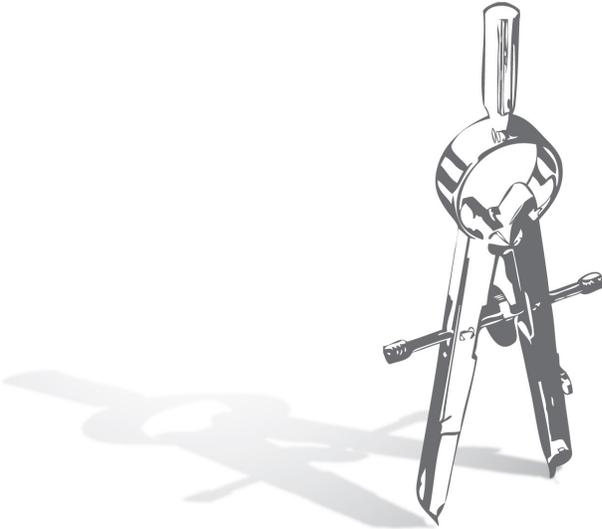


# Drone Services



Air  
Land  
Water  
Analytics



# Aerial imaging technology at work for you

## DRONE SOLUTIONS

- Orthomosaic Mapping
- Topographic Mapping
- Digital Surface Modeling
- Digital Terrain Modeling
- GIS Mapping Integration
- 3D Site Modeling
- Volumetric Analysis
- Landfill Mapping
- Mine Mapping
- Industrial Roof Inspections
- Industrial Stack Inspections
- Tower Inspections
- Railroad Inspections
- Powerline Inspections
- Roadway Pavement Inspections
- Bridge Inspections
- Infrastructure Asset Management
- Site Assessments
- Site Planning
- Marketing

### Orthomosaic Mapping



Orthomosaic maps are created by stitching multiple overlapping drone aerial images, via mapping software, into a single geometrically corrected or “orthorectified”

aerial map. Orthomosaic maps provide high-resolution image quality and true-to-scale relative accuracy of the earth’s surface. Orthomosaic maps can also provide a high level of absolute or global accuracy by implementing ground control points.

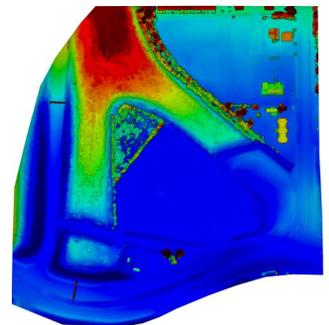
### Topographic Mapping



Millions of X,Y,Z data points are generated when a drone collects overlapping aerial images from a typical site. These data points allow for the creation of topographic maps with contour intervals as dense as 1 ft. Topographic maps created by drone aerial imagery provide the same relative and absolute accuracy as orthomosaic maps.

### Digital Elevation Modeling

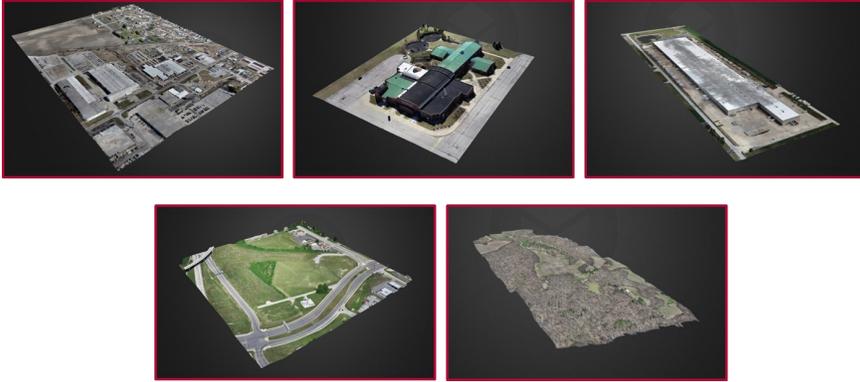
Drone aerial imagery is used to create two types of high-resolution digital elevation models (DEMs); digital surface models (DSMs) and digital terrain models (DTMs). DSMs are relief maps representing the earth’s surface, including



vegetation, buildings and other structures. DTMs are relief maps that represent only the earth’s bare surface.



### 3D Site Modeling



Stitching overlapping drone aerial images via mapping software allows for the creation of highly detailed photographic 3D site models. This process also creates point clouds, which are 3D visual representations of the millions of single X,Y,Z data points collected from a typical site using drone aerials.

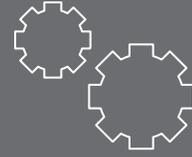
### Commercial and Industrial Inspections

Drone aerial inspections of commercial and industrial facilities can generate both photo and video documentation. Typical structures benefiting from drone aerial inspections are roofs, exterior and interior building surfaces, aboveground tanks and piping, silos, stacks, towers, wind turbines, solar farms and other aboveground structures.



### Civil Infrastructure Surveys

Civil infrastructure surveys entail using drones to provide high-resolution imagery and mapping deliverables to railroad companies, utility companies, gas pipeline companies, cities, towns, counties and state agencies. These services include inspecting railroads, powerlines, pipelines, bridges, roadway pavement, rights of way, sidewalks, trails, dikes, barrier walls, and other critical infrastructure systems. The drone aerial imagery and data generated from these surveys can be integrated into existing GIS systems and complement infrastructure asset management, redevelopment, and site planning activities.



### CUSTOM SOLUTIONS

A single drone flight yields numerous datasets including orthomosaic maps, topographic maps, digital surface models, digital terrain models, 3D models, point clouds, and georeferenced information. Projects can be customized based on your datasets requirements.



### WEB SOLUTIONS

Drones offer high-resolution photos and video that can be used for both electronic and print marketing and presentation materials.

Datasets generated by drones are easily integrated into existing GIS systems and other client-specific software. Datasets are also available for viewing through our ArcGIS online web applications and tools.



### FAA CERTIFIED

Our drone pilots all hold the FAA's Remote Pilot Certificate, which is required to fly drones for commercial applications. We also carry drone liability insurance.

Air

Land

Water

Analytics

#### Why Use Drones?

- In most scenarios, drones cost less to operate versus manned aircraft.
- Drones are easily deployed, launched and landed on-site versus manned aircraft.
- Drones can fly lower to the ground, which results in generating higher resolution aerial maps versus manned aircraft.
- Drones can fly closer to structures when performing inspections versus manned aircraft.
- Drones are capable of inspecting areas with limited ingress and egress.
- Drones cover more area quicker than most ground-based inspection processes.
- Drones are often flown autonomously on very precise flight paths which generates consistent aerial imagery.
- Drones generate high-density topographic maps and digital elevation models and reduce the amount of surveying time required to achieve these densities.
- Drones reduce health and safety risks particularly when inspecting high structures or other hazardous environments.

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