Airport Obstruction Surveys

Providing Professional and Accurate Airport Obstruction Surveys

Company Key Products:

- *Airport Obstruction Surveys*
- *Geodetic / GPS Surveying*
- *LiDAR Acquisition and Processing*
- *LiDAR Contours*
- *LiDAR DEM*
- *LiDARgrammetry*
- *Aerial Photography*
- *Airborne GPS and IMU*
- *Analytical Aerial Triangulation*
- *Base Mapping*
- *Data Conversion*
- *Digital Aerial Photography*
- *Digital Image Scanning*

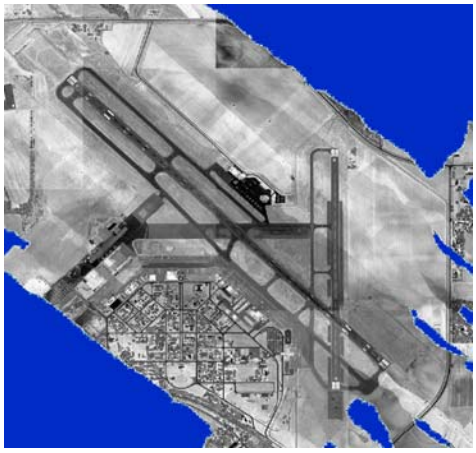
Company Key Facts:

- *OPTECH LiDAR sensors and Leica RC-30 camera systems with IMU*
- *Lead Project Manager with 14 years of experience*
- *Certified Photogrammetrists*
- *Certified GIS Professionals*
- *Licensed Professional Surveyors*
- *Nationwide experience*
- *ESRI Authorized Business Partner*
- *Bentley Developer Network Team Member*

Aeroquest Optimal

Aeroquest Optimal (OPTIMAL) is a full-service geospatial company with a commitment to quality and customer service.

With decades of professional service, our experienced team of Certified Photogrammetrists, Professional Land Surveyors, Certified GIS Professionals, Mapping Technicians and Flight Crew stand ready to provide timely information and mission critical support.



LiDAR Intensity Image

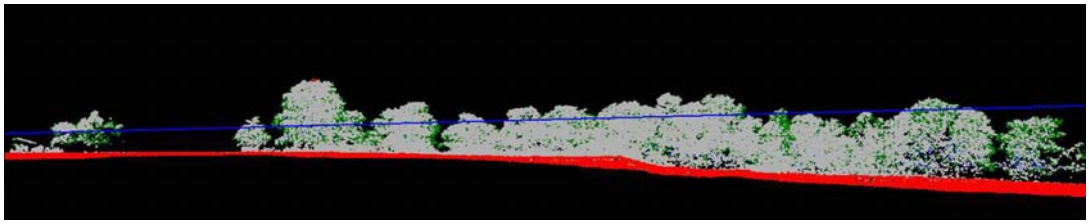
Airport Obstruction Survey Methodology

OPTIMAL successfully utilizes LiDAR, GPS and Photogrammetric methods for airport obstruction mapping. OPTIMAL utilizes GPS for required ground survey, LiDAR for the obstruction identification, and photogrammetry as a QC tool for the survey.

OPTIMAL's experience in adhering to AC 150/5300-16A includes the establishment of GPS monuments including monuments to Height Modernization standards. Airport obstruction surveys are used to supply obstruction and navigational aid (NAVAID) data to the Federal Aviation Administration (FAA) for developing approach procedures, determining maximum takeoff weights for aircraft, and updating aeronautical publications. The FAA defines an obstruction as any object that rises above the invisible Obstruction Identification Surfaces (OIS). Obstructions could be features such as trees, poles, towers, buildings, or terrain to name just a few.

Key Benefits

OPTIMAL is dedicated to customer satisfaction and technical excellence. OPTIMAL has integrated highly skilled and experienced professionals with advanced digital processes and equipment to form one of the most sophisticated Airport Obstruction Surveys, LiDAR, Digital Photogrammetric Mapping and Surveying solutions available in North America and other global regions.



LiDAR Obstruction Identification

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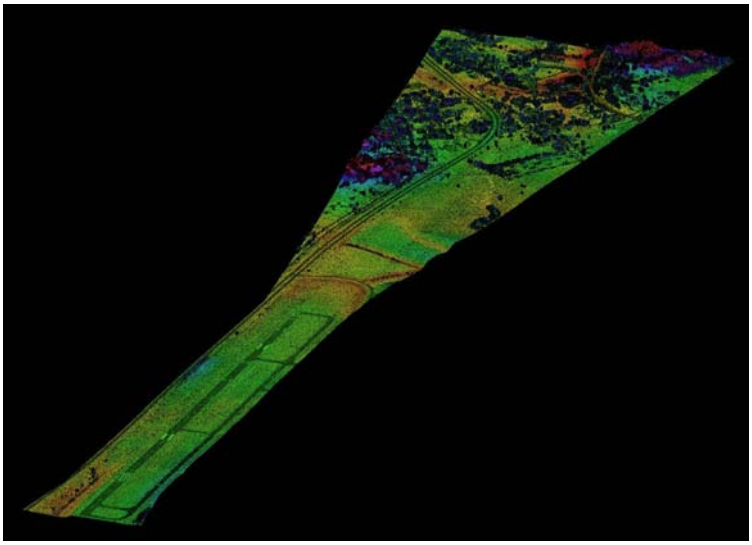
Airport Obstruction Surveys
Support and Services

LiDAR in Airport Obstruction Surveys

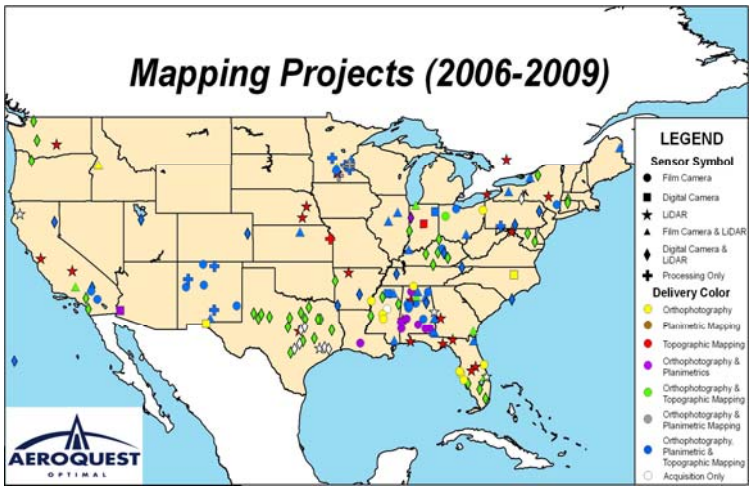
LiDAR-based obstruction surveys consist of a low altitude, high density point cloud with a horizontal point spacing no greater than 0.5 meters in both the cross-track and along-track directions and are collected using a combination of nadir-looking and forward (tilt)-looking angles, which provides a vertical point spacing of no greater than 1.5 meters. LiDAR surveys result in hundreds of millions of points collected over the area of interest. OPTIMAL has developed proprietary algorithms for detecting and reporting obstructions from the point cloud. These obstruction features are then verified and tagged by feature type. The LiDAR dataset also provides for potential obstructions, highest survey features, and ground models.

Photogrammetric obstruction surveys are conducted by generating the 3D Obstruction Identification Surfaces in a photogrammetric environment and identifying the features that penetrate these surfaces. Additionally, planimetric features can be collected from the photo models.

Navigational Aid (NAVAID) surveys are conducted in conjunction with the aerial collection by ground survey crews to verify and/or update current NAVAID reports for each airport. NAVAIDs include objects such as localizers, glide slope indicators, runway markers, and beacons. These objects are collected by use of a combination of real-time kinematic (RTK) and traditional survey techniques.



LiDAR Surface



LiDAR Methodology including KAOS

OPTIMAL flies both nadir and forward-looking LiDAR over the airport. The forward-looking pass is used to identify every surface penetrating object as defined by the FAA documents. OPTIMAL has successfully used this approach to identify antennas, power poles and vegetation. The forward-looking unit allows features to be "painted" up the feature, with no point being more than 1.5 meters vertically different than another. The LIDAR data is collected using our Optech ALTM 3100-DC and processed in accordance with the manufacturer's recommendations using *Dashmap* LiDAR processing software.

OPTIMAL has created an automated software package, Kinematic Airport Obstruction Survey (KAOS). By utilizing all the LiDAR points, and the defined airport surfaces, KAOS is capable of finding those penetrating obstacles, as well as other potential obstructions. Conventional survey techniques provide only discreet locations, and LiDAR provides survey points over all features, whether or not they are obstructions.

Project Management

Our staff of professional Project Managers serve as the point of contact for all work and have a history of successfully delivering projects to numerous airports and related customers. Their priority is to deliver the highest quality services available. OPTIMAL is dedicated to providing customer satisfaction and quality in all we do.

AEROQUEST OPTIMAL

www.optimalgeo.com

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