

WISCONSIN MAPPING BULLETIN

Vol. 16 No. 4 July 1990



REPORTING ON LAND INFORMATION AND MAPPING
SCIENCES IN THE STATE OF WISCONSIN

LAND INFORMATION OFFICES ESTABLISHED IN MOST COUNTIES

Almost all Wisconsin counties have already, or are about to establish their "land information offices". This rapid development of the last 3 months is in response to Act 339 which was passed by the legislature as AB727 and then signed by the Governor in late April. Act 339 increases the fee collected by county Registers of Deeds for recording documents, and a county can begin to retain part of the fee increase for use in a land records modernization program---provided it has established such an office.

Counties are allowed broad latitude in the organizational structure of the land information office. While the term "office" may seem to imply a new desk occupied by a new employee with new duties, in fact virtually all counties have identified existing staff to be responsible for the new function; in some cases, a committee or task force constitutes the officially designated entity.

Many counties have been informing the Wisconsin Land Information Board (WLIB) as their offices are established by county board resolution, and as their contact person who is available during normal working hours is identified. The WLIB has compiled and printed this information. Contact Bill Holland at (608) 267-2707 for a copy. We hope to publish an index in our next issue, by which time the listing should be virtually complete.

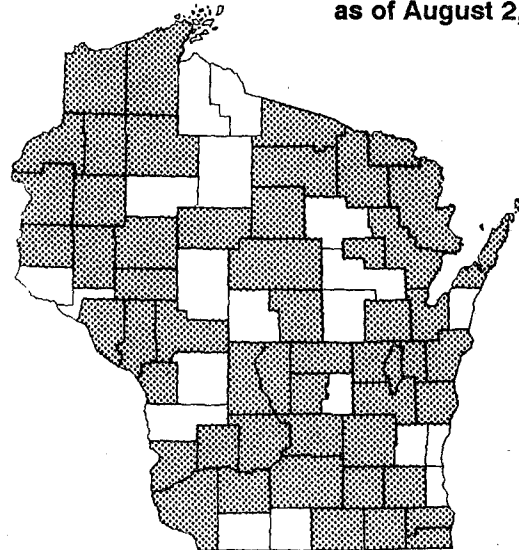
The concept of the county land information office is as a coordinating mechanism for land information and modernization of land records maintained by entities within a county. The list of such entities may include cities, villages, towns, reservations, school districts, utilities, federal, state, and regional agencies, etc.

In the near term, the primary responsibility of the office is in guiding development of a countywide plan for land records modernization. This plan must be approved by the Wisconsin Land Information Board within two years

of the formation of the office in order for the county to continue retaining the increased recording fees.

Municipalities, utilities, agencies, and others might want to consider formally designating their own land information offices, which would function as the counterparts to the county office. Even though such additional offices are not required by the recent statute, the goals of the Wisconsin Land Information Program could be well served by such action. These offices could function as the focal points for participation in the countywide planning process, could help identify points for improved public access to public information, and could become the conduits for land records modernization grant proposals to the state board, which must be routed through a county land information office.

Counties which had established
a Land Information Office
as of August 2, 1990



Source: Wisconsin Land Information Board

15 YEARS OF CARTOGRAPHY IN WISCONSIN, PART IV

WISCONSIN'S SHORT TERM CARTOGRAPHIC NEEDS

With the passage of legislation for the Wisconsin Land Information Board (WLIB) and a funding mechanism to foster modernization of land records, much attention has been given to the direction the state will go in this activity. Realistically, the full operation of a Geographic Information/Land Information System (GIS/LIS) at the local/regional level which is capable of automating local data, processing this data upwards to the state levels, and receiving other data in the down loop from them, is a long ways off for most parts of the state. Considering the need for accurate cadastral base maps, Public Land Survey control densification, basic resource collection and acquisition of/training on automated hardware/software, reality pushes the wide spread implementation of such statewide systems, years if not possibly a decade into the future.

What then should the state be doing to preserve the current level of cartographic resources, so that when we arrive at the implementation stage, 1995-2000, we have not lost the resource base in hand in 1990. As an example, the state of automated photogrammetric contouring could be advanced to the point by 1995, that a local LIS could generate digital elevation models or contour lines from overlapping aerial photography, but the state would have lost the current benchmark data base required to level the models.

So what do I see as the minimum programs that require continuing attention to insure the most efficient implementation of the future's automated data. There are 4, and on several initiative action is underway.

1. **GEODETIC CONTROL:** An improved, more accessible and with higher accuracy geodetic control network for the state. The Wisconsin Department of Transportation (WISDOT), with the cooperation of the Federal Aviation Administration and the National Geodetic Survey is this summer installing a new Wis GPS Geodetic Horizontal Network of approximately 90 stations across the state. This is the basis for future expansion of Global Positioning stations and with densification will be of immeasurable assistance to placing coordinates on the resurvey of the Public Land Survey System. In addition, as refinement of the GPS occurs it can be used to densify the vertical network.
2. **RESOURCE COLLECTION:** A standardized system of resource collection needs to be implemented, so

Editor's Note: As announced previously, the current State Cartographer, Art Ziegler, will be retiring at the end of this year. The article below is the fourth of several commentaries by which Art will offer his retrospective and prospective views of mapping in Wisconsin.

that at some future date the cost of incorporating significant amounts of data into a GIS/LIS is not prohibitive in staff, budget, or calendar time. An example of this is the recording of important "point" type data on a standard medium that would lend itself to easy digitization. The recording of historical cemeteries on the U. S. Geological Survey 7.5 minute topographic quads is being considered by the State Historical Society. There are other such requirements in the state agencies: underground storage tanks, point source pollution, location of wells, unique gravel resources, toxic waste sites and many others. Of course this requires some level of maintenance of the mapping base, which is listed as the last item in document.

3. **AERIAL IMAGERY:** The last total state "fly-over" at a medium scale was in 1978-79, now approximately 12 years old. Partial and widely varying coverage has been acquired in some parts of the state since. What is needed to carry the state into the mid 1990s implementation of an effective GIS / LIS is another state acquisition of medium scale aerial imagery that can be enlarged at least to 1 inch = 400 feet in scale. This will allow local officials to update current land related resource data documents, mapping, tax roles, zoning, etc. for a more current base for the forthcoming Systems. Instead of the basic data being between 15 and 20 years old, it would be dated at 3 to 5 years, a significant improvement.

There is discussion at the state and federal level of a medium scale orthophoto coverage program. This type of program has several advantages over that of just acquiring very accurate aerial imagery. The program could generate digital base map and elevation models and in its preparation would require some level of field review and maintenance of the state's vertical control network.

4. **MAP REVISION:** There exists in the state a basic series of printed or digital maps which are in need of significant attention in order to preserve their utility and incorporation into any future system. While these are considered as medium and small scale graphics, they are the ONLY statewide resource, and if their currency is not protected, their value will decline and replacement some years down the road will indeed be costly. These map resources are:
 - a. the USGS 7.5 minute topographic map series, complete statewide coverage in 1985, almost NO revision in 5 years (7 of 1154

continued...

15 Years of Cartography, continued...

quad sheets) and NO immediate plans for implementation of a revision program. Some quads covering smaller municipalities are 30 years old (1960), and the vast majority range in the 12 to 20 year age category. The worst case, admittedly in a rural area, is a quad dated 1944, what has happened in this area in 46 years?

- b. the 1:100,000 county topographic map series, completed in 1987, with no inspection or revision since. While these are reasonably current there are major cartographic improvements that could increase utility of this series if a comprehensive revision program was undertaken.
- c. the 1:100,000 digital data base developed by the Department of Transportation. This base requires attention to maintain and expand its format and utility so as to be a major resource to the state for the majority of the data that will be received from the 1990 census. Without the continued attention the state will miss a majority opportunity to make full use of this population information.

SUMMARY: It is without question that in the next 5 to 10 years, major changes in the land resources collection, maintenance and display areas will occur. A major portion of the cost associated with the development of these changes will depend on how well the state maintains its current resource base. But a probably more important aspect is the speed at which the System can come on-line. If the GIS/LIS has to wait for current aerial imagery to be flown to update the parcel map data or the land use status, significant time delays will occur. While we develop the System, it is important that we not forget the current, mostly manual data base.

STATE CARTOGRAPHER POSITION OPEN

Associate State Cartographer/State Cartographer, University of Wisconsin-Madison. Position available January 1, 1991. Fixed-term academic staff appointment, with annual renewal. Application deadline October 1, 1990, or until an acceptable candidate is chosen. Minimum requirements include an MS in some area of the mapping sciences and at least five years of cartographic experience. Special consideration will be given to persons with administrative training/experience and familiarity with modern computer assisted cartographic methods and geographic information systems. Salary commensurate with professional qualifications and experience. Apply to: Professor Martin Cadwalader, Chair, Search and Screen Committee, Department of Geography, University of Wisconsin-Madison, Madison, WI 53706. Address inquiries to: Professor Phillip Muehrcke, Chair, Committee on State Cartography, Department of Geography, University of Wisconsin-Madison, Madison, WI 53706, Telephone: 608/262-3213 or 608/231-2373. EOE/AA. Women and Minorities are encouraged to apply.

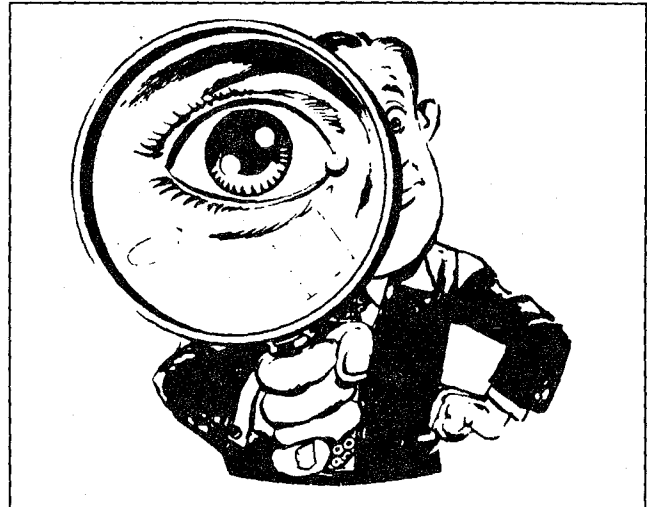
LAND INFORMATION PROGRAM NEWS

The Wisconsin Land Information Board (WLIB) has continued to work toward several of its near-term objectives. The board met on July 24 and came to unanimous agreement on a document which contains a set of definitions and interpretations of statutory language which will help guide its implementation of the state Land Information Program. Copies of this document can be obtained by contacting Bill Holland at (608) 267-2707.

The month of August has been reserved for committees to prepare recommendations for the board's consideration. These include the topics of content and guidelines for countywide plans, standards for sharing of land information, and recognition of those activities or products which constitute "pre-approved" forms of land records modernization.

At its next meeting, scheduled for September 24-25 in Madison, the WLIB is expected to take up recommendations on these topics. Timely resolution of these issues is important for officials in local government who are involved in structuring a process for their countywide land records modernization planning.

The board has tentatively scheduled October 29-30 for another meeting.



WLIB STAFF POSITION OPEN FOR APPLICATIONS

The Wisconsin Land Information Board is looking for a second staff member, to specialize in technical issues relating to implementation of the Wisconsin Land Information Program. This is a non-permanent ("project") position in the Department of Administration's Division of Energy and Intergovernmental Relations. Renewal beyond 1 year is possible. Contact Bill Holland at (608) 267-2707.

MICROCOMPUTER MAPPING SOFTWARE, PART IV

Editor's Note: This concludes our series on Microcomputer Mapping Software which has been researched and written by Susan Goral, a graduate student in Geography at UW-Madison. The previous articles appeared in our January, March, and May issues this year.

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Many software products fall into the GIS product-type category, although the range of capabilities and functionalities amongst these various products can be great. And while no standard definition or delineation exists, most GISs include capabilities in processing that relate to the encoding, storage, processing and display of spatial data (Berry:1987, p. 119).

The key characteristic that distinguishes a GIS from other Micro Mapping software systems is its power to analyze spatial data. Some of the more important analytical GIS functions, as identified by a *GIS World* survey, include distance measurement; buffering; map algebra; boolean operation; coordinate geometry (COGO) computations; network tracing; remote sensing image analysis; terrain analysis; and polygon operations (Parker: 1989, p. 1589). Analytical processing operations may otherwise be classified in more descriptive terms. Berry (1987) identifies four classes of primitive GIS analytical operations including reclassifying map categories; overlaying maps on a point-by-point or region-wide basis; measuring simple or weighted distance and connectivity; and characterizing cartographic neighborhoods (Berry: 1987, p. 123).

Map production vis-a-vis GIS is generally more flexible and sophisticated than the other product-type categories previously presented in this Micro Mapping software series. The capability to custom digitize files is common to most GIS systems - in fact, for many systems, this may be the only way to create data files from which to produce maps. Becoming increasingly more common in GISs, however, is the ability to import pre-digitized files which exist in other formats (e.g. DLG, DIME, TIGER, etc.), although additional software may be necessary to perform this translation step. GISs also offer greater options in cartographic design, often with extensive libraries of point, line and area symbols as well as the ability to custom-design additional symbols. Additionally, with some GISs the ability to transform maps from one projection to another is made possible.

Hardware requirements for GISs vary, although are usually greater and more stringent than the systems in other categories of Micro Mapping software (i.e. Customized Map Creation, Atlas and Information programs, etc.). Disk space requirements for GISs may

be as great or greater than 20MB, RAM requirements range from 640K to 1MB, a VGA card is often required, as well as DOS 3.0 or greater, or even Zenix, Unix, or OS/2 operating systems. As with most software products, the greater the sophistication of the GIS, the greater the hardware requirements are likely to be.

There is also considerable price differentiation among the various GIS products offered. Starting around \$750, prices range as high as \$10,000 to \$20,000 for a PC- or Mac-based system, again usually varying with the GIS's capabilities and functionalities. It appears there is a system for almost any price falling in the range noted above, indicating the diversity in this software market.

GIS software for microcomputers is a relatively recent phenomenon. Some of the products in this category were available earlier in forms operating on minicomputers. And now some of these products are available in forms operating on the recently developed "engineering workstations"---small computers specifically designed for graphics intensive work. With rapid evolution continuing in the small computer market, it is becoming difficult to distinguish in either price or function between high level microcomputer with advanced graphics capabilities, and low level engineering workstations. Growing networking capabilities in both of these classes of machines further confounds their differentiation. The engineering workstation platform probably is the fastest growing segment of the GIS software market.

For specifics on the various GIS products contact the software publisher directly. A sampling of micro-based GIS products include:

Fastmap (Mac)

Tactics International
16 Haverhill St., Third Floor
Andover, MA 01810
(508) 475-4475

MapGraphix (Mac)

ComGrafix, Inc.
620 E. St.
Clearwater, FL 34616
(813) 443-6807

ATLAS * GIS (PC)

Strategic Mapping, Inc.
4030 Moorpark Avenue, Suite 250
San Jose, CA 95117
(408) 985-7400
FAX (408) 985-0859

DELTAMAP (PC)

Deltasystems
2629 Redwing Rd., Suite 330
Ft. Collins, CO 80526
(303) 226-3283

continued...

Microcomputer Mapping continued...

GisPlus (PC)

Caliper Corporation
1172 Beacon Street
Newton, MA 02161
(617) 527-4700

GWN-GIS (PC)

Scientific Software Group
P.O. Box 23041
Washington, D.C. 20026-3041
(703) 620-9214
FAX (703) 620-6793

MapInfo (PC)

MapInfo Corp.
Hendrick Hudson Building
200 Broadway
Troy, NY 12180
(800) FAST-MAP or (518) 274-8673

pcARC/INFO (PC)

ESRI
380 New York Street
Redlands, CA 92372
(714) 793-2853

Resource/Map (PC)

Decision Images
1000 Herrontown Road
Princeton, NJ 08540
(609) 683-0234
FAX (609) 683-0290

SPANS (PC)

Tydac Technologies Corp.
1655 N. Fort Wayne Drive, Suite 320
Arlington, VA 22209City
(703)522-0773Phone

References:

Berry, Joseph K. 1987. Fundamental operations in computer-assisted map analysis. International Journal of Geographical Information Systems, 1987, Vol. 1, No. 2: 119-136.

Parker, H. Dennison. 1989. GIS Software 1989: A Survey and Commentary. Photogrammetric Engineering and Remote Sensing, Vol. 55, No. 11, November 1989: 1589-1591.

Market Research Studies

Several comprehensive GIS market-research studies have been published and made available to the public. These studies often include detailed information on GIS vendors and their products and services. Although somewhat expensive, the information provided may be invaluable when considering a major GIS purchase. For more information contact the market-research publishers directly.

Geographic Information Systems Markets and Opportunities

DARATECH, Inc.

140 Sixth Street
Cambridge, MA 02142
(617) 354-2339
FAX (617) 354-7822

GIS Sourcebook

GIS WORLD, Inc.
P.O. Box 8090
Fort Collins, CO 80526
(800) GIS-WRLD
FAX (303) 223-5700

Third Party Software

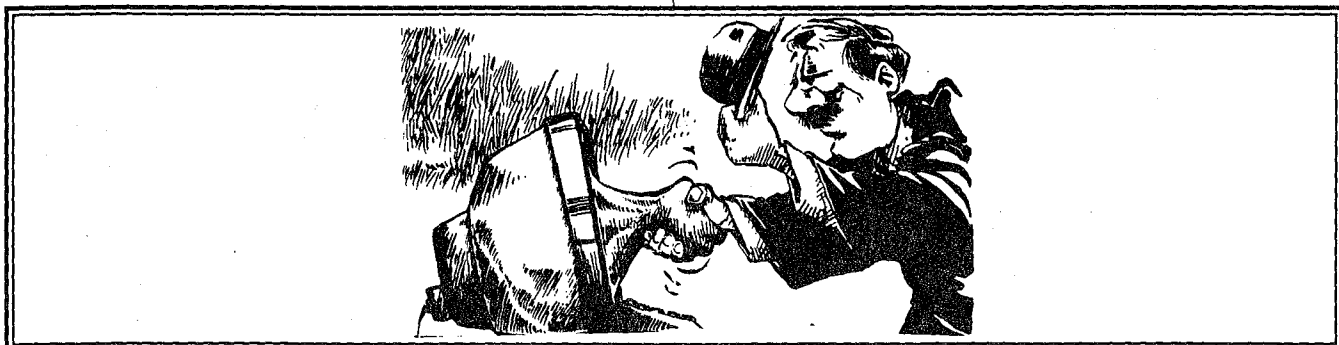
In addition to the "standard" GIS software products discussed above, there are several products which facilitate the use of GIS-created map data. Capabilities may include the creation of custom mapping applications and translating data formats. Contact the software publisher directly for information regarding these products.

QUIKMap

E.S.L. Environmental Sciences Ltd.
R.R. #2 - 2045 Mills Road
Sidney, B.C., Canada V8L 3S1
(604) 656-1922
FAX (604) 655-3435

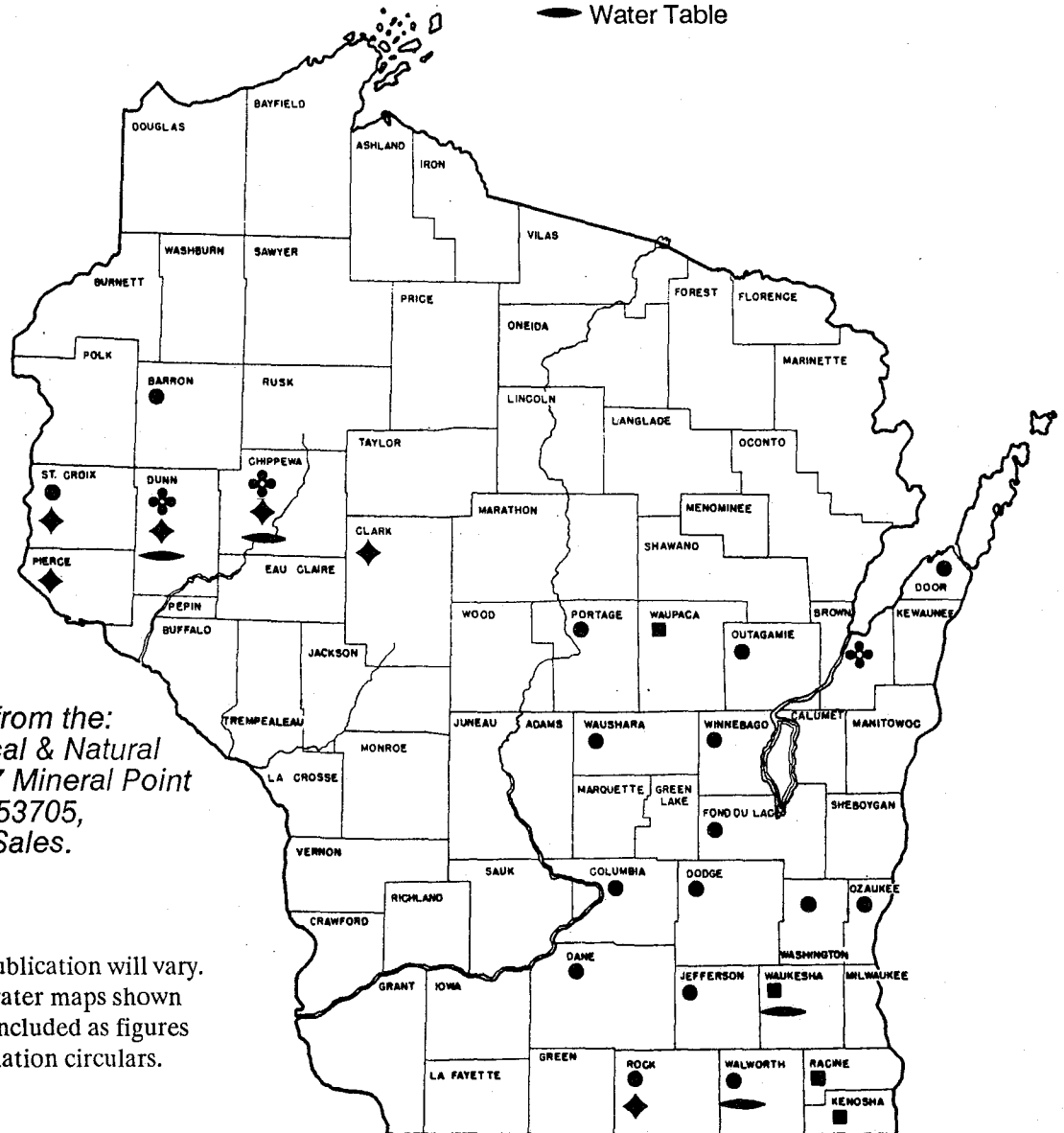
TerraView

TerraLogics
114 Daniel Webster Highway South
Suite 256
Nashua, NH 03060
(603) 889-1800
FAX (603) 891-0230



STATUS OF COUNTY GROUNDWATER MAPS AS OF AUGUST 1990

- ♣ Aquifer
- Geology and Groundwater Resources
- ◆ Groundwater Quality Investigation
- Groundwater Resources
- ◄ Water Table



Maps are available from the:
Wisconsin Geological & Natural
History Survey, 3817 Mineral Point
Road, Madison, WI 53705,
608/263-7389 Map Sales.

Scales and dates of publication will vary.
Some of the groundwater maps shown
on this page may be included as figures
in bulletins or information circulars.

WISCONSIN AERIAL IMAGERY UPDATE

This is an addendum to the "Wisconsin Aerial Imagery Supplement" published in the March, 1990 Wisconsin Mapping Bulletin. This listing includes imagery that was acquired during the Spring of 1990, and corrections of some information in the "Supplement".

Regional Planning Commissions

<u>Regional Planning Commissions</u>	<u>Acquis. Area</u>	<u>Date</u>	<u>Parameters</u>	<u>Remarks</u>
North Central	Juneau & Wood Counties	May, 1990	Black-and-white orthophotos at 1" = 800' will be produced	Lincoln, Langlade, Forest, and possibly Vilas will be flown in the fall or spring; Flown by Aero-metric Engineering
Southeast	Entire Region	March/Apr. 1990	Acquisition scales: 1" = 1600' and 1" = 6000'; black-&-white enlargements available in the fall at the following scales: 1" = 400' and 1" = 2000'	Standard acquisition every 5 years by SEWRPC; Flown by Chicago Aerial Survey
Dane County RPC	Entire County	Apr./May 1990	Natural color photography at 1" = 800'	Flown by Aero-metric Engineering
Bay Lake	Kewaunee & Manitowoc Counties	April, 1990	Black & White photos centered over townships; Each covers 6 mi. x 6 mi. at 1" = 800'; Ratioed, but not rectified	In cooperation with respective counties; Flown by Aero-metric Engineering
	Sheboygan County	April, 1990	Black-&-white photos, each covering 4 sections at 1" = 400'; Ratioed, but not rectified	In cooperation with county and DNR; Flown by Aero-metric Engineering
	Brown County	April, 1990	Black-&-white photos at 1" = 200' will be available; Ratioed and rectified; RPC is buying air photo mosaics at 1" = 800'; Ratioed, but not rectified; Stereo coverage	In cooperation with county; Flown by Aero-metric Engineering
<u>Counties</u>				
Winnebago	Entire County	Apr./May 1990	Black-&-white orthophotos at 1" = 200' will be produced	Flown by Aero-metric Engineering; Probably will re-fly in the fall
Rock	Entire County	April, 1990	Black-&-white photography at 1" = 400' for entire county; Black-&-white photography at 1" = 200' for 8 central townships including Janesville and Beloit	Flown by Aero-metric Engineering
Outagamie	Entire County	April, 1990	Natural color photography at 1" = 400'	Flown by Aero-metric Engineering
Marathon	Entire County	May, 1990	Natural color photography at 1" = 100' for urban areas; Natural color photography at 1" = 400' for rural areas	Flown by Aero-metric Engineering

It was incorrectly stated in the March, 1990 Wisconsin Mapping Bulletin that the DOT maintains files of recent DNR Forestry imagery. The DOT actually has DNR Wetlands imagery. DNR Forestry imagery is held in the DNR Office in Tomahawk, WI, call 715/453-2188.

ADVICE ON REQUESTS FOR AERIAL IMAGERY

Editor's Note: Brenda Hemstead of the SCO staff handles the great majority of requests for general aerial photography/satellite imagery information. In this article she describes the process she takes upon answering these types of inquiries.

General

Photography acquired of the earth's surface, in vertical direction from an aircraft, is still the most frequent type of "remote sensing" used in cartography and in most types of areal resource analysis. Historically, this type of aerial photography has been acquired in significant volume since the mid-1930s. It has formed the basis of most large-scale base mapping, as well as more recently developed photogrammetric techniques to extend or densify geodetic control, or to build elevation models.

Aerial coverage is a frequently sought resource---usually in its most current edition, or historically to document particular conditions at some time in the past.

Aerial photography is used for a variety of measurements, including determination of the amount of lumber available in a forest stand, acreage of croplands and wetlands, extent of pollution spills, volumes of storage piles, cuts and fills for roadways and the other such computations. There is a wide cost differential (at least 1:20) between purchase of copies of already existing aerial coverage and contracting for new, specifically flown coverage. As a result, an inquiry usually focusses on "who" has "what" available coverage over an area of interest. The State Cartographer's Office has published three editions of general state-wide coverage dating back to 1970. In addition, the County Cartographic Catalog series contains some more recent information.

Our office does not have files of actual aerial photographs; some libraries or agencies do maintain certain such files. Instead, the SCO has indexes of aerial photography acquired by other public agencies.

Aerial Photography Requests

An inquirer asks (usually by phone) about coverage available for an area. Aerial photography may be available in many different forms--(black-and-white [panchromatic or infrared], color [natural color or infrared], scales (1 inch = 200 feet to 1 inch = 10,000 feet), enlargements (2x to 5x), and dates of acquisition. Almost always, my first questions to you, the caller, are these choices. They must be considered to insure that you understand what you are asking for and that I interpret your request accurately. This is extremely important, since a mistake could result in the wrong photography being identified, time spent waiting for delivery of the photography being purchased, and cost

of the purchase. The specific location (state, city, county, village/town) of interest, the scale of photography, and the year and season needed must all be determined.

Some callers are understandably confused by the description of various "scales"---the logic does seem backwards sometimes! Callers may say that they want large-scale; after discussion with it becomes clear that the need is for small-scale. Again, the result could be costly if I assume that you are positive about small-scale versus large-scale. So I will keep asking just to reassure myself and you, since location and scale are very important factors in determining the right answer.

I must then determine if you want contact prints of the original photography, or various reproductions. Also, consideration is given as to color photography or black-and-white, and leaf-on or leaf-off (condition of the deciduous vegetation). Another consideration is whether you wish to view the photography stereoscopically, that is in three-dimension. If this is the case, it must be determined if the photography was acquired with overlapping coverage. Once these factors are determined, a variety of sources/agencies can be referenced along with availability of imagery and possible costs.



Other considerations you should be made aware of are: processing time of order, need for an index to order by print number, various types of reproduction media, cost of photography and address/telephone number of contact for print orders.

Since this type of request for information may involve a financial outlay by the caller, it is important that the information I give you be completely understood. Service of a request often requires 20 to 30 minutes of telephone conversation including one or more calls back to clarify or explain what is (or is not) available.

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Satellite Imagery and High-Altitude Aerial Photography Background

When civilian satellites acquire remote sensing data, the image is coded in digital format onboard the satellite and then transmitted by radio to earth receiving stations. The digital information can then be converted to an image on film or screen by various electronic means.

Satellite remote sensing data is collected in multiple wavelength channels, and from relatively small, discrete cells on the ground (10-80m square). As a result, this data can be manipulated in various ways to interpret land cover, conditions in water, forest, and crops, etc.

Satellite imagery available for mapping and resource analysis is basically from two sources: LANDSAT (U.S.) and SPOT (France). Both systems acquire imagery over the entire earth, and the data are then organized into frames covering large areas. For example, a single frame from one orbit pass of the Landsat Thematic Mapper will show the approximate area of nine Wisconsin counties (3 by 3). Some recently available products cover specific areas such as quad sheets, counties, basins, etc.

This imagery has the inherent ability to be produced for viewing at any scale, and by the characteristics of the sensing devices actually contains more potential information than normal aerial photography. For example, by use of digital analysis of the sensing bands one can distinguish temperature differences across water bodies more effectively and flexibly than by direct visual interpretation of normal photography.

Federal agencies for the past decade have flown cooperative acquisitions of aerial photography for the entire "lower 49" states. These jet aircraft flights are at a very high-altitude, use especially sensitive film (color and black-and-white in separate cameras) and result in a ground resolution between those of satellite data and normal lower altitude aerial photography.

Satellite Imagery Requests

For satellite imagery requests, both location and year of imagery wanted are needed. The approximate location needs to be established first to narrow the search. Digital data converted to a visible form on film or print is expensive, and orders typically have slow turn-around. Specific Landsat (and High-Altitude Photography) coverage is usually located by utilizing a microfiche/film reader/printer machine. The Office maintains over 1,000 microfiche and film for the state.

Landsat is referenced by path and row of flight from microfiche. This interpretation step is essential for correct ordering. When requesting satellite imagery, it is helpful if you can provide the location of the area desired and/or landmarks, e.g., road names, nearest town/village, lakes, rivers, facilities, etc.

High-Altitude Photography Requests

The federal cooperative group has completed two acquisitions of the 49 states (NHAP and NHAP 2) and the third acquisition (NAPP) is now underway.

NHAP and NHAP2 were both acquired in stereo (overlapping) coverage at two scales and with two film types. Microfiche is referenced to determine the project, film type, roll, and frame numbers needed for ordering.

This high-altitude imagery is extremely useful for large area management monitoring such as forests and wetlands. Its resolution prohibits its use for large-scale mapping projects where building and street delineation is needed. The differences between source scales, film types, year and season of coverage, and available enlargements must be clearly understood so that you are confident of the choice made.

NAPP coverage is currently scheduled for Wisconsin in 1992. However, it will require cost-sharing to augment the guaranteed 50% federal contribution, which comes from a small group of agencies. Efforts are underway to organize a group of state and additional federal agencies to come up with the additional funds.

EXPERIMENTAL DIGITAL ORTHOPHOTO FILES AVAILABLE FREE FROM USGS FOR REVIEW

The U.S. Geological Survey is conducting an evaluation of orthophotography that has been proposed as a nationwide product. As part of the evaluation, potential reviewers are being offered free copies of several items, and are being asked to complete an evaluation form and return it by August 20.

Two lithographically printed sheets are available. One shows the SW quarter of the Black Earth quadrangle, in corrected orthophoto form at 1:12,000-scale, as derived from a digital scan of the original 1:40,000-scale aerial photograph. The second shows four versions of a smaller area at the same scale, based on different scanning resolutions; this is for comparative purposes.

Also available are two sets of digital data along with display software allowing use on a PC microcomputer which has CGA, EGA, or VGA graphics capability. A 1.2 MB floppy disk with part of one orthoquarterquad image is available, as is a CD-ROM disk (requires reader device) containing 36 images (a block of 3X3 quads over the Black Earth Creek watershed) and other related data such as soils.

This collection of data was derived from the CONSOIL Project which used Dane County as its focus.

Persons interested in evaluating these products should contact Alan Fikuni at (415) 329-4337.

CONFERENCES AND TECHNICAL MEETINGS

August 12-16, **URISA's 28th Annual Conference**, Edmonton, Alberta, Canada. Contact: URISA, 900 Second St. NE, Washington, DC 20002. Call: 202/289-1685.

August 17-18, **Wisconsin Society of Land Surveyors Summer Meeting** will be held in Minocqua, WI at The Pointe Resort. Contact: Michael Romportl at 715/369-6179.

August 21-24, **Introduction to Geographic Information Systems (GIS) Using PC ARC/INFO**, to be held in Cambridge, MA. Contact: Leova Wolf, Workshop Coordinator, Computer Resource Lab, Rm. 9-514, MIT, 105 Massachusetts Ave., Cambridge, MA 02139. Call: 617/253-0779.

August 26-30, **NCGA Mapping & GIS Conference '90** will be held in Houston, TX. Contact: Michael Weiner, NCGA, 2722 Merrilee Dr., Ste. 200, Fairfax, VA 22031. Call: 703/698-9600.

September 3-7, **2nd International Symposium on Precise Positioning with GPS**. Ottawa, Canada. Contact: Robin R. Steeves, Geodetic Survey of Canada, Surveys and Mapping Branch, 615 Booth St., Ottawa, Ontario, Canada K1A 0E9. Call: 613/995-4009.

September 5-7, **Digital Geographic Information Systems**, to be held on the George Washington University campus, Washington, DC. Contact: Continuing Engineering Education Program, The George Washington University, Washington, DC 20052. Call: 800/932-CEEP.

September 10-13, **International Symposium on Kinematic Systems in Geodesy, Surveying, and Remote Sensing**. Banff, Alberta, Canada. Contact: KIS 1990, Dept. of Surveying Engineering, Univ. of Calgary, 2500 University Drive, NW, Calgary, Alberta, Canada T2N 1N4.

September 13, **Wisconsin Chapter of AM/FM** is presenting two afternoon seminars following a buffet lunch at the Windham Hotel in Milwaukee. Topics: Introduction to AM/FM, & Getting Started with AM/FM. Contact Jerry Laatsch at 414/291-6927 for details including fees and memberships in AM/FM.

September 17-19, **Geographic and Facilities Management: Capture, Conversion, and Sharing**, will be held at the University of Wisconsin-Madison, Madison, WI. For program information contact: Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 or call: Pat Eagan at 608/263-7429 or Cindy Adams at 608/262-6782.

September 17-21, **ISPRS Commission VII, Global and Environmental Monitoring**, at the Victoria Conference Centre, Victoria, B.C. Contact: Frank Hegyi, President, Commission VII, 1450 Govt. St., Victoria, B.C., Canada V8W 3E7. Call: 604/387-6722.

September 19-21, **Fourth Annual Midwest/Great Lakes ARC/INFO User Conference**, held at the Allis Plaza Hotel, Kansas City, MO. Contact: ARC/INFO User Conference Coordinator, M.J. Harden Associates, Inc., 720 Troost, Kansas City, MO 64106. Call: 816/842-0141.

September 20-22, **Geographic Land Information Systems** for the Transportation Industry, American Society of Civil Engineers, Madison, WI. Contact: Wende O'Neill, 414 Cedar Orchard, Blacksburg, VA 24060. Call: 703/552-8968.

September 24-26, **Satellite Microwave Remote Sensing and Applications**, to be held at the School of Engineering and Applied Science, Washington, DC. Contact: Continuing Engineering Education Program, The George Washington University, Washington, DC 20052. Call: 800/932-CEEP.

October 1-4, **Eighth Annual International Symposium of the International Map Collectors Society**. Library of Congress, Washington, D.C. Contact: Eric W. Wolf, 6300 Waterway Dr., Falls

Church, VA 22044, or Malcolm R. Young, Whyr Farm, Winterbourne Bassett, Swindon, Wiltshire, England SN4 9QE.

October 15-18, **1990 GRASS Users Conference**, "Evolving GRASS in the 90s Innovation and Education" will be held at the University of California at Berkeley. Contact: Registrar, GRASS 1990 User Conference, Center for Environmental Design Research, 390 Wurster Hall, UC-Berkeley, Berkeley, CA 94720. Call: 415/642-9205.

October 15-19, **INSMAP 90--International Symposium of Marine Positioning**. Miami, FL. Contact: Marine Geodesy Committee/Marine Technology Society, Muneendra Kumar, DMASC, Fairfax, VA 22031. Call: 703/285-9242.

October 22-24, **Applying Infrastructure Management Systems**, will be held at the University of Wisconsin-Madison, Madison, WI. For program information contact: Engineering Registration, The Wisconsin Center, 702 Langdon Street, Madison, WI 53706 or call: Pat Eagan at 608/263-7429 or Cindy Adams at 608/262-6782.

October 24-27, **Tenth Annual Meeting of the North American Cartographic Information Society (NACIS X)** will be held in Orlando, FL. Contact: Dr. James F. Fryman, Program Chair, Dept. of Geography, Univ. of Northern Iowa, Cedar Falls, IA 50614-0406. Call: 319/273-6245.

November 5-10, **GIS/LIS '90 Annual Conference and Exposition**, Anaheim, California, in conjunction with the 1990 ACSM/ASPRS Fall Convention. Contact: GIS/LIS '90, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2122. Call: 301/493-0200.

November 8, **Wisconsin Chapter of AM/FM** will meet at 3pm at the Holiday Inn in Appleton. Topic: the Wisconsin Land Information Program. Contact: Jerry Laatsch at 414/291-6927 for details including cost for dinner to follow the meeting.

November 12-14, **Conference on Application of GIS, Simulation Models, and Knowledge-based Systems for Landuse Management**. Blacksburg, VA. Contact: Phil Mason, Conference Coordinator, 212 Seitz Hall, VPI, Blacksburg, VA 24061.

November 15, **Wisconsin Land Information Association** membership meeting will be held in the Milwaukee area, Wisconsin. Contact Bob Gurda, WLIA Secretary, at 608/262-3065.

November 19-20, **Advances in Surveying and Mapping: Integrating GPS with GIS**, Ohio State University Center for Mapping and Dept. of Geodetic Science and Surveying, Columbus, OH. Contact: Conferences and Institutes, 1075 Carmack Road, Columbus, OH 43210.

November 25 - December 1, **Geographic Information Management for Municipalities and Regional Planning**. Contact: Sandra Harris, Program Coordinator, The Banff Centre for Management, Box 1020, Banff, Alberta T0L 0C0. Call: 403/762-6133.

December 2, **52nd Midwest Fish & Wildlife Conference** will be sponsoring an all-day workshop on Geographic Information Systems Applications by and for fish and wildlife managers. Contact: Chair, Glenn Radde, Office of Planning, Minnesota DNR. Call: 612/296-4798.

1991

February 13-15, **Wisconsin Land Information Association Annual Conference** will be held in Green Bay. Contact Bob Gurda, WLIA Secretary, at 608/262-3065.

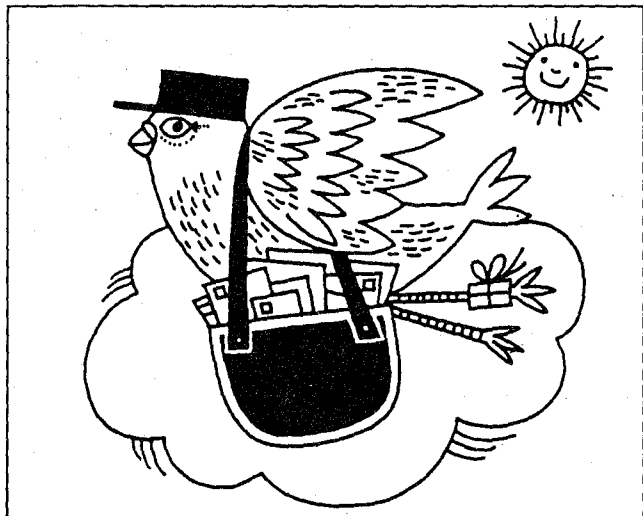
March 23-29, **ACSM/ASPRS Annual Convention including AUTO-CARTO**, Baltimore, MD. Contact: ACSM 5410 Grosvenor Lane, Bethesda, MD 20814. Call: 301/493-0200.

CONFERENCE ON GIS IN TRANSPORTATION TO BE HELD IN MADISON

The American Society of Civil Engineers is sponsoring a Specialty Conference on **Geographic Land Information Systems in the Transportation Industry** in Madison, September 20-22, 1990. The conference will have five sessions, each with four or five invited presentations by experts from around North America. There are sessions on Transportation Agencies and Applications, Utility Applications, The Wisconsin DOT Experience, Institutional Issues, and Right-of-Way Issues. The conference will be held at the Holiday Inn, Southeast (junction of U.S. Hwys. 12 & 18 and Interstate 90). Registration at the door. For more information contact: Wende O'Neill, 414 Cedar Orchard, Blacksburg, VA 24060, 703-552-8968.

Advance registration (by 9/6) at reduced rate. Mail check (\$225 - member; \$250 - non-member) made out to ASCE to:

Anthony D. Baez, ASCE, 345 East 47th Street, New York, NY 10017. On-site registration \$250 (member), \$275 (non-member). Group rate at Holiday Inn (reserve before 9/16) \$47 (single), \$54 (double). Phone 1-800-Holiday (ask for ASCE Specialty Conference rate).



DESCRIPTION OF STATE AGENCY GIS APPLICATION PRACTICES AVAILABLE FOR DISTRIBUTION

The Wisconsin State Interdepartmental Geographic Data Sharing Workgroup has prepared an inventory titled *Basemaps, Cartographic Control, Tile Structure, and Projections/Coordinate Systems Used for Gis Applications by Wisconsin State Agencies at 1:24,000 and Smaller Scales*. The purpose of the inventory is to promote the sharing of data. Copies of the four page document can be obtained upon request from the State Cartographer's Office.

PUBLICATIONS

USGS PUBLICATIONS

The following intermediate-scale (1:100,000) maps are prepared on a 30 x 60-minute format using feature-separation drawings and symbolization suitable for digitizing. This series is printed on sheets that are 24" x 40" to 46" and cost \$4.00.

Marshfield, 1980-84 (year surveyed)

Ashland, 1984-89 (year surveyed)

The following are miscellaneous investigations series maps available from the U.S. Geological Survey, Map Distribution, Federal Center, Box 25286, Denver, CO 80225. When ordering use the reference number.

I-1925. Geologic map of Precambrian rocks of Eau Claire and Green Bay 1° x 2° quadrangles, central Wisconsin, by P.K. Sims. 1990. Scale 1:250,000 (1 inch = about 40 miles). Sheet 55 1/4 by 34 inches (in color). \$3.10.

WG&NHS PUBLICATIONS

Geology of Juneau County, Information Circular 66, 1990 by Lee Clayton; cost \$6.00. For ordering information contact the Wisconsin Geological & Natural History Survey, Map and Publication Sales, 3817 Mineral Point Road, Madison, WI 53705, phone 608/263-7389.

SCO COUNTY CARTOGRAPHIC CATALOG DEVELOPMENTS

The following is a brief update on County Cartographic Catalog production at the SCO:

GREEN: Published in June; distribution of complimentary copies to be completed in July; copies available for sale from Map Sales, Wis. Geological & Natural History Survey (see address above); the cost is \$7.00 at the counter or \$8.00 by mail.

WOOD: scheduled for printing and distribution in August, 1990.

WINNEBAGO (2nd edition): in process, scheduled for printing and distribution in September 1990.

MARATHON, PORTAGE: in production.

COUNTY PLAT BOOKS

The following Wisconsin County Land Atlas and Plat Books are now available for 1990: Buffalo, Dunn, Fond du Lac, Iowa, Rock, Sauk, Sheboygan, Vernon, Vilas, Waukesha, and Waushara Counties. These Plat Books sell for \$25.00 plus tax and shipping. For ordering details contact: Rockford Map Publishers, Inc., P.O. Box 6126, Rockford, IL 61125, phone (orders only) 800/435-0712 or for customer service information call 815/399-4614.

ABOUT THE SCO....

The State Cartographer's Office (SCO), established in 1974, is a unit of the University of Wisconsin-Madison. The SCO is located on the 1st Floor of Science Hall.

Our staff presently consists of two full-time academic staff including the State Cartographer, one full-time classified staff, several part-time graduate students, plus several part-time undergraduate hourly employees.

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 a series of catalogs which document and guide users of mapping resources.
- inventories of mapping practices, methods, accomplishments, experience, and expertise.
- develops experimental and prototype products.
- publishes the Wisconsin Mapping Bulletin and other documents to inform the mapping community.
- participates on committees, task forces, boards, etc.
- serves as the state's affiliate for cartographic information in the U.S. Geological Survey's Earth Science Information Center (ESIC) network.
- provides information and advice in support of sound mapping practices and map use.

The Office answers a wide variety 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 route 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.
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 Others--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.

In each issue of the Bulletin, we will discuss an area of SCO activity in more detail. By this means we will help you better understand and more effectively utilize the SCO's services. If you have any questions concerning these topics, please contact the Office at 608/262-3065 for a detailed explanation.

Wisconsin Mapping Bulletin

Published bimonthly by the 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, conferences/workshops. Local and regional information is especially welcomed. The Editor makes all decisions on content. Deadline for the next issue is Sept. 14, 1990.

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