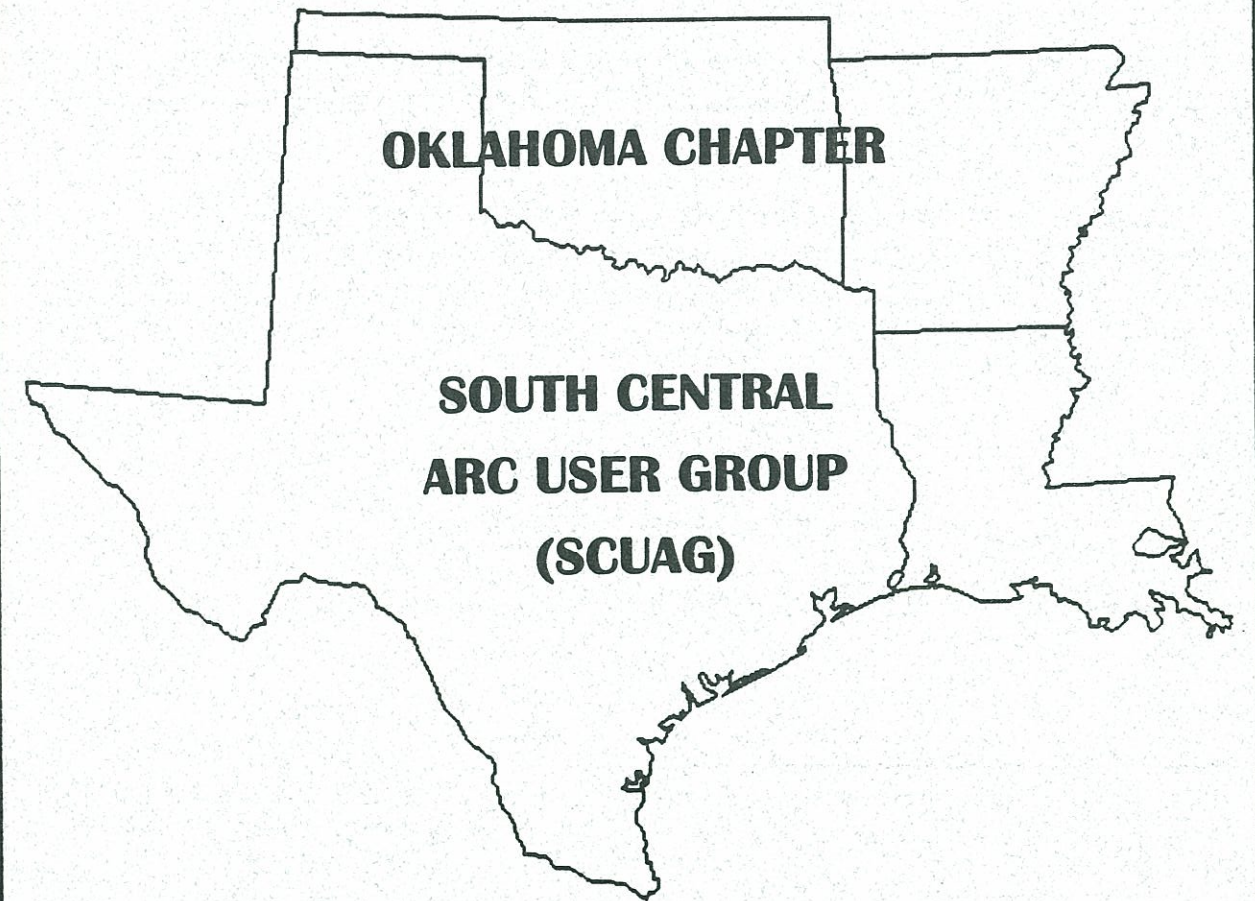


1997 OKLAHOMA ARC USER CONFERENCE



SEPTEMBER 18, 1997

METRO TECH, OKC

**1997 OKLAHOMA ARC USER CONFERENCE
SOUTH CENTRAL ARC USER GROUP,
OKLAHOMA CHAPTER
SEPTEMBER 18, 1997, METRO TECH, OKC**

Greetings:

We are very pleased you are attending the first annual conference of the Oklahoma Chapter of the South Central ARC User Group and hope you find the conference informative.

We wish to sincerely thank the ESRI San Antonio Office for the many contributions they have made to the conference: the staff, equipment, and the Door Prizes. The Regional Group also provided support and enough encouragement for us to venture into our first state conference. We especially thank the corporate sponsors for their financial support:

The CEDRA Corporation
Data General Corporation
M. J. Harden Associates, Inc.

Look forward to next year's Oklahoma ARC User Conference.

Sincerely,
Steering Committee
Jann Hook, Chairperson
Sara Cobb
Rich Davis
Rachael Noon
Alan Rea
Jayne Salisbury

NOTES

1997 OKLAHOMA ARC USER CONFERENCE
SOUTH CENTRAL ARC USER GROUP,
OKLAHOMA CHAPTER
SEPTEMBER 18, 1997, METRO TECH, OKC

CONFERENCE SCHEDULE

- 8:00 Registration opens
- 8:30-4:30 Special Events open all day in the *Garden Room*:
Doctor's Office
Poster Display
Demo Area
Sponsors Table
- 9:15-9:30 Welcome by Jann Hook, Chairperson, Oklahoma Chapter
Auditorium
- 9:30-9:45 Opening Remarks by Shiela Cobb, Office Manager, ESRI San Antonio Office *Auditorium*
- 9:45-10:45 Keynote Address by Charles Killpack, General Manager and Director of Worldwide Sales for ESRI *Auditorium*
- 10:45-11:00 Break
- 11:00-12:15 Concurrent Technical Sessions:
1.a. ArcView 101: Introducing Avenue
Auditorium Speaker: Dal Hunter
1.b. ARC/INFO: The Road Ahead
Blue Room Speaker: Cecil Lamb
- 12:15-1:45 Lunch *Garden Room*
- 1:45-3:00 Concurrent Technical Sessions:
2.a. ArcView Applications
Auditorium Speakers: Tom Wesp and Ron Hughes
2.b. Advanced Avenue
Blue Room Speaker: Henry Hagemeier
- 3:00-3:15 Break
- 3:15-4:30 Concurrent Technical Sessions:
3.a. Using the ArcView Internet Map Server
Auditorium Speaker: Dal Hunter
3.b. Introduction to MapObjects and MapObjects LT
Blue Room Speaker: Henry Hagemeier
- 4:30-4:45 Break
- 4:45-5:00 Closing - Door Prizes!!! *Auditorium*

Technical Sessions

1.a. ArcView 101: Introducing Avenue

Especially for beginners, this session introduces Avenue, the ArcView object-oriented programming language. This session should enable you to know the fundamental concepts of Avenue, customize ArcView, and write Avenue scripts.

1.b. ARC/INFO: The Road Ahead

Find out what you can look forward to in the next versions of ARC/INFO, from 7.1.2. to 8.0.

2.a. ArcView Applications

This session will highlight several ArcView 3.x applications developed by ESRI, third-party vendors and user sites, including the watershed delineation tool developed by ESRI and the State of Texas. The functionality of each application will be demonstrated.

2.b. Advanced Avenue

For experienced Avenue programmers, this session discusses the more advanced tools for creating and delivering custom applications. Topics such as customized types, extension building, using DLLs, and interapplication communication will be covered.

3.a. Using the ArcView Internet Map Server

Learn how to publish maps over the Internet using ArcView. This session will show what can be done with the standard ArcView product as well as how to build custom solutions.

3.b. Introduction to MapObjects and MapObjects LT

This session will discuss MapObjects' component architecture and describe how it can be used to build a wide variety of applications. It will introduce programming with MapObjects using Visual Basic and demonstrate features and functions in both products using sample applications.

Biographies of Keynote Speaker and Session Speakers

Chuck Killpack

General Manager and Director of Worldwide Sales

Charles Killpack is currently the General Manager and Director of Worldwide Sales for ESRI in Redlands, California. Mr. Killpack's responsibilities include product development and general management of ESRI at the corporate level.

He was previously Regional Manager for the ESRI office in Charlotte, N. C., and provided marketing support for ESRI in both the United States and internationally. He has been involved in many GIS projects and is actively involved in ESRI's product development as it relates to future directions for the company. Mr. Killpack has been involved in ESRI's research and development activities for future desktop mapping products.

In addition, Mr. Killpack has over 20 years experience in all aspects of GIS including research, teaching, project management, and marketing. In 1976, while at the Holcomb Research Institute, he directed a ground-breaking research effort incorporating Landsat data with GIS for water quality planning. As President of IRIS International, Mr. Killpack managed GIS projects for U.S. AID and the World Bank in countries such as Egypt and Malaysia.

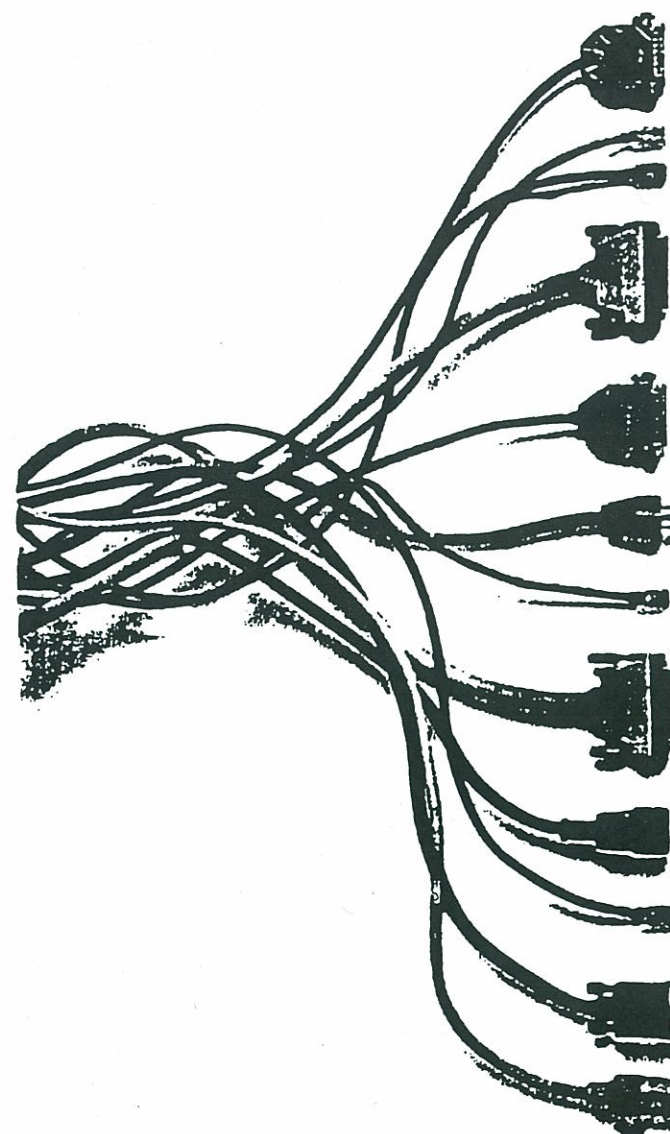
Mr. Killpack was a Professor and Research Associate at Utah State University where he taught and did research on applications of GIS to Regional Landscape Planning. Mr. Killpack has a Master's degree and is a graduate of Harvard's Graduate School of Design where he participated in one of the first research projects using computer mapping for analyzing trends and impacts of urbanization in the Boston area. He has written many papers and given presentations on topics related to GIS and its impact.



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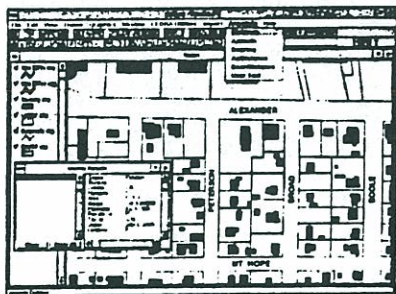
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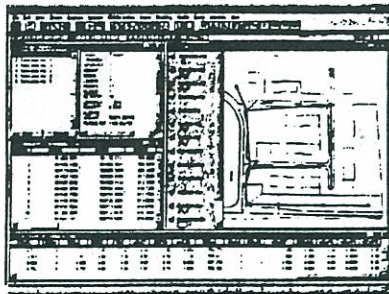
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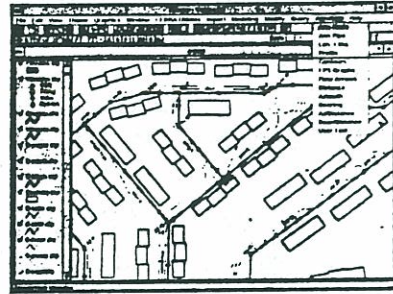
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- Automatic Profile Generation
- Robust Query & Display Tools
- Robust Annotation Tools



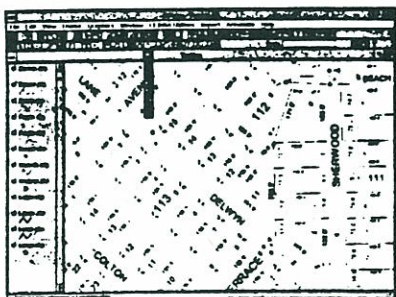
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- Layering and Dimensioning



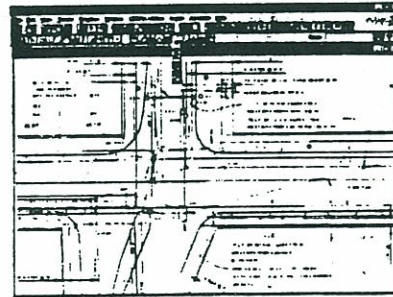
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Henry Hagemeier

Technical Marketing Representative

Before joining ESRI 2 ½ years ago, Henry was the Senior GIS Technical Specialist (Grade IV Level 2) for a county appraisal district in Texas. He graduated from The University of Texas with a dual major of Anthropology/Geography in 1983. Henry's main duties at ESRI are application development, usually in MapObjects and ArcView. He also programs in various languages, unless the language has the letter "g" in it (just a personal preference).

Ron Hughes

Senior Marketing Representative

Ron has worked in the San Antonio office since 1994. He focuses primarily on the petroleum industry. Prior to joining ESRI, Ron was project manager for Real Estate and Oil and Gas mapping projects for a technical division of the Stewart Title Company.

Dal W. Hunter

Technical Marketing Representative

Dal is a new addition to the San Antonio office. He received his bachelor's degree from Southwest Texas State University and is currently finishing his master's degree there as well. Responsibilities and duties at ESRI include application development for Arcview, MapObjects, and ArcInfo. Prior to working at ESRI, Dal was a freelance programmer/ photographer.

Cecil H. Lamb

Senior Technical Marketing Specialist

Cecil has worked in the San Antonio office since 1992. He specializes in Transportation and Crime Analysis applications, as well as handling technical issues such as system design and implementation, software installation and configuration, and general troubleshooting. Prior to coming to ESRI-San Antonio, Cecil was in-charge of the New York State Department of Transportation's System Support Unit, providing GIS and Cartographic product support and solutions. Cecil is a 1986 graduate of the University of Buffalo.

Kenneth A. Smith

Technical Marketing Specialist

Ken has worked for ESRI - San Antonio office since May of 1995. He specializes in ARC/INFO and ArcView technical support, answering general ESRI product questions as well as providing technical expertise for Utilities. Prior to employment at ESRI-San Antonio, Ken worked as an electrical engineering applications programmer, using ESRI software at a company providing software, support, and computer time-share services to Rural Electric Utilities. Ken received his diploma in Electronic Technical Engineering at the University of Denver in 1974.

Tom Wesp, AICP

Senior Technical Marketer

Tom has been with ESRI since 1995. His primary duties include assisting new and existing users with incorporating the latest technology into their systems. His specialties include user needs analysis and implementation support. His primary focus is local and state government but also provides general assistance to users in Oklahoma and Houston and Austin Texas. Prior to coming to ESRI, Tom was a Chief Regional Planner for the Houston-Galveston Area Council. There he managed the GIS for the Community & Environmental Planning Department as well as being project lead over various regional planning projects and overseeing the computer operations of the department.



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Poster Abstracts

Borchardt, Bobbie

City of Oklahoma City Geographic Information System

The City of Oklahoma City geographic information system (GIS) uses a framework reference coordinates derived from surveyed ground control points which were established by a planimetric and topographic mapping project in 1990. Establishing 315 Global Positioning System (GPS) set control monuments throughout the City, all monuments are tied to the Oklahoma State Plane Coordinate System, North Zone, NAD83 datum. The positional control of this data was then used to adjust all subsequent data entered into the GIS as layers. As a result, all data is "tied" to the same control basis so that every layer can be positionally overlaid from either library tiles or city-wide coverages. The bearing basis of platted lot and block information was also adjusted to align to this data, however, all subdivision metes and bounds were COGOed using coordinate geometry routines into the GIS in order to retain the original surveyed distance and bearing as an attribute of each lot line. Land surveying jobs now done by City crews also utilize these GPS monuments so that new work can be integrated into the GIS directly and eventually all surveying data submitted to the City will use them as well.

The first poster shows some of the 25 layers available, including digital orthophotography, subdivision lots and blocks, street centerline, water lines, and land use.

The second poster illustrates the accuracy of the data that is available and how several of these layers overlay together.

City of Oklahoma City GIS, 420 W. Main Street, Suite 930, Oklahoma City, OK 73102-4435;
Email: borchardt@ci.okc.ok.us

Eckhart, Jeff

Brookhaven Creek Vacant Lot Study

The Brookhaven Creek Vacant Lot Study was conducted to determine the feasibility of building a linear park along Brookhaven Creek in west Norman. The vacant lot study was useful in determining the amount of land to be purchased by the city for creation of the park.

Data used for this project included a parcel database, stream coverage, annotation coverages, and a structure database for the city of Norman. This data was used to answer the following questions:

1. Which Norman parcels fall within an 80 foot buffer zone of Brookhaven Creek?
2. Which Norman parcels fall within an 80 foot buffer zone of Brookhaven Creek and are currently vacant?
3. Which Norman parcels fall within an 80 foot buffer zone of Brookhaven Creek, are currently vacant, and are owned by the city?

Several methods were used to find solutions to the preceding questions. First, an 80 foot buffer was created for Brookhaven Creek. Next, the parcels within 80 feet of the creek were identified. Then, vacant parcels within 80 feet of the creek were selected based upon the presence of a structure on the parcel. Since structure data were derived from 1992 aerial

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values. These were contoured using the LATTICECONTOUR command to produce the final maps. The Dog Creek Shale Thickness coverage was created by digitizing the 0, 60 and 100 foot isopach contours.

The final map showing the area of optimal recharge well placement was constructed by using the INTERSECT command to overlay the Irrigation Pumping Center, Depth-to-Water, and Dog Creek Shale Thickness coverages. The final map displays were created in ArcView.

Oklahoma Water Resources Board, 3800 North Classen Boulevard, Oklahoma City, OK 73118; Phone:(405) 530-8800; Fax:(405) 530-8900; Email: niosborn@owrb.state.ok.us, eeckenstein@owrb.state.ok.us, mpsughru@owrb.state.ok.us

Salazar, Deborah and Brian Baker

Constructing an Operative Statewide GIS

Many state and regional agencies charged with comprehensive monitoring of social and environmental conditions find utility in using Geographic Information System technology. Managers of Geographic Information Systems that track or analyze conditions at the statewide level have need of powerful strategies for organizing and designing their geospatial databases. Often staff who are new to GIS technology have few references for designing an operative GIS that is both a comprehensive repository of data and is easy and efficient to manage. We suggest a strategy for a statewide GIS database that provides both a strong organizational framework and facilitates easy update and manipulation of data. Coverages are organized by county within the framework, but use the Federal Information Processing Standard to facilitate easy use of looping programs to update or manipulate data. Standardized naming conventions for coverage names and attribute items further simplify management tasks for these large datasets. Strong organizational structure and consistent database policies will serve to create a solid base for future GIS evolution.

Department of Geography, Oklahoma State University, Stillwater, OK 74078;
Phone: (405)744-9179, Fax: (405)744-5620, Email: salazar@okway.okstate.edu,
baker@seic.lse.okstate.edu

photos, the remaining vacant parcels were field checked for accuracy. Finally, those vacant parcels which are owned by the city were selected using the city's ownership database.

This information was placed in a map for review by the Director of Public Works. The area is still being studied to determine the feasibility of building a linear park. The Norman GIS proved useful in assisting administrators in making decisions on what to do with Brookhaven Creek.

City of Norman, 201-A West Gray, Norman, OK 73069; Phone: (405)366-5436, Fax: (405)366-5418, Email: gis@telepath.com

Farley, John and Sara Cobb

Monumentation in the City of Edmond

In 1994, the City of Edmond implemented a geographic coordinate base of high precision on all section corners throughout the City of Edmond. This high precision coordinate system provides a consistent and accurate base upon which other projects are unified. All section corners within the boundaries of the City of Edmond limits are set with permanent markers and are referenced to the State of Oklahoma's High Accuracy Reference Network (HARN) which was adjusted by the National Geodetic Survey. The markers are maintained within the City to provide access to others working within the City of Edmond limits.

This poster was developed to show the monumentation within the City of Edmond. The main portion of the map displays digital images of the monumentation imposed on a map of a square mile section. An inset map within the poster shows the locations of all City monumentation. Also shown is an inset with a sample data sheet which contains the attributes of individual monuments.

Size: 40"x32", Software: ArcView 3.0a and ARC/INFO 7.1, Hardware: Pentium-based PC, Plotter: HP 755CM, Data Source: The City of Edmond GIS Database, Field survey with digital camera.

City of Edmond, MIS Department, 100 East First St., Edmond, OK 73083;
Phone: (405) 359-4518, Fax: (405) 359-7238, Email: jfarley@ionet.net, scobb@ionet.net

Farley, John and Sara Cobb

Planning with GIS

One of the many areas in which the City of Edmond utilizes GIS is the site planning review for new development. This review process involves integrating new data from the public and private sectors into the City's existing GIS database. One of the first steps is to take a submitted drawing, usually in an AutoCAD .dwg file format, and place it within the City's base data so it can be reviewed in the context of the whole City. The planning review team can then reference the proposed changes with all current available GIS data.

The poster shows the integration of an unregistered submitted preliminary CAD drawing with the City of Edmond's GIS database. The first inset shows the preliminary CAD drawing. The second inset shows the base data layers of the City in the same area as the preliminary CAD drawing. Finally, the third inset portrays the integration of the preliminary CAD drawing with the base data.

Size: 40"x32", Software: ArcView 3.0a and ARC/INFO 7.1, Hardware: Pentium-based PC, Plotter: HP 755CM, Data Source: Submitted preliminary plat of the Villas at Kensington Garden, The City of Edmond GIS Database

City of Edmond, MIS Department, 100 East First St., Edmond, OK 73083;
Phone: (405) 359-4518, Fax: (405) 359-7238, Email: jfarley@ionet.net, scobb@ionet.net

Knapp, Larry

Sanitary Sewer Service Basins and Major Collection Lines

This map was created for the Planning, Public Works and City Managers Departments to assist in the analysis of existing and potential sewer capacity and problems within the City of Norman. The initial questions posed was to identify potential areas for fire development within existing sewer service basins. The map now serves as a reference document in areas such as zoning administration, land use planning and regulation, plat review, site development planning, and perhaps most importantly, the planning of a new wastewater treatment facility.

Several examples can be used to illustrate the importance of the information depicted in planning for the new wastewater treatment facility. Gravity service basins that are heavily impacted by lifted service areas are clearly illustrated on the map. Large unplatted tracts of land in existing lift areas and potential new lift areas can be examined. Existing problems are apparent. For examples, large lines that feed smaller lines can be easily identified. These situations can be eliminated in the process of upgrading the system.

The map combines several layers from the City of Norman Geographic Information System. Some of the layers were exiting and some were created with this map and analysis in mind. Existing layers included Sanitary Sewer Lines, City Limits, and Parcels; Service Basins were created using Drainage Basins and Sanitary Sewer Lines with input from the City Engineer.

City of Norman, 201-A West Gray, Norman, OK 73069; Phone: (405)366-5436, Fax: (405)366-5418, Email: gis@telepath.com

Lowther, David

GIS as a Development Support Tool

The first phase of the platting process is planning. The City of Norman GIS currently maintains the sanitary sewer lines and service basins, structures, parcel boundaries, 2' contours, streets and other paved areas, zoning and the City's comprehensive plan as layers

in a GIS. The City's water and storm sewer layers are currently under construction. This information is made available to developers to assist in their decision to pursue development in Norman.

The next step in the platting process is submission of a Plat. When the City of Norman receives the Plat, several processes begin:

- Notification of property owners within 300 foot radius (excluding streets) - RADIUS MAP
- Preparation of agenda item to send to Planning Commission - LOCATION MAP
- Staff evaluation of Preliminary Plat- PLANIMETRIC MAP, LANDUSE MAP, and ZONING MAP

Staff will also require a PROTEST MAP if any protests are made by the notified property owners. Staff then sends the Plat to Planning Commission.

Planning Commission then receives and recommends adoption or rejection of the Plat to City Council. To reach a decision, the Planning Commission reviews Staff recommendations, hears citizens' opinions, and reviews LOCATION, ZONING, PLANIMETRIC, LANDUSE, and PROTEST MAPS. The City Council follows a process similar to Planning Commissions' and makes the final decision to adopt or reject the Plat.

The GIS Department then updates several standard map layers including:

- PARCELS
- ZONING
- SANITARY SEWER
- STORM SEWER
- WATER

These map layers are then used to update many wall maps and standard products (i.e. SANITARY SEWER ATLAS) currently in use by City Employees

City of Norman, 201-A West Gray, Norman, OK 73069; Phone: (405)366-5436, Fax: (405)366-5418, Email: gis@telepath.com

Osborn, Noel, Edward Eckenstein, and Michael Sughru

Optimal Area for Artificial Recharge Wells in the Blaine Aquifer

Gravity flow recharge wells are used in southwest Oklahoma to augment groundwater supplies in the Blaine aquifer, which is heavily pumped for irrigation. Artificial recharge offsets seasonal and long-term water level declines and prevents wells from going dry in times of drought. For recharge wells to be most effective, three criteria should be met. Wells should be placed (1) up gradient or within irrigation pumping centers, (2) where water depth is greater than 20 feet, and (3) where cavern development is good.

ARC/INFO was used to determine the optimal area for drilling new recharge wells. An Irrigation Pumping Center coverage was constructed from seasonal water level change maps. A Depth-to-Water coverage was created to designate areas where water depth is greater than 20 feet. A Dog Creek Shale Thickness coverage delineates the areas where cavern development is greatest.

Point coverages of depth-to-water and water-level changes were created using the RESELECT command to query an external database of water levels. These coverages were used as input for the TOPOGRID command to produce a grid of interpolated water-level