Wisconsin Orthophotography

Most local governments in Wisconsin acquire aerial imagery on a five-year cycle, with the next major round of projects expected in 2015. The Wisconsin Regional Orthophotography Consortium (WROC)[1] released a Request for Qualifications in late November 2012, and are currently in the final stages of selecting a contractor to provide services for the 2015 WROC project.

More details on the 2015 effort are expected to be available in the coming months.

Imagery business plan in the works

In February 2011, the State Cartographer's Office (SCO) received funding from the Federal Geographic Data Committee (FGDC) Cooperative Agreements Program (CAP) to implement a project entitled "Business Plan Development for a Wisconsin Aerial Imaging Program." [2] Formal work on the project began in early 2012.

Fundamentally, the project is examining existing models used to manage aerial photography projects in the state, and based on considerable community input, analyze the lessons learned from these past projects. The expected outcome is a formal implementation plan (a "blueprint") for an aerial photography program that meets the needs of the widest possible audience of users in our state.

During the late fall of 2012, the SCO completed an extensive information gathering process to better understand the imagery needs of the Wisconsin geospatial community. The effort began with an online survey completed by nearly 1,000 people, followed by a series of regional meetings at five locations around the state, and three online Webinars.

We are currently analyzing the results of the surveys and meetings, and are developing a draft business plan for public review. The first draft is expected to be available in mid-February 2013.
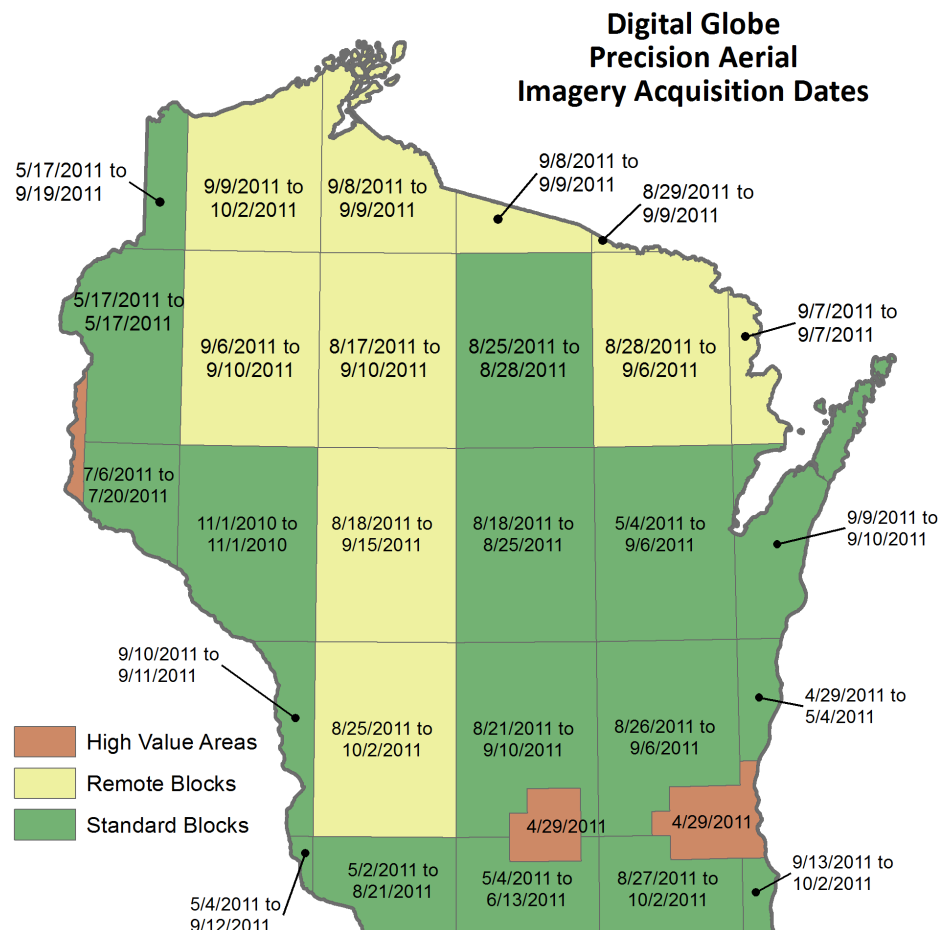
Microsoft and Digital Globe imagery covers Wisconsin

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.

All imagery collected by Microsoft is displayed in their Bing Maps service, while DG is acting as the primary distributor of Geo-TIFF-format "Precision Aerial"[3] products for the geospatial community. Unlike most traditional imagery programs, the DG imagery is strictly an off-the-shelf product, where customers purchase imagery previously collected by the Microsoft and DG team.

DG classifies their Precision Aerial product "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.

Digital Globe Precision Aerial Imagery Acquisition Dates

Legend:
- High Value Areas
- Remote Blocks
- Standard Blocks

Source: Digital Globe, January 2012

Google also active in 2011 and 2012

Google acquired approximately 28,000 square miles of high-resolution aerial imagery in Wisconsin during the past two years, primarily in the northwest and southeast parts of the state, along with a large area over the Fox Valley. (see map at right)

Unfortunately, it is difficult to know with certainty the specifications used (accuracy, resolution, etc.) since Google does not make that information publicly available. In addition, determining the age of Google aerial imagery can be difficult and confusing, but the process is made easier through a KML file available on the Google Web site.[4]

While their imagery is very useful for Google Maps or Google Earth users, Google does not allow use of their imagery in commercial tools like Esri's ArcGIS, nor do they allow "bulk" download for use in other offline tools. Access is limited to Google Earth, Google Maps, or via one of their Application Programming Interfaces (APIs).

NSGIC compares "referential" and "authoritative" imagery

With the rapid advancement of commercial imagery offerings by companies like Google and Microsoft, public officials often ask, "Why can't we just get it for free off the Web?"

To address this common question, the National States Geographic Information Council (NSGIC) published a document in 2012 called "Justifying the Cost of Authoritative Imagery."[5] In it, they describe the differences between "referential" imagery acquired by Internet content providers, and the "authoritative" imagery commonly acquired by government agencies.

While the NSGIC paper acknowledges the value of imagery available from Internet content providers, they distinguish authoritative imagery by its authenticity (fit for use in a legal context), currency (the owner controls how often it is acquired), accuracy

(designed to meet stringent accuracy needs), and ownership (no license fees for use, or for derivative products).

Madison and Milwaukee covered by HSIP imagery program in 2012

The Homeland Security Information Program (HSIP), a multi-agency geospatial data program sponsored by the federal government, completed flights over the cities of Madison and Milwaukee during the fall of 2012.

The 1-foot resolution imagery is expected to be publicly available in Geo-TIFF format during the late spring of 2013.
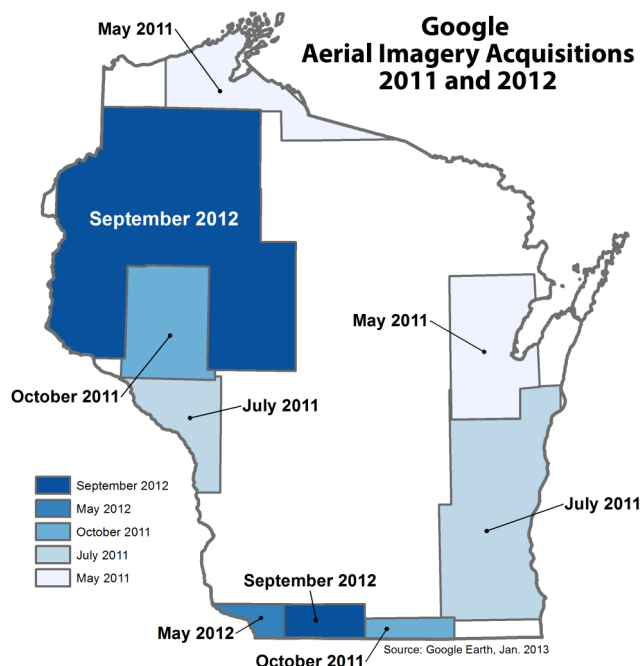
Statewide 18-inch imagery available from WisconsinView

In 2011 a statewide 18-inch spatial resolution product was assembled by the WROC contracting team (Ayres Associates and AeroMetric) 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.

In July 2011, the complete statewide 18-inch dataset was made available on the WisconsinView Data Portal.[6] The imagery is available as GeoTIFF images tiled by USGS quarter-quadrangle, and also as compressed county mosaics in JPEG2000 format.

1930's aerial photography 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 U.S. Department of Agriculture 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.

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

Scan with your smartphone!

Google Aerial Imagery Acquisitions 2011 and 2012

Map legend:
- September 2012
- May 2012
- October 2011
- July 2011
- May 2011

Source: Google Earth, Jan. 2013

Web References

1. Wisconsin Regional Orthophoto Consortium
www.ncwrpc.org/WROC/

2. Wisconsin Aerial Imagery Business Plan
orthoplan.sco.wisc.edu

3. Digital Globe Precision Aerial Program
tinyurl.com/digitalglobe-precision

4. Google Earth Imagery Updates (KML)
tinyurl.com/imagery-updates

5. Justifying the Cost of Authoritative Imagery
tinyurl.com/nsgic-imagery

6. WisconsinView Data Portal
www.wisconsinview.org

7. WI Historic Aerial Image Finder
maps.sco.wisc.edu/WHAIFinder/

8. SCO Catalog of Aerial Photography
www.sco.wisc.edu/ap-catalog.html