Overview of Pictometry Oblique & Ortho Imagery Project
LAR-IAC III
July 29, 2010

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Orthogonal View Compared To Oblique View

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Project History of Image Types for Los Angeles County 2002 – 2006

- 2002-3: 6” Neighborhood Obliques and 18” Community Obliques, No Orthos flown for this project
- 2006: 6” Neighborhood Obliques and 14” Community Obliques, 6” and 12” Orthos flown for this project

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Project History of Image Types for Los Angeles County 2008

- 4” Neighborhood Obliques & Orthos and 12” Community Obliques & 12” Orthos
- 2008 Nadir Shots were Triangulated (AT) using county-supplied ground control.
- Teamed with Sanborn Map Company, Inc. to provide certified orthos. (Sanborn will talk about this process)
- 10 aircraft used with 3 different configurations
  - Standard N5 – used to capture most of the orthos 16MP sensor
  - Standard C5 – 11 MP sensor for obliques only
  - Long Focal Length Plane - used for foothills and for congested airspace, utilized 16 MP camera

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Imagery Storage History

- 2002-03: 1.3 Terabytes for original dataset
  - 417,000 Total Images
- 2006: 1.7 Terabytes for second dataset
  - 304,000 Total Images
- 2008: 5.6 Terabytes for 1st initial dataset. 2.7 Terabytes for 2nd deliverable after compressing imagery from 093 to 080 ratio, deleting screen door images, removing extra images .
  - 636,477 Total Images

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Lessons Learned

- Communication
  - We have created a more rigorous reporting method.
  - Created a dedicated Project Management Team to coordinate communications
  - Established Weekly Communications with Subcontractors
- Data Organization
  - Imagery to be broken into smaller blocks corresponding to the AT block structure.
  - New structure will enable faster identification of any issues and quicker start to AT which will be utilized for both oblique and ortho portions of project
  - Data structure to be maintained throughout project - from flight planning to delivery prep (delivery won't be affected)

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Lessons Learned

- Aerial Triangulation
  - Process Innovations and Software Updates during and since last time will expedite the AT Process
  - New Versions of Match-AT - will handle blocks from onset of project and AT performed on each block tying it together
  - Block Connection Methodology - developed for LAR-IAC2 and refined for LAR-IAC3
- Downtown Area – Flight Planning
  - New collection methodology (testing170MM Lenses) to minimize amount of corrections required Pictometry to perform after misaiming by Sanborn.
  - Work will be built into schedule

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Project Workflow

- Flight/Control Planning (Pictometry)
- Acquisition (Pictometry)
- Data (Image and POS) Post-Processing (Pictometry)
- Oblique Image Library Delivery (Pictometry)
- Ortho Imagery Aerial Triangulation (Pictometry)
- Color Balancing (Sanborn)
- Mosaicing (Sanborn)
- Building Lean Correction (Pictometry)
- Quality Assurance, Quality Control of Deliverables (Dewberry & Davis)

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Imagery Acquisition & Imagery Processing Schedule

- Estimating over 500 flight plans to capture the planned groundspace for Los Angeles County
- Many of the flight sorties are spent in or near some of the most tightly controlled airspace in the U.S
- Air Traffic Control will continue to provide better planned access but can only handle a limited number of imaging aircraft at one time.
- Targeted Image Capture Start is November 2010

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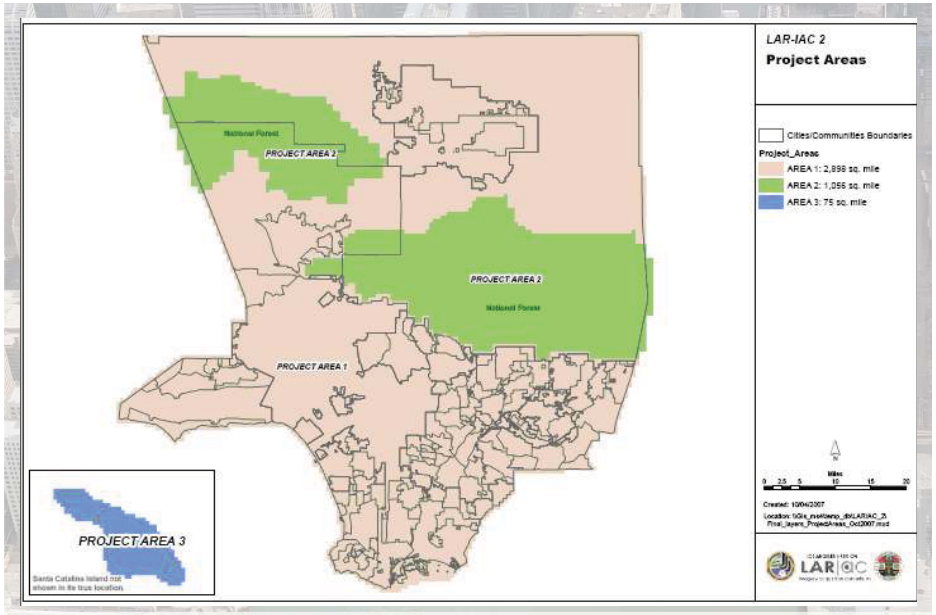

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- Project Areas To Be Reviewed By LARIAC III Technical Committee

Internal QA/QC Process

- Planning Phase
  - Airspace restrictions are double checked to ensure the most effective patterns for minimizing interference in heavy traffic zones.
  - Elevation models are applied to check for completeness of coverage over varying ground levels, and that ground sample distance is maintained for adherence to contract requirements.

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Internal QA/QC Process

- Capture Phase
  - Capture Software reads 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 of any images that exceed parameters.

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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.

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Internal QA/QC Process

- Processing Phase
  - Each image is checked for gross defects that would render the image unusable and a more detailed check is performed on a subset of the images, and on more images during accuracy checks.
  - Image polygons are analyzed throughout the processing stages and again as the final image library is assembled.

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Internal QA/QC Process

- Delivery Stage
  - Pictometry engineering integrates GIS data and checks it against the image library for operation and accuracy. Tests include: Pictometry Online (POL), Image Navigator, ESRI, and Electronic Field Study.
  - Customer Technical Services performs checks to ensure licensing for images in various viewing platforms is working properly.

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Integrations

- Pictometry Online
- Image Navigator i.e. GeoCortex
- ESRI - ArcGIS Server/ArcMap
- Electronic Field Study (EFS)
- Third Party CAD/CAMA Systems

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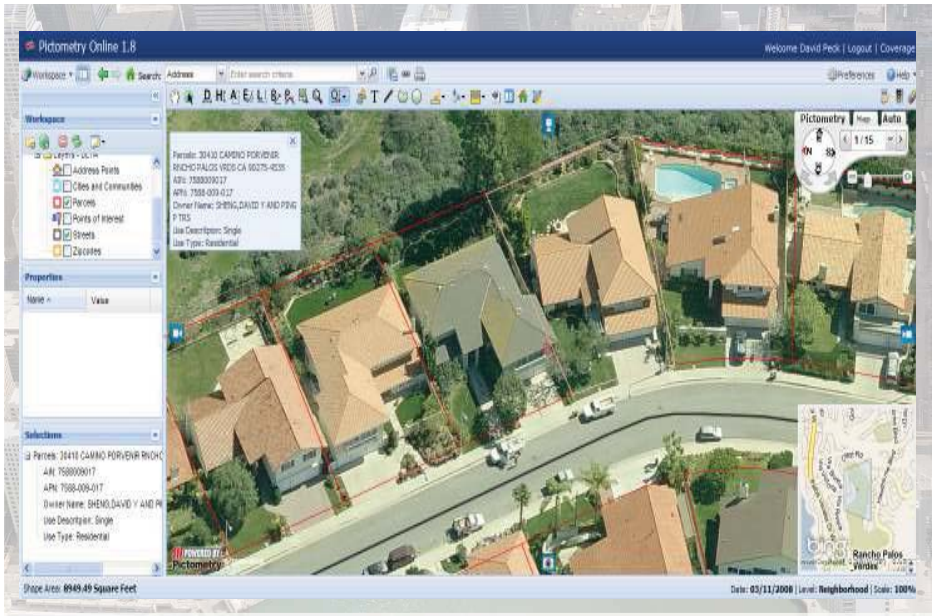
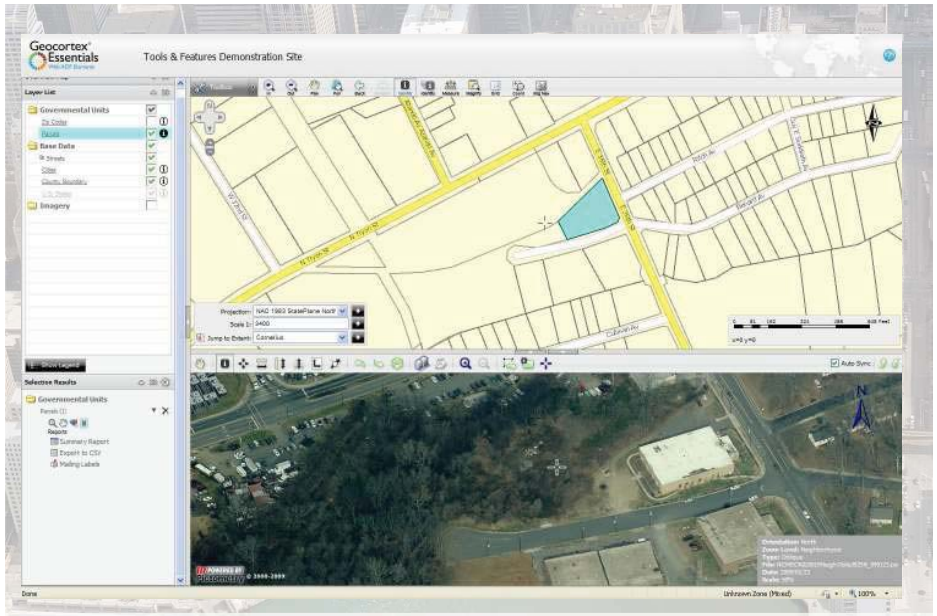
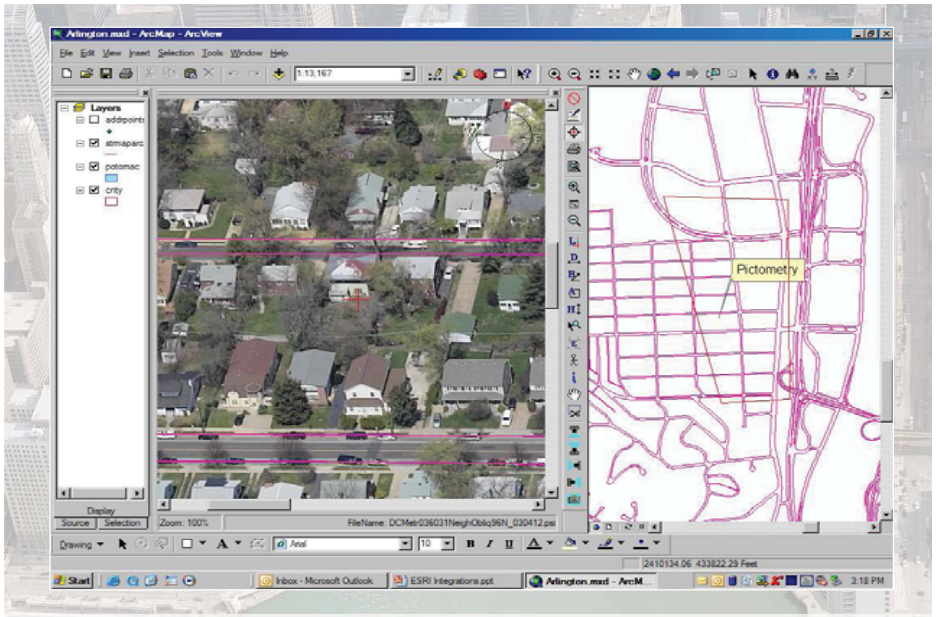


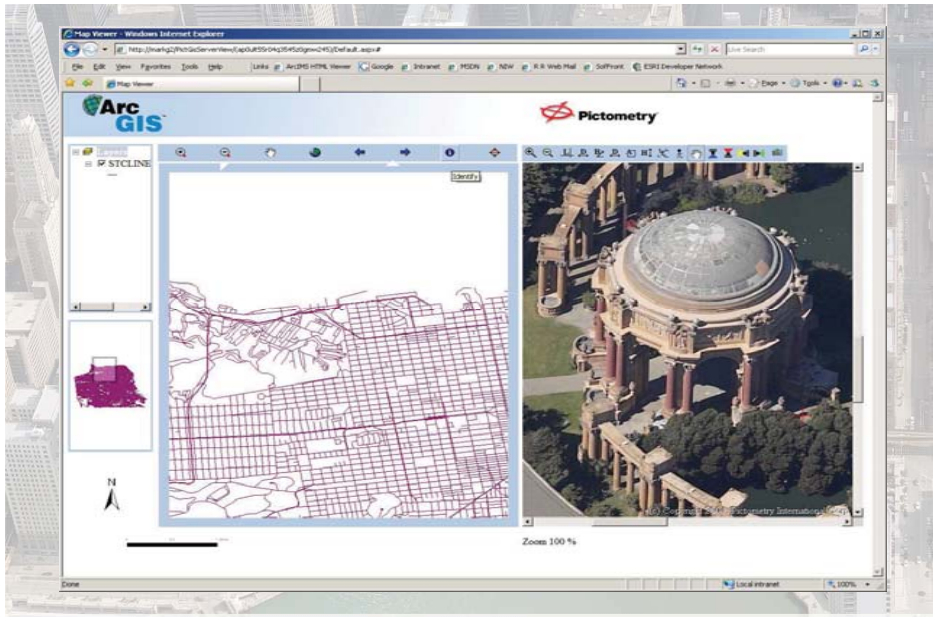
Pictometry • Pictometry Online – LARIAC II



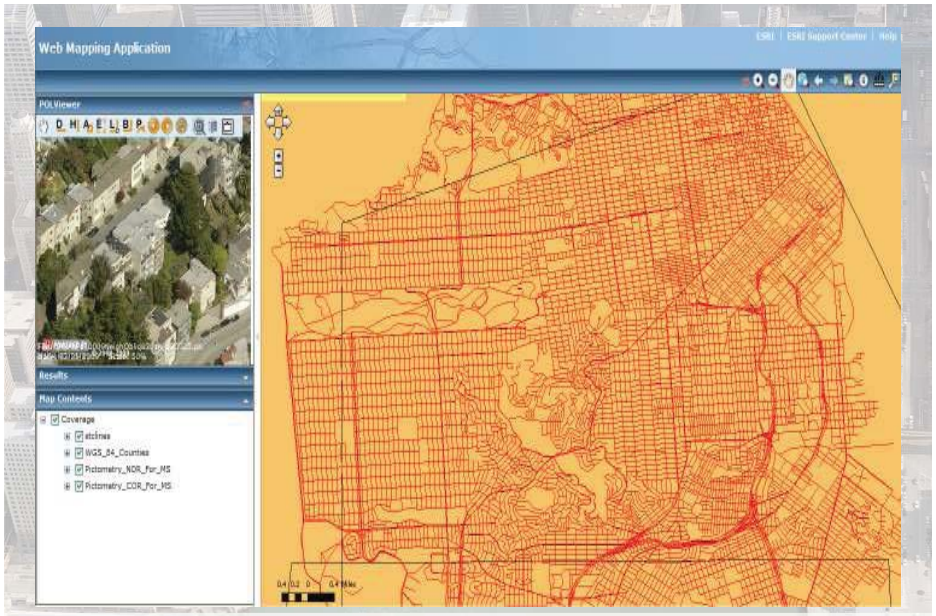
Pictometry Image Navigator Integration



Pictometry ArcGIS Desktop Extension



Pictometry ArcGIS Server Integration



Pictometry Image Navigator in ArcGIS Server

Additional LARIAC III Options

- 3D Models
- Change Detection Services

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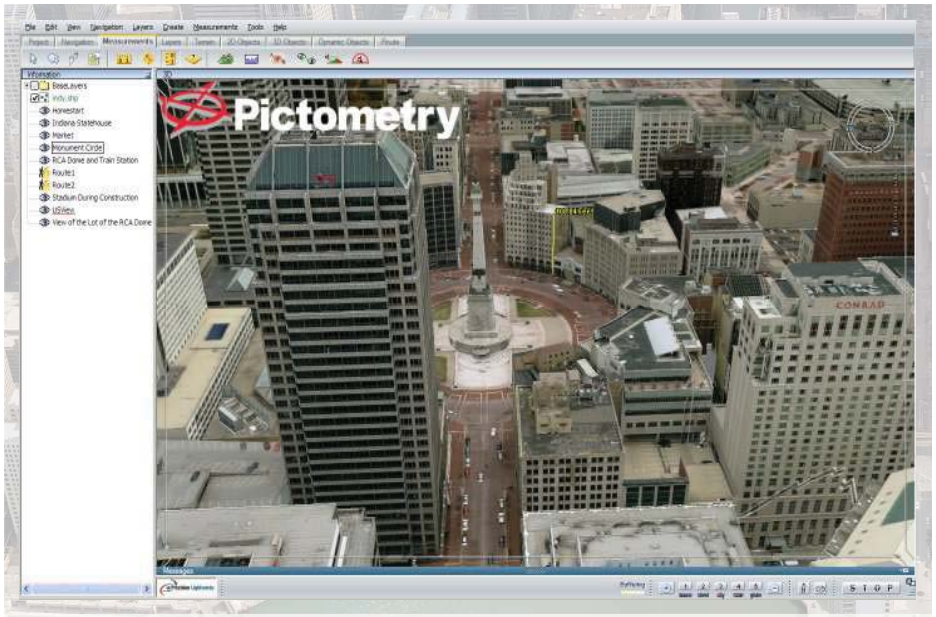
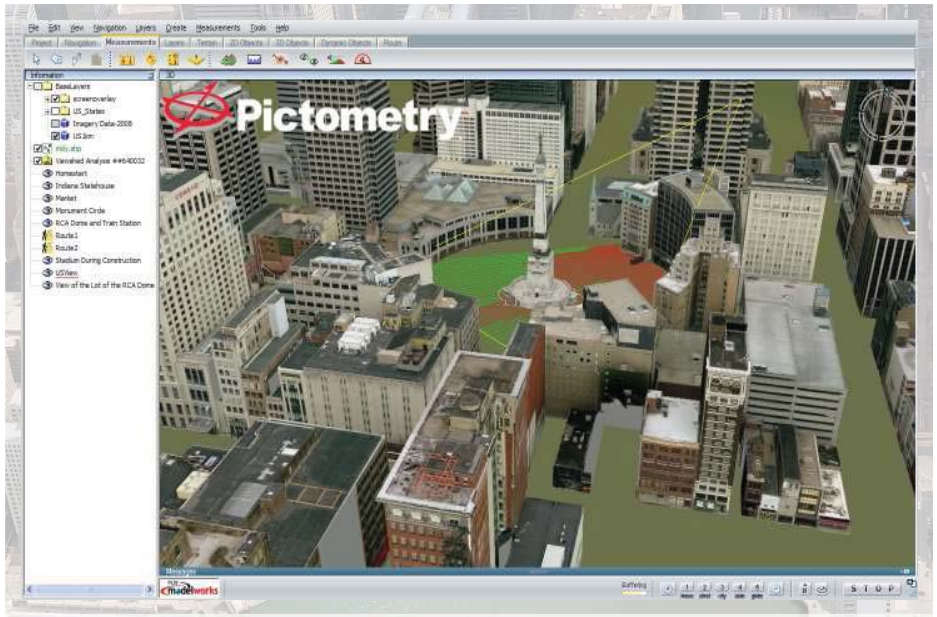
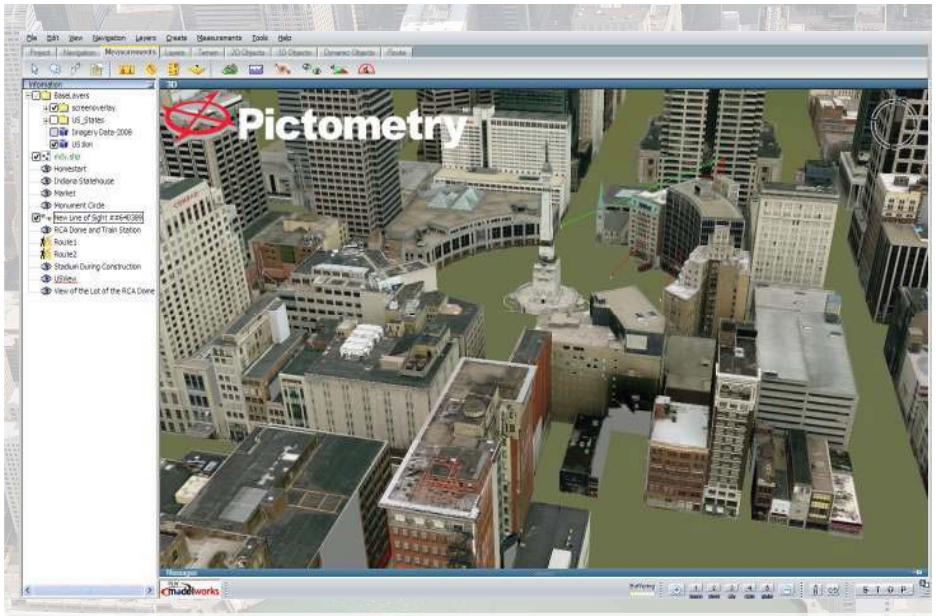


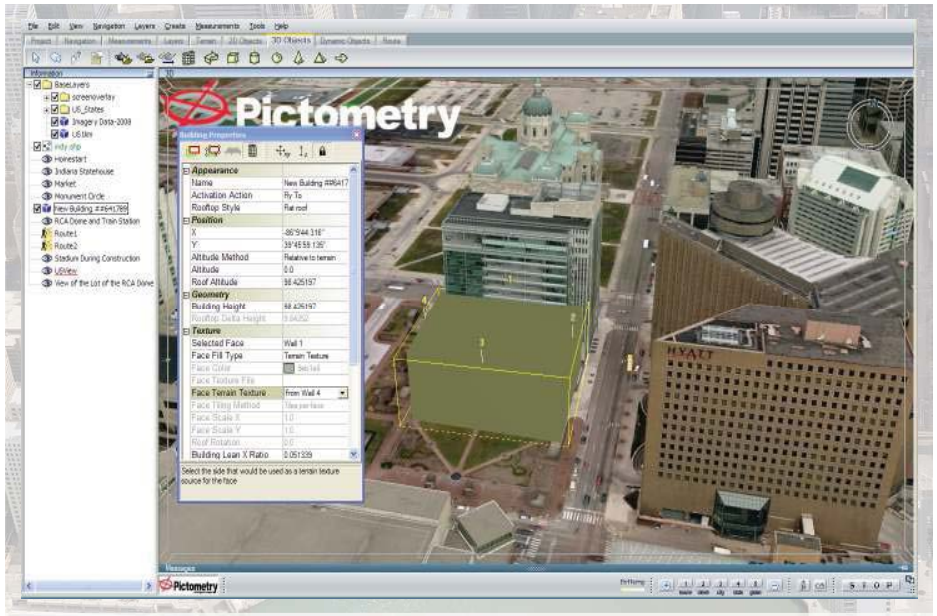
Pictometry • 3D Measurements - Height



Pictometry • 3D ViewShed Analysis



Pictometry • 3D Line of Sight Analysis

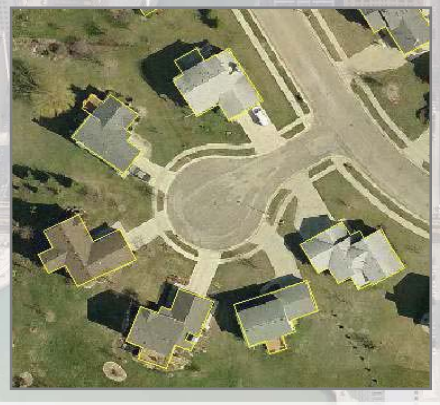


Pictometry • 3D Simple Building Creation

ChangeFindr Deliverables-Existing

2005

2007



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ChangeFindr Deliverables-New Buildings

2005

2007

Pictometry

ChangeFindr Deliverables- Changed

2005

2007

Pictometry

ChangeFindr Deliverables- Demolished

2005

2007

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