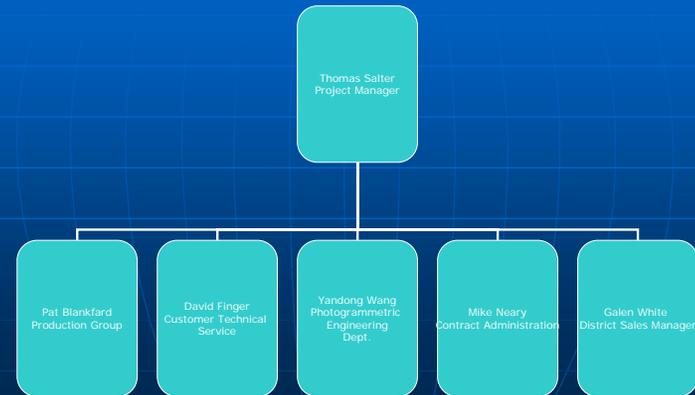


# Overview of Pictometry Oblique & Ortho Imagery Project LAR-IAC2 January 17, 2008

*Pictometry International Corp.  
Rochester, NY*

## Project Organization Chart



## Orthogonal View Versus Oblique View



The Transamerica Building  
San Francisco, CA

## Project History of Image Types for LA County

- 2002-3: 6" Neighborhood Obliques and 18" Community Obliques, No orthos flown
- 2006: 6" Neighborhood Obliques and 14" Community Obliques, 6" and 12" Orthos flown
- 2008: 4" Neighborhood Obliques & Orthos and 12" Community Obliques & 12" Orthos flown (orthos and obliques are captured simultaneously)

## Continued

- 2008 – Nadir shots will be triangulated (AT) using county-supplied ground control
- Teaming with The Sanborn Map Company Inc. to provide certified orthos" (presentation from them later this morning)
- 10 aircraft to be used with 3 different configurations:
  - Standard N5 – used to capture most of the orthos – 16 MP sensor
  - Community Plane – 11 MP sensor for obliques only
  - Long Focal Length Plane – used for foothills (for safety reasons) and for congested airspace, utilizes new 16MP camera.

## Imagery Storage Requirements

- 1.3 Terabytes for original imagery set (2002-03)
  - 417,000 total images
    - 25,000 community shots (two ways)
    - 392,000 neighborhood shots (four ways)
- 1.7 Terabytes for second imagery set (2006)
  - 304,000 total images
    - 26,000 community shots (two ways)
    - 278,000 neighborhood shots (four ways)

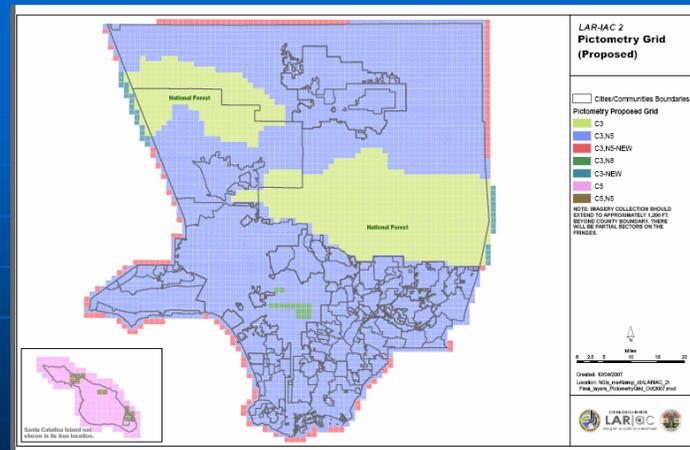
## Imagery Storage Requirements

- TBD Terabytes for new oblique imagery set (2008)
  - TBD Terabytes for new ortho imagery set
    - 1,112,000 total images (approx)
    - COMMUNITY:
      - C3\* Obliques: 42,414
      - C3 Orthos: 84,149
      - C5\* Obliques: 17,696
      - C5 Orthos: 8,848
    - NEIGHBORHOOD:
      - Obliques: 560,971
      - Ortho: 398,730
- \*C3= Community level two opposing oblique views plus ortho view,  
\*C5= Four oblique views plus ortho view

## Schedule of Acquisition & Processing of Imagery Data

- Estimating over 500 flight plans to capture the planned groundspace for LA County
- Much of this time is spent in or near some of the most tightly controlled airspace in the U.S.
- ATC has planned for better access than previous projects but can only handle a limited number of imaging aircraft at one time
- Expect to have county imaged by March 31 but airspace and weather factors may affect this

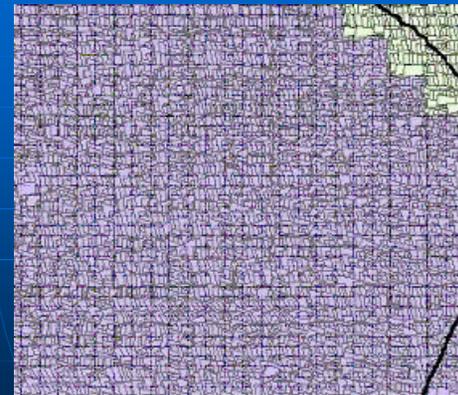
## Sector Map



## Internal QA/QC Process

- Planning Phase
  - Checks are made to ensure that the groundspace will be captured in a way that satisfies the customer image type assignments
  - Predictive image polygons are checked to make sure that the set of flight plans will produce full coverage of the intended area

## Image Polygon Coverage



## Internal QA/QC Process

- Planning Phase
  - Airspace restrictions are double-checked to be certain the most effective patterns for minimizing interference with heavy air traffic zones are flown
  - Elevation models are applied to check for completeness of coverage over varying ground levels, and that ground sample distance (GSD) is maintained for adherence to contract requirements

## Internal QA/QC Process

- Capture Phase
  - Capture software reads the flight plans and captures the images
  - A number of automatic quality checks are applied by the in-air system to identify and flag for re-capture any images that exceed parameters

## Internal QA/QC Process

- Processing Phase
  - Where the most detailed image and geo data checks are performed
  - In-depth analysis of the quality and continuity of the geo data is performed prior to applying the data to the images
  - Image quality is checked in a variety of automated and manual steps

## Internal QA/QC Process

- Every image is checked for gross defects that would render the image unusable, and a more detailed check is performed on a subset of images, and on more during accuracy checks
- Image polygons are analyzed throughout the processing stages and again as the final Image Library is assembled for shipment to the customer
- At every stage where copying or processing takes place, automated and manual integrity checks are performed to ensure that nothing gets missed, corrupted or deleted

## Internal QA/QC Process

- Delivery Stage
  - Customer Support integrates the customer GIS data and checks it against the Image Library for correct operation and accuracy
  - A number of starter workspaces are created and tested to set the stage for successful use of the images and GIS data by the customer user community

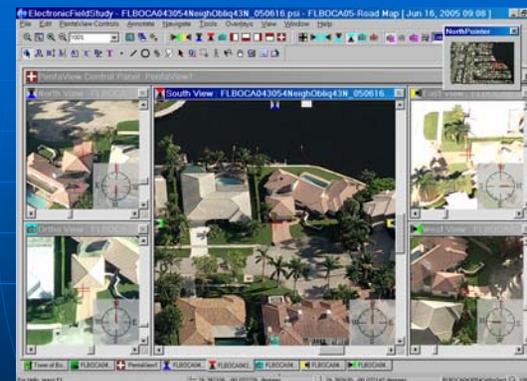
## Internal QA/QC Process

- Customer Support also performs a number of checks on the images for complete coverage and proper licensing
- Pictometry always holds usability to a high standard. Due to the nature of oblique aerial imaging, artifacts such as lighting and the resultant color variation between images, cloud shadows, reflective glare from water and other smooth surfaces, etc. will occur

## EFS Software Improvements

- Pictometry is constantly improving the features and functionality of our software and adding new applications and interfaces. Some of the recent improvements include:
  - Pentaview allows for the viewing of the 4 oblique views and the orthogonal view all on one screen

## Oblique and Ortho Views



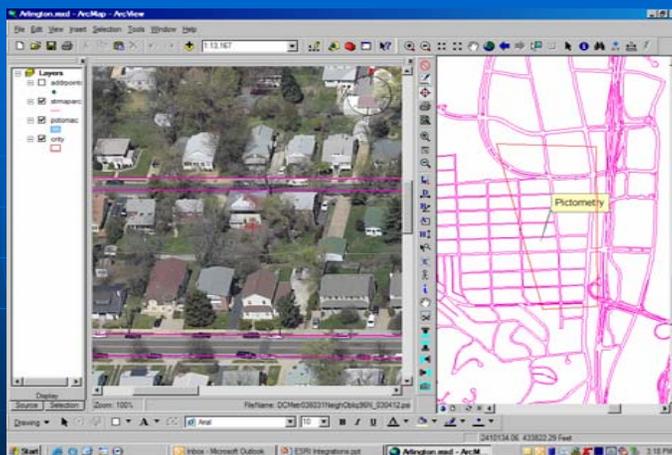
## More Improvements

- Improved EFS interfacing with GIS applications such as ArcGIS, ArcGIS Server, ArcGIS Explorer
- Enabling interfaces and integrations with 911 systems for better tools for PSAP dispatchers and other public safety workers
- Improved use of GIS data and better visualization tools (icons, etc.), and easier access to and switching between GIS layers during Query and Lookup functions

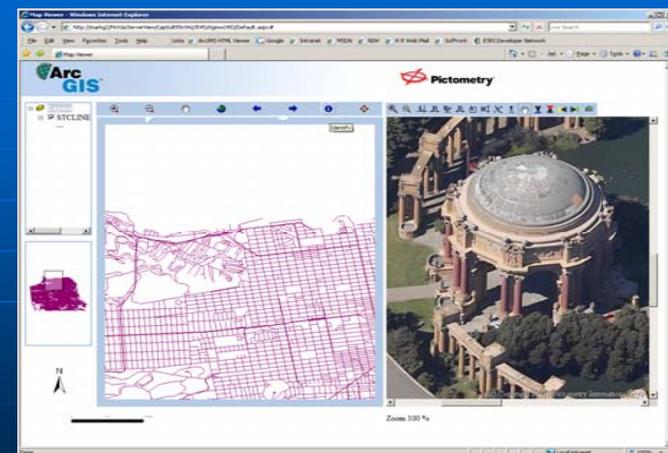
## Integrated CAD Mapping / Imagery (Typical Configuration)



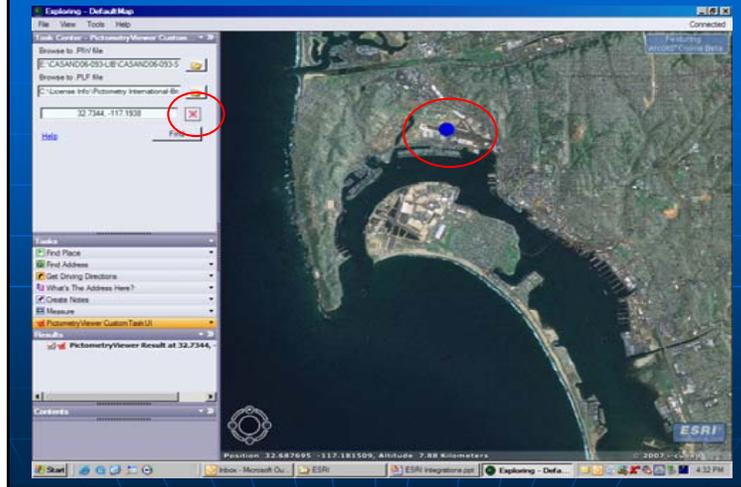
## ArcGIS Desktop Extension



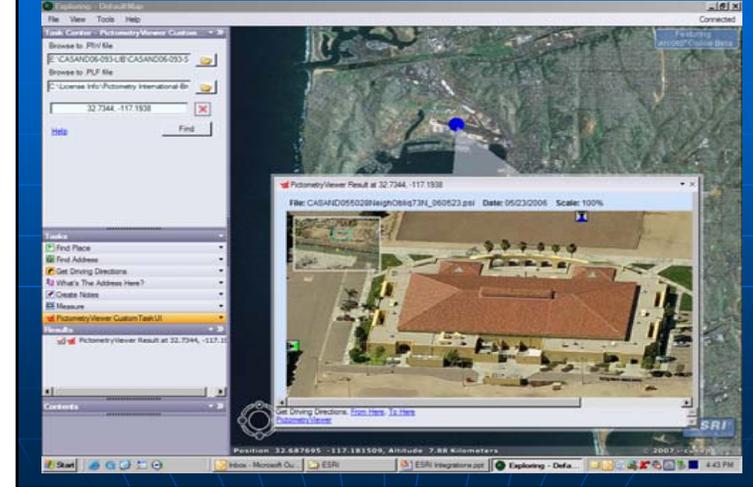
## ArcGIS Server Integration



## ArcGIS Explorer Integration



## ArcGIS Explorer Integration



## ArcGIS Explorer Integration



## Other Improvements

- Additional coordinate systems support
- A Configuration Editor to enable standardized and locked-down configurations of EFS for large-scale and multiple-user deployments
- Improved exporting functions for batch export of images and GIS data for use in other systems
- Measurement and other analysis tools have been improved, including showing measurements on images, enabling building façade area measurements, contour line display, elevation calculations, and offsetting the groundplane

## Examples of New LA Imagery

- Images from January 10 2008 are representative of new format
- Increased from 11 megapixel to 16 megapixel cameras

Samples of 4" GSD LAR-IAC Imagery  
(Neighborhood Ortho Captured 1/10/08)



Sample 4" GSD LAR-IAC Imagery  
(Neighborhood Oblique 1/10/08)



Sample 4" GSD LAR-IAC Imagery  
(Neighborhood Oblique Enlarged)



## New to this Project

- Compressed imagery set for the oblique images
- PSAP Integration Licensing

## Delivery Plan

- Will work with LA County and Dewberry to determine staged shipment program and make multiple shipments as needed
- External hard drives will be the delivery media for this project
- ATC, weather, and pilot safety will determine partial coverage, not geography

## Questions?