

Local Users Benefit from Orthophotos in Southern Minnesota

Compiled by Will Craig, University of Minnesota

Congressman Gil Gutknecht is a member of the House Committee on Agriculture, the federal department that helped provide Minnesota with its 2003-04 NAIP aerial photographs. His committee staff wondered what value this effort has for southern Minnesota, Congressional District 1. To answer this question I contacted colleagues at the Southeastern Minnesota Counties GIS Users Group, the Southwest Minnesota GIS User Group and Minnesota State University, Mankato. I quickly received the following, very rich responses.

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Editor's Note: For an extensive list of how aerial photos are used across Minnesota, see www.lmic.state.mn.us/chouse/airphoto_applications.html

For several ways to access recent NAIP aerial photography, visit www.lmic.state.mn.us/chouse/airphoto_usda.html#fsa

Goodhue County Appraiser (Lavon Augustine)

The Goodhue County Assessor's office, specifically the appraisers, use aerial photos for many aspects of the job. The job is to value properties fairly, equitably, and at market value. The aerial photos are a great tool which helps us value and identify parcels/properties, including: verifying that structures are on the correct parcels; classifying properties per use; measuring buildings, woods, fields, etc; confirming building description/use; site plan/map; vegetation; soil types; and topography.

In addition the citizens and taxpayers use the aerial photos for personal research dealing with issues such as land use, recreational use, and potential and resolving neighborhood boundary disputes.

We are also finding the growing library of aerial photos dating back to 1938 to be very useful historical documents in determining the changes to the natural and manmade environment over the years.

Note: I asked Augustine what the county spends for its own imagery. She referred me to the County Survey/GIS Department. The answer is \$50,000 per round, but only this low because they have elevation data based on LiDAR.

Winona County Planning (Lonnie Meinke)

In reading the [Western Minnesota] article I cannot add a whole lot of uses for the photography. I just want to re-enforce that is a (if not the) fundamental layer we use for our GIS.

- Property boundaries over aeriels for ownership, hunting, planning etc... by owner/user of lands
- Zoning determinations, measuring of setbacks (feedlots, roads, streams, natural features)
- Potential creation of multiple GIS layers from orthophotography (road centerlines, natural features)
- Floodplain mapping for lending institutions and aid in building permit determinations

- Field boundaries for farmers illustrating slopes, soil types used in planning for expansion planning as well as day-to-day operations (manure application, determining acreage, etc.)
- Legal exhibits (courtroom setting) of crime scenes
- Homeland Security applications (event planning, disaster/mitigation/recovery planning)
- Law Enforcement applications - Search and Rescue mapping
- Primary interface for general public. Most public can recognize own property from color aerial. Is often the "lead in" first piece of data the general public interacts with or understands. This leads to delving further into GIS systems (primarily web-based) and the retrieval of public records data such as tax info etc. This reduces the counter load or personal interaction with the general public by staff in many offices thereby creating cost savings through efficiencies.

There are many more but these are a few. Hope this is helpful.

Note: I asked Lonnie what the county pays for its own imagery. He says this was about \$50,000 the last time they did it in B&W. The county hopes to repeat every 2-3 years, next time in color.

Dodge County Soil and Water Conservation District (Jim Hruska)

[W]e use photos for the same reasons [as stated in the Western Minnesota article describing uses by the USDA to assist individuals], along with using them for designing of conservation plans. We draw the watersheds for waterways, terraces, structures. Overlay with our soils layer and topo map layers to determine the runoff from that watershed. Updated photos really help in this way. We GPS in new waterways, buffer strips, and terraces and then download those points onto the newest photo.

The Farm Service Agency (FSA) uses photos to measure fields for their programs. Updated photos help in determining if field boundaries have changed.

I'm also the county ditch inspector and I use the photos to update the county drainage systems we have in Dodge County. Mark repairs on photos to send to contractors for making those repairs. I keep track of all repairs so I can make presentations to the County Commissioners on the status of the county drainage systems.

The County Zoning and Planning Department uses photos for a lot of their planning needs. Checking distances from building sites, feedlots, wells, etc. for their county ordinances. Updated photos really help in this department.

We all use the photos while holding public meetings or presentations to local officials. There are a lot of uses for aerial photos, and updated photos help a lot. Even looking back at old photos helps. They also help in wetland determinations.

I've probably missed some reasons but if you can keep aerial photos coming the better.

Murray County Environmental Services (Jean Christoffels)

Murray County, located in southwest Minnesota, utilizes GIS in many different forms. GIS has been growing into a major part of the E 9-1-1 system in our County. Therefore, having the most current aerial photography would prove to be very beneficial to all constituents of our County. The Murray County Assessor's Office has recently begun using GIS for land splits, acres of land and such. With regards to the usage of GIS in my department, Environmental Services, it is a useful tool to determine setbacks for zoning issues, such as the locating the best placement for feedlot facilities so as not to encroach on surrounding housing developments, subdivisions on local lakes, etc.

Having yearly aerial orthos would be beneficial to our entire County. However, being a rural Minnesota County, the cost of the yearly orthos is out of our reach.

Minnesota DNR Wildlife Research (Kurt Haroldson)

(reporting on DNR use of 1990-2000 FSA aerial photos in southern MN to study pheasant populations on lands in and around Conservation Reserve Program lands.)

Most of Minnesota's pheasant range is privately owned. In terms of total area, CRP is the most important pheasant habitat in MN (i.e., more acres of CRP than acres of public lands). Therefore, pheasant conservationists have a vested interest in CRP and other farm bill programs that influence conservation on private lands.

We learned that pheasant abundance is directly proportional to the amount of CRP and other undisturbed grasslands in farm landscapes. The best way to increase pheasant populations is to add CRP (and other undisturbed grasslands). Conversely, pheasant populations are proportionately smaller where there is less CRP. We are very concerned that 2/3 of current CRP enrollments are set to expire during 2007-09.

FSA imagery is used extensively within DNR. It is used to support research (e.g., my pheasant studies) as well as land management. DNR partnered with FSA a few years ago in acquiring the imagery. I would estimate that FSA imagery is used in virtually every DNR office in MN. Tim Loesch (651-259-5475, tim.loesch@dnr.state.mn.us) could provide better information on how extensively the FSA imagery is used within DNR.

Hope this helps. It's hard to overestimate how important FSA imagery is to natural resources management.

Minnesota State University, Mankato (Fei Yuan)

This semester I am doing a funded research project on "Land use and land cover change monitoring and effects analysis in the greater Mankato area using remote sensing and GIS". The NAIP photo provides me one of the most important layers for land use interpretation/classification and then urban environmental impact analysis from the urbanization.

The change project is funded by the MSU research grant. The major problem we are worried about is the environmental and economical impacts from urban forest and impervious surface area change. We hope to use this as a pilot study to get the attention of local agencies. The Mankato city council has expressed strong interest in our forthcoming results.

http://www.mngislis.org/newsletter/issue45/Orthophotos_in_Southern_MN.htm