Fall 1995 New Mexico Geographic Information Council, Inc. Volume 7 Issue 1

THE MAP LEGEND

Using Computer Technology To Map "The Ancient Ones"

John Stein, Program Manager for the Navajo Nation Chaco Protection Sites Program (CPSP) and Richard Friedman, Director of the McKinley County GIS Center will be giving the morning presentation at the annual NMGIC meeting in Albuquerque on November 3, 1995. The focus of the presentation is the Prehistoric Landscapes Project, an ongoing cooperative research effort being conducted by the two agencies. This project involves using a combination of remote sensing technology, Geographic Information Systems (GIS), and Global Positioning Systems (GPS) data to reconstruct and analyze prehistoric landscapes built by the Anasazi in the Four Corners Region. Several different sources of remotely sensed imagery have been used including;

1:30,000 1934 and 1936 Black and White Aerial Photography
1:24,000 1975 Orthophotos
1:40,000 1991 Color Infrared NAPP Aerial Photography
Data Acquired by NASA in 1994
- ATLAS Multispectral Data (15 Band, 2.5 Meter Resolution)
- CAMS Multispectral Data (9 Band, 2.5 Meter Resolution)
- 1:3,000 Color Infrared Aerial Photography
- Thematic Mapper Multispectral Data
- SPOT HRV Multispectral Data
- Russian KFA Panchromatic Data (4 Meter Resolution)

Aerial Color Video Imagery Acquired by an Unmanned Aerial Vehicle (UAV)

Aerial photography and color video imagery are being processed by the McKinley County GIS Center to create digital orthophotos to provide planimetricly corrected base images for interpreting and mapping prehistoric features. The digital orthophoto base data are also being used to register and geocorrect ATLAS and CAMS multispectral data provided by NASA. The Project has already demonstrated the value of digital imagery for assessing and mapping prehistoric features that might otherwise be missed by traditional methods. Stein and Friedman will present various examples of how the different data sets have been used in and around Chaco Canyon to assist re-creation of the prehistoric landscape in a GIS architecture.

A unique aspect of this project uses a custom built Unmanned Aerial Vehicle (UAV) as a platform for inexpensive image capture. The UAV is basically a high tech remote control airplane on steroids. Unlike the average remote control airplane, the UAV has a 12 foot wing span, a remote real time video link with the pilot, a broadcast-quality color video camera, a rail launch system (no runway required), and a parachute recovery system (no landing strip required). The UAV was designed to give the CPSP a cost effective way to acquire aerial imagery, on demand, to assist in monitoring, evaluating, and quantifying changes to cultural resources and their environment.

The digital orthophotos created from 1:3,000 color infrared aerial photography will provide planimetricly correct, large scale data not available from conventional archeological surveys. These large scale archeological data can be used to prepare a scope-of-work for the archeological component of road construction. The Landscapes Project is also evaluating the image sources for uses other than recreating prehistoric landscapes. Other uses of the technologies employed by this project include, but are not limited to: arroyo migration analysis, erosion analysis, mapping historic features (such as Route 66), environmental change, demographic change, remote monitoring/assessment of hazardous materials spills, and updating spatial data.

The UAV, as well as examples of the various image data, will be on display during the Albuquerque meeting. This presentation will give you a chance to see how cutting edge technology, like the ATLAS data and the UAV imagery, can be used with historic photography to provide a more detailed view of the world in which we live.

By Richard Friedman, NMGIC Workshop Coordinator

Inside This Issue

From the President
Amy Budge

New technologies are being introduced to the GIS community to enhance the use of GIS in management and planning applications. Data acquisition is basic to development of GIS programs and takes many forms. Analog data acquired by traditional means of mapping and aerial photography can be manually digitized or scanned for use in GIS. Other data are originally acquired in a digital format and can be directly imported into the GIS database. The methods for gathering these digital data vary and some of the technologies for these acquisitions is the topic of the Fall NMGIC meeting on November 3, 1995. Color video imagery acquired by a remotely controlled aircraft, electronic imaging using digital camera systems, and a computer-based data acquisition system which collects GPS data along with data from additional instruments and sensors are the presentation topics comprising the program. These presentations and the user exhibits promise a very informative and interesting meeting. The meeting location has been changed since the Spring meeting . . . please refer to the announcement and location map in this issue of *The Map Legend*.

Other Fronts:

The **Joint GISAC/NMGIC Standards Subcommittee** has met four times in the past two months to draft a set of standards for large scale GIS data. At press time, they have established a working outline and identified elements unique to large scale data. In addition to developing the standard, the committee is also producing a set of guidelines for using and understanding the standard. Look for the summary of this effort in this issue of *The Map Legend*.

The announcement and application forms for the **NMGIC Scholarship** have been sent to university and college Earth Science and Geography programs throughout the state. The $500 scholarship is awarded to a student doing research in geography or a related discipline that deals with geography or geographic information issues. Deadline for submitting applications is February 15, 1996. Announcement of the award will be made at the Spring 1996 meeting. Please contact me for more information.

Make plans for attending the Fall meeting. Hope to see you there!

Air Force to Manage Local Ecological Resources Through GIS

The U. S. Air Force, with help from the University of New Mexico, is currently constructing a GIS database for their Melrose Bombing Range near Clovis, New Mexico. The project is a collaborative effort being conducted by Cannon AFB and UNM through the Department of Biology's Long Term Ecological Research Program and the New Mexico Natural Heritage Program. The objective of the project is to provide support for resource management of ecosystems on the Melrose Range. A primary benefit of the GIS will be to guide the management of the area to comply with the Endangered Species Act.

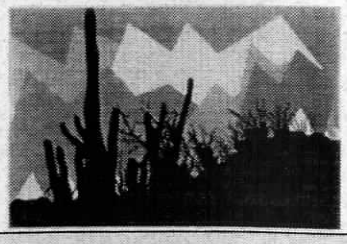
The project has been ongoing since 1993, when biological data were first collected. These field studies provide detailed quantitative data on the plant and animal communities for analysis through GIS, which is being assembled using ARC/INFO software. One coverage is a vegetation map of the major cover types (e.g., mesquite, blue grama grass, etc.) developed from Landsat Thematic Mapper image analysis. Another coverage focuses on quantitative population estimates of vertebrate species, with particular interest in endangered and protected species. These two, combined with more typical coverages, show the distribution of these species with respect to soil types, elevations, and other characteristics of the site. Data were ground-truthed over the summer and are now undergoing consolidation. At the conclusion of this collaboration, the database will provide an effective tool for preservation and restoration of the ecosystems on the Melrose Range.

By Gregg MacKeigan, UNM Department of Biology

State Mapping Advisory Committee Report

The State Mapping Advisory Committee (SMAC), chaired by Dave Love, serves as the primary contact between the U. S. Geological Survey (USGS) and New Mexico. Traditionally, SMAC has reviewed and set priorities for the State's mapping needs regarding USGS's mapping program. Until recent years, this usually meant the 7.5' topographic quads. In the past five years, mapping has turned to digital products, including digital elevation models (DEMs), digital line graphs (DLGs), and digital orthophoto quads (DOQs). Through the *A-16 Process*, the USGS addresses map production requests submitted by SMAC. The committee meets at least once a year to review mapping requests and recommendations it has received from state agencies, local governments, and citizens of New Mexico. These requests are prioritized and forwarded to USGS for consideration. High priority is given to geographic areas of the State and the map products that have the highest number of requests. Projects that can be performed on a cooperative or cost share basis are given high priority by USGS.

You can become an active player in this process by submitting your mapping product needs to Dave Love. Committee membership is open to any interested person . . . contact Dave to add your name to the committee.



RGIS News

RGIS, in cooperation with the New Mexico Association of Counties, held two workshops in August for County personnel in the planning or preliminary stages of automating their mapping programs. Each workshop was one day long and focused on the steps involved in developing an operational GIS/LIS. A demonstration and associated presentations touched upon inventory of needs, database design, coding, digitizing/scanning, quality assurance, standards, and database maintenance. The workshops are a continuation of the Program's support of local government and their efforts in automating Assessors and County mapping.

The distribution of the first RGIS Program CD has been moved back to October. Metadata will be included with the data coverages on the first CD, but more time is required to complete the documentation step. Three CDs are planned for release in the next 12 months. We **may** see the first one at the NMGIC Fall Meeting in November.

Persons interested in ARCView II training should contact the Clearinghouse or an RGIS Program representative. We are compiling a list of training needs in the state and there is interest in this new software release.

Questions regarding the RGIS Program should be directed to Mike Inglis at the Earth Data Analysis Center (EDAC). He can be reached at 505 277-3622 (voice), 505 277-3614 (fax), or edac@spock.unm.edu (email).

Academic Perspective

One of the biggest on-going tasks we face is how to produce a steady stream of qualified New Mexicans to fill GIS, GPS, and image analyst job opportunities. While it is healthy and sometimes desirable to hire out-of-state talent, our professions will be more responsive to local needs if we strengthen in-state education in these areas. Institutions of higher learning and technical/vocational schools understand their requirement to assist young careers with modern curricula and adequately equipped laboratories. Four-, six-, and eight-year graduates who want to stay in New Mexico expect a career return on their educational costs by being at least as well educated as their peers from other universities. This, of course, is easier said than done, given the geographic size and low tax base of New Mexico, and the increasing rate of technology development and adoption. Just finding the money to support equipment maintenance costs can command more academic energy than most professors are able to give it, let alone finding the money to upgrade to new machines. Most folks don't realize that these monies are not part of a Department's budget, and that this is partly why these Departments compete for State agency and municipal government projects.

Another component of the infrastructure, of course, is people. We are fortunate in New Mexico to have not only a cadre of highly trained academics to serve our needs, but also a small army of skilled technical and conceptual people willing to teach evening and weekend courses. Academic administrators need to make better use of this army, not <u>just</u> because it's less expensive than expanding full-time faculty, but because these individuals are practioners of their trade and bring their work-day experiences to the classroom. "Town-Gown" relationships are also strengthened by this practice, setting into motion a community synergism whereby everyone wins. The key to supplying trained professionals, therefore, is to have the basic infrastructure—a critical mass of faculty and equipment that allows program flexibility and ensures responsiveness.

The UNM Geography Department has been appointed by the Dean of Arts and Sciences to serve as the "home" for Geographic Information Technology (GIT) instruction—that's GIS, RS, and GPS. Last year Dr. Louis Scuderi was added to the faculty to head up the GIS curriculum; and through his efforts, the Departmet of Geography will this year inaugurate a 17 seat GIS and remote sensing instructional laboratory. This year, also, two additional faculty positions will hopefully be filled, both of which require applicants to have teaching and research interests in these technologies.

The Department should be congratulated for developing this infrastructure. It should now be encouraged to consider NMGIC input to its curriculum modernization. All of us have a chance to participate in this process by communicating our enthusiasm, moral support, and technical requirements to the Department. In fact, we have a continuing obligation to keep the dialogue alive with all of our State's GIT programs. We should not hesitate, for example, to approach these Programs for our short term training needs, technology demonstrations, or graduate student projects.

Dr. Paul Matthews, Chair of UNM's Geography Department, will be introduced at the Fall NMGIC meeting on November 3. Why not start there?

By Stan Morain, NMGIC Public Relations

Attention Users of GPS Community Base Station Files

The New Mexico Engineering Research Institute's (NMERI) Trimble Navigation, 12 Channel GPS Community Base Station files are now accessable through NMERI's Homepage. To access .SSF files for use in post processing differential correction, link your Internet browser to: http://nmeri.unm.edu/. Link to the Information Systems Division, then to the Base Station, and finally to the download directory. Files can be sent directly to your machine via ftp transfer. User response to this service is encouraged via an auto e-mail response button. Directions to this service will also be provided through the RGIS Clearinghouse Homepage in the near future.

National GPS Reference Station Network

The National Geodetic Survey (NGS) is working to develop a national network of Global Positioning System (GPS) continuously operating reference stations (CORS). CORS are unstaffed, automated GPS installations that continuously collect and record GPS observation data for a variety of actitivies. These data are then made available to users in order to support relative (or differential) positioning work.

The NGS CORS network effort involves several government agencies, including the Coast Guard, Federal Aviation Administration, Army Corps of Engineers, and National Aeronautics and Space Administration. These agencies are establishing CORS facilities in order to support their real-time navigation and research requirements. They are, however, configuring their facilities to support a wider range of applications, including post-processed survey and mapping GPS applications. Under the terms of inter-agency agreements, NGS will be responsible for gathering, distributing, and archiving GPS observation data collected at CORS that are operated by other agencies.

A prototype of about 25 CORS facilities nationwide is currently being operated. Two of these stations are located in New Mexico (Pie Town and White Sands) and within one to two years, a third, located in Albuquerque, should be on-line. The GPS observation data from the entire network are available free of charge via Internet. By the time the national program is complete, hopefully in 1998, there will be at least 100 stations nationwide. For information, contact Bill Stone, National Geodetic Survey, New Mexico Geodetic Advisor. Telephone: 505 768-3606.

By William Stone, GPS Committee Chairman

NMGIC FALL MEETING NOVEMBER 3, 1995

JOB BOARD

Employment Wanted

GIS position sought by UNM graduate student. One year experience as GIS Analyst at Earth Data Analysis Center. Skilled in use of ARC/INFO including ArcView2, GRID, and AML. Have created variety of products for USFS, New Mexico Game and Fish Department, social agencies, and other clients. Will receive Master's Degree in Geography in Fall 1995. Has knowledge of water resources management, remote sensing, GPS, and biology. Position must be in Albuquerque area. Contact Noreen Breeding at 505 277-3622 (work) or 260-0820 (home)

NMGIC Scholarship

NMGIC awards a scholarship each year to a student in any of New Mexico's institutions of higher learning, and who is engaged in GIS research in Geography or a related discipline involving geographic information issues. The award of $500 is based solely on merit as presented in the student's application. Applicants must submit a two page description of the research by February 15th. The award will be announced at NMGIC's spring meeting.

Requests for a Scholarship Application, and responses, should be addressed to:

Amy Budge, President
New Mexico Geographic Information Council
c/o Earth Data Analysis Center
University of New Mexico
Albuquerque, NM 87131-6031
Tel: 505 277-3622; FAX 505 277-3614
Internet: edac@spock.unm.edu

Summary of NMGIC Board Meeting Minutes
August 4, 1995

The meeting was convened by President Amy Budge at 9:45 am in the EDAC conference room. In attendance were Amy Budge, Millie Eidson, Hillary Armstrong, John Peterson, and Stan Morain (Board members), Bill Baillargeon, Chair, GIS Committee.

For future meetings, the minutes of previous meetings will be distributed to Board members and Committee chairs at least one week prior to the Board meeting, in order that they can be reviewed and then voted for approval or modified at the Board meeting.

The fall meeting was discussed. The BDM facility is available for the next meeting at no charge, so Amy will cancel the contract with the UNM Continuing Education Center for the fall meeting. John Peterson will follow-up with Steve Schope at Sandia Research Associates to invite him to speak at the meeting about GPS instrumentation and measurement and its incorporation in GIS. The general theme for the meeting will be New Technologies, although an exact title was not chosen. The user exhibits will be coordinated by Bill Baillargeon and his GIS committee. Rich Friedman will also be asked by Amy to talk about use of the remote plane for mapping and videoing Chaco Canyon. Tom Bobbe, USFS in Salt Lake City, will be invited by Bob Bewley to address his work in digital camera applications The morning's business meeting will have committee reports, the Treasurer's report, a short update from a USGS representative (whom Amy will confirm), and an introduction of Paul Matthews, new Chair of the UNM Geography Department. Steve Schope's talk will be scheduled for the afternoon, along with the user exhibits. Biographies and short descriptions of presentations are still needed from the speakers.

A meeting announcement will be mailed to the membership at the latest by mid-September, so that members can schedule the meeting on their calendars. It will also be mentioned in the next mailing of *The Map Legend*, which will go out in early to mid-October. A map showing the location of the BDM facility and nearby restaurants will be included in the mailings, although the BDM facility has its own cafeteria which meeting attendees will be able to use. No box lunches will be provided for the fall meeting.

Possible changes to the Bylaws were discussed. A summary of the Board's recommendations for changes will be included in *The Map Legend*, so that NMGIC members can forward their opinions to Board members. The recommended changes will be voted on by the Board at the next Board meeting in October.

The GIS Committee report, given by Bill Baillargeon, described their activities as listed above to get user exhibits for the fall meeting. Also, a joint GISAC/NMGIC standards committee met twice, and is still trying to establish a common view on their potential outcomes. Bob Julyan, Chair of the Geographic Names Committee, was unable to attend, but provided several written reports.

Final miscellaneous business included: Amy handed out cards with Board member's names and address on one side and the same information for committee chairs on the other. Stan discussed the fact that Diana Case from the Albuquerque Visitor's Bureau has been working with ASPRS to propose Albuquerque for the site for the year 2000 GIS/LIS annual meeting. NMGIC could participate in that meeting. John Peterson's fax number on the card should be changed to 272-7203.

The meeting was adjourned at 11:50 am.

By Millie Eidson, NMGIC Secretary

Recommended Changes to Bylaws

1. In Article IV, Section I, there is a clause b. which says "Each officer shall hold office for two years." This is in conflict with later Sections that discuss annual elections for the President and Vice-President and annual appointments for the other officers. In addition, a Board member's 2 year term on the Board might expire before their two year term of office. The Board's recommendation was to delete clause b, which will mean that the other language in the Bylaws for annual elections and appointments will be followed. Thus, there is nothing in the Bylaws to prevent someone from being re-elected or appointed multiple years should the Board desire, which gives the Board the leeway to either choose continuity or new ideas in selecting its officers.

2. In Article V, the language about the Chairpersons for Committees and their status on the Board in regard to voting is confusing. It is recommended by the Board that the sentence which currently reads: "These chairpersons may attend Board of Directors meetings as ex-officio members to the Board of Directors." should be changed to: "These chairpersons are encouraged to attend Board of Directors meetings as ex-officio nonvoting members to the Board of Directors."

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New Mexico Geographic Information Council, Inc.
Fall Meeting
November 3, 1995

Place: BDM Corporation, Randolph Building, 1801 Randolph Road SE (see map)

NOTE: BDM is a secure facility. NMGIC attendees will need to sign in at the reception desk at the Randolph Building to receive a "Visitor's Badge." You may then proceed downstairs to the right of the reception area to the NMGIC exhibits to pick up a name tag. This is a very lovely facility for a meeting, but access is restricted to the exhibit area and auditorium. Smoking is permited outside the building. Parking is spacious and free (located west of the Randolph Building).

7:00 - 8:00 am	Exhibits Set-up
8:00 - 9:00 am	Exhibits Open (coffee and get acquainted)
9:00 - 10:00 am	Business Meeting
	We urge all participants to attend the Business Meeting. Aside from the business issues, the Board has invited Dr. Paul Matthews, Chair of the UNM Geography Department to brief the membership on his vision and goals for faculty staffing and curriculum modernization. This will be your opportunity to meet Dr. Matthews and to express your views on New Mexico's requirements for GIS professionals. We have also invited Mr. Ken Osborn from USGS to brief the members on FGDC and SMAC initiatives.
10:00 - 10:30 am	Break
10:30 - 11:30 am	*Prehistoric Landscapes Project: Using Computer Technology to Map the Ancient Ones.* Rich Friedman, Director, McKinley County GIS Center
11:30 - 1:00 pm	Lunch
1:00 - 2:00 pm	*An evaluation of Natural Color and Color Infrared Digital Frame Camera Systems as a Remote Sensing Tool for Resource Applications* Thomas Bobbe, Program Leader, Nationwide Forestry Applications Program, USDA Forest Service
2:00 - 3:00 pm	*GPS and Data Acquisition* Steve Schope, Sandia Research Associates, Albuquerque
3:00 - 4:00 pm	One-on-One Discussions; Exhibit Breakdown

Local Government Lands Records Committee

The *Local Government Land Records Committee* is soliciting participation of energetic and meaningful talent to "promote the creation of multipurpose parcel level land information system" and to develop "a network of local government contacts in New Mexico who are receptive to the concept of modernization of land records." This committee will prove to be both educational in providing a forum for local government land based issues and constructive in eventually contributing to a framework establishing land records policy within New Mexico.

The coming year is an exciting and opportune period to visit land records issues. If you are interested in groping through the cadastre jungle, please contact committee chair, Gar Clarke (City of Santa Fe) at 505 984-6603.

By Gar Clarke, Chairman, Local Government Land Records Committee

NMGIC Fall Meeting Speaker Biosketches

Rich Friedman has been employed by McKinley County for over eight years and is currently the Director of its GIS Center. He received a BSc in Geology from Adams State College, Colorado, in 1979. While with the County he has participated in several cooperative GIS projects and has been instrumental in creating the County's *National Outreach Pilot Site* for BLM. He has been a member of NMGIC for eight years and has served as both Vice President and President

- Aerial photography and color video imagery are being processed by the McKinley County GIS Center to create digital orthophotos to provide planimetricly corrected base images for interpretating and mapping prehistoric features. The digital orthophoto base data is also being used to register and geocorrect ATLAS and CAMS multispectral data provided by NASA. The project has already demonstrated the value of digital imagery for assessing and mapping prehistoric features that might otherwise be missed by traditional methods. Stein and Friedman will present various examples of how the different data sets have been used in and around Chaco Canyon to assist re-creation of the prehistoric landscape in a GIS architecture.

Thomas Bobbe is Program Leader with the Nationwide Forestry Applications Program, USDA Forest Service. He is responsible for evaluating new remote sensing technology for Forest Service resource management applications.

- Resource managers are continually looking for new ways to acquire accurate and current resource information about the lands they are entrusted to manage. New developments in electronic imaging have provided digital camera systems which can be used to acquire high resolution digital imagery within a very short time frame. The USDA Forest Service, Nationwide Forestry Applications Program (NFAP) has recently evaluated the Kodak DCS 420 digital camera system as a remote sensing tool to provide aerial digital imagery for updating existing GIS databases. NFAP is also evaluating a DCS 420 digital camera which was modified to provide a color infrared composite image. The spectral performance of this modified camera is similar to Kodak 2443 color infrared aerial film. Initial tests of the color infrared digital camera have demonstrated that the system will be valuable for a variety of resource monitoring applications. The color infrared digital camera was used recently to acquire a sequence of overlapping digital images covering riparian areas on the Flathead and Deerlodge National Forests in Montana. The digital images were georeferenced and mosaicked to create a digital composite image. The composite image is used as a backdrop image to display riparian GIS data and to digitize the current stream channel location.

Steve Schope is President of Sandia Research Associates, Inc. of Albuquerque. He received his Ph.D. in Physics from The Pennsylvania State University and held positions with Litton Industries, Conoco, U.S. Bureau of Mines, and Stolar Inc. before founding SRA in 1986. The company specializes in GPS data acquisition systems and has technical strengths in underwater, underground, and upper atmosphere systems.

- In addition to conventional uses of GPS such as surveying and navigation, GPS is responsible for new major advances in data acquisition. A computer-based data acquisition system can simultaneously collect GPS information along with data from additional instruments and sensors. The GPS allows the instrument data to be accurately time and position referenced. These data are then readily usable by Geographic Information Systems. This presentation will discuss the details of GPS-based data acquisition and provide several case studies of their application.

ASPRS Announces CD-ROM

The American Society for Photogrammetry and Remote Sensing has announced a CD-ROM titled *Earth Observing Platforms and Sensors* as the first installment of its third revised edition of the *Manual of Remote Sensing*. This CD is a searchable, hyperlinked database that allows users to identify satellites and/or sensor payloads that address specific resource applications in atmospheric, oceanographic, and terrestrial sciences from the 1960s to approximately 2015. Subsequent titles in the 3rd Edition series include *Principles and Applications of Radar Remote Sensing; Principles of Remote Sensing; Remote Sensing and GIS for International Development;* and *Remote Sensing for Geosciences*. For further information, contact Joann Treadwell or Julie Hill, ASPRS, 5410 Grosvenor Lane, Suite 210, Bethesda, MD 20814-2160. Telephone (301) 493-0290. Fax: (301) 493-0208.

Local Government Division of DFA Forms Mapping Sub-Group

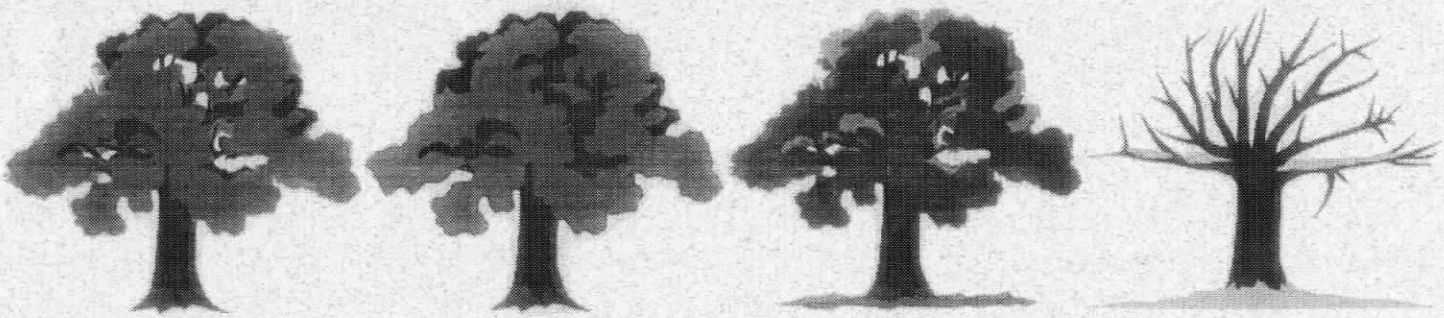
The *Intergovernmental Infrastructure Group* in the Local Government Division, Department of Finance and Administration in Santa Fe has recently organized a ***Mapping Sub-Group***. Its aim is to provide information and guidance to state, county and municipal government entities developing GIS and mapping programs. The second meeting of the Sub-Group was held on July 27 to brief attendees about GIS software purchasing and functionality considerations, present a demonstration of ArcView 2.0 and learn about GIS activities in Santa Fe.

The approach Santa Fe has adopted seems to work very effectively. Gar Clarke, head of the city's GIS, stresses that "needs assessments" must come before figuring out how mapping software can help meet those needs. At the local level, the greatest rewards come to those who complete applications in a few weeks because they thoroughly understand their hardware/software configurations and the needs they are expected to address. Approaches that work from the top, down, and that begin with buying systems and people are often prone to failure.

Now the City and County of Santa Fe are beginning to work as a coordinated team. According to Gar, the key to this unusual, yet refreshing, arrangement is that participants are treated as equals. This reduces the chances for gridlock in decision-making and maximizes contributed resources. They are now working jointly to develop timetables and coauthored RFPs.

The third meeting of the Sub-Group had not been scheduled at press-time, but there has been a general "call" for agenda items. If you have an issue or a topic to suggest, contact Nick Mandel at the Local Government Division of DFA, Bataan Memorial Building, Suite 201, Santa Fe 87503. Tel: (505) 827-4991. FAX (505) 827-4948.

Information in this report was extracted from notes distributed from the second meeting of the Sub-Group.



National States Geographic Information Council Annual Meeting

The National States Geographic Information Council (NSGIC) 1995 Annual Meeting was held September 16-20 in Burlington, Vermont. The theme of this year's conference was "Coordination, Cooperation, Partnerships." New Mexico was represented at the meeting and in Council deliberations by Bill Baillargeon, State of New Mexico GIS Manager.

The conference theme really reflects the broader, on-going NSGIC mission which, as stated in the Bylaws, is to encourage effective and efficient government through the coordinated development of geographic information and technologies to ensure that information may be integrated at all levels of government. The Councils activities may include, but are not limited to the advocacy of state interests and the support of the membership in their individual initiatives, increase public and private awareness, education, research, professional development, and the development of policies, standards, and guidelines. NSGIC has emerged since its inception in 1990 as an important voice in national geospatial issues, providing guidance and advice to federal agencies engaged in mapping and spatial data collection. For example, NSGIC holds a position on the National Digital Orthophoto Program (NDOP) Steering Committee and has close contacts with the Federal Geographic Data Committee (FGDC). It is becoming increasingly clear that federal officials regard NSGIC as an important voice in geospatial affairs and the annual meeting as a "high value" one.

In addition, NSGIC is an important resource for those of us working at the state level. It provides a means for us to learn about and better understand the implications of national geospatial policy on the states and a forum to voice our concerns regarding such policy. NSGIC also provides an important forum to learn from and to teach others working and confronting similar issues at the state level. The sessions of the annual meeting are one such forum, but perhaps more importantly, the annual meeting affords an

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Geographic Names Committee Report

After months of relative calm, Hurricane Nombre has come onshore to the island of the NMGIC Geographic Names Committee. Here's a summary of what's been blowing in the wind:

Sandia Mountains mapping project names. In August I met with Robert Cooper regarding the application change proposals for the Sandia Mountains features, specifically the canyons in the northern part of the range. Cooper, an amateur historian, has lived his entire life in the vicinity of the canyons and is the acknowledged expert on the area. From him, and from guide books and other publications, I learned the proposals aren't as complex as they appeared; in essence, the USGS quads have mislabeled the canyons for years. The Forest Service maps have the correct sequence and locations, and all knowledgeable people recognize this. The current proposals simply would bring the USGS maps into conformity with the correct USFS maps.

San Acacia/San Acacio. As a result of newspaper publicity regarding a proposal to change the name of the village north of Socorro, on the west bank of the Rio Grande, from San Acacia to San Acacio, I have begun to receive responses from the public. It would be premature at this point, however, to say a consensus has emerged. I plan to tour the community soon in preparation for a vote on the issue in January.

Steins Peak/Steens Peak. I have written to the persons who have communicated to the USBGN that the name Steins in Southwestern New Mexico is an incorrect spelling of the name of Major Enoch Steen, with whom the features were associated. If they pursue this, I will begin seeking public input, but I suspect this could be lengthy, complex, and controversial, as the name Steins has been embedded in usage for more than 125 years. (Parenthetically, the USBGN has pointed out that correcting historical or grammatical inaccuracies is not of itself a purpose of the board; this also would apply to San Acacia.San Acacio.)

Canine commemorative name. At the Western States Geographic Names Conference in Oklahoma, I received a proposal from Dianne and Jerry Wilson of Taos to name a previously unnamed peak in Taos County Cheever Peak, honoring a dog named Cheever who enjoyed hiking there with his owners, the proponents. (The USBGN in Okalhoma ruled that proposals to name places fo pets does not fall under their commemorative name policy, but they also rejected a proposal that would have created in (state) the name Joe-Honey Hollow, honoring two dogs who walked in the hollow with their owners, who also own the hollow.) The Taos County Commission, responding to an inquiry about the name Cheever Peak, made a counter proposal to name the peak O. G. Martinez Peak, honoring Onesimo G. Martinez, a descendant of an heir to the Antonio Martinez Land Grant, used locally for sheepherding before the grant became part of the Carson National Forest. The peak is 11.765 feet high and is located about 1 mile SW of Lobo Peak. It is not within a wilderness area.

Ceremonial Cave in Bandelier National Monument. In September I received an inquiry from a ranger at Bandelier National Monument expressing their desire to rename Ceremonial Cave, a popular visitor site there. They are about to republish a brochure and feel this would be a good time to rename the cave. The present name, they feel, inaccurately conveys the impression that the cave–actually an alcove–was used primarily for religious purposes, whereas in fact it was simply a residence. The Park Service fears Indian groups claiming ancestry in the canyon would be offended by the religious implication. While no alternative name has been offered, the two being considered are Piñon Alcove and House Alcove. I sent a copy of the USBGN form.

Piñon Meadows near Gallup. In August, Frank Traczewski wrote requesting that the name Piñon Meadows be formalized for a residential area he developed south of Gallup. I have sent him the form, and a preliminary check with committee member Bob Bass indicated the area already is being called by that name and is in keeping with similar names in the area. The GNC should be able to make a recommendation at its meeing on January 19, 1996.

Casa Colarada/Turn. A native of this small but growing village south of Belen on NM 304 has asked the USBGN to change the village's official name from Turn, put on a now-defunct post office because the post office was located at a turn in the road leading to Mountainair. The road turn now is a dusty dead end, the post office has been closed for 57 years, but the name Turn persists on road signs and maps, including the state highway map.

In August I toured the village with the proponent of the name change and met with lifelong residents, as well as with newcomers to the area. All agreed the name Turn is confusing and that Casa Colarada is the name used locally. (It's used as well by the county newspaper, which is doing an article on the issue that should generate further input.) The GNC will vote on this at its January meeting.

Western States Geographic Names Conference. On September 6-9 I participated in the annual Western States Geographic Names Conference, held this year in Oklahoma. Salient points included:

(Continued on page 10)

Large Scale Data Standards and Guidelines Committee Update

As was reported in the Summer issue of *The Map Legend* (Volume 6, Issue 4), Large Scale Digital Mapping Standards and Guidelines are being developed to address the growing trend towards creating and maintaining map information in a digital format. This initiative is being led by the Joint New Mexico Geographic Information Systems Advisory Council (GISAC) and the New Mexico Geographic Information Council (NMGIC) Standards Subcommittee. The committee is working in conjunction with a current effort led by the Resource Geographic Information System (RGIS) Program to respond to counties' parcel mapping and related large scale digital mapping and GIS needs. While these Standards and Guidelines will be geared towards the ultimate goal of establishing functional and accurate Geographic Information Systems (GIS), they also are designed to facilitate the capture and maintenance of map data in digital formats that are not fully GIS based (i.e., AutoCad, Fastmap, etc.).

The task of migrating from a manual (analog) to a digital approach for mapping is a complex and expensive undertaking, filled with potential obstacles and pitfalls. The Large Scale Digital Mapping Standards and Guidelines are designed to assist mappers of large scale data in developing reliable, compatible, automated databases and are meant to provide a framework for optimizing and protecting the significant investments of time, effort, and money required to move from analog to digital mapping. The overall purpose of these Standards and Guidelines will be to:

- Ensure the compatibility and consistency of digital geo-spatial (map) data among the widest possible range of data developers and potential users.
- Avoid the creation of redundant data and/or the development of data structures that are limited by proprietary hardware/ software constraints.
- Promote the creation of digital data sets that are geared toward long-term database flexibility (and total life cycle application).
- Optimize the information (attribute) content of the digital geo-spatial databases.
- Establish procedures for achieving and maintaining the highest possible levels of both spatial and attribute accuracy.
- Facilitate the incremental development of data so that migration to a GIS can be achieved with minimal cost and effort.
- Add value to, and confidence in, data by documenting the source, procedures used, limitations, and potential that help to better understand the data.
- Help maintain a "corporate memory" minimizing the problems of staff turnover.
- Provide users with a tool for the evaluation of potential contractors and for the evaluation of deliverables.

(Continued on page 11)

Geographic Names Committee Report *(Continued from page 9)*

- The policy discouraging, if not actually prohibiting, new names in wilderness areas remains controversial but likely will be continued.
- As always, commemorative names pose the greatest problems. As seen above, with Cheever Peak.O. G. Martinez Peak, New Mexico also is subject to people using place names as footholds to posterity.
- The USBGN approved without discussion our recommendation to change the application of Fio Frijoles and the form of Ortega Creek (you all can sleep easier now).
- In a discussion of local versus historical use in evaluating name proposals, e.g., Steins versus Steens and San Acacia/San Acacio, the USBGN said: "Generally, local use should prevail unless local use is confusing or divided or in some cases if the historical name has been continuously published in/on multiple sources."
- Regarding so-called "improper" generics, as in a reservoir being called a lake and a Spanish name such as Media attached to an English spelling such as Canyon, the USBGN stressed that while consistency and accuracy are important, "in fact, generic terms in geographic names are not standardized and vary greatly locally and regionally."

By Bob Julyan, Chairman, Geographic Names Committee

Large Scale Data Standards and Guidelines Committee Update *(Continued from page 10)*

The current vision for the large scale GIS standards is composed of several key elements needed to create a complete, self-contained guide for the development and maintenance of GIS data. Included in the key elements for the standard are (1) data capture, (2) geodetic control and positional accuracy, (3) data content, (4) metadata standards, and (5) data transfer standards.

Data capture standards relate to the process of converting (capturing) data from hardcopy maps into a digital (computer) environment. The conversion process builds the foundation for the creation of the final GIS. The accuracy of the foundation directly affects the final quality of the GIS data. The capture standard will address various conversion techniques and give the user assistance in evaluating the results of the conversion process.

Positional accuracy and the geodetic framework used in conjunction with the data conversion process ultimately dictates the accuracy of the features represented in the GIS. The methods used to place the converted data into the "real world" have a direct effect on how reliable the data are. This section of the standards document will help the user evaluate different methods that can be used to create the geodetic framework and their resulting positional accuracies.

Data content (attributes) refers to the unique record information related to the map features (i.e., a parcel) such as UPC codes, land ownership, assessment data, address, etc. To ensure that the final parcel base is useful to the Assessors Office, as well as other offices, it is very important to design the database to include the parcel's geographic location and all associated information. This information can be matched (related) to the parcel, thereby providing a complete representation of the parcel. The map features and associated attributes addressed in the data content standard will include lines, points, and polygons.

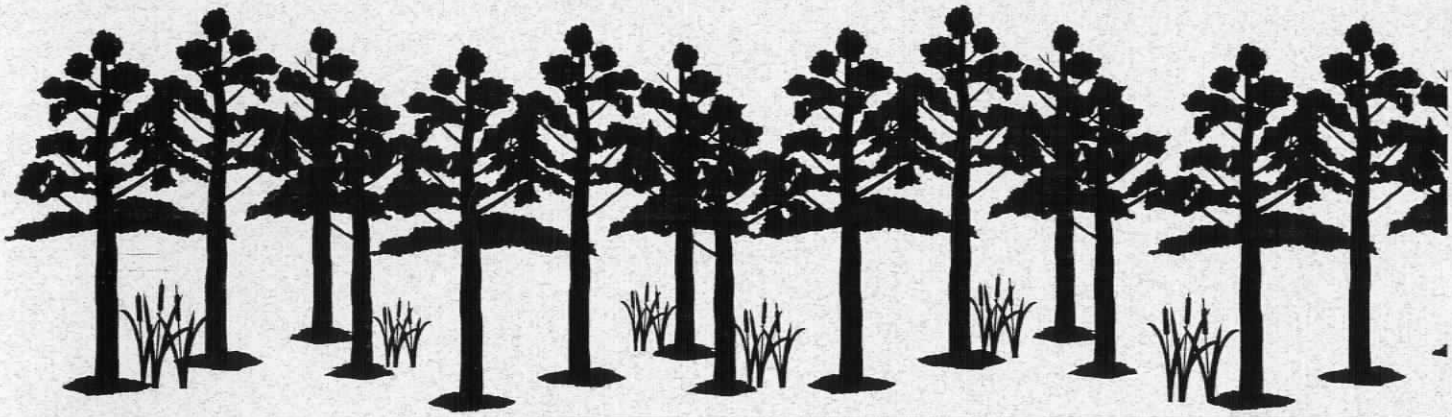
Records should be kept about GIS data. These records are called metadata (data about data). By adhering to a metadata standard, an agency knows exactly how the data were captured, the accuracy of the data, what unique record information is associated with the map features, and how current the data are. This section of the standard will also address the minimum requirements to comply with the Federal Geographic Data Committee (FGDC) Metadata Standard.

The final section of the standard will give the user information required to evaluate different data transfer technologies. One of the key components of any GIS is the ability to import and export data to other systems. Most CAD, Automated Mapping, and GIS software have some way to import and/or export the coordinate data that creates the map features. The software should be able to import/export the attribute data, as well as the map coordinate data, to give the user maximum flexibility and growth potential. This final component of the standard will assist in the evaluation of import/export functionality and also give a brief overview of what is required to comply with the Federal Spatial Data Transfer Standard.

Recommendations for printing or plotting hardcopy maps from the GIS will be addressed in the cartographic guidelines. The cartographic guidelines will help the user to follow good cartographic (map making) practice for professional final map production. These guidelines will include: recommended map feature and cartographic symbology (scale bars, north arrows, etc.), recommendations for labeling features on the map, and additional text to be included for map identification and orientation.

The current target data for completion of the Large Scale Standards is July 1996. If you are interested in lending input to this activity or have questions, contact Erle Wright, Joint GISAC/NMGIC Large Scale Standards Committee Chair (505 986-6350), or Bill Baillargeon, GISAC Chair (505 827-2047). Progress on this activity will be announced in future issues of *The Map Legend*. Information on this activity may also be accessed through the GISAC World Wide Web Resource at: http://www.state.nm.us/gisac/gisac_standards_committee.html

By John Peterson, Vice President, NMGIC, and Rich Friedman, NMGIC Workshop Coordinator



Recommended Changes to Bylaws *(Continued from page 5)*

3. Jessie Rossbach forwarded a question to Amy about whether there was any confusion or conflict in not having the Secretary and Treasurer voted on by the Board, rather than appointed by the President as currently indicated in the Bylaws. The Board members decided to leave the Bylaws as they currently stand, with the President and Vice-President elected by the Board members, and the Secretary and Treasurer appointed by the President.
4. In Article VII, the Board felt there was a need to add language about proxy voting by Board members. All Board members are volunteers, and may not be able to attend all meetings. However, according to Article VII, the Bylaws may be amended only by a two-thirds vote of the full Board. Since the Board has 9 members, 6 members would need to be present and vote affirmatively for a change, under the current Bylaws. The Board recommended that the following sentence be added to the end of the section to allow for proxy voting: "A Board member may submit a vote via written, signed proxy delivered to the Board by the time of the Board meeting. Not voting constitutes abstension."

Comments on these recommended changes should be submitted to Millie Eidson, NMGIC Secretary (see page 15 for her address). A copy of the Bylaws are available upon request.

National States Geographic Information Council Annual Meeting *(Continued from page 8)*

opportunity to meet and establish professional relationships among one's counterparts in other states. Such a peer network is an invaluable resource.

This year's annual meeting included sessions on partnerships among public agencies (Leveraging Resources Through GIS Partnerships, Updating TIGER/Integrating Demographics: Partnerships with States, Building a National Digital Orthophoto Framework, FGDC, and NSGIC) as well as among public agencies and the private sector (GIS Database Development by Public/Private Partnership). Such partnerships can be used to leverage resources for database development and provide a mechanism for interagency program coordination. Other sessions focused on the nature of such partnerships and of state coordinating bodies (Getting Volunteer Organizations to Work, GIS Legislation: From Idea to Printed Page). Some are volunteer in nature and the presentations related to getting such volunteer organizations to work. Other coordinating bodies are mandated by either legislative or executive action and discussions provided guidance on working in the political arena and achieving such a mandate.

There were sessions dedicated to the workings of state data coordinating bodies, including the establishment, maintenance, and distribution of state geospatial data. One session focused on establishing a state base map (Putting Together Your State Base Map); another on using GPS in GIS database development (GPS). Bill participated in a panel discussion on data distribution presenting the RGIS example (Distribution-Ready Data). Others on the panel presented other approaches. Another session focused on data distribution over the Internet (New Methods for Accessing Geographic Information). Several sessions were given over to the FGDC Metadata Standard and its implementation (Implementation of the FGDC's Metadata Content Standard, Introduction to the FGDC's Content Standards to Digital Geospatial Metadata).

The Annual Business Meeting convened on September 19. Results of the NSGIC Board of Directors election were announced: Hank Garie (New Jersey) was elected President-Elect, and Hal Anderson (Idaho), Paul Davis (Mississippi), and Richard Memmel (Wyoming) were elected to the Board. The Council membership approved several minor and, for the most part, non-controversial changes to the NSGIC Bylaws. The Council approved a "Resolution in Support of a Formal Partnership for the National Spatial Data Infrastructure." This resolution supports the development of a partnership agreement among parties with an interest in the NSDI to ensure that the interests of those of the academic and private sectors are considered in the development and governance of the NSDI. In closing, outgoing President, William Holland (Wisconsin), turned the gavel over to the new President, Bruce Westcott (Vermont).

For further information about NSGIC and the NSGIC Annual Meeting, contact Bill Baillargeon at 505 827-2047.

By Bill Baillargeon, Chairman, NMGIC GIS Committee

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