THE MAP LEGEND

NMGIC, Inc. PO Box 9445 Albuquerque, NM 87119-9445

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New Mexico's Enhanced 911 Program

New Mexico is rapidly working on an Enhanced 911 (E-911) network that will make it one of the few states in the United States capable of delivering E-911 services statewide. When complete, the network is designed to route calls from anywhere in the State's 121,600 square miles to appropriate 911 answering centers, providing call takers with the caller's address, phone number, and other useful information on a computer screen. Most of the state has centers providing E-911 services. Exceptions are the Navajo Nation, western Cibola, Rio Arriba, Mora, Union, Guadalupe, DeBaca, Catron, and western Socorro Counties, and the Pecos/Glorieta area in Santa Fe County.

E-911 is crucial in rural areas. New Mexico has committed to a statewide E-911 program because easily two-thirds of our residents live in locales that do not have access to E-911 technology. Nor do they have the resources to buy it without assistance from the State. Until the late 1980s, Basic 911 services (which does not provide dispatchers the caller's phone number) was all that was available in New Mexico. Albuquerque, Santa Fe, Farmington, Roswell, and Las Cruces installed these systems in the 1970s. Our first countywide E-911 system was installed in 1989 in San Juan County. This system provides a model for expanding the network throughout the state.

However, to provide statewide E-911 services, we need to develop a statewide implementation program and develop a funding plan to support it. In 1989 the New Mexico State Legislature passed the Enhanced 911 Act. This Act, as amended, provides a mechanism for municipalities and counties to purchase or lease 911 equipment and to pay for network and database costs necessary for operating these systems in their jurisdictions. Since the Act was passed, New Mexico has implemented more than 70 local Public Safety Answering Points (PSAPs). The entire system should be operational by 2001.

New Mexico is one of the few states to fund its E-911 system through the sale of revenue bonds. Originally, the State's Enhanced 911 Act provided for a mandatory 25-cent surcharge per customer access line to purchase, install, and maintain 911 systems statewide. In 1990, amendments to the Act allowed the State to pledge the surcharge revenue to sell bonds. The State uses the bond revenue to provide communities 100 percent funding for purchasing, installing, and maintaining their local E-911 systems. In some cases, these systems include communications base stations, repeaters, and consoles.

In 1993, amendments to the Act provided for an additional surcharge of 26 cents per customer access line to fund the E-911 network, including system routers, and to create and maintain the address database needed for E-911 service. Unfortunately, this funding was not provided to the cities or counties until this year. As a result, most of New Mexico remains "unaddressed."

Efforts to complete the address database will begin in 1998. Through the Local Government Division, Department of Finance and Administration, the counties will receive funding to initiate tasks to develop the statewide network. This funding will also support statewide acquisition of 5 meter satellite imagery from the Indian Remote Sensing Satellite (IRS-C). This imagery provides an image backdrop that will be used by the counties as a

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NMGIC Has a New Web Address!

http://nmgic.unm.edu

The NMGIC Board of Directors voted to move the NMGIC home page to the University of New Mexico. Beginning October 8, 1998, the page will be maintained by the Earth Data Analysis Center at UNM. Please note the new URL. If you have bookmarked the old address, or if you have linked your page to NMGIC's old page, please make the appropriate changes to link to the new site.

Inside This Issue

From the President

It is with great pleasure that I announce NMGIC is renewing its scholarship program. The NMGIC scholarship will be awarded at the 1999 spring meeting to a student attending any university or college in the State of New Mexico doing research in geography or related spatial technologies. The scholarship amount is $500 and will be awarded to the individual in care of his/her department.

Applicants for the award must submit a research proposal or a summary of research in progress, no longer than two pages, along with other requested documentation to the President of NMGIC by February 15, 1999.

The Scholarship will be awarded on the basis of research merit and contribution to the field of geography/geospatial technologies and not necessarily on financial need, although financial need could be a contributing factor.

The proposals and supporting letters will be reviewed by the NMGIC Board of Directors. The successful applicant will be notified by March 15, 1999. The scholarship will be awarded to the student at the spring meeting. A final report and a presentation of the research to NMGIC is required at the end of the award year. A student may apply for, and receive, scholarships in successive years, however a progress report is required from the previous award. Anyone interested in the scholarship or an application should contact Richard Friedman at 505-863-9517 (e-mail gismc@cia-g.com).

I feel that it is an outstanding testament to the strength and leadership of NMGIC to be able to provide a student scholarship with our very moderate membership dues. I want to personally thank the NMGIC Board of Directors, the corporate sponsors, and the general membership for making NMGIC one of the premier state councils in the nation.

Rich Friedman, President

The NMGIC Scholarship Application Form is on Page 13

Status of DOQs for New Mexico

The Digital Orthophoto Quadrangle (DOQ) Program has been active in developing DOQ coverage in New Mexico. These efforts are supported by the Department of Interior (DOI) High-Priority Program, the National Digital Orthophoto Program (NDOP) and other Digital Orthophoto Quadrangle (DOQ) Programs.

The total number of Digital Orthophoto Quarter Quadrangles (DOQQs) that will be produced under the FY99 Rocky Mountain Mapping Center (RMMC) program is in excess of 2600 DOQQs. All of the DOQQs produced in 1999 will be made using black and white National Aerial Photography Program (NAPP) images.

The US/Mexico Border DOI program will be developing DOQQ coverage in the southern border area of New Mexico. These DOQQs will be produced using Color-Infrared (CIR) photography from NAPP.

The U.S. Forest Service has recently prioritized 1999 Forest Service DOQQ production in Region 3, which includes Arizona and New Mexico. The priority listing for New Mexico includes: #1 Santa Fe National Forest; #2 Carson National Forest; and #3 Gila National Forest. The Santa Fe and Carson Forest DOQQs will be completed in late 1999 and the Gila Forest will be completed in 2000.

Submitted by Gary Kress
USGS, National Mapping Division

NMGIC Framework Committee

At its August meeting, the NMGIC Board agreed to add Stan Morain as the co-chair of the Council's Framework Committee. The Board agrees that this Committee has important work in front of it and that it is necessary to maintain momentum. Records from the FGDC-sponsored Framework Project, headed by Amy Budge at EDAC, have been transferred to Stan for immediate action. In late September and early October several Framework-related meetings were held in Las Cruces, Roswell, and Farmington to gain insights into how best to reinvigorate the Committee. These have been very fruitful.

In the coming weeks Stan hopes to develop a statement of purpose for the Committee and to inaugurate an email dialogue with committee members statewide. Contained in the statement of purpose will be objectives focused on both administrative and technical issues associated with a statewide framework infrastructure.

The administrative issues are known by all to be the more intractable ones. Readers of this announcement are asked to help by identifying GIS advocates from among their City Councils, County Commissions, and State legislators. The aim here is to develop a Framework advisory and advocacy group that can help with policy issues and that can become stakeholders in the evolving Framework deliberations and guidelines. Stan hastens to add that the intention is NOT to politicize what some see as contentious issues, but rather, to engage all parties in the dialogue so the issues don't become contentious.

With the exception of a few who have moved away or moved on to other career endeavors the committee membership created by Amy as part of the FGDC Project is still intact. However, Stan wants to expand the membership so that the many issues to be addressed can be shared. The committee will operate in a virtual capacity (via email) most of the time, but there may be annual or semi-annual working sessions to hammer out details.

Contact Stan Morain at *smorain@spock.unm.edu*

Submitted by Stan Morain

Proceedings of the Second Annual Workshop, USGS Middle Rio Grande Basin Study, Now Available

In 1996, under Congressional mandate led by Senator Pete Domenici, the USGS established a team of research workers to carry out a massive 5 year investigation into the hydrogeologic framework of Albuquerque's aquifer system. Given the fact that recent studies determined that this aquifer system was not nearly as extensive as believed, and that this meant significantly less water available for municipal consumption for a region undergoing accelerating population growth, it was deemed critical that new, accurate, digital hydrogeologic data were sorely needed. Major participants in the study include the Geologic Division (GD), the Water Resources Division (WRD), and the National Mapping Division (NMD) of the USGS, the New Mexico Bureau of Mines and Mineral Resources (NMBMMR), the city of Albuquerque (COA), and the New Mexico Office of the State Engineer (NMOSE). Additional contributing organizations include the University of New Mexico, New Mexico Institute of Mining and Technology, Middle Rio Grande Council of Governments (MRGCOG), and numerous counties and Pueblo Nations.

Types of data collected and research activities currently underway include:

- Base cartographic data (black and white aerial photography, DEMs, DLGs) (NMD);
- New digital geologic mapping to provide new information about the structural and stratigraphic framework of the Santa Fe Group (aquifer) sediments (GD, NMBMMR, universities);
- High-resolution airborne geophysical surveys (GD);
- A continuous-core sample of Santa Fe Group sediments from the 98th Street bore hole, providing benchmark stratigraphic and geophysical log data (USGS, COA);
- Improved ground-water flow model developed from data above (WRD, COA, NMOSE);
- Hydrologic studies (aquifer characteristics, recharge components, aquifer-Rio Grande interactions) (all organizations); and
- Historical patterns of land-use change (MRGCOG, NMD).

Proceedings from the 2nd Annual Middle Rio Grande Basin (MRGB) Study Workshop in Albuquerque on February 10-11, 1998 present summaries of work presented at the workshop. They are organized into the following sections: regional overview, Northern MRGB (southern Jemez Mountains and pueblos), Central MRGB (Bernalillo-Rio Rancho-Albuquerque), Southern MRGB (Isleta-Belen), GIS/Digital Information, and Administrative papers. The 91 page report (USGS Open-file Report 98-337) is entitled *U.S. Geological Survey Middle Rio Grande Basin Study: Proceedings of the Second Annual Workshop, Albuquerque, New Mexico, February 10-11, 1998,* edited by Janet L. Slate. A limited number of copies of the report is available from: USGS, Branch of Information Services, Box 25286, Denver, CO 80225. Additional information may be obtained from the editor at jslate@usgs.gov

(Continued from page 1)

frame of reference for developing the road network required for creating the rural addressing database. Each county will receive image data on a CD ROM that will be tiled by 7.5' quadrangles and presented in the State Plane Coordinate system.

A thirteen day training program will be provided by New Mexico State University, the University of New Mexico, the National Emergency Number Association, and others to prepare individuals designated for developing the network. The training will cover all the systems and software that will be used as these individuals gather mapping and addressing data. This includes the use of Geographic Information System (GIS) and Global Positioning System (GPS) technologies, as well as metadata, mapping software, and 911 database training.

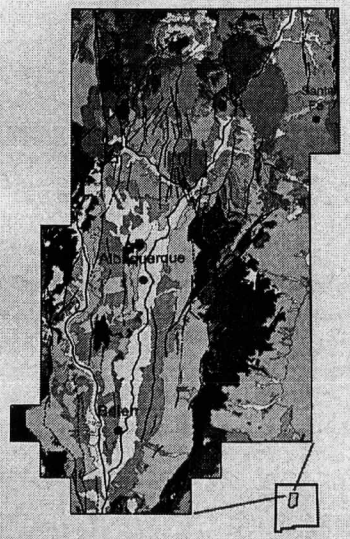
The data collection will begin with GPS-collected data for road centerlines. As these data are collected, field crews will also be noting structures (such as houses, mobile homes, etc.) along the routes. The GPS data will be differentially corrected to ensure a high level of accuracy. These data will be incorporated into the GIS, producing field maps that will be compared to the satellite imagery to detect any discrepancies. Corrections will be made as necessary. Once all of the data have been collected, they will be used to create the Enhanced 911 Master Street Address Guide (MSAG) and to correct all address records provided by more than 16 telephone companies serving the State.

For more information on the program, contact Bill Harris or David Hanna at the Local Government Division in Santa Fe. The toll-free phone number is 800-432-7108. Bill Harris is the 911 Program Manager and David Hanna is the Bureau Chief, Special Programs Bureau in the Division.

Submitted by David Hannah
On behalf of Robert Gunter
(former 911 Program Manager)

U.S. Geological Survey
Middle Rio Grande Basin Study--
Proceedings of the Second Annual Workshop,
Albuquerque, New Mexico,
February 10-11, 1998

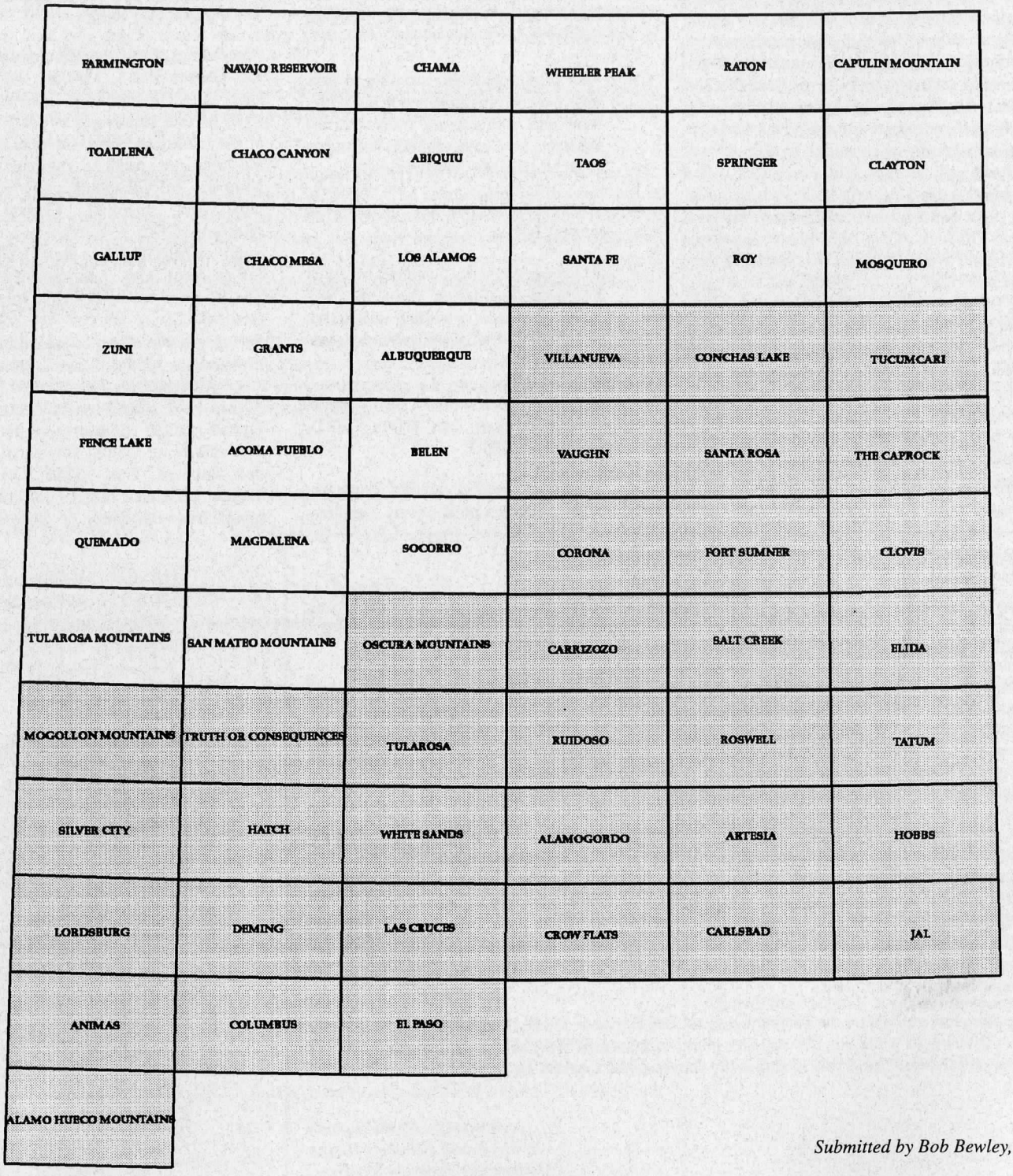
U.S. GEOLOGICAL SURVEY
Open-File Report 98-337



Geologic Map of the Middle Rio Grande Basin, New Mexico

GCDB Coverages in New Mexico

Of the 3288 surveyed townships in New Mexico, 3127 have been added to the Geographic Coordinate Data Base (GCDB) or are in the data collection/verification process. Presently, 2718 townships have been completed. These townships have been abstracted, computed, inspected, accepted, adjusted, and linked to BLM's Legal Land Description (LLD). An additional 409 townships have been abstracted and computed, but not inspected, adjusted, or linked to LLD. The link process builds the connection between the GCDB and BLM's Automated Lands and Minerals Record System (ALMRS). BLM is currently converting the GCDB townships to point and line ARC coverages. The shaded quads in the status graphic below indicate which areas of New Mexico have been converted as of October 1, 1998.

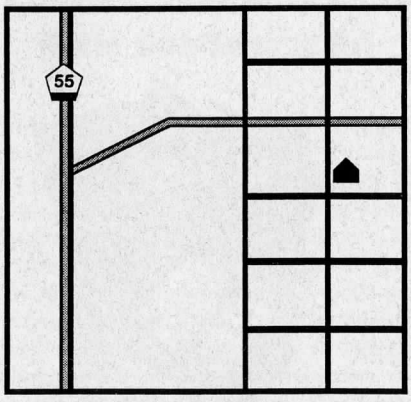


Submitted by Bob Bewley, BLM

Large Scale Digital Mapping Standards

Development of the Large Scale Digital Mapping Standards has been transferred from the GIS Committee to the Local Government Land Records (LGLR) Committee. Gar Clarke, chair of the LGLR, held a meeting in Santa Fe during September to pick up the pieces and move forward to complete the Standard. Committee members working on this task in addition to Gar are Erle Wright, David Strein, Amy Budge, Rich Friedman, and Bill Stone. The package being developed includes the Standard itself which states the "rules" for large scale digital mapping in New Mexico, and an appendix that provides practical guidelines for implementing the standard. An extensive glossary of GIS and related terminology is also included. The Committee is striving to complete their work by the end of the calendar year, at which time the package will be available for public review. Persons interested in reviewing the document can access it via the NMGIC website at *http://nmgic.unm.edu*. The review period will be approximately one month. The Committee will incorporate changes, comments, and suggestions, and hopefully can finish the project sometime in spring 1999.

Submitted by Amy Budge



1998 Western States Geographic Names Conference

The annual Western States Geographic Names Conference (WSGNC) was held in Cody, Wyoming. Unlike previous conferences, this one abandoned an overall theme and instead, revolved around freewheeling discussions that are the WSGNC's real purpose.

The Geographic Names Information System (GNIS) database, administered by the Geographic Names branch of USGS, continues to be popular, with the online database receiving more than 20,000 hits a day. (URL: *http://www-nmd.usgs.gov/www/gnis*) This database is a valuable resource for anyone working with GIS or mapping. The online database has been so successful, GNIS no longer is printing or distributing the statewide gazetteers because they can be downloaded via the GNIS FTP site (about 30 a day are being downloaded). The GNIS database also is available on CD-ROM. Version 4 was released in April; version 5 will appear next year. Future CD-ROMs will include not only the US state names gazetteers, but also those of foreign countries. Already, the gazetteer of geographic names in Antarctica is included on the CD-ROMs. To order the CD-ROMs, contact the main USGS Earth Science Information Center at 1-800-USA-MAPS (1-800-872-6277).

One weakness of the GNIS database, however, is that it can't search for character strings. Thus, if you were to search for Mount St. Helens, you wouldn't find it because it's listed in the database as Saint Helens, Mount. This shortcoming will be corrected in future upgrades. Also, you would need to spell out St.; abbreviations are not allowed in GNIS. The GNIS database is valuable beyond GIS and mapping applications. As a writer, I use it often to verify elevations of summits, determine which USGS 7.5-minute quadrangle a feature falls within, check approved forms of names, obtain latitude and longitude positions, and much more. (Note: 99.9 percent of the positions in GNIS are in NAD 27, not NAD 83). If boredom overtakes you some Friday afternoon at the office, you can search GNIS for features bearing your surname, do some quick genealogy, see how many places are named Lincoln, or whatever. Your tax money paid for this database, you might as well have fun with it. For example, Roger Payne, Executive Secretary of the US Board on Geographic Names, has used it to dispel the urban legend that Springville is America's most common town name, appearing in all 50 states. "Rubbish," he says, "no town name appears in all 50 states." According to GNIS, the most common name is Midway, which appears 212 times in 39 states. New Mexico has had four Midways, only one of which is still inhabited. (Quiz: where is this inhabited Midway located? Answer at the end of this article.) The second most common is Fairview, which appears 202 times in 39 states. (New Mexico used to have two Fairviews, one south of Tierra Amarilla that has reverted to its original name of Los Ojos; and one in the eastern foothills of the Black Range that changed its name to Winston.)

Generic terms: The USBGN has declined to define generic terms (lake, river, stream, hill, etc), and probably wisely. After all, the generic term bayou is used with a wide variety of features. But, one result is that adjoining states sometimes define generics differently. In Arizona, the term arroyo is regarded as a hydrographic (water) feature; whereas in New Mexico it's regarded as a hypsographic (topographic relief) feature, the channel through which water sometimes flows, but not the water itself. A similar situation exists in Wyoming, which regards a draw as a hydrographic feature, while most states regard it as a landform.

Commemorative naming regarding family names: The USBGN's policy that a person must be dead at least five years for a feature to be named commemorating him or her is well-known. But, if a name is to honor a family, must all family members be dead? "Yes," said Roger Payne. In New Mexico this potentially poses a problem because of the large extended families. For example, a proposal to honor the Chavez family because of their contributions to the state over several hundred years would be rejected because Chavezes are still alive. Under this policy, the name Mount Barker (you do remember that, don't you?) technically was a violation because the original proposal to honor Elliott Barker was amended to honor all the members of his illustrious family. Perhaps the solution is to word proposals commemorating families to specify only dead family members, with the clause that other members are to be added following their departure to that great gazetteer in the sky.

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GPS Committee Involved in Statewide High Accuracy Survey

The Global Positioning System (GPS) Committee held a meeting on September 22nd at the New Mexico State Highway and Transportation Department in Santa Fe so that interested parties could learn about the National Geodetic Survey's (NGS) plans to perform a high-accuracy geodetic control survey throughout New Mexico this winter. Steve Frakes, Chief of the NGS Project Development Branch in Silver Spring, MD, was the keynote presenter at the meeting. As Steve explained, this survey is in support of NGS' commitment to the ongoing maintenance and periodic re-measurement of the Federal Base Network (FBN) component of the National Spatial Reference System. The FBN consists of monumented geodetic control stations spaced approximately 100 km apart throughout the country with coordinates determined to Federal Geographic Data Committee B-order (1 part per million) standards or better.

Although the existing coordinates of FBN stations are very accurate, the GPS measurements made in developing the original FBN in New Mexico were acquired in the early days (a whole decade ago!) of GPS technology. Given the full constellation of GPS satellites and modern equipment, software, and procedures, we know that a better and more consistent job can be done now. Coordinate improvements are expected to be primarily in the vertical (ellipsoid height) component. In addition, improvement of the NGS geoid model requires additional high-accuracy connections between the FBN and the existing, conventionally surveyed vertical control network. Improvements in the geoid model will allow us to be even more successful in using GPS to determine elevations that are consistent with elevations from conventional vertical control surveys. So, with the goal of improving the FBN and our knowledge of the geoid, NGS is now involved in the campaign to re-measure this network throughout the country. In addition, this survey will serve as an up-to-date, high-accuracy basis for developing a new, forthcoming national datum for geodetic control (and that's a subject worthy of a future article!).

NGS has extended an invitation to government agencies, with appropriate GPS capability, in New Mexico to participate in this GPS campaign. Without the participation of any local agencies, NGS will only survey the FBN stations (100 km spacing) and a handful of additional vertical control stations. This would result in eliminating many of the existing high-accuracy control stations currently used by local organizations from this survey. In order to provide consistency between these non-FBN high-accuracy stations (known as Cooperative Base Network stations) and the FBN, it is very desirable to include these additional stations in the survey. In addition, local organizations that are willing to participate in this campaign can request where a certain number of newly established stations will be located. In return for the assistance provided by local organizations, NGS will perform all of the data processing, quality control, publication of results and project management.

Present plans call for the FBN survey to take place in February/March 1999. It will involve approximately six weeks of field work. We look forward to the results of this project which should serve the needs even of the most accuracy-demanding GPS applications for years to come.

For further information, contact Bill Stone, National Geodetic Survey in Albuquerque (505-768-3606 or stone-ngs@cabq.gov). (**during the time period of Nov. 1 to Dec. 15, please use william.stone@juno.com to reach Bill**)

Bill Stone, Chair
GPS Committee

Do you have information about a project, new techniques, GIS and related issues, announcements, news, etc. that you would like published in the Map Legend?

(Continued from page 5)

GPS for GNIS: A lively debate occurred as to whether hand-held GPS units gave positions accurate enough to be entered into GNIS. (GNIS has a five-second tolerance for latitude and longitude.) Surveyors held GPS units in contempt and urged that their results be regarded as *geographic road kill.* Others (including me) argued that experiments with hand-held units had shown a high degree of reliability. Eventually, a truce was declared in which the GPS advocates conceded GPS limitations, while the surveyors allowed that GPS was the wave of the future (they gritted their teeth as they did this).

Current proposals: I recently conducted an onsite investigation of two name proposals in Mora County and verified that the proposed names, Puerto del Venado-Alazan ("gap of the elk") and Cañada de la Agua are indeed names in longstanding local use.

The Gila National Forest has forwarded a proposal to recognize a name in the Gila Wilderness also said to be of longstanding local use: Montoya Pasture. This name is associated with several other features in the area: Montoya Homestead (site), Montoya Tank, and Montoya Pasture Trail, all referring to a homestead established in 1901.

If you have any information or opinions about these names, please contact me.

Quiz answer: New Mexico's inhabited Midway is on NM 2 midway (sort of) between Roswell and Dexter.

Bob Julyan, Chair
Geographic Names Committee

A Brief Review of *URISA Salary Survey for IT/GIS Professionals, Spring 1998*

The Urban and Regional Information Systems Association (URISA) recently conducted a survey of its membership concerning salaries and employment in the IS/IT/GIS area. URISA sent out 2,751 surveys and had a 16% return (444 surveys. Although the number of surveys returned was low, some useful salary information can be obtained from this short 24-page report. The survey covered four job titles "IS/IT Management," "GIS Management," "GIS Analysis," and "GIS Technician" over four US regions: North, Midwest, Northeast and South. They compared local government salaries to private sector/consultant salaries. They provide a general review of the data, a more detailed appendix of responses, and a very intriguing section on "Hiring, Managing and Keeping High Technology Staff."

I found the ***Salary Survey*** interesting and very useful to keep abreast of salary ranges in the GIS profession. Unfortunately, the *Salary Survey* did not contain actual job descriptions for the job categories they used. I also found the section entitled *Hiring, Managing and Keeping High Technology Staff* interesting and very thought provoking. Salary is not the only factor in retaining GIS staff. Factors that contribute to retaining high quality GIS staff include, the ability to keep up in the field though training, flexible hours, equipment for home use, creative time, challenging projects, state-of-the-art equipment and software, travel in lieu of bonuses, and gifts/tickets/dinners as incentives.

The ***Salary Survey*** is a good, brief review of a small sampling of the URISA membership. Although it is a bit pricey ($39.00) it would be useful to those who are GIS professionals and want to compare their current salary with that of their peers, or what they can look forward to in the future.

The ***Salary Survey*** can be obtained from URISA, 1460 Renaissance Drive, Suite 305 Park Ridge, IL 60068, phone 847-824-6300, email: info@urisa.org.

For the sake of the NMGIC membership, the West and South regions are summarized below. These two regions contain the states surrounding New Mexico (64% of the survey respondents were in the Western and Southern Regions).

Submitted by Denise Bleakly

Average Salaries by Job Category and Region

Job Category	Overall Average Salary	Western Region	Southern Region
IS/IT Management	$69,400	$70,000	$71,4000
GIS Management	$54,500	$56,500	$52,000
GIS Analysis	$42,300	$43,200	$43,200
GIS Technicians	$33,000	$33,600	$30,000

Custom Computer Courses Available from UNM Continuing Ed

UNM Continuing Education's Computer Training Program offers custom training to area businesses and UNM units in over 125 computer courses. Custom training can be arranged in one of our labs or at your site. Courses can be customized to cover topics relevant to your employees and to fit your schedule. UNMCE has over 50 qualified instructors with a broad range of expertise including the Internet, web development, programming, AutoCad, Microsoft Certification courses, etc. Please call Leah Kier at 505-277-6034 for more information.

ESRI Announcements

- The ***GIS Expo in New Mexico*** is scheduled for Wednesday, November 18th in Albuquerque. In conjunction with the GIS Expo, ESRI will also introduce the new *ArcShop* series of technical workshops. An *ArcShop* workshop is similar to the ESRI *Doctor's Office* and will be scheduled several times a year at different locations around New Mexico.
- ESRI announces the *ESRI Local Government Start-up Grant Program.* Councils of Governments (COGs), Metropolitan Planning Organizations (MPOs), county governments, city, town, and village governments are eligible for this grant program. For more information, please visit ESRI's website at *www.esri.com* or contact Mark Taetz at ESRI-Denver.
- Beginning in 1999, ESRI Training Classes will be offered at a training center in Santa Fe (instead of Albuquerque).

"Digital Paper" An Online Alternative

In the midst of the many Intranet and Internet solutions, here is one that we arrived upon. Cooperative Services, Inc. is a service bureau in Santa Fe that provides printing services, GIS, and general computer support to member rural electric cooperatives. This solution was conceived jointly with my co-worker Steven Flint.

We were posed with a problem of allowing many people within a cooperative access to a map book. Map books are time consuming to create, people use them for different reasons, and the users are in different locations. We devised a very low cost solution that allows people with a PC on the Local Area Network (LAN) access to a map book printed on *digital paper*. The tools used in this project were ArcView, Adobe Acrobat Writer and Reader, Microsoft Internet Explorer, Corel Web Graphics Suite, and Microsoft Word. A layout was composed in ArcView and "printed" using Adobe Acrobat as a virtual printer. Thus, an Adobe PDF (Portable Document Format) file was created for each map in the book.

The next task was to provide an interface to these maps. An HTML front end to the map book was developed. This was accomplished in one of two ways, depending on the user's need. The first solution was to export a view of the service territory from ArcView as a bitmap and import it into the Corel Web Graphics Suite. The service territory contained a map grid/index map on it and was used as a reference to make an HTML image map with hyperlinks to the corresponding PDF map. Another way to set up the links was to create an HTML document in Microsoft Word, listing the map names, and hyperlinking them to the PDF.

The next stage of the solution was deployment. We placed the HTML document and the folder of PDF maps on the LAN server in a common directory to which everyone had read permission. Adobe Acrobat Reader and Microsoft Internet Explorer had to be installed on every PC that would be using the digital map book. The beauty of this solution is that both products are free and available via the Internet. From the computer desktop a shortcut was created to the HTML document on the server. With just a double click on the shortcut, it invokes the Internet Explorer and opens the HTML document. Clicking on a hyperlink activates the Acrobat Reader and PDF map. At this point, it functions like a web page with the added functionality of using Acrobat Reader to zoom in and out, as well as pan the *digital paper* map.

This solution is fast and reliable. It also functions on multiple platforms that support a web browser and Adobe Acrobat Reader. The fact that it runs well even on a 486 is tremendous, since it allows users in an organization that use 486s access to the GIS data.

One limitation is that users cannot print a "zoomed" area. Acrobat will print the entire PDF file. The users must keep in mind that a PDF is essentially *digital paper*, meaning that it is static once it is created, but with the added luxury of panning and zooming. Another problem is that Acrobat Writer can only print solid colors, so shaded areas of the map are gray. Printing filled polygons also posed a problem that would occasionally cause Acrobat to crash with an error message saying that the PDF was too complex.

This solution provided a mechanism for providing access to the maps and getting them into the hands of every employee without worrying about data integrity. With that security comes the limitations that it is only a way to view maps and the maps are not dynamically linked to any changes made in the GIS. Therefore, the maps must be recreated when the map book is updated. Another advantage, is that the map book will not deteriorate with use and can be printed as necessary. This is an inexpensive way to create a fledgling "enterprise" GIS solution.

Submitted by Jason Storey
Cooperative Services, Inc.

GIS Starter Kit Brings Affordable GIS to County Governments

At the National Association of Counties' (NACo) annual conference, NACo and Intergraph Corporation, a NACo premier technology partner, began accepting preregistration for the *GIS Starter Kit*. The joint offering enables counties throughout the United States to begin creating their own geographic information systems (GIS). The Starter Kit focuses on helping county governments overcome the hurdles associated with GIS startup. By providing a model county dataset, the kit conveys the vision and ultimate benefits of enterprise GIS. All participating counties receive a donated copy of GeoMedia, data for their specific county, training and GIS tutorials, as well as applications for economic development, emergency management and redistricting. This combination enables counties to be productive and see the benefits of GIS immediately.

NACo President Randy Johnson praised the Intergraph/NACo program, saying "This partnership is going to dramatically change the way counties collect and manage data. I am very pleased Intergraph Corporation has taken the lead in assuring that county governments have access to the hundreds of practical applications GIS technology provides."

State and local governments have traditionally relied on GIS technology to automate mapping needs, managing such projects as planning, decision-making, and service delivery. However, the technology has been out of reach for many smaller counties, who simply did not have the budgets required for implementing it.

Carl Reed, Intergraph Vice-President of Infrastructure Marketing, said "The value of GIS technology has been proved countless times at the county government level. We're thrilled to be involved in making this technology solution available to counties that are interested in improving their ability to serve the community."

Counties interested in participating in the program should contact NACo at 202-661-8808 for further information.

Submitted by Shanthi Lindsey
Intergraph Corporation

News from FGDC

(Excerpts from the Summer 1998 FGDC Newsletter)

Framework Data Survey Wraps Up

The Framework Data Survey, conducted by the National States Geographic Information Council (NSGIC), is moving into the data analysis phase. More than 4500 responses have been received to date in one of the most comprehensive geographic data survey and analysis projects ever conducted. The survey concentrates on framework data themes produced by state and local governments. Framework data themes include geodetic control, elevation and bathymetry, orthoimagery, transportation, hydrography, political boundaries, and cadastral information. Counties, in particular, have been targeted, although respondents include other local governments, regional groups, state agencies, federal agencies, non-profit groups, and the private sector. "It is very exciting that we have all 50 states and the Inter-tribal GIS Council committed to particpate," remarked Hank Garie, NSGIC survey project director and director of the GIS Program for the State of New Jersey. The survey is unique not only for its breadth, but also for its quality control procedures, the types of analyses and interpretation that will be published, the availability of the results in a variety of formats, and the widespread participation and effort on the part of the spatial data community.

Data analysis has already begun. Several states have completed their survey activities, and the data are now being examined by a team from NSGIC, FGDC, and the USGS. The team is conducting a thorough quality assurance procedure to ensure reliable data that can be used in many different types of analyses.

The results of the survey and of the data analysis and interpretation will be published in late 1998 and mid-1999. The first publication, a preview report that will appear as a special supplement to the November issue of *Geo Info Systems*, will cover the preliminary results from the early states' data. The National Technical Report, scheduled for release next summer, will examine results from all 50 states. The survey data will be available digitally for everyone to examine and analyze.

The survey is a cooperative effort between NSGIC, state survey coordinators, GIS project representatives, FGDC, and USGS.

FGDC Endorses Privacy Policy

In April, the FGDC Steering Committee endorsed the *FGDC Policy on Access to Public Information and the Protection of Personal Information Privacy in Federal Geospatial Databases*. The policy is needed because of growing concerns about privacy issues related to geographic information systems.

Federal geospatial databases are being built with increasing levels of geographic specificity and often include personal information that must be protected. "The US Fish and Wildlife Service is charged with protecting endangered species and the habitats upon which they depend, the bulk of which occur on private property," explained Owen Amber, Systems Analyst with the Division of Information Resources of the Service. "In order to carry out our mission, the Service must work in close partnership with many organizations and individuals, especially with private land owners. To do so effectively, we must be able to assure them that their privacy rights will not be violated. Trust is of the essence."

The privacy policy balances privacy protection and data access issues. It articulates the FGDC's endorsement of public access to information and appropriate protections for the privacy and confidentiality of personal information in federal geospatial databases. The policy's key provisions are that: federal agencies should improve public access to geospatial data while minimizing costs to taxpayers; individuals should be informed of the purposes for data collection beforehand; and agencies should take steps to protect the privacy of individuals and limit the amount of personal information used in geospatial databases.

The policy synthesizes information access and privacy principles from many different areas. It is based on law...principally the *Privacy Act* and the *Freedom of Information Act*, related federal policies, and well-regarded fair information and privacy practices and principles. The policy echoes and reinforces federal agency directions on privacy and data access.

One of the policy's guiding rationales is that broad-based, consistent principles of privacy protection must be built into databases and systems from the beginning. Building in protection when systems are designed ensures smoother implementation and operation of the process later on.

The full text of the policy is available by mail from the FGDC and on the FGDC website.

FGDC
c/o USGS
590 National Center
Reston, VA 20192

http://www.fgdc.gov

Metadata Version 2.0 Released

The Content Standard for Digital Geospatial Metadata, version 2.0 has been endorsed by FGDC. The new version provides for the creation of metadata profiles, user-defined metadata extensions, metadata tags, and modifications to some metadata production rules. This version supersedes version 1. Electronic copies of this version can be obtained from the FGDC website (*http://www.fgdc.gov/Metadata/ContStan.html*). Printed copies can be obtained from the Earth Science Information Center, PO Box 25286, Denver, CO 80225.

81 Clearinghouse Servers Online

Through the FGDC Clearinghouse Gateway, there are now over 80 searchable metadata service nodes registered with FGDC. These sites enable simultaneous search of spatial data holdings in the US and several other countries. Approximately one-third of these nodes are US federal government organizations; one-third are state-sponsored sites, and the remainder are regional, local, and international participating sites that use the same search protocol based on Z39.50.

Corporate Profile

Intergraph Corporation 675 Bering Drive, Suite 200 Houston, TX 77057	713-954-8010 (v); 713-978-7429 (f) http://www.intergraph.com

Intergraph Corporation, a pioneer of interactive graphics computing, offers technical, creative, and IT professionals a full range of hardware, software, and services for the open Intel/Windows NT computing environment. Backed by nearly 30 years of industry leadership and a global service infrastructure, Intergraph and its business partners work with customers around the world and in virtually every industry to provide the powerful, business-critical solutions they need to succeed. Intergraph believes in providing substaintial value for our customers by offering products that have the best technological foundation that are priced to meet today's demanding budgets.

Intergraph, and its independent companies (Intergraph Computer Systems, Intergraph Public Safety, and VeriBest®) provide hardware, software, and services for most major industries. Our fully integrated, open, industry-standard software solutions incorporate Microsoft Windows NT® technologies, and workstations and servers based on the latest Intel® processors. Our hardware and software systems offer computing professionals the best interactive graphics technology for visually creating, using, and manipulating complex digital information and media.

Intergraph operates in 65 countries through a four-region sales and service organization: the Americas, Europe, Asia-Pacific, and Mid-World. The company's administrative, research and development, and manufacturing center is located in Huntsville, AL. As of January 1998, Intergraph employs more than 7,600 people worldwide. In addition to a large direct sales force, we also rely on our Business Partners around the world to promote and sell Intergraph products.

Calendar

NMGIC Fall Meeting, UNM Science and Technology Park, 801 University Blvd SE, Albuquerque, NM, October 16, 1998. Contact: Rick Watson, Meetings Coordinator, NMGIC, PO Box 9445, Albuquerque, NM 87119-9445.

43rd Annual New Mexico Water Conference, Las Cruces, NM, October 22-23, 1998. Contact Cynthia Rex, WRRI, NMSU, Box 30001, MS 3167, Las Cruces, NM 88003. Telephone: 505-646-1813. Email: *crex@wrri.nmsu.edu*

Health and Welfare Policy in an Age of New Federalism: Opportunities and Challenges for Native Americans, Doubletree Guest Suites Hotel, Tucson, AZ, October 22-24, 1998. Contact: Udall Center for Studies in Public Policy. Telephone: 520-621-7189. Website: *http://vpr2.admin.arizona.edu/udall_center/*

Border Solutions: A Partnership for the 21st Century, The Camino Real Hotel, El Paso, TX, October 28-30, 1998. Contact: Southwest Center for Environmental Research and Policy, PO Box 68662, University of Texas at El Paso, El Paso, TX 79968-9991. Telephone: 915-747-8663.

GIS/LIS '98 Annual Conference and Exposition, Fort Worth Convention Center, Ft. Worth TX, November 8-12, 1998. Contact: GIS/LIS '98, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2122. Telephone: 301-493-0200. Fax: 301-493-8245. Website: *http://www.gislis.org*

'98 UGIC Conference, St. George Holiday Inn, St. George, UT, November 8-10, 1998. Contact: Kevin Sato, Murray City, 4646 S. 500 W., Murray, UT 84123. Telephone: 801-270-2460. Fax: 801-270-2450. Email: ksato@ci.murray.ut.us

Border Energy Forum V, Chihuahua, Chih., Mexico, November 16-17, 1998. Contact: Texas General Land Office, Stephen F. Austin Bldg, Rm 620, 1700 N. Congress Ave., Austin, TX 78701-1495. Telephone: 512-463-5039.

GIS Expo in New Mexico (by ESRI), Crowne Plaza Pyramid Hotel, Albuquerque, NM, November 18, 1998. Contact: Mark Taetz, ESRI, 4875 Pearl East Circle, Suite 200, Boulder, CO 80301-6103. Telephone: 303-449-7779. Fax: 303-449-8830. Email: *mtaetz@esri.com* Website: *http://www.esri.com*

Cool Internet Web Sites

To continue the series of mapping and GPS related web sites, we have found the following sites that may be of interest to the NMGIC membership. As always, if you find a site you think is useful to the membership, please contact Denise Bleakly at 505-284-2535 or email to *drbleak@sandia.gov* to add it to our list. Denise will be compiling a list of NMGIC corporate sponsors for a future issue of *The Map Legend*.....please contact her.

- USGS TerraServer – has more than 4 terrabytes of compressed aerial and satellite images. The TerraServer allows users to download and view geographic images with resolutions near one meter.

  http://www.terraserver.microsoft.com/

- US Environmental Protection Agency American Indian Lands Environmental Support Project. A searchable GIS database which includes national priority listing superfund sites, mining sites, pesticide use data, and air nonattainment areas in and around tribal lands.

  http://es.epa.gov/oeca/ailesp

- USGS National Map Atlas on the Web

  For viewing the atlas on the web: http://www-atlas.usgs.gov/
  For downloading layers via the web: http://www-atlas.gov.atlasftp.html

Online GIS Resources:

- Marjorie Roswell's Useful Sites for MapInfo Users (and all people who love maps)

  http://research.umbc.edu/~roswell/mipage.html

- Oddens' Book marks more than 5550 links to mapping and GIS web sites

  http://kartoserver.frw.ruu.nl/html/staff/oddens/oddens.htm

- GISLINX

  http://www.gislinx.com

- Yahoo's Map and GIS links

  http://www.yahoo.com/science/geography/geographic_information_systems__gis_/

- INFOMINE Maps and GIS

  http://lib-www.icr.edu/mapsinfo.html

The Map Legend 1998/99 Publication Schedule and Deadlines

Winter Issue	Deadline for articles: January 15, 1999 Publication date: February 15, 1999
Spring/Summer	Deadline for articles: May 15, 1999 Publication date: June 15, 1999
Fall Issue	Deadline for articles: September 15, 1999 Publication date: October 15, 1999

Editors of *The Map Legend* are looking for articles describing ongoing, recently completed, or recently awarded projects. "Newsy" items on your organziations, accomplishments of your personnel, event/meeting announcements.....are all welcome. Your contributions should be sent to Amy Budge either by fax (505-277-3614) or by email to *abudge@spock.unm.edu* by the deadlines.

What Workshops Would You Like NMGIC to Sponsor?

To better serve NMGIC members, the Board is seeking your input on the types of workshops you would like the Council to sponsor. In the past, we have sponsored workshops on software training, managing GIS, metadata training, GIS applications, and the Federal Geographic Data Committee initiatives, to name a few. This is your chance to bring workshops and training that are meaningful to you, to a convenient and affordable location. Some suggestions are listed below. Please indicate your preference(s) by checking the topic(s), or by writing in others. Based on the results of this survey, the Board will announce the workshops for 1999.

- ☐ Parcel Mapping Projects
- ☐ How to Set Up a Map Server
- ☐ Setting Up a GPS Base Station
- ☐ Year 2000 Issues for GIS
- ☐ Building Framework Data for the National Digital Geospatial Data
- ☐ Preparing NSDI-Compliant Metadata

Others:

_____

_____

_____

_____

_____

Please return your choices to Bobby Creel, Workshop Coordinator by mail, fax, or email.

Water Resources Research Institute
New Mexico State University
Box 30001, MSC 3167
Las Cruces, NM 88003-8001

Fax: 505-646-6418
Email: bcreel@wrri.nmsu.edu

Application

New Mexico Geographic Information Council Scholarship

Submit to: Rich Friedman, President
NMGIC, Inc.
PO Box 9445
Albuquerque, NM 87119-9445

Deadline: February 15, 1999

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Academic Status: ☐ Undergraduate Student ☐ M.A. or M.S. Student ☐ Ph.D. Student

Major: _____ Department: _____

Research Advisor: _____ College/University: _____

Title of Project: _____

The following documentation must be included in your application:

- Resume (on separate page)
- Brief description of project (on separate page)
- Detailed, itemized budget (on separate page)
- Two letters of support, only one of which may be from your department chair or your research advisor
- List of other financial support currently being received (on separate page)
- Signatures

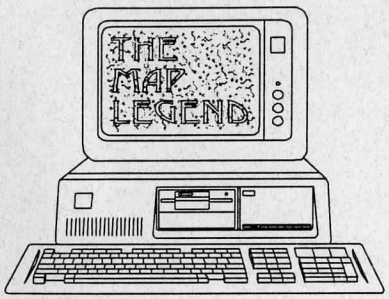
Signatures:

Student	Research Advisor	Department Chair
Date	Date	Date

1998 Corporate Sponsors

Thank you for your support!

THE MAP LEGEND



Editor: Amy Budge

The Map Legend is published by the New Mexico Geographic Information Council and is a benefit of membership in NMGIC. The opinions expressed are those of the contributors and do not necessarily represent the views of the New Mexico Geographic Information Council, except where specifically noted. Use of trade names or products does not constitute an endorsement by the NMGIC. Members are invited to send articles and announcements of interest to Amy Budge. Please direct all correspondence to:

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