State Cartographer's Office

Reporting on Mapping and Land Information in Wisconsin

Wisconsin MAPPING BULLETIN

Vol. 19, No. 3 July 1993

Legislature Partly Changes State Land Info Program

by Bob Gurda

The state legislature recently voted to modify Wisconsin's Land Information Program, but one critical element remains unchanged. The "sunset" on the program's funding is still set for June 30, 1996. As of mid-July, the legislature finished its work on the state budget, which includes the program modifications, and sent it on to the governor for his consideration.

After months of work, people interested in modernizing land records and land information systems accomplished some of their legislative goals during the recent session. However, the lifting of the funding sunset eluded their grasp. Despite little apparent opposition, attempts to modify the existing statutory language that halts program funding in mid-1996 were unsuccessful. Reports indicate that a series of unexplained but unintentional mistakes at the capitol derailed this effort.

The statutory and budgetary modifications to the land information program were structured as amendments to the state budget bill which was submitted by the governor early this year. Due to its size and inclusion of major policy initiatives, the budget bill is a large and unwieldy piece of legislation. This may help explain much of the confusion that affected the relatively minor land information initiative. A separate bill to lift the sunset is being readied for consideration in the legislature's fall session.

Over the last several months, professional organizations, especially the Wisconsin Land Information Association (WLIA), have labored long and hard to convince the legislature to bolster the state program. The focus of their efforts has been the elimination of the sunset on the program's funding source—a small increase in the fees for filing documents at county courthouses.

At the urging of WLIA and its members, almost half of the state's county boards passed resolutions supporting the program and advocating that its funding be stabilized into the future.

The legislature did include a requested expansion of the staff of the Wisconsin Land Information Board, from 2.5 to 4.0 positions. These remain as "project" positions (not permanent) that extend through 1996. One new position is identified to function as an engineer to provide technical assistance to participants in the program. These positions and general administrative costs will continue to be funded from a portion of the program's revenue which is collected at county Register of Deeds' offices and forwarded to the Land Information Board (WLIB).

New statutory language allows the WLIB to make grants for systems integration, assisting in the process of making land information housed in one department or jurisdiction available to others. Previously existing language provided only for grants through county land information offices. Other new language clarifies the board's mechanism for collecting fees and expending funds to provide technical assistance and services on a cost-recovery basis.

The budget bill now awaits the governor's approval. His line-item veto process typically takes several weeks, after which the legislature has a period of time to attempt to overturn specific vetoes. In recent weeks the governor has personally delivered several large checks to local governments, representing reimbursements for expenses of projects which were awarded grants through the program.

State Representative Larry Swoboda, from Kewaunee County, has begun the process to draft language to lift the funding sunset entirely. His bill, for which he hopes to attract broad bipartisan sponsorship, would be considered during the legisature's upcoming fall session.

(sources: Wisconsin Legislature; Wisconsin Land Information Association)

Highlights of this issue....

STATE LAND INFORMATION NEWS

WLIB News

by Bob Gurda

Board Meetings

Since our last issue, the Wisconsin Land Information Board has met once, on April 27. A meeting scheduled for June 14 was cancelled. Future meetings are set for August 9, September 13, October 18, November 8, and December 13. All meetings are scheduled for Madison, except the October meeting which will focus on grant awards.

Grants

The current semi-annual application period for grants is open during the month of July. We will carry statistics on the number and dollar amounts of these applications in our next issue. The WLIB is expected to make decisions on grant awards in the fall.

During the governor's recent tours of several communities and areas as part of his annual summer practice of taking his office on the road, he personally delivered several previous grant award checks.

Revenues

The rate of document filings at Register of Deeds offices was high throughout the fiscal year ended June 30. The resultant filing fees were on a pace to total about $7.2 million, 2/3 of which is retained by local governments. Of the remainder, over $2 million should be available for grant awards by the WLIB over the next 9 months.

Education Committee

This group is assisting in a DACUM ("designing a curriculum") process underway at Chippewa Valley Technical College. A formal programs leading to GIS Analyst and GIS Manager training may be the result. A program for GIS Technician has already advanced through the DACUM stage.

Integration/Clearinghouse Committee

This committee has been meeting monthly, working toward its two primary short-term goals—informing state agency managers of the potential value of coordinated spatial data development and sharing, and developing standards to simplify exchange of information. A technology demonstration for state agency managers is being planned for fall.

Editor's Corner

by Bob Gurda

As we plan and gather and form and shape the *Bulletin* every three months, we try to think about you, the reader. What news would you choose to receive? What topics deserve analysis? What events attract your attention? What products will improve your work? What trends should you be aware of? ...and so on.

Those are questions of content. Another factor is the amount of detail---how much space can we allocate vs. how much detail is too much for most readers. We can't be a textbook, but like to provide more than plain information. We're not producing a newspaper, but neither is the *Bulletin* a magazine. Hopefully, we give you a variety of topics in each issue, and mostly information you won't find in other publications.

Style is another consideration. Since you are probably busy, we try to make the content accessible. This is a complicated struggle that involves developing useful illustrations, good layout, and meaningful headlines.

So how are we doing? Every three months, over 3,000 copies leave our mail room to points across the state and beyond. While we do hear from a few readers every week, we encourage every one of you to give us some feedback. Our mailing address and telephone and fax numbers are on page 16. Tell us what you think!!!

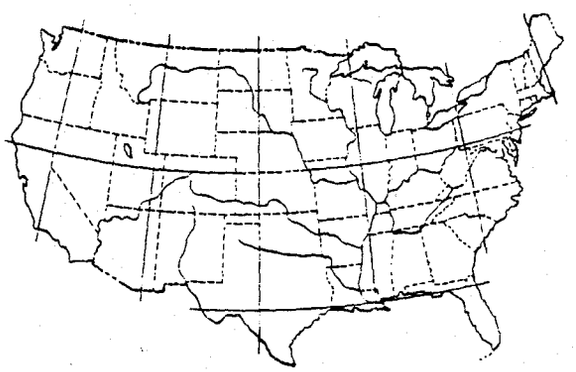
Table of Contents

USGS budget stresses basic science and information needs

President Clinton's proposed budget for the U.S. Geological Survey includes an overall 4% increase to almost $600 million, but especially emphasizes initiatives in water quality, geologic mapping, geographic data production, and coordination that promotes data sharing. Partially offsetting these items are decreases in administrative costs, a reduction of about 315 personnel positions, and other net reductions including development of advanced cartographic systems.

With the fiscal year set to begin on October 1, Congress is at work on the proposed budget. Sometime late in the year, more detailed information should be available on the final size and configuration of the USGS budget (as well as those of other agencies that have significant mapping activities). Then the probable affect on various activities and initiatives in Wisconsin will be clearer.

(source: USGS)



Parallel state activities set

Metadata recommendations revised

by Bob Gurda

The Standards Working Group of the Federal Geographic Data Committee (FGDC) has been working on a revision to a proposed set of metadata elements. The group analyzed comments received from the public through April 15, in response to a proposal issued last fall. The revision is expected to be released by August.

Metadata is a term for descriptive information documenting something that is complex. At its most generalized level, metadata is similar to what a card catalog or abstract contains, compared to a publication itself---basically, a thumbnail sketch. Metadata, especially if standardized, would be helpful for locating and selecting geographic data, and then guiding its appropriate use.

The Wisconsin Land Information Association has formed a task force to review metadata needs and developments. The state Interdepartmental Data Sharing Workgroup is also planning to return to this issue; some of its earlier efforts were incorporated into the national proposal.

State Cartographer's Commentary—

The National Geo-Data Policy Forum

by Ted Koch

This last May, a three-day event billed as the National Geo-Data Policy Forum was held in suburban Washington D.C. This meeting, as promoted by its sponsors, was to bring together public and private sector leaders concerned with the future of spatial data technologies. Specifically, these leaders were to explore management strategies, policies, and directions to guide the nation into the future.

A primary purpose of all of this activity was to begin reaching a consensus strategy on forming something called the National Spatial Data Infrastructure (NSDI). As a broad concept, the NSDI is envisioned as a nationwide network of procedures, standards, partnerships, and electronic connections striving for the efficient production, documentation, storage and sharing of geographic data.

The forum was organized by the Federal Geographic Data Committee (FGDC) and five professional societies. More than half of the approximately 700 in attendance at the meeting were from the federal government, roughly 25% from private companies, while the remaining 25% were generally from state and local government and the academic community. A rather interesting, and perhaps unfortunate statistic for those of us at the state and local level is, that by my count, only 7 of the more than 50 speakers represented state or local interests. In the view of many who attended, this underrepresentation of a broad segment of geographic data producers/users was a major shortcoming.

Looking back, it is hard to list clearly the positive accomplishments of this meeting. So many ideas, problems, and counter-ideas were presented that it was difficult to reach any clear understanding on how the NSDI would or could be created, structured or implemented. So often, it seemed that no bottom-line conclusions or strategies were apparent, and that all discussion was reduced to statements such as "who's in charge?", and "where do we go from here?"

In Wisconsin we have struggled with many of the same issues surrounding the NSDI. However, our land information program has developed a foundation of procedures, standards, partnerships and networks that provide a successful basis for a model of infrastructure building. Wisconsin's example of a program built from the "bottom-up" is potentially at odds with a federally formulated and directed NSDI that is built and structured from the "top-down".

Continuing discussions and presentations of an FGDC-prepared draft strategic plan for developing the NSDI are slated for the URISA conference in Atlanta late in July.

Given the lack of visible accomplishment at the May meeting it is easy to be cynical of ever achieving the vision of a NSDI. On the other hand, I believe that developments at the national level in this area will ultimately be significant and have impact on all of us. For that reason alone, it is important for all of us in the geo-data business to be aware of what is happening outside the borders of our state.

Quicker service now available in-state

WisDOT set up to sell NAPP photos

by Ted Koch

Copies of photos from the 1992 National Aerial Photography Program (NAPP) flights may now be purchased from the Wisconsin Department of Transportation (DOT) in Madison. Within the past three months DOT has purchased film negatives of all available scenes from the 1992 flights. DOT does not yet have photos from the 1993 reflights (see related article below).

Up to this point, NAPP photos have only been available for purchase from the EROS Data Center in Sioux Falls, South Dakota (see the January and April, 1993 issues of the *Bulletin*). While the DOT price for a single photo is $3.00 higher than the EROS price, the turn around time for delivering completed orders should be significantly shorter.

DOT is charging its standard photo reproduction price for the NAPP photos. Contact prints (9" x 9") on paper are $9.00 per scene, while enlargements are available at higher prices.

For more information on ordering NAPP photos from DOT, or to inquire about coverage of a particular location, send or fax a map outlining the area to:

WisDOT - Technical Services
Photo Operations Unit - Rm 5B
P.O. Box 7916
Madison, WI 53707-7916
Phone: 608/~~267-1859~~ 266-0309
Fax: 608/~~267-7809~~ 267-1859

NAPP reflights completed

by Ted Koch

As has been detailed in the *Bulletin* several times, aerial photography was flown of the entire state in the spring of 1992 through the National Aerial Photography Program (NAPP). During the subsequent quality inspection of the imagery, approximately 5% of the photos statewide were rejected due to poor quality.

Areas of the rejected photos were scheduled for reflight this past spring. The U.S. Geological Survey's NAPP administrative office has recently confirmed that all reflights were completed, although the exact flight dates are as yet unknown.

At this time, the quality inspection of the reflight images is in progress. When the films are approved for acceptance, they will be archived in the EROS Data Center in Sious Falls, S.D. Duplicate negative copies will then be delivered to DOT in Madison.

Offers sharper sensor

New Landsat set for launch

by Bob Gurda

After several years of delays, the next American civilian remote sensing satellite, Landsat 6, has a firm launch date. Lift-off is scheduled for August 11, from California. Assuming a successful launch, testing and will require several months before the system can be declared operational.

The planned orbit is similar to those of earlier Landsats, passing near the north and south poles, and traveling south over the sunny side of the earth. Each particular orbit path is repeated every 16 days.

This launch is critical for U.S. efforts in earth remote sensing. The two existing satellites, Landsats 4 & 5, are both far beyond their designed lifetimes. Landsat 6 will feature a new black-and-white sensor that collects image pixels measuring about 50 feet square on the ground—offering twice as much resolution as the current satellites. Color imagery will be collected in an identical manner to the current satellites.

Design goals for Landsat 7 will likely call for even sharper resolution, perhaps as fine as about 15 feet in black-and-white mode and 30 feet in color. This sensor system would not be available for launch for at least several years.

(source: EOSAT)

Star Wars spin-off for home use?

Satellite imaging planned by company

A California company is taking steps to build and launch a constellation of high-resolution, imaging satellites. Worldview Imaging Corporation hopes to establish enough high-tech satellites that it can provide images at 10 foot resolution with a revisit period of about two days.

This venture, which has now developed to the point of beginning construction of its initial satellites, is a commercialization of research and development conducted as part of the Strategic Defense Initiative. Earlier this year, Worldview received the first license of this type from the U.S. Commerce Department.

(source: GIS World, 8/93)

Attracts broad interest

WISCLAND aims high in building statewide land cover mapping program

by Bob Gurda

WISCLAND is an acronym for the Wisconsin Intiative for Statewide Cooperation on Land cover ANalysis and Data. Since its formation this spring, WISCLAND has attracted the interest of over 40 organizations, including federal, state, and regional government offices, utility companies, indian tribes, and university researchers.

The SCO is coordinating this effort, building on a core commitment from the Department of Natural Resources (DNR), following the recommendations of a major study by the UW-Madison (see *Wisconsin Mapping Bulletin,* April, 1992), and taking timely advantage of major federal interest in better understanding biodiversity across the Great Lakes region.

The purpose

The fundamental purpose of WISCLAND is the development of a long-term program that collects, analyzes, and makes available information on the entire state's land cover. Such a program is large and complex enough to give pause to any single organization that might consider taking it on without contributions of outside resources. As presently being considered, the production work designed to meet WISCLAND's goals would be performed by the DNR, which has broad interest in the results and which has the necessary technical expertise in its Geo Section.

Data and products

WISCLAND plans to utilize Thematic Mapper data from the Landsat satellites for its primary imagery. Aerial photographs and statewide "ground truth" collected by cooperators, along with certain GIS information, will help analysts guide a computer interpretation.

Existing DNR wetlands maps would all be updated in digital form through WISCLAND, to help get the best classification accuracy from the satellite data; this work on wetlands represents a significant general enhancement of statewide land information that has broad benefits.

If sufficient resources are collected, interpretation over urban areas will be done directly from existing aerial photographs, and will be delineated on a orthophoto base (all items to be contracted).

Participants

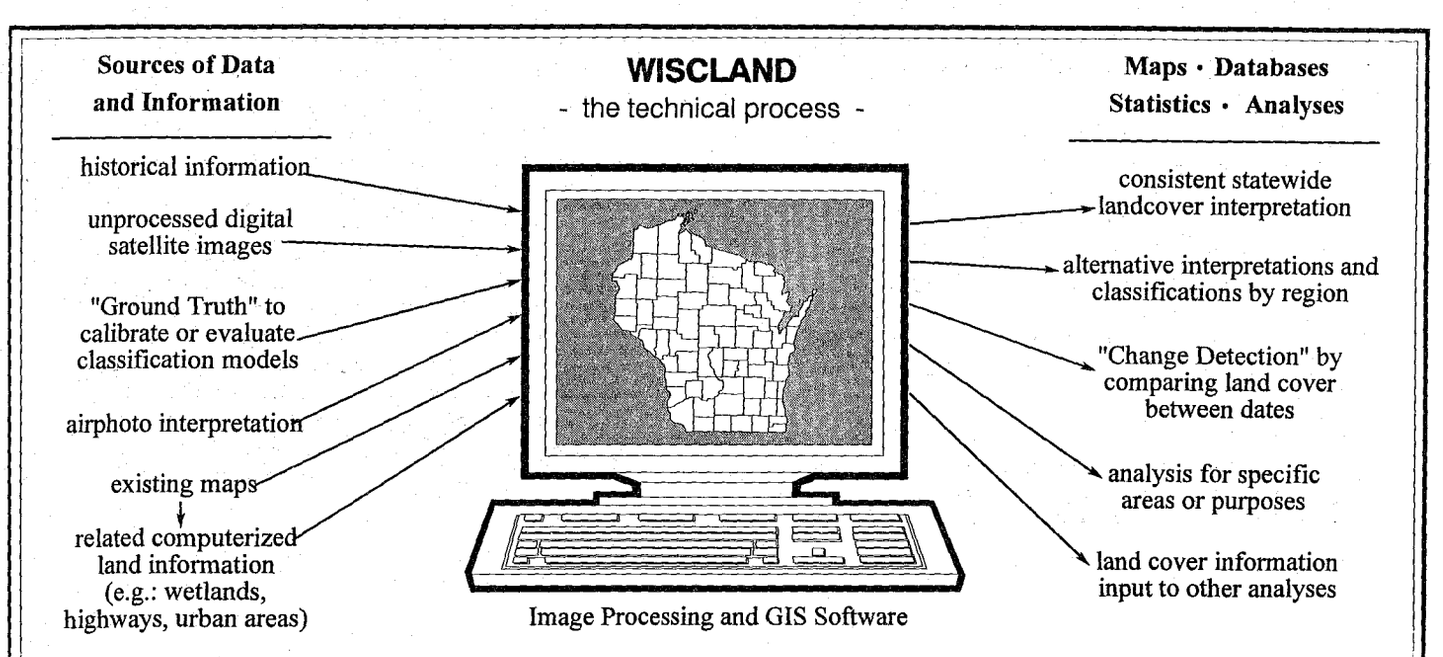
Dozens of organizations have been meeting over the last several months to develop the WISCLAND cooperative program which will produce information and maps of land cover over the state. Collectively, the participants have identified a long list of applications that rely on land cover information. Many of these uses arise from environmental management requirements.

Any organization is welcome to participate in WISCLAND. Committees are making rapid progress on communications (printed materials profiling the form and function of WISCLAND), classification (what types of land cover will be identified in the standard statewide product), and institutional arrangements (levels of participation, resources contributed, and related benefits).

Resources and timelines

Providing resources are committed in time, production work may begin as early as October, and run for about three years. This is expected to require about $2 million including significant in-kind contributions of staff, digital data, and ground truth. Beyond this initial mapping, one of WISCLAND's goals is to develop the capacity to remap the state on a 5-10 year cycle.

WISCLAND has scheduled future meetings for August 23, September 15, and October 4, all in Madison. Contact Bob Gurda at the SCO for further information.



Questions & Answers

?

I'm confused ...How is a coordinate different from NAD 27?

A coordinate is a set of numbers that describes the position of something. The position of a flagpole in a village parrk, for instance, might be listed as 3216, 898 (perhaps meaning 3216 feet east and 898 feet north of a fixed reference point that lies southwest of the entire village).

By contrast, NAD 27 is a datum—an imaginary surface created through mathematics to simplify and standardize surveying calculations. The most accurate and useful coordinate systems are established in reference to a datum.

NAD 27 is the designation of the North American Datum created in 1927. NAD 83 (86), and NAD 83 (91) are other horizontal datums in the National Geodetic Reference System.

The irregularly shaped surface of the earth makes mathematical calculations from land measurements extremely complex. Instead, a much simpler and smoother reference surface (datum) most closely resembling the shape of the earth is used (such as an ellipsoid). Datum surfaces can be defined in many ways, resulting in the various federal datums.

Rectangular coordinate systems such as the State Plane Coordinate (SPC) system or the Universal Transverse Mercator (UTM) system are based on a mathematical projection scheme refering to a datum, but are *not* part of the datum definition itself.

After projecting a smoothly curving surface onto a plane, a regular grid can be used to define an X,Y coordinate for any point on the resulting flat surface. This greatly simplifies mathematical calculations.

?

How could I become a USGS map dealer for my local area? I noticed on the map on page 9 of the SCO's guide Wisconsin Topographic Mapping that the nearest USGS map sales outlet is over 50 miles from my office.

As you probably noticed from the names and addresses of existing map sales outlets that we listed in that guide, a wide variety of businesses/offices sell USGS maps. Some carry maps covering a large region, while others specialize in only their local area.

You can explore the possibilities with the USGS, and may qualify for volume purchase discounts. You also set your own selling prices for the maps. For more information, contact Mike McDermott of the USGS in Reston, VA at 703/648-5771.

Editor's Note: If you have a question, or had a question for which you found an answer that might be of interest to others, please let us know.

?

When rereading the Bulletin from the fall of 1991, I couldn't reconcile some information about NAD 83 (1991) with other information in the SCO's recent guide Wisconsin Geodetic Control. Can you tell me generally how much shift in position resulted from the 1991 adjustment as compared to the 1986 adjustment?

The National Geodetic Survey first adjusted the North American Datum of 1983 in 1986. Within a few years, the emerging technology of GPS made it possible to identify and remove even more of the remaining distortion in this widely used horizontal geodetic network. Several states have since taken advantage of GPS, adding new and more easily accessed control stations, and having their entire network upgraded with new coordinates published on a more accurate adjustment. In Wisconsin, NAD 83 (1991) was the result.

Due to an error, our guide (near the bottom of page 3, third column) reported datum shift values in Wisconsin of up to 14 feet. In fact, the overall shift (combined latitude and longitude shifts for each point) averages about one foot for the thousands of stations that were readjusted, with extreme cases of 3-7 feet for some older stations. The figures in the *Bulletin* were based only on a preliminary analysis of 18 high precision stations.

?

I think that a name of a lake on a printed USGS map should be changed. Who can I talk to about this?

Wisconsin has a Geographic Names Council that periodically provides advice on issues such as yours to the U.S. Geological Survey. Name changes are not routinely recommended because it is important to maintain consistency over time---not just on maps, but in other records containing information on the mapped features. However, there certainly are situations where the reasons to make a change are compelling.

The chair of this council is David O'Malley of the Wisconsin Department of Natural Resources. He can be reached at 608/266-9275. The State Cartographer is another member of the council.

Very occasionally, there simply is an error in a map feature name. This may be an obvious misspelling, an improper placement, or inconsistency between two adjacent map sheets (such as different names for the same stream). If you find any such errors, please bring them to the attention of the SCO, and we will forward them on to the appropriate USGS office for eventual incorporation into their update process. Try to provide a photocopy on which you have highlighted the problem, along with an explanation and your recommended solution.

Imaging land records: moving Wisconsin forward

by Helen M. Schutten*

With the modernization of land records on my mind day and night once Governor Earl's formed the Wisconsin Land Records Committee in 1985, I set goals for the Register of Deeds office in Racine County that seemed impossible then, and were often laughed at.

One of the first goals was to change the State Statutes to allow the electronic imaging of documents. With this roadblock removed, the office would be able to take another step into the Information Age. To do this, however, I also needed to instill my excitement in elected officials so that they would support me.

Setting the stage

When the law was changed to allow imaging in August of 1991, I was confident that Racine County was bound for imagery. Consideration of cost to the taxpayers was foremost, so I knew that every effort was necessary to balance costs with the service that the new system would support.

Several local businesses involved in the real estate industry make regular use of our documents, so we involved them in our decisions. Vendors were investigated, and anyone interested was invited to see the product demonstrations. County board and government personnel were specifically included.

We drafted specifications to ensure that the eventual imaging system would be compatible with the county's new database computer which was already serving other needs. It was important to be able to link the document images with related data on that machine.

To generate reliable revenue to support the system, the county entered into contracts with six local businesses, allowing them direct access from their offices, 22 hours per day. For six years, each business can search, view, and print certain public data and images without having to visit the courthouse.

With the business contracts signed, the county board moved to purchase computer workstations, software, and training to put the system in place. Racine County became the first in Wisconsin and only the fifth nationally to take this step, and the board showed its enthusiasm by standing and applauding after all 31 members voted in favor.

Operations and benefits

The imaging system was installed in 1992, becoming operation on May 18. Since that time it has a perfect record of no "down time". Businesses routinely search, view, and print documents from their remote sites. Our computer tracks their usage and generates a monthly bill per the contractual agreement.

We scan new documents the day they are recorded, enter data, proof the work, and release the original document back to its provider within two working days. The scanned images are stored temporarily on hard disk, and after proofing are transferred to permanent optical WORM (write once, read many) disk.

There are many advantages to this new system for staff, taxpayers, and businesses. Here in the office we keep up with incoming documents more easily; we have many fewer requests for photocopies since businesses have their direct access; and we have eliminated most of the manual filing and refiling that can lead to occasional errors.

The general public benefits from quicker service in our office, as well as from the businesses that subscribe to on-line access. The access fees paid by these businesses also help pay for the imaging system which we have implemented without adding new staff

Businesses serve their customers more efficiently by avoiding travel, copying only needed documents, and quickly searching the records to track down errors or answers to questions.

Where do we go from here?

By next month, a more complete merger will have been made between the graphics system and the database system, allowing interchangeable access.

Our system presently holds one year of real estate documents (52,000 items) plus 10 years of Federal Tax Liens and the last year's Commercial Code filings. Soon we will begin imaging older documents, those recorded prior to May 18, 1992. These will be converted into digital form from microfilm aperture cards, and will be managed on microcomputers prior to transfer to the larger computer for access the next morning. Vital statistics documents will also be imaged, with certified copies then available at the reception desk after a quick computer search.

Taxpayers, land owners, businesses, and office staff all benefit from the new system.

We hope that all seventeen municipalities in Racine County will be our next client group. With on-line access to our computer from their offices, local assessors will have the ability to make assessment changes for their municipality only. This connection will also further enhance the residents' access to county records.

What are the lessons?

With each new system much experience is gained. From this imaging development, I can say that the most important factor at the outset is to establish quality control that is supported by staff trained to be comfortable with the system. The remaining problems will then be manageable, and everyone will gain confidence with this new way of doing business.

This system has proven to be efficient, and the investment worthwhile. I hope that Racine County's experience will encourage others to take advantage of similar opportunities afforded us by this change in state statute.

*Helen Schutten is Register of Deeds for Racine County. Prior to this imaging project, she developed the state's first automated county tract index to speed searching for recorded documents.

Aerial photography catalog available for purchase

The most comprehensive collection of information on aerial photography acquired over Wisconsin has just been published by the SCO. The *Wisconsin Catalog of Aerial Photography—1993* contains information on over 1,000 projects since 1936 and comes in a three-ring binder with separate chronological listings for each county.

Information from the SCO's previous three catalogs has been incorporated. Including the introduction, address listings, and appendix, this new catalog totals more than 450 pages.

For the first time, the catalog includes information on locations where various aerial photography products can be viewed, and/or purchased at many sites across the state. Other information includes data of acquisition, film type, scale, and area of coverage.

The information contained in this publication is the key to locating and understanding the massive aerial photography acquisitions and holdings that exist for Wisconsin. Whether you need to do contemporary mapping or investigate past conditions at a particular location, useful aerial photographs may be available to servce your needs.s

The new catalog can be purchased from the SCO for $25.00 plus tax and shipping. An order form is bound inside this issue of the *Bulletin* for your convenience. We also service walk-in orders.

DEM viewing package released

With a newly released booklet as your guide, you can learn about and view a digital elevation model (DEM). A DEM is computerized data that represents a surface, such as a landscape.

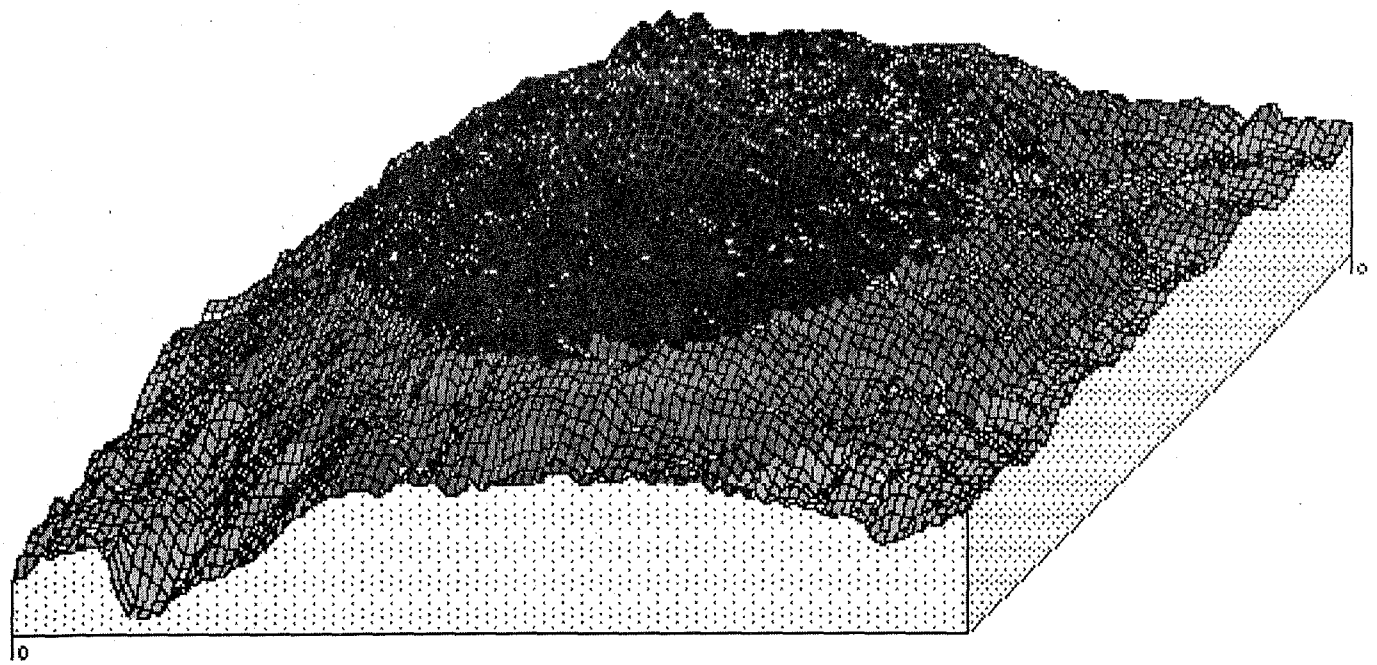
The SCO has produced a step-by-step guide to installing, viewing, and analyzing any one of four sample DEMs from the Blue Mounds area of southwestern Wisconsin.

This 20-page guide and two accompanying diskettes can be purchased as a package for $10 from the SCO. (See the order form bound in this issue, or we can mail or fax one to you).

The package includes a viewing program called MicroDEM that runs on IBM-pc type microcomputers. For successful viewing, a VGA graphics adapter and compatible monitor are necessary. MicroDEM provides a variety of viewing options, and performs several analytical functions; it is not a CAD or GIS system, some of which can also utilize DEMs.

Since DEMs are composed of points that represent a surface, they can be analyzed to determine slope, aspect (compass direction that a slope faces), drainage areas, and visibility between points. Contour lines can be calculated from the DEM.

Although DEMs that are fine enough to accurately capture the somewhat subtle landscape terrain of Wisconsin are not yet widely available, they would be a by-product of digital orthophoto production that is beginning to be scheduled in several parts of the state. For this reason as well as simply for general awareness, you should get the SCO's MicroDEM package.



ORDER FORM
July 1993

State Cartographer's Office
550 N. Park Street
Room 160 Science Hall
Madison, WI 53706-1404
phone: 608/262-3065; fax: 608/262-5205

WISCONSIN CATALOG OF AERIAL PHOTOGRAPHY—1993

The Wisconsin Catalog of Aerial Photography—1993 provides a comprehensive listing of aerial photography projects from 1936 to 1993. It includes photography acquired by federal, state and local agencies and other groups. All areas of the state are covered with multiple listings, separated by county. Information from previous Wisconsin State Cartographer's Office aerial catalogs published in 1975, 1976, and 1984 is included. This catalog is the most complete record of aerial photography in Wisconsin to date, containing information for over 1000 projects.

The printed catalog has been generated from a computer database that has also been designed for easily answering in-office inquiries. The catalog contains 5 parts totaling more than 450-pages.

Part 1 is an 8-page introduction describing how the catalog was compiled, the contents and sources of information.

Part 2 contains detailed listings of projects for each county in the state. The counties are grouped alphabetically and the projects ordered chronologically.

Part 3 gives a listing of projects covering more than one county. All projects listed in this section is also cross-referenced in Part 2.

Part 4 lists addresses for locations where the photography listed in Parts 2 and 3 may be viewed and/or purchased.

Finally, Part 5, the Appendix includes information on U.S. Geological Survey orthophotos, maps of areas served by regional commissions, a report form and reference materials.

The printed catalog comes in a 3-ring loose-leaf binder so that pages can be easily updated and replaced. Ordering information and the price of the catalog appears to the right.

Price	Quantity	Total
$25.00	_____	_____
add Wisconsin state sales tax		_____
**Postage & Handling*		_____
Total enclosed		_____

**\$6.00 for First-class delivery; \$3.00 for Third-class delivery*

Payment (cash, check, or government purchase order) must accompany order form. Make all payments payable to the **State Cartographer's Office.**

SEND CATALOG TO: **DATE** _____

_____
Name *(print clearly)*

_____
Organization/Agency

_____
Address

_____
City State Zip

_____
Phone Fax

ADDRESS ORDER TO:

State Cartographer's Office
University of Wisconsin-Madison
550 N. Park Street
Rm. 160 Science Hall
Madison, WI 53706-1404

Telephone: 608/262-3065; Fax: 608/262-5205

ORDER FORM
July 1993

State Cartographer's Office
550 N. Park Street
Room 160 Science Hall
Madison, WI 53706-1404
phone: 608/262-3065; fax: 608/262-5205

DEM demo diskettes and documentation

The SCO has packaged software, data, and printed explanatory materials that let you learn about and experiment with digital elevation models (DEMs). All you need is an IBM-compatible personal computer with VGA graphics capability and several Mb of hard disk space.

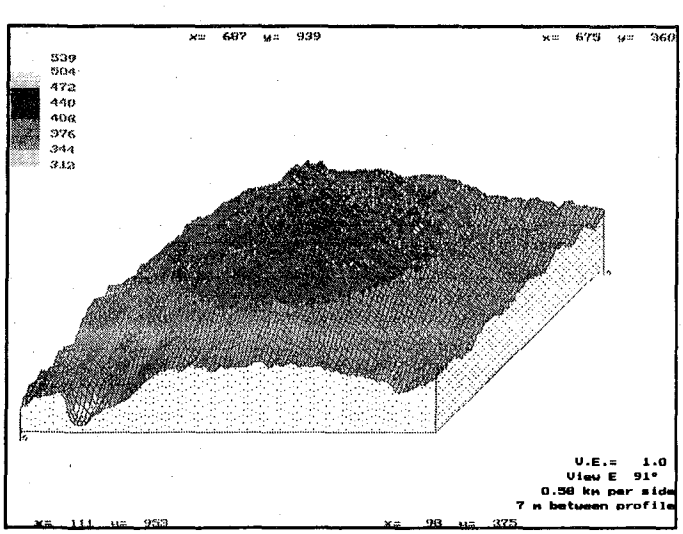
A DEM is a computer data file of elevation points, from which appropriate software can draw a perspective view of the terrain, analyze slopes, determine intervisibility between points, construct topographic contours, etc.

The software included in this package is named MicroDEM, and is written by Peter Guth. It is copyable for non-commercial purposes. You operate MicroDEM through a graphical menu system; a mouse is optional.

The four DEMs included in this package form a contiguous block over the Blue Mounds area, about 25 miles west of Madison, WI. The top of the western of the two mounds is the highest elevation in southern Wisconsin. The surrounding area, being part of the unglaciated "driftless area", is a set of steep valleys formed by stream erosion. This rugged landscape provides many opportunities for exploring DEMs.

We have produced a 11-page guide to installing and using this package. The guide includes step-by-step instructions, explanations, and numerous illustrations.

This package's price covers 2 high-density 3.5" diskettes, photocopying, packaging, and shipping.



Price	Quantity	Total
$10.00	_____	_____
add Wisconsin state sales tax		_____
**Postage & Handling*		_____
Total enclosed		_____

**$2.00 for First-class delivery*

Payment (cash, check, or government purchase order) must accompany order form. Make all payments payable to the **State Cartographer's Office.**

SEND DEM-DEMO TO: **DATE** _____

Name *(print clearly)*

Organization/Agency

Address

City State Zip

Phone Fax

ADDRESS ORDER TO:

State Cartographer's Office
University of Wisconsin-Madison
550 N. Park Street
Rm. 160 Science Hall
Madison, WI 53706-1404

Telephone: 608/262-3065; Fax: 608/262-5205

State Cartographer's Office
550 N. Park Street
Room 160 Science Hall
Madison, WI 53706-1404
phone: 608/262-3065; fax: 608/262-5205

ORDER FORM
July 1993

FEDERAL GEODETIC CONTROL FOR WISCONSIN

National Geodetic Survey (NGS) Geodetic Control Datasheets by County on 3-1/2" diskettes only

[Vertical Datums: NGVD 1929 and NAVD 1988; Horizontal Datums: NAD 1927 and NAD83 (1991)]

USGS 3rd Order Vertical (NGVD 1929), paper copy only

*NGS QTY.	USGS QTY.		*NGS QTY.	USGS QTY.		*NGS QTY.	USGS QTY.		*NGS QTY.	USGS QTY.	
_____	_____	Adams (11/92)	_____	_____	Florence (11/92)	_____	_____	Marathon (2/93)	_____	_____	Rusk (7/93)
_____	_____	Ashland (11/92)	_____	_____	Fond du Lac (11/92)	_____	_____	Marinette (2/93)	_____	_____	St. Croix (7/93)
_____	_____	Barron (11/92)	_____	_____	Forest (12/92)	_____	_____	Marquette (2/93)	_____	_____	Sauk (7/93)
_____	_____	Bayfield (7/93)	_____	_____	Grant (12/92)	_____	_____	Menominee (4/93)	_____	_____	Sawyer (5/93)
_____	_____	Brown (11/92)	_____	_____	Green (12/92)	_____	_____	Milwaukee (3/93)	_____	_____	Shawano (5/93)
_____	_____	Buffalo (11/92)	_____	_____	Green Lake (12/92)	_____	_____	Monroe (3/93)	_____	_____	Sheboygan (5/93)
_____	_____	Burnett (11/92)	_____	_____	Iowa (1/93)	_____	_____	Oconto (3/93)	_____	_____	Taylor (5/93)
_____	_____	Calumet (11/92)	_____	_____	Iron (1/93)	_____	_____	Oneida (11/92)	_____	_____	Trempealeau (5/93)
_____	_____	Chippewa (11/92)	_____	_____	Jackson (1/93)	_____	_____	Outagamie (3/93)	_____	_____	Vernon (5/93)
_____	_____	Clark (11/92)	_____	_____	Jefferson (1/93)	_____	_____	Ozaukee (3/93)	_____	_____	Vilas (5/93)
_____	_____	Columbia (11/92)	_____	_____	Juneau (1/93)	_____	_____	Pepin (3/93)	_____	_____	Walworth (5/93)
_____	_____	Crawford (11/92)	_____	_____	Kenosha (1/93)	_____	_____	Pierce (3/93)	_____	_____	Washburn (6/93)
_____	_____	Dane (11/92)	_____	_____	Kewaunee (1/93)	_____	_____	Polk (3/93)	_____	_____	Washington (6/93)
_____	_____	Dodge (11/92)	_____	_____	LaCrosse (1/93)	_____	_____	Portage (3/93)	_____	_____	Waukesha (6/93)
_____	_____	Door (2/93)	_____	_____	Lafayette (1/93)	_____	_____	Price (4/93)	_____	_____	Waupaca (6/93)
_____	_____	Douglas (11/92)	_____	_____	Langlade (1/93)	_____	_____	Racine (4/93)	_____	_____	Waushara (6/93)
_____	_____	Dunn (11/92)	_____	_____	Lincoln (1/93)	_____	_____	Richland (4/93)	_____	_____	Winnebago (11/92)
_____	_____	Eau Claire (11/92)	_____	_____	Manitowoc (1/93)	_____	_____	Rock (4/93)	_____	_____	Wood (6/93)

***To access the Control Datasheet information from the NGS diskettes, it is necessary to use NGS's Datasheet Extraction Software (DSX).** NOTICE: The date listed after county name is "date of retrieval" —when NGS extracted the datasheets from its database. Each diskette has the best known information when extracted from the database, but will not contain updates or corrections made after that date. NGS regularly receives reports concerning data discrepancies, and periodically revises its database. Contact the NGS Information Center directly for the most recent information.

ORDER SUMMARY	UNIT PRICE	QTY.	TOTAL
NGS Geodetic Control Datasheets by County *(see reverse side)*	$10.00	.....	.....
NGS Datasheet Extraction Software (DSX) version 2.1 *(see reverse side)*	$15.00	.....	.....
NADCON (version 2.1) Datum Transformation Software by NGS *(see reverse side)*	$15.00	.....	.....
VERTCON (version 1.0) Datum Transformation Software by NGS *(see reverse side)*	$15.00	.....	.....
CORPSCON (version 3.01) Datum Transformation Software by NGS *(see reverse side)*	$15.00	.....	.....
WHPGN Datasheets (98 stations) NAD 83 (1991)	$10.00	.....	.....
USGS 3rd-Order Level Lines by county [by 15-minute blocks] *(paper copy only)*	$10.00	.....	.....
Stations in the WHPGN Network *(8 1/2" x 11" paper copy map)*	*free*	.....	.....
Development of the WHPGN *(2-pages, paper copy)*	*free*	.....	.....
Questions Concerning NAD 83 1991 *(1-page, paper copy)*	*free*	.....	.....
Using Datum Transformation Software in Wisconsin *(4-pages, paper copy)*	*free*	.....	.....

1. Payment (cash, check, or government purchase order) must accompany order form. Make all payments payable to the ***State Cartographer's Office.***

2. Return order form and payment to: **State Cartographer's Office, 550 N. Park Street, Room 160 Science Hall, Madison, WI 53706-1404.**

SUBTOTAL..... .....

Add applicable Wisconsin state sales tax ....

TOTAL..... .....

ame (please print)	Date	*Office Use Only* Date Order Received
Organization/Agency	Phone (day)	
Address	Fax	Date Order Sent
City, State, and Zip		

FEDERAL GEODETIC FILES AND TRANSFORMATION SOFTWARE

DIGITAL DATASHEET FILES

NGS geodetic control information is now published in a new datasheet format, standardized for both horizontal and vertical stations. The datasheet includes the adjusted lat./long. position, UTM and SPC coordinate values, datum shift information, the station's description and history, and many more details. Horizontal control information for Wisconsin is published on the NAD83 (91) datum. Vertical information is referenced to NAVD 88 where possible, otherwise NGVD 29. The datum shift values allow easy reference to other NGRS datums and adjustments.

These digital files are distributed by the SCO in county-wide sets, containing all NGRS horizontal and vertical control for one county. Additionally, the SCO offers a separate digital file containing datasheets for the 98 Wisconsin High Precision Geodetic Network stations statewide, which were used as a basis for Wisconsin's NAD 83 (91) adjustment.

FEDERAL GEODETIC SOFTWARE PRODUCTS

The federal software programs listed below are designed to run on 80286 (or higher) processor, MS-DOS based personal computer. CORPSCON and VERTCON require a math co-processor; VERTCON and DSX do not. A hard drive is recommended but not required. At least 1 MB of disk space is needed for each of the software's program files, and at least 512 KB of RAM is needed for program execution. The programs require DOS v. 3.0 or higher. All of the programs are accompanied by a documentation manual, except VERTCON (manual under development).

DSX *(version 2.1)*

DSX is a program designed for extracting data from the National Geodetic Survey (NGS) digital datasheet files described above. DSX is intended for individuals who need to search and retrieve geodetic control station datasheets, or specific data items, from large data sets. DSX allows manipulation of the datasheet file to extract, view, and/or print station information.

NADCON *(version 2.1)*

NADCON is the federal standard for NGRS horizontal datum transformations. The program allows conversion of latitude and longitude between the NAD 27, NAD 83 (86), and NAD 83 (1991) datums. NADCON v. 2.1 includes additional routines that accommodates three of the completed state high precision geodetic networks: Florida, Tennessee, and Wisconsin.

NADCON provides ***approximate*** coordinate values accurate to about 0.5 feet. The actual accuracy of the converted coordinate depends upon the proximity and quality of existing control in the area.

NADCON has many applications and is often used to bring historical record data into the NAD 83 adjustments.

CORPSCON *(version 3.01)*

Developed by the U.S. Army Corps of Engineers, CORPSCON is a more comprehensive version of NADCON. This software consists of a combination of NADCON and other NGS software, and accommodates the transformation of data in several coordinate systems. CORPSCON'S latest release supports coordinate transformations to or from UTM coordinates in addition to geographic (latitude/longitude) and State Plane coordinates. Also new with this release, CORPSCON is no longer limited as to the number of points transformed at one time.

CORPSCON does not currently support individual state high precision networks and therefore cannot resolve the transformation between different NAD 83 adjustments (i.e., CORPSCON will transform between the NAD 27 & NAD 83 (86) datums only). However, NADCON and CORPSCON used in combination can solve this problem.

VERTCON *(version 1.0)*

VERTCON is the Federal Standard for NGRS vertical datum transformations. It computes an approximate, modeled difference in orthometric height between the NGVD 29 and the NAVD 88 datums, based on a specified latitude and longitude location.

The estimated maximum error of the VERTCON transformation process is +/-2.5 cm. Depending on the network design and terrain relief in a particular area, larger differences may occur.

VERTCON data conversion is sufficient for many mapping purposes.

NGS and SCO forge cooperative link

The SCO is happy to announce that we are negotiating a cooperative agreement with the National Geodetic Survey. The agreement recognizes the SCO as the principal public contact and data center for the distribution of NGS geodetic data, software, and publications in Wisconsin.

The SCO will also serve as a source for monument status information, assisting with the reporting of monument condition and recovery notes. We hope that this service will aid the maintenance of the National Geodetic Reference System in Wisconsin.

Order new NGS products from the SCO

In preparation for our forthcoming role as an NGS geodetic data center, and in keeping with the SCO's tradition of servicing Wisconsin's geodetic inquiries, we would like to call attention to the order form found as an insert to this issue of the *Mapping Bulletin.* The order form lists the geodetic products now available through the SCO, and includes brief product descriptions and ordering information. With these products, you can become more self-sufficient in identifying and evaluating geodetic control options for various purposes. The following are special notes regarding some of these new products:

Digital Geodetic Data

The SCO has received digital datasheet files for 68 of Wisconsin's 72 counties. The remaining four county data sets will be delivered after NGS has completed their office move. Also available is a special digital data set containing datasheets for the 98 stations comprising the Wisconsin High Precision Geodetic Network.

To aid in the use of these digital files, NGS produced a program called **DSX**, which allows the user to manipulate, extract, view, and/or print station datasheets. *Please note that the county datasheet files have limited use without the DSX program.* The SCO has enhanced the NGS documentation which accompanies the DSX program, and included more descriptive text and sample procedures.

VERTCON v. 1.0

The National Geodetic Survey has announced the availability of a new vertical datum transformation software program. VERTCON computes the modeled difference in orthometric height between the North American Vertical Datum of 1988 (NAVD 88) and the National Geodetic Vertical Datum of 1929 (NGVD 29). VERTCON is the federal standard for vertical datum transformations, and is the vertical equivalent of the NADCON software.

CORPSCON v. 3.01

This software's latest release is also now available. The SCO order form describes some of this version's new features. Keep an eye on CORPSCON's future releases ... plans include support of the individual state high precision datum adjustments, and incorporation of the VERTCON program. This will make CORPSCON one-stop shopping for modeled (approximate) data conversions.

Informational Flyer

At present, no one federal conversion software meets all needs. VERTCON stands alone for vertical datum conversions. NADCON supports all NGRS horizontal datums (including high precision adjustments) but only works with latitude and longitude values. CORPSCON supports more horizontal coordinate systems but not high precision datum adjustments. So how do you transform a NAD 27 coordinate to UTM NAD 83(91)?

Used in combination, NADCON and CORPSCON can accomplish most transformations needed in Wisconsin. To assist with using the federal conversion software programs, the SCO has produced a free 4-page informational flyer, "Using Datum Transformation Software in Wisconsin". The flyer includes a brief description of data transformation methods, a description of the various federal software packages, instructions in using NADCON and CORPSCON in concert, and a decision-making flowchart to guide the process.

NGS on the move .....

The National Geodetic Survey has moved its offices. The new information is:

National Geodetic Information Center
National Geodetic Survey, NOAA
N/CG174, SSMC3, Station 9202
1315 East-West Highway
Silver Spring MD 20910
phone: 301/713-3242
fax: 301/713-4172

Completion expected by fall

Wisconsin Department of Transportation develops county coordinate systems

by Diann Danielsen

In a move that may have far-reaching impacts for Wisconsin, the Dept. of Transportaion (DOT) has decided to go forward with the development of a set of unified local coordinate systems. The DOT project will develop individual county coodinate systems. Each Wisconsin county will have only one coordinate system, though several counties in a region may share the same coordinate system if the design criteria permit.

These systems are mathematically stable and are related to the National Geodetic Reference System (NGRS). This maintains the benefits of the NGRS network while at the same time providing a rectangular coordinate system with minimal difference between ground and projected grid distances.

The ground and grid difference can be held to a minimum by designing a coordinate projection system based on a reference surface elevated to average local ground level. When a local coordinate system is properly designed, documented, and supported by transformation algorithms, the local coordinate values can be converted to any other NGRS related coordinate system. (Note: The practice of applying local average elevation and scale factors for a given region *does not* preserve a precise or mathematically stable relationship to the NGRS.)

Other design considerations include: reference to the NAD 83(1991) datum adjustment, metric units, 1:30,000 or better accuracy between ground values and the county coordinate system, and a distinct numeric difference between adjacent coordinate systems to avoid confusion. The design criteria support uses in urban areas and transportation corridors, as well as in rural areas.

According to John Haverberg, DOT Technical Services, the DOT is committed to developing the state-wide set of county coordinate systems, but will not officially adopt them for agency use until they can be analyzed for DOT applications. Haverberg added that whether or not the local systems are adopted for future DOT work, the county coordinate systems will be made available for others to use as they wish. Since the systems will be mathematically relatable to NAD 83, their use should be allowed under the Wisconsin Land Information Program.

In the past, DOT has had problems using inconsistent local coordinate systems developed to differing criteria in different DOT districts. This has been confusing for both consultants and DOT personnel. The potential benefit of this project to DOT is a uniform system of precisely relateable coordinate systems, together with the development of conversion software that can be used state-wide.

The project is expected to be completed in late summer or early fall.

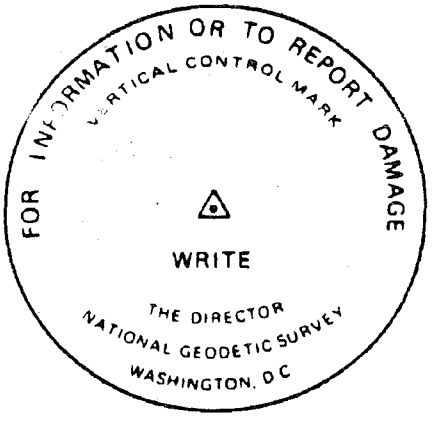
Help preserve Wisconsin's control network—adopt-a-mark!

ACSM/AAGS President Steven Briggs has issued a challenge to all surveyors....adopt a geodetic control marker!

Since the loss of the NGS mark-maintenance program, the maintenance of the National Geodetic Reference System (NGRS) has fallen to those who have the time and interest to preserve the monuments. In order to encourage more frequent and wide-spread reporting of monument conditions, President Briggs makes this proposal: **each surveyor should adopt an NGRS monument**...recover the monument and make periodic visits to the site, filing a condition report form (recovery card) as necessary. Filling out the condition report form takes only a few minutes, and the information will add valuable updates to the NGRS database - a benefit we all will enjoy!

Condition report forms are available from the SCO or the NGS Information Center (301-713-3242). To aid in tracking participation in this program, please write ADOPT-A-MARK at the top of the report form.

(source: ACSM Bulletin, *Number 143, May/June 1993)*



from the NRC Mapping Science Committee

Report advocates steps toward NSDI

by Bob Gurda

A study committee of the National Research Council (NRC) has recommended that the nation establish policies, strategies, and organizational structures to ensure that we have a robust National Spatial Data Infrastructure (NSDI). (For background on the NSDI, see the state cartographer's commentary on page 3 in this issue).

The NRC's Mapping Science Committee, established in 1987 at the request of the U.S. Geological Survey, recently published its report and recommendations as a soft-bound book of 170 pages. The committee is primarily composed of people from academia and industry, and is chaired by John Bossler of Ohio State University (and formerly of the National Ocean Service). Professor Ben Niemann from UW-Madison is another of the 19 members.

The report focuses primarily on the federal government, but is based on the premise that effective use of resources in building and maintaining the NSDI requires coordination among levels of government. An Appendix uses the example of spatial data on wetlands, particularly as mapped differently by various agencies and states, to illustrate both problems as well as the opportunities that might be exploited through cooperation.

Toward a Coordinated Spatial Data Infrastructure for the Nation is available from the National Academy Press, 2101 Constitution Avenue, Washington, D.C. 20418. The price is $18 plus $4 shipping.

County plat books

The following Wisconsin County Land Atlas and Plat Books are now available for 1993: Adams, Dane, Door, Dunn, Florence, Iowa, Iron, Jefferson, Waushara, and Wood Counties. These plat books sell for $25.00 plus tax and shipping. Ozaukee-Washington and Washington-Ozaukee both sell for $35 plus tax and shippingt. For ordering details contact: Rockford Map Publishers, Inc., P.O. Box 6126, Rockford, IL 61125, phone (orders only) 800/447-2222 for customer service information call 815/399-4614.

Census tract atlas published

A new *Census Tract Atlas of Wisconsin* has been published by the Applied Population Laboratory (APL) at UW-Madison. It displays all census tracts and block numbering areas for the entire state in its 200 bound pages. Organized by county, the atlas depicts details down to the block level and features an index of streets and boundaries for each tract or block numbering area.

Each 11" X 17" map shows block boundaries, minor civil division boundaries, and major hydrography in black; tracts or block numbering areas are depicted in red. Densely populated areas are displayed on separate larger-scale inset maps to maintain legibility. Used in combination with other information such as the 1990 Census, these maps can help analyze markets, service areas, and federal compliance zones.

The atlas is priced at $82 including $3 for postage and handling. Comparable maps from the U.S. Bureau of the Census cost about 600, and are cumbersome to use and store. The APL provides demographic and economic consultation and service, issues reports, provides presentations and training, and conducts research. Contact the APL for further information including an order form: 608/252-1515 (fax 608/262-6022).

(source: APL)

Catalog details enhanced Census TIGER/line files available for Wisconsin

by Bob Gurda

Computerized information for census blocks and tracts, related census data, and other compatible information such as minor civil division boundaries and voting districts is now available as a variety of types of Arc/Info coverages. The types, areal extent, format options, and costs are all listed in a new 50-page catalog produced by the UW-Madison's College of Agriculture in conjunction with UW-Extension.

This information is derived from U.S. Census Bureau TIGER/line files, modified and enhanced as part of projects conducted at the UW's Applied Population Laboratory and at its Land Information and Computer Graphics Facility. One such project provided support for the redistricting of the Wisconsin Legislature last year.

For a copy of the catalog or other information, contact the APL at 608/262-1515.

(source: APL)

Reflects USGS policy shift

Fox Valley quads to get digital revision

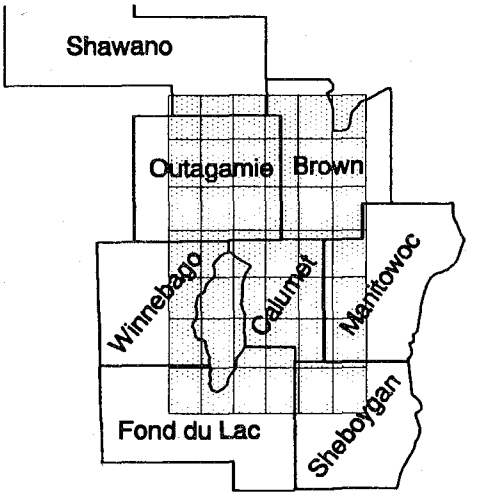
by Ted Koch

The US Geological Survey (USGS) has recently completed the collection of 1:24,000-scale digital line graph (DLG) data for a block of 42 quadrangles in the Fox Valley area (see index map below). This project has been ongoing for several years.

The project specifies the collection of most features appearing on a standard topographic map, including hydrography, transportation, boundaries, contours, vegetation cover, culture, and the public land survey system from the existing, unrevised quad sheets. In a recently announced change of production procedures, the USGS has begun integrating and combining the processes of DLG data collection with automated quadrangle revision. For this area, the quad maps will all be revised, in otder to develop up-to-date DLGs.

In addition to revising the DLG data, the automated digital revision process includes the creation of a digital elevation model (DEM), and the generation of four digital orthophoto images for each revised 7.5 minute quadrangle. For this project, 168 digital quarter-quadrangle based orthophoto images will be created. The orthophotos, derived from 1992 National Aerial Photography Program (NAPP) photos, will be used as the primary source for most of the newly revised map features. In addition to all the digital data, revised quadrangle maps will also be published.

Until recently, the U.S. Geological Survey did not coordinate the routine 7.5 minute topographic quad sheet revision and the subsequent collection of the digital information in the DLG data format. Typically, the revision process included only a manual, non-digital revision of the base map without the collection of any DLG information. Conversely, DLG data usually has been collected at a later time directly from the existing, unrevised map sheet.



Area covered by the 42 USGS quadrangles slated for full digital revision.

12% of state now scheduled

More digital orthophotos on tap

by Bob Gurda

The amount of digital orthophoto development over Wisconsin has increased again. Three separate projects have been initiated in the last several months. Like those ordered earlier by the Soil Conservation Service for four counties, as we reported in our last issue, these orthophotos will be produced from aerial photographs acquired over the state in 1992 by the National Aerial Photography Program.

The **Chequamegon National Forest**, in northwestern Wisconsin, has ordered digital orthophotos for the area that it administers. This project includes individual quarter-quadrangle orthophotos for all of the 7.5-minute quadrangle blocks that include any part of the Forest—approximately 116 quarter quadrangles.

Another significant area that has orthophotos in work is the **Fox River Valley**. This part of a larger project begun by the U.S. Geological Survey, to generate digital line graphs (DLGs) from existing topographic maps (7.5-minute series), and to then update the DLGs from the orthophoto images and from them publish updated maps. For details, see the column to the left.

A third project has just been initiated, to produce 12 orthophoto quarter quadrangles over **southwestern Portage County**. These are being acquired by the Wis. Dept. of Natural Resources in cooperation with USGS as part of the data development for a wildlife habitat project.

The digital orthophoto files from these projects will become part of the public domain (not copyright) and as such will be available to anyone at modest cost. Delivery schedules are expected to vary from 6 to 18 months. Together with the coverage of four counties announced earlier, approximately 580 new digital orthophotos are set for production over Wisconsin. This total represents about 12% of full state coverage.

We have been discussing the technical details and opportunities for developing additional orthophoto coverage over the state with a growing group of people. Interest continues to rise despite the continued stagnation of a federal initiative to fund full national development. Those projects that have been initiated to date have relied primarily on federal funds advanced by specific agencies, but future work may not enjoy better than 50% contribution since the federal budget picture is rather bleak. Various creative alternatives may be necessary to ultimately achieve statewide coverage. The State of Minnesota's legislature provided a large appropriation to develop digital orthophoto data.

PEOPLE & ORGANIZATIONS

On the Wisconsin front...

Paul Wolf retires from UW-Madison

Professor Paul Wolf recently retired from the Civil and Environmental Engineering Department at UW-Madison after over 20 years of service. He is equally well known for his teaching skills, research prowess, and public service, and has been granted emeritus status by the university. He earned his academic degrees from UW-Madison.

Wolf has produced multiple editions of three textbooks, two of which have been translated in foreign languages. He garnered several awards related to teaching. His research record has been widely recognized, culminating in a national award for scientific developments in the field of photogrammetry. And he served both the State of Wisconsin and several professional societies in important roles.

Paul developed a summertime short course in hydrographic surveying, and has so enjoyed the annual experience that he plans to continue leading the session in future years. In addition, he will teach occasional graduate-level courses in analytical photogrammetry.

Goldmann back at DNR

An expert in GIS and remote sensing has taken a position with the Bureau of Forestry at the Wisconsin Department of Natural Resources in Madison. Actually, Robert Goldmann returned to DNR after a brief foray into the state of Washington. He is working on several projects designed to enhance information management on state forest lands.

He also informs us that access to a grant fund managed by the bureau has been broadened to include land information system support for county forest lands.

SCS hires state GIS coordinator

The state office of the USDA's Soil Conservation Service recently added a position of GIS Coordinator. Brian Huberty moved from Oregon to take this job, although he has worked in the upper midwest previously. We look forward to working with Brian on issues such soil map digitizing, orthophoto development, and land cover analysis.

SCO staff changes

Sharon James will join the SCO in early August to assist Brenda Hemstead on a permanent half-time basis.

Several students are leaving the SCO. Barbara Strassheim has worked on a wide variety of projects since beginning as an undergraduate employee two years ago. Most recently she handled the desktop publishing for our new aerial photography catalog. Barb is heading toward completion of her Master's degree in geography. Matt Allen will contiue work toward a degree in civil engineering. Amongst other things, he produced the SCO's magnetic declination guide and the new DEM viewing guide during his one-and-a-half year tenure at the SCO.

On the national scene...

Gschwind elected URISA President

The membership of the Urban and Regional Information Systems Association (URISA) recently chose Randy Gschwind of Milwaukee as its President-Elect. He will assume his duties at the annual conference in Atlanta this summer, and will succeed to the presidency at next year's meeting which is scheduled for Milwaukee. He serves as the City of Milwaukee's Information Center Manager.

Randy has been active in URISA for many years, particularly as a workshop coordinator and more recently as annual conference program chair. He will be following in the footsteps of Bill Huxhold and David Moyer as Wisconsinites who served as URISA President.

Dahlberg takes reins at ACSM

Professor Richard Dahlberg of Northern Illinois University has advanced to the presidency of the American Congress on Surveying and Mapping (ACSM). Dick earned his PhD at UW-Madison, and has maintained his Wisconsin ties for decades. He has also led the Illinois Mapping Advisory Committee for almost 20 years.

ACSM adds fourth society

A new organization called the Geographic and Land Information Society (GLIS) has been formed under the umbrella of the American Congress on Surveying and Mapping (ACSM). The New England Section of ACSM led the successful effort to form GLIS.

This development is a reflection of disciplinary shifts that have led to a group of professionals who don't fit neatly into one of the existing three member organizations of ACSM: ACA (the American Cartographic Association), NSPS (the National Society of Professional Surveyors) and AAGS (the American Association for Geodetic Surveying).

Current members of ACSM can join GLIS for $20. Others need to join both ACSM and GLIS. For more information, contact ACSM at 301/493-0200.

(source: ACSM)

WLIA to meet in Waukesha in Sept.

by Ted Koch

The Wisconsin Land Information Association's next membership meeting will feature a workshop on photogrammetry and digital base mapping, and a presentation by the DNR's Deputy Secretary. Other content of this event scheduled for September 23 and 24 = + includes updates on orthophoto production, a review of the state's land information program, and previews of the upcoming GIS/LIS and URISA conferences slated for the region.

The Country Inn and Conference Center near Waukesha will be the location for this quarterly membership meeting. The Friday portion requires a modest registration fee that covers lunch and other costs.

A free 2-hour evening program on the 23rd will cover the photogrammetric mapping process. Led by Doug Fuller from Aero-Metric, Inc. in Sheboygan, and Fred Halfen from Ayers Associates in Madison, this program will provide an overview of the base mapping process. Featured will be an inclusive look at the processes involved in building a digital base map. Topics covered will range from the technical requirements of aerial photography and ground control, through the processes of analytical aerotriangulation, and feature compilation. Emphasis will be given to understanding the requirements of scale, feature selection, quality control, and file structure.

Friday's general membership meeting will feature a presentation by Ron Semmann, the new Deputy Secretary of the Wisconsin Department of Natural Resources. Ron will discuss the role of GIS in DNR, and the agency's activities in the state's land information program.

Also scheduled for the Friday program are discussions on digital orthophotos, a summary of the recently conducted annual Wisconsin Land Information Program review, and a presentation on several national geo-data related activities including the upcoming GIS/LIS annual convention in Minneapolis, and the URISA annual convention scheduled next year in Milwaukee. For more information and registration contact the WLIA at 800/3454-0421.

Satellite uplink reset for September 21

A four hour satellite broadcast on GIS database design for land records modernization will be broadcast by UW-Madison on September 21 (originally scheduled for July 13) The program, based on work from the LOCALIS Project, will highlight efforts of the Project's County Advisory Group. Among the co-sponsors and cooperators are UW-Extension, WLIB, WLIA, URISA, and NGS.

The satellite uplink will be paired with voice telephone and fax access so that participants at remote sites can submit questions during the broadcast. For more information, contact Uplink, c/o LICGF Outreach Programs, 25 Agriculture Hall, 1450 Linden Drive, Madison, WI 53706.

August seminar focuses on standard GPS service contracts

The global position system (GPS) provides an opportunity to build extremely high quality survey control networks at the local level. However, the technology is complex and no clear standards have been adopted to guide its use.

To help address this situation, three organizations are joining forces to present a one-day seminar "Developing Statewide Standards for GPS Services". It is scheduled for August 12 in Wausau. A fee of $40 per person includes lunch. The sponsors are the Wisconsin Land Information Association, the Wisconsin Land Information Board, and the Wisconsin Society of Land Surveyors.

Following and overview of the technology and related institutional issues, Paul Hartzheim of the Wis. Dept. of Transportation will present his agency's proposed "Request for Proposals". This document is designed to be a standard device by which local governments can solicit bids from contractors to perform GPS work that will fit well within existing networks. DOT was involved with the recent development of the Wisconsin High Precision Geodetic Network, which provides an extremely solid backbone for development of local systems.

The final portion of the program includes a perspective from the contractor community and a question/answer/comment period.

For details, contact Susan Simons at 608/267-3369

GIS/LIS heads for Twin Cities

A major international conference focusing on geographic and land information systems is scheduled for late October/early November in Minneapolis, Minnesota. GIS/LIS '93 runs from November 1-4, and will be preceded by the Auto-Carto 11 Symposium (October 30 - November 1).

GIS/LIS '93 is sponsored by five professional organizations: AAG, ACSM, AM/FM International, ASPRS, and URISA. As such, it integrates several disciplines and broad user groups including utility management, remote sensing, urban information systems, mapping, geography, natural resources, etc.

As with most national conferences, GIS/LIS includes workshops, presented papers, panel discussions, social events, and a large exhibition of commercial products and services. The presentations range from descriptions of practical applications, to theoretical discussions, to policy considerations. Fees range from $25 (exhibits only) to $310 (full registration for all days); some rates are lower for members of the sponsoring organizations. Workshops carry a separate fee ($190 - $240).

This conference has been held in San Antonio, Orlando, Anaheim, and San Jose in recent years. It is not scheduled for another appearance in this part of the country over the next several years.

Auto-Carto has a longer history than GIS/LIS, and has been more theoretically and research oriented.

For further details, contact GIS/LIS at (301) 493-0200.

CONFERENCES, TECHNICAL MEETINGS, AND CLASSES

August 1-6, **SIGGRAPH '93** will be held in Anaheim, CA. Contact: SIGGRAPH '93 Conference Management, 401 N. Michigan Ave., Chicago, IL 60611 at 312/321-6830; fax 312/321-6876.

August 8-11, **Computers in the Water Environment** will be held at the Santa Clara Marriott Hotel in Santa Clara, CA. Contat: Water Environment Federation, Attn: Conference Dept., 601 Wythe Street, Alexandria, VA 22314-1994 at 703/684-2464.

August 12, **Developing Statewide Standards for GPS Services** will be held at the Holiday Inn of Wausau, 201 N. 17th Avenue, U.S. 51 Bypass at WI Hwy 29, Wausau, WI. Contact: Susan Simons, Wisconsin Land Information Board, P.O. Box 7868, Madison, WI 53707-7868.

August 24-26, **Twelfth Pecora Remote Sensing Symposium: Land Information from Space-Based Systems** will be held in Sioux Falls, SD. Contact: Dr. Robert Haas, Symposium Chair at 605/594-6007.

September 21, **LIS/GIS Satellite Uplink on Database Design** will be broadcast. Contact: Celeste Kirk at 608/262-5334.

September 22-24, **Institute of Navigation GPS '93** will be held at the Salt Palace Convention Center in Salt Lake City, UT. Contact: Gaylord Green, Hansen Experimental Physics Labs, Stanford University, Stanford, CA 94305-4085 at 415/725-8911; fax 415/725-7010.

September 23-24, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Waukesha, WI. Contact: WLIA at 800/344-0421.

September 26-30, **Second International Conference/Workshop on Integrating GIS and Environmental Modeling** will be held in Breckenridge, CO. Contact: NCGIA Conference Secetariat at 805/893-8224.

September 27-30, **Introduction to GIS** will be held in Lincoln, NE. Contact: CALMIT, 113 Nebraska Hall, Univ. of NE-Lincoln, Lincoln, NE 68588-0517 at 402/472-8197; fax 402/472-2410.

September 28-30, **SIG-GIS '93** will be held in Washington, D.C. Contact: World Computer Graphics Associatin at 202/775-9556, fax 202/775-8122.

October 3-7, **Workshop on Land Management Planning Utilizing GIS** will be held in Atlanta, GA. Contact: Diane Ross-Leach, Pacific Gas & Electric Co., 123 Mission St., H21A, San Francisco, CA 94177 at 415/973-5696; fax 415/973-7971.

October 25-28, **105th Geological Society of America Annual Meeting & Exposition** will be held in Boston, MA. Contact: GSA Exhibits Coordinator, P.O. Box 9140, Boulder, CO 80301-9140 at 303/447-2020; fax 303/447-0648.

October 25-29, **Wetlands Remote Sensing and Mapping Workshop** will be held at the Stennis Space Center in Mississippi. Contact: U.S. Geological Survey, Applications Assistance Facility, Bldg. 3101, Stennis Space Center, MS 39529.

October 30-November 1, **Auto-Carto 11: 11th International Symposium on Computer-Assisted Cartography** will be held in conjunction with the GIS/LIS '93 in Minneapolis, MN. See above listing for address.

November 1-4, **GIS/LIS '93 Annual Conference & Expo. & ACSM/ASPRS Fall Convention** will be held in Minneapolis, MN. Contact: ACSM, 5410 Grosvenor Lane, Bethesda, MD 20814-2122, 301/493-0200; fax 301/493-8245.

November 1-4, **National Flood Insurance Program (NFIP) Biennial Conference**, sponsored by the Federal Emergency Management Agency (FEMA) will he held in Reston, VA. Contact:Bonnie Shepard, FEMA, 500 C Street, S.W., Room 431, Washington, D.C. 20472 at 800/426-6347, fax 301/731-9121.

December 10, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Eau Claire, WI. Contact: WLIA at 800/344-0421.

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January 13, **Executive Program** on information technology will be held in Milwaukee, WI. Contact URISA at 202/289-1685, or WLIA at 800/344-0421.

January 26-28, **Wisconsin Society of Land Surveyor's Annual Institute Conference** will be held at the Holiday Inn, Stevens Point, WI.

January 27-28, **International Symposium on Remote Sensing and GIS** will be held in San Francisco, CA. Contact: Marsha Firman at 215/299-5478.

January 31-February 2, **2nd Thematic Conference on Remote Sensing for Marine and Coastal Environments** will be held in New Orleans, LA. Contact: ERIM Conferences, phone 313/994-1200 ext. 3234, fax 313/994-5123.

March 21-23, **Wisconsin Land Information Association's Annual Conference** will be held in Stevens Point, WI. Contact: WLIA at 800/344-0421.

March 21-24, **AM/FM International Annual Conference XVII** will be held in Denver, CO. Contact: Paula Delie, AM/FM International, 14456 E. Evans Avenue, Aurora, CO 80014-1409, 303/337-0513; fax 303-337-1001.

April 23-28, **1994 ASPRS/ACSM Annual Convention** will be held in Reno, NV. Contact: ACSM '94, 5410 Grosvenor Lane, Bethesda, MD 20814-2122, 301/493-0200; fax 301-493-8245.

May 9, **10th Thematic Conference of Geologic Remote Sensing** will be held in San Antonio, TX. Contact: ERIM Conferences at 313/994-1200 etx. 3234, fax 313/994-5123.

June '94, **The Fourth International GPS/GIS Conference** and training program will be held in Washington, D.C. Contact: Conference Coordinator, GPS/GIS '94 at 202/434-8910, fax 202/434-8911.

June '94, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Oshkosh, WI. Contact: WLIA at 800/344-0421.

August 8-12, **URISA '94, Urban & Regional Information Systems Assn.**, will be held in Milwaukee, WI. Contact: The Urban & Regional Information Systems Assn., 900 Second St., N.E., Suite 304, Washington, DC 20002, 202/289-1685.

September '94, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Rhinelander, WI. Contact: WLIA at 800/344-0421.

October 23-28, **GIS/LIS '94** Annual Conference & Exposition & ACSM/ASPRS Fall Convention will be held in Phoenix, AZ. Contact: GIS/LIS '94, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2122 at 301/493-0200; fax 301/493-8245.

December '94, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Madison, WI. Contact: WLIA at 800/344-0421.

ABOUT THE SCO.....

The State Cartographer's Office (SCO), established in 1973, is a unit of the University of Wisconsin-Madison. The SCO is located on the 1st Floor of Science Hall.

Our staff consists of four people—Ted Koch, State Cartographer (608/262-6852), Bob Gurda, Assistant State Cartographer (608/262-6850), and Program Assistants Brenda Hemstead and Sharon James (608/262-3065), plus several part-time graduate and undergraduate students.

The State Cartographer's position and mission is described in Wis. Statute 36.25 (12m). In addressing this role, the SCO functions in a number of ways:

- publishes the Wisconsin Mapping Bulletin, catalogs, guides, brochures, and other documents to inform the mapping community.
- inventories mapping practices, methods, accomplishments, experience, and expertise, and further acts as a clearinghouse by providing information and advice in support of sound mapping practices and map use.
- participates on committees, task forces, boards, etc. The State Cartographer is one of the 13 voting members of the Wisconsin Land Information Board.
- develops experimental and prototype products.
- serves as the state's affiliate for cartographic information in the U.S. Geological Survey's Earth Science Information Center (ESIC) network.

The Office answers a wide range of inquiries ranging from simple to complex, in the following general categories:

1. Geodetic Control—Requests for surveying information which has been established by some office or agency, and upon which the requestor wishes to base a survey or map.
2. Aerial Photographic Coverage—These are requests for information about existing or planned aerial photographic coverage which can be utilized for a variety of projects. These requests, in many instances, are motivated by the desire to avoid the exceedingly more costly option of acquiring specifically flown photography.
3. General Map Coverage—The requestor is seeking map coverage to fulfill a specific need, from utilization as a base map upon which other information can be compiled, to determination of location or extent of a resource such as wetlands, to use as a recreation guide.
4. Specific Unique Data—These types of requests change as various programs are implemented. Examples include magnetic declination (for land surveying), and latitude/longitude (federal requirement for placement of sending satellite dishes or radio towers).
5. General Requests—Such as size of an area, height of a particular feature, location of a named feature, explaining contours, digital methods, software, hardware, etc.
6. Activities of Other—This provides access to publications, news, anecdotal information, and referrals to appropriate agencies, programs, organizations, or individuals who may be able to provide the information being sought.

For more information, call the SCO at 608/262-3065. You can request a free brochure profiling the SCO in more detail, and listing available publications.

Wisconsin Mapping Bulletin

Published quarterly by the Wisconsin State Cartographer's Office. A University of Wisconsin-Madison outreach publication distributed free upon request.

News is welcome on completed or ongoing projects, published maps or reports, or conferences/workshops. Local and regional information is especially encouraged. The Editor makes all decisions on content. Deadline for the next issue is Sept. 17, 1993.

Editor: Bob Gurda
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