

PICTOMETRY REAL-TIME AIRBORNE MANAGEMENT SYSTEM

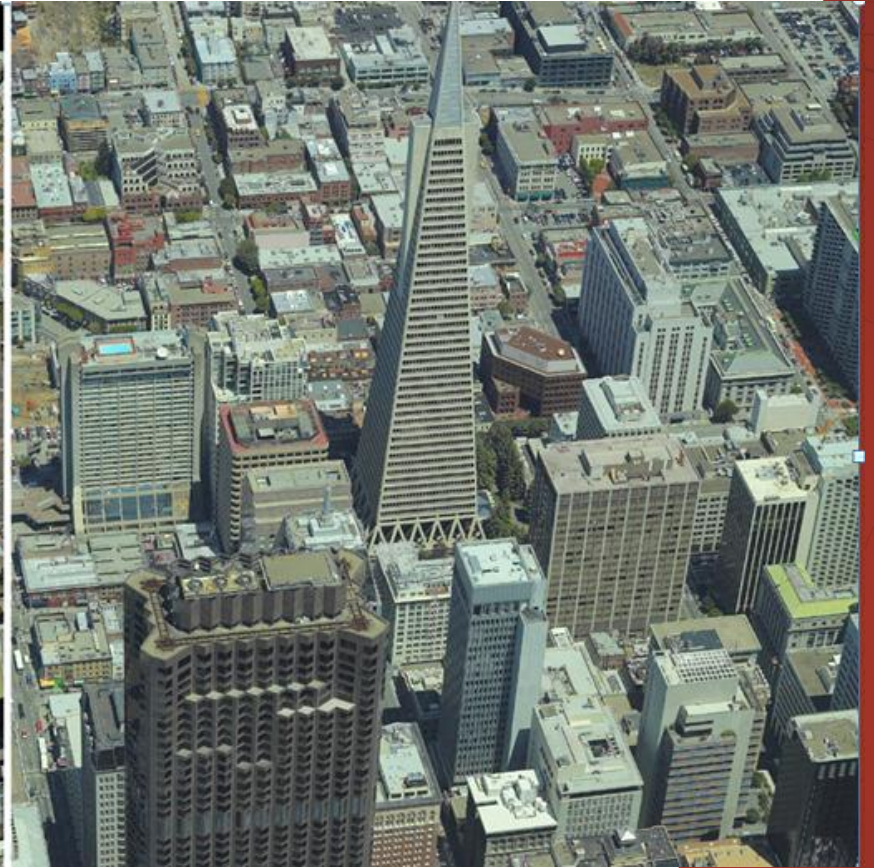
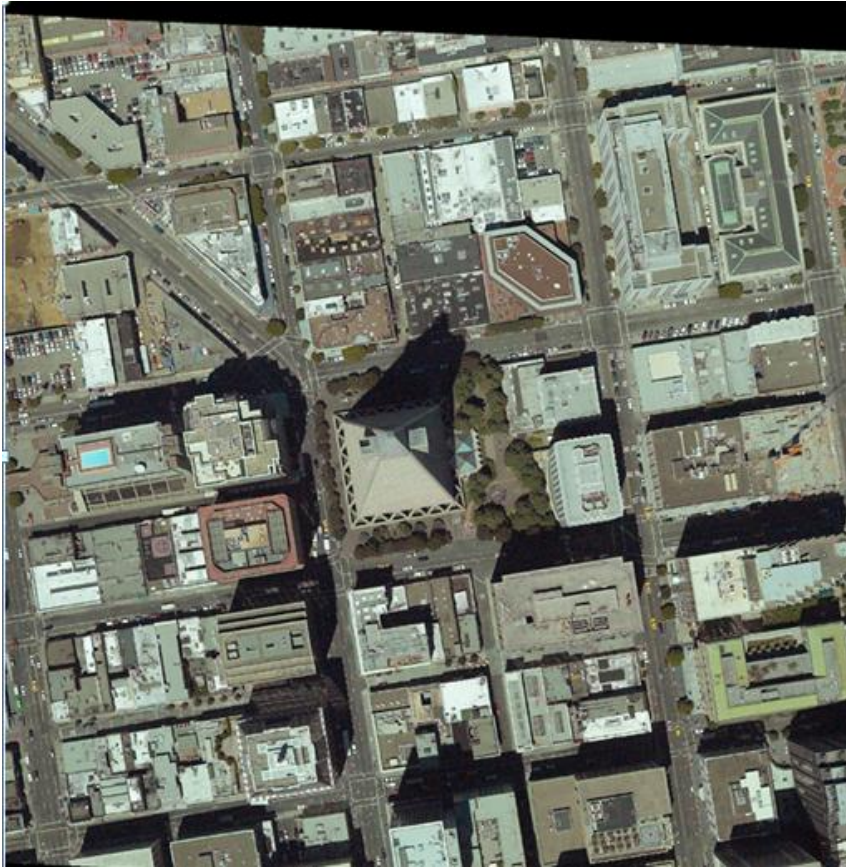
Work Flow in Emergency Response
ESRI FED UC 2012

Charles Mondello
Deputy CTO
Pictometry International Corp.

**DON'T
JUST SEE.
SEE ANSWERS.**



Orthogonal View Versus Oblique View



The Transamerica Building, San Francisco, CA

Quotes

- “with this technology we are able to locate sick or injured people who are unable to give us their location when they are in need of help,” said Rochester Emergency Communications Department Director.
- “In all, more than 3,000 square miles of imagery from flood-affected areas has been captured, including 104 square miles of imagery within 24 hours of capture, the imagery was processed and delivered along with several seats of software which enables users to compare existing (“before”) imagery with post (“after”) disaster imagery. We know what the 500-year flood is, but the bigger question is what properties have been lost as a result of it?” Johnson County Assessor.
- “The objective for NG9-1-1 is to answer ‘what is needed for the future of 9-1-1?’ We now have the answer. What’s needed is the ability to respond to ‘any device, anywhere, any time,’” said National Emergency Number Association (NENA) Development Director.

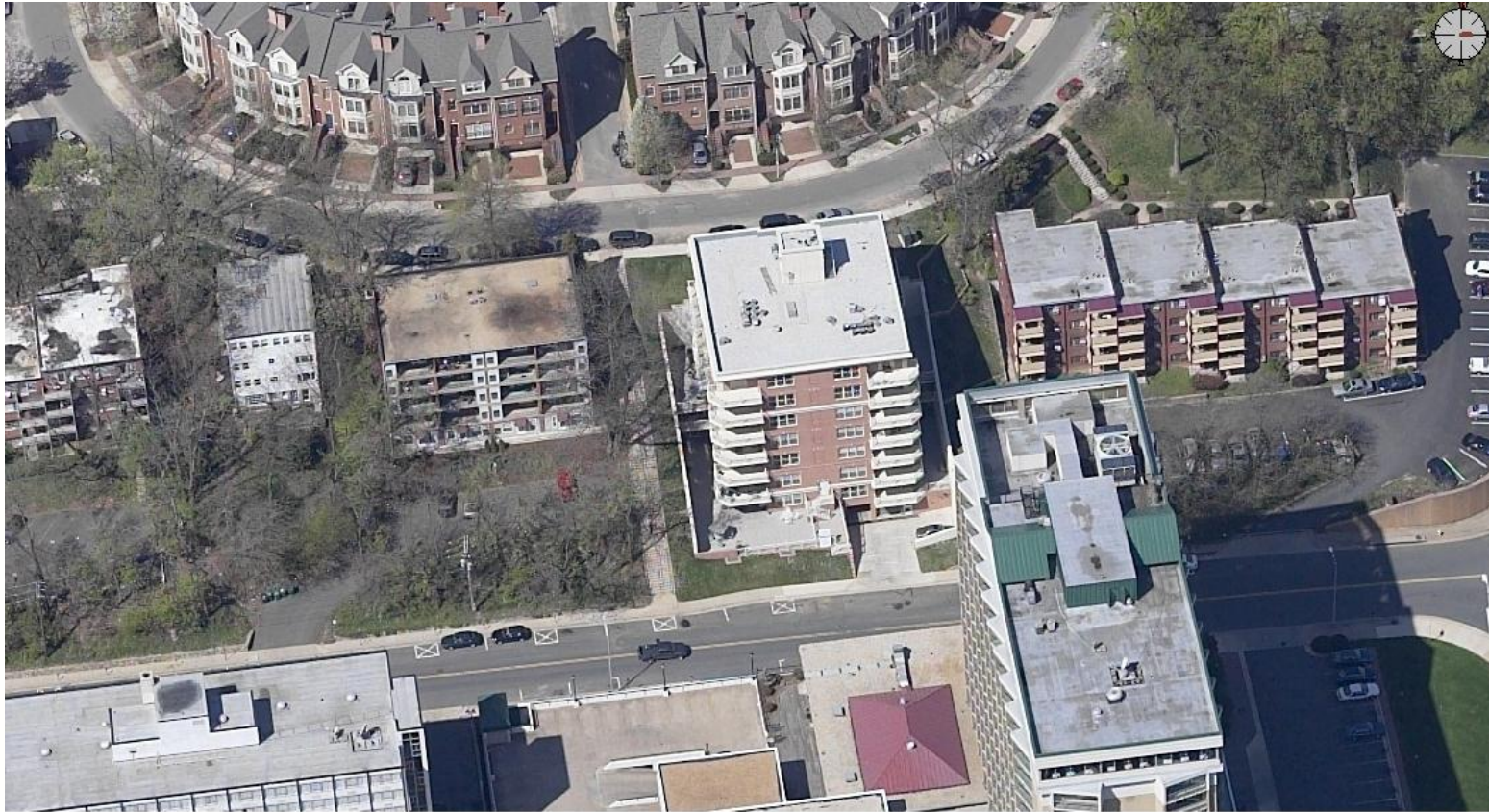
Emergency Response uses of Oblique Raster Content and its Associated Workflows

Fire Response - 3 Story Building



Average Scale: 1 cm = 42.4 meters

Or 7 Stories?

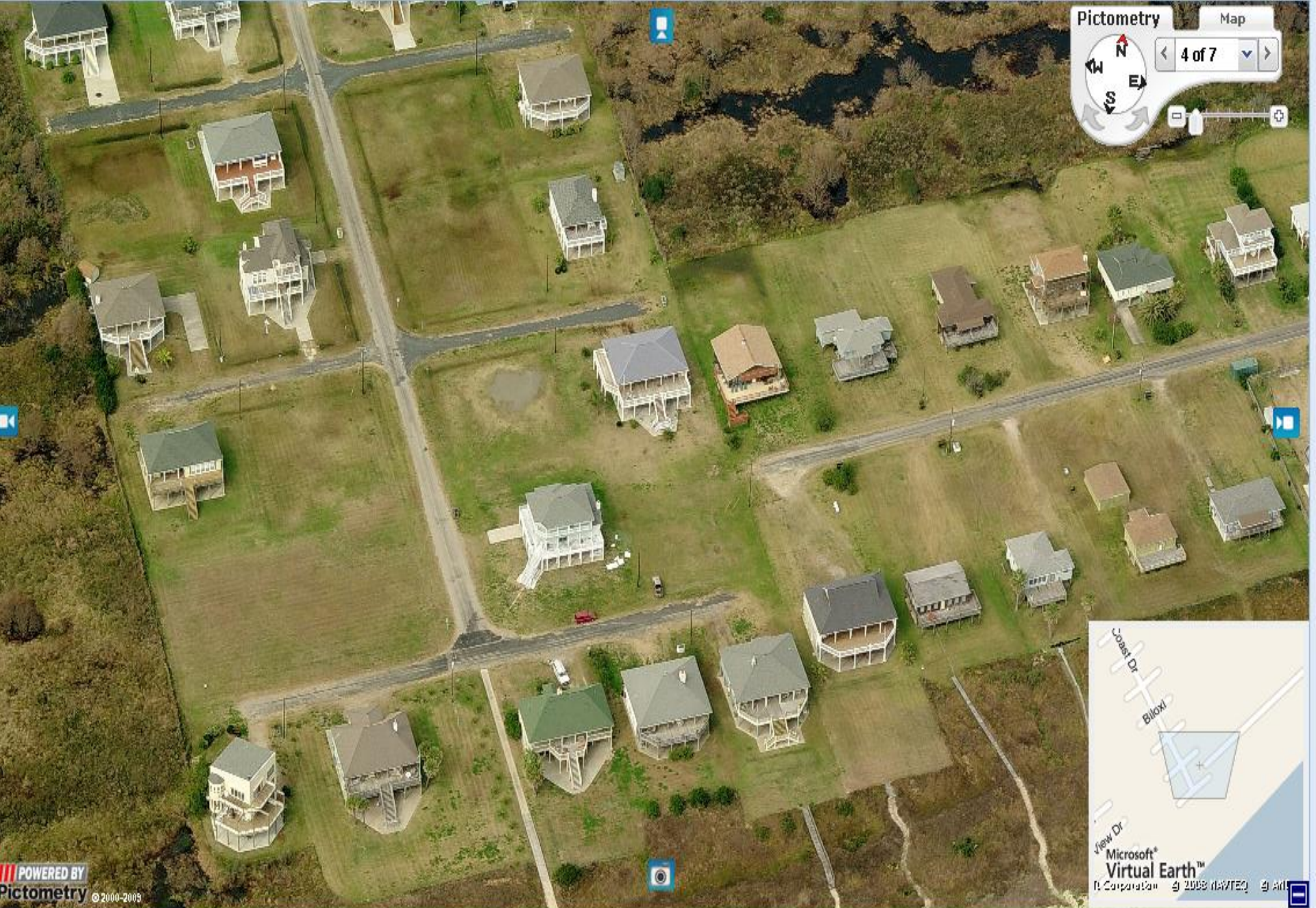


Average Scale: 1 cm = 37.6 meters

Significant Elevation Change



It is critical not to assume all content is defined by a single view raster Data set



Pictometry Map

4 of 7

POWERED BY Pictometry © 2000-2009

Coast Dr
Biloxi
View Dr

Microsoft®
Virtual Earth™
© Corporation © 2008 (NAVTEQ) © All

Hurricane Ike

Date: 01/28/2008 | Level: Neighborhood | Scale: 50%

Done

Internet



Pictometry Map

1 of 7

Navigation controls: N, S, E, W, zoom in (+), zoom out (-), and a refresh icon.

POWERED BY Pictometry © 2000-2005

Jfk Coast Dr
Biloxi

Microsoft®
Virtual Earth™
© Corporation © 2008 NAVTEQ © All

Hurricane Ike

Date: 09/17/2008 | Level: Neighborhood | Scale: 50%



Pictometry Map

1 of 7

Navigation controls: North arrow, compass, zoom in/out, and a small map icon.

POWERED BY Pictometry © 2000-2009

Jif Coast Dr

Blow

Microsoft® Virtual Earth™

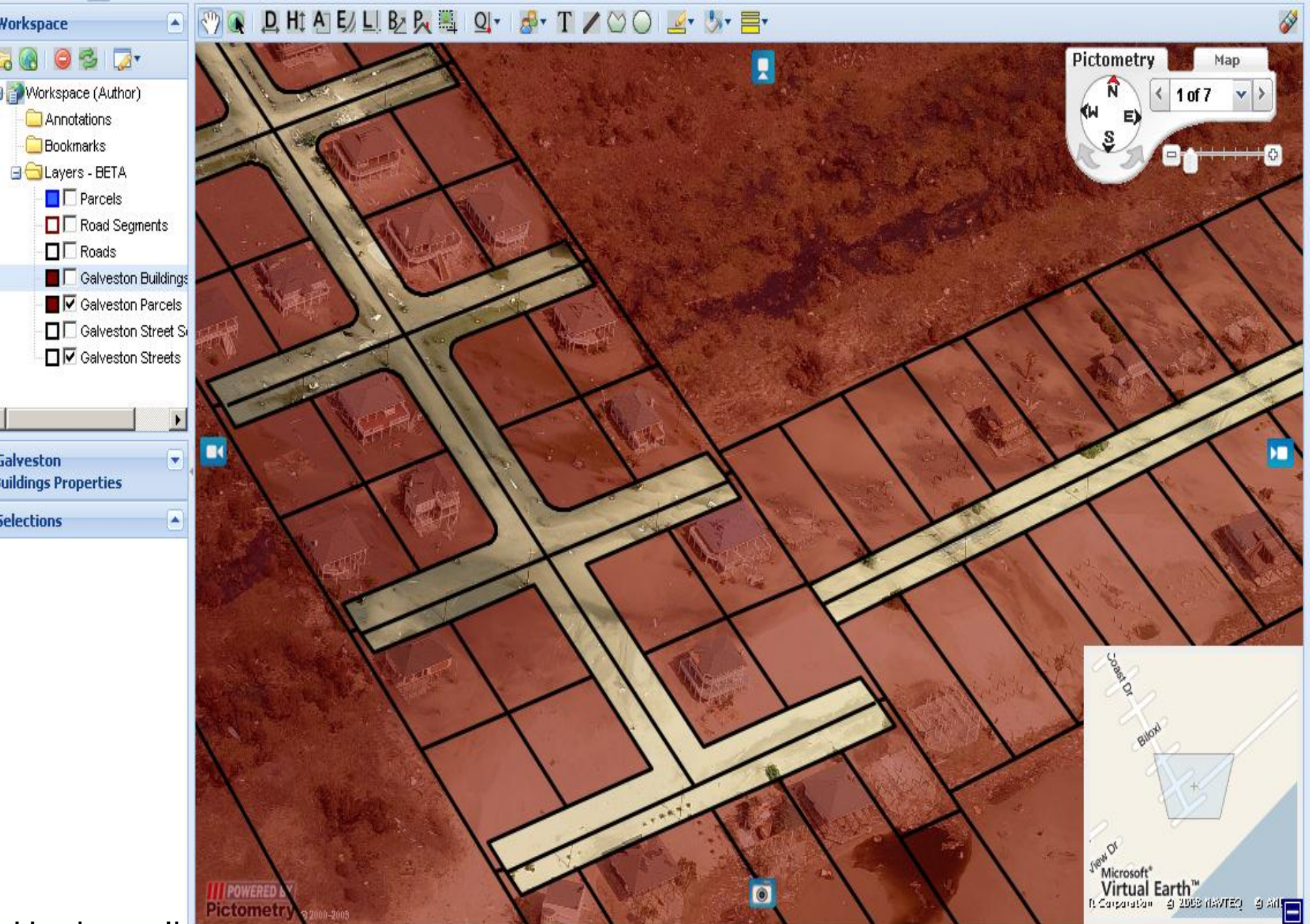
B Corporation © 2008 NAVTEQ

Hurricane Ike

Date: 09/17/2008 | Level: Neighborhood | Scale: 50%

Done

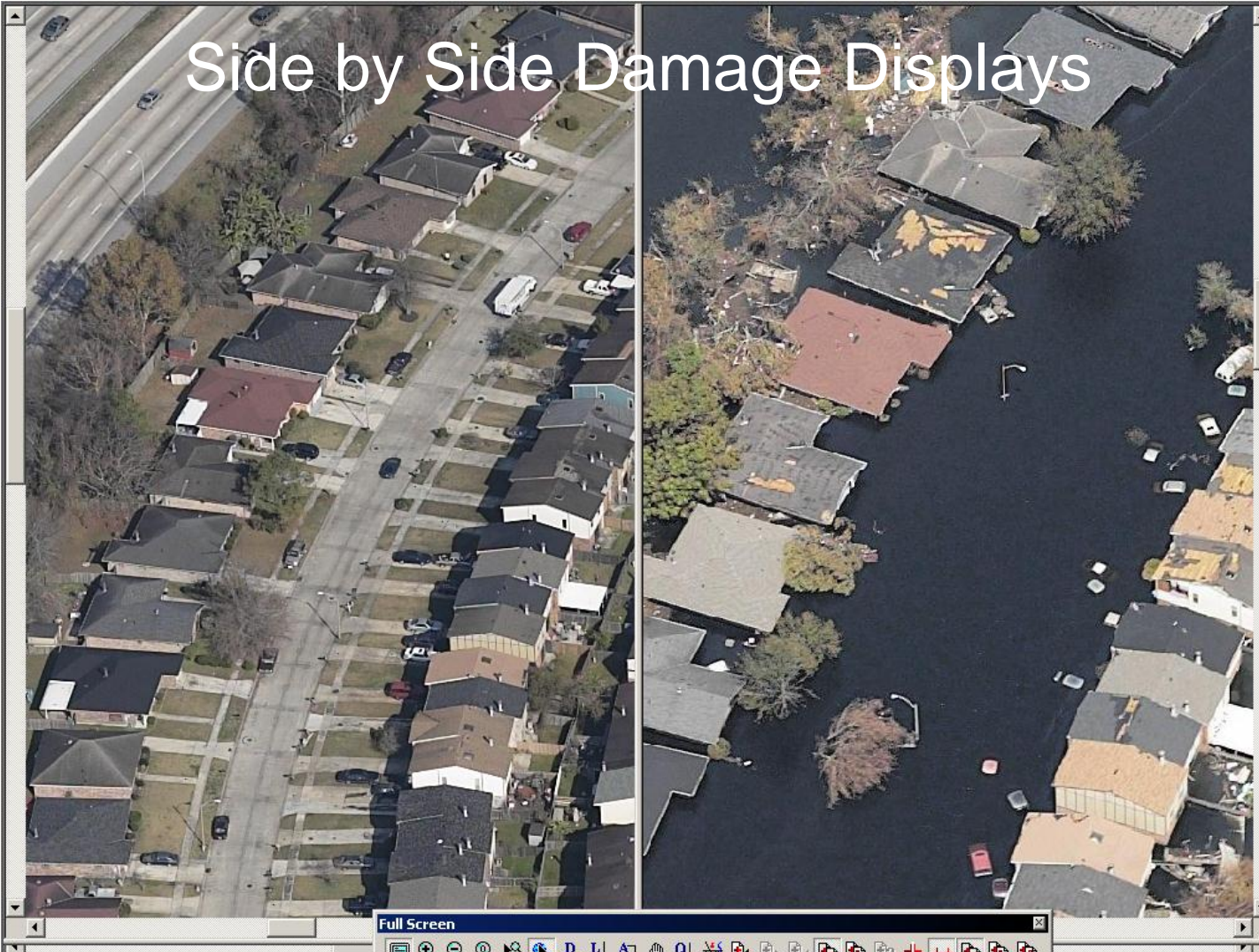
Internet



Hurricane Ike

Date: 09/17/2008 | Level: Neighborhood | Scale: 50%

Side by Side Damage Displays



Emergency Response

- E911
- Homeland Security
- Incident Management Team
- Law Enforcement Support Team
- Fire Response
- School Safety
- Commercial Support
- Preplanning
- Emergency Operations
- Post Disaster Recovery
- Hazards Planning
- Emergency Operations Center
- Property Assessments

Emergency Response Wiki

- *Urban search and rescue (US&R) is the location and rescue of persons from collapsed buildings or other urban and industrial entrapment*
- *Teams are multi-disciplinary and include personnel from police, fire and emergency medical services*
- *Training in structural collapse and the dangers associated with live electrical wires, broken natural gas lines and other hazard*

Today's existing live systems are limited

- *3 in GSD*
- *GPS and Inertial Navigation System (INS) support geo-registration of images onboard an airborne station monitor in real time*
- *Identified targets are highlighted and a high-resolution image chip of the newly identified target is displayed*
- *At any time during the flight, target*
- *Image chips with their location can be transmitted to ground*

Augmentation is Needed in Multiple Areas

- An airborne operator is a limiting factor in data analysis
- Flights are predetermined in air
- Ground analysis and contribution is limited to what can be seen from image chips
- Data sharing and GIS analysis are highly limited

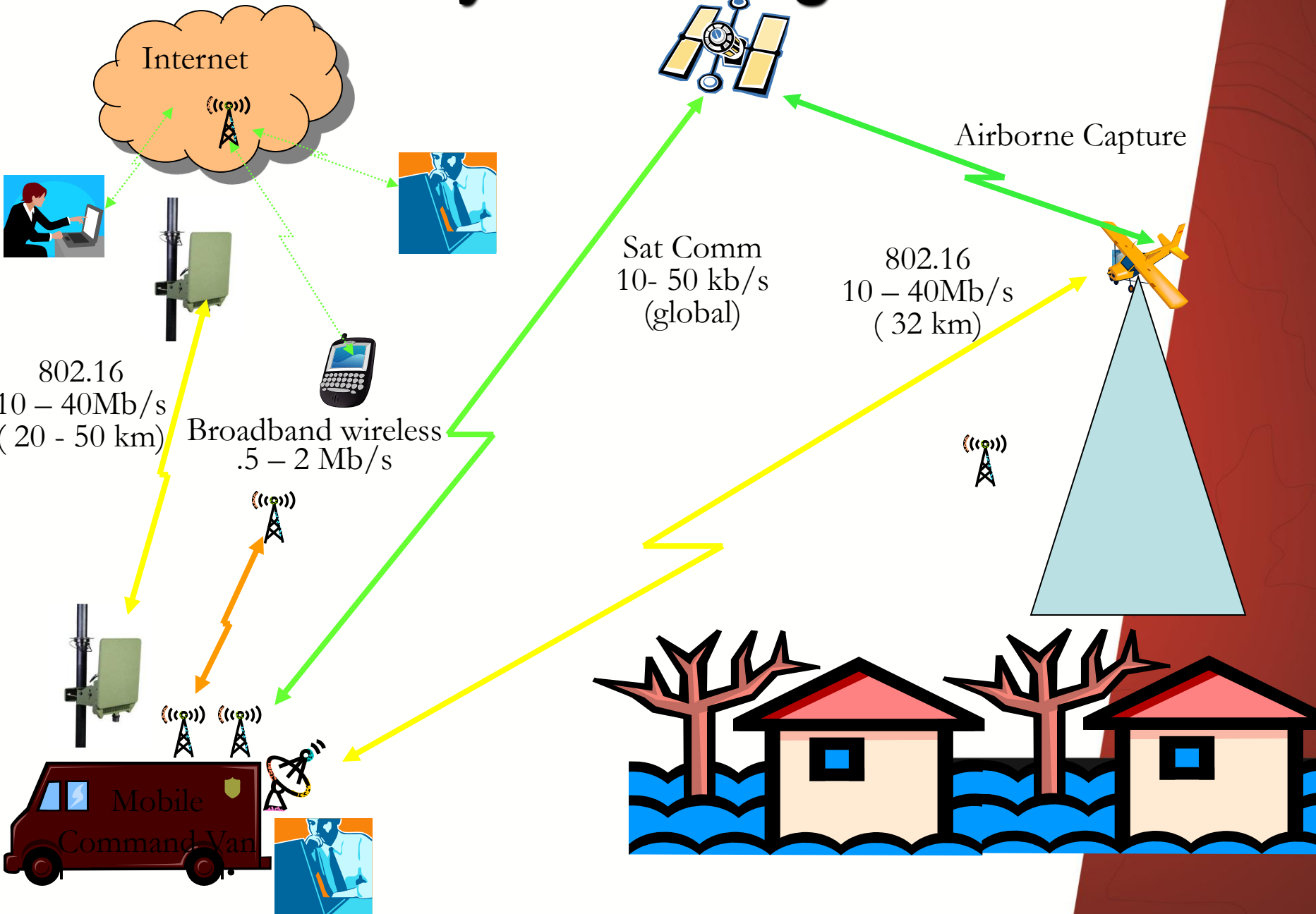
What's Needed Next..

- The solution for obtaining near-real time images for emergency response
 - Deployment of airplanes quickly
 - Transmission and receipt of large amounts of data
 - Data delivery within 15 seconds from capture
 - Ability to track planes in the air
 - Distribute the data to where its needed
 - Processing On Site

Pictometry Real-Time Airborne Management System (RAMS)



System Diagram



Real Time in flight Aircraft tracking and Flight Planning and Upload

The image displays a web browser window titled "Plane Tracker - Mozilla Firefox" showing a flight planning application. The main content is a map titled "Pictometry Plane Tracker" with a red flight path overlaid. The map shows a network of roads and highways in a rural area, with various landmarks like "Wheatland Center", "Garbutt", "North Rush", and "Rush". The flight path starts near "Taylor" and "Caledonia" and extends towards "Lima".

On the right side of the browser window, there is a "GPS Output" panel with the following data:

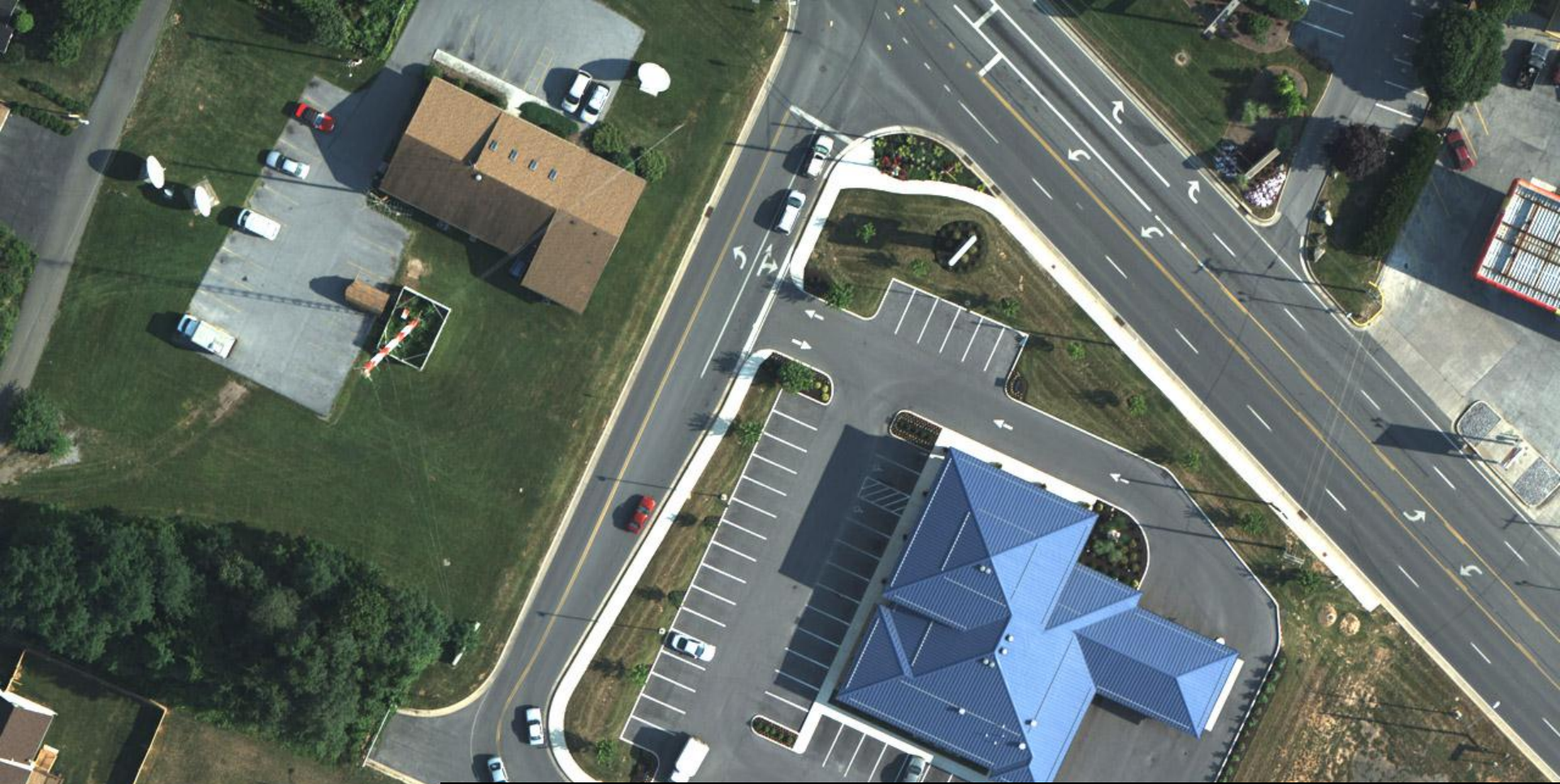
| GPS Output | |
|------------|-------------|
| Latitude: | 42.954388 |
| Longitude: | -77.721486 |
| Altitude: | 1242.766 M |
| Heading: | NaN° |
| Speed: | NaN MPH |
| Time: | 10:41:40 AM |
| Origin: | IP |

Below the main browser window, there is a smaller window titled "Flight Planner - Windows Internet Explorer provided by Yahoo!". It shows a flight planning interface with the following fields:

- Address: Cleveland, OH
- Config: Fenta Config N5 05-85 C
- Altitude: N5 at 6.75in GSD (4900 feet)
- Tolerance: Flight Tolerance - CS Normal

At the bottom of the image, there is a "Pictometry" logo, which consists of a stylized globe icon followed by the word "Pictometry" in a bold, sans-serif font.





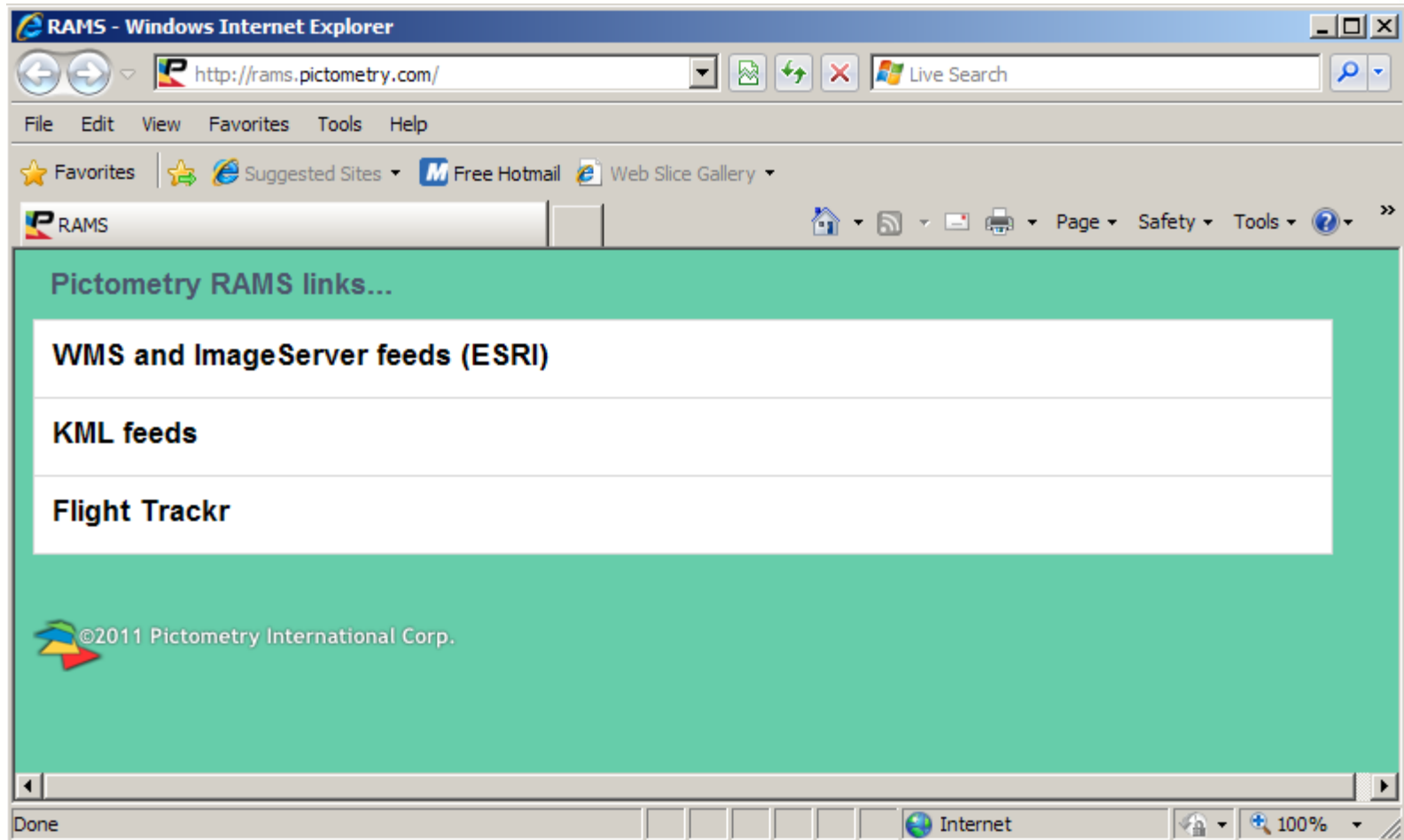
RAMS

Great Southern Shake-out Exercise



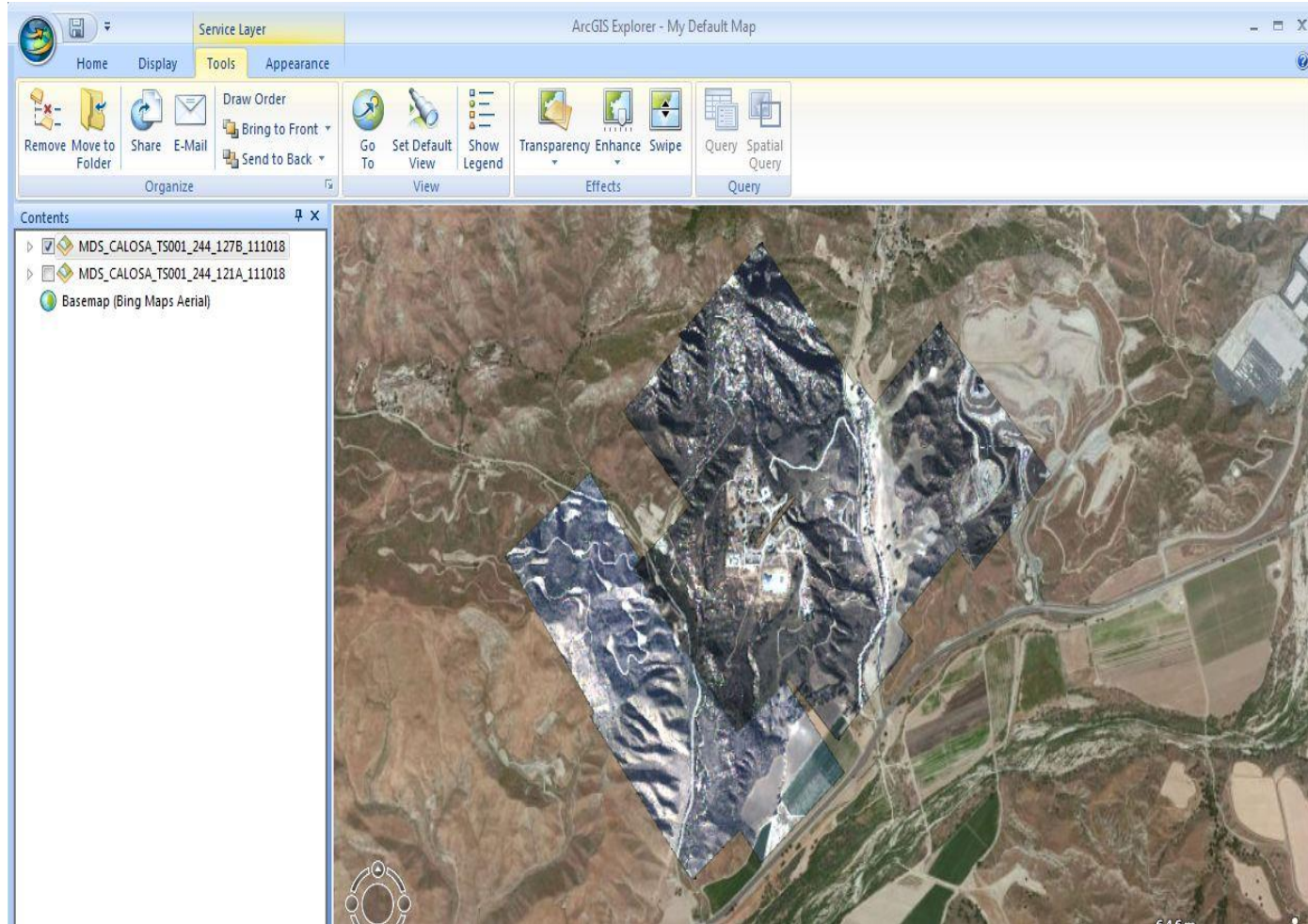
RAMS

Great Southern Shake-out Exercise

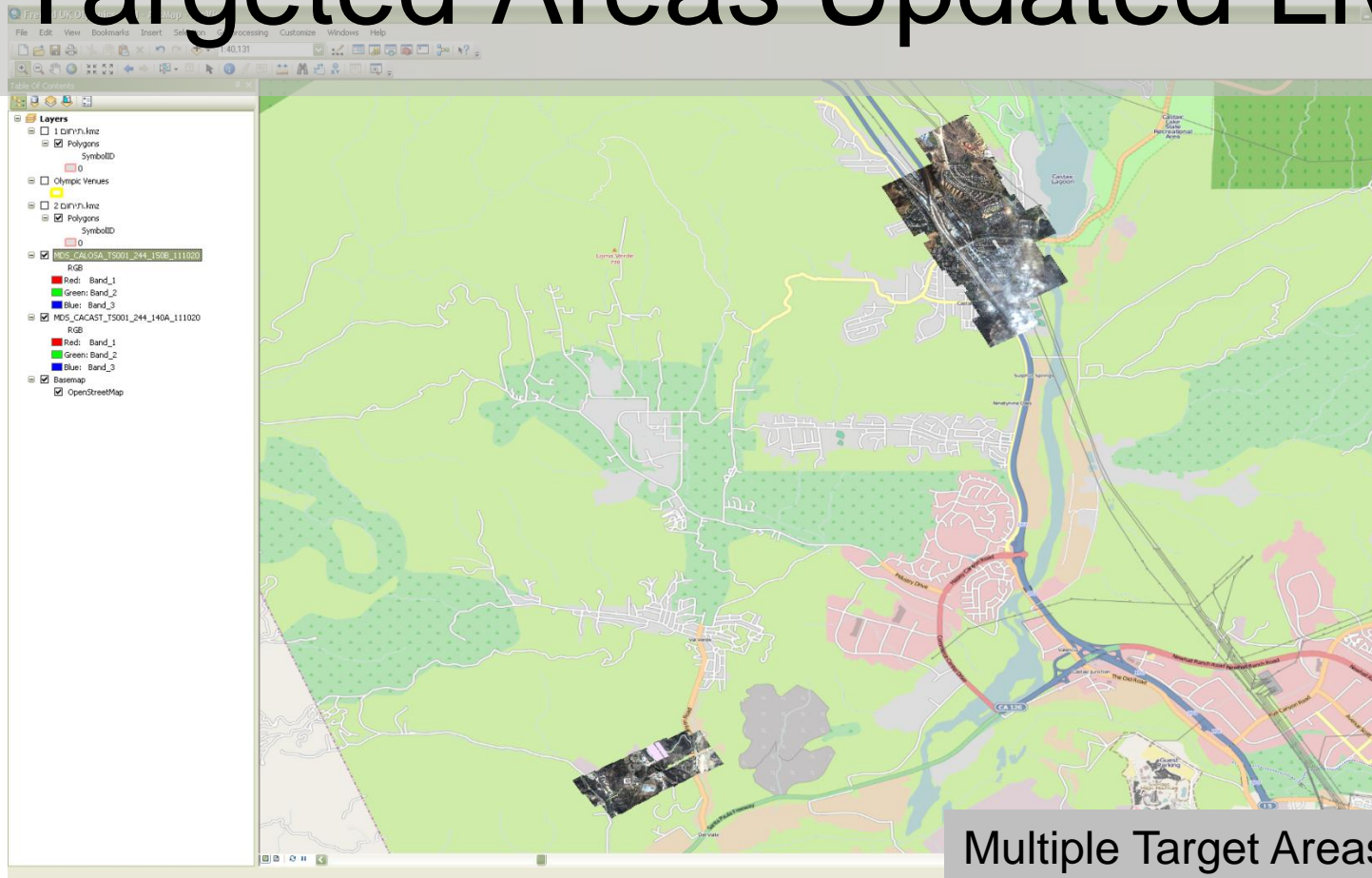


RAMS

Great Southern Shake-out Exercise



Targeted Areas Updated Live



Multiple Target Areas

Content captured and received at ground station in seconds



The screenshot displays a GIS application window titled "Friend UK Olympics.mxd - ArcMap". The interface includes a "Table Of Contents" on the left, a central map area, and a search bar on the right. The "Table Of Contents" lists several layers:

- 1 DUVH.kmz
 - Polygons
 - SymbolID
 - 0
 - Olympic Venues
- 2 DUVH.kmz
 - Polygons
 - SymbolID
 - 0
- MDS_CALOSA_T5001_244_1468_111020
 - RGB
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3
- MDS_CALOSA_T5001_244_1508_111020
 - RGB
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3
- MDS_CAGAST_T5001_244_140A_111020
 - RGB
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3
- Basemap
 - OpenStreetMap

The map area shows a topographic view of a region with several overlapping flight plan polygons in various colors (purple, green, pink, orange). The map includes labels for "Grande Canyon Road" and "Santa Paula Freeway CA 126".

Flight plans can be generated on The fly and uploaded

Additional data capture changes can be directed from ground or air



Based on the Search Area and Target Type GSD may be Varied

12"

6"

3"

Image U.S. Geological Survey
© 2012 Google

Data is supported by onsite capture





Mobile Deployment GSSE Using ArcGIS on iPhone



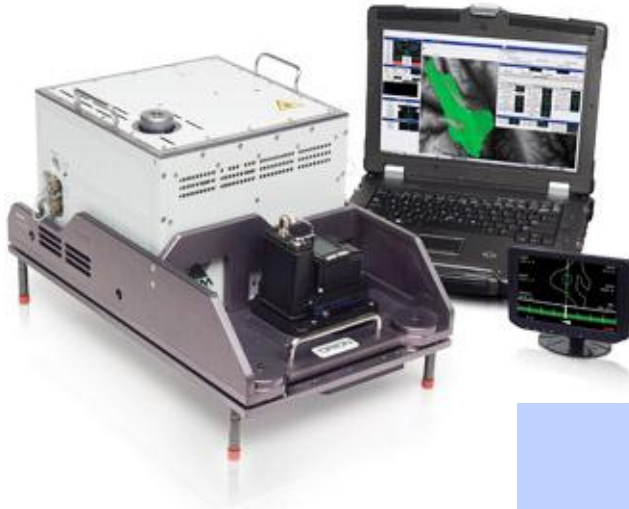
Using ESRI ArcGIS on iPhone University South Carolina implementation Annotations may be performed and uploaded live



ANALYTICS

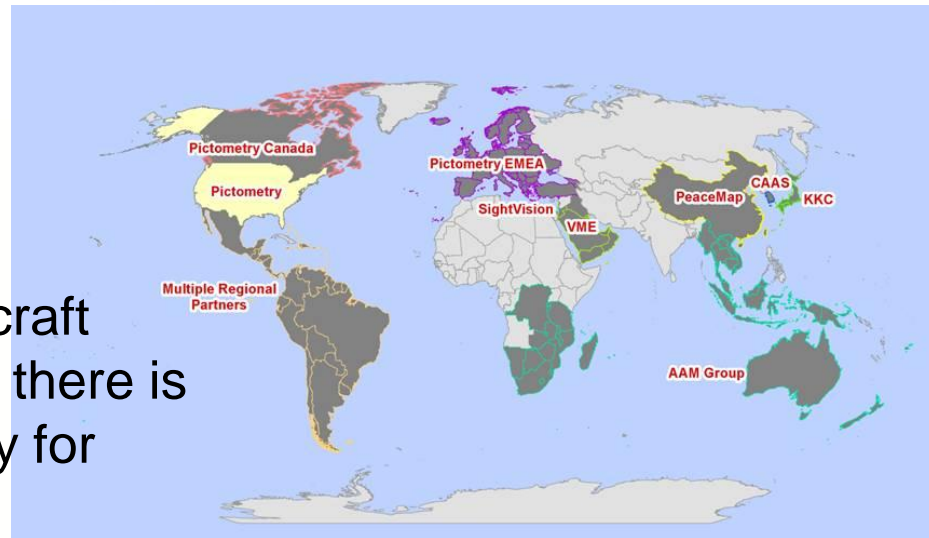
Once the data is at the ground station additional analysis can be implemented

Next Steps



LiDAR is being tested for RAMS integration

With 60 domestic aircraft and partners globally there is significant opportunity for expansion



Questions?

Gordon Lawson
VP, Federal Sales
gordon.lawson@pictometry.com
703-474-2745

Nancy Brelos
Director, Federal Sales
Nancy.brelos@pictometry.com
703-581-9059

Charles Mondello
Deputy CTO
charles.mondello@pictometry.com
585-486-0093

**DON'T
JUST SEE.
SEE ANSWERS.**

