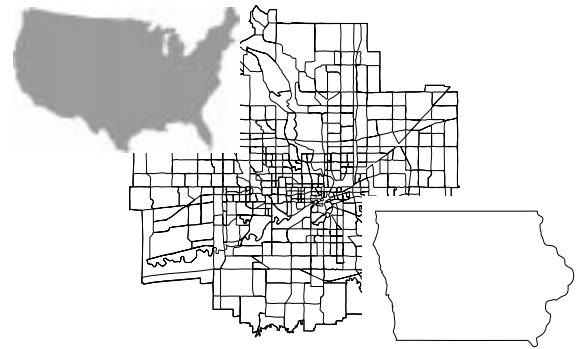


Coordinated GIS



Sharing data, exploring standards, and facilitating cooperation among Iowans who use Geographic Information Systems

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GIS across Iowa

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MidAmerica GIS Symposium in May

"Sharing Common Ground" is the theme of the 1998 MidAmerica GIS Symposium (MAGIS) coming May 4-7, 1998, to Lincoln, Nebraska. More than 500 people from throughout the Midwest and Great Plains are expected to attend this important event.

MAGIS will include over 20 short courses on GIS and GPS topics, a plenary session with national experts, breakout sessions on GIS issues, and breakout sessions for

people who work in the same area (e.g., property assessment or transportation). Participants will also view vendor exhibits and project showcases, including computer demonstrations and posters.

The conference is co-sponsored by the Iowa Geographic Information Council (IGIC). The IGIC is now alternating its Iowa conference with MAGIS, so the next Iowa conference will be in 1999.

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GIS helps traffic engineers and planners

The GIS-based traffic planning tools (GIS-TPT) project strives to develop procedures and methodologies for traffic engineers and planners at both the state department of transportation and regional and metropolitan planning organizations. The focus of the project is to develop tools for agencies that do not have full-blown travel demand forecasting models. The project examines three main impact areas: bypass

analysis for smaller communities, site impact analysis, and interchanges justification for the interstate system and major corridors throughout the state.

The bypass analysis uses the GIS package to collect data (roadway, census, employment) related to the affected community and assists in constructing new travel demand forecasting networks for the area

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coordinated GIS is a publication of the Iowa Geographic Information Council. The council is a partnership consisting of representatives of the geographic information system (GIS) user community in Iowa.

The GIS community includes federal, state, and local government agencies; universities; businesses; and nonprofit organizations that use or are planning to use GIS or global positioning system (GPS) technologies. These powerful technologies combine electronic maps, databases, and precision locations and can be used to improve decisions, save money, and enhance the quality of life of Iowa's citizens.

For more information about the council and its activities, contact the following members:

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We welcome your comments and suggestions regarding **coordinated GIS**. What would **you** like to see in this newsletter?

Submit suggestions or questions to Reg Souleyrette

- by e-mail to reg@iastate.edu
- by mail (disk copy preferred; see the address listed above) or
- by fax to 515-294-0467

or to Marcia Brink

- by e-mail to marcia@ctre.iastate.edu or
- by fax to 515-294-0467

The opinions, findings, or recommendations published here are those of the authors and do not necessarily reflect the views of the Iowa Geographic Information Council.

Managing Editor — Reg Souleyrette

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Cover depiction of traffic analysis zones courtesy of the Des Moines MPO.



Conference

MidAmerica GIS Symposium in May

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Plan to attend MAGIS. For more information, visit the World Wide Web: <http://msdis.missouri.edu/magic/magic98.html>

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GIS helps traffic engineers and planners

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using scenarios with and without the bypass. After processing the networks through a travel modeling package, the assigned traffic volumes are incorporated into the GIS for comparison and analysis.

GIS is used in the site impact analysis to help define the location of the development, assist in determining the extent of the impact the development will have, and calculate roadway traffic and turning movement volumes associated with the development. The information will be stored in the GIS in a usable format until the data will be entered into a traffic analysis package.

Interchange justification involves developing different travel demand

model network alternatives for different interchange locations and designs and using the GIS package to evaluate the effect of different alternatives. A GIS-based analysis that has proven useful in interchange evaluation is the ability to graphically identify the origin and destination of all trips using an interchange or specific ramp, which provides an assessment of the interchanges impact on the community.

All three elements of the GIS-TPT project are being examined and an educational series of instructions is being developed. The series will be made available on the World Wide Web to assist users in performing any of the three analyses. This instructional site will contain sequential directions for each analysis and a site map containing all the pages for users who wish to answer specific questions.

The GIS-TPT project is being conducted by the Center for Transportation Research and Education at Iowa State University and is funded by the Office of Systems Planning, Iowa Department of Transportation. For additional information contact the author:

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Developing a GIS for Iowa's architectural and archaeological heritage

The need for information about historic places in Iowa is not limited to scholars and educators but also extends to government agencies and the public. Two agencies are responsible for compiling statewide data on sites of cultural and historic value in Iowa. The Office of the State Archaeologist (OSA) at the University of Iowa maintains a computer database of about 18,000 archaeological sites, locations of which are recorded on 850 7.5-minute USGS quad maps. At the State Historical Society in Des Moines, the State Historic Preservation Office (SHPO) keeps an archive of approximately 6,500 reports on archaeological and historic architectural surveys conducted in the state. Survey locations are recorded on mylar overlays of 7.5-minute quads, and data from the reports are entered in the National Archaeological Database. In addition, SHPO is creating a computer database of its statewide inventory of about 100,000 historic buildings and other structures.

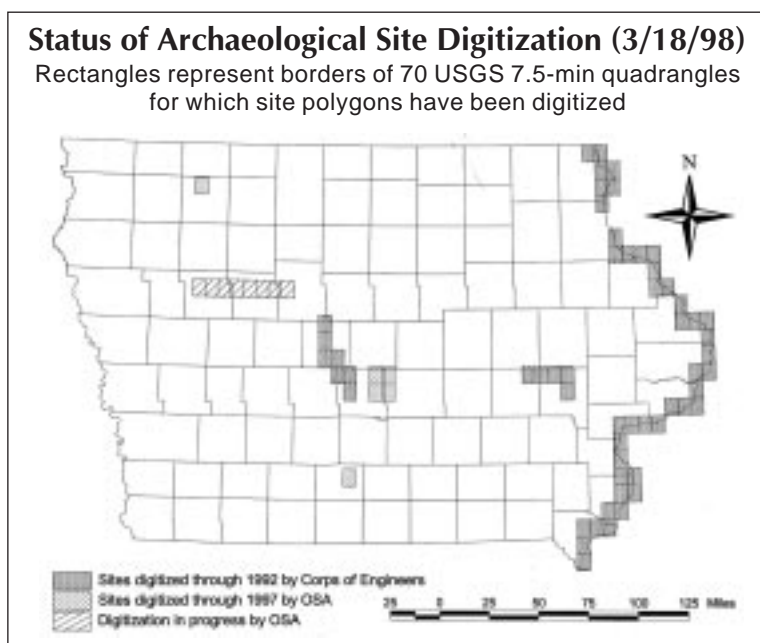
All three databases (sites, surveys, structures) are growing rapidly as historic preservation efforts continue throughout Iowa. In 1997 alone, information on 841 previously unknown archaeological sites was added to OSA's archaeological site file. Demand for the data is also growing dramatically. In 1997 requests from outside agencies for searches of OSA's archaeological sites database increased 85 percent over the previous year.

The SHPO and OSA will soon begin a three-year project to develop an Iowa Cultural Resources GIS. Funding is from the Federal Highway Administration under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. ISTEA funding is appropriate because many cultural resource surveys conducted in the state are carried out in advance of road improvement projects as part of the Iowa Department of Transportation's (Iowa DOT) compliance with federal historic preservation regulations. The advantages of a cultural resource GIS have been demonstrated by a number of pilot projects (see sidebar on page 4).

The Iowa Cultural Resources GIS will have three components. Archaeological site locations will be digitized by OSA from USGS quad maps. Cultural resource survey locations will be digitized by SHPO from maps maintained at that office. The SHPO will use address-matching software to geocode historic

structure locations. The GIS Support and Research Facility at Iowa State University and the Geological Survey Bureau of the Iowa Department of Natural Resources will provide technical support for the project.

The digitized site, survey, and structure locations will be linked to the appropriate databases. By linking map locations to information about sites, the GIS will enable Iowans to better identify and protect historically important properties. The time needed to identify where sites have previously been found and surveys previously conducted will be reduced. Information availability will be enhanced by remote access to the data through modem connections and the Internet. Researchers and planners will be



Developing a GIS for Iowa's architectural and archaeological heritage

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able to quickly compile large, statewide data sets for purposes of analysis, inventory, and predictive modeling.

Once created, the GIS will be continually updated as surveys are conducted and discoveries made. The information will be shared with key state and federal agencies, as well as researchers, educators, and the public. Access to the information will be hierarchically restricted as appropriate (see sidebar) to protect property owner rights and to ensure confidentiality of culturally sensitive archaeological site locations. Once completed, the GIS will enable planners, researchers, educators, and the general public to use and exchange information about archaeological and architectural sites throughout the state.

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Examples of how GIS for Iowa's cultural resources will work.

GIS in Iowa archaeology: pilot projects

- In early 1997, OSA used ArcView to generate a GIS of all known human burial sites in the state. A buffering procedure was used to identify those sites within 10 kilometers of city limits, identifying a list of those sites most endangered by urban expansion. Because human burials are protected from disturbance by state statute, such lists are a useful, if not essential, planning tool. In another pilot project, OSA archaeologist John Hedden used ArcView GIS to trace the spread of Native American agriculturalists into southwestern Iowa around 1000 C.E.
- In the early 1990s the U.S. Army Corps of Engineers digitized all known archaeological site locations on and near lands administered by the Corps' Rock Island District. OSA recently linked these data to the OSA site records database. Now, retrieving information on one or more of the approximately 2,200 sites in the GIS is as simple as locating them on a display.
- Archaeologists at OSA and Bear Creek Archaeology (a Cresco, Iowa, consulting firm) are using GPS, GIS, and CAD technologies to determine the location of archaeological sites in the vicinity of proposed Iowa DOT road building projects. Site locations recorded in State Plane coordinates can be precisely located on Iowa DOT design drawings, permitting planners to more effectively consider historic preservation in early stages of design.

Iowa cultural resources World Wide Web page: A day in the life, October 15, 2001

- A private developer, via an Internet connection, views a map of Dallas County that is divided into quarter-section parcels. Each parcel is color-coded according to its likelihood to contain prehistoric burial mounds. He takes this information into account in selecting locations for a new housing development.
- A professional archaeologist views the same map but, after entering a password, gains access to a more detailed data layer that shows individual archaeological site locations. She downloads site polygons and associated data tables to use in planning a survey in advance of an Iowa DOT road building project. Later that day, having found a 3,000-year-old campsite of the Late Archaic period near the proposed right-of-way for the new road, she uploads the site location and attribute data to be added to the Cultural Resource GIS. She also exports the site location in CAD format to the Iowa DOT in Ames, where engineers are creating preliminary design plans for the road.
- Middle school students in Muscatine, studying the prehistoric cultures of Iowa, "surf" to the Iowa Cultural Resources World Wide Web site to study maps of the distribution of prehistoric Native American sites in Iowa. Johnny clinches an "A" by noticing that the number of prehistoric sites found in Dallas County has increased by one from the previous week!

Mapping highway accidents

This article is adapted from one printed in the February 1998 issue of *CTRE en route*.

The Iowa Department of Transportation's (Iowa DOT) computerized accident location and analysis system, PC-ALAS, is one of the best in the nation. And it just got better. The Center for Transportation Research and Education (CTRE) at Iowa State University is working with the Iowa DOT to develop a GIS-based accident location and analysis system: GIS-ALAS.

The first phase of the project—developing a system that reproduces the functions of PC-ALAS and incorporates graphic display and query capabilities—is completed. The project team selected and

evaluated three GIS software packages—MapInfo, ArcView, and Maptitude. Accident reference node cartography for Dallas County, Iowa, was imported into the GIS packages, along with five years of ALAS location and attribute data. (The conversion process for the entire state of Iowa takes about one week.) If the Iowa DOT's cartography is enhanced in the future (e.g., the nodes realigned to more accurate locations), the process can easily be repeated to update the accident locations.

Each of the resulting GIS-ALAS systems provides an immediate enhancement to PC-ALAS: users can now see accident sites on a map and, with a click of a mouse on a location, have access to more

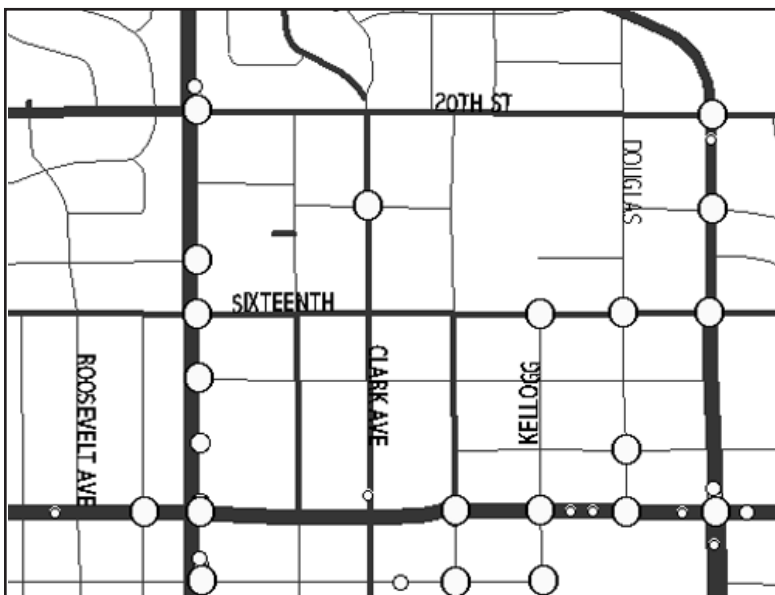
detailed information. Each system also provides a potential tool for finding discrepancies, such as missing roads in the cartography of recently developed areas, or incorrect coding in the accident file.

Such discrepancies might display, for example, an accident where there is no roadway in the GIS system.

The three software packages were evaluated according to their capacity to fulfill several requirements (accessibility, user friendliness, maintainability, report generation, etc.), and ArcView was selected for further development. ArcView GIS-ALAS was then customized to mimic the query functions of PC-ALAS while providing robust GIS capabilities like mapping and spatial queries.

ArcView GIS-ALAS is being designed to work with a commercial collision diagram software already selected for use by the Iowa DOT through another CTRE-managed project. Care was taken to avoid inefficient file structures, duplicate and orphan databases, etc., because ultimately the GIS-ALAS may be integrated with the Mobile Accident Reporting System (MARS) and other law enforcement applications, as well as other safety and engineering applications outside the current scope of ALAS. Throughout the programming process, compatibility with the World Wide Web has been considered.

CTRE has also developed a freeware version of the system, Explorer ALAS. This system allows users to simultaneously view crash data and background layers of information



On a GIS-ALAS display, the thicker street lines indicate higher traffic volumes compared to thinner street lines, and larger circles indicate higher numbers of personal injury accidents compared to smaller circles.

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Department of Natural Resources GIS data

The Natural Resources Geographic Information System (NRGIS) Library is maintained to provide spatial databases and imagery to Department of Natural Resources (DNR) staff. Much of the data is available to download off our NRGIS Library World Wide Web site: <http://www.igsb.uiowa.edu/nrgis/gishome.htm>.

The Iowa databases are free. They include many spatial data sets that can help someone make better natural resource decisions or just help someone get started in GIS. Data are currently available from the World Wide Web site in a compressed, ArcInfo Export (.e00) format. Perhaps by May 1998 the data will be available in a different compressed ArcInfo Export format as well as in either a compressed PC ArcInfo format or a compressed Shapefile (.shp) format.

Much of the NRGIS Library is also available in a set of six CDs. Each CD nominally covers about one-sixth of the state. Therefore there are northwest (NW), NC, NE, SW, SC, and SE CDs available. Most contain statewide spatial databases and spatial databases for counties in the region. The SC CD only has county spatial databases. Data such as DRGs and DOQs are available in the online NRGIS Library but are not included on the CDs because of obvious space limitations.

The CDs can be ordered at 319-353-1575 for \$32.00 each plus \$2.50 shipping and handling. For more information contact the author:

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Mapping highway accidents

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but does not have the mapping and spatial query functions of the ArcView-based system.

The second and third phases of this project will address many issues.

A usability study is being conducted to evaluate the GIS-ALAS menus and toolbars, query and report options, and online documentation and to test for bugs or potential technical problems. After improvements suggested by the usability study have been incorporated, both the ArcView and Explorer versions will be distributed to transportation agencies throughout Iowa via CD-ROM and via secure World Wide Web access.

Using Black Hawk County as a pilot area, the research team is working with the University of Northern Iowa to experiment with incorporating additional kinds of information:

road features, health care facilities, geographic borders (e.g., counties, census tracts), emergency response service districts, highway/rail grade crossings, aerial photos/digital orthoquads/digital elevation models, and maintenance and emergency facilities. The team will also develop a two-way conversion process between node-specified locations and latitude/longitude addresses, as well as links to weather and other real-time information. Questions will be considered regarding security and proprietary information, providing outputs for service jurisdictions, classifying accidents by type of intersection and/or turning movements, and analyzing the relationships of various factors (traffic volume, road and weather conditions, lighting, etc.) in causing accidents.

VisualBasic and MapObjects are being explored to see if a fully functional, freeware GIS-ALAS can be developed. In addition, the data from ArcView GIS-ALAS will be ported to GeoMedia, which is compatible with the Iowa DOT's enterprise GIS implementation strategy.

System distribution and training is beginning across the state of Iowa. For more information, contact the project manager:

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Looking for DOQs, DRGs, soils, or other data?

GIS people are always looking for data. Here are some sources that might be of interest to you.

Orthophotos

Digital Orthophoto Quad (DOQ) imagery has a one-meter resolution. Each aerial photograph images an area equivalent to one quadrant of a USGS 7.5-minute, 1:24,000 quadrangle map. DOQs are a valuable addition to GIS information because they allow analysts to conduct aerial image interpretation of rather current land use.

DOQs are available from the USGS. DOQs for Carroll, Clay, Humboldt, Keokuk, Linn, Polk, Pottawattamie, and Van Buren counties are available in a compressed county CD format at a cost of \$32.00 (plus shipping and handling) for each CD. Imagery covering those eight counties plus Allamakee, Black Hawk, Buena Vista, Floyd, Johnson, Lucas, Monona, Tama, Winneshiek, and Woodbury counties is available as uncompressed quarter-quad images. Apparently, all future DOQ data will be available only in the uncompressed quarter-quad format. This allows you to buy as little as a single image. Pricing is a bit complex, but for larger orders the cost is \$90 plus \$7 per quarter-quad. It comes out to about \$500 per county. USGS takes credit cards or purchase orders. Call 573-308-3500 for information or to order.

Quadrangle maps

USGS quadrangle maps at 1:250,000, 1:100,000, and 1:24,000 scales are available in digital form for all of Iowa. These digital maps are usually called

digital raster graphics (DRG). They are scanned images of the published maps including the information on the collar around the map. These raster images have no attributes, but they make a useful background upon which GIS can be placed, and analysts can find much valuable geographic information from them.

All three scale maps are bundled together so that you get the 1:100,000 and 1:24,000 scale maps that are included for a 1x1 degree area, i.e., one-half the area of a 1:250,000 map (1x2 degree area). Thus, each CD includes one 1:250,000-scale DRG, two 1:100,000-scale DRGs, and 32 1:24,000-scale DRGs.

Perhaps the easiest way to order is to refer to the CD as the east or west half of a named 1:250,000 scale map, such as Fort Dodge West or Fort Dodge East. An alternate way to describe the CD you want to order is to provide the block number. The block number is the latitude and longitude of the SE corner of the area. For example, Fort Dodge West is 42095 and Fort Dodge East is 42094. Each CD costs \$32.00 (plus shipping and handling) You can order with a credit card or purchase order from the USGS, 573-308-3500.

Soils

Digital soils data can be obtained from the Iowa Cooperative Soil Survey. The data include soil polygons, drainageways, special "spot" inclusions, and water. The data that are available are in the form of compressed ArcInfo Export

files. For 95 Iowa counties the data are available section by section. Twelve counties are available in both section by section and township by township form. Four counties—Humboldt, Monona, Polk, and Van Buren—are not currently available but will be in the future in a quarter-quad format. The data are free and available at the following World Wide Web site: <http://www.nrcs.usda.gov/>.

Other

For information about metadata, the National Spatial Data Infrastructure, and related activities such as cooperating partners, try this World Wide Web site: <http://fgdc.er.usgs.gov/> <http://edcwww.cr.usgs.gov/webglis/>.

For the status or availability of USGS map data in all forms, try <http://nsdi.usgs.gov/nsdi/>. This is the USGS Spatial Data Clearinghouse site. It can also provide you with free data to download, including DEM, DLG, DRG, LULC and SDTS files. It can be a bit intimidating. You also might want to try <http://edcwww.cr.usgs.gov/webglis/> to find data and get pricing information.

For information or to order maps, aerial photos, or digital data from the USGS, call 1-800-USA-MAPS.

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Free digital GIS data

Subscribers to an ArcView Internet chat site have informally compiled a list of World Wide Web sites from which free digital GIS data can be downloaded. Here is their list:

Alaska

<http://www.nps.gov/akso/gis>

Amazon

<http://www.whrc.org/tropfor/humanimpacts/WHRCpre-lba.html>

Arkansas

<http://www.cast.uark.edu/local/hunt>

California

<http://www.library.nwu.edu/map/statemap.html>

<http://www.lib.berkeley.edu/UCBGIS/gisdirsg.html>

<http://www.lib.berkeley.edu/UCBGIS/gisnet.html>

China

<http://www.umich.edu/~iinet/chinadata>

Coastline Data

<http://www.ngdc.noaa.gov/mgg/shorelines/gshhs.html>

Connecticut

<http://www.magic.lib.uconn.edu>

Consortium for International Earth Science Information Network (CIESIN)

<ftp://ftp.ciesin.org>

Demographics

<http://www.easidemographics.com>

ESRI's Datahound

<http://www.esri.com>

General data

<http://www.frw.ruu.nl/nicegeo.html#gis>

<http://www.aztechcon.com/freedata.html>

<http://www.fgdc.gov/Comminucations/CooperativeAgreements/FundingPrograms/ccap94win.html>

GIS links

<http://www.gislinx.com>

<http://www.mytoplink.net>

<http://www.esri.com/base/common/jumpstation/jumpstation.html>

Geowarehouse

<http://www.geowarehouse.com/geodata.html>

GIS list archives

<http://www.gis.umn.edu/rsgisinfo/lists.html>

Iowa

http://www.uiowa.edu/servers/servers_geo_data.html

Louisiana

<http://www.atlas.lsu.edu>

Mississippi

<http://www.maris.state.ms.us>

Missouri

<http://www.msdis.missouri.edu/msdis.html>

Montana

<http://www.nris.msi.mt.gov/gis/gis.html>

National Geophysical Data Center

<http://www.ngdc.noaa.gov>

National Spatial Data Clearinghouse

<http://www.nsdi.usgs.gov/nsdi>

National Spatial Data Infrastructure

<http://www.epa.gov/nsdi>

Oregon

<http://www.sscgis.state.or.us/data/index.html>

Pennsylvania

<http://www.pasda.psu.edu>

Rhode Island

<http://www.edc.uri.edu/rigisdata>

San Diego

<http://www.sandag.cog.ca.us/ftp/html/projects/ris/gis/gis.html>

Soils

http://www.ftw.nrcs.usda.gov/ssur_data.html

South American and Central American Data

<http://www.gis.ciat.cgiar.org>

U.S. Environmental Protection Agency

<http://www.epa.gov/oppe/spatial.html>

U.S. Fish and Wildlife Service

<http://www.fws.gov/data/gislist.html>

Utah

<http://www.agr.state.ut.us>

Wetlands

<http://www.nwi.fews.gov>

Thanks to the subscribers who lent their assistance to this list: Doug Mensing, Susan Huse, Bob Hallett, Bob Edwards, Josephine Burns, Jason Clemis, Jennifer McCollom, Shuming Boa, Jane Pfister, Greg Rose, Brian Edmond, Mike Sloop, Anthony Spicci, Dean Easton, Timothy Hayes, Andy Nelson, Ben Williams, Gary Bowles, Larry Park, Terry Morse, Fraser Roberts, Danita Winegarten, Ken Bates, Shepard McAninch, James Koennicke, Eric Fowler, Matt Peters, Matt Artz, David Nealey, Deb Southworth, Jay Raiford, Christopher Miner, Jim Hurley, and Alex Rocco.

The list is available as a Word 95 file. For more information contact the author:

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CensusCD+Maps review

CensusCD+Maps, a CD ROM produced by GeoLytics, Inc., is an enhanced version of CensusCD, a product that was reviewed in *Coordinated GIS* (May 1997). CensusCD is notable for two key characteristics: the sheer quantity of data provided on the CD and the user-friendly interface used to quickly produce data reports and tables. With the incorporation of mapping capabilities and additional databases, CensusCD+Maps represents a major step forward in the query and display of census data.

Users of CensusCD will be familiar with the data and interface of CensusCD+Maps. The Census CD databases are included in the enhanced product. This includes the entire Census (STF 3 files), all the way from the national level—through Metropolitan Statistical Areas, counties, zip codes, tracts and the like—down to the block group level. According to GeoLytics, this includes more than 3,400 variables for 375,000 geographic units over 16 geographic levels.

CensusCD+Maps incorporates several other useful databases including

- year 1997 estimates and year 2002 forecasts of demographic and consumer spending variables at the block group, tract, zip code, county, and state levels
- county-level time series data for several variables for the period 1969-1996
- county-level historical census population data for the period 1790-1990

GeoLytics' data compression technology allows all these databases to fit on a single CD.

CensusCD+Maps retains the user-friendly interface of its predecessor. Accessing the data is simply matter of

- 1 selecting the area for which data are needed
- 2 defining the subarea level (e.g., block groups) used for reporting purposes
- 3 identifying the specific data fields (e.g., population, income) required
- 4 selecting the output option in which the results of the query will be presented

Various output options are available, including a summary report, a list report, an ASCII file, and a dBase file (dbf).

The main enhancement of CensusCD+Maps is an additional output option: a simple click of the mouse on the new "Map" button generates an on-screen thematic map. A single variable is mapped initially (the first element of the user's database), but the user can easily display the others by selecting them on a scrolling list of available fields. The user can also combine variables (e.g., to compute percentages) and map them. Once the thematic map is generated, the user can easily adjust the classification method (equal range, equal number, mean/standard deviation, and customized class breaks) and customize the color scheme.

Overall, I was surprised by the mapping functionality of CensusCD+Maps. It approaches

that of desktop GIS packages and is even superior in some respects, such as its ability to quickly map a series of variables in a scrolling list. As with standard GIS packages, an "info" tool can be used to access data for specific polygons. A map of block groups for the state of Iowa, including the construction of the data set and the drawing of the polygons, took under a minute to generate on my Pentium 200Mhz computer. Subsequent edits, including the selection of other variables to be mapped, took only a few seconds. A map of Iowa's 99 counties took as little as a second or two, with edits being done almost instantaneously. When completed, the map can be sent to a printer or saved as a bitmap.

Integration with other types of spatial data will require transfer to a GIS package. The boundary files and associated data of CensusCD+Maps can be exported as an ArcView shapefile or to MapInfo's Interchange Format (MIF). (The thematic map parameters, such as colors and class breaks, are not retained.) The ArcView export seems much cleaner since the attribute table, generated by CensusCD+Maps in dBase format, automatically links to the created shape file. The exported MapInfo boundary files, on the other hand, must be joined to the attribute table by the user once the MIF is imported into MapInfo. This requires MapInfo users, especially those with existing boundary files, to go through much the same process as before to integrate Census data with other data within MapInfo.

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County news

Grundy County gets aerial surveys

Within 30 days, Grundy County expects its first delivery of horizontally and vertically controlled digital orthophotographs from the contractor, Sidwell Company of West Chicago, Illinois. Aerial surveys of the county are 1 inch = 2,640 feet and 1 inch = 833 feet (for rural or urban areas). The data will run on Bentley Systems' MicroStation 95 software and Bentley Systems' Geographics GIS software. The contract was signed with Sidwell in January 1997, and we have been most pleased with the progress to date and the cooperation of Sidwell personnel.

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GIS in Pottawattamie County

Pottawattamie County has signed a contract with Merrick & Co. of Aurora, Colorado, for a county-wide GIS project to be completed by March 2000. The county will be flown this spring during a window starting April 10, 1998. Airborne GPS is being used to preclude setting all the monuments before photography. Densification of the monuments will take place sometime after the flights are completed on a county-wide, three-mile grid.

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CensusCD+Maps review

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CensusCD+Maps comes with a user's guide, which is likely to be most helpful to those with little or no experience with GIS software. Users familiar with GIS should be able to use the CD with only occasional use of the online help, mainly to consult the extensive documentation of the census and other data sources (including information on the files used, their sources, field names, and definitions).

As with any software product, there are a few minor annoyances. The sizing of the main window on my computer made the status bar difficult or impossible to read, and the sizing of dialog boxes sometimes required me to drag them open further so I could view the entire box at once. Also, when using the formula compiler to compute new fields to map, I wasn't able to use the scroll list of descriptive variable names without exiting the compiler; thus, I often needed to decide which fields to use before starting this tool. And

finally, one hopes that GeoLytics' data compression technology (or CD technology in general) will one day improve to the point where block-level data will also fit on a single CD. But these are minor points that do not detract from an excellent product.

CensusCD+Maps costs \$249.95 for a single user license and \$750 for a LAN/CD-tower license. An upgrade of CensusCD 1.1 is available for \$99.95. It is true that much of the attribute data residing on the CD can be accessed elsewhere from various Internet sites and then joined to boundary files in GIS. But the completeness, capabilities, and convenience of CensusCD+Maps make it a vital resource for those who regularly use census and related data.

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