



HARRIS GEOSPATIAL AERIAL TOPOGRAPHIC AND PLANIMETRIC MAPPING SERVICES

TURN OUR EXPERTISE IN AERIAL MAPPING INTO YOUR BUSINESS ADVANTAGE

HIGHLIGHTS

Improve results and reduces costs on larger survey jobs

Include features such as contour mapping, vegetation boundaries, and digital terrain models

Capture high spatial accuracy and realistic views from above

Harris Geospatial offers fully integrated aerial digital topographic mapping services with the ability to take on any project on the North American continent. With a fleet of distributed aircraft equipped with the newest digital mapping cameras, airborne GPS and inertial measurement systems, combined with our staff of experienced photogrammetrists, imaging specialists, programmers and technicians, Harris Geospatial is uniquely qualified to deliver on critical projects -- on-time and on-budget.

THERE'S A REASON WE'VE BEEN IN BUSINESS FOR 70 YEARS

With project experience going back to 1951 and key staff with tenure of 20+ years, our clients leverage our expertise to gain a business advantage through improved results and reduced costs. Today, Harris Geospatial mapping services specializes in the energy, natural resources, infrastructure, civil engineering, land development, and utility sectors.

AERIAL PHOTOGRAMMETRY

Photogrammetry is the science of making measurements and mapping from digital or hardcopy photographs. Aerial photogrammetry enables the accurate mapping of 3D coordinates on the ground, using 2D coordinates measured on stereo aerial photographs that see the same points on the ground from two or more different perspectives.

Photogrammetry is typically used to create topographic maps which depict the three-dimensional shape and features of the ground onto a two-dimensional surface and can also be used to produce contour line maps or Digital Terrain Models (DTMs), map corrected aerial imagery, and planimetric feature maps.

ADVANTAGES OF AERIAL PHOTOGRAMMETRY

- Extremely high spatial accuracy is achieved using calibrated metric cameras. The precise focal length, principal point coordinates, and various forms of lens distortion are carefully calibrated so that systematic distortions can be accounted for and corrected.
- Aerial imagery allows users to realistically see the landscape from above and can be used to resolve disputes that might occur from other technologies. Panchromatic, natural color or color infrared aerial photographs can be acquired from metric film cameras, or multispectral digital imagery can be acquired from digital metric cameras.

FOR MORE INFORMATION:

Call **303.759.5050** or email us at geospatialdata@harris.com
harrisgeospatial.com

AERIAL COLLECTION

FLIGHT PLANNING

From working with aerial companies to produce the most efficient collection flight path, to choosing the appropriate aerial sensor for the task, a dedicated project lead will work with you to define the scope of work and ensure the success of the entire project.

GROUND CONTROL LAYOUT DESIGN

The key to a successful aerial survey is being able to accurately reference the captured aerial imagery to ground control points. GCPs must be clearly visible in the aerial image data, and we design the layout and placement of control points within the project area so we can ensure that the best coverage and horizontal and vertical accuracy requirements are met. Control is collected for most aerial projects unless otherwise specified.

PHOTOGRAMMETRIC MAPPING PRODUCTS

Typical Aerial Photogrammetric Mapping Product Deliverables	1:600 scale (1" = 50') mapping	1:1200 scale (1" = 100') mapping	1:2400 scale (1" = 200') mapping
Digital Terrain Model (DTM) data	3D mass points, 1 – 10 ft. density, and terrain breaklines	3D mass points, 5 – 15 ft. density, and terrain breaklines	3D mass points, 10 – 25 ft. density, and terrain breaklines
Contour line data	1.0 ft. vertical interval (index; intermediate; supplementary; depression; obscured)	2.0 ft. vertical interval (index; intermediate; supplementary; depression; obscured)	4.0 ft. vertical interval (index; intermediate; supplementary; depression; obscured)
Orthorectified image data	0.25 ft. GSD	0.5 ft. GSD	1.0 ft. GSD
Application	Final design, excavation and grading plans, earthwork computations for bid estimates, and contract measurement and payment	Route location, preliminary alignment and design	Preliminary project planning, hydraulic sections, rough earthwork estimates

PLANIMETRIC MAPPING

In addition to the photogrammetric mapping products, planimetric features can also be mapped, depending on the level of detail required. Planimetric maps show the horizontal position of features like roads, sidewalks, curb lines, bridges, building footprints and other similar construction features. These layers are derived from the stereo pairs and triangulation used to generate an accurate DTM. Available planimetric features include:

- Paved and unpaved surfaces
- Airports
(runways, taxiways, aprons, helipads)
- Railroads
- Manmade structures
- Water features
- Water structures
(bridges, dams, etc)
- Barriers
- Utilities
- Disturbed areas
(construction sites, mines, quarries, etc)
- Landmark features
- Street hardware
(signs, billboards, bus stop shelters)
- Vegetation
(trees, orchards/nurseries, crops)

Contour Vertical Interval (where applicable)	Spatial Resolution of ortho images	Map Scale Equivalent	Horizontal Accuracy (CE90 – Circular Error with 90% Confidence)	Vertical Accuracy (LE90 - Linear Error with 90% Confidence)
(US Measurement Units)				
0.25 m	0.25 ft.	1:600 (1" = 50')	1.67 ft.	0.5 ft.
2.0 ft.	0.5 ft.	1:1200 (1" = 100')	3.3 ft.	1.0 ft.
4.0 ft.	1.0 ft.	1:2400 (1" = 200')	6.67 ft.	2.0 ft.
5.0 ft.	1.5 ft.	1:4800 (1" = 400')	13.33 ft.	2.5 ft.
(Metric Units)				
1.0 ft.	0.075 m	1:500	0.5 m	0.125 m
0.5 m	0.15 m	1:1000	1.0 m	0.25 m
1.0 m	0.3 m	1:2500	2.0 m	0.5 m
2.0 m	0.5 m	1:5000	4.0 m	1.0 m

About Harris Corporation

Harris Corporation is a leading technology innovator, solving customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports government and commercial customers around the world. [Learn more at harris.com](http://harris.com).

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