

An aerial photograph of a town, likely a university campus, with a grid overlay. The town features numerous buildings, streets, and green spaces. A prominent feature is a large, curved road or path that winds through the town. The background shows a blue sky with white clouds. The title 'Aerial Mapping' is prominently displayed in the upper left quadrant, with 'Aerial' in black and 'Mapping' in white with a black outline. 'SPRING 2012' is written in black to the right of 'Aerial'. Below the title, a red horizontal line is followed by the text 'LIDAR ■ IMAGING ■ PHOTOGRAMMETRY' in black. In the bottom right corner, there is a red box containing the text 'Supplement to PROFESSIONAL SURVEYOR Magazine' and a black box containing the text 'DISPLAYED WITH PERMISSION • PROFESSIONAL SURVEYOR MAGAZINE • Aerial Mapping Spring 2012 • WWW.PROFSURV.COM • ALL RIGHTS RESERVED' in white.

Aerial

SPRING 2012

Mapping

LIDAR ■ IMAGING ■ PHOTOGRAMMETRY

Supplement to

PROFESSIONAL

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Magazine

Midwest Aerial Photography

Midwest Aerial Demonstrates Benefits of Digital Acquisition in Ottawa National Forest

By Kevin P. Corbley



Quick deployment key to project success.

Just four days after receiving the notice to proceed from the U.S. Department of Agriculture, Midwest Aerial Photography had its aircraft onsite and ready to acquire digital imagery of the Ottawa National Forest in Michigan. And six days later, the aerial firm had successfully completed collection of 30-cm image data over the entire one-million acre national forest during an extremely tight acquisition window.

Although the schedule was aggressive, the quick turnaround wasn't the only thing that impressed the USDA Forest Service about the acquisition project. What also turned heads was Midwest Aerial's ability to provide digital image products in a format and scale that almost exactly matched the aerial film prints USDA has been acquiring for forest mapping since the 1930s. More importantly, Midwest Aerial completed the digital acquisition and production for

less than the cost of a comparable film project.

The RFP had been prepared and released by the USDA Aerial Photography Field Office (APFO) in Salt Lake City on behalf of the Ottawa National Forest on Michigan's Upper Peninsula. As was the norm for the Forest Service, Ottawa requested near-infrared film photography. Midwest Aerial submitted two proposals, one for film and another for digital acquisition, at a lower cost. The Ohio firm received the best value award based on technical merits and its price, which was among the lowest of all the proposals.

Even as the contract was being awarded, the acquisition window became increasingly important to the applications planned by the national forest officials. They requested acquisition during the approximately

14-day period just prior to leaf-on when trees have budded. That spring, however, had been unusually warm, and the buds were popping early. Without quick acquisition, the project would fail.

"Mobilizing one of our six aircraft on such short notice really wasn't a big challenge for us," said Midwest president Ken Scruggs. "Our business focus is aerial imaging, and we've built our reputation on successfully acquiring data when the client specifies."

The aircraft carried one of Midwest Aerial's two Z/I Imaging DMC II digital



Z/I Imaging DMC II four-band digital sensor



Square-format digital frame image of Ottawa National Forest

mapping cameras, which are large-format frame sensors designed specifically to mimic many of the characteristics of film cameras. The DMC II offers the advantage of simultaneously collecting four-band (R,G,B, NIR) digital data from which a wide variety of end products can be generated. For Ottawa, Midwest flew 68 flight lines to collect 2,205 frames at 30-cm GSD. As requested, this equated to a film scale of 1:15,840.

Even with condensation from nearby Lake Superior creating a steady stream of clouds, the airborne segment was completed between April 20 and 26, 2010. Within four weeks, Midwest Aerial had delivered four-band georeferenced image files, photo center data files with metadata, a compressed project mosaic, and a set of color infrared inspection prints. Generated from the digital data sets, the inspection prints were produced with the same look and feel of traditional film contact prints.

"The client was impressed with how closely the square-format DMC II image prints emulated the traditional film products," said Scruggs.

For decades the APFO has been collecting film photography on behalf of the Forest Service to assist in managing its lands. Consistency in both the format and scale of the aerial images is critical to many National Forest management activities, which often involve analyses of multi-temporal images to detect changes in forest conditions and health. According to the project RFP, the Ottawa National

Forest planned to use the 2010 images to manage multiple forest resources and perform inventories.

The only minor glitch that occurred in the project was not discovered until after the airborne phase was complete. Delivery of airborne GPS coordinates among the end products had not been requested. The National Forest planned to send the delivered four-band digital files from Midwest Aerial out to a third-party photogrammetric services company for orthorectification. This level of processing would have been impossible without precise GPS coordinates of the camera position, but the project budget did not include funds to send ground survey crews out to the site to survey photo-identifiable features.

Fortunately, the DMC II operates with a tightly coupled NovAtel GPS/IMU (Inertial Measurement Unit) that automatically records the precise position of the camera for each exposure during the flight. This allowed for a significant reduction in the number of ground control points needed to maintain accuracy for the final orthophotography. Midwest Aerial provided this data set to the photogrammetry firm, preserving the overall project budget and timeline.

Kevin Corbley runs Corbley Communications, Inc. in Castle Rock, Colorado.



Aerocommander 500S



Cessna 310



Piper Aztec

CORPORATE PROFILE

Midwest Aerial Photography

For 23 years, Midwest Aerial Photography has focused on acquiring aerial imagery and photography of the highest quality to support photogrammetric mapping projects across the United States and Canada. Our goal is to meet the exacting data standards of your photo interpretation, GIS, remote sensing, orthophotography, and planimetric and topographic mapping projects.

With more than 100 years of personnel experience and a fleet of six aircraft, we have earned a reputation for reliability by collecting aerial imagery in tight acquisition windows and getting it right the first time. We take pride in managing complex airborne projects

as a prime or subcontractor in both the public and private sectors. Our partners and clients include federal, state, and local government agencies as well as photogrammetric firms and architectural and engineering companies. We service our clientele with flight operations based in Ohio and from our remote facilities in North Carolina and Tennessee.

In 2011, Midwest Aerial became the only firm in the world to own two Z/I Imaging DMC II digital mapping cameras. The DMC II enables us to make our partners and clients more competitive in the marketplace. Combined with our four RMK TOP film cameras, the DMC IIs give us unparalleled capabilities to acquire

imagery for photogrammetric mapping projects of any size, scale, or altitude.

When your mapping project requires precise imagery and reliable acquisition on a tight schedule, you need Midwest Aerial Photography on your team.

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Precision Photogrammetric Imaging Backed by Decades of Expertise

When your mapping project requires precise imagery and reliable acquisition on a tight schedule, you need Midwest Aerial Photography on your team. With more than 100 years of combined personnel experience and six aircraft, we have been managing large-area airborne imaging projects across the United States and Canada since 1989.

Our reputation for reliably collecting high-quality imagery and getting it right the first time has been the key to our selection as both a prime and subcontractor on multiple QBS awards at the federal and state level. Last year, we completed our 12th year of flying for the USDA Small Area Contract.

Our imaging capabilities are unparalleled. Midwest Aerial was the first firm in the Americas to purchase the DMC II digital four-band camera system, and we are the only one in the world to buy a second DMC II. This camera is the only large format system designed specifically for photogrammetric mapping. Its single pixel array is a rigid square frame with a fixed geometry that results in highly accurate resolution and precise acquisition at all altitudes and mapping scales.

The DMC II has emerged as the sensor of choice for government and private sector projects nationwide, and it has made our clients and partners more competitive.

Call Midwest Aerial today and learn how our unique combination of experience and technical capabilities can give you the competitive edge.

