Crime Mapping News

A Quarterly Newsletter for GIS, Crime Mapping and Policing

POLICE FOUNDATION

Computerized Mapping as a Tool for Problem-Oriented Policing

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Introduction

The advent of computerized crime mapping has provided law enforcement with a powerful tool to aid in crime control and crime prevention efforts. Whereas printed maps with push pins have been used for centuries in an attempt to represent the incidence and spatial distribution of crime, Geographic Information Systems (GIS) provide a digital representation that enables the user to map crimes *analytically*, not just descriptively. At its most basic level, GIS is used to support traditional policing goals, enabling law enforcement managers to determine where to target scarce resources. But "the true power of GIS lies in its ability to support the identification and analysis of crime problems to aid in the development of interventions and to help determine the impact of those interventions." (Goldstein, 1979, 1990; Eck and Spelman, 1988) This analytic approach is embodied in the problem-oriented policing philosophy .

The term problem-oriented policing was coined by Professor Herman Goldstein in 1979, when he wrote his seminal piece on the topic. Goldstein argued that the appropriate role of law enforcement is not the traditional, responsive approach to policing, but a proactive effort to identify problems, understand the underlying causes of those problems, and develop interventions to address them. In 1985, this problem-solving process was divided into four steps and termed the SARA model, consisting of Scanning, Analysis, Response, and Assessment (Eck and Spelman, 1988). In the last two decades, law enforcement agencies throughout the country have embraced problem solving as the foundation of their community policing efforts. Because these efforts rely heavily on analysis, mapping assists in this crime prevention approach. This article describes how a Geographic Information System (GIS) supports each step of the problem-oriented policing model.

Mapping for Problem Identification

Digital maps are often used to identify crime problems by displaying the spatial distribution of crime and looking for "hot spots," or concentrations of crimes in specific geographic areas. This type of hot spot analysis is but a preliminary, rough-cut at problem identification, as problem solving requires a crime problem to be specific and narrowly defined. Further analysis of hot spots by specific crime type, such as robberies, may reveal a different spatial pattern. Because of the power of GIS, the analyst can analyze crimes by specific type and time of day. For example, mapping can be used to identify a hot spot of violent crime.

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Further analysis of the distribution of a subset of those violent crimes, robberies, reveals a different pattern, and that pattern may change yet again when only commercial robberies are isolated for analysis. Once hot spots of commercial robberies are identified, GIS helps the analyst explore the incidence and distribution of commercial robberies by time of day and day of week, and even by type of commercial property. Mapping takes the analyst from the general to the specific, helping to, for example, identify the specific crime problem of fast-food robberies occurring on Friday and Saturday nights between the hours of 10:00 p.m. and 2:00 a.m. Because problem mis-specification is a common pitfall of crime prevention efforts, mapping becomes an extremely valuable tool in the problem identification process.

Mapping for Analysis

Mapping supports the identification of crime problems, but how does it aid in the analysis of the underlying causes of those problems? The answer lies in the fact that the term "crime mapping" is a misnomer when one examines its application in research and practice: crime is but one variable that is mapped through GIS. Computerized mapping as it is used by analysts and researchers studying crime problems draws on a vast array of geographically referenced data, from street networks and lighting, to information about demographics and city services. "Mapping provides a means of examining potential conditions supporting or facilitating the existence of a crime problem and does so in a manner that is relatively easy to interpret by those with little statistical training." (La Vigne and Wartell, 1998)

Returning to the example of robberies of fast food stores, mapping may help an analyst determine that most of the stores being robbed are located off a major interstate running parallel to a wooded area, which contains a number of informal footpaths and abuts a public housing unit. While mapping may not reveal the entire picture (e.g., it is likely that the stores being robbed also have certain physical characteristics or business practices that make them desirable targets), it helps provide context and narrows down the list of likely causal factors.

Developing an Intervention

While mapping does not directly assist in determining an appropriate intervention, it supports that effort through the researcher's ability to accurately analyze the underlying cause of a crime problem. In Shreveport, Louisiana, for example, police analysts used mapping to identify a rash of burglaries. Further analysis revealed that most of the burglaries were residential, took place during daytime hours, and were spatially distributed around a local public high school. Officers contacted school officials and learned that the school had a serious truancy problem. Police worked in partnership with school administrators to tackle the truancy problem, and this effort reduced burglaries from 58 incidents per month before the intervention to 19 per month after the intervention: a decrease of 67 percent (La Vigne and Wartell, 1998).

Because GIS provides the user with the ability to analyze several layers of information and easily alter the data that appear on the map, it is a useful tool for experimenting with the likely impact of various kinds of interventions. For example, one may want to consider a number of different geographic areas (varying in both location and size) in which an intervention may be implemented in the interest of minimizing the possibility of displacement and potentially maximizing a diffusion of benefits (see below).

Assessing the Impact of an Intervention

Perhaps one of the ways in which mapping can be most useful is often the most overlooked: assessing the results of an intervention. On its most basic level, GIS can be used to analyze the distribution of a crime or disorder problem in a specific study area before and after the implementation of an intervention. In addition, GIS becomes even more powerful when used to analyze the possibility of displacement or the diffusion of benefits.

Prior research informs us that displacement resulting from a crime prevention strategy does not always occur, and when it does so, it is not 100 percent (Gabor, 1990; Eck, 1993; Hesseling, 1994; Ferreira, 1995). Nonetheless, displacement is a valid threat to any crime prevention effort and one that requires evaluation. Researchers have identified five different kinds of crime displacement (Repetto, 1976), but the most common of these appears to be geographic (Eck, 1993). GIS is used to analyze the extent to which crime is geographically displaced to neighboring areas or distributed in a less concentrated area than prior to the intervention, what is termed "benign displacement" (Barr and Pease, 1990).

Computerized mapping can also be used to analyze temporal displacement of crime by mapping crimes by time of day before and after an intervention. Further, it enables one to explore the possibility of a combination of types of displacement. For example, a street lighting program implemented to reduce auto thefts may displace crime to areas without lighting while also producing a target displacement from auto thefts to burglaries of automobiles.

On a more positive note, computerized mapping can also be used to examine the possibility of a diffusion of benefits, defined as the unexpected reduction of crime beyond the places, people, crime types, or times that were targeted by the intervention (Clarke and Weisburd, 1994). A well-designed prevention measure increases the effort on the part of the offenders to identify low-risk and high-reward targets, creating such a high degree of uncertainty that they are discouraged from attempting to commit the crime, resulting in a diffusion of benefits. From a geographic standpoint we are most likely to detect diffusion in areas surrounding the place of the intervention, as offenders are uncertain as to exactly where the crackdown is occurring. As with the detection of displacement, GIS can aid in the detection of a geographic diffusion of benefits, as well as a temporal one.

Summing It Up

Despite the recent popularity of computerized crime mapping, its use in problem solving remains limited. Yet, as this article indicates, Geographic Information Systems hold great utility for problem identification, analysis of the underlying causes of crime problems, the development of interventions, and evaluation of those interventions. Indeed, GIS is even a valuable tool for dissemination of the results of a crime prevention effort. It is hoped that the power and use of this analytic tool for problem solving can be shared with crime prevention experts throughout the world.

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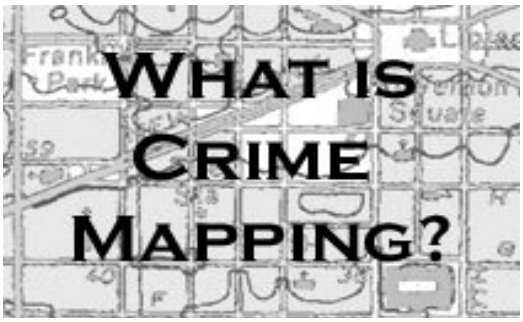


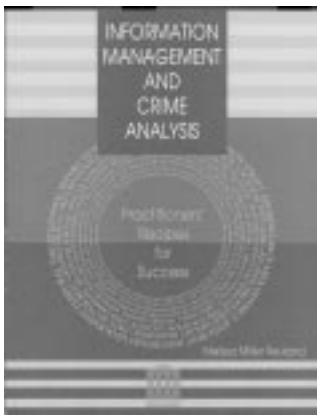
Check out the CMRC Website!

http://www.ojp.usdoj.gov/cmrc/

The Crime Mapping Research Center at the National Institute of Justice internet site is a great resource for information pertaining to crime mapping. Topics available on the site include:

* Information about computer mapping: what it is, answers to frequently asked questions.
* Information about the Crime Mapping Research Center: the mission, funding opportunities, training opportunities, a grant portfolio.
* GIS software packages currently on the market, including notes about operating system requirements.
* Links to other useful mapping web sites.
* Information about contacting the CMRC and joining the CMRC listserve.

Relevant Publications

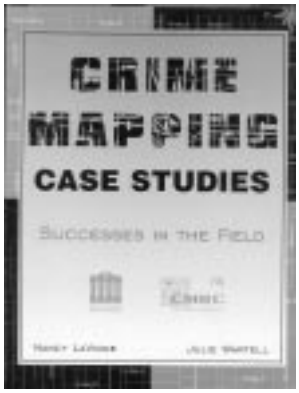


Available from:
Police Executive Research Forum
1120 Connecticut Ave., NW
Suite 930
Washington, DC 20036
(202) 466-7820

Information Management and Crime Analysis: Practitioners' Recipes for Success
Edited by Melissa Miller Reuland, 1997

The wealth of information available to individuals and organizations in today's information age through the Internet, integrated databases, and regional sharing among agencies often leads to confusion and overload, if not well-organized and managed properly. In *Information Management and Crime Analysis: Practitioners' Recipes for Success*, a number of police practitioners from departments around the country discuss ways to manage police information to attain a variety of organizational and practical goals. From organizing information in an accessible manner that promotes increased utilization within a department to utilizing that information in a way that allows for analysis and application to department activities such as investigation, crime analysis, and, increasingly, to support the department's community policing efforts, this book provides insight into the theoretical and practical issues necessary to consider when attempting to successfully utilize information technologies to support the crime analysis function.

Specific topics presented include database structures, administrative crime analysis, use of information technologies to assist investigations and tactical planning, how crime analysts can use computer mapping to identify "hot spots," and decentralization of information to beat officers and citizens.



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Crime Mapping Case Studies: Successes in the Field
Edited by Nancy La Vigne and Julie Wartell, 1998

In *Crime Mapping Case Studies* Nancy La Vigne and Julie Wartell have edited a compendium of articles dealing with the use of GIS technology for crime analysis. The articles cover a wide range of issues and consider technical, social, and even ethical, concerns. While some articles are academically rigorous and will be of particular interest to researchers and geographers, others are concerned with the practical and timely implementation of GIS in thoughtful ways. There is something for everyone here.

The majority of the articles address crime mapping uses concerned with apprehending or dislocating criminal activity but several are also concerned with GIS uses to measure the effectiveness of policy pertaining to safety issues and crime prevention. Also addressed are ethical concerns about the implementation of GIS as well as how some uses of a GIS may have adverse effects on public and police perception.

While most articles are primarily concerned with discussing the varying specific uses of GIS to aid in the analysis of crime they also contain detailed information on the specific software packages used, also evaluating to a certain degree the successfulness of these packages for specific types of analysis.

The compilation of articles is particularly effective in demonstrating the great variety of ways in which GIS can be effectively be incorporated into crime analysis and policy decision-making endeavors.

Each month, Crime Mapping News will present an article about the successful implementation of GIS in law enforcement, written by law enforcement personel involved in the implementation. The Lansing Police Department represents a group that has been extraordinarily involved in making crime mapping a part of their organizational agenda.

Mapping in Action: Lansing PD

by Steve Person, Lieutenant, Lansing Police Department

As of 1998 our police department consisted of twenty teams of police officers. Ten teams were assigned to the North precinct and ten to the South. Ten community policing officers were also assigned to the various teams. One sergeant per team was responsible for everything that occurred within that area. The team sergeant receives information from various sources about problems within his or her area. The sergeant then attempts to bring each problem to a successful closure. The team sergeant had to fix problems with no data to confirm or disprove citizens' complaints. Teams dealt only with information received from citizens or raw numbers generated by crime analysis from the current archive-only database. At neighborhood meetings, informed residents confronted the teams attending with obvious local problems of which the team members were unaware and should not have been. This was in direct conflict with our goals for delivery of service in a fast, efficient and accurate manner.

Our biggest failure in problem solving was the teams' inability to easily reach, process, evaluate, track and ultimately analyze, problems in their areas.

It was not always possible to direct the police to where they were needed and explain the purpose therefor. Statistical data was not being passed on to the teams for the benefit of both the teams and the neighborhoods. Lack of available data brought about frustration and made for limited use by the problem-solving teams. Certain resources and data were available, but the teams had to request the information so far in advance that it was not sufficiently beneficial in problem solving. Neighborhoods had to wade through a great deal of bureaucracy before they could obtain basic data and statistical information.

Teams were not keeping track of incoming, ongoing, or solved problems. Citizens and officers could feel, erroneously, that their efforts were unsuccessful, due to the fact that historical problem-solving information was not at hand. They could not currently conduct research, evaluation or program analyses of successes or failures to discover if our problem-solving efforts were working and to what degree. Citizens had become accustomed to dealing with uninformed teams, and were thus under the impression that the teams were unorganized and uninformed hindrances. Citizen and police involvement, creativity and communication are ultimately discouraged. This creates an atmosphere in which community policing is suppressed. When there is no wish by neighbors and police to stay involved in solving problems, then cooperation stops and barriers go up. When citizens and officers stop cooperating, then creativity once welcomed, is lost (no one really cares about the program so why bring it up). The lack of communication between citizens and police means that teams find out about problems long after they cease to be manageable. Sergeants and officers get out of touch with the teams' problems, each other, and the citizens they serve.

A lack of personnel also exacerbated the issue of problem identification and evaluation within the department using analytical methods. The department relies on one research technician and one research analyst to carry out a variety of duties.

The department has a variety of analytical tools that are in the process of being developed. Databases have been developed which allow for keeping records of various activities such as drug raid locations, forfeiture information, suspected drug houses and graffiti tips received. The department's main computer system keeps track of reported crimes, arrests and traffic-related incidents. Besides database development for data collection, a GIS software product (ArcView – produced by the Environmental System Research Institute) is being used to distribute crime information. We had used ArcView (and an earlier version) for approximately four years. Throughout the department it has been recognized as being potentially the most important analytical tool for problem identification and evaluation. GIS software allows departments to readily identify developing problems in neighborhoods dependent on timely data processing/entry, and allows the teams to easily determine when the problems recede. Unfortunately, ArcView is only used to distribute crime information on a biweekly basis or when there is a special data request, due to time constraints within the Crime Analysis/Planning Unit. This analytical tool is essential for problem identification and evaluation, and was the least developed and utilized at the time.

Solution:
The Lansing Police Department needed a user friendly, accessible, decentralized GIS application that was able to provide users with the visual information they needed and data reports. Lansing Police worked with the Environmental System Research Institute (ESRI) to develop what is now known as "LPD Crime". LPD Crime runs on ArcView 3.1 and is a highly robust, very functional, user-friendly application. LPD Crime is able to provide chiefs, officers and crime analysts with the information they need at a moment's notice. Mapping stations are currently located throughout the department, thus enabling access to mapping by uniformed and command personnel.

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Mapping in Action (Cont'd)

This has enabled us to provide the community with higher quality, more accurate and faster service from GIS-informed police personnel. We involve citizens in solving their problems, organizing their neighborhoods and being part of the delivery of police service. We are aware of crime problems sooner and are able to show the community what the problem is before they even realize that there is a problem (GIS shows where the crime problems are as soon as the complaint is loaded into its database). For police, commanders can spend more time planning the long-range direction of their team efforts using, for example, GIS population per 1000 income to crime statistics. Police personnel are being empowered through training to solve problems using new GIS resources. Community and police cooperation in solving problems will be restored by streamlining the process of identifying data to solve problems by removing previous data retrieval barriers. An informed police problem-solver trusted by the community will reduce the communication problem between police and citizens. Problem evaluation and action thereafter is immediate and ongoing, thus enhancing overall police-community partnerships.

We currently provide the following information to our mapping users, **Phase I of our mapping project:**

1. The user is allowed to map out crimes consisting of robbery, burglary, malicious destruction of property, larceny from vehicles, stolen vehicles, recoveries of stolen vehicles and sexual assaults.

2. The user is allowed to print out reports concerning the crimes that are selected for the map.

3. Thematic mapping will be available for problem identification and evaluation. Thematic maps are generally color-coded maps that allow a user to view an area to detect what team area within a precinct/city, or what reporting area within a team area, is experiencing a significant amount of criminal activity.

Phase II will be accomplished through a grant from the COPS office and consists of the following:

1. We will map calls-for-service (including noisy party, prowling, suspicious persons, domestics) so that team members can identify problem addresses.

2. The home addresses of confirmed gang members, parolees (by crime type), tethered inmates and subjects accused of particular crimes will all be mapped if Phase II is completed. These data will allow team members to quickly identify subjects who live in the area where crimes are taking place.

3. Police-initiated activities/arrest such as field contact card locations, arrests for obstructing, weapons, disorderly, traffic, alcohol and drug offenses will be mapped in Phase II. This will allow our commanders to view patrol efforts in areas that are experiencing an increase in reported crimes. The objective here is to be able to track our activities and to ensure that the activities are taking place in the same areas in which the criminals are operating.

We will develop additional thematic mapping capabilities that will integrate the crime data with census data to produce maps of crime rates per 1000 population, for example. Thematic maps and spot maps for population density, rental property locations and crime locations in relation to vacant buildings/schools/liquor establishments/financial institutions, etc. will also be available in Phase II.

Mapping at the Lansing Police Department will be ongoing as new GIS abilities are identified both inside and outside the department. We are currently searching for all the technologies available to reduce the number of steps taken by sworn personnel to identify and respond to a crime. We see GIS as such a tool and are happy with its short-term results in terms of our faster response to all types of crime.

Coming Next Month in Crime Mapping News:

Mapping in action articles from

* The United States Department of Justice National Drug Intelligence Center

* The National Guard's Digital Mapping Initiative

Some Noteworthy Websites

In our search to learn more about how departments are using computer mapping, we have visited many departments' Internet sites. In many of these sites, we have found exemplary uses of mapping on the World Wide Web. Here are a few of our picks for great examples of what departments can do with Internet mapping.

Spotlight

Lansing Police Department
http://www.lansingpolice.com/LPDFRAME.htm
This issue's Spotlight is on a mapping site that is not yet up and running, but we (and visitors to the site) were assured it is coming soon. The Lansing Police Department is developing a premier computer mapping GIS Internet site, slated to be up and running in June or July of 1999. As the third part of a three part plan to fully integrate mapping into their department, this site will provide the type of mapping technology already in use by department employees to the general public. According to Dan Puuri, a Research Analyst with the department, the site will use Environmental Systems Research Institute's Map Objects IMS, customized by their regional office of ESRI in Minneapolis, MN. The site is to include local crime data (such as burglaries, larcenies from vehicles, robberies, assaults, stolen vehicles, malicious destructions, obstructing offenses, juvenile curfew, runaways, disorderly offenses, drug offenses, weapons offenses). The data will presented in the form of customized maps, produced for the individual user based on their selection of a time period, an area of the city (police team area, neighborhood watch, neighborhood association) and the crime. The maps will also be able to provide additional information such as street names, rivers, railroads, school locations, and addresses of registered rental properties (and the owners of such properties). After the maps are plotted, the functionality of the site will allow the user to zoom in/out of the chosen area. A unique feature of this site will be a project concerned with area driving safety. The department plans to alert citizens of high risk intersections by creating maps that display different symbols based on the number of accidents at an intersection.

Baltimore County, MD
http://www.access.digex.net/~issd/rpdstats.htm
This site offers area crime statistics, including homicide, rape, robbery, aggravated assault, violent crime, breaking entering, theft, motor vehicle theft, arson, and property crime by precinct for the first through third quarters of 1998. This site offers a map where users can view the statistics on their own community at a click of a mouse button. Great for community relations! This site is also easily accesible from the department's home page, a plus for web navigation!

Los Angeles, CA
http://www.lapdonline.org
The Los Angeles Police Department has taken the idea of statistics by community farther on their web site. Visitors can click on their neighborhood on a map of all of the communities served by the LAPD. From there, they are directed to a different page for each of the 18 communities. The pages offer a fairly wide variety of information including several maps of the community, crime statistics, and an interactive section for locating the nearest department to an entered address.

Mesa, AZ
http://www.ci.mesa.az.us/police/CITYmap.htm
The City of Mesa, AZ Police Department offers a variety of maps on their web-site, including several "hot spot" maps, a variety of school related crime maps, and a 1997 top 25 accident locations map. The most impressive part of this site is an interactive map program on their web page, with their calls for service beat maps. The user is first presented with a grid of the city broken down into five units, and then with a map of the chose unit divided into beats. The user is presented with third quarter 1998 call for service information about the specified beat, arranged in order of frequency.

Technical Discussion: GIS and the Year 2000 Problem

With all of the hysteria surrounding the Year 2000 problem in every area of computing, it may be difficult to clearly focus on the effects that this problem might have on your GIS system. Before jumping into specific details, a better place to start might be a quick summary of what the Y2K problem involves in a more general sense. At the heart of the problem are technical oversights made by programmers developing the way that their products handle dates. In many cases, these problems arise because the year portion of stored dates has been a two-digit number, a fine state of affairs as long as the system remained running in a constant century. Once the century changes, however, four-year digits must roll over; otherwise it just as easily appears that the century has begun again. This poses a problem for the logical operation of a host of functions, many of which keep tabs on the current date as a standard for comparison. A range of devices that store programmed information even hard-coded chips can suffer problems. This is something to consider, since it's these devices that control everything, including the most basic operations of a computer. Virtually any application where there has been programming involving dates is subject to some type of Year 2000 problem, including software. In software, functions such as record keeping take place on the computer. If the database system that plays the roll of record storage doesn't have the capacity to store more than two year digits, basic analysis of stored data can become impossible. An example could be distinguishing 1904 from 2004 if only the last two digits are stored. Beyond coding problems, even if a database does have the capacity to store enough date information, data entry standards often have not been considerate of Y2K problems. Dates have been entered in the DD-MM-YY format with only two digits representing the year. Fortunately, these problems aside, some fairly easy steps can be taken to ensure that your system is compliant, and to avert the sorts of horror-movie disasters that many people are predicting for the beginning of the new century.

The main portion of Y2K preparedness in GIS is simply identifying the components of your setup. Both software and hardware are subject to the programming problems behind the year 2000 problem. With your GIS system, the computer is the main hardware component that is subject to failure when the calendar rolls over all four digits for the first time in computing history. Composed of a variety of parts, many of which come from completely different manufacturers, every component is subject to different risks. In many cases, the computer's central processor is one of the main items for concern. Many companies, such as Intel provide compliance statements about their individual products. This is also the case for almost every hardware element of your system, including peripherals such as printers and scanners. If your computer was purchased pre-assembled, it may be difficult to identify the individual parts to locate compliance information. Alternate approaches in the identification of problem areas can include hardware testing procedures such as running a software program which tests each individual hardware component. Programs designed for this purpose are available from a variety of sources, including free download from the Internet.

Once the hardware end of the system has been dealt with, the software on the computer must be checked. The computer's operating system offers the basic software foundation on which all other applications run. Fortunately, operating system compliance information is readily available from all of the major manufacturers, but specific software can be somewhat more difficult. The first software system that must be considered specifically for a GIS system would be the mapping program. The major producers of these packages have issued statements assuring the Y2K readiness of their software, at least the most recent versions. Problems with the system may still arise because GIS data often must be stored in a separate database system, where data either cannot or has not been entered with four year digits in the date field. Checking with the manufacturer of your database (or even your GIS software) is the best place to start. Fortunately, so much attention has been paid to this issue that a wealth of information is readily available, including on your own computer via the Internet.

Some good websites to check out for Y2K information are:

General Information:
http://www.year2000.com/
A diverse collection of Y2K information, from vendor compliance statements to humor pages. Included on this site is another collection of good links, and articles pertaining to Y2K preparedness in different areas of information technology. Also offers an interesting collection of clips about Y2K failures which have already occurred.
http://www.vendor2000.com/
This site provides a wealth of information about a vast array of hardware and software producers and products (none specific to GIS, though). Well organized and easy to use, this site also serves as an excellent launching pad for you search, since it provides links to many company homepages.
NSTL : http://www.nstl.com/html/ymark_2000.html
The web site of the National Software Testing Laboratory. An excellent Y2K resource. This organization offers a list of compliant devices and software, testing services, and even a do-it-yourself testing tool!
Ontrack : www.ontrack.com
This site offers a free testing tool, "Y2K Advisor", which does a complete inventory of your hardware components. Also available at www.ontrack.com and www.winfiles.com.
Weblaw/TaskForce2000:
http://britnet.ftech.net/bin/y2k.pl?SEARCH
A group of organizations sponsor a database program at this site which stores the results of a survey completed by vendors about the compliance of their products. A larger showing of European companies than in some other locations.

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Y2K Internet Sites Continued

Hardware:
Intel: http://support.intel.com/support/year2000/status/categories.htm
To obtain info on the compliance of your particular Intel product.
Gateway: http://www.gateway.com/corp/y2k/y2k/y2kfaq/#problem
Check here for a good explanation of the Y2K problem, and issues relating to Gateway hardware. Some tips for rebooting systems after the date rollover.
IBM: http://www.ibm.com/IBM/year2000/y2kfaq.html
Brief Y2K Q and A section. Specific IBM documentation
Software:
ESRI(ArcView): http://www.esri.com/software/y2000/arcview/datehand.html#av30
On this page, ESRI offers a good explanation of how ArcView handles dates. Also good information about how external database systems will handle data sets exchanged with ArcView.
MapInfo : http://www.mapinfo.com/corporate_info/year_2000/index.html
Compliance statements about all of MapInfo's software, and an explanation of testing practices. A brief overview of how Y2K will affect your GIS.
Microsoft : http://www.microsoft.com/technet/topics/year2k/product/product.htm
This is the place to check on the compliance of any of Microsoft's products. A fairly comprehensive list, including specific information about different revisions of their software, and fixes for compliance problems.

What to Expect in Future Issues

-Monthly guest articles from the leading practitioners of computer mapping.
-Future technical issues include a continued discussion of the Y2K issue, and other important dates that may cause problems in computer mapping.
-Look for an extended discussion and review of software packages currently on the market in the Summer 1999 issue.
-The topics that interest our readers. We encourage you to give us feed-back on what you think of this issue, and suggestions for topics to be covered in future issues.

About the Police Foundation's Computer Mapping Laboratory

The foundation's state-of-the-art Computer Mapping Laboratory is within the Police Foundation's Research Division. The mission of the Mapping Laboratory is to advance the understanding of computer mapping, to pioneer new applications of computer mapping in the field of policing, and to explore the spatial element of all Police Foundation research.

Projects in which the mapping laboratory is currently involved with include:

*Measuring the impact of various policing strategies on crime displacement and diffusion.
*Providing information and technical information to COPS grantees.
*Conducting an experiment to assess the impact of crime mapping and problem solving strategies.
*Partnering with local police and social service agency to evaluate a new approach to addressing domestic violence.
*Using spatial analysis to examine differential seat-belt enforcement.

Contacting the Computer Mapping Laboratory: By phone: **(202)721-9777**; fax:**(202)659-9149**; email pfmaplab@policefoundation.org and by postal mail at **1201 Connecticut Avenue, N.W., Suite 200, Washington DC 20036**.

Feel free also to contact individual staff involved in the Computer Mapping Lab with questions or comments.
Michael Clifton, Director, Crime Mapping Laboratory: meclifton@policefoundation.org;
Emily Powell: epowell@policefoundation.org ; Jennifer Nickisch: jnickisch@policefoundation.org ;
Gordon Ainsworth gordonainsworth@policefoundation.org

Upcoming Conference Schedule

April

April 18-22, 1999
1999 Intermountain GIS Conference
Idaho Falls, ID
Contact: Janet Cheney, Bonneville County GIS (208) 529-1350 ext. 1568,
Fax: (208)529-1159
Email: jcheney@co.bonneville.id.us
Web:http://www.ci.chubbuck.id.us/gis

April 21-23, 1999
The 9th Annual Nevada State GIS Conference
Site: Reno/Sparks Convention Center, Reno, NV
Contact: Kyle Anderson, 702/328-3768
Email: kanderso@mail.co.washoe.nv.us
Web: http://www.ngis.org

April 21-22
The Illinois GIS Conference
Site: Holiday Inn, Urbana, IL
Contact: Christine Welch (815)753-1906

April 25-28, 1999
Geospatial Information & Technology Association (GITA)
Annual Conference XXII
Charlotte, NC
Contact: GITA (303)337-0513
Fax: (303)337-1001
Email:staff@gita.org,
Web: http://www.gita.org

April 28 - May 1, 1999
Police Executive Research Forum
1999 Annual Meeting
Site:Holiday Inn Golden Gateway
1500 Van Ness Avenue
San Francisco, CA 94109
(415)441-4000
Contact: PERF (202)466-7820, ext.222

May

May 2-5, 1999
The Sixth Kentucky GIS Conference
Site:The Drawbridge Estate, Fort Mitchell, KY
Contact: Nick Kearney (502)564-8340
Email:nkearney@mail.state.ky.us

May 3-6, 1999
International IGUG 1999 Annual Conference
Intergraph Graphics Users Group
Site:Von Braun Center, Huntsville, AL
Contact: Kasi Jaghab (800)955-4484
Email:kmjaghab@ingr.com

May 12-13, 1999
1999 Pennsylvania GIS Conference
Site:Harrisburg Hilton Hotel
Contact: Diane Olivier (717)948-6429
Email:u22@psu.edu

May 23 - 27, 1999
MapWorld '99
MapInfo's 6th Annual Worldwide User Conference
Site:Sheraton Hotel
Bal Harbour Beach Resort
Bal Harbour, Florida
Watch for more details on the Conference Agenda and Registration coming soon!
http://www.mapinfo.com/events/mapworld_99/index.html

June

June 1-2, 1999
New England GIS '99 Conference
Site: Sturbridge Host Hotel and Conference Center, Sturbridge, MA
Contact: URISA (847)824-6300
Web: http://www.gita.org/negis99

June 1-4, 1999
TU/GIS '99
Site: Baltimore Convention Center
Contact: Jay Morgan (410)830-2964
Email: jmorgan@towson.edu

June 8, 1999
GIS/SIG 8th Annual Spatial/Digital Mapping Conference
Site:Four Points by Sheraton Hotel
120 E. Main St., Rochester, NY 14604
Contact: Jeff Volpe (716)232-5137 ext.282
Topics include: GIS in Public Safety by Law Enforcement Officer John Northrup, Rochester Police Department; Sergeant Glenn Hoff, Rochester Police Department Special Investigations

June 19-21, 1999
International Conference
on Geoinformatics and Socioinformatics.
Ann Arbor, MI
Contact: Program Committee, c/o Dr. Shuming Bao (734) 647-9610,
Fax: (734)763-5540
E-mail: geoim99@umich.edu
Web: http://www.umich.edu/~iinet/chinadata/geoim99

June 20-22, 1999
GISOC'99
An International Conference on Geographic Information and Society
Site:University of Minnesota, Minneapolis
Contact: Eric Sheppard, University of Minnesota
Email: shepp001@tc.umn.edu
Web: http://www.ncgia.ucsb.edu/conf/gisoc99.html

June 24-26, 1999
UCGIS 1999 Summer Assembly
Site:Humphery Center at the University of Minnesota, Minneapolis, MN
Contact: William J. Craig (612)625-3321
Email:wcraig@atlas.socsci.umn.edu

The COPS Internet — Information on COPS and Community Policing is just a CLICK away

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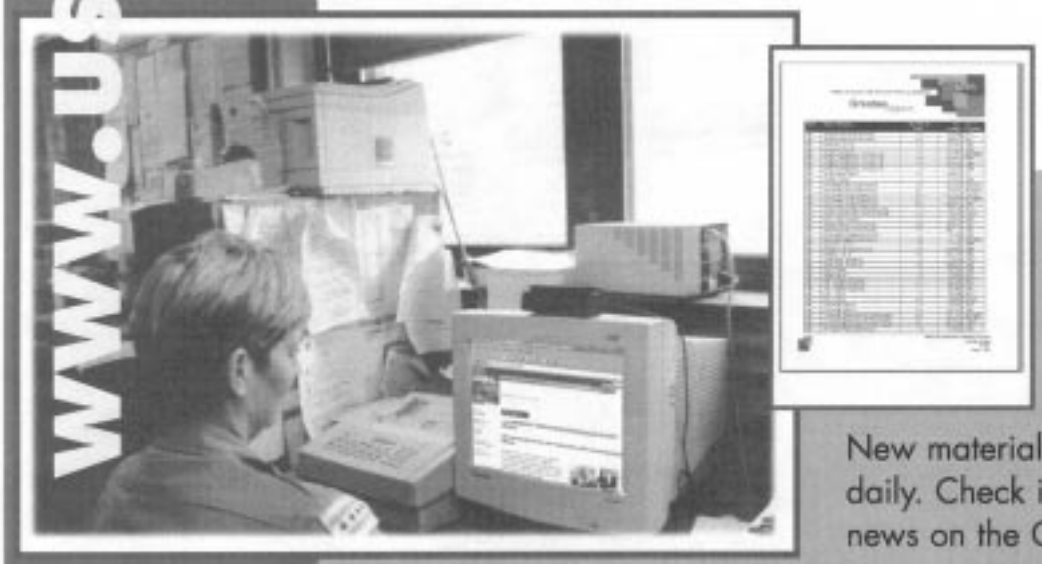
Grants, Programs, & Activities: For a list of current funding opportunities complete with application kits and comprehensive descriptions on all our grant programs and more, including training and technical assistance, compliance and monitoring, and program assessment and policy support

Grantee Toolbox: Resources for our grantees including contact information, tips, grant owner's manuals, and progress report forms

Community Policing Resources: A respository of excellent community policing resources including COPS funded studies, reports, curriculums, tools, and tips, conference capsules, ongoing assessments, and promising practices from the field

Freedom of Information Act (FOIA): For FOIA contact information and an electronic reading room, including state listings of all COPS grantees

WWW.USDOJ.



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