**Summer 2006** **Issue 45**

# GIS/LIS NEWS

The Newsletter of the Minnesota GIS/LIS Consortium

## Table of Contents for Summer 2006, Issue 45

**MN GIS/LIS Consortium**

**From the Chair**

By Annette Theroux, GIS/LIS Consortium Board Chair

Temperatures are heating up as we move into the beautiful Minnesota summer and the GIS/LIS Consortium activities are heating up right along with the temperature! We are jump-starting the spring with a series of workshops that will meet the interests, location and needs of most Mn GIS/LIS Consortium members.

Spring workshops are well underway with the first one, the "Due North Spring Workshop", held May 17 at Bemidji State University. This workshop presented an "Overview of ArcGIS 9.x" for beginning and intermediate students. It is still too early to tell, but registrations for the workshop looked good and how could we go wrong with a workshop overlooking Lake Bemidji in the spring?

The next spring workshop, scheduled for June 1, is the "Forum on Imagining Possibilities: The Next Frontier for Geographic Information Technology". It is held in conjunction with MetroGIS and others. This should be a very interesting and informative workshop with some of the top speakers in the geographic information technology field. We are very fortunate to have an event of this caliber in our own backyard! Register online today at www.mngislis.org

The third in the series will be held at Mankato State University on June 9. This workshop will also present an "Overview of ArcGIS 9.x" to interested beginning and intermediate attendees. This workshop includes some of the basics and tips and tools to make ArcGIS easier and more fun. Download a .pdf flyer with specifics about the workshop and registration from the Consortium's home page: www.mngislis.org

Planning for the 2006 Annual Conference is proceeding very well. As always, the conference committees welcome any volunteers to help with planning, preparation and staffing. The conference will again be held in St. Cloud on Wednesday-Friday, October 4-6. We expect this to be one of the best conferences yet as attendance increases with each passing year. Workshops and presentations are tailored to the needs of the Consortium members and strive to present the most up-to-date information in Geographic Information Technology. To volunteer to serve on one of the conference committees, please contact Sally Wakefield, swakefield@1000fom.org

The 2007 Annual Conference will be held in Rochester on October 10 - 12 (Wednesday through Friday) at the Mayo Civic Center. The area has a lot to offer for entertainment and top rated facilities. Rebecca Foster, the 2007 Conference Chair, is working out the details and beginning the planning for a successful event. Contact Rebecca if you want to offer your time or ideas for the Rochester event: rfoster@ci.edina.mn.us

Last but certainly not least, Jane Mueller, Consortium Board representative for Local Government and GIS Coordinator for Beltrami County, has been appointed the Professional Development Committee Chair for the GIS/LIS Consortium. Jane is

responsible for organizing events and information to further the professional pursuits of Consortium members. Jane is doing a great job with planning and assisting committee members to provide the spring workshops. Be sure to congratulate Jane or offer to volunteer for the committee: jane.mueller@co.beltrami.mn.us

Thanks for your continued support of Consortium activities and the annual conference. We all are looking forward to a full year.

**Looking Forward to the Fall Conference in St. Cloud**
By Sally Wakefield, 2006 Conference Chair

Time is flying by as preparations continue for the 2006 Minnesota GIS/LIS Fall Conference and Workshops, the largest statewide GIS/LIS conference in the Midwest. The conference will be in held in beautiful St. Cloud for one more year, on October 4-6, pleasing many who have missed the Wednesday - Friday schedule. As the only person to chair two successive conferences in recent memory (what was I thinking?!), I invite you all to read below about the conference details in place so far!

Workshops: The workshop committee again conducted a survey to learn more about which training participants are most interested in. From those results, a robust slate of workshops is being developed that reflects the needs of our members. The goal, as always, is to offer a broad range of low-cost, high-quality training.

The workshops will be offered on October 4. We are working to secure enough space to hold all of the workshops on the St. Cloud State University campus, with bus transportation to and from the Civic Center. Parking, registration and a continental breakfast will be available that morning at the St. Cloud Civic Center.

Sessions and Posters: The call for presentations was recently sent to more than 1400 Consortium members, those who have attended previous conferences or who have requested mailings. Submissions are being accepted online with a deadline of May 28. A high turnout is expected with enough presentations to again run seven concurrent tracks, including a full track of product demonstrations. Poster abstracts are also being accepted and the planning committee invites submission of both project-specific and cartographic examples this year.

Plenary Sessions: We are pleased to have Dr. Jerry Dobson, a true GIS pioneer, scheduled to deliver our opening keynote address. Dr. Jerome E. (Jerry) Dobson is Professor of Geography at the University of Kansas, President of the American Geographical Society, a Fellow of the Royal Geographical Society, an elected member of the Honors Committee of the Association of American Geographers and a Corresponding Individual Member of the International Geographical Union.

While his current research focuses on improving methods and technology for mapping minefields, he previously led development of the LandScan Global Population Database which has become the world standard for estimating populations at risk during natural

disasters, wars, and terrorist acts. LandScan recently gained widespread acclaim as the only feasible means of estimating populations impacted by the 2004 tsunami in Southeast Asia.

Dr. Dobson will address the conference on the growing influence of geospatial technology (the GIS revolution). He will reflect on the expanding use of GIS and insights from his personal work and experiences, including ethical considerations we all must face as this technology becomes more widespread and prevalent in society.

High school students will close the conference with a presentation of GIS in the Classroom. These students and their teacher will demonstrate how they have learned about spatial technology through the Firewise program, a successful statewide effort funded by the DNR to engage students in planning and preventing urban wildfires through the use of spatial analysis. The students will be our guests that day, visiting the exhibit area and participating in conference sessions.

Events and Entertainment: There will be plenty of delicious food and good discussion throughout the conference, but none as fine as during the vendor's reception on Thursday evening. The reception promises to have the tastiest morsels, the liveliest of conversation, and of course door prizes and a cash bar. Following the reception, The Boreal Brewers of Bemidji will return to the conference to conduct the annual beer tasting event. This year the beer tasting will be expanded to include a silent auction with all proceeds supporting the Consortium's scholarship fund. Details are still being worked out so stay tuned. Planning for a social event on Wednesday evening following the workshops is also underway.

Seated luncheons on both days will include recognition ceremonies. On Thursday, honors will be given to those receiving prestigious awards from the Consortium in addition to Governor's Commendation presented by the Governor's Council on Geographic Information. On Friday, outstanding higher education students from across Minnesota competing in the Consortium Scholarship Paper and Poster competition will be recognized and awarded.

Registration: Online conference registration will open late July using a newly designed Consortium website and registration system. A preliminary program will be mailed and posted on the Consortium's website prior to registration, providing an overview of the many workshops, sessions, learning and social opportunities being made available during the conference.

If you have any conference-related suggestions, comments, recommendations (or praises), please feel free to contact me at conference2006@mngislis.org. I hope to see each and every one of you in St. Cloud!!

**New At This Year's Fall Conference, a Silent Auction!**

The 2006 MN GIS/LIS Fall Conference will be hosting a silent auction in addition to the annual evening beer tasting event on Thursday, October 5. Money raised at the auction will benefit the MN GIS/LIS Consortium Scholarship Program.

Pledges for donations are being sought at this time. Choose to contribute as an individual, organization, GIS user group, or all three! No legitimate donation will be refused. Options for things that could be given include cash, certificates, services, items or a combination thereof. Use your creativity to come up with something fun and unique! Remember, the more descriptive or decorative your item the better the bidding war. Here are a few examples of ideas:

- Handmade items (food, clothing, blankets)
- Tackle box (all the right necessities for a successful fishing trip!)
- Cigars (to enjoy after a good night of beer tasting.)
- Two hours of personal tutoring (geodatabases, editing)

To make a donation please contact Rebecca Foster at RFoster@ci.edina.mn.us. Please include the name of donor(s), item description, restrictions (such as expiration dates), fair market value, and contact information with your pledge. It will be the donor's responsibility to transport pledged items to the conference and check-in station prior to the event. Submission deadline is Friday, September 22.

If you plan on bidding at the auction we encourage you to have cash or check available on the night of the auction. All payments must be received before won items are released.

This is a great opportunity to help raise money for our MN GIS/LIS students and have some fun while doing it. Start thinking of how you might want to contribute today!

If you have any questions or need ideas on what to donate please feel free to contact Rebecca.

**Hands-on Workshop Overview of ArcGIS 9, June 9 in Mankato**
By Fei Yuan, Minnesota State University, Mankato

The Minnesota GIS/LIS Consortium will hold an all-day workshop at Minnesota State University, Mankato on Friday, June 9, 2006. The workshop is a hands-on "Overview of ArcGIS 9". In particular, this workshop will demonstrate the newest functionality in ArcGIS 9. Topics will include expanded geoprocessing tools, annotation and labeling, Maplex, GPS toolbar, data formats, interoperability toolbar and more shortcut keys. Tips and tools to make you a proficient ArcGIS 9 user will also be covered. A manual with step-by-step instruction and a workshop data CD will be provided.

Check-in for workshop participants begins at 8:30 a.m. at Armstrong Hall, Room 07 (basement).The workshop runs from 9:00 a.m. to 3:30 p.m.


Armstrong Hall is AH on the campus map at www.mnsu.edu/maps/university/3dperspective.pdf. A map of parking lots is at: www.mnsu.edu/maps/university/parking.pdf; students can park in any lot (purple, green, orange) EXCEPT for gold.

The workshop fee is $110 (including lunch). To register, contact: Dr. Fei Yuan, AH7, Department of Geography, Minnesota State University, Mankato, Mankato, MN 56001, 507-389-2376, 507-389-2980 (fax), fei.yuan@mnsu.edu

**MnGIS/LIS Consortium Scholarship News**
By Banette Kritzky, Scholarship Chair

The scholarship committee is pleased to announce that the following schools have applied and been accepted for the 2006 MnGIS/LIS Scholarship Award Program (in alphabetical order):

- Anoka Ramsey Community College
- Bemidji State University
- Fond du Lac Tribal and Community College
- Itasca Community College
- Macalester College
- Minnesota State University, Mankato
- Saint Cloud State University
- Saint Mary's University of Minnesota
- University of Minnesota
- University of Minnesota, Duluth
- University of St. Thomas

The committee is hard at work firming up details for the 2nd Annual Scholarship Winners' Competition at the fall conference. A change this year is that each student scholarship winner who participates in the competition but does not win the grand prize for their category will receive $200 for their contribution to the competition.

One point to help clarify in the selection of the scholarship winners: schools may choose students who have graduated in the past year. Scholarship winners do not need to be current students at the time of the fall conference.

Scholarship deadlines are quickly approaching, so here's a reminder of some upcoming dates. Please send all of the appropriate information to Banette Kritzky via email at banette.kritzky@mn.usda.gov :

- Scholarship winner name(s) and bio(s) - May 19, 2006
- Presentation / poster abstracts - August 18, 2006 (to include in program booklet)
- Graduate papers - September 22, 2006

Finally, also new this year, is a silent auction taking place the evening of Thursday, October 5 at the annual beer tasting event. Money raised at the auction will benefit the MN GIS/LIS Consortium Scholarship Program. The scholarship committee is very excited about this opportunity. Please see Rebecca Foster's article in this newsletter for more details.

See you all at the fall conference!!

**2007 MN GIS/LIS Fall Conference Will Move to Rochester!**
By Rebecca Foster, MN GIS/LIS Conference Chair-Elect for 2007

On behalf of the Minnesota GIS/LIS Consortium, I am pleased to announce that the 17th Annual Conference and Workshops on Geographic Information Systems (GIS) and Land Information Systems (LIS) will be held in Rochester, Minnesota at the Mayo Civic Center on October 10-12, 2007.

Money Magazine recently said it best, "One thing to remember about Rochester is that it has the sophistication of a larger metro area, but not the congestion or the complications." Named "Best Small City" in America by the nationally recognized magazine, Rochester merges a cosmopolitan atmosphere with Midwestern hospitality giving convention attendees a most memorable experience. City... Simplified.

The board is excited about the new opportunities Rochester has to offer. The Consortium will be making history, since this will be the first time we've held a fall conference in the southern part of the state. Hopefully, we will be bringing further educational and networking possibilities from new attendees to our conferences who are living in southern Minnesota, northern Iowa, and southwestern Wisconsin.

The Rochester Convention & Visitors Bureau will have a booth this fall in our Exhibit Hall displaying what the Mayo Civic Center, hotels, and City of Rochester has to offer for us next year. If you'd like to do some touring of the city now, visit their website at www.VisitRochesterMN.com. If you have any questions or need additional information please contact Rebecca Foster, MN GIS/LIS Conference Chair-Elect at RFoster@ci.edina.mn.us

**Last Call for Lifetime and Polaris Award Nominations**

The Consortium recognizes stellar individuals in the state through two awards: Lifetime Achievement and Polaris Mid-Career. We are looking for nominations for both. Awards will be given at the 2006 Conference in St. Cloud. The submission deadline for both awards is June 30, 2006.

The Lifetime Achievement Award is given to a person (or organization) who has earned a reputation for making significant contributions in the fields of GIS or LIS that have improved the quality of life for the people of Minnesota. The Lifetime Achievement Award started in 1993 and is given to the best in our field. It is not given out every year. This prestigious award is reserved to acknowledge a lifetime of well-recognized contributions. There are currently 17 winners of this award.

The Polaris Leadership Award for mid-career professionals began in 2003. Just as Polaris is a triple star, so we recognize three leaders annually. The award recognizes three "stars" who are inspiring and leading us through their contributions, energy and creativity.

Details of both awards are listed under MN GIS/LIS Activities on the consortium website www.mngislis.org; look under 'Activities', then 'Awards'. Text under each award name lists criteria and details on how to submit a nomination.

## State

**Mn DNR Introduces WMA Finder**

By Steve Benson and Steve Lime, Minnesota Department of Natural Resources

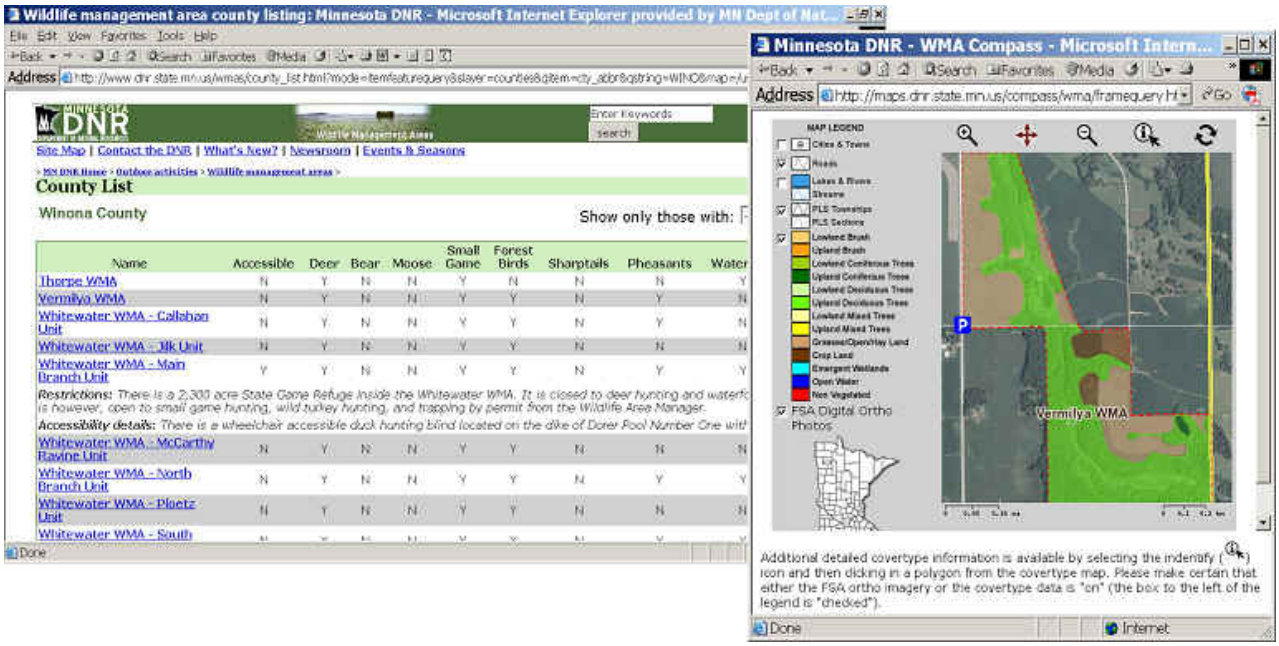
DNR staff have recently completed work designed to present Wildlife Management Areas (WMAs) in a new way to the public on the DNR website. While some narrative information remains to be entered, this release is the result of years of data collection aimed at providing both management data to DNR wildlife managers and recreation information to the public. Wildlife staff and DNR web staff worked together to present data through a web application that allows the public to find WMAs easily and to view

recreation and vegetation information. The new "WMA Finder" can be found on the main page of the WMA site, www.dnr.state.mn.us/wmas/index.html

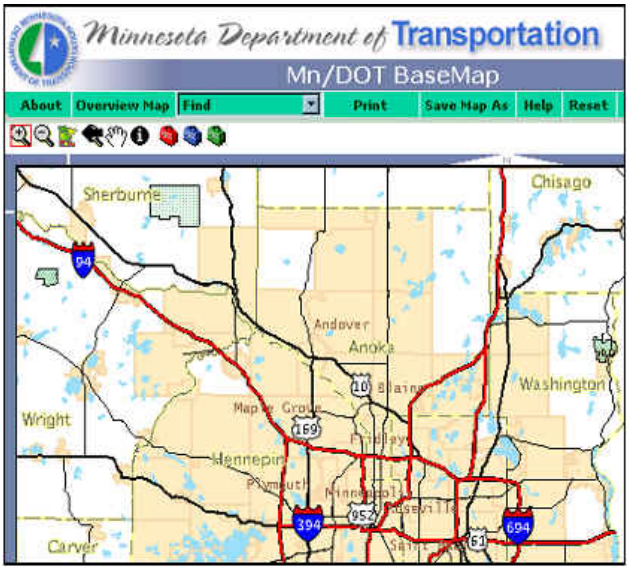
The tool allows the public to locate WMAs by name, by county, by recreation choice and even by whether or not wheelchair accessible facilities are available. Clicking on the name of a WMA opens the link to the homepage for that WMA. The homepage contains narrative information describing the WMA, a link to an interactive map used to display vegetation, parking lots and aerial photos and a link to more detailed information if it exists.

Back on the main page of WMA site, users can also click on a .kmz file to open Google Earth and locate WMAs with that application. The user can pan and zoom to a WMA, then click on either the parking lot or name of the unit and open a link to the homepage for that WMA.

Contact Steve Benson at steve.benson@dnr.state.mn.us or Steve Lime at steve.lime@dnr.state.mn.us for more information.



**New on the Web: Mn/DOT's Interactive BaseMap for viewing spatial data**
By Crystal Phillips-Mustain, Office of Transportation Data and Analysis, Mn/DOT




Minnesota Department of Transportation planners, designers, project managers and others now have another digital tool to help them do their jobs: Mn/DOT's new Interactive BaseMap Web service. Although built primarily for internal use, the tool will also serve Mn/DOT partners and the public.

Mn/DOT's BaseMap, which has been around since 1995, is a set of transportation-related data developed specifically for use in a geographic information system. The BaseMap includes both transportation data (public roads, railroads, airports and navigable waters) and boundary information (state, county, city, township, state and federal parks, forests, reservations, streams and lakes). The data is displayed at a scale of 1:24,000.

Previously the BaseMap data was static, updated yearly and accessibly only by CD-ROM. Now, the data is continuously updated, and the new website allows users to view core spatial data in a browser or load the data service in their own software, e.g. ArcGIS or ArcExplorer. Users also may view, save and print maps.

"The data is provided through an easy-to-use web browser and offers the ability to use the service outside of the browser making it easier and faster for Mn/DOT employees and external customers to access the data and helps Mn/DOT work better," said Dan Ross, supervisor, Office of Information Technology.

The new tools help Mn/DOT be more efficient and serve our internal and external customers better. The Interactive BaseMap serves as a core template and is reusable for offices to build upon for their own business area needs. In the future, we will see customized versions of this site display right-of-way data, rail grade crossing data, bikeways data, and Metro District road construction data.

**How it works**

The Interactive BaseMap opens with a statewide view showing county boundaries and interstates. Basic tools are provided to zoom in and out, to pan and to identify information. When you zoom into a district or county, more roadway features automatically appear.

You can also turn on additional spatial data layers. For example, you can turn on color aerial imagery to provide background information or you can view the annual average daily traffic values on a highway.

Advanced tools are provided for users to query, select, mark up and measure using the graphic user interface. For example, you can locate specific wetlands that are within a specified distance (buffer) of any roadway. You can also add lines, polygons and text to markup an analysis area. The map can then be printed and shared with your customers.

Development of this web service was collaborative, with project initiation and support from the Office of Land Management, application development from the Office of Information Technology, and statewide core BaseMap layers from the Office of Transportation Data and Analysis.

For more information

- Try out the new Interactive BaseMap, at www.dot.state.mn.us/maps/gisweb/
- If you have any questions or comments, contact gis.info@dot.state.mn.us
- See also: Enhanced Mn/DOT BaseMap information now available online at www.newsline.dot.state.mn.us/archive/01/sep/12.html#6 (Mn/DOT Newsline, Sept. 12, 2001)

**Minnesota DEM Project Phase I, Red River of the North Basin**
By Obi Sium, Minnesota Department of Natural Resources; David Claypool, Ramsey County; and Aaron Buesing, U.S. Army Corps of Engineers

The State of Minnesota has entered into a contract with The Sanborn Map Company, Inc. of Colorado Springs, Colorado to collect Light Detection And Ranging (LiDAR) data and to produce a bare-earth digital elevation model (DEM) and other deliverables for a 3663 square mile area in northwestern Minnesota. Data collection began on April 25, 2006. The deliverables are due to the state five months after completion of data collection.

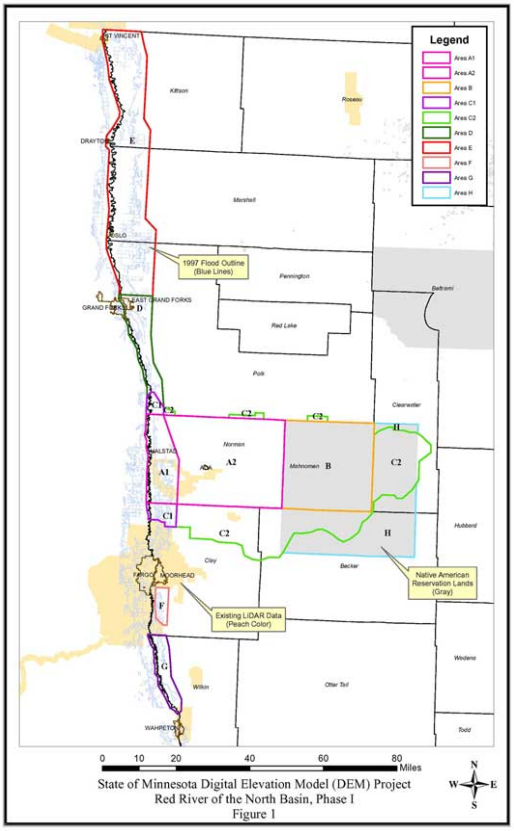
The project area is shown in Figure 1. The DEM will have 12 cm RMSEz vertical accuracy along the Red River of the North corridor (Areas A1, C1, D, E, F, and G) and 15 cm RMSEz vertical accuracy elsewhere (Areas A2, B, C2, and H). 12 cm RMSEz vertical accuracy provides data roughly equivalent to 1.2-ft contour mapping and 15 cm RMSEz vertical accuracy provides data roughly equivalent to 1.6-ft contour mapping.

A technical committee comprised of Minnesota DNR, Minnesota Department of Transportation, Minnesota Association of County Surveyors (MACS), U.S. Geological Survey, and the Minnesota Land Information Management Center developed the Request for Proposals (RFPs) after reviewing and discussing many other RFPs. The RFP required submittal of a cost proposal that provided a detailed cost breakdown by deliverable for a project area ranging in size from 900 square miles to 4500 square miles. The RFP and proposals received are public information that may be quite useful for others thinking about collecting LiDAR data.

The state is partnering with the Wild Rice Watershed District, Norman County, Clay County, the White Earth Reservation, and Mn/DOT to add an additional $85,000 to the $496,000 obtained from FEMA for this project. The White Earth Reservation is providing additional money to fully fund collection of the portion of its land outside the state's original project area. The project cost will be approximately $159 per square mile. Without edge-of-water breaklines, the cost would have been about $116 per square mile, but the technical committee decided that using the data correctly would be much more challenging without the edge-of-water breaklines.

This project has proceeded under the direction of Obi Sium and David Claypool, who have co-chaired the Minnesota State Digital Elevation Model (MnSDEM) and Floodplain Mapping work group. Obi Sium is retiring from the DNR - Division of Waters in June 2006; at that time, David Claypool, who represents the MACS and is the Ramsey County surveyor, will become the chair of the MnSDEM and Floodplain Mapping work group. The project engineer is Aaron Buesing with the DNR - Division of Waters. Mr. Buesing is on a one-year detail from the U.S. Army Corps of Engineers, St. Paul District.

For technical questions, please contact Aaron Buesing at aaron.buesing@dnr.state.mn.us or 651-259-5723; for more general information on the project, please contact David Claypool at david.claypool@co.ramsey.mn.us or 651-266-2620.



State of Minnesota Digital Elevation Model (DEM) Project
Red River of the North Basin, Phase I
Figure 1

## Governor's Council

### Last Call for Nominations for Governor's Commendation Award

A Governor's Certificate of Commendation is the highest award given to any GIS project in the state. **Nominations are now open for 2006 and must be received by June 30, 2006.** Awards will be made at the annual conference in St. Cloud.

There are three key criteria for this award. The project must have:

1. yielded tangible benefits and exceptional results
2. had a significant impact outside the home organization
3. furthered at least one of the goals identified in the guiding principles of the Governor's Council on Geographic Information - see www.gis.state.mn.us/about.htm#guiding

The award is given only to outstanding projects and is not given every year. The value of the product must be documented quantitatively in numbers and qualitatively with testimonials from users.

Details about this program are provided at www.gis.state.mn.us/Commendations. You will learn how to nominate a project and see an example of a successful nomination.

### Council Seeks Applicants for 2006-2007 Membership

If you are interested in issues related to the management and coordination of geographic information and related technologies across Minnesota, then consider applying for membership on the 2006-2007 Minnesota Governor's Council on Geographic Information. Membership requires a commitment from September 2006 through June 2007 for both council and committee involvement. Members represent government, higher education and the private sector. **Completed applications will be accepted through June 27, 2006.**

Open appointment application forms and more information about the process are available on the Secretary of State website (www.sos.state.mn.us/home/index.asp?page=110) or by calling their office at 651-297-5845. Please visit the council's website (www.gis.state.mn.us) to learn more about the council and its mission. Contact council staff for information about the council or the annual appointment process at 651-201-2491 or gis.council@state.mn.us.

### Best Practices in Seven States' Parcel Programs

By Will Craig, University of Minnesota

Seven states that support local parcel mapping are highlighted in a new report from the FGDC Cadastral Data Subcommittee. The seven states are Alabama, Arkansas, Florida, Montana, North Carolina, Tennessee and Wisconsin. The study looked at these successful programs to understand what made them successful. The results may have implications

for Minnesota and for the Governor's Council Land Records Modernization Committee efforts.

Early programs, like Wisconsin's, were focused on building land information systems that included all layers. The programs started since the late 1990s were specifically meant to meet the needs of the local assessor. This shift appears to follow improvements in the technology that have made parcel conversion effective within existing budgets.

This narrowing of focus allows a single state department to assume a leadership position for getting state funding focused on this business need. Since that department already is responsible for coordinating local assessor activities, it is easier to establish standards and training programs for all counties. This holds down costs while ensuring data compatibility across county boundaries. For smaller counties, work can be outsourced and made available to county officials over the web.

The full report, *An Assessment of Best Practices in Seven State Parcel Management Programs*, is available at www.nationalcad.org/showdoclist.asp?doctype=99&navsrc=Report.

## Regional

### GIS Technology Possibilities Forum

By Randall Johnson, MetroGIS Staff Coordinator

MetroGIS is co-sponsoring an exciting, day-long forum on Thursday, June 1, 2006, entitled *Imagining Possibilities: The Next Frontier For Geographic Information*. The forum will be held at the Hubert H. Humphrey Center on the West Bank of the University of Minnesota, Twin Cities Campus.

***Mark your calendars and register as soon as possible, as space is limited and expected to reach capacity before the forum.***

Want to have a glimpse of the future for GIS? Four nationally and internationally known individuals have agreed to share their visions for probable new capabilities within the next five years.

- Mark Reichardt: President of the Open Geospatial Consortium (OGC)
- Mike Liebhold, Senior Researcher at the Institute for the Future
- Clint Brown: Director of Software Products for ESRI
- Ian Masser, Past President of EUROGI and GSDI

Three one-hour question-and-answer sessions, led by the keynote speakers, are also planned to provide attendees an opportunity to delve into the big ideas/possibilities presented in the keynote addresses. A program overview and short bio on each of the keynote speakers are provided in the forum brochure that can be viewed at www.metrogis.org/specialevents/techpossibilities/techbrochure.pdf.

The fee is $65 to attend for the entire day and $40 to attend only the morning session. The morning session is designed to be of interest to policy makers and senior management in addition to those responsible for using and managing geospatial technology. Attendance is limited to 250 individuals. Registration is also on a first-come, first-served basis, so register early to guarantee a seat. To register go to: www.regonline.com/94145.

Sponsored by:
MetroGIS
Mn GIS/LIS Consortium
Minnesota Governor's Council on Geographic Information
Minnesota Chapter of GITA (Geospatial Information and Technology Association)
Metropolitan Council
Minnesota Office of Geographic and Demographic Analysis
University of Minnesota

For further information, contact Randall Johnson, MetroGIS Staff Coordinator, at randy.johnson@metc.state.mn.us or 651-602-1638.

**"GeoWeb" of the Future Subject of Online Radio Show**
By Will Craig, University of Minnesota

Last year it was Google Earth. This year it's the *Geospatial Web* that is democratizing spatial information. *Geoweb* (for short) combines map data with web-like hypermedia - webpages, video objects, audio objects, etc. - that are tagged with location coordinates in addition to a URL. It allows us to learn about the environment as we move through it.

These are the words of Mike Liebhold, Senior Researcher at the Institute for the Future. He is a keynote speaker at this spring's forum, *Imagining Possibilities: The Next Frontier for Geographic Information Technology*. You can learn more about this June 1 event and register for it at www.mngislis.org/metrogisforum.htm.

Liebhold spoke on a radio show, *On Point: A New Sense of the Web* that was aired on many public radio stations January 3, 2006. You can listen to the full broadcast at www.onpointradio.org/shows/2006/01/20060103_b_main.asp.

Here is how the show is described:

"Just a decade after it became ubiquitous, the World Wide Web has made us blasé about information. We assume we can learn almost everything about almost anything at the touch of a PC keyboard. But the digital revolution is hardly over.

Now, the digital realm is exploding into the physical world. They call it the "geo-spatial web." Already it means online maps loaded with information about the physical world, and someday soon, that physical world itself will be tagged and teeming with data for the asking: What is that building? Where is my dog? Who is that man?

The implications are huge, exciting and scary, and the result will be a world alive with information.

Hear about the ambitions and implications of the "geospatial web."

Guests:

- Mike Liebhold, Senior Researcher, Institute for the Future
- Christopher Allen, Founding Partner, Counts Media
- Peter Morville, author of "Ambient Findability"

**2005 Licensed Air Photos of Twin Cities Now Available**
By Tanya Mayer, Metropolitan Council

The Metropolitan Council has licensed spring 2005 aerial photography of the 7-county Twin Cities metropolitan area from Markhurd, Inc. The leaf-off photos were acquired in April 2005 with a digital camera at approximately 20,000 feet at 2 foot resolution.

Color, color-infrared and black-and-white DOQs in MrSID Generation 3 format on DVDs are available to MetroGIS participants only upon completion of a 2005 DOQ license agreement. MetroGIS participants include: all cities, townships, school districts, watershed districts, and counties in the metropolitan area; regional and state agencies; federal government agencies with geospatial activities within the metropolitan area; and any Minnesota academic institution of higher learning.

The MetroGIS 2005 DOQ license, order form and metadata are available at http://gis.metc.state.mn.us/data_information/order_2005_doq.asp.

All others please contact Markhurd for copies at www.markhurd.com or 763-420-9606.

For additional information, please contact the Regional Data Center at data.center@metc.state.mn.us or 651-602-1140.

**2005 MetroGIS Annual Report Available**
By Randall Johnson, MetroGIS Staff Coordinator

MetroGIS's 2005 Annual Report and an accompanying 10-page promotional brochure are available for downloading at www.metrogis.org/about/annual_reports/index.shtml. On behalf of MetroGIS's leadership, I encourage you to read about our 2005 accomplishments and our activities planned for 2006.

Through MetroGIS's efforts and accomplishments, participating organizations are obtaining better geospatial data, in less time, and less expensively than otherwise possible; data that are critical to achieving its core business functions. Please refer to the "benefits widely shared" section of the enclosed brochure (page 7) for a summary of significant benefits to several stakeholders. These efforts are helping to improve cooperation among government entities, as well as organizational effectiveness by leveraging resources.

More information about MetroGIS, its accomplishments, and benefits to the region is available at www.metrogis.org. If you have any questions or comments about the annual report or about MetroGIS in general, please contact Randy Johnson at randy.johnson@metc.state.mn.us or at 651-602-1638.

**Local**
**Managing One Call Service Requests in St. Cloud, Minnesota**
By Patrick Shea, Assistant Public Utilities Director; Jeff Proell, Water Customer Service Supervisor; and Micah Myers, IT Coordinator, all of St. Cloud

It's a familiar sight: Multicolored streaks of spray paint decorating a grassy lawn or a line of colored flags, making one wonder if the graffiti ultimately has a purpose or if utility workers have a little too much time on their hands. As it turns out, there is a very precise and high-tech GIS-based method to the madness behind all those rainbows of lines and foreign symbols.

These markings on the ground are a direct result of the City of St. Cloud Public Utilities Department's one call locating efforts and the Gopher State One Call (GSOC) organization. GSOC is the one-call notification system established to notify Minnesota underground facility operators of planned excavation.

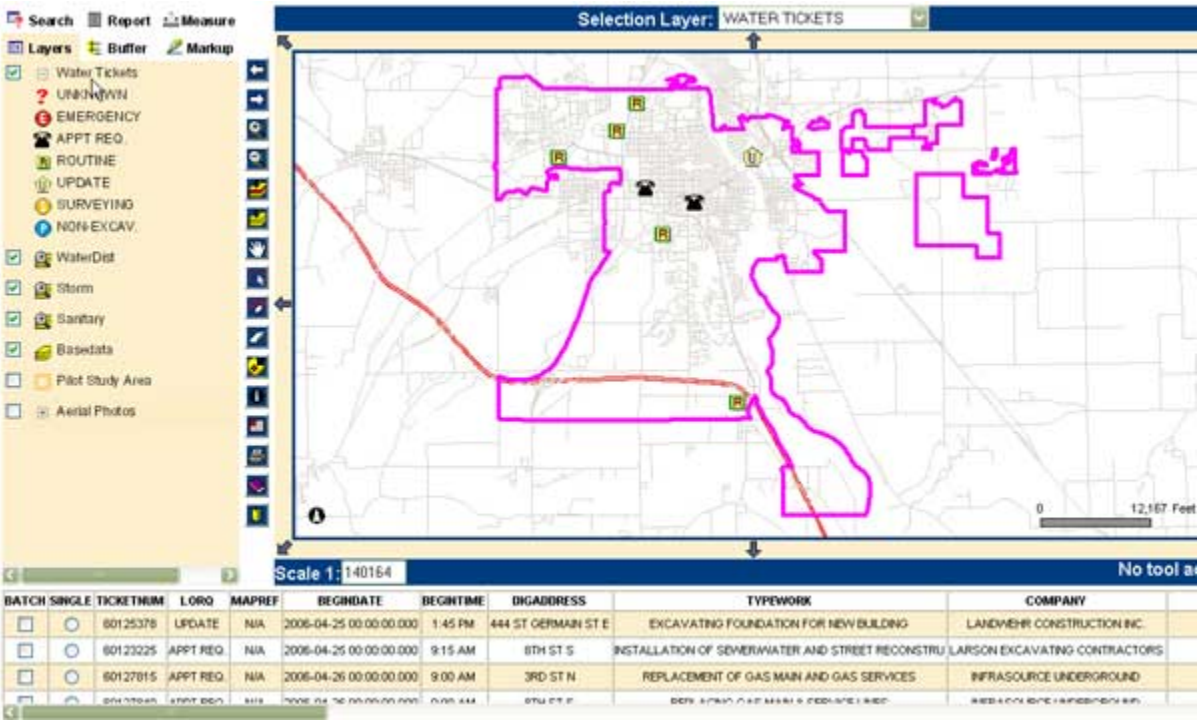
City of St. Cloud Public Utilities

The one call concept is simple: anyone in the State of Minnesota who will be digging contacts GSOC, who then sends the one call locate request via a digital ticket to the city, as well as other underground facility operators.

Each ticket contains vital information about the future dig site: Address, contractor name and phone number, marking instructions, work-to-begin date, etc. Within 48 hours of an issued ticket, the city must "mark" underground utilities. To make the city's job even more tedious, the State of Minnesota passed new Positive Response legislation January 1, 2006, which states that all underground facility operators need to respond to service requests, regardless if they have underground facilities at the dig site or not. This means marking a dig site via paint, flags and/or providing a digital response to GSOC.

With up to 200 one call service requests a day and implementation of Positive Response, the city needed an efficient, digital way to manage one call tickets in the field. Up until a few months ago, the city was receiving tickets via a fax system where staff was required to sort through each paper copy one-by-one. Not to mention, locators had to drive back to their offices to receive new tickets throughout the day. Without better management, the city knew it would cost thousands of extra dollars in paint/flag inventory and additional staff to comply with the new requirements.

To address one call ticket management issues, the City of St. Cloud Public Utilities Department, in conjunction with Pro-West & Associates, developed a wireless, web-based One Call Ticket Management System (OCTM) that allows city locators to view tickets as points on a map and respond to service requests.



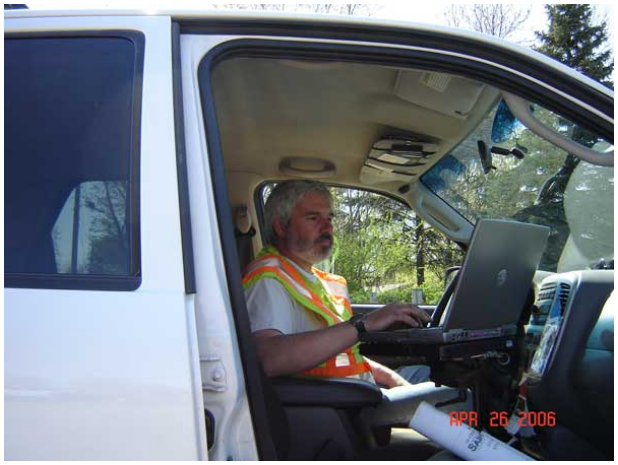

City of St. Cloud Public Utilities Department service area

The OCTM system, in an automated fashion, creates points representing dig sites in the web-based GIS application, WebFusion. The application is real-time, so when GSOC sends a ticket to the city, the locator can view it on their interactive web-mapping site,

along with GIS data such as roads, parcels, utility infrastructure and aerial photography. Furthermore, the OCTM system is fully automated in-house, making it easy to manage for IT and administrative staff.

Developing the OCTM system leveraged the city's current investment in GIS technology. Existing ArcIMS web mapping software, servers, GIS data, ArcView, intranet web mapping and a purchase of SDE and laptop computers completed the infrastructure to power this system.

Locators are now equipped with laptops in the field where they use wireless technology to log on to the GSOC website allowing them to view and respond to service requests. This eliminates the a need to drive back to the office to view new tickets. They can evaluate tickets and plan or adjust their daily routes according to the results on the web-based mapping site. Some facilities, such as light and traffic, have tickets automatically filtered in ArcView so that only those ticket locations near light and traffic facilities are posted to the website, saving hours of time sorting through tickets.




In addition, locator responses are entered once, via the web application, eliminating paper trails and redundant data entry. Locator responses are automatically sent to GSOC which posts the responses on a web-based ticket interface, where parties can view which facilities have been marked or cleared on their dig site.

The OCTM system has an automated verification process as well. Daily emails are sent to appropriate staff that notifies them if tickets have not been received by the system. OCTM also verifies that locator responses are sent to GSOC.

Using existing GIS and wireless technology and dedicated staff, the City of St. Cloud is increasing its level of public service, efficiently fulfilling Positive Response requirements and saving time and money executing GSOC requests.

So the next time you see that organized, colorful graffiti outlining your neighbor's yard, remember, GIS probably isn't that far away.

Contact information:

- Patrick Shea: patrick.shea@ci.stcloud.mn.us
- Jeff Proell: jproell@ci.stcloud.mn.us
- Micah Myers: micah.myers@ci.stcloud.mn.us
- Kendis Scharenbroich, Pro-West & Associates: kscharen@prowestgis.com

**Is Pictometry GIS?**
By Joe Sapletal, Dakota County Office of GIS

Is Pictometry GIS? That is a question that we hear at Dakota County from time to time, especially from other organizations interested in the product. If you aren't already using Pictometry in your organization, the question you may be getting from your sheriff, assessor, parks or public works staff is, "Why don't we have this? It is GIS, isn't it?"

For those who have yet to hear of Pictometry, Pictometry International is the world leader in digital oblique aerial imagery. And, as a refresher, a GIS is used to visualize and analyze geographic features and data related to them. So, based on that definition, Pictometry is indeed a GIS.

To some of our users who perform inspections, Pictometry is an excellent way to visit a site without needlessly leaving the office. For law enforcement personnel, it is another tactical planning tool in their squad car. Most assessing staff just want to see and query parcels and street centerlines with the imagery, but the additional layers that can be added are only limited by the amount of data that you have. Users not only have high-resolution (6-inch) orthogonal aerial photography, they also have high-resolution (6-inch) oblique aerial photography as well that they can display their own data on.


Minnesota State Capital

It has become more apparent over the last few years that people are visual, citizens are visual. In other words, they get more out of a photograph than a line drawing. Have you ever seen plans of your new office space or new home and thought how much easier it would be to "see" it if it was a picture or in 3-D? Orthogonal photography is certainly helpful to some people, but oblique imagery helps others even more. The oblique imagery in Pictometry gives users a perspective that line drawings and maps lack.

There are many examples of how giving additional perspectives to people increases their understanding of what they are looking at. Architects and interior designers use three-dimensional modeling to help their clients visualize their new environment. Dakota County Parks is using Google Earth to help legislators and citizens visualize needed improvements. Dakota County Environmental Management is using 3-D fly-throughs to help people visualize the impact that the former Gopher Ordnance Works munitions plant had on the lands it occupied during World War II.

Planimetric datasets are still useful. In some cases the high volume usage of a product like Pictometry drives the creation and/or maintenance of centerline datasets and planimetric data sets. Art Kalinski, GIS Manager of the Atlanta Regional Commission, spoke recently of the initial resistance and then eventual acceptance that Pictometry encountered in his organization. He said that the increased usage of Pictometry created an increased awareness of GIS and the need for more current datasets, since the GIS data is re-projected and overlaid on the oblique image. Having Pictometry was a factor in pushing for creating better street centerline data and for keeping it current. This year imagery for the whole ten-county Atlanta metropolitan area is being flown.

How accurate are the images? That is the other question we hear frequently. We did some testing using existing ground control that we had from other aerial photography projects. The orthogonal photography's relative accuracy was supposed to be approximately 5 meters or less over 1000 meters, and the absolute accuracy was to be approximately 2-5 meters, all dependent on the digital elevation model used. We supplied our surface data, rather than having Pictometry use the USGS 30-meter DEM. We made use of the National Standard for Spatial Data Accuracy testing procedures the best we could given the situation, and were pleasantly surprised with how accurate both the orthogonal and the oblique imagery appeared to be.

But who is really using it? At Dakota County, we have 172 installs of the Pictometry Electronic Field Study (EFS) program, while many others access the imagery via the ActiveX control provided by Pictometry through our internal web mapping (ArcIMS) applications. Everyone from transportation staff to the county assessors are making site visits without leaving the office. The cities in Dakota County are our cost-sharing partners, and they have hundreds of installs of EFS as well. Pictometry has definitely caught on in Dakota County.

Want to see for yourself? Check out the Pictometry obliques in Window Live Local. Minnesota State Capitol - http://local.live.com/default.aspx?v=2&cp=44.954941~-93.102127&style=o&lvl=1&scene=3967671

For more information, contact Joe Sapletal at GIS@co.dakota.mn.us or 952-891-7081.

**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:



***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 aerials 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.

**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

**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.

Goodhue County Appraiser
Winona County Planning
Dodge County Soil and Water Conservation District
Murray County Environmental Services
Minnesota DNR Wildlife Research
Minnesota State University, Mankato

***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 aerials 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.

**Be Prepared! Free Emergency Response Training Online**
By Randy Knippel, MetroGIS and GCGI Emergency Preparedness Committees

As GIS users, we have access to a wealth of information and sophisticated tools at our fingertips to analyze it. However, GIS skills alone are not enough to make us effective in emergency situations. Emergencies are intense, with no room for error. Emergency responders are well trained and highly disciplined to minimize mistakes and maximize effectiveness. An understanding of some of the foundation topics of emergency response is essential for anyone providing GIS support to responders.

In 2003, the Secretary of Homeland Security was directed to develop and administer a National Incident Management System (NIMS). NIMS provides a consistent nationwide template to enable all government, private-sector, and nongovernmental organizations to work together during domestic incidents.

The Incident Command System (ICS) was established by the NIMS as the standardized incident organizational structure for the management of all incidents. The concept of ICS was developed more than thirty years ago, in the aftermath of a devastating wildfire in California.

Both NIMS and ICS are well known in public safety and relied upon to ensure resources are applied without hesitation in an emergency. A thorough knowledge of these topics is a foundation for more specific public safety training.

FEMA

The Federal Emergency Management Agency (FEMA), through its Emergency Management Institute (EMI), provides emergency response training on a variety of topics. They also have many courses available online through their website: http://training.fema.gov/emiweb/. Registration is required but generally available to anyone who needs it. Most classes include some form of testing and certification.

Two classes should be considered essential:
IS-100 Introduction to the Incident Command System (ICS)
IS-700 National Incident Management System (NIMS) an Introduction.
These classes can be found online at: http://training.fema.gov/EMIWeb/is/is100.asp and http://training.fema.gov/EMIWeb/is/is700.asp.

GIS support for emergency response can only be effectively applied when it is closely integrated with emergency management and response activities. The best way to do that is to become as knowledgeable about the standards and procedures that govern those activities. That knowledge will help you to be in a better position to provide effective GIS support in an emergency, rather than just in the way.

## Higher Education

### Saint Mary's University of Minnesota MSGIS Program Update

**Program News**

The Department of Resource Analysis (RA) is planning a new development of lab facilities on the Winona campus and is continuing to benefit from technology growth on the Twin Cities campus. RA is working on solidifying plans to expand and advance the technology facilities on the Winona Campus. Plans are underway to redevelop existing lab space to maximize instructional benefits offered by the latest in technology instruction. The Winona campus features a 24-7 lab access policy that features the latest in GIS software capabilities. The Twin Cities technology facilities continue to be expanded while offering full wireless capabilities and state-of-the-art technology in the classroom.

Saint Mary's Winona Campus

GeoSpatial Services - Winona, MN

The GeoSpatial Services (GSS) project center (above right) also provides development opportunities for RA graduate learners through part-time employment opportunities on the Winona campus. A significant volume of project work is expected to continue through the upcoming summer, fall and winter semesters. RA learners choosing to pursue the traditional, 18-24 month degree in Winona may qualify for employment with GeoSpatial Services pending available project work. Learners with little or no prior experience in GIS have benefited greatly from the employment experience that GSS provides and have found themselves to be more marketable with career opportunities upon graduating from the program.

**Learner News**

Ryan Brueske of the Twin Cities program is involved with an exciting opportunity with his graduate research. Ryan is in the preliminary stages of garnering support to establish a network of surveillance security cameras that he is working to integrate into community crime prevention plans. Following implementation of the surveillance network, Ryan's objectives will then be to use GIS to analyze crime patterns using data collected from surveillance security. He hopes to use both forms of technology to analyze:

- "Hot Spot" activity (documenting suspicious behavior in criminal hot spots)
- "Community Impact Statements Online" (ability to match mug shots to pictures and video in the system to build a court complaint)
- "Video and Photo Archive" (ability to watch and retrace potential criminals from one camera to another in the system.
- "Problem Properties" (ability to document, report problems, and learn other neighbors' experiences with a property)

Ryan believes the integration of GIS and camera systems will radically improve the quality of life for families and children of communities using the network of security measures. He hopes that the security camera system can be monitored by residents and will not add a burden to police departments. Ryan is convinced that his project will also reinforce and unite block clubs and will build relationships and community in the neighborhoods.

**Graduate News**

The department would like to extend our congratulations to the most recent RA graduates: Chad Richtman, Lane Urtel, Wallis Turner, Ben Schlawin, Charlie Teff, Andrew Eischens, Tom Sandberg, Nicole Stecker, Carrie Jones (Drazkowski), Jen Rand, Beth Knudsen, Robert Marros and Robert Mueller Jr.

**Summer Course Offerings**

The following courses are scheduled for the summer semester of 2006 in Minneapolis:

RA631 Visual Basic.NET Programming (2 cr)
RA633 VB ArcObjects Programming (2 cr)
RA GIS Distance Learning Courses per degree requirements
GM/PRM (General Management/Project Management) courses per degree requirements

In Winona, summer semester 2006 courses include:

RA562 Advanced ArcView (3 cr)
RA633 VB ArcObjects Programming (2 cr)
RA640 ArcIMS (2 cr)
RA Directed Studies - Explorations (1 cr)
RA GIS Distance Learning Courses per degree requirements

**Contact Information**

For more information on either the Master of Science in Geographic Information Science (MSGIS) degree or the University accredited GIS Certification, please visit our website at www.gis.smumn.edu or contact John Ebert, Assistant Program Director at jebert@smumn.edu or at 507-457-6961.

**Airborne Remote Sensing Imagery for Water Quality Assessment of Minnesota's Rivers**
From the University of Minnesota's Remote Sensing and Geospatial Analysis Laboratory website

Minnesota has around 92,000 miles of rivers and streams. It has been estimated that 40 percent may be impaired. To date less than 10 percent of Minnesota river and stream miles have been assessed. We are exploring the use of airborne remote sensing as a cost-effective way to gather the information needed for river assessments. We previously have had great success assessing lake water clarity using reflectance information from Landsat imagery and have found similar relationships for large rivers. However, compared with lakes, rivers and streams pose a challenging set of problems for application of remote sensing techniques to water quality assessment because:

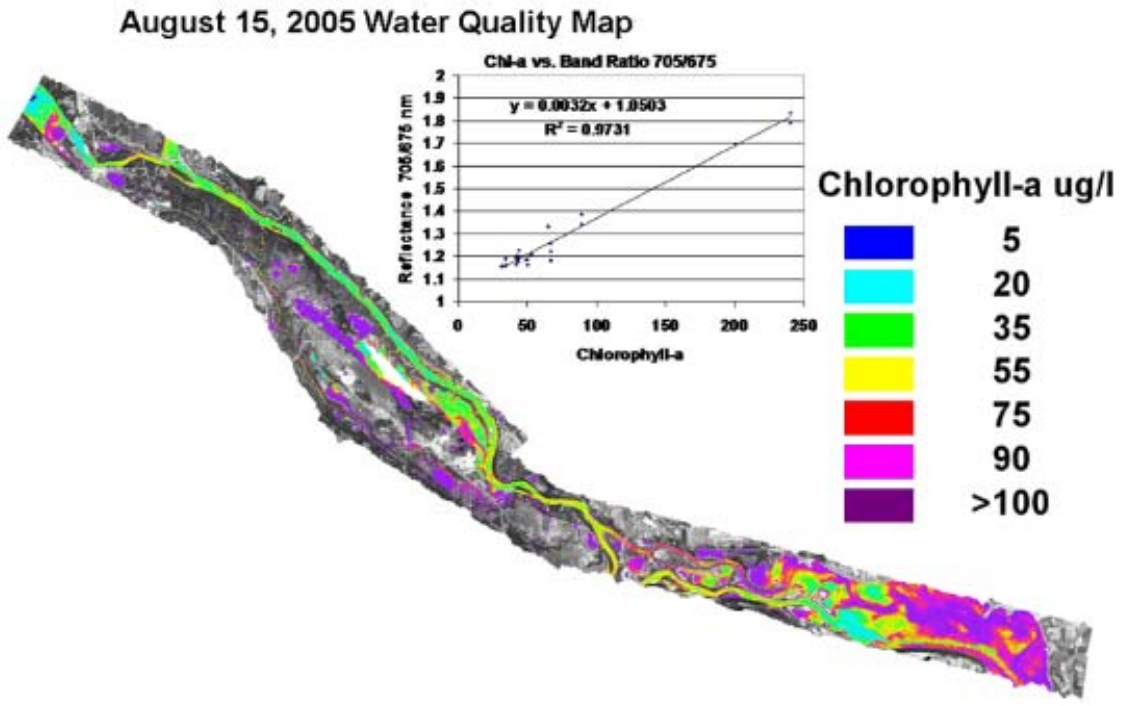
1. They are temporally more dynamic.
2. The resolution of Landsat (30 m) is too coarse for small rivers and streams.
3. If we want more than clarity, we really need a better set of spectral bands than the Landsat bands.

Our solution has been to use airborne high-resolution hyperspectral imagery obtained from a small aircraft flying over stretches of rivers. For calibration purposes, water samples were collected concurrently with the fly-overs, and to provide a range of conditions for calibrations, we focused our initial measurements around the confluences of river systems in Minnesota that have different water quality characteristics.

On August 15, 2005 an aircraft fitted with the AISA-Eagle Hyperspectral Imager (VNIR) collected high resolution 2 m hyperspectral (97 contiguous bands ~2.5 nm from 435-724 and ~10 nm from 724-950 nm) imagery over a fairly large area (36 mile stretch) along the Mississippi River from Spring Lake to Lake Pepin (identified by purple boxes on the map). At the same time staff from the Minnesota Pollution Control Agency and the Metropolitan Council collected water samples at 22 locations. The in-situ water quality data and remotely sensed data are being analyzed to determine the best model for each variable. Preliminary single band, band ratio and multiple band regression analysis models were used to create the maps of each water quality variable for each river segment.

Preliminary results are promising with strong relationships for a number of important water quality variables. With additional statistical analysis we anticipate developing improved models. Using the best-fit models from our preliminary assessment, we were

able to map important water quality variables for river segments throughout each image. The maps show the complex interactions of sediment and different types of algae in these important river segments.




In the future we anticipate that remote sensing will be an important tool in assessing water and land resources including thousands of miles of rivers. This should enable us to see more detailed water quality patterns than we could ever sample with volunteers or more advanced field diagnostic methods. Remote sensing allows us to see the big picture of land and water resources as well as being able to zoom in and get a more detailed view. This "complete view" can be used to detect problem areas and help allocate limited field monitoring resources to areas that need additional attention.

This research has been conducted by the faculty and staff of the University of Minnesota, Department of Civil Engineering and College of Natural Resources -- Remote Sensing and Geospatial Analysis Laboratory and Water Resources Center, with support from the Legislative Commission on Minnesota Resources, Minnesota Pollution Control Agency and Metropolitan Council.

For many more detailed graphics and posters on this study go to: http://water.umn.edu/rivers/index.html. For a reprint of a March 6, 2006, Minneapolis Star Tribune article on this study, go to http://water.umn.edu/Documents/strib5Mar06.pdf

## Federal

**USDA NRCS Soils News**

By Danielle Evans, Natural Resources Conservation Service

More soils data is now available and NRCS's Web Soil Survey viewing and reporting tools have new features.

**SSURGO (Soil Survey Geographic Database) Update**
In 2006, six soil survey areas have been SSURGO certified thus far: Kanabec, Mille Lacs, Pope, Ramsey, Steele and Washington counties. That brings the total number of Minnesota counties with both tabular and spatial SSURGO coverage to 65 - all 87 counties have tabular information. A current status map can be found at www.mn.nrcs.usda.gov/technical/soils/images/maps/mnssurgo.pdf

Soil survey information is available through two websites: Web Soil Survey (see next section of this article) and Soil Data Mart. The Soil Data Mart (http://soildatamart.nrcs.usda.gov/County.aspx?State=MN) is a website that has spatial and tabular soils information available for download for use in a GIS or database application where one can also run reports or do queries and analysis.

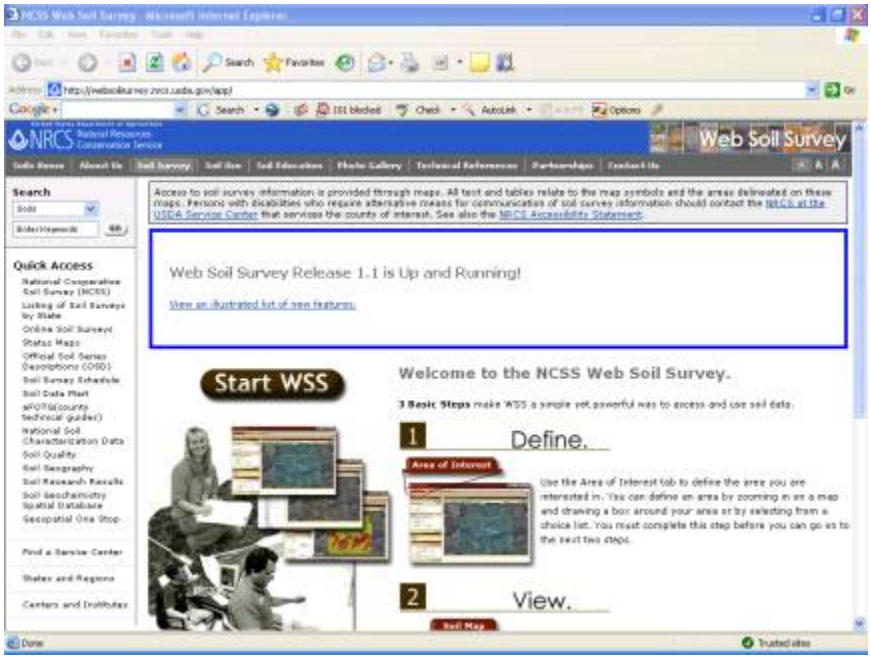
**Web Soil Survey Version 1.1 Released**
Web Soil Survey (http://websoilsurvey.nrcs.usda.gov) is a national online web application for viewing and analyzing SSURGO data with GIS applications and report generation (see article in previous newsletter www.mngislis.org/newsletter/issue43/Soil_Maps_Reports_Online.htm).

Now WSS has been improved! Version 1.1 was released March 21 for public use. Be sure to click on "View an illustrated list of new features" to see what has been improved. Some enhancements include:

- View the map at full width
- Remove ("tear off") and position the Legend and Layers tabs
- Clear the Area of Interest (AOI)
- Zoom to an area using latitude and longitude coordinates
- Zoom to an area using PLSS township and range
- Zoom to a specific map scale
- Get the date of orthophotography on the viewable and printed map

Web Soil Survey Version 2 is due to be released this summer. Some enhancements will include:

- Include PLSS section data (township and range was included in v1.1)
- National map unit symbols
- Enlarge AOI area possibility from 10,000 to 40,000 acres



http://websoilsurvey.nrcs.usda.gov

**NAIP as a Web Mapping Service**
By Andrew J. Lister, USDA Forest Service, Northeastern Research Station, Newtown Square, Pennsylvania

NAIP imagery consists of recent (~2003+) imagery that is collected over much of the country. It is available from the NRCS on DVDs. Thanks to Greg Liknes, who discovered this website, we can now get screenshots of the NAIP imagery holdings directly over the web, without having to deal with DVDs. Not all of the NAIP imagery is currently available this way, but large chunks are. The older DOQQs are available as well. The general site for accessing Web Mapping Services at NRCS is http://gdwweb1.ftw.nrcs.usda.gov/

The way to use the NAIP photos in Arc 9 (and maybe a similar way in Arc8, but you should really install Arc9 -- it's worth it!) is to choose add data, then choose "gis servers", and choose "add ArcIMS servers". When it asks you for the server's URL, put in the above website (http://gdw.apfo.usda.gov), and choose "get list". Choose the NAIP data you want (you can check several UTM Zones). Once you hit ok, that server will be listed in your server list. Double-click it, and then you can choose the UTM zone you want. When you load this, you will quickly see that you have the entire UTM zone's NAIP mosaic accessible. The quality of the images is the same, as far as I can tell, as the one found on the DVDs. It's not clear that they actually have loaded every new NAIP image onto this map service, but there are large parts of the holdings.

There is some chance you have to have the data frame set as wgs84 or decimal degrees nad83 for this to load correctly; you can try different projections if you're brave.

The forestry applications of this include: prefield reconnaissance, very quick and easy checking of classification results (e.g., forest/nonforest, vegetation type, etc.), and zooming into plots that seem to have strange data (giant trees? clearcut?). RSAC had been considering putting together an imagery server for the NAIP imagery -- does this change any of those plans? This is a really huge breakthrough!

**Editor's Note:** Web mapping services for many Minnesota data sets, including several different sources and years of air photos, are also available from several sources within the state:

**Statewide:**

- Land Management Information Center: www.lmic.state.mn.us/chouse/wms_image_server_description.html
- Minnesota Department of Natural Resources, Data Deli: http://deli.dnr.state.mn.us/services.html

**Twin Cities metropolitan area:**

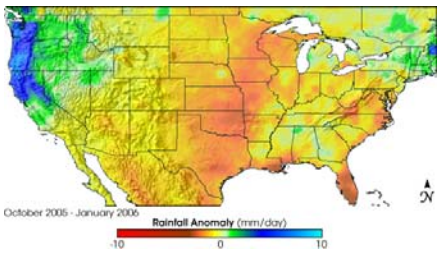
- MetroGIS DataFinder: www.datafinder.org/links/maps.asp

**NASA's Earth Observatory Website**
Adapted from the website

The purpose of NASA's Earth Observatory <http://earthobservatory.nasa.gov/> is to provide a freely accessible publication on the Internet where the public can obtain new satellite imagery and scientific information about our home planet. The focus is on Earth's climate and environmental change. Major research sections include: atmosphere, oceans, land, life on earth, heat and energy, and remote sensing. In particular, we hope our site is useful to public media and educators. Any and all materials published on the Earth Observatory are freely available for re-publication or re-use, except where copyright is indicated, as long as NASA's Earth Observatory is given credit for its original materials. You can also subscribe to the Earth Observatory. Once a week you will receive a short notice from the Earth Observatory telling you about the latest stories, data, and other points of interest that have been added to the site.

A sample image of climatic data

**Drought in the Southern United States**



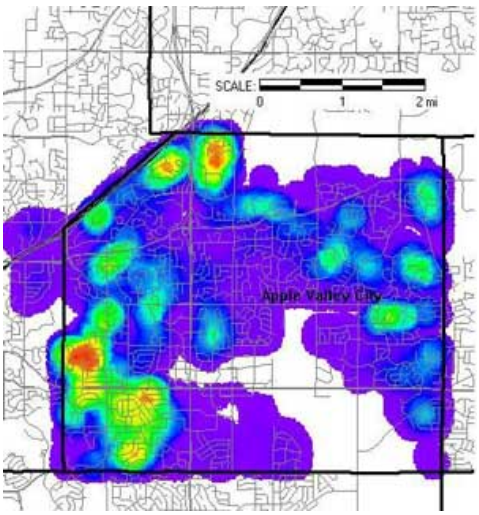
## K-12 Education

**Firewise Provides Teaching Tools for State Social Studies Standards**

The Minnesota Firewise Program is providing teaching tools to meet some of the Minnesota Academic Standards in History and Social Studies. The standards for grades 4-8 and 9-12 can be found under 'benchmarks' at: www.macalester.edu/geography/mage/curriculum/. Both standards have an 'essential skills' component and GIS can be a vital tool. How the Firewise tools fit into these standards can be found on pages 9-12 of the Firewise Communities curriculum overview: http://files.dnr.state.mn.us/education_safety/education/wildfire_prevention/firewise_communityproject_intro.pdf

For the 2005-6 school year, Firewise tools are being used to introduce GIS in 22 classes with over 550 students at 13 schools. Three Firewise Institutes are scheduled for this summer to deliver the Firewise message within an education context of technology, community service, and geography . Upon completion of the training, teachers are then eligible to reserve the Firewise Mobile Lab for their school project. Teachers attending the free institutes receive a stipend, CEUs, GIS/GPS training, Firewise Communities Curriculum and AtlasGDS software. For information on the institutes, see: www.macalester.edu/geography/mage/teachers/institutes/firewise/index.htm.

In a current example, students at the Cooperative Area Learning Program (CALP) in Independent School District 196 under the direction of Jane Schroer, Program Coordinator and Perry Lynum, Social Studies instructor, are participating in the Firewise in the Classroom (FWC) Project. CALP goals foster connections between students and the larger community and provide student skills necessary to succeed in school and life. An FWC project is uniquely qualified to meet these goals. As part of the project, CALP was provided a complete Mobile PC Laboratory to use for classroom instruction. Having access to PCs and a printer provided incentives for students to complete assignments. Students completing their assignments were allowed more free time on the computers.

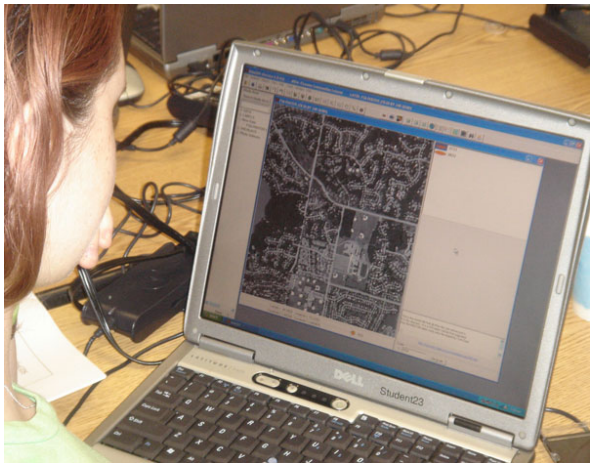



With the help of Firewise staff, CALP students learned how to use GIS/GPS technologies to assess the risk of wildfire in their community. Beginning in December 2005, students began conducting a Level 1 (L1) assessment in Eagan and Apple Valley. Recent fires in Florida, Texas and Oklahoma showed the importance of their work. In less than two months, the four CALP students completed over 17,000 L1 assessments.

Students used the AtlasGDS GIS system ( www.gis4schools.org and click on AtlasGDS.pdf) to assess defensible space around homes in their community. During this process they learned and used the GIS software with 2003 NAIP aerial photography. All houses in their

communities were tagged with a location and rated for defensibility on a 1-5 scale where 1 is not forested and 5 is overtopped by trees on 2 or more sides. This preliminary rating is the Level 1 (L1) assessment.

GIS modeling techniques were then applied to the student-collected data to assess overall community risk. DNR staff worked with the students to apply a weighted density surface model to the house ratings. The resultant model easily allowed the accurate visualization of the concentration of risk within the community based on the number of homes and their defensible space rating. The highest risk neighborhoods identified by this analysis can then be field visited and assessed in greater detail.




In support of the National Fire Plan, the U.S. Forest Service has provided funding for Minnesota Firewise. Under this program, schools receive GIS software and considerable data both about environmental management, forest health and resource protection. All data generated by this project is shared on request with cooperators.

For more information about the statewide Firewise program, contact Dr. Thomas Eiber, tom.eiber@dnr.state.mn.us or visit the Minnesota Department of Natural Resources web site: www.dnr.state.mn.us/firewise or visit www.gis4schools.org to see other Firewise school projects.

## Non-Profits

### Mapping Minnesota Dads at Home

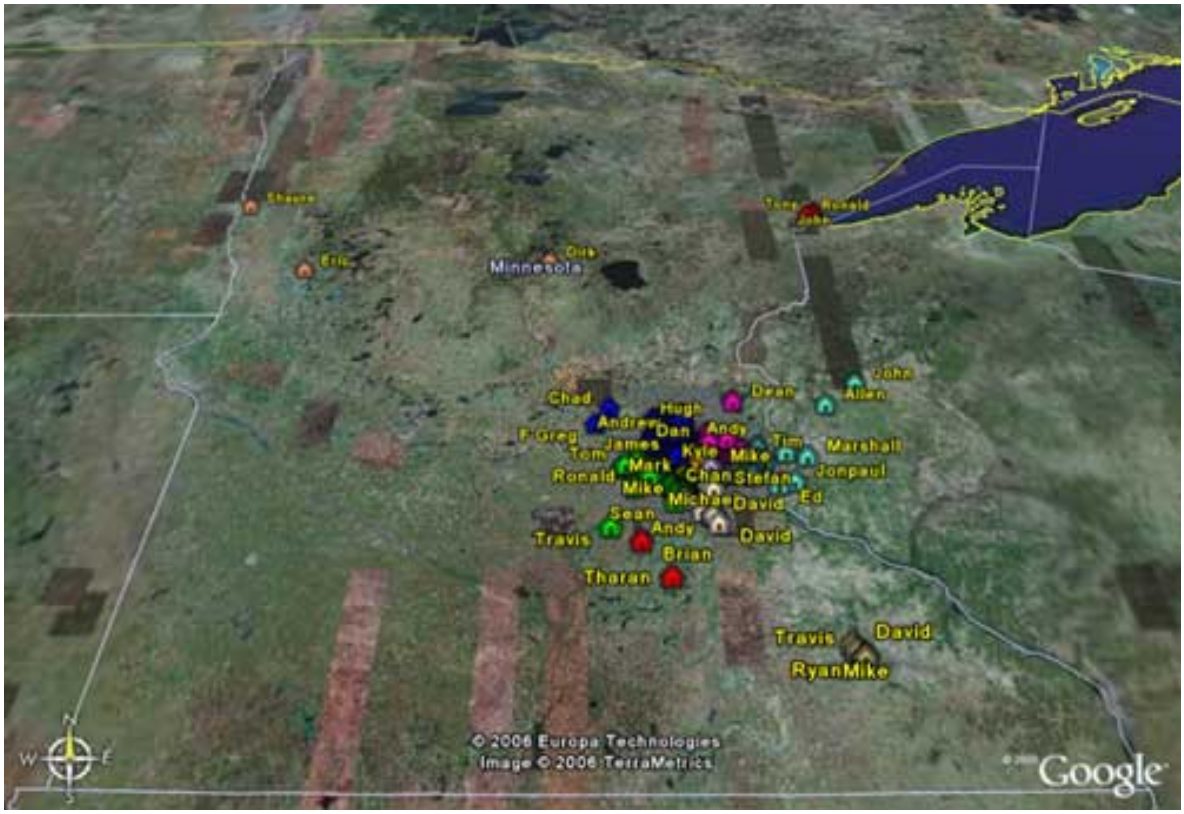
By Hugh Phillips, MDAH Membership Coordinator

Minnesota Dads at Home (MDAH, www.mdah.org/) is a group of approximately 130 dads who stay home with their children - some part-time and some full-time. The group has been in existence since 1997 and gained recent national exposure on ABC's 'The View.' The organization provides support for its members by way of a dedicated email list on Yahoo!, a newsletter, a directory, monthly Dad's Night Outs, and 'playgroups.' MDAH dads are scattered throughout Minnesota and western Wisconsin but concentrated mainly in the Twin Cities metro area. The group is subdivided into regional 'playgroups' that meet weekly at defined locations winter and summer where the dads and their children can mingle, commiserate, share advice, and play. The group has recently completed a Google Earth (GE) map indicating the locations of member dads and playgroup meeting sites.

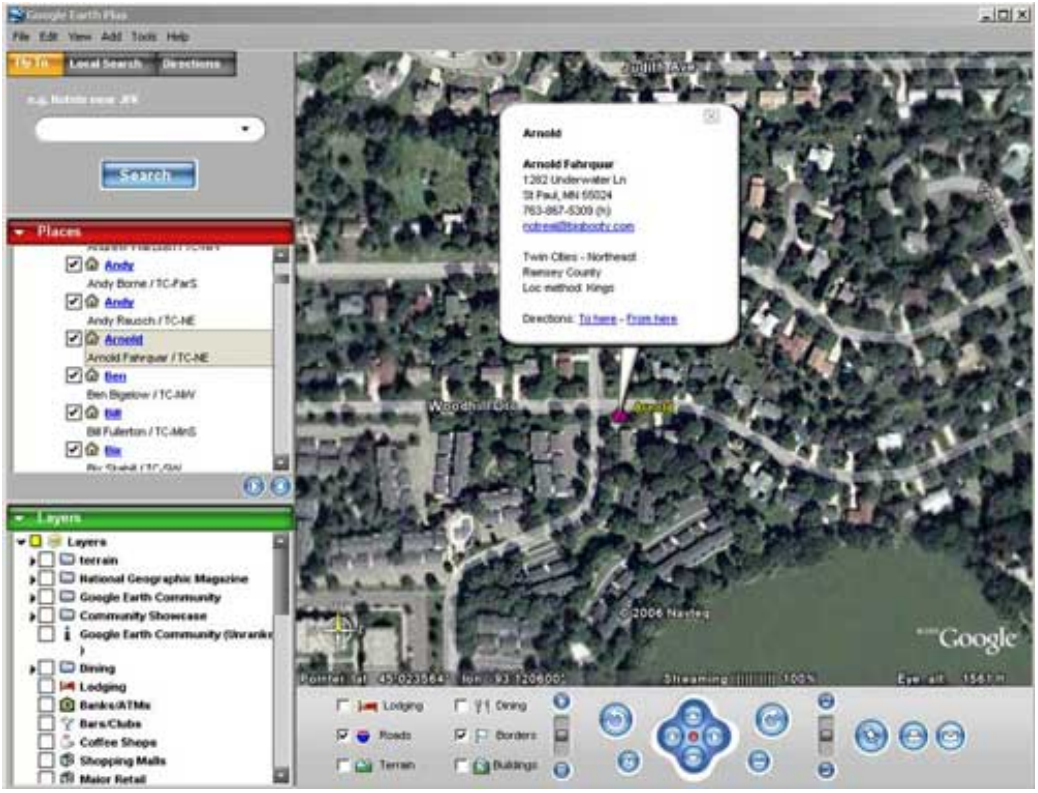
New MDAH members like to know where the playgroups meet and if there are any nearby MDAH dads. The membership directory lists addresses for members but it is

difficult from that information to get any sort of idea how proximal other member dads are and if they are scattered or clustered. Until recently, only the person who maintained the member database had a good idea where all the individual members were located - he plotted them by way of stick-on dots on a Plexiglas-encased hardcopy city map. That map afforded a simple way to assign new members to regional playgroups. However, the database maintainer was eager for alternate means to map member locations that was more portable, easier to maintain, readily copied to backup the original work, and that could be disseminated for the use of members and the MDAH Planning Committee. The solution was a digital map in a GIS.

Early work toward the GIS map focused on identifying applications and datasets that could be used to geocode member locations and that could be used to view and query the resultant data. Several applications and datasets were used for the initial bulk geocoding, but one application outshone all the others for display of the data - that was Google Earth. Manifold GIS was used as the geocoding engine against MapPoint 2004 data for most addresses; unmatched addresses were resolved with Google Map and King's Companion online. Now that the bulk geocoding is completed, new members are geocoded one at a time as they join using the geocoding tools in Google Earth.



Locations of MDAH members displayed in Google Earth



GE zoomed in to display location and contact information for a selected (fictitious) MDAH member.

The final map consists of point icons over the approximate position of each MDAH members' home, colored according the members' assigned MDAH playgroup region and superimposed on the background imagery and themes of Google Earth. The icons can popup a limited amount of contact information for each member. Processing an extract from the member database with an awk script creates the Google Earth .kml file. MDAH is concerned about the privacy concerns of its members and the safety of members' children. As a consequence, the MDAH Google Earth map is only available to eligible MDAH members.

The April 2006 MDAH Newsletter www.mdah.org/docs/MDAH_News_04-06.pdf contains links to documents describing the development of the map. For more information contact Hugh Phillips, hugh@mdah.org.

**Non-profit representation added to MetroGIS Coordinating Committee**

Two new representatives were appointed to the MetroGIS Coordinating Committee in March: Jessica Horning, Greater Minneapolis Day Care Association, and Sally Wakefield, 1000 Friends of Minnesota. MetroGIS is a collaboration of government, academic, non-profit, and for-profit interests that serve the seven county Minneapolis St. Paul Metropolitan Area. The primary focus of MetroGIS efforts is to oversee implementation of sustainable regional solutions to common geospatial information needs and related technology. The Coordinating Committee's purpose is to advise the

MetroGIS Policy Board on matters concerning the implementation and operation of MetroGIS.

You can find more information about MetroGIS at www.metrogis.org/about/index.shtml and specifically about the MetroGIS Coordinating Committee here: www.metrogis.org/teams/cc/index.shtml.

Both Jessica and Sally recognize the potential for stronger collaboration between non-profit organizations and the MetroGIS community and hope to strengthen those relationships through service on the committee.

## People

### Virtual Deer Camp

By Chris Scharenbroich

It's only May, but that hasn't stopped me from thinking about the start of the archery deer season in September. With a few clicks on the keyboard of my home computer, I can bring up my virtual deer camp, represented by deer stand locations, cover types, wildlife openings, trails and aerial photography. For years, I've been developing GIS data to represent deer camp on hard copy maps. Now, I can easily share a digital representation of deer camp with the rest of my hunting companions via free 3D geospatial information viewers.

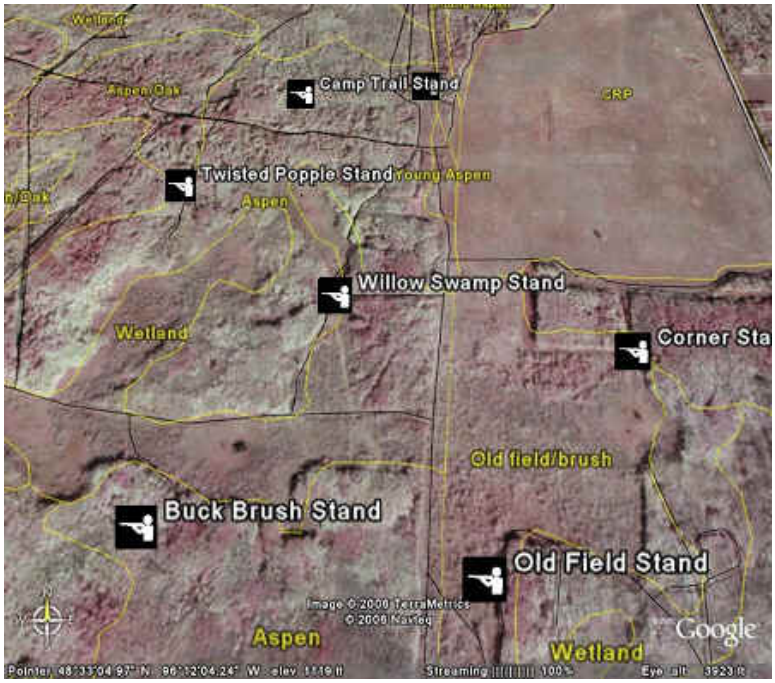
Motion detection cameras, GPS, computer mapping, digital deer camp logs and other high tech jargon is starting to work its way into my deer camp, as well as many other deer camps. It's not too surprising in this information-hungry society. I guess planning a hunt with maps isn't new. I'd imagine cave men drew out maps in the soil to plan how to ambush game. Looking at the high-tech maps has just become more entertaining and just a bit closer to the real thing.

With digital maps, one can pull up more information about a single feature of interest on the map. For example, how many deer have been spotted from the Buck Brush Stand, at what times of the day and what days of the week? Does the Buck Brush Stand hold up to its name by giving the lucky hunter a good chance at shooting a buck or a BIG buck? Visualizing deer camp from the air gives my hunting companions a way to determine the best location for a new deer stand by seeing "funnel" areas of narrow dense cover types and edges along open fields or wetlands and dense woody cover.

Below are several links to high tech tools that I've used or considered using for my deer camp. You may even find some of them useful for your work activities!

Recreational Grade Global Positioning Systems: Garmin, Magellan, Lowrance
Free GPS Track and Waypoint to Shapefile Converter: DNR Garmin, GPS Utility
Trail Cameras: Penns Woods, Bushnell, Cuddeback
Free GIS and Map Viewers: ArcGIS Explorer, Google Earth

No matter how high-tech I get, I just can't beat relaxing at my real deer camp. As I write this article, I'm listening to spring peepers and chorus frogs keeping a methodic melody, a pair of sandhill cranes trumpeting in the distance and Ted Nugent jamming the Fred Bear song on my laptop computer. If you'd like to discuss this idea, contact me at: cscharenbroich@yahoo.com.




## Other Places

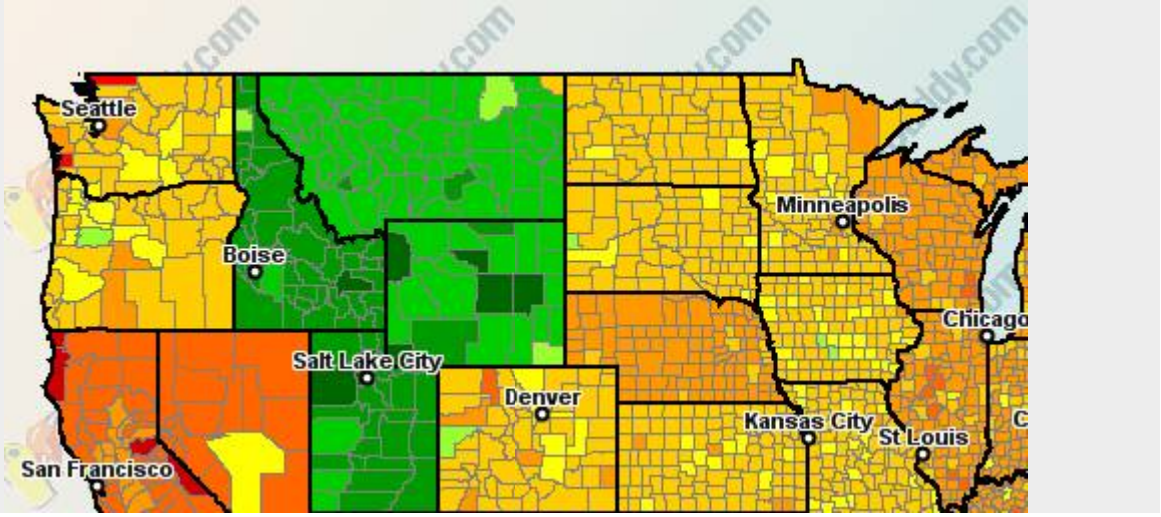
**GIS in the English Middle-School Classroom**
Submitted by Joseph Kerski, U.S. Geological Survey

Some of our excellent UK colleagues have created a wonderful 15-minute video about GIS in the classroom made for Teachers TV. It features Digital Worlds GIS in a secondary school with kids of around 13 years old. It can be found at: www.teachers.tv/subjectBlockVideo.do?transmissionBlockId=315524&zoneId=2&transmissionProgrammeId=315546. The opening scene is one of the funniest and yet most captivating that I have ever seen in a GIS-related video - a classic moment!
If you register with the Teachers TV site, you can even download the video for use in your own training events. It ends up at just over 38 MB in size.

**Gasoline Prices Meet GIS**

Interested in the variation in gasoline prices across the U.S. and Canada for your summer vacation? Before you leave, check out GasBuddy.com: http://gasbuddy.com. Networks of contributors (you can join) submit prices for individual stations, and then both maps and price lists are generated. You can search for averages or individual station prices by state or province, regions, city, zip code or brand.

The site's "gas price temperature map" for the northwestern U.S. in mid-April 2006 was:




**MIT Develops $100 Hand-crank Laptop**
By Anne Trafton, Massachusetts Institute of Technology News Office

An MIT professor's plan to offer $100, hand-crank laptop computers to children in developing countries has drawn interest from several foreign leaders as well as Massachusetts Gov. Mitt Romney, who plans to distribute them to schoolchildren.

Nicholas Negroponte, co-founder and chairman of the Media Lab, has been working on the laptop idea since 1999 and plans to have a working prototype ready in November. He demonstrated a model last week at the Technology Review Magazine Emerging Technologies Conference at MIT.

In January 2005, Negroponte and his Media Lab colleagues Joe Jacobson and Seymour Papert announced the foundation of One Laptop Per Child (www.laptop.org), a nonprofit dedicated to designing and distributing the computers. According to the project's website,

leaders in Thailand, Brazil and Egypt have already expressed interest in the computers, which can be powered by electrical outlets or by hand crank.

"Laptops are both a window and a tool: a window into the world and a tool with which to think. They are a wonderful way for all children to 'learn learning' through independent interaction and exploration," Negroponte wrote on the website.

Much of the cost savings comes from lowering the cost of the display down to about $30. The designers also streamlined the computers' software. But the Linux-based, full-color, full-screen laptops can do anything a regular laptop can do except store huge amounts of data, according to Negroponte.

The computers will also have wireless Internet access, but only if they are within range of an Internet base station.

Although the program is targeted to developing nations, Romney said he thought Massachusetts children could also benefit. Two weeks ago, he announced a plan to spend $54 million to roll out the program over two years, starting in fall 2007.

Several companies are helping to develop the laptop, including AMD, Brightstar, Google, News Corp and Red Hat, the website said. The laptops will not be available for the general public to purchase.

For more information about the project, visit http://laptop.media.mit.edu

**A Safe Way to get Rid of Techno Junk**
Adapted from GreenDisk website


For thirty dollars you can get rid of up to 70 pounds of digital waste safely. Seattle-based GreenDisk (www.greendisk.com) will send you a special cardboard box, called the Technotrash Can, that you fill with old cell phones, laptops, CDs and much more. When the box is full, you go to Greendisk's website and schedule a pick-up from the U.S. Postal Service.

GreenDisk began on April 22, 1993 (Earth Day!). Headquartered in Sammamish, Washington, the company was founded by high tech industry veterans who had a particular passion for the environment. The company provides secured, audited disposal of intellectual property stored on electronic media and other technotrash. The resulting materials are then used to manufacture the GreenDisk branded line of office supplies. Through a set of strategic alliances, GreenDisk works with both for-profit and non-profit companies to create a national network of service providers. Rather than build new manufacturing facilities and recycling centers, GreenDisk partners with these non-profit agencies. This creates jobs for workers with disabilities while creating an innovative set of recycling services along with a new line of recycled products.

Initially, the company focused on the need among software publishers for a secure system of disposal of their unsold packages of obsolete software. Their primary concern was for the destruction of the intellectual property. GreenDisk's concern was for accomplishing this important task in an environmentally responsible manner without compromising security. GreenDisk provides a solution to this problem by offering alternatives that create an audit trail to assure that all intellectual property is destroyed and the materials recycled. In response to demand GreenDisk began to offer its secure disposal services to a wider range of clients. The company now serves publishers, businesses, government agencies and individuals who have similar concerns about their data and their environment. The spectrum of materials recycled has also grown to include everything from a diskette to the whole PC.

For more local information on getting rid of techno junk from the Minnesota Office of Environmental Assistance, including list of recyclers by major cities, see www.moea.state.mn.us/plugin/recyclers-household.cfm.