



Wisconsin Orthophotography

Due to the highly-successful [Wisconsin Regional Orthophotography Consortium \(WROC\)](#)¹ project conducted in 2010, very little new imagery was acquired by Wisconsin government organizations in 2011. The most significant imagery acquisition activity over Wisconsin in 2011 came from a commercial venture sponsored by Microsoft and Digital Globe.

Very little new imagery is expected to be acquired throughout Wisconsin during 2012. Both Barron and Dodge counties plan to acquire 6-inch resolution color imagery during the spring flying season. At this time, no other counties have indicated they have plans to acquire new imagery in 2012.

Commercial imagery program covers Wisconsin

In 2010 Microsoft and Digital Globe (DG) unveiled an ambitious plan to collect 30-centimeter (approximately 12-inch) resolution color orthoimagery over the entire lower 48 states by mid-2012. Microsoft is conducting all imagery acquisitions through their Vexcel subsidiary. All imagery collected by Microsoft will be displayed in their Bing Maps services, while DG is acting as the primary distributor of GeoTIFF-format products for the geospatial community. DG calls their product the [Advanced Ortho Aerial Program \(AOAP\)](#).²

Unlike most traditional imagery programs, AOAP is strictly an off-the-shelf program, where customers purchase imagery previously collected by the Microsoft and DG team.

DG classifies their AOAP "region tiles" as High Value Area, Standard Block, and Remote Block. Only High Value Areas are guaranteed leaf-off coverage, while leaf-off is desired (but not guaranteed) in Standard Value Blocks. Leaf-off imagery is not available in Remote Value Blocks. Likewise, the accuracy specifications, sun angle, cloud coverage, and haze thresholds become

progressively less stringent in the Standard and Remote Value Blocks.

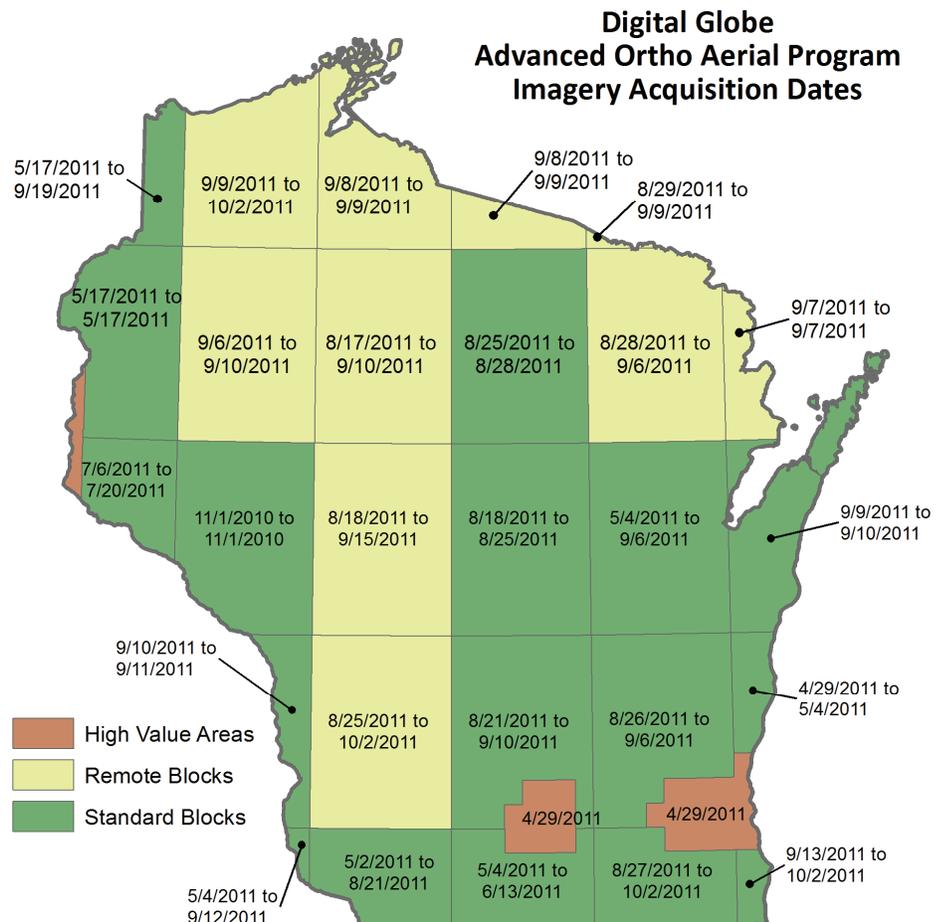
The majority of AOAP imagery for Wisconsin was acquired during the summer and early fall of 2011. Only the Madison and Milwaukee areas fall into the High Value Area category, while the remainder of the state is split between Remote Blocks and Standard Blocks. (see map below)

Statewide 18-inch imagery now available

In 2011 a statewide 18-inch spatial resolution product was assembled by the WROC

contracting team (Ayres Associates and Aero-Metric) by resampling high-resolution, high-accuracy imagery acquired over WROC member counties during the spring of 2010, along with additional 18-inch lower-accuracy imagery acquired over counties that did not participate in WROC. More details on the statewide product are described in a WROC [statewide product specifications document](#).³

In July 2011, the complete statewide 18-inch dataset was made available on the [WisconsinView Data Portal](#).⁴ The standard statewide product is tiled by USGS quarter-



Source: Digital Globe, January 2012

quadrangle, and referenced to the Wisconsin Transverse Mercator (NAD83) coordinate system. The file size of each GeoTIFF-format tile is approximately 500MB on average.

In January 2012, the National Park Service (NPS) in Ashland, WI completed work on generating 72 county mosaics in JPEG2000 format from the original GeoTIFF tiles. The mosaics are also referenced to a WTM83 coordinate system, and a compression ratio of 10:1 was used. The mosaics generated by NPS, which significantly reduce the amount of disk space needed to store the imagery, are now available on the WisconsinView Data Portal.

2010 NAIP available in multiple formats from WisconsinView

Wisconsin and 29 other states were flown during the summer of 2010 as part of the U.S. Department of Agriculture Farm Service Agency (FSA) National Agriculture Imagery Program (NAIP).

All 2010 NAIP imagery has a 1-meter ground resolution, and is designed to meet a 6-meter horizontal accuracy specification at a 95% confidence interval.

In the past, NAIP was strictly a 3-band (natural color) product. For the first time, all states flown in 2010 also included a fourth near-infrared band.

The 2010 NAIP imagery is available for free in a variety of formats and projections from the WisconsinView Data Portal:

- GeoTIFF quarter-quadrangle tiles, referenced to UTM zone 15 or 16, 4-band (includes near-infrared)
- GeoTIFF quarter-quadrangle tiles, referenced to Wisconsin Transverse Mercator (NAD 83/91), 4-band
- MrSID county mosaics, referenced to UTM zone 15 or 16, 3-band (natural color)
- MrSID county mosaics, referenced to Wisconsin Transverse Mercator (NAD 83/91), 3-band

Assuming their budget remains intact in 2012-2013, FSA is planning to acquire updated NAIP imagery over Wisconsin in 2013. Future NAIP flights are expected to include the fourth near-infrared band as part of the standard deliverable.

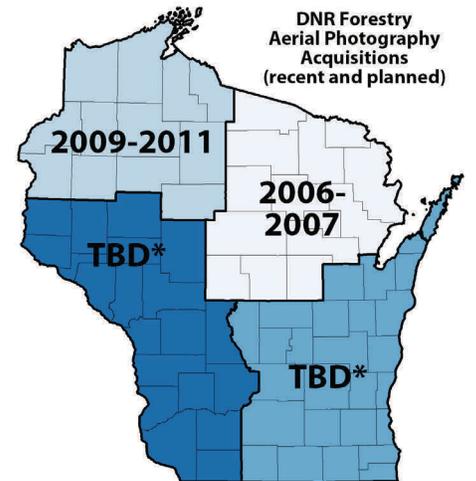
Wisconsin DNR Forestry Aerial Photography

The DNR Forestry Division acquires stereoscopic aerial photography for approximately one quarter of the state approximately every two years. The northeast quadrant was flown in 2006-2007, followed by the northwest quadrant in 2009-2011. Both projects were acquired in the fall with color-infrared film.

The primary product for the Forestry program is 9x9 inch contact prints at a scale of 1:15,840. Beginning in 2006, Forestry also started scanning the imagery to create orthorectified, county-mosaiced digital imagery.

Forestry is exploring options for public distribution of their county mosaics. Information about digital availability will be posted on the [Forestry Division's Aerial Photography Web site](#)⁵ as details are finalized. In the interim, prints may be ordered via an order form available on their Web site. Most WDNR Forestry prints prior to 1999 may be previewed and copied at the [UW-Madison Robinson Map Library](#).⁶ Flights prior to 2006 are stereoscopic, collected during the summer with black and white infrared film, at a scale of 1:15,840.

Future project specifications are currently being re-examined. This includes, for example, digital vs. film, time of year, and size of project area. As a result of re-flights needed in 2011 to complete the northwest quadrant, and the re-evaluation of the product, Forestry had an interruption in their normal collection cycle in 2011. They anticipate flights will resume in fall 2012 or 2013 in the southwest area of the state.



* Dates for future flights to be determined due to changing project needs.

Historic aerial photography now online

In early 2011, the University of Wisconsin-Madison released a new online tool designed to help users find and download historic aerial photography. The [Wisconsin Historic Aerial Image Finder](#)⁷ site currently includes a statewide set of 38,000 USDA aerial photographs acquired from 1937 to 1941. Using a simple interface, users can locate and then download public domain images in JPEG or TIFF format, at a variety of resolutions.

To find additional Wisconsin historic aerial photography, visit the [SCO Catalog of Aerial Photography](#).⁸



Scan with your smartphone!

Wisconsin State Cartographer's Office

The Wisconsin State Cartographer's Office provides a wide range of services to the state's geospatial community, including educational workshops and presentations, technical consulting, print and online publications, web-based mapping applications, and information about events, jobs and emerging trends. We collaborate with state and national associations to promote effective utilization of geospatial technology, and serve as a liaison between geospatial data producers and consumers in Wisconsin to help coordinate the needs of these groups. The office also assists the public with map-related inquiries. The State Cartographer's Office has operated from the University of Wisconsin-Madison since 1974.

State Cartographer's Office
550 N. Park St.
Rm. 384 Science Hall
Madison, WI 53706-1491
Phone (608) 262-3065
Fax (608) 262-5205
WWW.SCO.WISC.EDU
SCO@wisc.edu

Web References

1. Wisconsin Regional Orthophoto Consortium www.ncwrpc.org/WROC/
2. Digital Globe Advanced Ortho Aerial Program www.tinyurl.com/digitalglobe-aoap
3. WROC Statewide Product Specifications www.tinyurl.com/wroc-specs
4. WisconsinView Data Portal www.wisconsinview.org/form.php
5. Wisconsin DNR Forestry Aerial Photography www.dnr.wi.gov/forestry/airphoto/
6. Robinson Map Library www.geography.wisc.edu/maplib/
7. WI Historic Aerial Image Finder maps.sco.wisc.edu/WHAIFinder/
8. SCO Catalog of Aerial Photography www.sco.wisc.edu/ap-catalog.html