

Local Users Benefit from Orthophotos in Western Minnesota

By Will Craig, University of Minnesota

How is aerial photography used by people and local government in western Minnesota? This question was asked of me by Congressman Collin Peterson's staff on the House Agriculture Committee when I visited their office in March, 2006. Congressman Peterson is the ranking member on that committee. I made the visit to help sell the NSGIC proposal to increase the coverage and detail of the NAIP program that provided Minnesota with its most recent orthophotography. (The [NSGIC proposal](#) was described in a previous issue of this newsletter).

To answer this question, I turned to my friends in Western Minnesota. The Pine to Prairie GIS User Group distributed the request to its members, which includes people who live or work in Peterson's district. Over a dozen very good responses came back (see [list of contributors](#) at the end of this article). I have sent that information on to his staff. They fall into four major categories:

[Use by individuals](#)

[Use by agencies assisting individuals](#)

[Use by local government](#)

[Use by local engineering firms doing work for local government](#)

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

Use by individuals

- Used by hundreds of hunters across the region every fall.
- The Northstar, Agassiz, and Lost River ATV clubs use the aerial photos to assist in map making and trail planning. Using the aeriels with other information allows them to designate a trail system that is environmentally sustainable.
- Farmers use them in planning for such farmstead activities as routing a driveway, locating a new building, and locating a new feedlot.
- Farmers, working with firms like The Mosaic Company, are able to practice more efficient agriculture. Precision agriculture is based on using the right amounts of fertilizer on each acre of farmland. The Mosaic Company uses aerial photography to plot field boundaries and make recommendations to farmers. Mosaic says, "With the expansion of farms and fields it is very useful to have current and up-to-date orthophotos." Their recommendations assure maximum economic return to farmers while reducing environmental problems associated with over-fertilizing.
- Many state and local government agencies bring aerial photography to public meetings with new proposals noted on the photo. They have come to learn that people need to see the "what and where" before they understand the issue and feel confident about stating an opinion. Photos have been provided recently by the Northwest Regional Development Commission for land use planning work in Ada, Greenbush, Hallock, Thief River Falls, Badger, Warren, and Lengby.

Use by agencies assisting individuals

- USDA officials note that aerial photography is a part of most of their work with farmers. This includes developing conservation plans, nutrition management plans, tile drainage plans, wind break plans, and manure management plans.
- With the support of USDA's Forest Service, state DNR officials are helping Minnesotans mitigate against wildfire losses via its *Firewise* program. The program works with

individuals and communities to assess their risk - most often based on current aerial photography assessing defensible space around homes. In many instances, school classes do the community work. School projects are about to begin in two District 7 schools: Grygla and Warroad. (For more information about the Firewise program, see a related article in this newsletter.)

- The Northwest Regional Development Commission (NWRDC) used the aerial photography to create maps for the JOBZ program for several businesses throughout the RDC seven county service region. Cities participating include; Ada, Angus, Badger, Crookston, Erskine, Fertile, Greenbush, Hallock, Fosston, Lake Bronson, and Gary.

[Gerry, please link to Ken's Firewise article]

Use by local government

- Clay County uses aerial photography for flood mitigation, emergency preparedness, and law enforcement. If they did not have the recent NAIP photography from FSA, they'd need to spend \$100,000 of local taxpayer money to meet the needs of these programs.
- Roseau County uses aerial photography to help find new construction. The county does not require permits except near open water or in floodplains. Driving back roads and viewing recent photography are the only means the county has for maintaining equity in its tax rolls.
- New York Mills is beginning to use aerial photography to deal with a variety of federal regulatory issues. For example, under GASB34/35, it is required to compute the current value of its public infrastructure; photography will help ensure the inventory is complete. The city will soon start using aerial photography for managing its sewer system (in compliance with EPA rules), locating utilities, and managing E911.
- Local watershed boards and districts use aerial photography for planning, technical evaluation, public meetings, etc. One of the most important issues is current photography for detecting land use changes. Recently requesting such data from the Fergus Falls NRCS office are the following boards and districts: Buffalo Red (Clay County area), Twelve Mile Creek (Traverse County area) and the Nokasippi Watershed (Crow Wing County area). These groups work in conjunction with local county Soil and Water Conservation Districts (SWCD's) for local water planning efforts.

Use by local engineering firms doing work for local government

- Ayres Associates is working with the newly formed Crow Wing County Sanitary Management District to help manage on-site wastewater. Ayres' customized GIS database will help the district and homeowners track the performance and maintenance of their septic systems, leading to increased system longevity. This management is critical in sustaining lake and ground water quality. Having the GIS database with current aerial photography provides the district with an effective tool for comprehensive planning and management of the rural decentralized wastewater infrastructure.
- Wenck Associates, Inc. is an engineering consulting firm working on water and ecological issues. Some specific examples include identifying wetland areas, drainage systems, impervious areas, residential developments, industrial facilities, roadway systems, documenting land use and water body change with images from different dates, and assessing non-degradation to meet state mandates.

One of their professional staff members says, "We work extensively with public sector clients. High-quality aerial photos allow us to do a significant part of that work from the office, helping us to organize our work more efficiently and reducing the time spent on field work, site visits, and travel. Less of our time means a lower cost to the taxpayers supporting those public agencies."

List of people contributing to this document

Tom Eiber, Minnesota Department of Natural Resources
Craig Gilbertson, Ayres Associates
Allen Holtberg, City of New York Mills
Wayne Hurley, West Central Initiative Foundation
Thomas Krivanek, The Mosaic Company
Bill Marken, USDA Natural Resources Conservation Service
Pamela Massaro, Wenck Associates, Inc.
Ken Pekarek, GIS 4 Schools LLC
Lorna Sandvik, Roseau County
Troy Schroeder, Northwest Regional Development Commission
Mark Sloan, Clay County
Diane Spector, Wenck Associates, Inc.
Steve Wagner, USDA Economic Research Service

http://www.mngisllis.org/newsletter/issue45/Orthophotos_in_Western_MN.htm