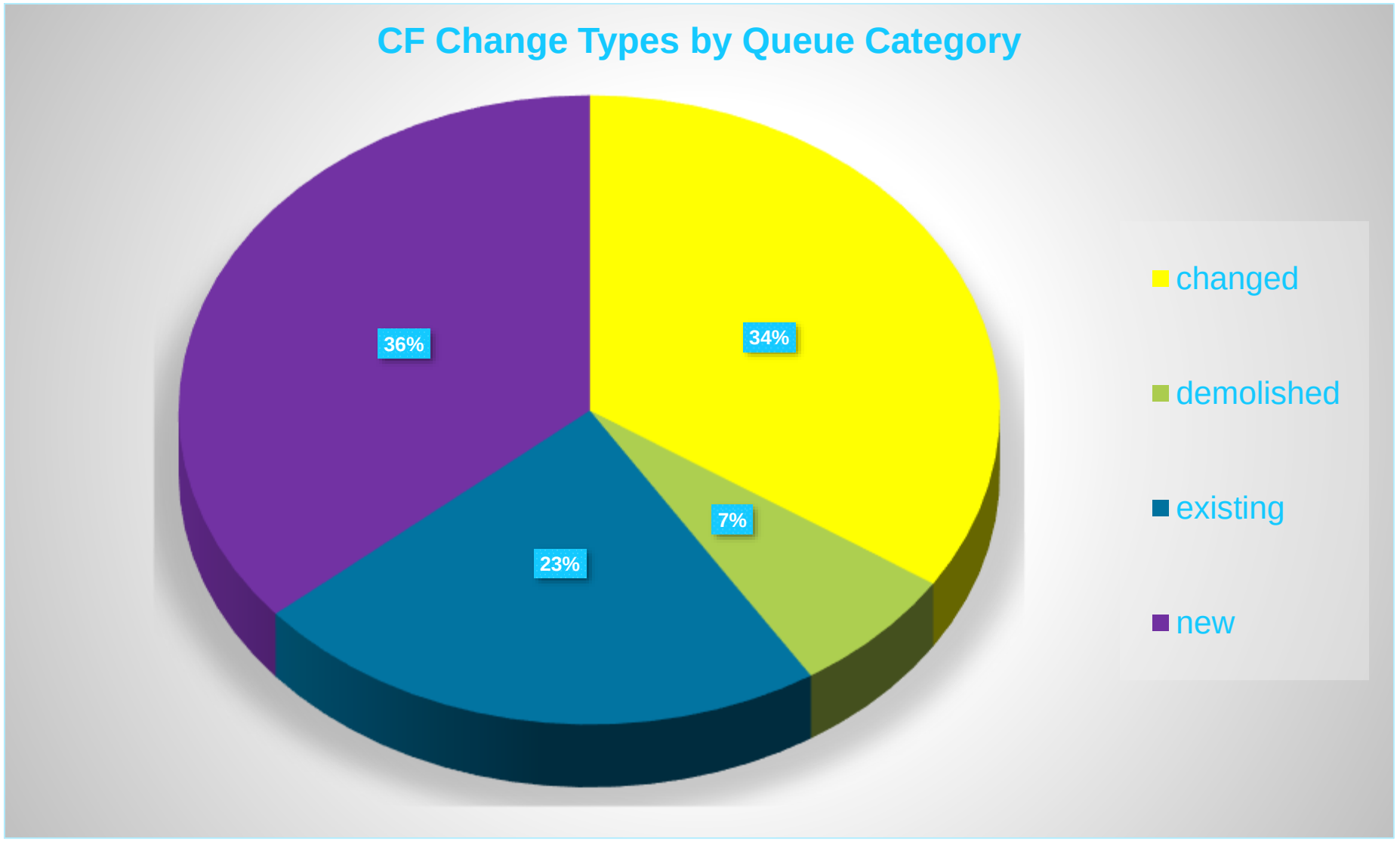
Things we found



Things we found Gone



Value of Changes per Category



Pictometry Changefinder

- Allows appraisal staff to do an electronic inventory of buildings & outbuildings that have been built, improved, or removed since 2007.
- Appraisal staff added or removed:

Building Value Added: $53,962,991

Building Value Removed: $3,504,822

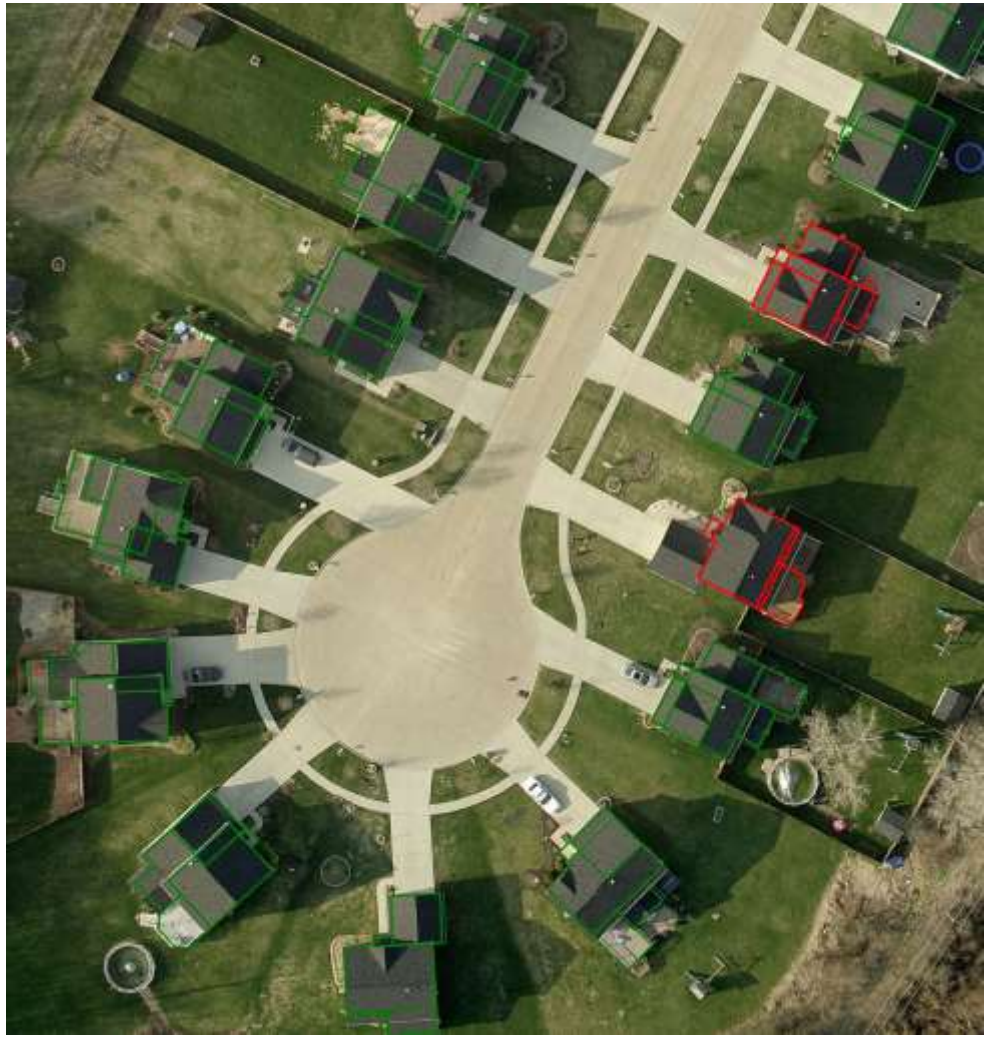
The Results

- Net discovered value: $50,458,169
- $344,687 revenue to be realized per year at the current tax rate.

Realized Benefits of Pictometry Oblique Imagery & ChangeFinder

- Discovery of previously unknown structures – 2,688
- Removal of 861 demolished structures.
- Increased tax revenue - $344,687
- Improved accuracy of assessment records – 5,611 updates / 280,326 total structures in County (98% accuracy rate)
- Reduced time & expense of field review – $1,575,000 in savings
- Less appraisal staff needed to conduct Revaluation
- Recouped investment in 1.3 years
- Increased public confidence in the accuracy of the appraisal record

Change Detection



SketchCheck

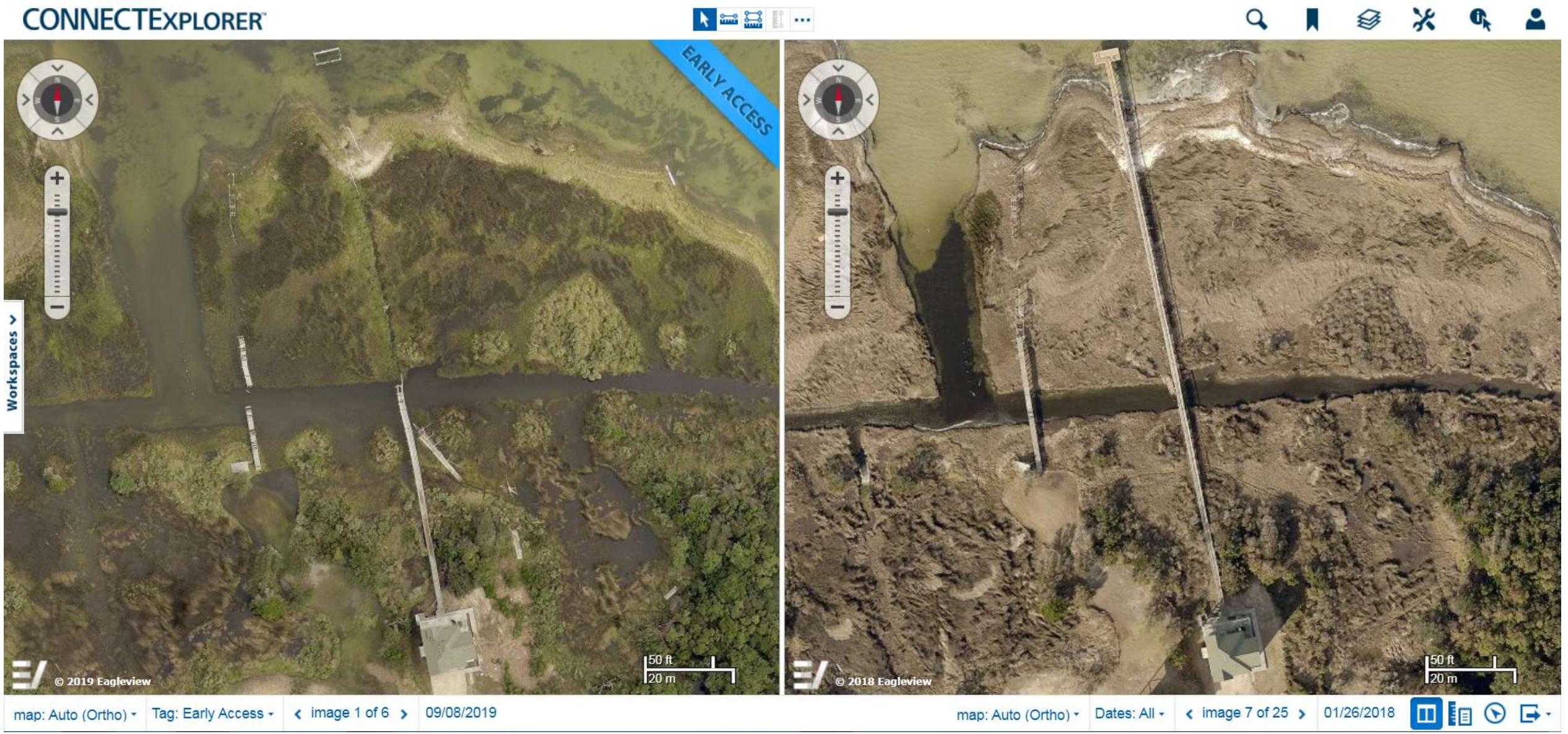
Help assessors georeference and verify accuracy of CAMA sketches using high-res ortho imagery

Discrepancies between images and sketches are flagged and categorized by degree of inconsistency

Sketch Check

- Verify accuracy of your CAMA sketches from your desk
- Sketches are categorized by degree of consistency
  - Match
  - Minor Mismatch
  - Major Mismatch

Disaster Response – Damage Assessment

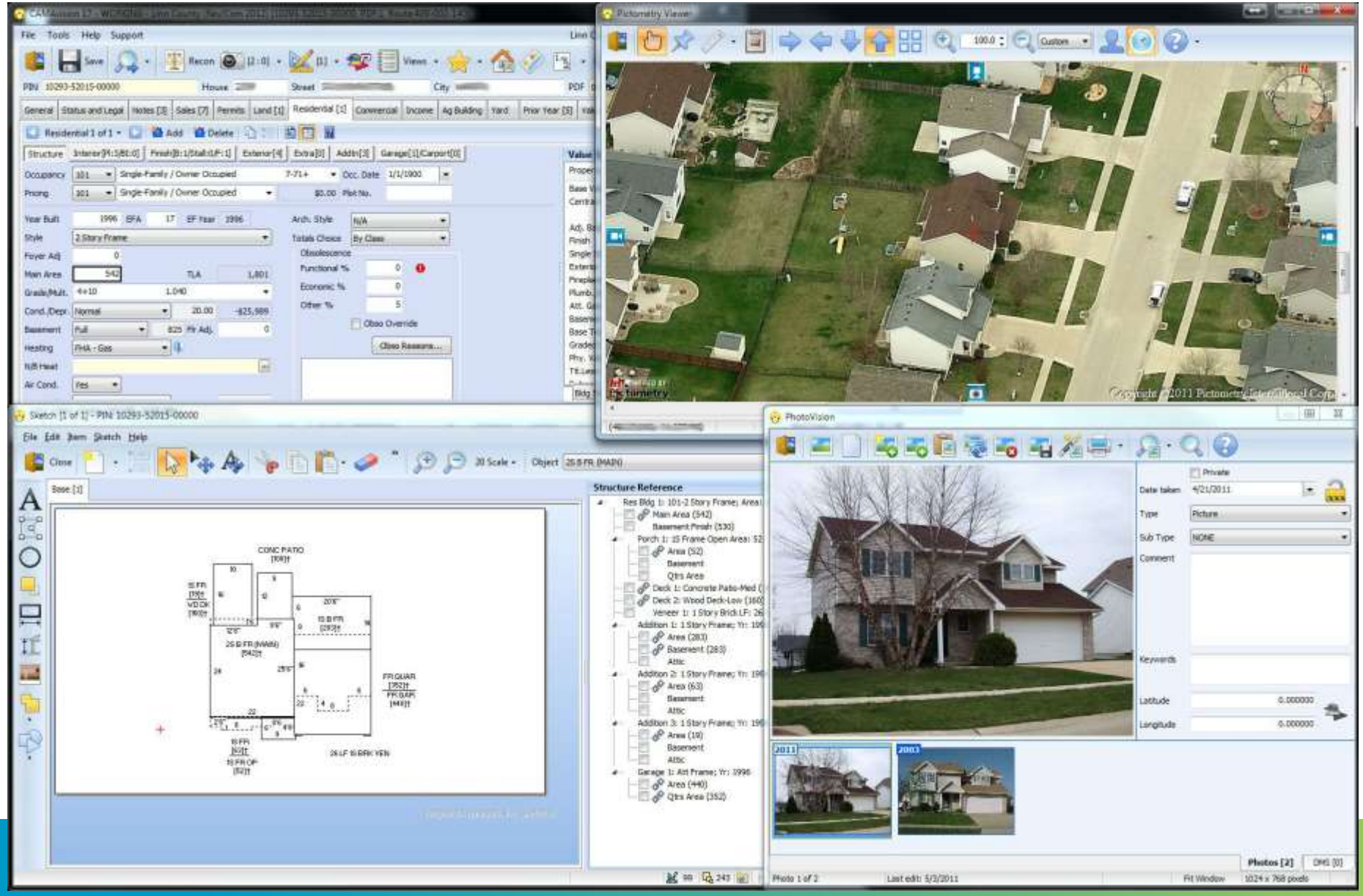


10/02/2013
1 of 2
(Early Access)
Views
EARLY ACCESS
Sunset Street
20 ft
10 m
Pictometry © 2000-2014

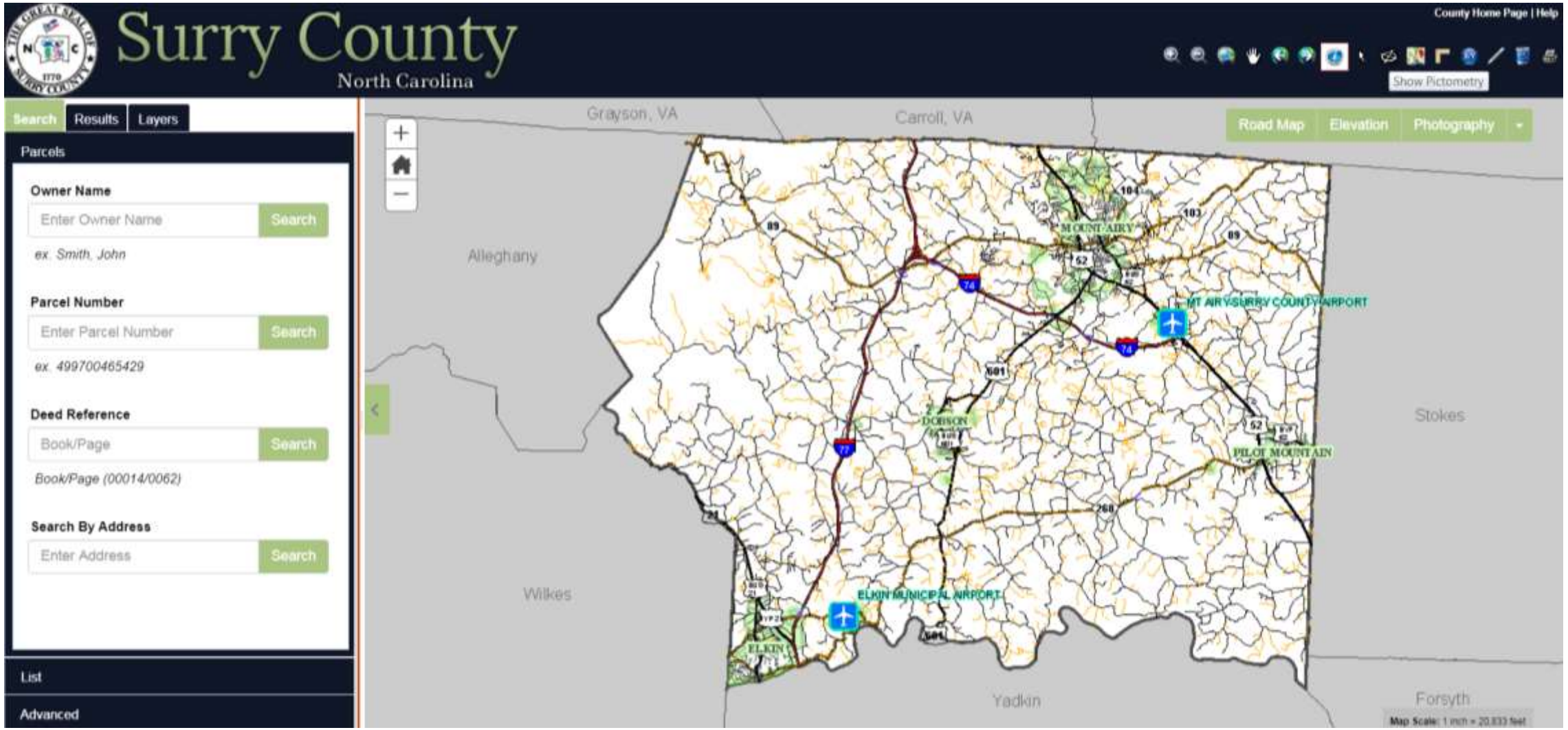
05/01/2011
1 of 6
(Latest)
Views
Sunset Street
Sunset Street
50 ft
20 m
Pictometry © 2000-2014

CAMA Integration

(Tyler, Patriot, Bi-Tek, Farragut, Harris, Thompson Reuters, etc…)



Public Access - Demonstration



Questions?

Thank you!