

# WISCONSIN MAPPING BULLETIN



Vol. 15 No. 1 January 1989

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

## WISCONSIN GEODETIC REFERENCE SYSTEM PROPOSED

The Wisconsin Department of Transportation (WisDOT) is proposing that a Wisconsin Geodetic Reference System (WGRS) be established. Adjusted coordinates could be available by the end of 1989. The combination of several factors make this proposal practical: problems with the existing reference system; need for a well defined reference system for the emerging LIS and GIS; and the capability that Global Positioning System (GPS) now provides. A cooperative agreement between WisDOT and the National Geodetic Survey (NGS) has been signed to facilitate the development and maintenance of this system.

The configuration of the horizontal network will consist of approximately 75 highly accurate 3 dimensional GPS stations. Specifics are as follows:

1. Each of 75 stations will be located approximately 50 KM (31 MI) apart (see accompanying figure A). This spacing criteria (a) provides a reasonable 45 minute drive to any station, (b) covers the entire state with an affordable amount of stations, and (c) is within limits of obtaining precise measurements with single frequency receivers.

2. The accuracy of the network will be of Order B (1 part in 1,000,000).
3. To insure homogeneity with other states who are considering or who already have this proposed system (e.g. Tennessee, New Mexico, Virginia, Florida, Georgia, and possibly others) a tie to the Very Long Baseline Interferometry (VLBI) fiducial stations will be made. These stations are located in California, Florida, Texas, Massachusetts, Hawaii, Canada, and other sites throughout the world. These VLBI fiducial stations are continuous tracking GPS stations that serve as the framework for the NAD 83 reference system. Accuracy of these stations is on the order of 1 part in 100,000,000 or approximately 5-10 cm. An adjustment of the WGRS to the VLBI stations will insure 1 part in 1,000,000 accuracy and possibly 1 part in 10,000,000.

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### DON'T MISS THE WLIA/WisURISA CONFERENCE IN OSHKOSH

**Wednesday-Thursday, February 22-23, 1989**

**For a preliminary conference agenda see pages 2 and 3.**

*(based on early registrations, attendance of 300 is projected)*

# Preliminary Program: 1989 WLIA and WisURISA Annual Conference---Oshkosh Hilton and Convention Center

Wednesday, February 22

## 9:00-4:30 Registration

### 10:00 Opening Remarks

Allen Miller, WLIA President  
William Nantell, WisURISA President  
Ben Niemann, 1989 Conference Chair

### 10:30-11:45 The National Scene

- Land Information Systems from Local to National  
James Clapp, Chair of the Ad hoc Study Committee on a National Land Information System; Chair of the Wisconsin Land Records Committee; President of the American Congress on Surveying and Mapping
- The North Carolina Experience in Land Records Modernization  
Donald Holloway, Director  
North Carolina Land Records Management Program
- The Utah Experience in Developing a Statewide Geographic Information System  
Mike Johnson, GIS Director  
Utah Office of Planning & Budget

### 12:00-1:15 Lunch & Speakers

- Views from the State Legislature

### 1:30-3:15 Reports from State and Federal levels, and the Utilities

#### State Agencies

- The Vermont Experience in Implementing GIS Legislation  
Peter Bluhm, Deputy Secretary  
Vermont Agency of Administration
- Wisconsin DOT Activities and Plans in Information and Positioning Systems  
David Fletcher, GIS Project Leader  
Wis. Dept. of Transportation, Bureau of Technical Services
- Wisconsin DNR Activities and Plans in Geographic Information Systems  
Paul Tassar, GEO Team Leader  
Wis. Dept. of Natural Resources, Bureau of Information Management

#### Federal Agencies

- Plans and Activities at the Soil Conservation Service  
Robert Martin, Assistant State Conservationist  
SCS Wisconsin State Office

#### Public Utilities

- Plans and Activities at the Wisconsin Public Service Corporation  
Bruce Baikie, Vice President  
WPS Development, Inc.

### 3:30-4:45 Successful Local Applications in Nearby States

- Development of a Cadastral-based Automated Mapping System  
Donald Zeilenga, Director: Data Processing Center, and Director: Division of Transportation  
DuPage County, Illinois
- Development of a Multipurpose Land Records System  
Richard Hilton, Director: Management Services Department  
Lake County, Illinois

### 5:00 - 8:00 - Exhibits & Socializing

Hardware, Software, and Professional Service Vendors; Associations and Institutions; University Programs

*(Complimentary Appetizers; Cash Bar)*

#### Vendors Expected

Prime Computer; Ayres Associates; McDonnell Douglass; American Digital Cartography; MARKHURD; Data General; Northeast Telephone Co.; Donohue Intelligraphics; Aerometrics; Environmental Systems Research Institute; Intergraph; AT&T Digital Information Systems

### Evening - On your Own

# For information on registration contact the State Cartographer's Office:

Thursday, February 23

## 8:30-9:45 Activities from Around Wisconsin: 3 Concurrent Sessions

### Session A: Property Records and Mapping

- **Dodge County: From Deeds and Drafting to Cadastral Mapping with CAD**  
Richard Leaver, Directory of Survey and Description Department
- **Brown County: Cadastral Mapping with an Enhanced CAD System**  
Les Van Horn, County Surveyor and Real Property Lister
- **Oneida County: Digital Base Map Development to Support Multipurpose Geographic Information System**  
Michael Romportl, County Cartographer  
Tom Peter, Data Processing Manager
- **An Evaluation of Alternative Cadastral Mapping Methods**  
Alan Vonderohe, Associate Professor  
UW-Madison Dept. of Civil and Environmental Engineering, and Institute for Environmental Studies

### Session B: Land Management and Analysis

- **Dane County: Automating the Land Conservation Field Office**  
Kevin Connors, County Conservationist
- **Portage County: Evolving from Groundwater Management to a Multipurpose System**  
Chuck Kell, Director: Planning Department
- **Winnebago County: Networking Land Records Functions with a Geographic Information System**  
David Schmidt, Director: Planning Department

### Session C: Institutional Mechanisms to Support Modernization of Land Records

- **Chippewa County: Ad hoc committee making recommendations to the County Board**  
Dennis Mikesh, County Surveyor

- **Southeast Wisconsin Regional Planning Commission, City of Milwaukee, and Milwaukee County: Working Toward a Cooperative Agreement**  
Tom Patterson, Chief Cartographer, Southeast Wisconsin Regional Planning Commission
- **Oneida County: Formation of a County Board Committee for Land Records**  
John Vanney, Planning and Zoning Administrator
- **Brown County: A County Land Records Commission**  
Cathy Williquette Bruenig, Commission Chair and Register of Deeds
- **Pierce County: Reorganization of County Planning Functions**  
Ed Hass, County Resource Development Agent
- **Marathon County and City of Wausau: Joint City-County Study**  
Dave Kluever, Chief of Data Processing  
Duane Zeichert, Senior Systems Analyst  
City-County Data Processing Center

**10:00 - 11:15 Repeat of all three  
sessions from 8:30**

**11:15-12:15 Exhibits Open**

**12:15-1:30 Lunch and WLIA  
Annual Business Meeting**

**1:30-3:00 Exhibits Open**

**1:45 WLIA Board Meeting**

**3:00 Conference Closed**



# State Geodetic System Proposed

(continued from page 1)

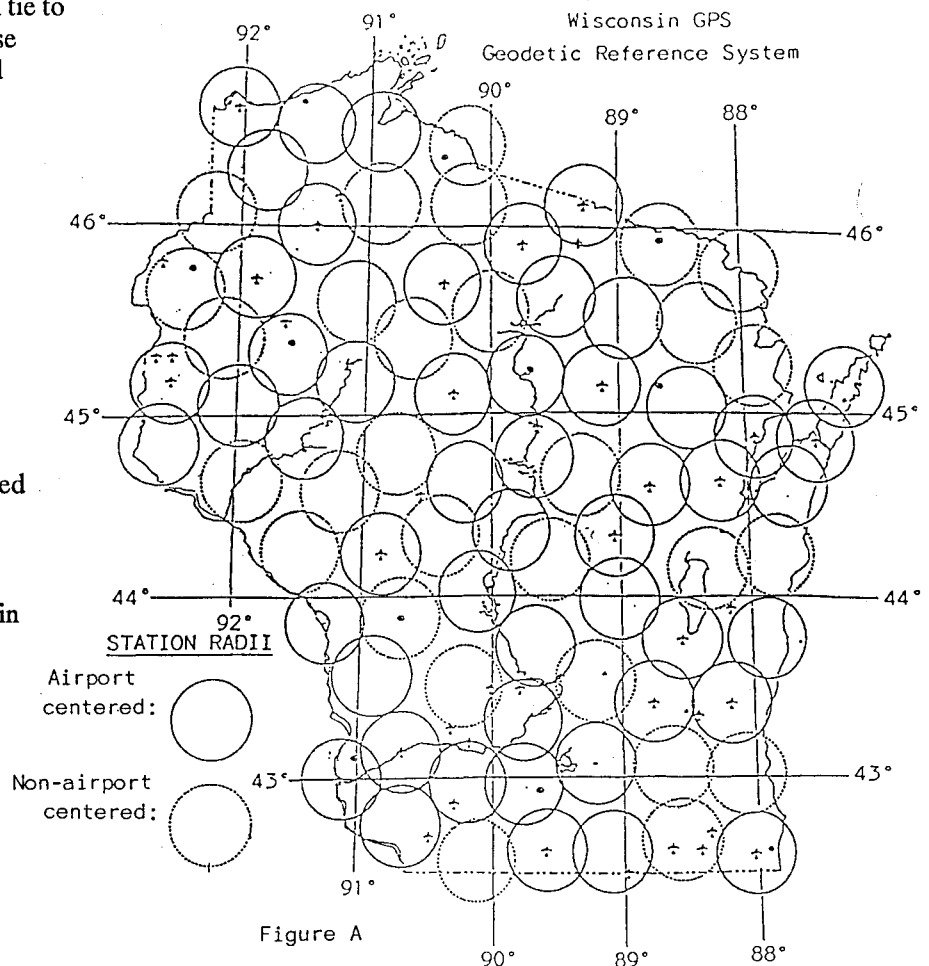
4. The location of the stations will be based upon the following criteria:
    - a. Readily accessible by vehicle.
    - b. Clear view of the sky in all compass directions, from 15° above the horizon to overhead.
    - c. Located on property that is not likely to be disturbed in the next 20 years, i.e. airports, highway medians/interchanges, schools and public parks or waysides.
    - d. Ground to be stable and well drained to insure little deformation horizontally and vertically.
    - e. In close proximity to the locations shown on accompanying Figure A.
  5. The stations will be monumented with a noncorrosive cap in bedrock whenever possible. In most cases a concrete monument 16 inches in diameter and at least 6 feet deep will be used.
  6. As per request of the NGS, a tie will be made to at least one existing First Order horizontal control station located near the center of each 1° latitude by 1° longitude grid (approximately 69 miles by 49 miles). When a First Order station is not suitable for GPS, a Second Order station will be used. In addition, a tie to at least 2 Doppler stations will be included. These points will be freely adjusted and will not be used to constrain the new GPS stations. This tie will provide us with the opportunity of readjusting all or some NGS stations to this proposed reference system for future datum conversions.
  7. One station will coincide with the NGS national strain network. This will be used to monitor continental crustal deformations.
  8. Each of the 75 GPS stations will have an azimuth mark in order to allow their use without GPS equipment. These marks will be set at a future date by WisDOT personnel.
  9. Third Order leveling procedures will be performed to established elevations for at least 55 of the 75 WGRS stations. Whenever possible these elevations will be on stations that provide a uniform geographic distribution. This will assist in defining the geoidal separation for other GPS points and establishing a fairly accurate basis for future GPS derived ground elevations.
  10. Each GPS station will be based on state plane coordinates in the NAD 83 reference system.
- In order to establish this GPS-derived reference system, a cooperative agreement has been signed between the WisDOT and the NGS. The purpose of this agreement is to combine resources of the NGS survey of the FAA

Airport Datum Tie (ADAM) Program survey with the proposed WGRS survey.

The status of action to date follows:

- a. Reconnaissance on 3/4 of sites completed as of (1/1/89) by WisDOT.
- b. WisDOT/NGS signed cooperative agreement, December 16, 1988.
- c. WisDOT will hire a consultant to do GPS observations. NGS will do part with their crews including: the 43 FAA ADAM sites (airports), of which 23 will be in WGHN.
- d. NGS will:
  - furnish mark descriptions
  - reduce data
  - publish entire network
  - do final adjustments
- e. Proposed end date: Dec. 1989 with adjusted coordinates available.

*(Editors note: The next issue of the Bulletin will document specific division of duties between WisDOT and NGS, and benefits of the proposal)*



## THE TIGER FILES: 1:100,000-SCALE DLG DATA....AND MORE!

The U.S. Geological Survey (USGS) and the Bureau of Census have recently completed a cooperative project that will provide the map user community with a significant new product: 1:100,000-scale digital data. The digital data are the roads, hydrography, railroads, and miscellaneous transportation features shown on 1:100,000-scale USGS maps.

The Bureau of Census is using the USGS digital line graph (DLG) data from this cooperative project as the heart of a bold new system to modernize its cartographic and geographic processes. This new data base, called the Topologically Integrated Geographic Encoding and Referencing (TIGER) system, will support the Census Bureau's demographic and economic data collection, processing, and tabulation activities. To use the 1:100,000-scale digital data, the Census Bureau enhances and reformats the DLG data to support the geographic and cartographic activities associated with its field data collection and processing operations.

All of the digital data files produced by the USGS and the Census Bureau from this cooperative effort will be available to the public. The products--the Census Bureau's TIGER files for each county and the Survey's DLG's for each 30-minute by 30-minute area in the lower 48 States--can be ordered from either agency; both agencies have information regarding development status and availability of the complete set of digital map products.

For further information, contact either of these offices:

Customer Service Branch  
Data User Services Division  
Bureau of the Census  
Washington, DC 20233  
Telephone: (301) 763-4100

National Cartographic Information Center  
National Mapping Division  
U.S. Geological Survey  
Reston, VA 22092  
Telephone: (800) USA-MAPS or (703)860-6045.

(source: *FDC newsletter*, No. 8, Summer 1988)

## STATE GEOLOGIST PROPOSES TOPOGRAPHIC MAP REVISION PROGRAM

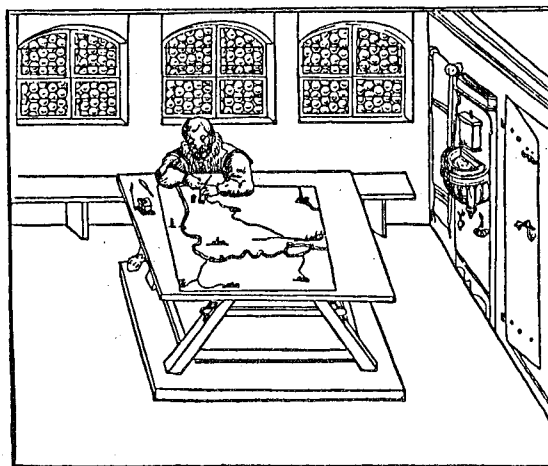
The State Geologist, Dr. Meredith "Buzz" Ostrom, and the State Cartographer have designed a revision plan for the state's 1154 United States Geological Survey (USGS) 7.5-minute Topographic Quadrangles at 1:24,000-scale (1" = 2,000'). This series was developed over a number of years and completed in 1985 for total state coverage. Since that time very little updating has been performed, resulting in a constantly aging information resource.

The state's map coverage at 1:24,000 (commonly called "7.5-minute quads") ranges in date from 1944 to 1985, with the large majority having been produced since 1960. Between 1960 and 1985, the state allocated \$2,770,000 in cooperative funding to this program. With matching funds plus independent production funds from the federal government, there was a total investment of \$11,930,000 in this program.

The plan to be recommended for legislative action requests a revision program be initiated in a cooperative (matching funds) program with the USGS. This plan calls for a five-year revision cycle in high development areas (141 quads), a ten-year revision cycle in moderate development areas (731 quads) and a twenty-year cycle in low development areas (282 quads).

If you are interested in specific details of this recommended program, contact the State Cartographer.

*(Editors note: We will continue to inform readers of this Bulletin on the progress of this proposal).*



## GIS/LIS '88 HIGHLIGHTS

The GIS/LIS '88 was held in San Antonio, Texas from November 30-December 2, 1988. With 2,500 people registered on the first day of the program and 3,119 total registered by the conference's end, attendance was more than double the number of people that attended last year's event. Wisconsin was well represented by a large and diverse contingent. "This meeting firmly takes the lead in providing what GIS/LIS professionals want--an up-to-the-minute technical program and an opportunity to discuss hardware and software with all the leading vendors," said William Craig, chair of the GIS/LIS '88 National Steering Committee.

A great variety of sessions covered virtually every GIS/LIS topic area. Of particular interest to the SCO staff were sessions on the new National Center for Geographic Information and Analysis; on state level activities in GIS/LIS; and on map design considerations for GIS.

Twenty thousand square feet of exhibit space holding 112 booths had been sold out several months in advance of the event. The product exposition showcased top vendors including Apple, AT&T, IBM, Tektronix, Intergraph, Sun Microsystems, Prime Computer, Synercom, Erdas, ESRI, EOSAT, SPOT Image and GeoVision.

GIS/LIS '88 is the product of four associations working in cooperation to bring the newest information in GIS/LIS technology and management trends to users and developers. The American Congress on Surveying and Mapping (ACSM), the American Society for Photogrammetry and Remote Sensing (ASPRS), the Association of American Geographers (AAG), and the Urban and Regional Information Systems Association (URISA) joined together to sponsor this event. Due to the program's unprecedented success, planning for GIS/LIS '89 to be held in Orlando in late 1989 is already underway.



## STAFF TIME SAVINGS THRU AG FIELD OFFICE AUTOMATION

The January 1989 issue of Wisconsin Counties carries an article by John Amundson on "Automation of Dane County's land conservation field office". Amundson is with the County's Division of Systems and Data Processing. He has worked with Kevin Connors, the County Conservationist, on a series of enhancements to information handling at the field office.

The two paragraphs quoted below explain the dramatic gains in efficiency arising from this use of geographic information system technology:

*"Through a cooperative project involving Dane County, the University of Wisconsin, SCS, and other agencies, a digital or computerized version of the Dane County Soil Map was made available. Dane County, SCS, and the University of Wisconsin worked together to identify a procedure to digitize the boundaries of farm fields. Using computer software, the digital fields and soils could be overlaid so that a determination of the acres of each soil type per field could be made. Once the procedure was identified, field office staff began digitizing the field boundaries and running the computerized determinations.*

*It was estimated that the new procedure would require one-fifth the staff time of the old method. Measurements taken well into the process show efficiencies approaching the initial estimates. Using the new automated procedure, Dane County was expected to meet the December 31 deadline for completing highly erodible land determinations with only limited use of the manual method for areas not yet automated.*

The effort described in the article is part of the CONSOIL (Conservation Of Natural Resources through Sharing Of Information Layers) Project which we featured July 1988 issue of the Wisconsin Mapping Bulletin.

Additional information on this type of ag land information automation can be obtained from: CONSOIL, Land Information and Computer Graphics Facility, B102 Steenbock Library, UW-Madison, WI 53706, phone (608) 263-5534.



## CONFERENCES AND TECHNICAL MEETINGS

February 22-24, 1989, Wisconsin Land Information Association 2nd Annual Meeting in Oshkosh, WI. For more information contact Art Ziegler or Bob Gurda at 608/262-3065, Rm. 160 Science Hall, Madison, WI 53706-1404.

March 7-9, 1989, National Conference on Geographic Information Systems, "Charting the Future for the Federal Government", Washington, DC. Held at the Sheraton Premiere at Tysons Corner, VA. Contact: U.S. Professional Development Institute, Geographic Information Systems Conference, 1734 Elton Rd., Ste. 221, Silver Spring, MD 20903-1764.

March 7-10, 1989, International Symposium on Geographic Information, GIS '89, Vancouver, British Columbia. For further information contact: GIS '89 Symposium Office, 4460 West 6th Ave., Vancouver, BC, V6R 1V3 Canada, 604/228-0188.

March 29-31, 1989, Short Course, "Remote Sensing," University of Wisconsin-Madison, Madison, WI. For further information contact: Dept. of Engineering Professional Development, University of Wisconsin, 432 N. Lake St., Madison, WI 53791-9943, 800/262-6243.

April 2-7, 1989, ACSM/ASPRS Annual Convention/Ninth International Symposium, on Computer-Assisted Cartography (AUTO CARTO 9). Baltimore, MD. For more information contact: Peter N. Gibson, 1162 Bedford Court, Germantown, MD 20874.

April 10-13, 1989, AM/FM International Conference XII, "Orchestrating Automated Mapping/Facilities Management for the 1990's", Marriott Hotel, New Orleans, LA. For more information call 303/779-8320.

April 16-20, 1989, National Computer Graphics Association (NCGA) '89. Philadelphia, PA. Contact NCGA, Sharon Sutton, 2722 Merrilee Dr., Suite 200, Fairfax, VA 22031, 703/698-9600.

April 17-19, 1989, Developing Geographic Mapping and Analysis Systems. Madison, WI. For program information contact: Patrick Eagan at 608/263-7420.

April 25-27, 1989, Managing the Risks and Recovering the Costs of Geographic and Facilities Management Systems. Madison, WI. For program information contact: Patrick Eagan at 608/263-7420.

May 18-20, 1989, Surveying Engineering '89, "Managing New Technologies," American Society of Civil Engineers, Denver, CO. Contact: Jerome C. Ives, 2033 S. Xenon Ct., Lakewood, CO 80228, 303/980-8624.

June 6-8, 1989, Geographic Information System (GIS) Conference, Towson State University, Towson, MD. Contact John M. Morgan, III, Towson State University, College of Liberal Arts, Geography and Environmental Planning, Towson, MD 21204-7097, 301/321-2964.

July 9-19, 1989, 28th International Geological Congress. For more information contact: Organizing Committee, Dr. Bruce B. Hanshaw, Secretary General, 28th International Geological Congress, P.O. Box 1001, Herndon, VA 22070-1001, 703/648-6053, telex 248218.

July 10-12, 1989, AM/FM International 1989 Executive Conference, AM/FM International, Durango, CO. Contact: AM/FM International, 8775 E. Orchard Rd., Suite 820, Englewood, CO 80111, 303/779-8320.

August 6-10, 1989, URISA 27th Annual Conference, Boston, MA. Contact: Connie Blackmon, Atlanta Regional Commission, 100 Edgewood Ave., NE, Suite 1801, Atlanta, GA 30335, 404/656-7720.

August 6-10, 1989, FIG, PC-Meeting, Geodetic and Cartographic Society, Budapest, Hungary. Contact: PC'89 Organizing Committee, Attn: Dr. J. Joo, Geodetic and Cartographic Society, P.O. Box 433, H-1371 Budapest, Hungary, 36-158-641, telex 22-4343.

August 17-24, 1989, XIV International Cartographic Conference. Budapest, Hungary. Call for Papers. For more information contact: A. Jon Kimberling, U.S. Program Committee (ICA), Dept. of Geography, Oregon State Univ., Corvallis, OR 97331, 503/754-3141.

September 17-22, 1989, ACSM/ASPRS Fall Convention. Cleveland, OH. For more information contact: John E. Dailey, Suite 100, The Honeywell Bldg., 925 Keynote Circle, Cleveland, OH 44131, 206/741-3215.

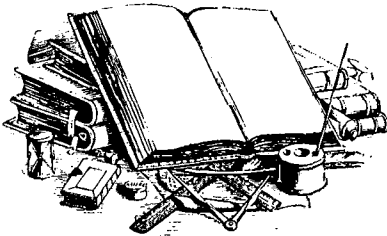
September 18-20, 1989, Scientific Visualization with Computer Graphics, Downers Grove, IL at the Radisson Suite Hotel. For registration and further information contact: The Institute for Graphic Communication (IGC), 375 Commonwealth Ave., Boston, MA 02115, 617/267-9425.

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## CONFERENCES AND TECHNICAL MEETINGS

October 2-6, 1989, *Seventh Thematic Conference*, "Remote Sensing For Exploration Geology." Calgary, Alberta, Canada. Call for Papers. Contact: ERIM/Thematic Conferences, P.O. Box 8618, Ann Arbor, MI 48107-8618, 313/994-1200.

October 17-19, 1989, *3rd Annual Midwest/Great Lakes Regional ARC/INFO Users Conference*, Madison, WI. Contact: ARC/INFO Conference Registration Coordinator, c/o Wisconsin Geological & Natural History Survey, 3817 Mineral Point Rd., Madison, WI 53705, or call (608) 263-7386.



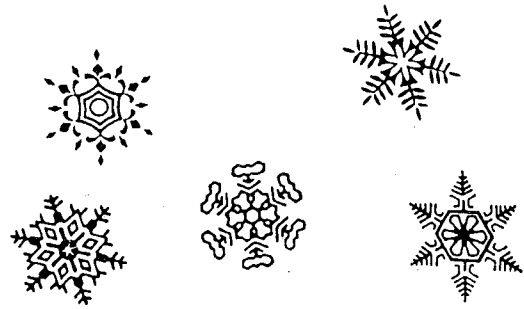
## PUBLICATIONS

### NEW ATLAS AND GAZETTEER OF WISCONSIN

The DeLorme Mapping Company of Freeport, Maine has published a volume for Wisconsin in its atlas series which now covers 10 states. The *Wisconsin Atlas and Gazetteer* is softbound, 104 pages, printed in color, measures 11" wide by 15 1/2" high, and carries a list price of \$12.95. The state is covered with 104 maps at a scale of 1:150,000.

DeLorme used the USGS 1:100,000 series for a base, and reformatted to the smaller scale. This base was then augmented with 23 types of point symbol icons which show the location of various features of interest such as boat landings, hiking trails, campgrounds, historic sites, golf courses, amusements, spectator sports, scenic drives, museums, etc. For each icon type, there is a gazetteer listing which carries additional information.

Text was also added to the USGS base to show all named local roads. Highway identification symbols have been superimposed over the linework for major roads.



In addition to the scale reduction, the area shown on each atlas sheet was adjusted to best fit the paper size. As a result, each pair of abutting maps printed on facing pages covers between 26.25 and 32 degrees of longitude. All sheets cover 30 degrees of latitude. Lat/long is indicated at each sheet corner. Other coordinate system markings used by USGS are replaced with an alphabetical X numerical grid which assists in referencing gazetteer entries. PLSS township and range numbers are shown along the border.

A similar DeLorme product for Michigan (and one for Minnesota in progress) is available to provide continuity across part of Wisconsin's border. For those map plates in the Wisconsin product which cover the state boundary, the icon and road name enhancements are limited to the in-state area. There is no overlap into Illinois.

DeLorme employs a modified color scheme. USGS uses (screened) brown for heavy duty roads and (screened gray) for light duty roads; DeLorme uses solid red for all roads. USGS uses solid brown for topographic contours with a 10-meter vertical interval; DeLorme carries only 30 meter contours, and moves them into the graphic background with (screened) gray. USGS uses (screened) gray for the built-up area fill pattern; DeLorme emphasizes these features with (screened) orange. DeLorme also highlights county boundaries with a wide yellow line.

This new publication has appeared in local retail outlets. For information on ordering by mail, contact DeLorme Mapping Company, P.O. Box 298, Freeport, ME 04032; telephone (207) 865-4171.

### COUNTY PLAT BOOKS

The following Wisconsin County Land Atlas and Plat Books are now available for 1989: Adams and Burnett. These Plat books sell for \$22.50 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.



# PERSPECTIVE ON SURVEYING ACCURACIES

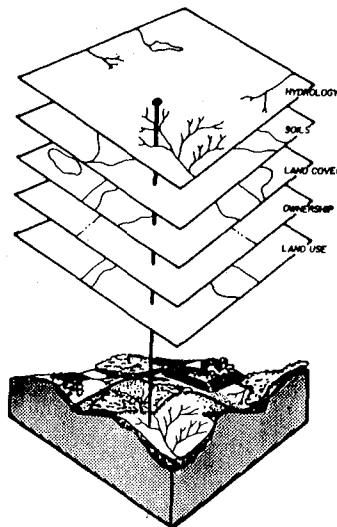
*The following letter to the editor appears in the February, 1989 issue of Photogrammetric Engineering and Remote Sensing. The author is Chair of the Dept. of Civil and Environmental Engineering at UW-Madison, and Chair of the Wisconsin Land Records Committee, 1985-1987.*

I read with interest the "GIS Observer" in the November 1988 issue of PE&RS. I was particularly interested in the subsection headed "Surveying Accuracies, Yea or nay?" I would have to agree that in response to your theme question, "does a GIS have to be that (surveying) accurate...?", your answer, "philosophy of 'close enough' will hold sway" is probably correct and most likely will be the case in practice in the short term. This will occur in many offices and agencies for at least two very significant and powerful reasons: 1) Offices and agencies etc. tend to be mission focused i.e., property tax, natural resources, utility management, ...; thus each will use information technologies to address their mission. 2) Vendors of information technologies are for-profit organizations, thus they are not, nor should not be responsible to insure their products are used in the most effective manner.

However, if one attempts to foresee the future significance of information technologies, one should consider the words of Peter Drucker, who wrote, "The most common source of mistakes in management decisions is the emphasis on finding the right answer rather than asking the right questions."

Consider two recent efforts. The Wisconsin Land Records Committee (WLRC) was created to "...examine and address the immediate needs of state and local agencies regarding land records collection and management, and to develop recommendations on how the state should approach the long-term issues of land records modernization." The committee, which was made up of 33 concerned professionals representing state, local, and private sectors, worked upon this task for two years. One result of the effort showed that there is a remarkable and unfortunate duplication of land data amongst local, state, and federal agencies. The annual tax-payer cost of these operations was projected at \$135 million, private sector costs not included.

In a totally separate effort in Indianapolis, Indiana, the question was asked "How many times must a city's residents pay to produce duplicate maps of the same area?" This study involved 28 organizations, including public agencies and utilities. The results showed 8,320,000 individual maps, records, and drawings with an annual expenditure of approximately \$9 million to create, maintain, seek, and verify the information. One conclusion of this study was "...there will never again be an opportunity to obtain an accurate land database in this community with the ease and cost of doing so now."



In conclusion, I believe your answer to your question is unfortunately correct. However, from the perspective of the citizen tax payer rather than the agency or office, it is the question which is wrong, not the answer. As Drucker also wrote "There are few things as useless, if not as outright dangerous, as the right answers to the wrong questions." Perhaps the question should be:

How can we, as responsible professionals, establish the means by which the required information concerning the land can be provided to the citizens and their government in a timely, reliable, and cost-effective manner, now and for 100 years into the future?

James L. Clapp

## WISCONSIN MAPPING BULLETIN

Published quarterly 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.

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Mailing: SCO Production Staff

Please send all comments, corrections, and news items to: State Cartographer's Office, 155 Science Hall, Madison, WI 53706-1404, phone 608/262-3065.

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