



Wisconsin MAPPING BULLETIN

State Solidifies Land Information Funding

by Bob Gurda

With a few strokes of his pen, Governor Tommy Thompson has made the Wisconsin Land Information Program's funding permanent. This action is the final formal step in the state government's endorsement of the program, which was established in 1989 and funded in 1990 for a trial 6-year period.

On March 30, the governor signed Assembly Bill 662, which had been passed by both houses of the legislature. This bill removes language from the state statutes that called for the program's funding to "sunset" on June 30, 1996. It also provides the program with permanent rather than temporary staff positions.

Impact on counties

Local governments will be the immediate beneficiaries of the state government's action. Michael Powers, the Land Conservation Officer for Green County, said "The lifting of this sunset is very important for our long term plans to modernize land records in Green County as well as neighboring LaFayette County, with whom we are cooperating. We have tried to be very thoughtful in planning a steady course for our modernization, which is going to happen from the ground up. Knowing that the funding will be there consistently to support our plans is critical to our success."

Marinette County's Real Property Lister, Karen Sylvester, was equally enthused about the sunset being lifted. "The funding that we now know will continue will allow us to purchase computer equipment and software sooner than would be possible if we had to rely completely on funds derived from property taxes. Instead of working at a snail's pace, we will be able to provide modernized services and information on a reasonable schedule."

WLIA's leadership role

The Wisconsin Land Information Association (WLIA) was the lead organization that developed and supported the bill on its path through the legislature. Many WLIA members, with help from other organizations such as the Wisconsin Society of Land Surveyors, invested considerable

time and effort over the recent months informing legislators and the governor of the continuing merits of the program. Some of these people were also able to attend the bill signing ceremony.

The WLIA issued a press release to coincide with the ceremony. We posted the text to the SCO's new electronic bulletin board later that day, along with a brief news announcement. (See page 16 for contact information).

Support from county boards

More than half of the state's 72 county boards also submitted resolutions in support of efforts to make the program's funding permanent. The state land information program is primarily focused on the county level of government. The document filing fees that fund the program are collected at county Register of Deeds offices, and counties prepare modernization plans and grant applications under which the fees are accessed. Statewide, these fees have been totalling approximately \$7.5 million annually.

AB 662 was introduced to the State Assembly in mid-1993, and approved by that body in late October. The State Senate considered the bill this winter, first voting it out of committee on a 5-0 vote, and then approving it 33-0 in full session.

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STATE LAND INFORMATION NEWS

WLIB News

by Bob Gurda

Board Meetings

Since our previous report, the Wisconsin Land Information Board has met twice: March 23 (grant hearing) and April 18. Upcoming meetings are scheduled for June 13-14 (see article in next column), Aug. 15, Oct. 10, and Dec. 12.

Membership update

Governor Thompson has appointed Michael Hines of Eau Claire to serve the remaining three years of the position vacated by State Representative Bob Welch's resignation from the board. Mike is president of GeoCode, Inc., a GIS conversion and consulting firm. His appointment is subject to confirmation by the State Senate.

State agency integration plans

To help state agencies develop effective and consistent land information integration plans, the board's Integration and Clearinghouse Committee sponsored a workshop on February 1. Eleven agencies need to meet a statutory requirement to submit plans to the WLIB this spring. Three plans have been submitted to date (UW System, Public Service Commission, and Dept. of Health & Social Services).

New grant awards

On April 18, the WLIB awarded a total of \$1,050,777 in grants to 17 applicant organizations (primarily counties). Grant awards varied between \$24,720 and \$100,000. Included were six counties which had not previously received a grant award: Buffalo, Florence, LaFayette, Lincoln, Pierce, and Taylor. 56 of the state's 72 counties have now received at least one grant award from the WLIB.

Combining the latest awards with the previous five grant award periods, the WLIB has allocated a grand total of almost \$6 million.

Since many grant requests include co-funding from other sources, and since local governments can utilize their retained program fees for similar activities, the actual amount being invested in land information modernization activities across the state far exceeds the \$6 million in grants. The next set of grant awards will be made in the fall, drawn applications submitted during July.

Grant policy on competitive bids

During the evaluation phase of this most recent grant award period, a question arose regarding comparative costs for contracted services that would be supported by grant funds. The board's Executive Committee observed that apparently identical work varied up to 33% in cost between some grant proposal. That committee recommended to the full board that grant recipients be subject to a special term and condition that would require the use of competitive procurement processes for outside consultants and vendors.

The alternative to the competitive process is professional service contracts, and these negotiated arrangements

with private firms are fairly common, according to local officials. After considerable discussion and comments from several vendors and organizations, the board asked an ad hoc committee, chaired by WLIB member Lori Scully, to study the situation.

Grant policy on metadata reporting

The board's Executive Committee also recommended each future grant recipient be specifically required to submit a metadata report after completion of the funded project. The board would first have to establish a minimum standard for metadata. The board adopted this recommendation.

Funding legislation passed and signed

As profiled on page 1, the funding source for the program has been made permanent through a change to the state statutes. This change was embodied in Assembly Bill 662, signed by the governor on March 30.

WLIB schedules June retreat

by Ted Koch

A two-day planning retreat has been scheduled for June 13 and 14 by the Wisconsin Land Information Board. The purpose of the retreat, which has been called by WLIB president John Laub, is to give board members the opportunity to assess the effectiveness of the state's land information program, and to chart its future directions.

In commenting on the purpose of the upcoming WLIB retreat, President Laub said, "An increasing number of critical issues are being brought before the board. We need to take the time to review these issues, prioritize them, and then determine how action will be taken." Even though the retreat is open to the public, the primary intent of the meeting is to allow the board, and its advisory members, the opportunity for in-depth discussions and decisions.

During the month of May, the board will solicit identification and prioritization of important issues from interested parties around the state. This listing, along with items already before the board, will make up the retreat's agenda.

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NATIONAL NEWS

President issues Exec. Order

Clinton sets goals for NSDI and FGDC

by Bob Gurda

President Clinton has strengthened and enhanced federal policies on coordination and sharing related to the National Spatial Data Infrastructure (NSDI). In his Executive Order dated April 11, 1994, Clinton specified a number of initiatives, functions, goals, and timelines for achieving progress toward more effective and efficient development and maintenance of geospatial data.

State, local, and tribal governments are identified in the Executive Order to have roles in these activities. Such involvement is specified in the following areas: development of a national geospatial data clearinghouse; development of standards for implementing the NSDI; planning for initial implementation and ongoing maintenance of a national digital geospatial data "framework"; and cooperative partnerships with federal agencies to acquire data.

Coordination responsibility for carrying out the mandates of the new Executive Order is assigned to the Federal Geographic Data Committee (FGDC), which was created in 1990 at the direction of the President's Office of Management and Budget (OMB). Secretary of the Interior Bruce Babbitt chairs the FGDC. The order directs individual federal agencies to assign a person with a policy-level position to serve on the FGDC, and to comply with several deadlines relating to the clearinghouse, framework, and partnerships sections of the order.

Federal agency clearinghouse activities that are specified in the order include the following [with number of months until implementation]:

- document new geospatial data (using a specified FGDC standard), and make it electronically accessible [9 months]
- establish plan to retroactively document previously existing geospatial data [12 months]
- establish procedures to make geospatial data available to the public [12 months]
- adopt internal procedures to ensure that, prior to expenditure of federal funds to collect or produce new geospatial data, the agency accesses the clearinghouse network to determine whether others have already collected the data, or if cooperative efforts to obtain the data are possible [12 months]

The order also establishes timelines for developing the national "framework" data and partnership strategies:

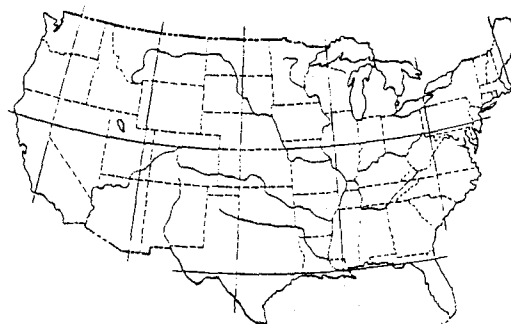
- FGDC to submit a plan to OMB for initial completion of the "framework" by January 2000 [9 months]; at a minimum, the plan is address how the initial transportation, water, and boundary elements of the framework might be completed by January 1998 in order to support the decennial census of 2000 [9 months]

- Secretary of Interior to develop strategies for maximizing cooperative participatory efforts with state, local, and tribal governments, the private sector, and other nonfederal organizations to share costs and improve efficiencies of acquiring geospatial data [9 months]

This Executive Order is broad in its scope and ambitious in its timelines. If Babbitt and the numerous federal agencies involved in the FGDC make a serious coordinated commitment toward the initiatives and planning called for in the order, significant changes and improvements in the nation's spatial data infrastructure are a real possibility.

State, local, and tribal governments and other entities will have a major opportunity to share in the collection, maintenance, and access to this valuable information. That is why we are talking about a *national* resource, rather than simply a *federal* data product.

Editor's Note: You can view or download the entire text of the Executive Order from the SCO's electronic bulletin board system (BBS). See page 16 for details on how to connect.



Early retirements to affect production?

Federal mapping staff shrinks suddenly

by Bob Gurda

The federal government's workforce is undergoing a sudden decline in numbers. A special early retirement program has enticed thousands of workers to leave their positions this spring. This includes staff in various agencies involved in mapping and related fields.

As an example, approximately 10% of the 400 employees at the U.S. Geological Survey's Mid-Century Mapping Center in Rolla, Missouri will likely retire in May under the current program. Many of these people are experienced technical workers.

Other federal offices, including some in Wisconsin, are experiencing similar staff changes. While a rapid reduction in the federal payroll is the primary goal of the retirement program, agencies will inevitably have to accommodate some painful adjustments in filling critical staff vacancies. It seems inevitable that some production activities will suffer, at least in the short run.

REMOTE SENSING

Landsat future in trouble

by Jim Jordan

Funding uncertainties following the loss last October of Landsat 6, have jeopardized the future of the Landsat program. Landsat 6 (L-6) was designed in part to replace and enhance the aging L-4 and L-5 platforms, which are exceeding design life expectancies, but are operating on backup control systems. With L-7 scheduled for an optimistic launch date of March 1998, there is concern about potential gaps in the acquisition of multi-spectral remote sensing data that the Landsat satellite network has been collecting since the early 1970's. (EOSAT Corp. assumed responsibility from the National Oceanic and Atmospheric Administration (NOAA) for collecting Landsat data in a 1985 contract with the federal government).

Landsat 6 was carrying the first Enhanced Thematic Mapper (ETM), an eight spectral band instrument that would have provided a 15 meter spatial resolution black and white band. The ETM would also have served as a link with one of the L-7 instruments. Although it does not appear that the loss of L-6 will result in a critical gap in earth imaging data (the recent launch of SPOT 3 and an increase of commercial satellite systems will partially replace L-6 capabilities), the interruption of Landsat as a program with technological continuity and increasing sophistication represents a substantial loss to the community of users who depend on its specific capabilities. No other existing or planned remote sensing platforms match the spectral resolution (number of radiometric bands) of the Landsat series.

The situation is complicated by the dispute over L-7 design, funding, and schedule. Conceived as a joint NASA - Department of Defence (DoD) project, L-7 design and development costs were to be split between the agencies. But the NASA operating budget for FY 1994 does not include a R&D funding request for the High Resolution Multispectral Stereo Imager (HRMSI), which DoD considers to be an essential component of the mission. DoD has threatened to withdraw funding if HRMSI is removed from the project, and NASA support does not presently appear to be forthcoming.

At the government's request, the DoD, NASA, and NOAA have outlined options for dealing with the loss of L-6. NOAA prefers to accelerate the development of L-7, or to build another L-6; DoD is firm in its commitment to the HRMSI, and will not participate in L-7 funding if this sensor is removed; NASA's response includes several alternatives - accelerate L-7 development without the HRMSI, do nothing to accelerate L-7 development, build another L-6, or pursue a new program altogether.

By some accounts, the loss of L-6 has provided an unprecedented opportunity to private industry. Lockheed and WorldView are two U.S. companies that have already announced plans to launch high resolution commercial remote sensing systems, albeit with more limited multispectral capabilities than Landsat. The degree to which this market

will affect plans for L-7 are uncertain, but it is sure to fill some part of the niche left open by L-6, and may prove to be the watershed that signals the end of U.S. government involvement in the commercial remote sensing industry.

(sources: *Photogrammetric Engineering and Remote Sensing*, Dec. 1993, Feb. 1994; *Earth Observation Magazine*, Nov.-Dec. 1993).

In the public domain

View Space Shuttle's earth photos

by Jim Jordan

An extensive collection of earth observation photographs from various Space Shuttle missions is now available from NASA. Approximately 180,000 photographs have been acquired during the history of the Space Shuttle program, many of which are relevant to monitoring environmental changes and geologic features of the earth. Both vertical and oblique photography has been acquired in 35mm and 4X4 inch formats, covering most of the earth's surface.

About 75% of these images cover latitudes between 28°N and 28°S, with the remaining images covering latitudes between 30° - 60°N and S latitudes. This imagery has already been used in various research-related projects involving the identification and measurement of environmental changes such as deforestation, the hydrology and sedimentation of rivers and estuaries, coastal erosion, volcanic events, and desertification. Many photographs have been taken of the same area during different missions, providing baseline and comparative data to help detect and monitor such processes.

The database can be searched in a number of ways, but specifying latitude-longitude boundaries of an area is the easiest. A search of the Wisconsin area lists over 500 photos. The Johnson Space Center recommends a search area not be larger than 5 degrees in either dimension. The spatial coverage and angle at which the photos were taken varies, and can be checked in the Mission-Roll-Frame index.

The entire database of information about these photographs can be searched or downloaded, and selected images can be viewed from remote computers. The database can be accessed through Internet, by Telnet to: SSEOP.JSC.NASA.GOV. Use "PHOTOS" for both the USERNAME and PASSWORD. Menus will direct you through steps to search or download the database, or to download selected digitized photographs. Suppliers of NASA Space Shuttle Photography include: EROS Data Center, Sioux Falls, SD, 57198; Technology Application Center, University of New Mexico, Albuquerque, NM, 87131; and NASA-Johnson Space Center, Houston, TX, 77058.

(source: Lulla, K., et al. 1993. *Global Geologic Applications of the Space Shuttle Earth Observations Photography Database*. *Photogrammetric Engineering and Remote Sensing*, Vol.59, No.8. pp.1225-1231.)

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What kinds of maps would be good for finding interesting rural bicycle routes? I'm looking for paved roads only.

Depending on the amount of research effort and expense you are willing to invest, there are a variety of maps and related information that might be helpful. Since your concept of an "interesting" ride won't be exactly the same as another person's, a mix of information is needed to make the best selection.

Relief, or variation in the land's terrain, is a major consideration. If you are looking to experience as much relief as possible (or, alternatively, to avoid it), or to take in vistas from high points, maps that depict terrain are essential. Statewide, only one map series will help you much here---the USGS 1:24,000-scale topographic quadrangles; these only cover 50-70 square miles per sheet (22" X 27"), and thus you may need more than one sheet, and you would need to fold them or photograph them in pieces for carrying on your bike.

Smaller scale topographic maps, such as the 1:100,000 USGS series, generally have too wide a contour interval (40-80 feet) to capture much of Wisconsin's glacial terrain; some areas may appear fairly flat when in fact the roads have many moderate ups and downs.

Land cover is another factor you may be interested in. Again, topographic maps provide general help, since they show forested vs. non-forested areas, and they depict larger wet areas. Any finer distinction, such as types of crops typically grown, or types of forest cover, is generally not mapped across the state at this time.

To get a bird's-eye impression of a specific area, you can view overlapping "stereo" aerial photographs with an inexpensive optical viewer. This will provide a composite image of the terrain along with its land cover and land use patterns.

USGS maps identify only major highways by number; these are the thoroughfares you will probably want to avoid due to traffic. To find names of county and town roads, you'll need one of several other more detailed maps which are too numerous to list here. Other maps will also identify a variety of potentially interesting sites which you might want to make destinations for your trips. Contact us at the SCO for more detail. (Once you choose a route, one of these maps may be convenient to mark up and take along on your ride).

Two years ago the Wis. Division of Tourism produced a set of 4 maps covering the entire state, highlighting recommended bike routes. Printed at a scale of about 1:300,000 (about 1" = 5 miles), many local details are

not visible, and terrain is difficult to determine. However, many local features such as grocery stores, campgrounds, and bike repair services are depicted. Also, recommended routes are highlighted and gravel roads are identified. The bike touring trails and the location of mountain biking trails shown on these maps are additional useful features. Contact the Division at 800/432-TRIP to request your free copies.

Finally, bicycle dealers and other outlets carry a number of guide books that provide profiles of specific suggested routes. Along with guidance from local bike touring organizations, all of this information should be sufficient for you to make a good route choice.

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I understand your office sells software which will transform my survey information to NAD 83 (91). What is the name of that software, and will it allow me to transform and use my data for survey control?

The datum transformation software packages available from the SCO are NADCON and CORPSCON for horizontal datum transformations and VERTCON for vertical datum transformations. These are public domain (not copyright) products produced by the federal government.

NADCON supports all of the datums and adjustments used in Wisconsin (NAD 27, NAD 83(86) and NAD 83 (91)) but uses only latitude and longitude values. CORPSCON incorporates an older version of NADCON which does not support individual state high precision adjustments such as NAD 83 (91). However, CORPSON allows the use of State Plane and UTM coordinates in addition to latitude and longitude. VERTCON also works with latitude/longitude input. However, this software too is expected to be incorporated into CORPSCON, where it would be able to use other coordinate input.

The software packages mentioned here are based on an approximate modeled transformation using a set of gridded models to interpolate correction values. NADCON and CORPSCON have approximate accuracies of 0.15 to 0.5 meters, while VERTCON is accurate to only about 0.25 meters. These results are appropriate for most mapping and other purposes, but will not support many surveying needs.

The only exact method of datum transformation requires the use of original survey measurement information to geodetically recompute the point's position in a new datum or coordinate system. For more information, contact the SCO for a free 4 page brochure entitled Using Federal Datum Transformation Software in Wisconsin.

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

URISA CONFERENCE PREVIEW

Set for August, 7-11

URISA plans big show for Milwaukee

by Randy Gschwind and Bob Gurda

URISA is holding its 32nd Annual Conference and Exposition in Milwaukee this summer. This event is a tremendous opportunity for people in the upper Great Lakes region to attend a large national conference without the usual expense of air travel. In fact, the theme for the 1994 conference is "Integrating Information and Technology: It Makes Sense".

URISA and its conference: both are diverse

URISA is the Urban and Regional Information Systems Association. Its 3,600 members are a unique combination of users and providers of spatial information, who are concerned with the development and effective management of information systems. Members come from all levels of government, academia, and the private sector. In recent years, geographic information systems (GIS) have been a major focus of URISA, and data sharing and systems integration are newer interest areas that have arisen partly due to the growth of GIS.

Like most major international conferences on mapping, GIS, or information systems, URISA has a variety of features including presented papers, panel discussions, workshops, poster sessions, vendor exhibits, evening social events, and committee and interest group meetings.

Talks, "tracks", and "paths"

Over 100 educational sessions for all levels of expertise are planned. There are 9 program "tracks"---broad subject areas covered by 6-12 presentation sessions. Two special "super tracks" are slated. One focuses on Land and Resource Management, arising from Wisconsin's Land Records Modernization movement and interest in environmental issues. The second highlights successful implementation of technology between corporate members and public agencies.

There are also 13 identified "paths" through the conference, to guide particular professional groups in selecting appropriate sessions, exhibits, and other events. Amongst others, paths will be developed for assessors, public works managers, emergency service providers, natural resource managers, land surveyors, and health care providers.

Show and Tell

Project Showcase provides a great opportunity for people using information systems to display their work and discuss techniques and outcomes with other attendees. This interactive feature of the URISA conference has become very popular. If you are interested in displaying at Project Showcase, call Jerry Sullivan at 608/263-5534.

The new Data Fair

In conjunction with Project Showcase, URISA will initiate a "Data Fair". Here you can shop or browse digital data sets that are available either free or for a fee. While no sales will be made on-site, prices sheets or order forms will be available.

Workshops expanded

This year there will be two full days of workshops, Saturday and Sunday prior to the balance of the conference. Experts lead groups of learners through an array of training sessions; workshop fees are separate from the general registration.

Social events

Every night during the conference there is a social event scheduled. These range from a tailgate picnic and Brewer's game, to the big social at the Public Museum, to a Water Street Tavern Tour.

URISA's Wisconsin connections

People from the Badger State have been very active in URISA for years; many have served as board members, president, workshop coordinators, editors, conference chair, and instructors, special interest group (SIG) leaders, committee chairs, et al. This year's conference chair, Randy Gschwind of the City of Milwaukee, is also president-elect.

A recent URISA initiative is its journal, which is published in Madison by the University of Wisconsin Press. Two of the URISA Journal's co-editors, Ben Niemann and D. David Moyer, are from Madison. Ted Koch, the State Cartographer, currently is the feature map editor.

Register early and save

To receive a Preliminary Program and registration form, contact URISA at 202/289-1685. Full registration for non-members is \$380 by July 8, and \$480 after that date. Lower rates apply to URISA members, students, daily only, and exhibits only.

Members of the Wisconsin Land Information Association have access to an even lower price, \$250 (until May 31). For anyone who is not already a WLIA member, annual dues are \$40. Contact WLIA at 800/344-0421 for details and forms.

Late breaking news...

To keep up on conference developments as we approach August, you can consult the SCO's electronic bulletin board (see page 16 for background). There you will find an area under "non-profit organizations" that holds background information on URISA and this summer's conference. Check it out!



Why URISA makes \$ense for me and for you!

by Randy Gschwind

So why should I go to the URISA conference this summer in Milwaukee, you ask? It's right in the middle of summer vacation, it's expensive, and I can get all the same information elsewhere.

Maybe I can't respond to each of these points to everyone's complete satisfaction, but I can explain why the URISA conference has been valuable to me over the 18 years I have been involved with the or-

We are living in interesting times, with pressures and expectations at a high level in our professional lives.

ganization. With my perspective as your guide, I hope that you'll decide that you can't afford to miss this conference right in our own backyard.

URISA is an organization that I value --- for the professional and educational information that I gain; for the opportunities to interact with others both in my field of interest and in related fields; and for the lasting contacts and friendships I have built.

URISA is a non-profit association led by volunteer professionals from the public, private, and academic sectors. These leaders, with URISA's Secretariat staff, are constantly striving to best serve the needs of a multi-disciplinary membership. URISA leaders give freely of their valuable time and energy to further the advancement of knowledge and understanding in the IS/IT/GIS arena.

The annual conference provides a forum for managers, professionals and experts from diverse disciplines to exchange experiences and ideas about information technology, its use and its value. As chair of this year's conference, I have been involved with the process of fitting its structure and content to the membership's needs.

We are living in interesting times, with pressures and expectations at a high level in our professional lives. There is concern for the economy, the environment, personal safety, and the quality of life. Governments must respond to these public concerns with increased effectiveness and efficiency.

Information technology is a tool for addressing these issues. Geographic Information Systems are on of the most interesting combinations of information and technology. After years of development here and abroad, there are many GIS success stories to be told, and URISA's annual conference is the place to hear them.

While GIS is woven into many of the discussions that make up the URISA fabric, issues related to the integration of information systems, database considerations, access to information, and many others are also deliberated. A myriad of disciplines gather to consider where we have been, where we are now, and where we should be heading. Achievements are weighed, benchmarks evolve, and future expectations unfold.

The conference has a variety of facets, from "program tracks" (nine this year) focused around broad subject areas, to "paths" associated with particular audiences or professions, to pre-conference workshops (two days this year), to "Project Showcase", to a "Data Fair" (a new feature, allowing you

Based on my own experience, I am sure that you will get as much out any professional organization as you put in.

to locate particular data or see how other organizations make their data available), to a large set of vendor exhibits, to five evenings of social events.

URISA's conference moves from one part of the country to another each year, with this year's being its first visit to Wisconsin. You won't have another opportunity like this any time soon. If you haven't been able to attend a previous URISA conference, or a similar event held by a related organization, make Milwaukee your first.

You may find that getting a taste of URISA in Milwaukee will whet your appetite for further involvement down the road. Based on my own experience, I am sure that you will get as much out any professional organization as you put in. As URISA's President for the year beginning at the conference, I'm here to help make the organization as good a match for everyone's interests as possible.

**Randy Gschwind is the Information Resources Manager for the City of Milwaukee. His current roles in URISA are 1994 Conference Chair and President-Elect.*

SCO NEWS

Bulletin board update

by Jim Lacy

With a little over a month into the running, the State Cartographer's Office Bulletin Board System (BBS) continues to grow daily. As of late April, we have over 80 users, registering a combined total of over 400 calls.

Try these hints!

"Command Stacking" is a feature not yet documented on the BBS. Command stacking allows you to make rapid menu selections without waiting for the full menu to be displayed. You can stack commands simply by pressing keys in rapid succession. For example, to logoff you normally select "G", wait for the logoff menu, then press "G" again to confirm your command. Instead, try hitting "G" twice (quickly) and you can bypass the logoff confirmation screen. The only catch is that you must be familiar with the menu structure of the BBS. Give it a try, it saves time!

Each menu on the BBS now has a "jump" option. The jump command allows you to quickly navigate between areas without returning to the main menu. Hit "J" then "?" for a list of areas to which you can jump. By jumping between areas, you can streamline your navigation on the BBS, especially when combined with the command stacking described above. While the jump command is powerful, it can be confusing for new users. If you are new to the SCO BBS, you may wish to avoid "jumping" until you are more familiar with the menu structures.

For those of you with slower modems, try turning off the color menus by pressing "P" for personal settings (from the main menu), then "1" to change ANSI text to off. This should speed up the display, and reduce the amount of time you spend waiting for the main menu to redraw.

Having problems?

Several callers have reported problems viewing the main menu. You should have your terminal emulation set to ANSI (or "ANSI-BBS"), and linewidth set to "on." How this is done depends on your communications software; most packages let you specify terminal emulations such as VT100, Kermit, Dumb-TTY, or ANSI. Linewidth is usually set to "on" by default, but in some packages, such as Procomm, it may not be. Your software manual can probably help you make these changes.

If you still experience problems viewing the main menu, press "P" for personal settings when you are prompted with "Your Selection (XX mins)?", then "1" to change ANSI text to "off." This will turn off the more complicated color menus. If all else fails, we have a shareware communications package available in file area #9 (Modem/Communications) called Telix that can handle the ANSI color menus found on the BBS.

In other news, we recently discovered our BBS phone line was not sending a busy signal when the BBS was in use by another caller. The problem was quickly corrected by University Telecommunications. If in the future the

phone continues to ring without a connection, try back later, as this usually means there is a problem with the BBS.

If you have any questions or comments regarding the BBS that cannot be answered on-line, I can be reached on Mondays, Wednesdays, or Fridays at (608) 262-8776.

New features added

I have added two utilities that display statistical information on popular file downloads and caller information. To view the most popular downloads, select "T" for top files from the file menu. To see some interesting user statistics such as the top ten callers, and top ten file downloaders, select (B)ulletins from the main menu.

Future directions

I recently learned of two national on-line mail networks dedicated to GIS and Surveying. In a mail network, messages posted on one BBS are not only sent to users on that local BBS, but also to all BBS's on the network. This allows for an incredible amount of interaction and communication between users across the country. With your encouragement, we may explore making the SCO BBS part of these networks.

In the coming weeks, I plan to prepare a document on how you or your organization can contribute information to the SCO BBS. Watch for more information on-line!

SCO staff update

by Bob Gurda

We are pleased to announce that Diann Danielsen has joined the SCO's permanent staff. Diann had been a part-time project assistant while working on her master's degree, which she completed in December. She is now working full-time on the campus, 30% for the SCO and 70% for the Land Information and Computer Graphic Facility.

Diann, a Registered Land Surveyor, will continue working on land and geodetic surveying-related information that helps support many professionals and programs statewide. Her SCO telephone number is 608/262-8776.

Nancy Graham has also joined the SCO, as a Program Assistant providing a wide range of office support. Amongst other things, she will be taking over much of the initial public contact duties from Brenda Hemstead.

The SCO also has a new graduate project assistant. Jim Jordan, a PhD candidate in the UW-Madison's Geography Department, joined the SCO in March, and works 17 hours each week. He has a number of years of experience as a field archeologist and spent the past two years working for a consulting firm in Madison. He has first-hand knowledge of the value of indexes of geographically referenced information, having searched for aerial photography, remotely sensed imagery, and other useful sources to support his field work.

Jim's first major project at the SCO will be to coordinate the editing and publication of our sixth guide, this one on Wisconsin Geologic Mapping.

PUBLICATIONS AND PRODUCTS

Editor's Corner

The *Bulletin* and the BBS: making them work together for you

by Bob Gurda

We are continually developing ways in which you can benefit from the information we collect here at the SCO.

Rather than simply adding new, but separate methods, we are developing integrated approaches. The *Mapping Bulletin* is a key part in this strategy, and you can benefit from its related components.

As announced in our previous issue, and as noted several places in this issue, the SCO has begun an electronic bulletin board service (BBS). Through this telephone-access service you can find information that is more current and/or more detailed than what is in the *Bulletin*.

We will continue to select certain stories and information to publish in the *Bulletin*. However, there is much more that we have to leave unpublished than what you actually get to read in these pages. The BBS is our new tool to hold more detailed information, and you can benefit from getting connected to it and checking for fresh information on a regular basis.

For instance, since the publication of the previous issue, we have loaded a number of lengthy documents onto the BBS for you to read and/or download. These include the WLIA's news release marking the signing of AB 662, the text of President Clinton's Executive Order on the National Spatial Data Infrastructure and the Federal Geographic Data Committee, and detailed background on UR-ISA and its upcoming annual conference in Milwaukee. We will continue to post similar information as it becomes available.

The BBS can help you in other ways. For instance, meetings or classes often are announced on only a few weeks notice—too little time for us to include them in the *Bulletin* since we can afford to publish only four times each year. We also are building a storehouse of information for the BBS, which you can use to strengthen your background on more about some of the technical subjects that we mention in various *Bulletin* articles.

You can also benefit by participating in BBS "discussions" on various topics. Some topic that we cover in the *Bulletin* may spur various readers to comment, provide additional details, or ask questions. This "conversation" can take place on the BBS, for any interested people to take part in or simply observe.

To learn how to join the SCO's BBS, see page 16 or review the lead article in our January '94 issue.

New publications from ACSM

Mapping It Out—Expository Cartography for the Humanities and Social Sciences by Mark Monmonier. This concise, practical book introduces the fundamental principles of graphic logic and design, from the basics of scale to the complex mapping of movement or change. The author helps researchers decide when maps are most useful and what formats work best. (Published by the University of Chicago Press, 1993, 301 pp.) Order #C186, \$16 ACSM Members, \$21 Nonmembers

Flattening The Earth by John P. Snyder. This book offers discussion and illustration of hundreds of known projections from before 500 B.C. to the present. Containing 170 illustrations including outline maps and modern computerized reconstructions, this is an excellent resource for cartographers, geographers and historians. (Published by the University of Chicago Press, 1993, 365 pp.) Order #C187, \$38 ACSM Members, \$45 Nonmembers.

To order, call 301/493-0200 or fax 301/493-8245. For information on membership call 301/493-8245.

(source: ACSM Publications, Spring 1994)

USGS releases new Wis. map Index

by Ted Koch

A redesigned index to Wisconsin topographic and other map coverage has recently been published by the U.S. Geological Survey (USGS). This free, single-sheet, folded index replaces a 44-page map index booklet of similar content that has been produced by USGS for many years.

Measuring 32 inches by 51 inches unfolded, the new index includes a large detailed map of the state depicting the individual sheet coverage of the 1:24,000-scale topographic quadrangle series, and a number of smaller indexes for the 1:100,000 quadrangle and county map series and the 1:250,000-scale quadrangle series.

The index also includes several tables and short descriptive paragraphs that detail the content and varieties of standard series maps produced by the USGS. This index does not include map publication dates, which are listed on a separate USGS order form, nor does it include the very useful alphabetized list of quadrangle names that was included in the 44-page booklet.

It should be noted that a separate, folded, single-sheet index to USGS topographic maps of Wisconsin is also published by the Wisconsin Geological and Natural History Survey (WGNHS). This index was produced in 1992, and is available free-of-charge from the WGNHS. The new USGS index is available from the USGS Branch of Distribution in Denver, Colorado, or the State Cartographer's Office when sufficient supplies are obtained from the USGS.

GEODETIC CONTROL



Disappearances cause big problems

Railroads and monuments

by Diann Danielsen

Railroads are significant to surveying and mapping for two reasons: they stand as a controlling monument in many legal descriptions for the location of property lines, and they have historically served as corridors along which vertical control "level lines" were run and benchmarks set. The abandonment of railways has led to the disappearance of these physical and legal monuments, causing increased work in their recovery and confusion in the interpretation of records.

For a number of years, ACSM has been petitioning the Interstate Commerce Commission (ICC) to protect surveying benchmarks and reference railroad locations during abandonment procedures. Progress has been slow but recently the ICC agreed to study and clarify the issues of concern.

ACSM has recommended that rail line abandonment be protected by the following measures:

- Surveying, mapping, and publically recording the centerline location of the railroad track to be abandoned in the appropriate county office.
- Preparing said maps with survey data adequate to re-establish the track centerline location and replace any property corners, property lines, or railroad mile markers within the abandoned area.

Specifically regarding benchmarks, ACSM recommended that the ICC notify NGS and USGS a minimum of four months in advance of an abandonment so that the agencies could develop a list, description, and mapped location of affected benchmarks. The railroads would then be required to relocate the benchmarks prior to their destruction.

At present, Wisconsin Statutes require railroads to notify County Surveyors of pending railroad abandonments so that endangered monuments may be referenced. However this has not proven to be a successful means of protecting benchmarks or the legal location of property lines. It is hoped that raising attention to this issue to the federal level will offer more protection to these important monuments to our vertical control network and property boundaries.

Wisconsin's legislation to be considered?

ACSM prods states to adopt NAVD 88

by Diann Danielsen

The NAVD 88 datum removed errors in the older vertical control network, replaced the separate land and water datums with a single datum, incorporated thousands of new benchmarks, and uses a height system compatible with GPS-derived heights.

Yet with all of these benefits, NAVD 88 has been slow in adoption by the surveying and mapping community. A number of recent federal and national initiatives are now prodding us in the "right" direction.

NAVD 88 became the official federal vertical datum by announcement in the *Federal Register* on June 24, 1993. This announcement makes official the Federal Geodetic Control Subcommittee recommendation to adopt NAVD 88 for surveying and mapping activities performed for, or financed by, the federal government. It also requires federal agencies to begin making an orderly transition to the new datum.

In keeping with the new status of NAVD 88, the ACSM Board of Direction adopted the following policy statement:

The American Congress on Surveying and Mapping encourages all states to enact legislation adopting the North American Vertical Datum of 1988 (NAVD 88), as defined by the Coast and Geodetic Survey, as their official vertical datum. The NAVD 88 is the official civilian vertical datum for surveying and mapping activities. ACSM supports educational programs in the use of NAVD 88 and encourages the densification of control stations on the new datum to allow greater use of NAVD 88 by the surveying and mapping community.

In Wisconsin, vertical datums are only vaguely addressed in state statutes. In fact, the only reference is more relevant to water datums than to vertical land datums. Chapter 236.20.5(c) requires only that water elevations of lakes and streams be referenced "to some permanent established datum plane." There appears to be no specific statute requirements regarding NGVD 29 or NAVD 88. This differs significantly from horizontal datums which are distinctly recognized in Wisconsin statutes as a part of the Wisconsin Coordinate System definition in Chapter 236.

The Wisconsin Society of Land Surveyors, the Dept. of Agriculture, Trade, and Consumer Protection, and others have begun to investigate this issue and its meaning for Wisconsin.

GEODETIC CONTROL

Using GPS for vertical control

by Diann Danielsen

In the past, GPS has been used almost exclusively for horizontal positioning. The vertical component has only been a secondary consideration. Vertical GPS data has typically produced less accurate and less reliable results due to atmospheric effects and limited knowledge of local variations in the geoid surface. With better choices in equipment and better use of adjustment data, it is possible to derive very precise *ellipsoid* height differences using the GPS. These, combined with improved geoid modeling, will soon allow the use of GPS to produce useable *orthometric* heights for surveying and mapping applications. The ellipsoid height is the height of a point on the earth's surface above the ellipsoid. The orthometric height is the height of a point on the earth's surface above the geoid.

Atmospheric effects on GPS data are being studied through research into atmospheric water vapor. Water vapor introduces error into GPS height data in the form of signal delays during the data collection process. It is possible that GPS base stations could use precipitation forecasts to broadcast estimates of the effect of water vapor (in the form of wet delay parameters).

In addition, geoid modeling can be refined to improve GPS orthometric height results. This is currently being done via the cooperative efforts of the National Geodetic Survey (NGS), state departments of transportation, and state geodetic or surveying agencies. Data collected by these agencies will be combined to develop an improved geoid model that has increased resolution and accuracy. The program is two-fold: first, existing NGS data is checked for quality and use in the new model; and second, additional observations are made in areas identified as being deficient in gravity observations.

The geoid densification project is based on a 3 km grid of gravity observations. One effort has been on-going in Dodge County, Wisconsin, where the NGS and the Wisconsin Dept. of Transportation have taken gravity readings on the recently densified Dodge County geodetic control network. (The test project also compares two different methods of improving the geoid model, geometric and gravimetric.) One of the purposes of the tertiary level (6 km spacing of 4 ppm control stations) densification design of the Dodge County network is to support development of an improved geoid model and future GPS vertical work.

With these combined efforts for an improved geoid model and a better understanding of atmospheric effects, GPS will be able to produce quality orthometric heights and fast and affordable vertical control. Over the next few years, this will likely bring to vertical work the same revolution experienced in horizontal positioning with GPS.

(Source: *ACSM Bulletin*, January/February, 1994, Wisconsin Dept. of Transportation)

Assisting local control network densification....

GPS Standards Work Group

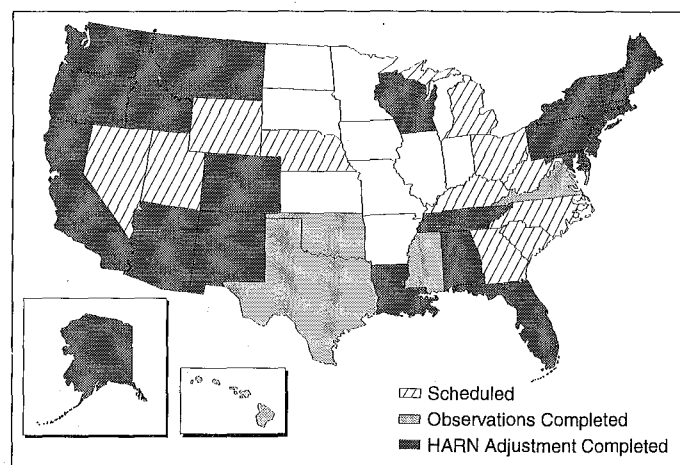
by Diann Danielsen

Early this year the Wisconsin Land Information Board, the Wisconsin Land Information Association, the Wisconsin Society of Land Surveyors, and the Wisconsin County Surveyors Association combined efforts to look at the establishment of standards and the development of a services procurement bulletin for GPS control network densification projects in Wisconsin. Many counties are actively densifying control networks in an effort to support surveying, mapping, and GIS/LIS implementation, typically with the assistance of the Dept. of Transportation.

The group has reviewed county control densification schemes designed by the Minnesota and Wisconsin Departments of Transportation, and has discussed many county and statewide concerns and issues involved in local densification efforts. A report recommending guideline procedures is expected to be presented to the WLIB in June for review and later adoption for use with county grant awards for control densification. In addition, the group hopes to prepare a GPS services procurement bulletin to assist counties in contracting for GPS services.

For more information, contact Work Group Chairperson, D. David Moyer (608) 263-3919.

Status of High Accuracy Reference Network (HARN) upgrades in the U.S.



Forty states now have HARNs completed, underway, or scheduled for the near future. Wisconsin was among the first states to implement a high precision network adjustment. The Wisconsin High Precision Geodetic Network (WHPGN) resulted in the NAD 83 (91) datum adjustment for Wisconsin.

(source: *ACSM Bulletin*, January/February, 1994)

PROJECT REPORTS

Integrated GIS database is goal

DNR seeks water layer cooperators

by Terry Hiltz and Beth Holl, DNR

Creating a detailed statewide surface water Geographic Information System (GIS) layer is an immediate goal of the Wisconsin Department of Natural Resources (DNR). The foundation for this layer will be a combination of hydrographic information extracted from 1:24,000-scale U.S. Geological Survey (USGS) quadrangle maps, and existing DNR water related information from a variety of existing computerized databases.

To support and fund this project, the DNR has established a broad-based department-wide coalition which is the focus for planning, cooperation and support within the agency. The coalition, called the Water Integration Committee, is comprised of Bureau Directors from water-related programs. At this point in the project's development, the DNR is inviting other interested organizations to join the effort to help specify data needs, define potential products, and financially support the project.

The purpose of this project is to integrate a variety of disparate agency data with a single GIS database to help meet a wide variety of water-related information needs of the DNR and other cooperators. Over the years, a variety of DNR water information has been stored in diverse formats, from paper files to various computer databases. Existing databases include information on water quality, sediment and fish tissue contamination, dams, wastewater treatment facilities, etc. Linking this information to a geo-referenced representation of water features will allow users to perform a wide variety of rapid analyses, and to integrate with other information already incorporated into other GIS databases.

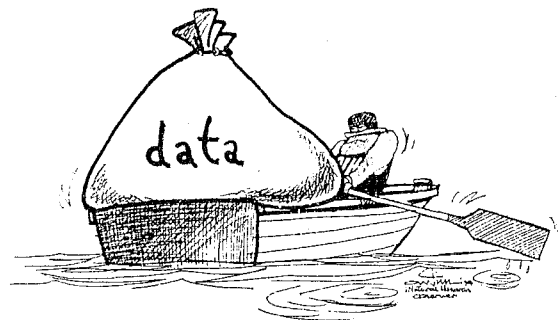
The statewide surface water GIS project will have four major components:

- Computerize the graphic representation of most surface water features shown on US Geological Survey 1:24,000-scale topographic quadrangles such as perennial and intermittent streams, lakes, ponds and springs. Marshes and swamps appearing on the quads will not be converted since that information already exists in DNR's more detailed Wisconsin Wetland Inventory. This will be accomplished by electronically scanning each quadrangle from a stable-base sheet provided by the USGS, and then converting the scan to line (vector) format.
- Link eight DNR tabular databases to the computerized hydrography layer. These databases use the DNR's master waterbody code system, and contain locational coordinates.
- Develop guidelines to ensure that proper locational coordinates are included in the design and development of any future databases.

- Produce reference plots for field collection for better quality and more accurate water-related information.

The shared development cost of the 1:24,000-scale GIS hydrography layer is currently estimated at approximately \$600,000 (not including cost-sharing from the USGS nor DNR). This will cover scanning of the 1154 map separations, feature coding, and documentation. For more information on the statewide hydrography project, and joining the DNR coalition in its planning contact:

Beth Holl
DNR Bureau of Water Resource Management
P.O. Box 7921
Madison, WI 53707-7921
Phone: (608) 266-9272



PC-based program available for Great Lakes coastal data

A new PC-based program has been jointly developed by NASA Science and Technology Laboratory and the South-eastern CoastWatch Regional node to provide a simple means of examining CoastWatch data on low-cost personal computers. The National Oceanic and Atmospheric Administration (NOAA) established the CoastWatch program in 1988, to provide remotely sensed data to federal, state, and local planners for management of the U.S. coastal zone, including the Great Lakes. Until now, this data has been inaccessible to most users because of the sophisticated image processing and display hardware requirements.

The new computer program, which was designed to increase the accessibility of CoastWatch data, is called C Coast (Computer-based Coastal Observation and Analysis of Sea Temperatures), and can be run on an IBM compatible (286 or greater) computer with 640k conventional memory. A Super VGA display device and mouse or pointing device are the most critical requirements for using C Coast. Because CoastWatch data is routinely collected, C Coast may be especially useful for state or county agencies monitoring a variety of coastal processes around the Great Lakes.

For more information about C Coast, or to obtain a copy of the program, contact: Tom Leming, NOAA/National Marine Fisheries Service, CoastWatch Node Manager, Stennis Space Center, MS 39529.

(source: *Photogrammetric Engineering and Remote Sensing*, Feb. 1994)

PEOPLE & ORGANIZATIONS

State Cartographer's Commentary

Public access to information: the debate heats up

by Ted Koch

Most of us in today's business world routinely communicate, transfer and store information using methods that we may not have thought about or knew existed as little as ten years ago. Within a relatively short time, how quickly we have imbedded new communication technologies into our daily work: fax transmissions, voice-mail, electronic-mail, computer networks, electronic bulletin boards, word processing, and computer-based geographic information systems. Some people even use these tools outside of work.

The impact that sophisticated electronic technologies are having on access to information is increasingly an area of concern and debate. Is information more or less accessible to various groups in automated form? Is its collection, storage and maintenance more or less costly? Is the protection of individual privacy rights better or worse? Clear answers to these types of questions are rarely apparent.

Particularly regarding the public sector, where access to information through open records laws has been well established for years, there is growing concern that the public perceives its ease of access is being compromised.

Two recent programs in Wisconsin have provided interesting discussions and enlightenment concerning public information management and access. The first was a session at WLIA's annual meeting in March on the policy and legal issues in managing public information. This session, led by Lori Dando, an assistant attorney from Dakota, County, Minnesota attracted over one hundred participants.

Sessions such as this generate wide interest since many information managers are now exploring methods to recover some of their investments in electronic technologies, particularly those due to the implementation of GIS. Within the public sector, the implementation of cost-recovery programs, copyrighting information, and restricting distribution and use of information seems to violate the spirit of established open records and freedom of information laws.

A second recent program, a public forum on electronic record keeping and open records, co-sponsored by Marquette University and the *Milwaukee Sentinel*, was held earlier this month in Milwaukee. Speakers and panel members at this gathering of 65 people raised many issues concerning privacy, ready public access to government information, and the costs of computerized information. Electronic communication (e-mail) between individuals in government agencies, and whether those messages are official public records, was a particularly hot topic. Coincidentally, within the past week Governor Thompson has vetoed a bill that would have made electronic mail a public record, and thus subject to open records laws.

Meanwhile, several other proposed bills currently in the legislature, are designed to deal with electronic information, privacy rights and access to computer information. Many of the provisions of these proposed bills seem to be

contradictory and vague. The Wisconsin Land Information Association has recently formed an open records committee to monitor the development of these provisions and to assess their potential impact on land records and geographic information development and use.

Clearly, the meetings in Stevens Point and Milwaukee, and the current legislative proposals demonstrate the very complex nature of the relationship that is evolving between electronic technologies and open access to information. Wide open discussion and debate on this relationship is critical if we are to develop effective new laws that are acceptable to information developers, managers and users.

USGS has new leader

The twelfth director of the U.S. Geological Survey took his oath of office in mid-March. Dr. Gordon P. Eaton, 64, was sworn in by Interior Secretary Bruce Babbitt.

"Dr. Eaton is the ideal candidate to lead the Nation's premier water and earth science information agency, at a time when we are facing many critical decisions on the environment," Babbitt said. "I am confident that he will lead the USGS to an even stronger role in providing us with the scientific information needed for wise policy decisions."

"The unbiased pursuit of earth science questions has been an invaluable resource to both our Nations' citizens and to every administration," Director Eaton said. "It is my firm intention to strengthen and further what is already an admirable legacy created during more than a century of pursuing earth science in the public service."

As a geologist, Eaton worked for the USGS for 16 years earlier in his career, and since has held several high-level administrative positions at academic institutions in Iowa, Texas, and New York.

The USGS' previous director, Dallas Peck, resigned last summer to return to a geological research position in the agency.

(source: USGS)

Former employee's misfortune to be featured on NBC

by Brenda Hemstead

Christine Reinhard, former SCO Assistant State Cartographer, has been looking for her missing husband, Craig Williamson, since he vanished August 30, 1993 during a business trip to Colorado Springs, CO.

She recently finished filming footage for NBC's *Unsolved Mysteries* television show scheduled to be aired May 25, 1994 that will be titled "Wandering Fish Man" for production purposes. Craig & Christine started their aquaculture business, GEMMA, in Clintonville, WI in 1990.

Christine and the show's producers hope bringing the tale into people's homes nationwide will spark a lead into the whereabouts of Craig, who Christine believes is suffering from amnesia.

Stay tuned!

EVENT PROFILES

Neenah to welcome WLIA

by Ted Koch

June 9 & 10 are the dates for the next quarterly membership meeting of the Wisconsin Land Information Association. The meeting will be held at the Valley Inn, located at 123 East Wisconsin Avenue in downtown Neenah.

Following the established WLIA quarterly meeting pattern, June's event will begin with a free, two-hour Thursday evening presentation, followed by a full agenda of activities on Friday. Attendance at the Friday meeting requires a modest registration fee that includes lunch. Non-WLIA members are welcome to attend.

Thursday evening's program, "Alternative Routes to the Implementation of Multipurpose Land Information Systems", will be a continuation of a similar session begun at the annual meeting in Stevens Point in March. The Friday program will feature discussions on issues facing the WLIA in the coming year, the Milwaukee URISA meeting in August, review of several draft WLIA standards, and update profiles on several projects in the Fox River Valley area.

For more information, contact WLIA at 800/344-0421.

Natl. Park Service designation

Science Hall to become Landmark

Science Hall, home to the SCO, will be dedicated as a National Historical Landmark this spring. On May 16, an official of the National Park Service will be in Madison to preside over a ceremony designating both Science Hall and the Armory-Gymnasium ("old red gym"), which are about a block apart.

The ceremony at 3pm on the second floor of the gym also marks the 100th anniversary of an athletic festival opening the gym, May 24-25, 1894. The program will be followed by a reception, 4-6pm.

The rare landmark designations, made by the National Park Service, go to structures judged significant not only to local and state history, but also to American history. North Hall, the first classroom building at the university, is the only other national landmark on the campus.

Science Hall, completed in 1887, is significant for a number of reasons including its association with Charles R. Van Hise, a geologist who served as the university's president 1902-1918. The SCO is located on the first floor of Science Hall; other current occupants include the Geography Department, Geography Library, Robinson Map and Airphoto Library, Institute for Environmental Studies, Office for International Students and Faculty, and Chicano Studies Program.

The gym was a center for university and city sporting, social, political, and cultural events; its second floor was the site of the 1904 Wisconsin Republican Convention, an important event in the history of the Progressive Movement.

(source: *Wisconsin Week*, 4/20/94)

WLIA hosts successful conference

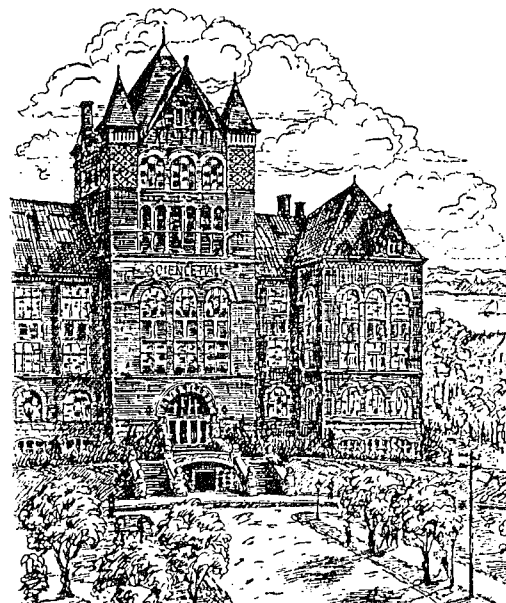
by Ted Koch

Over 450 professionals interested in land information issues gathered in Stevens Point in late March for the seventh annual conference of the Wisconsin Land Information Association (WLIA). By most any measure, this meeting ranked as another in a string of very successful annual meetings sponsored by the WLIA. The conference was begun with an informative and inspiring keynote address from Jeanne Savage, a GIS consultant from the state of Oregon.

A majority of attendees completing conference evaluation sheets rated the meeting overall as good or excellent. The most highly rated event of the 3-day meeting was the "Breakfast with the Board" gathering held on the morning of the final day. This session gave everyone the opportunity to ask questions of the Land Information Board's members and staff. A large number of thoughtful comments and provocative questions were directed to the board during this hour-and-a-half period. The board will use the comments from this session as the basis for agenda issues at its planning retreat scheduled in June. (See page 2 for additional information on the retreat).

Conference evaluations also gave the technical sessions and business demonstrations high marks. Comments on these sessions were quite positive regarding the quality of the information and the skills of the speakers. Any negative comments were generally directed toward inadequate room capacities and improper room temperatures.

Also announced at the conference were the six new directors elected to the WLIA Board: Ron Betz, Wisconsin Power and Light Corp.; Roxanne Brown, Burnett County; Aaron Cohen, Marathon County; Dennis Mickesh, Chippewa County; Brenda Haskins, State Senate Democratic Caucus; and Patricia Wettstein, Calumet County.



CONFERENCES, TECHNICAL MEETINGS, AND CLASSES

May 2-4, **1994 Mid-America GIS Symposium** will be held in Kansas City, MO at the Hyatt Regency Hotel at Crown Center. Contact: Urban and Regional Information Systems Association at 202/289-1685, fax 202/842-1850.

May 9-11, **Advanced pcArc/Info** will be held at the LICGF in B102 Steenbock Library, UW-Madison, Madison, WI. Contact: Tom McClintock at 608/263-5534; fax 608/262-2500.

May 9-13, **GPS/GIS '94** will be held at the Ritz-Carlton (Tysons Corner) near Washington, DC. Contact: GPS/GIS '94, Conference Coordinator, c/o GeoResearch, Inc., 115 North Broadway, Billings, MT 59101, 406/248-6771, fax 406/248-6770.

May 20, **Geographic Information Technology Trends and Opportunities in Local Government** will be held in Washington, D.C. Contact: GIS World, Inc., Training Division, 155 E. Boardwalk Dr., Suite 250, Ft. Collins, CO 80525, 303/223-4848; fax 303/223-5700.

May 23-26, **Remote Sensing for Water Resources** will be held in Lincoln, NE. Contact: Workshop Coordinator, CALMIT, 113 Nebraska Hall, Univ. of Nebraska-Lincoln, NE 68588-0517, 402/472-8197, fax 402/472-2410.

May 23-27, **14th Annual ESRI Users Conference** will be held in Palm Springs, CA. Contact: User Conference Coordinator, ESRI, 380 New York Street, Redlands, CA 92373, 909/793-2853; fax 909/793-5953.

May 31- June 3, **ISPRS Commission IV: Symposium on Mapping and GIS** will be held in Athens, GA. Contact: Norma Reed, Univ. of Georgia, Georgia Center for Continuing Education, Athens, GA 30602-3606, fax 706/542-5990.

June 5-8, **GIS in Business '94 Conference and Exposition** will be held at the San Francisco Hilton and Towers in San Francisco, CA. Contact: GIS World 303/223-4848.

June 6-8, **GIS in Natural Resources** will be held at the LICGF in B102 Steenbock Library, UW-Madison, Madison, WI. Contact: Tom McClintock at 608/263-5534; fax 608/262-2500.

June 9-10, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Neenah, WI. Contact: WLIA at 800/344-0421.

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

June 14-15, **ERDAS Northern Regional Users' Group Meeting** will be held in Columbus, OH. Contact: Amy Johnson, ERDAS, Inc., 608 S. Washington Street, Suite 203, Naperville, IL 60540, 708-355-8610, fax 708/355-9828.

June 20-22, **The First Congress on Computing in Civil Engineering** will be held in Washington, D.C. Contact: American Society of Civil Engineers, Conference & Convention Dept., 345 E. 47th St., New York, NY 10017, 800/548-ASCE, fax 212/705-7975.

June 22-24, **GPS and its Integration to GIS** will be held in Fort Collins, CO. Contact: GIS World, Inc., Training Division, 155 E. Boardwalk Dr., Ste. 250, Fort Collins, CO 80525, 303/223-4848, fax 303/223-5700.

July 6-8, **Remote Sensing as a GIS Data Source** will be held in Fort Collins, CO. Contact: GIS World, Inc., Training Division, 155 E. Boardwalk Dr., Ste. 250, Fort Collins, CO 80525, 303/223-4848, fax 303/223-5700.

August 7-8, **Cartographic Design and Research**, "Canadian Institute of Geomatics" will be held in Ottawa, Canada. Call: 613/224-9577.

August 7-12, **URISA '94, Urban & Regional Information Systems Assn.**, will be held in Milwaukee, WI. Contact: The Urban & Regional Information Systems Assn., 900 Second St., N.E., Suite 304, Washington, DC 20002, 202/289-1685.

August 10-13, **North American Cartographic Information Society (NACIS) 14th Annual Meeting** will be held in Ottawa, Canada. Contact: NACIS, c/o American Geographical Society Collection, P.O. Box 399, Milwaukee, WI 53201.

August 15-19, **U.S. Army Corps of Engineers Symposium on Surveying, Mapping, Remote Sensing and GIS** will be held in New Orleans, LA. Contact: Leonard P. Halphen, U.S. Army Engineer District, New Orleans, ATTN: CELMN-ED-SS, P.O. Box 60267, New Orleans, LA 70160-0267, 504/862-1841; fax 504/862-1850.

August 20, **Maryland Geographic Information Systems Committee** meeting will be held at the Advanced Technology Center, Hagerstown Junior College. Call: 410/830-2964, fax 410/830-3888.

September 8-9, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Rhinelander, WI. Contact: WLIA at 800/344-0421.

September 20-23, **Institute of Navigation GPS '94, "GPS Goes Operational: Applications and Technology"** will be held at the Salt Palace Convention Center, Salt Lake City, UT. Contact: Dr. Richard Green-span, Program Chair, at 214/348-9446, fax 214/348-9447.

September 26-28, **Federal Geographic Technology '94** will be held in Washington, D.C. Contact: GIS World, Inc., 155 E. Boardwalk Dr., Ste. 250, Fort Collins, CO 80525, 303/223-4848, fax 303/223-5700.

October 5-7, **Minnesota GIS/LIS Consortium's 4th Annual State-wide Conference** will be held in St. Louis Park, MN.

October 14-19, **National States Geographic Information Council's Annual Meeting** will be held in Jackson Hole, WY. Contact: Nancy McCann at 307/777-5958.

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

December 8-9, **Wisconsin Land Information Association (WLIA) Quarterly Membership Meeting** will be held in Wisconsin Dells, WI. Contact: WLIA at 800/344-0421.

1995

February 27-March 2, **ASPRS/ACSM Annual Convention '95** will be held in Charlotte, N.C. Contact: Denise Cranwell, ASPRS/ACSM '95, 5410 Grosvenor Lane, Bethesda, MD 20814-2112, 301/493-0200, fax 301/492-8245.

March 1-3, **Wisconsin Land Information Association's Annual Conference** will be held in Madison, WI. Contact: WLIA at 800/344-0421.

March 10-16, **AM/FM International Annual Conference XVIII** will be held in Seattle, WA. Contact: AM/FM International, 14456 E. Evans Ave., Aurora, CO 80014, 303/337-0513; fax 303/337-1001.

August 13-17, **URISA '95 Annual Conference** will be held in San Antonio, TX. Contact: Urban & Regional Information Systems Assn., 900 Second St. N.E., Suite 304, Washington, D.C., 202/289-1685.

November 13-17, **GIS/LIS '95 Annual Conference** will be held in Nashville, TN. Contact: GIS/LIS '95, 5410 Grosvenor Lane, Bethesda, MD 20814-2112, 301/493-0200, fax 301/492-8245.

About the SCO...

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

Our permanent staff consists of five people—Ted Koch, State Cartographer (608/262-6852), Bob Gurda, Assistant State Cartographer (608/262-6850), Diann Daniels, Outreach Specialist (608/262-8776), and Program Assistants Brenda Hemstead and Nancy Graham (608/262-3065), plus several part-time graduate and undergraduate students.

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

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

Wisconsin Mapping Bulletin

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

News is welcome on completed or ongoing projects, published maps or reports, or conferences/workshops. Local and regional information is especially encouraged. The Editor makes all decisions on content. Deadline for the next issue is July 9, 1994.

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Please send all comments, corrections, and news items to:

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About our BBS...

The SCO has an electronic bulletin board system (BBS), as another means of making information available. You can use it to browse standard information, check on late-breaking news and upcoming events, download copies of our files and free software, and to interact with other BBS users on various mapping-related topics as they emerge.

You access our BBS with a telephone call from any remote computer that is connected to a modem and operated through basic communications software. An ordinary personal computer will suffice; a modern modem will give you faster response and reduce the length of your connect time.

The telephone number is 608/265-2807, and your modem settings need to be N, 8, 1; the modem on our end operates up to 14.4 K baud. Don't try calling the BBS directly from your telephone!! If you need help getting started, contact us at 608/262-3065.

On your first call to the BBS, you will enter your name and choose a password, and then be briefed on how the BBS works.



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