WISCONSIN MAPPING BULLETIN



Vol. 17 No. 1 & 2 January/March 1991

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

WLIB Sets Planning Guidelines; Begins Structuring Grant Program

The Wisconsin Land Information Board (WLIB) has issued a set of guidelines for local government land information planning. The guidelines, titled *Recommendations and Requirements for Countywide Plans for Land Records Modernization*, were formally adopted on January 7, 1991. This policy statement will be used by the WLIB in judging plans submitted for approval by County Land Information Offices. These Offices have been established by 71 of the state's 72 counties as the first step in participation in the Land Information Program directed by the WLIB. (See the four-page updated listing inside this issue).

The WLIB has approved two plans to date, for Milwaukee and Kenosha counties. Both plans were modifications of plans that had been drafted prior to the formal adoption of the guidelines document. Winnebago County has recently submitted a plan for consideration. Other counties are in earlier stages of the planning process.

Once the WLIB approves a particular plan, the County Land Information Office can begin to utilize retained user fees to implement the plan. However, these fees can be used, without explicit approval from the Board, by any Land Information Office to develop its plan for submission to the Board.

Another benefit of having an approved plan is the ability to apply for additional grant funding from the WLIB. However, criteria for awarding grants have not been established by the WLIB. A process is underway to achieve this goal. In formulating its policy on grants, the WLIB will have to consider a number of factors. These include the timing of applications and awards, especially relative to local budget processes; how much of the available grant funds to distribute during any particular period; what types and styles of grant projects to support.

The results of a "town meeting" session at the recent WLIA Annual Conference (see articles on page 11) should help the WLIB resolve some of these issues over the upcoming months. An analysis of the WLIA session is scheduled to be presented at the next WLIB meeting on April 8. It will probably require several additional monthly WLIB meetings and committee/staff work between meetings to finalize the policy on management of the grants program.

At its next meeting, the WLIB will also hear presentations on geodetic control datum issues, and will get an update on progress toward arranging funding for the scheduled spring 1992 statewide NAPP acquisition. NAPP is an acronym for the National Aerial Photography Program, a cost-shared, federally coordinated initiative. (See article on page 5 for further information on Wisconsin plans for NAPP.

Land Information Systems Book about to be Published by SCO.

As this issue goes to press, we are also in the final stages of preparation for printing a new publication. *Introduction to Local Land Information Systems for Wisconsin's Future* is 80 pages of indispensable background information for anyone interested in the modernization of land records. For details, see page 9.

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MORE LAND INFORMATION PROGRAM NEWS

Report on Early User Fee Revenues

Based on the first seven months of activity, revenues from the user fee collected statewide to support the Wisconsin Land Information Program should total somewhat in excess of \$3 million for the first year. The fee, created by Act 339 last spring, took effect in July, 1990. It had been estimated that the user fee mechanism would raise upwards of \$4 million annually.

Fees forwarded to the Wisconsin Land Information Board (WLIB), representing about half of the fees generated from document filing activity at all county Register of Deeds offices from last July through this January, totalled \$914,000, for an average of \$130,572 per month. A straight-line projection would indicate a first 12-month total of about \$1.5 million (\$3 million, when including the portion of fees retained locally). Heavier document filing activity in the last 5 months of the fiscal year would result in a higher annual yield.

The WLIB is mandated to utilize its funds for grants to local governments to accelerate land information activities, for statewide integration, and for Board administrative costs. The Program has no state General Purpose Revenue (GPR) support, although state agencies provide considerable in-kind contributions through staff participation in various Program activities. Board members receive no compensation from the Program for their time spent on Board business.

An amount equal to that sent in to the WLIB is retained by the counties for development, implementation, and maintenance of a countywide plan for land records modernization. Most counties are actively involved in some stage of the planning process. Only one of the state's 72 counties has declined to participate in the Program; all of the fees collected in that county (\$9,288 to date) have been forwarded to the WLIB.

The total amounts collected per month by the counties together varied between 82% and 123% of the 7-month average; in most counties, the summer and/or fall months resulted in larger collections than the winter months.

Twelve counties accounted for over 52% of the total. (Milwaukee, Dane, and Waukesha together totalled 28%). Adding the next eleven counties in order of fees collected, the top 23 counties collected 70% of the statewide total. This means that the remaining 49 counties collected only 30% of the total. The number of parcels per county, and the general level of real estate activity are probably the two most significant factors in determining the level of fees collected.

For specific information on fees collected per county per month, contact Georgia Hopf of the WLIB staff at 608/267-2722.

Update on WLIB Membership

Listed below is the membership of the Wisconsin Land Information Board as of March, 1991. Affiliation relative to Board membership is also included. For a compete list contact WLIB staff (see left column, bottom).

Voting Members: John D. Bilotti Wis. Dept. of Administration Robert F. Gurda Acting State Cartographer Michael J. Hasslinger Waukesha Co. Register of Deeds John E. Haverberg Wis. Dept. of Transportation Anthony B. Kiedrowski Portage County Board Supervisor John Ŵ. Laub Wisconsin Power & Light Co. Bernard J. Niemann, Jr. Wisconsin Land Information Association Janet H. Price Wis. Dept. of Natural Resources Arden T. Sandsnes Royal Oak Engineering, Madison Lori J. Scully Mauston City Council James P. VandenBrook Wis. Dept. of Agric., Trade & Consumer Protection Leslie D. Van Horn Brown County Surveyor Robert T. Welch Registered Land Surveyor and State Representative

Statutorily Defined Advisory Members:

Richard W. Dexter State Historical Society Ronald G. Hennings Wis. Geological and Natural History Survey Daniel O. Theno Wis. Dept. of Revenue

Invited Advisory Members:

Gregory J. Allord
U. S. Geological Survey, Madison
Gary D. Bauer
U. S. Dept. of the Interior-BLM, Milwaukee
Kurt W. Bauer
S.E. Wis. Regional Planning Commission, Waukesha
Thomas L. Gilbert
National Park Service, Madison
Michael B. Hathaway
U. S. Forest Service, Rhinelander
Thomas J. Kieweg
Wisconsin Counties Assn.
David M. Kluever
Gov't. Information Processing Assoc., of Wis. Wausau
Noel W. Kohl
U.S. Environmental Protection Agency, Chicago
Steven G. Kopach
U. S. Dept. of Interior-BLM, Washington, D.C.
Louis Kowalski
Corps of Engineers, St. Paul, MN
D. David Moyer
National Geodetic Survey, Madison
Jerry A. Skalak
U.S. Corps of Engineers, Hock Island, IL
Merle E. Southern
U. S. Geological Survey, Holla, MO
Douglas Zwank

WLIB ORGANIZATIONAL MATTERS

At its recent meeting of March 11, the WLIB elected new officers and tentatively set a meeting schedule for the balance of the year.

The three officers, all elected by unanimous ballot, are John Laub, Chair; Ben Niemann, Vice Chair; and John Bilotti, Secretary. These officers comprise the WLIB Executive Committee.

Niemann had served as Chair for the Board's first year. Laub had served as Secretary during the same period; he also is completing a one-year term as President of the Wisconsin Land Information Association. The Board's Vice Chair for the first year was Arden Sandsnes.

The Board plans to meet generally the second Monday of each month, in Madison. Exceptions will probably be August 5 and November 4.

Board membership has had some changes recently. A full list appears on page 2. Governor Thompson has reappointed both Rep. Bob Welch and Lori Scully for 6-year terms.

Following the election of officers, the Board adopted the following resolution recognizing the service of its first Chairperson:

WHEREAS, the Wisconsin Land Information Board was created by the Wisconsin Legislature for the purpose of modernizing land information records; and

WHEREAS, the Board first convened on December 7, 1990 at which time Bernard J. Niemann, Jr. was elected Chairperson; and

WHEREAS, the Wisconsin Land Information Program has been firmly established during the past year under the guidance of the Wisconsin Land Information Board; and

WHEREAS, Bernard J. Niemann, Jr. as Chairperson has demonstrated vision, persistence, integrity and effectiveness in his leadership of the Board.

NOW THEREFORE, the Wisconsin Land Information Board recognizes

BERNARD J. NIEMANN, JR.

for outstanding service as the first chairperson of the Wisconsin Land Information Board.

WLIB TO CONSIDER GEODETIC DATUMS RECOMMENDATION

At its meeting on April 8, the WLIB will take under consideration a proposal to change the way Wisconsin deals with geodetic control. The proposal was recently recommended to the WLIB by the Board of Directors of the Wisconsin Land Information Association (WLIA). The WLIA's Technical/Research Committee produced the report and recommendation, which was endorsed by the WLIA Board in January.

The WLIA's report has two primary components. First, it proposes modifying Chapter 236 of the Wisconsin Statutes to allow the use of a second horizontal geodetic datum called NAD83. At present, Chapter 236 allows only adjustments tied to NAD27, although this restriction applies only to defined activities that utilize the "Wisconsin Co-ordinate System" (the familiar State Plane Coordinate System, having North, Central, and South zones).

Second, the report proposes establishment of a Wisconsin Geodetic Program Reference System that would clarify responsibility at the state and local level for management of existing horizontal and vertical control networks and their densification. A component of the Program would be support for development of geodetic coordinates for monumented corners in the Public Land Survey System.

NAD83 is a new and more accurate description of horizontal positions across the state that is useful for surveying and mapping that is of high accuracy. It was initially issued by the National Geodetic Survey (NGS) based on measurements accumulated and recalculated through 1988. More recently the Wisconsin Department of Transportation has acquired even better measurement information using the Global Positioning System satellites. This newest information is now being used by NGS to futher refine the network over Wisconsin, to be called NAD83-1991.

Highlights of this issue

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USGS PUBLICATIONS

Status Report on Current Topographic Mapping in Wisconsin

Ouad	Scale	Fund*	Status
Hebron II	1.24 000	SID	Authorized
	1.24,000		Authorized
Richmond, IL (R)	1:24,000	SIR	Authorized
Iron River	1:100,000	SIR	In Reproduction
Merrill	1:100,000	SIR	In Reproduction
Rhinelander	1:100,000	SIR	In Reproduction
Richland Center	1:100,000	SIR	In Reproduction
Sheboygan	1:100,000	SIR	In Reproduction
Sparta	1:100,000	SIR	In Reproduction
Sturgeon Bay	1:100,000	SIR	In Reproduction
Wakefield	1:100,000	SIR	In Reproduction
Washington Island	1:100,000	SIR	In Reproduction
Wausau	1:100,000	SIR	In Reproduction
Wisconsin Dells	1:100:000	SIR	In Reproduction
Dancy (I)	1:24.000	JFA	Authorized
LaCrosse (R)	1:24,000	JFA	Authorized
Onalaska (R)	1:24,000	JFA	Authorized
Rocky Run (I)	1:24,000	JFA	Authorized
Stevens Point (I)	1:24,000	JFA	Authorized
Wausau East (R)	1:24,000	JFA	Authorized
Wausau West (R)	1:24,000	JFA	Authorized
West Salem (R)	1:24,000	JFA	Authorized

- * SIR-Surveys, Investigations, and Research
 - JFA-Joint Funding Agreement (formerly State Cooperative Project)
 - (R) -Revision
 - (I) Photorevision (formerly interim revision)

(this listing is current as of December 31, 1990)

(source: U.S. Geological Survey)



Status of Topo Map Series for Wisconsin

In the column to the left, USGS's plans and activities are listed for a number of topographic maps for Wisconsin. Of the 21 listed, two are 1:24,000-scale maps that mostly cover Illinois (Hebron and Richmond). Eleven others are completion sheets of the 1:100,000-scale quadrangle series that cover parts of Wisconsin; a similar map coverage, but presented on a county basis, has been available for all counties since 1988.

The remaining eight maps listed are the only 1:24,000scale topographic maps revisions presently planned for Wisconsin. They are in the areas of LaCrosse (LaCrosse, Onalaska, West Salem), Wausau (Wausau East & West), and Stevens Point (Dancy, Rocky Run, and Stevens Point).

The state share of funding for the 1:24,000-scale revisions comes from a small amount of state funds allocated annually to the State Geologist. There are many more of the 1154 sheets in this series across the state that are candidates for revision. The series was completed in 1985, and no concerted revision program is in place at this time.

In addition to the the series mentioned above, a fourth USGS topographic maps series, at 1:250,000-scale, covers Wisconsin. It has become fairly dated in some respects. All or parts of 18 sheets are needed for complete state coverage.

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

I-2093. Geologic map of Precambrian rocks, 15-minute quadrangles, Vilas County by P.K. Sims. 1990. Scale 1:62,500 (1 inch = about 1 mile). Sheet 39 by 33 inches (in color). \$3.10.

The following Open-File report is available from the U.S. Geological Survey, see address above.

OF 90-0466-F GEONAMES data base of geologic names of the United States through 1988. Compiled by G. W. Luttrell, M. L. Hubert and C. R. Murdock. 1990. 11p., one 5 1/4 inch DS/DD IBM compatible disk. \$7.75.

> Note: For all USGS orders, make checks payable to "Dept. of the Interior - USGS". For all <u>map</u> orders less than \$10, include an additional \$1 for postage &handling.

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COOPERATIVE AERIAL PHOTO-GRAPHY NEEDS SUPPORT NOW

Wisconsin has a major opportunity to gain access to new statewide aerial photography that would support numerous resource management programs. Groups and individuals across the state are organizing support for contributions to the 50% cost share that is needed to ensure the flight scheduled for spring of 1992.

The flight is part of the National Aerial Photography Program (NAPP). NAPP is a joint project of several federal agencies (USGS, SCS, ASCS). Various groups hope the State Legislature will include funds for the cost share in the biennial budget now being considered. The half-cost will be \$180,000. This translates to one-half cent per acre.

NAPP flights have been scheduled and/or completed for most other states in the Upper Midwest. Wisconsin is on the schedule for 1992. However, the cost share of 50% needs to be arranged for the flight to occur. Due to planning and contracting timelines, it is necessary to commit funds by this summer for a spring 1992 flight.

The NAPP Program is based on a set of specifications negotiated amongst the federal cooperators. The photography acquired is designed to serve an array of resource management needs. The original scale is 1:40,000. This means that a standard 9 X 9 inch frame depicts about 5.7 X 5.7 miles of terrain. The original images can be enlarged to scales in the 1:8000 range (1:7920 is the same as 1 inch = 660 feet). This type of imagery will not depict fine detail; it is intended for resource management. For instance an object 6 feet across on the ground would appear as a dot only .01 inches (0.2 mm) across on a 5X enlargement of the image. However, the NAPP scale is very useful for agricultural field office use, as well as many other public and private programs at various levels.

The Wisconsin plan is for NAPP to be acquired in the spring of 1992, before deciduous vegetation leafs out. Thus the photography would be "leaf-off". It is presently planned to be on black-and-white film, although color infrared is available for about 20% more.

Stereo coverage is also a part of the NAPP Program. This means that overlapping frames are acquired. The overlap, along with adequate ground control, also allows "construction" of "stereo models" of the terrain, from which accurate mapping can be accomplished.

The stereo feature also allows removal of distortion that is found in all aerial photographs. The result is an "orthophoto" that is planimetric (or accurate to scale like a map). Orthophoto products are extremely useful for integrating information that can be marked or plotted accurately in reference to its base. This capability is becoming more critical as GIS use increases.

Statewide orthophotography is a serious possibility. If done from NAPP photography, another federal cost-sharcontinued next column

PUBLICATIONS

New WG&NHS Publications

For information on the publications listed, contact the Maps and Publications Sales (MAPS) office, of the Wisconsin Geological and Natural History Survey, 3817 Mineral Point Road, Madison, WI 53705, 608/263-7389.

- List of Publications of the Wisconsin Geological & Natural History Survey, 1990. Lists all currently available as well as out-of-print publications (including maps) of the WGNHS. Also lists products of other agencies that are available through the MAPS office. Free.
- Miscellaneous Map Series #31. Generalized Water Table Elevation Map of Pierce County, WI. Compiled by I.D. Lippett, 1990. Scale 1:100,000. \$2.00.
- Soils of Pepin and Langlade Counties, WI, and their ability to attenuate contaminants, by F.W. Madison and J.A. Gassen, 1990, scale 1:100,000, two-color, \$2.00 each.
- Special Report #12, "Ground Water Quality Regulation: Existing Governmental Authority & Roles", \$6.00.
- The Ice Age Geology of Devils Lake State Park, educational series #35, \$2.00.

County Plat Books

The following Wisconsin County Land Atlas and Plat Books are now available for 1991: Adams, Dane, Eau Claire, Green, Marathon, and St. Croix Counties. They 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) 800/447-2222 or for customer service information call 815/399-4614.

NAPP-continued from column 1

ing project is possible. As part of this potential activity, locally marked ground control could be used as part of the state's cost-share. Digital files of the imagery could also be constructed and made available on CD-ROM (compact disk read-only memory). While the digital files would depict objects only as small as about 2 meters across, the overall image could be an extremely useful computer screen background over which to display other digital information such as property and field boundaries, soil mapping units, roads, etc.

NAPP is the successor to the NHAP Program of the 1980's. NHAP photography was acquired by very high flying aircraft (modified U-2), and was fully funded by federal agencies. Wisconsin has both NHAP and NHAP2 photography available, but the scale is too small to be widely useful in agency programs. Wisconsin last funded its own statewide flight in 1979; it was done at half the flying height of NAPP, but was done leaf-on and as a result many ground features are obscured by leaves.

For more information on the NAPP opportunity, contact Bob Gurda at the SCO: 608/262-6850.

ADVICE ON REQUESTS FOR SPECIFIC "UNIQUE" DATA

Editor's Note: Brenda Hemstead of the SCO staff handles the great majority of requests for specific unique data. In this article she describes the process required to answer these types of inquires.

General

The Office receives numerous requests for unique but specific data. These types of requests vary as programs are implemented. I remember back about 5 years ago when an organized group of churches were calling the office to get geographic coordinates for their church locations. In this case, the need for precise coordinates was never obvious. A more recent example is a DNR requirement that land fills have known coordinates.

Every so often, we receive a call for the Magnetic Declination. Some callers are checking the accuracy of the needle in their compass to prepare for their hiking trip in Canada. Others intend to find a route to a back country lake closer to home.



Magnetic Declination Requests

The magnetic north pole is not in the same general location as the geographic north pole and as such magnetic compasses do not point to "true" north. In addition, the magnetic pole is not stationary, but drifts slowly. As a result, there is an angle between true north and magnetic north that varies from place to place, and that shifts over time.

The effects of these factors are mapped and predicted into the near future by the federal government on a fiveyear epoch basis. The map is produced at a small-scale for the total U.S. and our Office, with additional data, publishes and distributes a page-size map for Wisconsin. Our last such map is dated 1985, so a 1990 should be coming along soon. Interestingly, the zero deviation line runs more or less through the center of Wisconsin; from north to south. In recent decades it has been shifting to the west (it was in the center of Lake Michigan in 1920).

While the Office publishes this information as an aid to users, we still receive frequent requests for the current magnetic declination of particular sites. The location answer must be scaled from the available information and transmitted to the requestor. In many cases an explanation of east versus west variation must be given in addition to explaining the estimated annual rate of change. While most surveyors and other professionals have access to this information, the majority of our requests come from less knowledgeable persons including amateur map users.

With an expensive compass, adjusting for magnetic declination anywhere in Wisconsin is virtually unnecessary. However, there are locally occurring anomalies in the magnetic field of the earth, apparently due to certain types of rocks. Some of these anomalies can make a compass produce very confusing readings.

Coordinate Requests

We receive requests for location in latitude and longitude from non-surveyors who are not accustomed to dealing with map coordinates nor reading exact locations in "lat/long". A wide variety of demands drives these requests. For example, UTM coordinates can be used to compute shipping distance, and lat/long is required for installation of certain telecommunications equipment.

The alternative to hiring a surveyor to accurately determine the coordinates in the field, is to "scale" off a largescale accurate map. By careful scaling on a 7.5-minute topo quad (1:24,000-scale), accuracies of 2-3 seconds can be obtained. This equates to an accuracy circle of approximately 250 feet diameter.

Upon phone request, the caller indicates a specific address or building. Our initial response is questioning of the county in which the address is located, and any major highways or landmarks to help locate the spot. Upon selecting the appropriate 7.5-minute quad (among the 1,154), collaboration with the caller is required to determine <u>exactly</u> the point (at the address, in the parcel, on the building, etc.) on the topo quad for which coordinates are needed. Often, requestors are not working from a copy of a topo quad. Also, the topo quads do not show all roads and some quads are out-of-date. These factors can complicate an already complex process.

Once the exact point of interest has been determined, an engineering scale is used to measure the coordinates by interpolation. For lat/long, seconds are used as the denominator (150 seconds = 2 minutes and 30 seconds). Tic marks which are found on the 7.5-minute topo quads at 2.5-minute intervals of both latitude (north) and longitude (west) are used to form a baseline for this calculation.

These types of inquiries typically require a minimum of 15 minutes. If the caller is unfamiliar with the site, and/or latitude or longitude concepts, and/or general mapping concepts including the topographic map series, the process can extend to an hour per request.

COUNTY CARTOGRAPHIC CATALOG PRODUCTION STATUS



SCO County Catalog Developments

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

WINNEBAGO (2nd edition): Distribution of complimentary copies completed in February; copies available for sale from Map Sales, Wis. Geological & Natural History, 3817 Mineral Point Road, 608/263-7389; the cost is \$7.00 at the counter or \$8.00 by mail.

MARATHON: in production, scheduled for printing in April 1991 and distribution in May 1991.

PORTAGE (2nd edition) & MARQUETTE: in production, scheduled for printing in June 1991 and distribution in July 1991.

GREEN LAKE: in production.

WAUSHARA: in planning.

January/March 1991

FREE DIGITAL IMAGERY DISKETTE AVAILABLE FROM SCO

A sample digital orthophoto demonstration diskette is available free from the SCO. The diskette contains four computer file types that can be used easily on a PC-compatible microcomputer:

- a 1 MB digital orthophoto image covering about 1 square mile
- a free public domain software display program for viewing the image on a graphics monitor (EGA will work, but VGA is recommended)
- documentation files explaining both the image and the software, which can be viewed or printed
- an interactive demo program that explains digital orthophotography and automatically displays the image in a number of ways.

This demonstration provides a view into a map image product that could be developed over the entire state. The sample file is from the area around Black Earth, Wisconsin (Dane County – just west of Madison). It was produced by the U.S. Geological Survey in conjunction with the CONSOIL research project.

Commercial software already exists that can display digital orthophoto images on a monitor and simultaneously show other information in vector format such as property parcels, soil types, utility locations, and well locations. Some products allow interactive analysis of the image information based on the vector information.

USGS and the Soil Conservation Service are interested in developing digital orthophotography as a standard product across most of the U.S. Under their model, the production would be cost-shared 50/50 with states and/or other cooperating parties. It would be based on NAPP (National Aerial Photography Program) photographs, which are 1:40,000-scale. This acquisition scale would be used to create hard-copy ortho-corrected products at an enlarged scale of 1:12,000 (1" = 1,000 feet). Digital files would depict visible objects as small as about 2 meters.

To receive a copy of the digital files, send a blank, highdensity diskette (either 1.2 MB 5.25", or 1.44 MB 3.5") in a sturdy mailer to the State Cartographer's Office. We will copy the files onto the disk, and return it along with background information and instructions for getting started.



COMMERCIAL GIS SOFTWARE TO BE LISTED ON STATE CONTRACT

The Wisconsin Department of Administration (DOA) has begun a process designed to place qualifying Geographic and Land Information System (GIS/LIS) computer software on the State Operational Bulletin. This Bulletin is the basis for government purchasing choices and prices. The process is expected to be completed before summer.

Some products that appear on the final list may include computer hardware, support, and/or training, in addition to software. There will likely be multiple configurations available as packages.

There are several purposes for this activity. First, the products appearing on the approved list will have been recognized by the State as meeting certain minimum levels of functionality. In addition, the State will be able to identify significant capabilities of the products that exceed minimum levels. Second, prices for these products will probably be lower when acquired under the State Bulletin as compared with individually negotiated contracts between purchasers and vendors. State, regional, and local agencies can all make purchases through the Schedule. Third, vendors should find that they save time by avoiding individual responses to the large number of Requests for Proposals expected to be issued by various public purchasers over the next several years.



The functionality criteria being used by DOA in their review of vendor proposals are related to needs arising to implement the distributed but integrated systems concept that lies at the core of the Wisconsin Land Information Program. However, it is DOA, and not the Wisconsin Land Information Board, that is managing this activity. DOA is involved with determination of a wide array of products and services that appear on the State Bulletin.

The process formally began on November 30, 1990, when DOA issued a "Request for Proposals for Geographic and Land Information System Software". A pre-submission conference with interested vendors was held on December 21, 1990 to answer questions. Proposals were due on January 23, 1991, and are undergoing review at the present time. DOA has assembled an outside panel composed of technical experts to perform the review which will continue over the next several months.

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COUNTY LAND INFORMATION OFFICE DATA

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County	Type of Office	Contact Person	Address	Phone Number
Adams	County Board Planning and Zoning Committee	Alma Thurber Register of Deeds	P.O. Box 219 Friendship, WI 53934	(608) 339-4206
Ashland	Register of Deeds	Wendell R. Friske Register of Deeds	206 W. 2nd St. Ashland, WI 54806	(715) 682-7008
Barron	Land Information Office Register of Deeds	Donna M. Miller Register of Deeds	Courthouse Rm 238 330 E. LaSalle Ave. Barron, WI 54812	(715) 537-6212
Bayfie Id	Land Information Office Register of Deeds	Otto Korpela Register of Deeds	P.O. Box 813 Courthouse Washburn, WI 54891	(715) 373-6119
Brown	Committee	Mr. B.F. Paruleski Executive Director Planning Commission	100 N. Jefferson St. P.O. Box 1600 Green Bay, WI 54305-5600	(414) 436-3633
Buffalo	Land Information Committee	Patricia Wodele County Treasurer	Buffalo County Courthouse 407 2nd Street Alma, WI S4601	(608) 685 -4850 - E2/J
Burnett	Committee	Kathy Swingle Surveyor/Land Records Supervisor	Burnett County Government Center 7410 County Road K. #103 Siren, WI 54872	(715) 349-2599
Calumet	County Board Land Information Study Committee	Patricia Wettstein Real Property Lister	206 Court St. Chilton, WI 53014	(414) 849-2361 x204
Chippewa	Committee	Dennis G. Mickesh, Land Information Coordinator	711 N. Bridge Street Chippewa Falls, WI 54729	(715) 723-5121
Clark	Register of Deeds	Eugene Oberle Register of Deeds	517 Court Street Neillsville, WI 54456	(715) 743-3241 x340
Columbia	Land Information Study Committee	Penny Judd Register of Deeds	400 DeWitt St. P.O. Box 177 Portage, WI 53901	(608) 742-2191 x246
Crawford	Land Conservation Committee	Delores Bonney Register of Deeds	220 N. Beaumont Road Prairie du Chien, WI 53821	(608) 326-0221
Dane	Committee	Howard Braunschweig Dir. of Information Management	210 Martin Luther King Blvd., Rm 524 Madison, WI 53709	(608) 266-5663
Dodge	Committee	Garland G. Lichtenberg	Dodge County Court House 127 E. Oak St. Juneau, WI 53039	(414) 386-3531
Door	Committee	Joseph LeClair Data Processing Manager	Door County Courthouse Box 67, 138 S. 4th Ave. Sturgeon Bay, WI 54235	(414) 743-5511
Douglas	Land Information Office County Clerk	Raymond H. Sommerville County Clerk	County Clerk, Douglas County, 1313 Belknap Street Superior, WI 54880	(715) 394-0341
Duan	Committee	James M. Mrdutt Register of Deeds	800 Wilson Avenue Menomonie, WI 54751	(715) 232-1228
Eau Claire	Land Information Office Dept. Planning & Development	Richard A. DeVriend Supervisor	Bau Claire County Courthouse Room A180 721 Oxford Ave Eau Claire, WI 54703	(715) 839-4743

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COUNTY LAND INFORMATION OFFICE DATA

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County	Type of Office	Contact Person	Address	Phone Number
Florence	Committee	Mary M. Jessen	501 Lake Avenue P.O. Box 410 Florence, WI 54121	(715) 528-4252
Fond du Lac	Committee	Mary A. Brickle Register of Deeds	P.O. Box 509 160 S. Macy St. Fond du Lac, WI 54936-0509	(414) 929-3018
Forest	Land Information Office	Paul Aschenbrenner Register of Deeds	Forest County Courthouse Crandon, WI 54520	(715) 478-3823
Grant	Committee	Marilyn Pierce Register of Deeds	P.O. Box 391 Lancaster, WI 53813	(608) 723-2727
Green	Register of Deeds	Mardell Crotty Register of Deeds	Register of Deeds Green County Cths. Monroe, WI 53566	(608) 328-9439
Green Lake	Committee	James A. Hebbe County Conservationist	492 Hill St. Green Lake, WI 54941	(414) 294-4051
Iowa	Land Records Committee	Lynn T. Martin Register of Deeds	Iowa County Courthouse 222 N. Iowa Street Dodgeville, WI 53533	(608) 935-5628
Iron	Register of Deeds	Bob Traczyk Register of Deeds	Iron County Courthouse 300 Taconite St. Hurley, WI 54534	(715) 561-2945
Jackson	County Clerk			
Jefferson	Real Estate Description	Andrew J. Erdman Supv. Real Estate Descrip.	320 S. Main Street Jefferson, WI 53549	(414) 674-2500 x124
Juncau	Register of Deeds	Jerilynn Kolba Register of Deeds	Juneau County Courthouse Mauston, WI 53948	(608) 847-9325
Kenosha	Land Information Office County Planning & Development	George Melcher, Director Kenosha County Planning & Development	912-56th Street Kenosha, WI 53140	(414) 656-6550
Kewaunee	Register of Deeds	Marilyn G. Mueller Register of Deeds	613 Dodge St. Kewaunee County Courthouse Kewaunee, WI 54216	(414) 388-4410 x126
LaCrosse	Land Information Office Land Title & Mapping	Jeffrey W. Bluske	400 North 4th Street Room 105, County Courthouse LaCrosse, WI 54601	(608) 785-9783
Lafayette	Committee	Joseph Boll Register of Deeds	P.O. Box 170 Darlington, WI 53530	(608) 776-4838
Langlade	Land Records and Regulations Dept.	Rebecca J Frisch Zoning Administrator	Langlade County Courthouse 800 Vermont St. Antigo, WI 54409	(715) 627-6206
Lincoln	Committee (of County Board)	Michael M. Dailey	Lincoln County Computer Services 1110 E. Main Street Merrill, WI 54452	(715) 536-0301
Manitowoc	Committee	Preston F. Jones Register of Deeds	P.O. Box 421 Manitowoc, WI 54221-0421	(414) 683-4012
Marathon	Committee	Lorraine Beyersdoof County Treasure	Marathon County Courthouse 500 Forest Street Wausau, WI 54401	(715) 847-5246

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COUNTY LAND INFORMATION OFFICE DATA

County	Type of Office	Contact Person	Address	Phone Number
Marinette	Committee	Florence Magnuson Register of Deeds	County of Marinette Courthouse 1926 Hall Ave. P.O. Box 320 Marinette, WI 54143	(715) 732-7551 Ext. 273
Marquette	Committee	Bernice M. Wegner Register of Deeds	Marquette County P.O. Box 236 Montello, WI 53949	(608) 297-9132
Menominee	Land Information Office Office of County Coordinator	Richard A. Schultz Office of County Coordinator	P.O. Box 428 Keshena, WI 54135	(715) 799-3024
Milwaukce	Register of Deeds	Walter R. Barczak Register of Deeds	Register of Deeds Office Courthouse Rm. 103 901 N. 9th St. Milwaukee, WI 53233	(414) 278-4021
Monroe	Committee	Lorraine A. Mattheisen	P.O. Box 195 Sparta, WI \$4656	(608) 269-8730
Oconto	Land Information Office	Charles Fleischman Land in Force Agent	300 Washington Street Oconto, WI 54153	(414) 834-5322 x302
Oneida	Department	Michael J. Romporti	Courthouse Bldg. P.O. Box 400 Rhinelander, WI 54501	(715) 369-6179
Outagamie	Committee	Gerald Tate Assistant Planning Director	410 S. Walnut Street Appleton, WI 54911	(414) 832-5255
Ozaukee	Committee	Ronald A. Voigt Register of Deeds	121 W. Main St. P.O. Box 994 Port Washington, WI 53074-0994	(414) 284-9411
Pepin	Land Information Office	Betty A. Plummer	Register of Deeds Office P.O. Box 39 Durand, WI 54736	(715) 672-8665
Pierce	Department of Land Management and Records	Jim Hulbert, Administrator	Dept. of Land Management & Records Planning Office P.O. Box 647 Ellsworth, WI 54011	(715) 273-3531 x334
Poik	Land Information Office	Marlene Jacker Tax Lister	Polk County Treasurer's Office Courthouse Balsam Lake, WI 54810	(715) 485-3161
Portage	Committee	Charles P. Kell County Planning	1516 Church Street Stevens Point, WI 54481	(715) 346-1334
Price	Committee	Lillianne Marlenga Register of Deeds	Price County Courthouse Phillips, WI 54555	(715) 339-2515
Racine	Land Information Office	Helen M. Schutten Register of Deeds	730 Wisconsin Ave. Racine, WI 53403	(414) 636-3709 (414) 636-3851 (Fax)
Richland	Committee	Paul Klawiter Real Property Lister	Richland County Courthouse P.O. Box 348 Richland Center, WI 53581	(608) 647-3658
Rock	Committee	Mark Mader Assistant to the County Admin.	Rock County Courthouse 51 S. Main Street Janesville, WI 53545	(608) 755-2016

Janesville, WI 53545

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COUNTY LAND INFORMATION OFFICE DATA

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County	Type of Office
Rusk	Register of Deeds
Sauk	Exec. & Legis. Committee of County Board
Sawyer	Land Information Office Register of Deeds
Shawano	Land Information Office
Sheboygan	Land Information Office
St. Croix	Land Information Office
Taylor	Committee
Trempeleau	Committee
Vilas	Committee
Watworth	Committee
Washburn	Land Information Office Land Records Office
Washington	Land Information Office
Waukesha	Register of Deeds
Waupaca	Land Information Board
Waushara	Committee
Winnebago	Land Information Office Planning & Zoning Department

Register

eeds

Contact Person

Clarence Glodfelty Zoning Administrator

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Melvin Rose County Board Chair

E. Louis Lindholm Register of Deeds

Betty Redman Register of Deeds

Darlene Navis Register of Deeds

David Fodroczi Planning Department

Sally Strassburger Register of Deeds

Janet Peterson Register of Deeds

Coureen Rogers Mapping Coordinator

Lois Ketterhagen Register of Deeds

Craig Conroy Zoning Administrator

John C. Steilen Register of Deeds

Michael Hasslinger Register of Deeds

John E. Miller Land Information Board

Orville W. Lehr, **Register of Deeds**

David Schmidt Dir. Planning & Zoning

Rene L. Krai Register of D.

Address

311 Miner Ave. East Ladysmith, WI 54848

515 Oak Street Baraboo, WI 53913

Sawyer County Courthouse 406 Main P.O. Box 686 Hayward, WI 54843

s

Shawano County Courthouse Room 107 311 N. Main St. Shawano, WI 54166

Sheboygan County Courthouse 615 N. Sixth Street, Rm 106 Sheboygan, WI 53081

St. Croix County Planning Dept. 911 Fourth Street Hudson, WI 54016

Taylor County Courthouse 224 S. 2nd Street Medford, WI 54451

Register of Deeds Trempeleau County Courthouse 1720 Main St. Whitehall, WI 54773-9430

P.O. Box 369 -Eagle River, WI 54521

P.O. Box 995 Elkhorn, WI 53121

Zoning 110 W. Fourth St. P.O. Box 338 Shell Lake, WI 54871

Register of Deeds 432 E. Washington St. P.O. Box 1986 West Bend, WI 53095-7986

515 W. Moreland Blvd. Room 109 Waukesha, WI 53188-2485

P.O. Box 307 Waupaca, WI 54981

Courthouse P.O. Box 338 Wautoma, WI 54982

415 Jackson Street P.O. Box 2808 Oshkosh, WI 54903-2808

P.O. Box 8095 Wisconsin Rapids, WI 54495Phone Number

(715) 532-2156

(608) 356-5581 x3270

(715) 634-4867

(715) 524-2129

(414) 459-3023

(715) 386-4672

(715) 748-3131 x126

(715) 538-2311 x244

(715) 479-8848

(414) 741-4214

(715) 468-2666

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CONFERENCES AND TECHNICAL MEETINGS

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

March 24-27, AM/FM International Annual Conference, San Diego, CA. Contact AM/FM International, 14456 E. Evans Ave., Aurora, CO 80014. Call 303/337-0513.

April 1-3, Introduction to Global Positioning Systems (GPS), sponsored by Engineering Professional Development (EPD) at the University of Wisconsin-Madison, will be held at Union South, 227 North Randall Ave., Madison, WI. Contact: Robert T. Fey or Jane Sauer at 800/462-0876.

April 5-6, Society of Land Surveyors or Iowa 54th Annual Land Surveyors Conference will be held in Scheman Continuing Education Building, in Ames, IA. Contact: Carol Baker, Executive Secretary, SLSI, 2924 Diamond, Ames, IA 50010. Call: 515/233-2663.

April 6-10, Managing the Risks and Recovering the Costs of Geographic and Facilities Management Systems. Continuing Education Course, UW-Madison/Extension. Contact: College of Engineering at 800/462-0876.

April 13-17, Association of American Geographers 87th Annual Meeting, Miami, FL. Contact AAG, 1710 16th St.N.W., Washington, DC 20009-3198.

April 22-25, NCGA '91, "12th Annual Conference and Exposition," sponsored by the National Computer Graphics Association, Chicago, IL. Contact: NCGA at 703/698-9600.

April 23, Landsat/GIS: Tools for Environmental Monitoring and Assessment will be held at the Drake Hotel in Chicago, IL. This seminar is free to all attendees. Contact: Anthony R. Shupin at 201/603-9595.

April 29 - May 2, Eighth Thematic Conference will be held in Denver, CO. Contact: Nancy J. Wallman, ERIM/Thematic Conferences, P.O. Box 8618, Ann Arbor, MI 48107-8618. Call: 313/994-5123.

April 29-May 1, **Developing Geographic Mapping and Analysis** Systems, sponsored by EPD, will be held at the Wisconsin Center. Contact: Patrick Eagan or Cindy Simon at 608/263-7429.

May 2-3, Understanding Spatial Database Design, sponsored by EPD, will be held at the Sheraton Inn and Conference Center, Madison, WI. Contact: Patrick Eagan or Cindy Simon at 608/263-7429.

May 6-10, 13th Workshop on Color Aerial Photography and Videography in the Plant Sciences, sponsored by ASPRS, the Citrus Research and Education Center, Institute of Food and Agricultural Sciences, and the University of Florida will be held in Orlando, FL. Contact: C. H. Blazquez, Citrus Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850. Call: 813/956-1151.

May 6-10, **14th Canadian Symposium on Remote Sensing**, sponsored by The Canadian Remote Sensing Society, will be held in Calgary, Alberta. A joint meeting with Canadian Institute of Surveying and Mapping. Contact: Dr. Steven E. Franklin, (CRSS 1991), Dept. of Geography, The University of Calgary, Calgary, AB Canada T2N 1N4.

May 7-10, DesCon '91; A/E/C/ Systems '91; CMC '91; Facilities '91; Intellibuild '91, Reprographics '91; Intelligent Mapping '91; Surveyors Expo '91; and CAS '91, will be held in the Convention Center in Washington, D.C. Contact: Sharon Price, A/E/C Systems '91, P.O. Box 310318, Newington, CT 06131-0318. Call: 800/451-1196, or 203/666-6097.

May 9, AM/FM Wisconsin Chapter Meeting, Waukesha. Contact Jerry Laatsch at 414/291-6927.

May 13-16, American Society of Civil Engineers (ASCE) Second National Specialty Conference on Civil Engineering Applications of Remote Sensing and Geographic Information Systems will be held at the Ramada Renaissance Hotel, in Washington, D.C. Cosponsored by ASPRS, AM/FM International, and URISA. Contact: Dr. Mark Jadkowski, James W. Sewall Company, 147 Center St., Old Town, ME 04468. Call: 207/827-4456.

May 21-23, NHAP-NAPP-NASA Color Infrared Aerial Photography (CIR) and (CAD) Computer Mapping Workshop, USGS-NMD, Bldg. 3101, Stennis Space Center, MS 39529. Contact: 601/688-3541.

June 4-6, Towson State GIS Conference will be held at Towson State University, Towson, MD. Contact: John M. Morgan III, Towson State Unversity, Department of Geography, Towson, MD 21204. Call: 301/830-2964

June 5-7, Geographic Information Systems for City and County Operations and Resource Management (course 1621SD), George Washington University Continuing Eingr. Education Program, San Diego, CA. Contact: 202/994-6106.

July 9-12, GISDex '91: Geographic Information and Spatial Data Exposition will be held at the Hyatt Regency in Crystal City, VA. Contact: U.S. Professional Development Institute, 1734 Elton Rd., Suite 221, Silver Spring, MD 20903, 301/445-4400.

July 15-19, U.S. Army Corps of Engineers Triennial Surveying and Mapping Conference, Louisville, KY. Contact: Stephen DeLoach, U.S. Army Engineer Topographic Lab, Fort Belvoir, VA, 22060, 202/355-3026.

July 29-31, International GPS/GIS Conference, Yellowstone Conference Center, Yellowstone Park, Big Sky, MT. Contact: Keith Wallace, GeoResearch, 2815 Montana Avenue, Billings, MT 59101, 406/248-6771.

Augusut 3-9, AM/FM International Executive Management Symposium will be held in Keystone CO. Contact: Paula Delie, AM/FM International, 14456 East Evans Ave., Aurora, CO 80014. Call: 303/337-0513.

August 9-16, 27th International Geographical Congress will be held in Washington, D.C. Contact: Dr. Anthony deSousa, 27th IGC, 17th and M Streets NW, Washington, D.C. 20036.

August 11-15, URISA'91 Annual Conference will be held in San Francisco, CA. Contact: Urban & Regional Information Systems Association, 900 2nd St. NE, Suite 302, Washington, D.C. 20002. Call: 202/289-1685.

August 17-20, Spatial Data 2000, cosponsored by the Photogrammetric Society, The Remote Sensing Society, and ASPRS, will be held at the Christ Church, Oxford University, England. Contact: ASPRS at 301/493-0290.

August 28-30, Second Symposium on Large Spatial Databases - SSD '91, will be held in Zurich Switzerland. Contact: Dr. Hinterberger, Institut fur Wissenschaftliches Rechnen, ETH-Zentrum, CH-8092 Zurich, Switzerland.

September 11-13, ION GPS-91, The Satellite Division of the Institute of Navigation will hold its Fourth Annual International Technical Meeting in Albuquerque, New Mexico. Contact: Elizabeth Cannon at 403/220-5634.

September 18-21, GPS '91, Hyatt Regency, Sacramento, CA. Topic to include: Transportation applications of GPS positioning technology. Contact: Robert Burtch. Ferris State Univ., Surveying and Mapping, Swan 312, 901 South State Street, Big Rapids, MI 49307-2295, 616/592-2360.

WLIA CONFERENCE DRAWS 350 TO GREEN BAY

The Wisconsin Land Information Association's recent 4th Annual Conference was attended by over 350 persons. The event was held at the Embassy Suites in downtown Green Bay, February 13-15. The Association has now grown to over 500 members.

The program for this year's conference had three major components: several general sessions, seventeen workshops, and vendor displays. Their were 24 vendor and association displays, open parts of both days.

The general sessions focussed on three topics. WLIA President-Elect David Fletcher, the architect of the Wis. Dept. of Transportation's Geographic Information System, presented his conceptual view of a Wisconsin Land Information Network. This view is based on a large set of distributed systems, maintained by individual agencies and units of government and others. These systems would be confederated into a network based on various minimum standards.

Another general session was a "town meeting" that used a modified "nominal group" method. The purpose of this exercise was to determine which of many potential criteria for awarding grant funds under the state's Land Information Program were most favored by the WLIA membership. Those criteria receiving the most votes are noted in the article to the right.

State legislators Bob Welch (R-Redgranite) and Leo Hamilton (D-Chippewa Falls) also addressed the WLIA.

Next year's WLIA conference will be held in Madison (actually Middleton) at the Holiday Inn West. The dates are February 26-28. In addition, there will be several membership meetings scheduled for various sites around the state, for the period between May and December. For more information on WLIA, contact Bob Gurda at 608/262-6850.

EPD REPEATS POPULAR CLASSES IN MADISON

Two popular classes are scheduled to be repeated this spring in Madison. *Developing Geographic Mapping and Analysis Systems* is an introductory course schedule for April 29 - May 1. It will be followed during the remainder of the same week with an advanced course, *Understanding Spatial Database Design*.

These courses are part of the series developed over the last several years by the Engineering Professional Development (EPD) Program, a self-supporting unit of the University of Wisconsin. The introductory course is being offered for the sixth time. See listings on page 10 for details.

COOPERATION, COMMITMENT, AND BASICS GET SUPPORT AS GRANT CRITERIA

Approximately 130 WLIA members participated in a modified "nominal group" exercise at their recent annual conference. The purpose of the exercise was to consider and rank a wide array of criteria that the Wisconsin Land Information Board could use in implementing its grant program.

Results of the exercise indicate that three main themes are important across the diversity of the WLIA membership. These three themes are cooperation (coordination, systems integration, and public/private participation), commitment (demonstration of intent to complete projects regardless of grant application success), and basics (foundational elements in a county-wide plan, base maps, remonumentation).

The "town meeting" was staged in three phases. First, ideas were "brainstormed" and listed; this resulted in 50 criteria. Then, people voted for any and every one of the criteria they supported. The top eight criteria were then ranked by the voters.

The event was coordinated by David Fletcher and Les Van Horn. Fletcher has been assisting the Wisconsin Land Information Board in developing its approach to the management of grant requests. Van Horn is a voting member of the WLIB; he will report on this exercise at the WLIB's next meeting.

TEMPORARY ADJUSTMENTS IN SCO STAFF AND PROJECTS

As many of our readers are aware, the State Cartographer's Office is presently short-staffed by one full position. Since Art Ziegler's retirement at the end of December, the Office has been without a State Cartographer. We do not know when the position will be filled; search and screen activities were completed by the university in December. In the interim, Bob Gurda is the Acting State Cartographer, but his normal position as Outreach Program Manager is not being filled by a temporary replacement.

In addition to our year-round activities, recently we have been working on two major projects: the "handbook" described on page 9, and logistical support for the recent WLIA conference. The result of this situation is that this issue of the <u>Wisconsin Mapping Bulletin</u> is a combination of the January and March issues. We hope that our work load and resources will be coming into better balance soon. The next issue of the <u>Bulletin</u> is scheduled for May.

COPYRIGHT ISSUES FOR PRINTED MAPS

The availability of base information has long been taken for granted by Wisconsin cartographers, due in part to the policy of the federal government places its products in the public domain. For example, USGS quadrangle maps are not copyrighted, which means that these maps can be presented in their original form by any private party, even in for-profit ventures. It also means that the information portrayed on the USGS maps can be legally copied during the compilation of another map.

Unfortunately, this practice of lifting information can become muddy in the realm of cartography. What happens when a copyrighted map is used as a base for another map? One map which has frequently been copied illegally is the Landforms of Wisconsin map shown on the opposite page. We recently asked the author of this map, Professor David Woodward of the University of Wisconsin-Madison's Geography Department, to provide an account of the history of this map and its unauthorized appearances in the 22 years since its production, with the intention of preventing further copyright infringement, whether it be intentional or not.

In 1969, the Wisconsin Geological and Natural History Survey commissioned a shaded relief map of Wisconsin. The director of WGNHS at the time, George Hanson, asked Professor Arthur Robinson of the UW-Madison to assist in the map's production. Robinson turned the project over to David Woodward. In the summer of 1969, Woodward was trying to complete his Ph.D. dissertation, but took on the landforms map project as a summer job. The map was published in 1971.

The production process for the original artwork took one month to complete, including the gathering of source material. Woodward used geologic and soils maps as guides, but his main source was the USGS 1:250,000 topographic series. It is interesting to note that the drumlins (one of the types of remnant glacial features depicted on this map) of southeastern Wisconsin are exaggerated with respect to the rest of the map. For these features, the 1:62,500 USGS topographic quadrangle series was used to capture more detail. The shaded relief was done in charcoal, and simulates a light source from the northwest illuminating a 3-D relief model of the state.

From the beginning, Woodward had an understanding that his was a "work for hire" situation, and that his rights to the map would be turned over to the University of Wisconsin Board of Regents. They still hold the copyright to the map.

According to Woodward, there have been several unauthorized uses of the Landforms of Wisconsin map in the last 20 years. For example, a private map company



recently used it as a base for some added thematic information. No acknowledgement of the Board of Regents or Woodward was shown, and no permission was sought before publication.

Infringements have not been restricted to printed media; we in Madison have seen the map used a as background illustration during a local television news program.

Are these actions illegal? The answer is YES, assuming that the map being used is in fact copied from the original, and assuming that permission was not given by either the Board of Regents or WGNHS. Anyone can purchase a copy of the map from WGNHS (which is available in an 8 1/2" x 11" printed format, for \$.25 plus mailing/handling; a quantity discount is available). From the printed copy then, one could make separations, remove the credits, and thus "create" a "unique" shaded relief map of Wisconsin. Such an image is thus presented as original; if a revenue is gained from its use, this would clearly be copyright infringement, since the Board of Regents would lose potential income.

This brings up the general issue of copyrighting cartographic products: what is actually being protected? According to Woodward, it is the physical artifact, or document, that is protected, not the information portrayed on the map. This means that anyone can borrow the concept of a shaded relief map of Wisconsin, but may not borrow the particular map created by Woodward without permission.

The solution is quite simple. If you plan to borrow a map, be sure to consider whether it is copyrighted. If so, it is necessary to gain permission from the party holding the copyright before you can publish it. The party holding the copyright may require a royalty agreement. In the case of the Landforms map, there is an additional consideration: Woodward requests that his name appear along with the map, as a matter of courtesy. Like most professional cartographers, he is proud of his work!

LANDFORMS OF WISCONSIN



Please see related article on facing page

REFLECTIONS ON MAPPING TECHNOLOGY AND THE GULF WAR

The technology of satellite television transmission has recently brought images of military conflict into our lives as never before. Amongst the controlled coverage available from various sites around the world, occasionally there were discussions of what someone did (or didn't) know about what things were where in the theater of conflict, and what condition these things were in. It was clear that modern technology was being employed wherever possible to gather and analayze information from maps, aerial photography and satellites.

The military is always reluctant to discuss details about its capabilities in any area, and the gathering of intelligence is no exception. However, enough was discussed in briefings to underscore the strengths and weaknesses of some technologies.

Views from Above...

The ability to fly repeated reconaissance missions clearly helped. It must have taken a tremendous effort to get the films developed and interpreted under short deadlines. However, weather was still was a major problem for gathering images of the ground from above, since standard aerial photography has no cloud-penetrating replacement with comparable resolution.

Satellite imagery suffered from the same weakness. On those days when the Landsat or SPOT satellites were passing over the Gulf region, the skies were sometimes cloudy. And these civilian satellites are not designed to collect images clearly showing objects as small as tanks or aircraft, although since their data is collected directly in digital form, computer analysis of images was almost certainly used to try to detect location of particular objects or evidence of activity. Since these satellites are controlled by countries represented in the allied forces, it was possible to limit the distribution of particular images.

Various military agencies around the world are thought to have their own (superior) satellites for collecting imagery. Some of these satellites take photographs and either return to earth, or somehow periodically eject exposed film for collection and processing. Others may be designed more along the lines of Landsat or SPOT, and others may be more like television cameras.

Regardless of the source of satellite information, the allied forces almost certainly used sophisticated image processing techniques to support the gathering of intelligence. While some of these techniques are probably state-of-the-art, others are similar to those found in commercially available software/hardware packages.

The Lay of the Land...

Reportedly, the cruise missile uses a digital representation of terrain as part of its guidance system. Such digital information has many uses beyond targetting missiles, including many civilian uses. The technology to create digital representations of terrain already exists, and the use of this technology is becoming less expensive.

Positioning from Outer Space...

On another front, the allied military made significant use of locational information received from the the global positioning system (GPS). This was especially effective since there were few obstacles (such as trees) in the desert area to interfere with reception of the satellite signals. During the several months leading up to the commencement of allied bombing, the launch schedule for the U.S. Defense Department's NAVSTAR GPS was accelerated so that additional satellites would be available. However, the satellites' signal code was intentionally degraded so that effective use of the system would be limited to those whose receivers could filter out the degradation. There have been reports that personnel in need of rescue were able to radio their coordinates to help guide their rescuers who also had GPS capabilities. Apparently the Defense Department purchased large quantities of portable GPS receivers on short notice, probably delaying delivery of scheduled civilian purchases until production catches up.

On the Home Front, in the Long Term...

What does this mean to mapping and land information in Wisconsin? For one, it demonstrates the importance of having good information in accessible form as a factor in successful planning and operations. The benefit on the domestic scene arising from current and accurate information on land ownership, natural resources, and infrastructure can be thought of in a similar vein. Secondly, it means that the long history of military research and development that ultimately benefits civilian mapping applications is continuing and likely to continue. Mapping has been assisted many times in history by technological developments driven by broader needs; the printing press, photography, aviation, and personal computers are all examples. Mapping and related fields have always been important to the military.

On the potentially negative side, it has been proven that the military can and will control capabilities or information otherwise available to civilians. Who makes such decisions – and under what circumstances – should be issues that are addressed up-front in the public forum. It is important to be able to argue for the long-term civilian benefit from reliable access to un-degraded GPS signals, digital terrain information, or satellite imagery.

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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 one full-time academic staff—the Acting State Cartographer—and one full-time classified staff, plus several half-time graduate student employees and 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 mapping practices, methods, accomplishments, experience, and expertise.
- develops experimental and prototype products.
- publishes the <u>Wisconsin Mapping Bulletin</u> 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:

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 April 20, 1991.
- Editor: Bob Gurda
- Contributors: Brenda Hemstead, Brian
- Goudreau, and Tom Ruzycki
- Desktop Publishing: Brenda Hemstead Mailing: SCO Production Staff
- Please send all comments, corrections, and
- new items to:
- State Cartographer's Office
- 155 Science Hall
- Madison, WI 53706-1404
- phone 608/262-3065.

- 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, to use as a recreation guide.
- 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 <u>Bulletin</u>, 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.

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