State Cartographer's Office

Reporting on Mapping and Land Information in Wisconsin

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Board and Council Differ on Recommendations

by Ted Koch

The Wisconsin Land Information Board (WLIB) and the Wisconsin Land Council (WLC) voted separately at a recent joint meeting to make differing recommendations on the future of both organizations. The recommendations came about as the final step before sending a required report to the governor and legislature.

Sept. 1st deadline specified in current law

The report, which is intended to be an evaluation of both organizations' accomplishments, future directions, and the potential of a merger, was due on September 1, a date set by the legislature. The legislature did not require a joint report, however the two organizations decided to combine their findings into a single document.

Both the WLIB and WLC, under current law, are scheduled for sunset next September 1st. In anticipation of this sunset provision, the legislature imposed the requirement of a report from each organization one year prior to that date.

No consensus on merger

The final draft report, presented to the full Board and Council at a joint meeting on August 28, contains six alternatives for the future. The options are: allowing either entity to sunset in one year, removing the sunset provision for either, linking the two in a more formal manner for the purpose of improved coordination on common issues, and joining in a complete merger.

At that meeting, the WLIB and WLC each voted to forward the report with specific recommendations on the future—but the two groups did not agree on their choice for a recommendation. The WLC approved the notion of merging both, while the WLIB opted fora recommendation to remove the sunset provision for both programs.

Earlier in the meeting, the WLIB failed on several tie votes to recommend any of the other alternatives, including merger. In all of the votes, state agency representatives opted for merger and opposed any other alternative.

The merger of the WLIB and WLC has been advocated by the Thompson/McCallum Administration for a number of years, while many of those active in the land information community have wanted the Board and Council to remain separated based on the belief that the organizations have very distinct purposes and missions.

One argument for merger has been that it would result in members having to attend fewer meetings. However, no analysis was presented prior to the meeting to support this claim. A merged board/council would have larger membership than ei-

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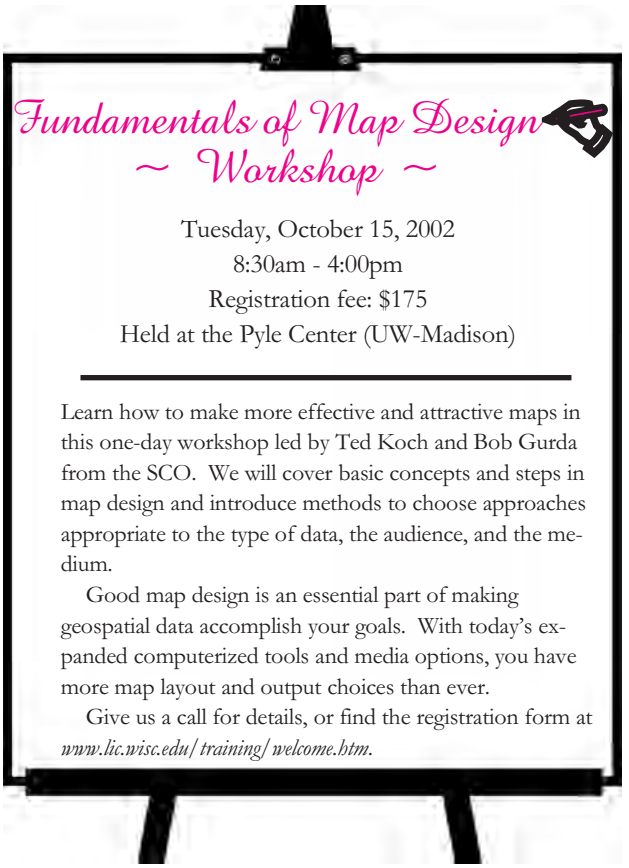

Highlights of this issue....

WLIB News

by Ted Koch

The Wisconsin Land Information Board last met on August 28 in Madison. Part of this meeting was held jointly with the Wisconsin Land Council. The Board's next meeting will be held October 3 in Wausau.

Board recommends grants options and amounts

At its August 28 meeting, the Board identified and recommended a number of grant options and associated expenditure limits for 2002. The 2002 grants, which are available to counties based on grant applications for specific projects, will use part of the Wisconsin Land Information Program fees collected at the county register of Deeds offices during the period July, 2001 - June, 2002. The options developed by the Board will be made available for public comment during September, with final decisions due at its meeting in Wausau.

Specifically, the Board developed the following recommendations:

$21,600 for Education and Training Grants (72 counties @$300 each).

$269,556 for Base Budget Grants to those counties whose retained fees for 2002 are less than $35,000 (approximately 25 counties).

$653,000 for Strategic Initiative Grants divided into four categories:

- ✓ $400,000 to Base-Budget-eligible counties whose digital parcel mapping is 30% or less completed. Maximum single award limited to $40,000.
- ✓ $78,000 for publication of parcel assessment and tax data on the Internet. Limited to those counties not receiving a similar grant in 2001. Maximum single award limited to $3000.
- ✓ $150,000 for developing data usable for floodplain mapping, which includes digital elevation models and detailed data on bridges suitable for use in floodplain modeling software. Maximum single award limited to $50,000.
- ✓ $25,000 for a single award to a county (or regional planning commission partnering with a county), to develop a local connection to the WLIS (Wisconsin Land Information System) network being developed by the Wisconsin Dept. of Natural Resources. (For more details on WLIS, see below)

DNR to begin WLIS work

The WI Dept. of Natural Resources (DNR) is poised to begin a pilot project to build some of the technological Internet components for the Wisconsin Land Information System (WLIS) initiative. The conceptual underpinnings of WLIS have been presented in previous reports (see Summer 2000 and Spring 2000 issues of the *Bulletin*), although progress on WLIS has been hampered since then by lack of funding.

The work being performed by DNR is being done through a contractual agreement between the WI Dept. of Administration and the WI Dept. of Electronic Government. The following items are to be accomplished:

Establish a WLIS Web presence;

Implement a web-mapping capability that is available to WLIS participants outside DNR;

Implement data discovery, provide access and download capability for selected state agency data, establish a state agency metadata clearinghouse, and identify necessary components for future expansion of WLIS;

Pilot a DNR WLIS node that will be connected to the future WLIS network;

Provide system documentation; and

Develop an enterprise strategy.

The WLIS pilot effort will be guided by a Project Management Team made up of representatives from DNR and DOA. Workgroups will be formed as needed to address specific project issues. A Guidance Team, with a broad representation from state agencies, local governments and the private sector, will provide overall project guidance.

This agreement to begin WLIS development runs through June 30, 2003.

Board & Council Differ on Recommendations, *continued from page 1*

ther group has now, and would have more attached working groups with more members.

Public reaction is varied

Although, both the WLIB and WLC had intended to provide public review of the report before the September 1 deadline, that opportunity did not formally occur. Nevertheless, several organizations did weigh-in with their thoughts on the future for both organizations. The Wisconsin Land Information Association, which was instrumental in passing the original legislation creating the Board, has consistently opposed merger with the Council. The Wisconsin Counties Association has expressed the belief that merger is critical to guarantee the future of both and the programs they administer. The Wisconsin County Planning Directors organization felt merger was of little consequence, while the League of Women Voters of Wisconsin expressed support for the continuing land-use related work of the Council, but took no formal stance regarding the Board.

Future action?

Regardless of how the WLIB and WLC voted on August 28, for the time being nothing will change. That's because the two programs are created in state statute and any modifications must come from the legislature and then be approved by the governor. It is unlikely that any action will be taken during the current election season. The legislature, with many new faces, will convene in January to begin work in earnest. By that time, sunsets for the WLIB and WLC will be less than nine months away. If and when the legislature will act is unknown.

Given the state's precarious financial situation, segregated funds such as the portion of the locally collected document filing fees that are forwarded to the WLIB may be scrutinized by the legislature as part of its budget process. The potential always exists that some funds may be tapped to alleviate budget pressure in related areas.

State Cartographer's Commentary

OMB redefines federal mapping roles

by Ted Koch

In the event you didn't notice this one, given all the other attention grabbing headlines of the past weeks, on August 19 the Federal Office of Management and Budget (OMB) released a revised Circular No. A-16 which addresses coordination of "Geographic Information and Related Spatial Data Activities."

For those of you who are not familiar with the organizational details of the federal branch of government, the OMB has the responsibility to assist the President in overseeing the preparation of the federal budget, supervise its administration in executive branch agencies, and evaluate the effectiveness of agency programs, policies and procedures. "Circulars" issued by OMB contain instructions or information to federal agencies and have a continuing effect of two years or more.

OMB gains leverage

The most significant aspect of this latest revision of A-16 is that it designates the OMB Deputy Director for Management as the vice-chair of the FGDC. (The Secretary of the Interior is chair). This places the coordinating role of the FGDC in the hands of top-level administrators including one who has major budget responsibilities.

For too long, the FGDC has been ineffectual in getting federal agencies to adopt the goals and objectives of the NSDI (National Spatial data Infrastructure), particularly into the depths of large and sprawling agencies. Placing the NSDI oversight within the influence of the OMB should improve federal spatial data coordination.

Almost 50 years old

A-16 was originally issued in 1953, revised in 1967, again in 1990 and now 2002. The purpose of the 1953 Circular was to assure that federal surveying and mapping activities met the needs of federal and state governments and the general public without duplication of effort. Over the years the Circular was revised to reflect changes in technology, organizational responsibilities, and the creation and use of digital spatial data.

The 2002 Circular focuses on the effective and economical use and management of spatial data in a digital environment for the benefit of government and the nation. The Circular also describes the NSDI , the management and reporting requirements of federal agencies, establishes the FGDC (Federal Geographic Data Committee) as the interagency coordinating body for NSDI-related activities, and identifies the lead federal agencies with responsibilities for spatial data themes such as, cadastral (BLM), elevation (USGS), flood hazards (FEMA), geodetic control (NOAA), etc.

Task force close to making recommendations on state elevation data

by Bob Gurda

From improved floodplain mapping to geological studies and a myriad of other applications in between, Wisconsin could reap the benefit of investing in better elevation data. How much better, where, and how are the remaining questions for the Wisconsin Land Information Board's Elevation Data Task Force (EDTF).

Chaired by D. David Moyer, our National Geodetic Survey state advisor, the EDTF has been meeting since Spring 2001 and is now coming down the home stretch. Their report to the WLIB will include an array of recommendations and the first detailed inventory of digital elevation data sets that exist for various parts of the state.

Inventory needs to become a community task

While a good amount of digital elevation data does exist, the bad news is that it is not consistent from place to place—in accuracy, format, vintage, or accessibility. Maintaining an inventory so that it is current and reliable, and so that it can be used to generate status maps, will be one recommendation of the EDTF. That goal will only be achievable if the various custodians of the data sets produce timely and accurate metadata.

Timing may be right to attract FEMA funds

As explained in the article (see p. 9) on the major increase in the floodplain mapping program within the Federal Emergency Management Agency (FEMA), this may be a ripe time to get Wisconsin prepared for better elevation data. One way to have vastly improved floodplain analysis and mapping done is to have adequate elevation data. The quality of such data needed within a watershed in general, and the higher quality data required in the floodplain areas themselves would support a long list of other uses such as modernizing the soil survey process, evaluating barnyard runoff, and designing adequate bridges and culverts.

How good is good enough?

The task force is trying to determine the level of accuracy for elevation data that is justified. Since the state's landscape, and the value of its property development, varies from region to region, the minimum investment that can deliver an adequate long-term payback likely will also vary from place to place.

One thing is clear, however: It will be advantageous to make a sound investment "up front" to acquire elevation data that is as consistent as possible so that the benefits will accrue for years to come. This work represents a significant investment, so it is not something that is likely to be done over large areas very often.

Partnerships will be key

To mount a full-scale effort to collect the next generation of elevation data we will need to develop major and continuing partnerships. The condition of government budgets is not expected to be good for the foreseeable future, so the more cooperation that can be achieved the faster the work can be done. There are a number of good models to emulate in our own state.

Keeping in touch

When the EDTF issues its report, we will post information on the SCO web site's news page to direct you to its original source. Keep an eye open!

Map historian charts retirement

For this issue we talked with Prof. David Woodward who is retiring at the end of this summer after 22 years with the Univ. of Wisconsin-Madison's Geography Department. Prior to joining the department (from which he received his Ph.D.), he was at the Newberry Library in Chicago for eleven years. Woodward is an international authority on the history of mapping and regularly taught cartographic design during his university career.

This Spring, Woodward was awarded the prestigious Hilldale Award in the Arts and Humanities in recognition of distinguished contributions to teaching, research, and extension/outreach at the University of Wisconsin-Madison. The award acknowledges top professors in four divisions of the university: humanities, social sciences, physical sciences and biological sciences. A month later he traveled to the Royal Geographical Society in London to receive the Murchison Award "in recognition of seminal publications on the history of cartography." It has been awarded annually since 1882 and is named in honor of Sir Roderick Murchison, the Victorian explorer, geologist, and geographer.

What are your reactions to receiving the Hilldale and Murchison awards?

I was happy to receive these awards because they signal a recognition of the importance of a field I have pursued for over thirty years.

Retirement will free me up to devote more time to the remaining volumes in the *History of Cartography* series

What are your plans in retirement?

I am looking forward to not having the constraints of a teaching schedule as well as committee meetings. That will free me up to devote more time to the remaining volumes in the *History of Cartography* series, and I plan to do some traveling in conjunction with guest lectures, workshops, and being a visiting professor. So, I will still be very involved with my career's work.

Can you project when the History of Cartography series will be completed?

The best-case scenario would be 2007, but that presumes that funding for the final volume (#6) materializes soon. It has been challenging to convince donors that the 20th century is now part of our history. Of course, its last 25 years saw the birth and maturation of GIS, and more maps were made in that century than all that preceded it. There is plenty to fill a volume.

A special issue of the journal *Cartography and Geographic Information Systems* due out this fall, edited by Mark Monmonier and myself, will have essays focusing on the 20th century, so that is a start.

I will be taking the lead on volume #5 (covering the 19th century), and we have submitted a funding proposal for volume #4 (the Enlightment).

There is a tension now between teaching theory versus technique in cartographic design.

When did the History project start?

The seeds of the idea actually formed just before I came back to Madison. Our first funding proposal was in 1981. When Brian Harley, my co-editor, came over from England to UW-Milwaukee (and the American Geographical Society's map collection there) in 1986, we were able to ramp up the work. Unfortunately, Brian died prematurely only five years later but the Project has continued.

How has the teaching of cartography changed over your years in the classroom?

Computers have had a large influence. Map design projects can be done more quickly, so students' final maps are higher quality within the span of a semester course. There is a tension now between teaching theory versus technique. We have tried to avoid teaching how to use the software, and focused instead on how to make the software serve design goals. Yet, students want to be able to list a specific software skill set on their job applications.

Students are older on average, especially within our GIS Certificate Program in operation. These students are more responsive and their expectations are higher.

On the negative side, one thing that hasn't changed is the small number of PhD degrees granted. Universities have had a hard time convincing the best students to continue past a Masters degree in cartography. The economic incentive just isn't large enough and industry has had an insatiable appetite for qualified employees. The result is a shortage of people to teach cartographic design.

Our department is extremely fortunate to have been able to hire Mark Harrower to fill this niche as I retire. His strengths in GIS, web-based mapping, and animation will take us in an exciting direction.

The use of GIS in diverse disciplines makes the whole subject of mapping more complex. Personally I am concerned that map design gets the proper attention.

More broadly, what evolutions in mapping have had the most significant affects on the campus?

The use of GIS in diverse disciplines makes the whole subject of mapping more complex. Personally I am concerned that map design gets the proper attention.

For the campus as a whole I think that this broadening group of people needs to become more of a community. The funding that the campus administration provided earlier this year to the SCO to support SIAC (the Spatial Information and Analysis Consortium) is a good sign that other people share my opinion. With this kind of effort the campus should continue to be a place known for its expertise in mapping education and research.

Q: *How can I figure out the resulting pixel size of a digital orthophoto scanned from an original aerial photograph?*

A: This is a fairly straightforward calculation as long as you keep the units in mind. You also need to know the scale of the original photograph.

One additional factor you'll need is the resolution that your scanner is delivering. In English units, resolution is usually stated in dots per inch (dpi), and scanners used to capture digital images from aerial photographs typically will deliver at least 1000 dpi which happens to be essentially the same as a pixel ("picture element") size of 25 microns (millionths of a meter, or thousandths of a millimeter). So, a scanning spacing of 12 microns would yield approximately 2000 dpi.

The scale of the photographic material is the other variable, scale being the ratio of object size on the photo compared to its size on the ground. Usually the print or transparency will be made at the same size (and scale) as the original negative.

Scale will vary slightly from one photograph to the next in a project; in fact, scale will vary across each image to varying degrees depending on terrain and how much the airplane was tilted.

For this discussion, we'll assume a nominal scale for an aerial photograph. Actually, once the scanned image has been subjected to the differential rectification process that produces a digital orthophoto, there will be a constant scale across the image.

For example, NAPP photographs have been widely used to produce digital orthophotos. NAPP is acquired at a scale of 1:40,000 (1 inch on the photo = 40,000 inches on the ground, or about 0.63 miles). When scanned at 25 microns, this yields pixels that on the ground measure 1 meter across. You can compute this by multiplying 25 microns x 40,000 = 1 million microns. Since a micron is one-millionth of a meter, the answer is that a 25 micron pixel represents 1 meter on the ground.

If you have larger-scale photos, say 1" = 833' (equivalent to 1:10,000), and you scan at 600 dpi, the resulting pixels will have a ground size of almost 17 inches. This is calculated as (1"/600 pixels) X (833 feet/1") = 1.388 feet per pixel.

Q: *How old are the wetland maps around my city?*

A: In Wisconsin, the primary source of wetland maps is the Wisconsin Wetland Inventory (WWI). The inventory is accomplished by interpreting aerial photographs.

The WWI was created by the state legislature almost 25 years ago and is managed by the Wis. Department of Natural Resources. Initial mapping of the counties was completed in 1984 and remapping has been occurring since then.

These maps are the basis for local zoning ordinances that affect construction near wetlands. Local governments provide feedback to the DNR prior to the maps becoming final.

The vintage of the maps as produced by the DNR varies by county. Typically, several counties are slated for new mapping each year, and aerial photographs are acquired to use as the basis for interpretation. You can discover the year in question by looking through the Wisconsin Catalog of Aerial Photography on our web site. Look for project listings with black-and-white infrared imagery acquired in the spring at a scale of 1:20,000; most such projects with those specifications have been commissioned by the WWI. After interpretation, the film is turned over to the Wis. Dept. of Transportation so that anyone can acquire copies of the photographs.

WWI maps are available from the DNR in paper form, and most counties are also available in digital form. Consult *www.dnr.state.wi.us/org/water/fhp/wetlands/mapping.shtml.*

Beyond the WWI, sometimes wetland experts conduct field surveys over small areas to provide a more precise delineation of wetland boundaries for a specific permit application. These maps typically are not catalogued centrally but may be available through your local government zoning office, and some of these delineations may exist only as digital boundaries collected with a GPS receiver.

Q: *When is Wisconsin scheduled for its next NAPP aerial photography mission?*

A: The quick answer is: most likely never. Now let's try a more detailed answer with some consideration of the reasons for that answer.

NAPP (the National Aerial Photography Program) has existed for the past 12-13 years. It grew out of the former National High Altitude Aerial Photography Program (NHAPP) as a consortium effort of approximately a half-dozen federal agencies to organize, fund, and archive a photo product meeting their needs along with (hopefully) the needs of states. The goal of NAPP initially was to fly all 50 states on a 5-year cycle. In the past several years the cycle slipped to 7 years at best as funding from the federal agencies and states began to decrease.

Over Wisconsin, 1:40,00-scale, black-and-white NAPP imagery was flown in 1992 and again in 1998 which is the most recent coverage. Much of the imagery from the 1992 flight was made into digital orthophotos — the standard, 1-meter resolution, digital orthophoto quarter-quad (DOQQ) — while little of the 1998 imagery has been processed into such a product.

Reduced funding from the contributing federal agencies, and lessening interest from states to acquire NAPP for digital orthophotos has forced the NAPP Steering Committee to look closely at the future of the program. Generally, the committee has decided that NAPP will be acquired only over those states where the imagery will be immediately processed into an orthophoto product. Many states (mostly eastern) now organize and fund a variety of higher-resolution orthophoto programs, so NAPP imagery isn't as appealing as it once was.

Which brings us around to the situation in Wisconsin. With the heavy investment being made in high resolution orthophotos by more than half the state's counties, the need for NAPP imagery is very much reduced from the NAPP Steering Committee's perspective. Therefore, it is doubtful under current conditions that a NAPP flight will ever occur again.

Influential report was issued 15 years ago

Land Records Committee's impact persists

by Bob Gurda

Quick quiz: How long has land records modernization been underway in Wisconsin? Of course, there is no single answer because it depends on which office or agency you look at; for a few it's been twenty years or more, others less than five.

However, a major milestone was placed along the road fifteen years ago when then-Governor Tommy Thompson received the *Final Report of the Wisconsin Land Records Committee* (WLRC) in July of 1987. The years since have seen widespread adoption of many of the recommendations in that report although some of the mechanisms enacted by the legislature have come under attack.

This seems like an appropriate time to look back to the WLRC for some historical perspective, particularly since the Wisconsin Land Information Board (WLIB) and the Wisconsin Land Council (WLC) have just delivered an analysis of their accomplishments, and recommendations for the future, to the legislature. Another key player, the Wisconsin Land Information Association (WLIA) also had its origins during the days of the WLRC.

Building the case

To appreciate how the WLRC came to be in 1985, how it operated, and what its efforts have inspired, it is critical to look back a few years prior to its creation. Ben Niemann and Jim Clapp, professors at UW-Madison, organized and heavily promoted a weekly gathering in the Spring of 1984 titled "Seminar on the Multipurpose Cadastre". Students could take the seminar for credit. In addition, the public was invited. There was solid attendance from various levels of government and the private sector.

That initial semester the seminar speakers were primarily from outside Wisconsin, people who had been working with relatively primitive GIS technology to fashion a variety of applications. Beyond the technology though, these speakers were also deeply interested in the policy and social implications of their work.

Consortium advances the cause

The off-campus attendees at these seminars were shortly to form the broad-based Ad Hoc Consortium for the Modernization of Land Records in Wisconsin. In early 1985 the consortium convinced the governor, Anthony Earl at the time, to charter the WLRC for a span of two years to study and make recommendations. It was no surprise, then, that several from the consortium were tabbed by Earl to serve on the 32-member committee. Others served on its dozen subcommittees. (Earl was defeated by Thompson 16 months later, but Thompson was convinced to allow the WLRC to finish its work and make its report).

Members and staff of the WLRC (12 members not pictured)

Succinct report

The WLRC's *Final Report*, "Modernizing Wisconsin's Land Records", is all of 35 pages, not counting appendices. It lays out a array of problems and suggests a specific package of solutions: The "Wisconsin Land Information Program". One key piece of that program, which was to interface with existing institutions at the state and local level, was something the legislature would have to create: a land information board, an office to support the board's work, and a revenue stream to fund a grants-in-aid program.

Although the WLRC's *Final Report* was presented to the governor in July of 1987, a full draft began circulating the previous October and was the basis for a series of public meetings held by the WLRC prior to making final edits.

WLIA arises early

Over that winter members of the WLRC and other colleagues decided to act on one of their draft recommendations: to form a professional association called the Wisconsin Land Information Association (WLIA). That group had its first meeting on January 15, 1987, well before the *Final Report* was issued. In all, the WLIA held five meetings prior to the WLRC issuing its *Final Report*. This laid the groundwork for a broad -based appeal to the legislature to enact a state program modeled on the WLRC's recommendations.

Familiar faces?

A good number of those involved in the WLRC are still active in modernization efforts today. Ben Niemann was the WLRC's vice chair and has served on the WLIB since its

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Avoiding acronym aggravation

WLRC - Wisconsin Land Records Committee (July 1985 - June 1987)

WLIA - Wisconsin Land Information Association (Jan. 1987 -)

WLIB - Wisconsin Land Information Board (1989-); created in August, and first met in December that year

OLIS - Office of Land Information Services (June 1998-); an administrative unit within the Wis. Dept. of Administration which, among other things, provides support for the WLIB and the WLC

WLC - Wisconsin Land Council (1997-); began meeting 8/98

WLIP - Wisconsin Land Information Program - This term was first used by the WLRC to characterize the entirety of their recommendations; as such it included statutory provisions to be enacted by the state government as well as establish ment of a professional organization (the WLIA). However, the term has come to mean only the statutory program that is directed by the WLIB and administered by OLIS.

inception. Other WLRC members were Arnie Clement (Racine County and currently member of the Wis. Land Council); Tom Krauskopf (currently a Wis. Dept. of Administration executive to whom the WLIB's support staff, the Office of Land Information Services, report); Bill Huxhold (then with the City of Milwaukee, now teaching at UW-Milwaukee); and Arden Sandsnes (private land surveyor). D. David Moyer (National Geodetic Survey advisor) was one of several part-time support staff for the WLRC.

Amongst those who served on subcommittees, the following are still very active: Dave Fodroczi (St. Croix County), Jeff Bluske (La Crosse County), Rich DeVriend (Eau Claire County), Jane Licht (Dane County), Don Barnes (Rock County), Al Miller (UW Sea Grant Institute, retired), Tom Patterson (SE Wis. Regional Planning Commission), Rich Leaver (Dodge County), Ron Ripp (Dane County), Dave Schmidt (Winnebago County), Al Vonderohe (UW-Madison), Doug King (then UW System, later Exec. Dir. of the WLIB, now retired), and Mike Hasslinger (Waukesha County).

Recommendations vs. what was enacted

By the time the WLRC submitted its report to the governor, the role of advocacy had already shifted to the WLIA. By just more than two years later, the legislature had agreed to create the WLIB essentially as the WLRC had suggested. The WLIB began meeting in December of 1989.

There were several other differences, however. The WLRC had recommended that a portion of an existing revenue stream (the real estate transfer fee charged to sellers of real property, and based on the sale price) be diverted from the state's general fund to support the new program. The actual legislation called for an increase in the transfer fee to raise several million dollars each year in order to fund grants. The legislature instead called on the WLIB to recommend a different funding mechanism.

With the help of the WLIA in identifying alternatives, a land records document filing fee was established a few months later and fund collections began on July 1, 1990. Rather than vesting full authority over the revenue in the WLIB as the WLRC had recommended, two-thirds of the fees were allocated to the county where they were collected, with the remaining one-third to be used for administration of the WLIB plus a grant program.

The WLRC had also recommended that the WLIB's program be administered through an office housed in the University of Wisconsin, the rationale being that this would provide neutrality. The office would be composed of three new positions plus the existing State Cartographer's Office (SCO). The legislature instead created the administrative office in the Wis. Dept. of Administration (partly because administration of a grants-in-aid program would be problematic from within the university) and left the SCO as it was (to protect it from dissolution in the event that the entire land information program were to be eliminated).

Find a copy to read

The WLRC's report has been out of print for years, but hundreds of copies were distributed so finding one to peruse shouldn't be hard. Check with a county land information office or your local library.

Despite not being able to predict the future of technology (e.g., the development of economical document scanning, the widespread adoption of GPS, economical methods for creating digital orthophotos, or the Internet), the WLRC covered the waterfront and made recommendations that continue to have great merit today. That's testament to the quality of the committee's work.

Brief timeline of the origins of the Wisconsin Land Information Program

July, 1985	WLRC began work
Oct., 1986	WLRC issued Summary report; begins public review
Jan. 15, 1987	WLIA held first meeting
June 25, 1987	WLRC held last meeting; WLIA held fifth*meeting
July 1, 1987	WLRC submitted *Final Report* to Gov. Thompson
Feb., 1988	WLIA held first annual conference
Feb., 1989	WLIA held second annual conference
Aug., 1989	Gov. Thompson signed bill creating the WLIB
Oct., 1989	Gov. Thompson appointed WLIB members from list submitted by WLIA
Dec. 7, 1989	WLIB held first meeting
April 27, 1990	Gov. Thompson signed bill to create filing fee to fund WLIP
July 1, 1990	Filing fee collection began

*subsequent meetings not shown in this listing

Improvements slated

Census to groom TIGER

by Ted Koch

The U.S. Bureau of the Census has recently announced the award of a large contract to upgrade and improve its Master Address Files (MAF) and digital map base called TIGER. TIGER comes from the acronym Topological Integrated Geographic Encoding and Referencing which is the system and digital data base developed by Census nearly 20 years ago to support its mapping needs for the decennial census and other agency programs.

The contract, which was awarded to the Harris Corporation in Melbourne, FL, is valued at more than $200 million over the next eight years. Harris, a company not normally associated with mapping and GIS, is a $2-billion per year, international company specializing in the design and development of communications and information systems for military, government, and commercials business customers.

The Master Address File is intended to be a complete and current list of all addresses and locations where people live or work, covering an estimated 115 million residences as well as 60 million businesses or other structures in the U.S. The TIGER files are a digital database of geographic features, such as road center-lines, railroads, rivers, lakes, political boundaries, and census statistical boundaries for the entire U.S. The TIGER database contains information about these features such as location (in latitude and longitude), the name, the type of feature, address range, and geographic relationship to other features.

Currency and spatial accuracy are issues

Since the creation of the TIGER database in the 1980s, Census has struggled to keep it complete and current. Associated with this has been poor positional accuracy. Over the years, Census has used a variety of operations to update TIGER, resulting in a range of spatial accuracy depending on collection and data entry methods.

In 1990, as part of TIGER update planning, Census conducted a study of TIGER positional accuracy in eight test areas around the country. For this testing, Global Positioning (GPS) receivers were used in the field to collect positions of over 6850 points. These values were then compared to the TIGER database values for the same point. The average difference turned out to be 281feet, with some values exceeding 1000 feet. This difference far exceeds the National Map Accuracy Standard which says that map data at TIGER scale(1:100,000) should not exceed187 feet for 90% of the points tested.

Contract calls for varied requirements

The Census contract with Harris Corp. contains four specific tasks.

> Task 1 - Acquire the data necessary to improve the accuracy of coordinates for all streets and other map features for all counties nationwide. The ultimate requirement for this task is to reach an accuracy level such that a Census enumerator, relying on a mobile-GPS-equipped computer will be placed at a desired building, on the correct side of the street, and in correct relationship to other features, 100% of the time. To accomplish this, the Census hopes to use state, local, tribal, or commercial data if it meets acceptable accuracy specifications.
>
> Task 2 - Associate a city-style mailing address (house number and street name) with the location of each structure.
>
> Task 3 - Enhance relationships with federal, state, local, and tribal government. A large amount of information to correct the files is already available from these organizations.
>
> Task 4 -Maintain TIGER and the address files so that the information is current to 1 year or less at all times.

Production plan not yet final

Over the next six months of this multi-year project, Census will be working out production requirements with Harris Corp. This will include an assessment of how best to update TIGER, which will include a close look at the usefulness and value of locally created data. This process will include

TIGER road centerlines compared to Dane County orthophotography

using GPS to verify the positional accuracy of the local data. Recently, the Chicago Regional Office conducted a statewide GIS data and imagery inventory for the three states in its region: Wisconsin, Illinois, and Indiana. For Wisconsin, the Chicago office acquired digital data from six counties: Door, Fond du Lac, Marinette, Pierce, Taylor and Vilas for testing and evaluation; however, the testing process for most of these counties has not yet begun. If locally produced data is not acceptable for TIGER updating, other alternatives will be assessed, including the use of digital orthophotos and high-resolution commercial satellite imagery.

In Phase Two, Census will be developing partnerships with the various government sectors. Harris will then perform update work for all 3200+ counties across the nation with initial work to be completed by 2008. As part of this work plan, Census has reached agreement with the U.S. Geological Survey to have the revised road and governmental unit boundaries become part of the National Map (See Spring, 2001 issue of the *Bulletin* for details). Ultimately, this process will alter the TIGER database in many locations to be more directly compatible with local databases.

For more information about the MAF/TIGER Modernization Program, visit the Census Bureau's website at *www.census.gov/geo/mod/maftiger.html.*

(source: US Bureau of the Census)

Bush proposes large budget increase

Floodplain mapping modernization planned

by Ted Koch

The Bush Administration has proposed a seven-fold increase nationally in federal funds for new floodplain mapping. The current $51million (annually) would swell to $351 million beginning this October. The increased availability of funds may mean a flurry of new floodplain mapping and related activities in Wisconsin.

The Federal Emergency Management Agency (FEMA), which administers the flood mapping program nationally, has indicated that funding for mapping in Wisconsin could increase from the current $0.3 to $5 million annually. To prepare for the increased funding, FEMA has asked states to develop state plans for implementing the floodplain mapping modernization initiative.

DNR drafting plan for Wisconsin

Responding to this request, the Dam Safety, Floodplain and Shoreland Section of the Wis. Dept. of Natural Resources (DNR) has drafted a plan for the state. As part of this plan, the DNR is requesting that Wisconsin receive full delegation in order to implement floodplain mapping activities for FEMA, which would put administration of the work here in the state.

Our state's floodplain management program recently upgraded its mapping capabilities. To increase the total resources committed to the new mapping, FEMA is also seeking a 20% state/local match which can include base map data, digital terrain data, in-kind services or additional state/local funding.

Stagnant funding levels for over 10 years

Since the inception of the National Flood Insurance Program (NFIP), floodplain mapping has been funded by federal appropriations and flood insurance premiums. After Congress stopped providing general fund revenue for floodplain mapping in the late 1980s , money for mapping declined to the current $51 million per year annually. As a result, the development of floodplain maps was greatly reduced.

Deficient maps cause problems

Floodplains shown on the majority of Flood Insurance Rate Maps (FIRMs) were approximated using 10-foot contour-interval topographic maps. The dissatisfaction with these approximate methods is evident by the number of letters of map amendment issued to remove properties from the mapped floodplain (thereby gaining the property owner an exemption from the mandatory flood insurance purchase requirement). Conversely, some areas that are actually flood prone, but not shown as such on the FIRMs, continue to be developed by unsuspecting land owners.

In addition to fundamentally weak mapping methods used in the past, changes on the ground (particularly paving and bridge work) have modified the dynamics of rainwater runoff since the original mapping was done. FEMA is fully aware of the increasing inadequacy of floodplain maps and has received numerous complaints about this issue from user groups and citizens through members of Congress.

Wide variety of users

Floodplain maps are used by lenders, realtors, communities, design professionals, builders, and regulators for a variety of purposes. Accurate floodplain delineations are vital when making planning decisions regarding structure location, solid waste disposal, hazardous material storage, and transportation routes. Understanding floodplain locations is one of the mandatory elements for developing comprehensive plans as part of Wisconsin's two-year-old "Smart Growth" legislation.

In planning the flood map upgrades, FEMA will use the Government Performance Results Act (GPRA) performance measures suggested by the Office of Management and Budget (OMB) for the proposed funding of the Flood Map Modernization. Goals will be to:

- reduce the average age of maps to 6 years (current average is 13.6 years);
- produce digital mapping products with up-to-date flood hazard data for the 15% highest priority areas;
- develop flood maps for half of the unmapped, flood prone communities;
- encourage state/local cost share on mapping projects.

The Bush Administration seems to be showing a long-term commitment to floodplain mapping by projecting budget authority for flood mapping on the order of $360 million to $380 million annually for future years. This budget item appears to have broad support in Congress.

(source: WI DNR Floodplain-Shoreland Management Notes, May 2002)

Floodplain maps scanned and geo-referenced

FEMA maps available on DNR web site

by Bob Gurda

Modernized floodplain mapping may soon begin to spread across Wisconsin (see companion article on this page). Even if so, it will take years to complete all the new mapping.

Despite their limitations, the existing Flood Rate Insurance Maps (FIRMs, developed by FEMA) will be in use in the interim.

To make the FIRMs more accessible, the Wis. Dept.of Natural Resources has scanned and geo-registered all of the maps for the state. You can view them (overlaid on either 7.5-minute topo maps or digital orthophotos) via a new web site. You can also download mathematical flood models for specific stream segments.

The web site can be accessed from Wisconsin DNR's main floodplain web site at: *www.dnr.state.wi.us/org/water/ wm/dsfm/flood/title.htm.*

(source: Alan Lulloff, WiDNR)

For wall display or web viewing

Striking Landsat 7 images offered

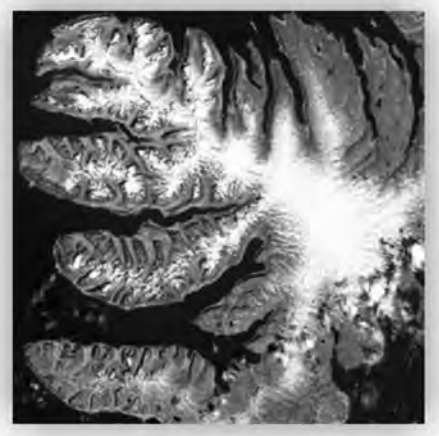
by Bob Gurda

The U.S. Geological Survey has selected 38 color images from the Landsat 7 satellite archives as an "Earth As Art" series. There are 10 from North America (none covering any part of Wisconsin). Each image includes a brief explanation of the landscape shown in the scene.

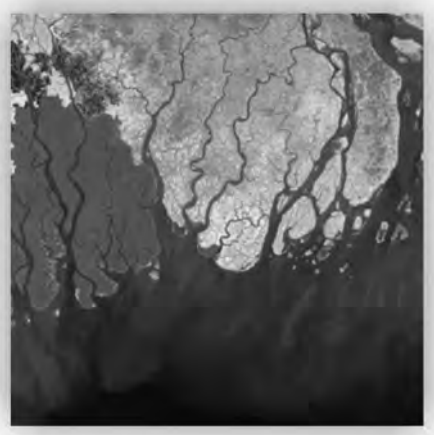
You can purchase copies for wall display or view/download the images through a web browser. The images show fjords, volcanoes, river deltas, mountain ranges, and more. On paper each is 26 inches x 27 inches and costs $30. Contact the EROS Data Center at 800-252-4547.

The web files come in three sizes: thumbnail, small image, and large (high-resolution) image suitable for printing. Visit the web site at *landsat.gsfc.nasa.gov/earthasart/*.

In a small corner of the vast Great Sandy Desert in Western Australia, large sand dunes—the only sand in this desert of scrub and rock—appear as lines stretching from left to right. The light-colored fan shapes are scars from wildfires.



The West Fjords are a series of peninsulas in northwestern Iceland. They represent less than one-eighth the country's land area, but their jagged perimeter accounts for more than half of Iceland's total coastline.



The Ganges River forms an extensive delta where it empties into the Bay of Bengal. The delta is largely covered with a swamp forest known as the Sunderbans, which is home to the Royal Bengal Tiger.

Nicknamed "Dragon Lake," this body of water is formed by the Bratskove Reservoir, built along the Angara River in southern Siberia, near the city of Bratsk. This image was acquired in winter, when the lake is frozen.

DNR provides exploratory view into public GIS data holdings

by Bonner Karger

Increasingly, our regular web feature column focuses on GIS-based maps on the Internet, viewable with no more than a web browser. These sites typically employ the use of a *map server* to 'feed' data to the website and have come collectively to be known as *webmapping* sites. In this issue we bring you one of the most recent and prominent state webmapping sites to have come online, the Department of Natural Resources' exploratory statewide GIS data viewer, dubbed *DNR WebView*.

DNR launched this effort to enhance public accessibility to its statewide maps and spatial data. This ESRI ArcIMS-driven site allows users to access, display, and interact with Wisconsin spatial data with a good degree of user customization.

DNR WebView interactive mapping interface

Explore the features

First you need a web browser. In our experience, ArcIMS webmapping sites including this one are best viewed in Internet Explorer. The site will also function in Netscape 6, but some minor functions like tool tips are not available.

Next, the interface: for the iconic toolbar junkie or GIS regular, this interface should be straightforward. If you are unfamiliar with some of the more common GIS functions, navigating *WebView* may not come as easily. Map tools have labels which are revealed when you hover your cursor over the icons, and selectable tools display labels in the lower left corner.

Once you've grown accustomed to the movement, selection, measurement, and zoom tools, it's time to choose from several map data layers. Map layers are given scale thresholds such that the number of viewable layers varies depending on your level of 'zoom'. As you zoom in and the map scale increases, more layers are available for display.

Layers range from classics such as state and county boundaries, open water, highways, cities and villages, to more specific data layers such as American Indian Lands, DNR Geographical Management Units, Watersheds, and PLSS "LandNet" among others. Also noteworthy is a data layer containing an aerial image (orthophoto) of the viewing area. This layer is available at about the Township level of zoom (about 36 square miles).

WebView has a dynamic legend displaying symbology of features you'll see on the maps. The legend is updated each time you refresh the map view. Toggling between the list of layers and the legend is a click away. Once you've found what you're looking for, the map can be compiled in a printer-friendly format and reproduced at your desktop. The printed map is complete with the appropriate legend, scale, and user-defined title. Modem users must be patient since complex data results in large files.

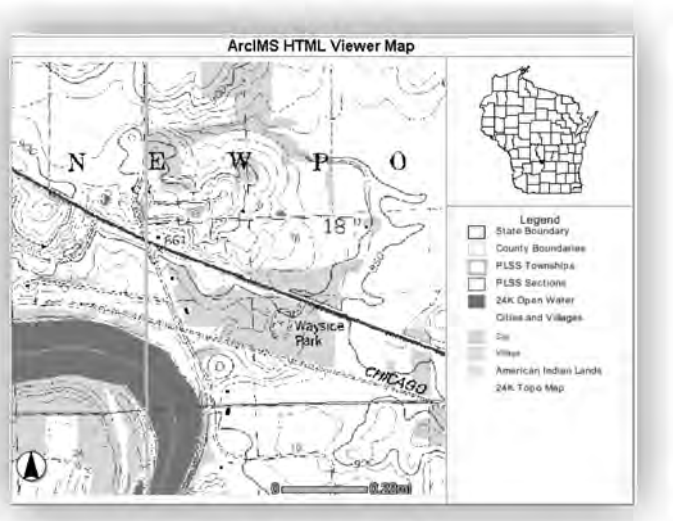
Not just "point and click"

WebView offers more than just printable maps. Obtaining information *from* the GIS is the object of the design. It allows spatial and attribute *queries*, as well as a more general 'find' function to help you extract useful information. Queries work much like Internet search engines, but with user-set limitations that zero-in on specific attributes in the database. Results will depend on the query, and the layer you made active. There is no help menu, but we expect standard help pages will come as DNR expands its activity in this area.

Just the beginning

WebView presents a large amount of data, and is limited only by the needs and GIS-savvy of the user. The application forms a webmapping cornerstone for future map-based decision-making applications from the DNR. Already this technology has been utilized by DNR in two other applications on their site: Dam Safety and DOP Tracker.

This activity follows the direction laid out in DNR's newest Land Records Modernization Plan. We'll be watching in anticipation for their next installment.



DNR WebView-created map for printing

Have you checked the SCO online news lately?

Is your info larder fresh?

by Bob Gurda

As we encouraged in our previous issue, we invite you to check the latest news on our web site. Since that issue, there have been more news stories posted on our web site that you won't read here in the *Bulletin* — either because of lack of space or because a story's significance came and went rapidly.

Here are recent topics that only appeared on our web news:

Iowa County hosts GIS Open House

John Moeller resigns from FGDC staff role

Track western wildfires through the web

See maps of patterns of summer Midwest rain and heat

Web maps track 2002 West Nile Virus incidence

Grad students shift roles

by Bob Gurda

As summer comes to a close our graduate student staff is undergoing change here at the SCO. Woody Wallace received his M.S. in Geography this summer and has moved on to Illinois. His role will be taken up by Adam Simcock (Ph.D. student, geography).

During his two years with the SCO, Woody worked on our OrthoFinder application which was funded by a grant from the FGDC in 2000, and then shifted over to a focus on our web services more generally. He brought us into the use of databases and query scripts to drive some of the information we serve via the web.

We are also about to bid adieu to Tom Gleason, a member of the GIS Certificate Program. Tom has helped us with a variety of tasks including a case study and educational content on locally-produced orthophotography and metadata document drafting and review. Finally, Sheila Haskins, a Master's student in Environmental Monitoring will be departing after filling the role of coordinator for our last 9 months of metadata training. We truly appreciate the contributions of this last batch of graduate students and look forward to the work of their successors.

Six dozen trained on metadata

Workshops wrap up over summer

by Sheila Haskins

Our series of nine Metadata Development Workshops recently ended with workshops held in Green Bay, Eau Claire, and Madison over the summer. In all, seventy-three people attended this workshop series which began last October.

This metadata training run was funded in part by a Federal Geographic Data Committee grant and carried out by the State Cartographer's Office.

Goals, materials, facilities

We geared the training toward beginning and continuing metadata creators and managers. Overall workshop goals included providing a knowledge base of instruction and useful take-home resources, providing a discussion forum for questions, and guiding hands-on training in creating metadata in an up-to-date GIS lab setting.

Workshop materials included a binder and CD-ROM of resources as well as the workshop presentation slides. We located the workshops around the state in hopes of minimizing the need for travel by local professionals as well as providing a forum for discussion of common regional GIS issues. University of Wisconsin campuses provided the majority of the labs, offering an excellent resource for continuing education in a state-of-the-art technology setting.

Diverse interest

Of the attendees, the vast majority, forty-four, are employed by county agencies (representing nearly a third of Wisconsin counties). The remaining included one city, three regional and sixteen federal government employees, along with five academics and four private sector individuals. We are happy with this indication of diverse interest.

Customer evaluations

Participants' reactions were favorable with many expressing that the workshops were an informative and valuable experience. They particularly valued the opportunity to create their own metadata templates in the hands-on portion of the workshop. In addition, most expressed a greater appreciation for the importance of metadata documentation for themselves, their agencies and their profession.

Overall, we feel the workshops were successful, because they met the participants needs and our office goal of providing the knowledge and skill necessary to create standards-based, well structured metadata documentation using the best up-to-date software tools, reference materials and providing beginning workflow integration strategies.

www.geography.wisc.edu/sco

State atlas, platbooks, and more

Cloud Cartographics varied products

by Bob Gurda

Recently we became aware of another company producing county and state maps for Wisconsin. Cloud Cartographics, Inc. is located in St. Cloud, Minnesota.

Their *Wisconsin's Best County-by-County Road and Recreation Atlas* shows each county on either one or two (flanking) pages, each of which measures 11" wide by 17" high. Scale of the resulting maps varies somewhat from county to county. The atlas is 98 pages, spiral bound, and printed in full color. All roads are named. The atlas sells for $29.95.

Compared to competitive products from DeLorme and Clarkson, this state atlas is more expensive but it also is the only one that indexes each road name, making it much easier to find the location of a road if all you know is its name and county.

The company also has produced plat books (ring-bound, 8.5" x 11", $25-30) for Wisconsin counties (32 currently in print). The usual map of each township, showing parcel boundaries and owner names, is augmented with another (on the facing page) showing road names. Color is used throughout. Additional pages show city and lake maps.

Highway maps are another product of Cloud Cartographics, and they have done this work for some Wisconsin counties (vintage 1995-2002, 14 counties available). These maps are folded and sell for $2.50 - 3.95.

Contact the company by phone at 800/726-3395 or on the web at *www.ccimaps.com.*

Increase applied to 7.5-minute series

USGS quad to cost $6

The U.S. Geological Survey (USGS) is raising the price of its primary printed map series (7.5-minute quadrangles) on Sept. 1. The new price of $6 per map sheet (previously $4) will cover increased printing costs.

Dealers, who generally receive a bulk discount, are free to set their own prices, so increases are likely there, too.

Check *mapping.usgs.gov/esic/prices/maps.html* for full information on prices for all product groups. For an explanation of the price increase, see *www.usgs.gov/public/press/public_affairs/press_releases/pr1639m.html.*

(source: USGS press release)

Available now on CD

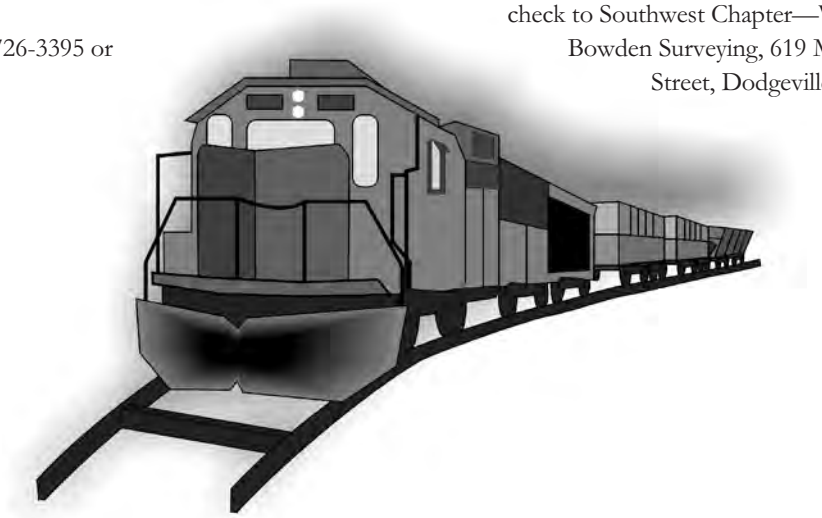
Maps show RR route details

by Bob Gurda

The heyday of railroads as carriers of bulk goods and people may be in our history, but maps of the rail lines persist. In an effort to make these maps more available to various users, some land surveyors decided to work with the Wisconsin Dept. of Transportation (DOT) to scan the maps and copy the images to CDs. The maps themselves are archived by the DOT's Bureau of Railroads and Harbors.

According to Bruce Bowden of the Southwest chapter of the Wis. Society of Land Surveyors, there are 2300 maps in the collection, and together they occupy eight CDs (4 in TIFF and 4 in PDF). These are right-of-way and track maps showing details often of interest to surveyors, historians, landowners, and railroad buffs. Some maps cover rail lines that fell into disuse in the 1800's, while others show tracks so new that they don't appear on most modern city maps.

You can get a set of the CDs for $75. Make a check to Southwest Chapter—WSLS, c/o Bowden Surveying, 619 Merrimac Street, Dodgeville, WI 53533.



Honors Paul Wolf

ASPRS announces new scholarship

by Bob Gurda

Aero-Metric Engineering, Inc. of Sheboygan has kick-started the fundraising for a scholarship named for Professor Paul Wolf who died earlier this year. The company's contribution of $2000 to the American Society for Photogrammetry and Remote Sensing (ASPRS) initiated the fund from which an annual scholarship award of will be made.

Wolf authored a widely used photogrammetry textbook and trained many student during his career. He was also very active in ASPRS. The Aero-Metric contribution was announced at an ASPRS meeting in June in the Madison area.

Nov. 20 events being set worldwide

GIS Day returns for 4th year

by Bob Gurda

Once again this year Wisconsin people will be building on the visibility of GIS Day to draw attention to developments in geographic information systems. From academic research to data development and applications, a variety of topics likely will be presented during open houses, visits to K-12 schools, and formal presentations.

At this date, it's a bit early to know what kinds of events will ultimately be arranged for GIS Day in Wisconsin, but you can view registered descriptions now or later at *www.GISDAY.com.*

GIS Day is sponsored by a variety of professional and commercial organizations and has been an annual event since 1999. It is held during Geography Awareness Week.

UW-M group works with Waukesha Metro Transit

GIS for bus schedule access wins award

by Bob Gurda

GeoSpatial Solutions magazine has chosen a Wisconsin GIS application for a 2002 award. The work was done by researchers at the Univ. of Wis.-Milwaukee under the direction of Professor Zhong-Ren Peng.

Their approach uses an object-oriented model to analyze and map transit choices based on available transit options. The result is presented to a web user in both a table and a map. The development was sponsored by the Wis. Dept. of Workforce Development in the Waukesha area, and now the concept is being expanded to Milwaukee County's transit system.

For a view of the Waukesha operation, surf over to *129.89.72.199/Waukesha.*

(source: GeoSpatial Solutions, August 2002)

Takes on new GIS position

Hart solidifies role with Sea Grant

by Bob Gurda

David Hart has been involved with GIS coastal issues for several years through a variety of arrangements with the University of Wisconsin System's Sea Grant Program in Madison. Now he has been hired into a newly created position with the explicit charge to help build GIS approaches that benefit the state's coastal areas.

Hart recently received his PhD from the UW-Madison, his dissertation having to do with the challenges involved in integrating GIS data layers across jurisdictions along the coast. That he will be staying in Wisconsin to continue work on these types of issues is good news.

Major reorganization

ACSM loosens internal ties

by Bob Gurda

The largest professional association of surveyors and cartographers has decided to decentralize. The individual societies making up the American Congress on Surveying and Mapping (ACSM) now are more autonomous although they will contract with ACSM for various services including joint conventions.

As a result, there will no longer be memberships in ACSM; rather, individuals will belong to one or more of the separate societies.

For details see *www.acsm.net/*.

Meeting in downtown Chicago

URISA to celebrate 40th Anniversary

by Ted Koch

URISA, the Urban and Regional Information Systems Association, will be celebrating its 40th Anniversary at its Annual Conference in Chicago this fall. Scheduled from October 26-30 at the Hyatt Regency in downtown, the conference program will include nearly twenty pre-conference workshops, and more than 75 educational sessions on a wide variety of topics including e-government, data integration, emergency management, GIS certification and URISA's history.

This latter category will include a presentation on land records modernization in Wisconsin over the past 25 years. At least a half-dozen other educational sessions will be led by Wisconsin professionals. For more information on the conference, and for a glance at the daily program, see the URISA website at *www.URISA.org.*

2002

October 2-4, **Minnesota GIS/LIS Consortium 12th Annual Conference** will be held at the Duluth Entertainment Convention Center. Contact: Sonia Dickerson at 651/284-3597 or visit *www.mngislis.org/conf2002/conf2002.htm*

October 3, **Wisconsin Land Information Board** will meet in Wausau, WI. Contact OLIS at 608/267-2707.

October 3-4, **Wisconsin Land Information Association** will hold its membership meeting in Wausau, WI. Contact WLIA at 800/344-0421 or visit *www.wlia.org*

October 8, **Creating and Using Orthophotography for GIS Applications** sponsored by SIAC will be held at the Land Information & Computer Graphics Facility on the UW-Madison Campus in Madison, WI. Visit www.lic.wisc.edu/training/welcome.htm.

October 9-12, **NACIS XXI Annual Meeting** will be held at the Columbus Adam's Mark Hotel in Columbus, OH. Contact Gordon Kennedy, Program Chair at 360/705-7641 or visit www.nacis.org.

October 10, **3D Visualization of GIS Data** sponsored by SIAC will be held at the Land Information & Computer Graphics Facility on the UW-Madison Campus in Madison, WI. Visit www.lic.wisc.edu/training/welcome.htm.

October 15, **Map Design Workshop** sponsored by SIAC will be held at the Pyle Center, UW-Madison, Madison, WI. Contact either the State Cartographer's Office at 608/262-3065 or Tom McClintock at 608/263-5534.

October 23-25, **League of Wisconsin Municipalities 104th Annual Conference** will be held at the Marriot West in Middleton, WI. Contact: 608/831-2000 or visit www..lwm-info.org.

October 26-30, **URISA 2002 Annual Conference and Exposition** will be held at the Hyatt Regency Chicago on the Riverwalk, Chicago, IL. Call 847/824-6300 or visit *www.info@urisa.org*

November 13-14, **Wisconsin ESRI User Conference** will meet in Madison, WI (see article below). Visit www.ewug.org.

November 14, **Wisconsin Chapter of GITA** hosts a meeting on *"Case Study in Municipal GIS Application--Madison, WI"* at the Monona Terrace Community & Convention Center. Contact Thomas Tym at 262/542-5734.

November 20, 2002, **GIS Day.** Visit *www.gisday.com* for registration and information.

2003

January 22-24, **Wisconsin Society of Land Surveyors Annual Conference** will be held at the Holiday Inn in Stevens Point, WI. Contact WSLS at 414/549-1533 or visit www.wsls.org.

February 11-14, **Wisconsin Land Information Association Annual Conference** will be held in Milwaukee, WI. Contact WLIA at 800/344-0421 or visit *www.wlia.org*

To see a more extensive calendar of regional events, and to use hot links to other calendars, visit the SCO website.

Gathering in Madison this year

ESRI users to meet Nov. 13-14

by Bob Gurda

Wisconsin users of the Arc/Info family of GIS software will gather in Madison this fall. It's what has become an annual event, typically held in either Madison or the Milwaukee areas.

The 2002 ESRI Wisconsin User Conference will be held at the Madison Area Technical College's Truax Campus (on the city's East Side, near the airport). Check *www.ewug.org* for details.

Focus on Internet mapping, Oct. 3-4

WLIA to meet in Wausau

by Bob Gurda

The Wisconsin Land Information Association's next meeting will be held in Wausau, Oct. 3-4. There will be a 10 am - 4 pm workshop on Thursday ($40* including lunch), golf in the late afternoon ($20), and a membership meeting on Friday ($30 including lunch). *Non-member prices are $10 higher.

The workshop covers Microstation/CAD/GIS conversions as well as Smart Growth/comprehensive planning requirements. Friday's meeting will focus on Internet mapping.

For details on registration, lodging, etc., visit *www.wlia.org* or call 800/344-0421. Non-members are always welcome at WLIA meetings!

GITA sets case studies day

Municipal GIS focus of Nov. 14 mtg.

by Bob Gurda

Applications of GIS within City of Madison departments and water and wastewater utilities will be profiled during an all-day meeting at Madison's Monona Terrace Convention Center. The event is sponsored by the Wis. Chapter of GITA, the Geospatial Information and Technology Association.

Sessions run from 9 a.m. to 4 p.m., and the cost is $45 ($55 after Oct. 25) including lunch. Space may not be available for walk-ins. For details e-mail Tom Tym at *tjtym@ruekert-mielke.com* or call 262/542-5733.

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), A.J. Wortley, Outreach Specialist (608/265-8106), Brenda Hemstead, IS Resource Support Technician (608/263-4371), and Ana Rumm, Financial Specialist (608/265-9368), plus several part-time graduate and undergraduate students.

The State Cartographer's position and mission is described in Wis. Statute 32.25 (12m). In addressing this role, the SCO functions in a number of ways.

publishes the *Wisconsin Mapping Bulletin*, catalogs, guides, brochures, and other documents and maintains a web site 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 and one of 16 voting members on the Wisconsin Land Council.

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.

About our Web site...

Here, you will find links mentioned in *Bulletin* articles, information on a wide range of mapping topics, news items, functions and activities of the SCO, our on-line aerial photography catalog, a calendar of events, and links to related web sites, visit:

www.geography.wisc.edu/sco

About WISCLINC Web site...

On the Wisconsin Land INformation Clearinghouse (WISCLINC) site, you can search and read metadata files, download certain data files, learn about our continuing work in this area, and link to other state clearinghouses, visit:

www.wisclinc.state.wi.us

Wisconsin
Mapping Bulletin

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Illustrations: Brenda Hemstead, Bonner Karger, and Adam Simcock
Desktop publishing: Brenda Hemstead
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Please send all comments, corrections, and news items to:

State Cartographer's Office
Room 160 Science Hall
550 N. Park Street
Madison, WI 53706-1491
phone: 608/262-3065
fax: 608/262-5205
email: sco@facstaff.wisc.edu

State Cartographer's Office
Univ. of Wisconsin-Madison
Rm. 160 Science Hall
550 N. Park Street
Madison, WI 53706-1491

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