Crime Mapping News

A Quarterly Newsletter for GIS, Crime Mapping and Policing

POLICE FOUNDATION

Privacy Issues in the Presentation of Geocoded Data

Chief Tom Casady

Police incident reports - the ubiquitous short form that represents the initial report of a crime or significant police event - are public records virtually everywhere. Other original police reports, such as motor vehicle accident reports, police dispatch records, traffic citations and arrest reports are commonly declared by law to be public records as well. Anyone with the time and inclination can go to their local police department and examine such records. For a small fee, you can obtain a copy of most reports of this type.

Any of these public record reports may contain information that citizens may wish to protect. For example, the police officer's accident report has the drivers' names, dates of birth, addresses, drivers' license numbers, automobile license numbers, and telephone numbers. One may jealously guard such information in ordinary circumstances, but after a fender bender it is often a public record available to anyone. The privacy of such information is protected primarily by the cumbersome mechanism for accessing the public record. For the most part, this requires a trip to police headquarters, a hunt for a parking spot, followed by the unparalleled customer service we have come to expect in government offices that enjoy a monopoly on the services that they provide. As a practical matter, no one just stops in to read reports recreationally. They come only when a specific purpose requires it, usually to obtain a copy of an incident report or accident report to accompany an insurance claim.

Although most citizens will do just this at one time or another, for the most part, perusing public record police reports is the pastime of newspaper reporters, claims adjusters and certain lawyers. These are the people most likely to be occupying the lobby of the police records unit, thumbing through the reports on a clipboard. The privacy of otherwise personal information is protected only by the fact that, except for serious incidents or unusual circumstances such as cases involving public figures, these events just aren't noteworthy.

The rather Byzantine process for accessing public record police records has limited the distribution of police reports and the data contained in them. Today, however, the convergence of several technologies is changing this rapidly. First, most police agencies have computerized some or all of these basic records. Traffic accident reports may be stored as digital images, dispatch records created in a computer database, and incident reports keystroked into a computerized records management system. Second, the distribution of these electronic records has become comparatively

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Chief Tom Casady has more than 25 years experience in law enforcement. He has been Chief of the Lincoln, Nebraska Police Department since 1994.

simple. It is not difficult to strip out data fields from the incident report in the police database to HTML screens, to e-mail an image file from the accident report to the insurance company, or to post the entire daily dispatch log to the Internet server. In fact, a growing number of police departments are doing just that. Third, the growing use of geographic information systems has vastly improved the ability of the police to provide data and information to the public in a useful and interesting format . Few people are interested in driving to the police station to look over stacks of incident reports, but many people are interested in checking the department's web site and perusing the crimes in their own neighborhood. When crime maps and accompanying data are made available, people will use the information.

Not all of these people have pure motives. Anxious to find your ex-spouse's new address and phone number? Want to track down a borrower in default? Interested in direct mail to solicit new clients from among crime victims? On-line access to crime data is another tool to use in such circumstances. Even perfectly legitimate uses can have undesirable side effects. Looking for a home in a safe neighborhood? Want to make sure your college-bound daughter doesn't rent in a dangerous apartment complex? Thinking about opening another retail outlet in the city? Crime maps provide valuable information in these situations, but can also create a self-fulfilling prophecy, or even contribute to the redlining of neighborhoods with a higher frequency of crime. To be sure, when the public has access to information, someone will discover a way to use it for nefarious purposes or its use will have unintended negative impacts.

Another significant concern deals with the accuracy of geocoded data. Police departments using GIS software are geocoding addresses against a street database. Aside from the errors made by officers and clerks in writing and keystroking correct addresses, the geocoding process introduces other sources of location error. Street databases are not always accurate to begin with. Errors aside, commercial street data often omit recently platted streets. Moreover, the geocoding process is inherently inaccurate, since the software is making a "best guess" on where to place the point along a line segment. New streets, similar street names, multiple prefixes and suffixes, and identical street names in separate municipalities may all cause geocoding errors. While software settings can minimize these, squeezing the geocoding parameters too tightly negates its very purpose - speeding and simplifying the process of locating the point.

To make matters worse, geocoding errors are not always easy to spot. It may be rather simple to double check the location of 50 residences of parolees, but it is another matter entirely to perform quality control on the geocoded location of 3,000 burglaries, 5,000 larcenies, 10,000 traffic accidents, and so forth. Except for the smallest files, source data invariably contain location errors, and geocoded data will contain even more. Last year, police officers in Lincoln, Nebraska responded to 140,000 dispatches. If the source data were 100% accurate, and dispatch records were geocoded accurately 99% of the time, 1,400 dots would be misplaced on the resulting map. In reality, geocoded data is not nearly so accurate.

While geocoded data is inherently imprecise, there is little need for concern when large data files are aggregated. A color density map displaying the number of auto thefts per capita within census tracts, for example, tolerates geocoding errors with virtually no impact on the relationships it represents. On the other hand, a single incorrect address or geocoding error in data about registered sex offenders is a major mistake with potentially damaging consequences.

Grappling with the inherent imprecision of geocoding, privacy concerns, the potential for redlining, negative economic impacts, and similar concerns, it will be a challenge to convince police chiefs to move forward with public access to crime maps. The privacy issue of crime mapping boils down to ease of access. Public record information is being made available in a convenient, timely, and useful format. It's no wonder we are worried that people may actually start looking at it. We must remember that distributing this data has tremendous value. Citizens can be informed of risk, motivated to take precautionary measures, made aware of trends in the broader community, aroused to action, or encouraged to support public policy. Withholding information - or intentionally avoiding technologies that would make access to it simpler, cheaper, and quicker - is an overreaction that is worse than the problem it seeks to prevent or avoid.

Given these issues and concerns, the question arises: Should professional standards or guidelines be developed for crime mapping as it pertains to privacy and freedom of information issues? If so, what should these standards look like and who should promote them? At the outset, the standards approach has a certain appeal. Promulgating standards offers the potential of establishing an accepted professional practice regarding the release of geocoded data. But the very concept of standards implies the existence of a set of practices upon which there is a reason-

able degree of consensus among well-informed practitioners. At the present time, this just does not exist. Crime mapping is still new. Police departments are not at the forefront of Internet distribution of data. Few agencies are grappling with these issues. Agency practice is being reformulated constantly as police departments initiate new applications, exploit opportunities, and encounter problems. State laws vary with regard to what information constitutes a public record. There is scant case law to further define the parameters for redacting data from an electronic data file that would otherwise be contained in a public record report. In sum, the field remains in flux and attempts to establish and promote standards are unlikely to succeed.

Guidelines, however, are a different matter. The term implies a less certain and more adaptable collection of considerations that may inform and guide others. Guidelines that provide law enforcement agencies with information that may assist them - particularly information that helps them learn from mistakes made or problems encountered by their counterparts - are more likely to have a positive impact. While the federal government's track record in standard setting for local law enforcement is not always sterling (NIBRS comes immediately to mind), it has an unparalleled ability to disseminate information. Hardly a day goes by that the local police chief is not glancing at an NIJ *Research in Brief*, the FBI *Law Enforcement Bulletin*, an OJJDP *Fact Sheet*, or some other similar publication. Combined with rich Internet resources, the Department of Justice and its subordinate agencies affect practice in significant ways through the dissemination of information. The development of information guidelines concerning confidentiality issues in geocoded data is an important area for future consideration.

What kind of guidelines, pointers, considerations, and precautions are appropriate for police agencies? The answer may still be somewhat unclear, but there are several that can be gleaned from experience:

- Public record reports may contain highly personal information. Better access to public records makes it easier for information to be used in undesirable ways.
- Presenting geocoded crime data aggregated into polygons, such as police beats or census tracts protects the identifying information that may be in the source records. See, for example, the Wichita Police Department http://www.wichitapolice.com.
- When presenting data tables or records to identify geocoded points, police agencies must consider redacting those fields containing personal information, such as victims' names, where warranted. See, for example, the Lincoln Police Department's approach http://www.ci.lincoln.ne.us/city/police.
- Static maps which are not accompanied by database information or tables pose little risk of identifying specific households or individuals, and still present useful crime information to the public. See, for example, Salinas, California Police Department's maps http://www.salinaspd.com/maps.html.
- Eliminating exact street addresses in tables or records can protect privacy of victims or other individuals. This can be accomplished simply by such means as replacing exact street addresses with a block range or a polygon feature, such as police reporting district or census tract. See, for example, the San Antonio Police Department's site http://www.ci.sat.tx.us/sapd/maps.htm.
- Employ a disclaimer to warn users that some geocoded points may be misplaced. See, for example, the Sacramento Police Department's disclaimer http://206.170.172.28/parcels/cdisclaimer.htm.
- Most importantly, accept the fact that providing easier access to police data has its downsides. Ensure that the data being provided is from records that constitute public records in your jurisdiction. Criticism, liability, or ethical breaches are less likely if only information that is already open and available to the public is provided via GIS maps and related databases.

The most conservative approach would be to avoid any technology that opens access to this public information. While this reduces some of the risks of disclosure, it is a strategy that carries its own risks in lost opportunity. Ultimately, the benefits of wider distribution of crime mapping products to the public far outweigh the negatives. Remember that this information is probably public record data. If police agencies do not present geocoded crime data on maps, someone else very well may. Anyone with access to commonly available GIS software and with the capability of obtaining or creating a simple table of incidents can create their own maps. News media organizations, in fact, have done just that in some places. See, for example, the *CrimeTracker* offered by KWTV Channel 9 for the Oklahoma City metropolitan area http://www.kwtv.com.

With the rapid development of crime mapping, there has been little opportunity for the natural development of discussion groups, professional associations, conferences, and other networks that stimulate broader dialog on issues such as pri-

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Some Noteworthy Websites

The Internet sites reviewed this month all share a common theme. Though initially it may not be obvious, all of the sites reviewed this month use Internet map server technology to power their mapping sites. They each have different user interfaces, and offer different data sets, but all are good examples of the growing technology available to enable data sharing via the World Wide Web.

City of Lincoln
http://www.ci.lincoln.ne.us/city/police/index.htm
The crime mapping portion of this site is a recent addition. The mapping site can easily be found through the department's main web site or can be directly accessed at: http://ims.ci.lincoln.ne.us. Data concerning rapes, assaults, burglaries, and narcotic cases can be obtained either in single-crime views or in any combination of color-coded compilation maps. These data are updated every six months. Users may also zoom in on specific areas of the city to see where hot spots of crime are occurring. Other links from the police department's main webpage include warrants, stolen property reports, beat maps, and community-oriented policing updates.

Illinois State Police
http://samnet.isp.state.il.us/isp/samintro.htm
The Strategic Information and Analysis Division of the Illinois State Police provides the user with the opportunity to view crime statistics or traffic information at this site. Users may choose to view crime statistics provided by the Illinois Uniform Crime Reports by year or by quarter including crime rates, number of crimes, arrest rates, and numbers of arrests. The traffic information selection allows the user to view occurrences of fatal crashes by state police district, county, city, statewide, or interstates and to define a specific date (month, day, and year) and time (in one-hour increments) for the query. An identity tool delineates the location (district and county), date, and day of week of each crash as well as whether a teen driver or alcohol was involved.

City of Sacramento
http://206.170.172.28/parcels/crimemap0.htm
This city site uses interactive mapping to provide multiple layers of crime data as well as geographic features. The crime data at this site are presented for a three-month interval and gives the viewer a variety of choices in map format and size. Individual crime types can be quickly and easily displayed with one click of the mouse, or the user has the option of choosing multiple crime types and displaying them simultaneously. Viewers may zoom in to the point where city blocks are easily distinguishable, while the inset map provides a valuable reference to identify the user's current position. Additionally, a neighborhood layer offers viewers familiar with the area the opportunity to view crimes committed in specific neighborhoods.

Contacting the Police Foundation Crime 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**.
Also feel free to contact individual Crime Mapping Lab staff with questions or comments.
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Technical Discussion: Internet Mapping

The growth of the Internet is allowing faster and more widespread distribution of information than ever before. Increasingly, police departments are joining this trend by making crime data publicly available via the World Wide Web in the form of various mapping products. Though this raises numerous ethical questions, it has been hailed as a valuable part of the community interaction that has become an integral part of modern policing strategies. Even beyond this public data sharing, the application of web-enabled GIS products on smaller, organizationally contained intranets offers considerable benefits, particularly where it is necessary to provide access to geographic information to a large number of non-technical employees. Instead of having to negotiate with a GIS software vendor for a large number of licenses for a desktop GIS product, organizations can now choose to use Web mapping capabilities to make pertinent data and tools widely available at a minimal cost. Some police departments are using this method to enhance data sharing between shifts, requiring shift sergeants or even patrol officers to view pertinent maps when beginning their shift. A survey of police department web sites reveals that many departments have probably not yet reached the stage of developing Internet mapping, and with the current flood of technology, may need to assess the methods available and their specific needs before beginning the process.

Mapping Methods

There are several different approaches that can be adopted to give a variety of users access to maps, and hence some geographic awareness, via the Web. Web page designers can choose fairly simple image formats requiring little programming and software purchases and providing limited functionality, or more complicated map serving systems requiring complex programming and additional software purchases which will provide many of the tools available in a traditional GIS.

The most basic Internet mapping can be implemented with static digital map images (gifs, jpegs, bmps, etc.) scripted directly into a web page. Images are often relatively small to store and by extension faster to load when viewing a web page, and can be used with even the earliest Web browsers. They can be used as links to additional pages for more information, serving as a good tool for basic geographic location selection. Collections of image links can be grouped together to create a simple clickable map of multiple areas, for example a district with multiple beats. Alternately, somewhat more sophisticated "image maps" can be created with digital images to provide a smooth surface for linking to additional information. Image maps are essentially static images with "hot spots" which can link multiple locations on an image to individual pages. Client-side image maps are supported by Netscape Navigator 2.0 and, later, NCSA Mosaic 2.1 and 3.0, and all versions of Microsoft Internet Explorer, making them almost universally accessible. Many commercial Web publishing programs and numerous shareware programs are available to allow anyone with a basic understanding of web publishing to access this technology. Though initially simple to create, either of these methods may be expanded with the use of more powerful web programming languages like cgi or JavaScript, to create custom mapping applications with multiple options.

More complex Web mapping, like the variety often utilized in intranet applications, often involves the use of map server software that is able to communicate with a GIS application running on the Web server. These commercially available packages offer users an expanded set of map viewing options, and the ability to choose between provided data sets. The technology is expanding rapidly in this area, providing multiple possibilities for implementing this process. The least complicated packages are image servers which deliver map images and reports produced in real-time by user-defined parameters passed to the GIS system. The latest development is the intelligent data server which delivers (streams) vector data and raster images directly to the browser through the use of a plugin which extends browser functionality. This process can improve mapping quality immensely and may even be useful in providing data directly to end-users.

Choosing a Method

The method to use depends largely on the level of mapping interaction and functionality required, and the resources available. The method chosen should meet the requirements of the user audience, particularly in relation to usability and performance issues. Projects hosted by map servers can often be large and difficult to load across a dial-up internet connection, so components like large data sets may be problematic with regard to performance issues. Data sets are also important to consider because of data licensing issues. Often street files and other layers used in a GIS may be subject to copyright clauses when purchased from a commercial vendor. As with other GIS implementation processes, a key to sucessful Internet mapping may be choosing the system in use by other local agencies. *

In every issue, Crime Mapping News presents an article about the successful implementation of GIS in law enforcement, written by law enforcement personnel involved in the implementation. Mesa PD presents an outstanding example of the applications of crime mapping on the Internet.

Mapping in Action: Mesa PD

John Werner, Crime Analyst
Mesa Police Department

Mesa, Arizona is the second largest city in the Phoenix metropolitan area, the third largest city in Arizona, and the fifty-first largest city in the U.S. It has a population of over 383,000 and covers an area of over 125 square miles. It is one of the fastest growing areas in the U.S. The police department in Mesa consists of over 700 sworn officers and over 430 unsworn support personnel.

The Crime Analysis Unit of the department was started in 1992, and has steadily grown along with the expansion of the city and department. It currently consists of a supervisor, four analysts, and one data entry clerk/administrative aide.

Crime mapping in Mesa was recognized early on as an effective and powerful tool not only for crime analysis but also for information summaries and public presentations. Several different mapping programs were tried initially, and eventually an ArcInfo custom front-end crime mapping system was developed which utilized CAD data to plot locations of occurrences of crime within the city. This system, which operated on a UNIX system, filled the unit's need for several years. It was eventually replaced in 1997 by PC-based ArcView together with the Spatial Analysis Extension. This new system has been very successful in meeting the current needs and changing technology as GIS continues to develop.

Crime mapping can be an extremely effective mode of presenting information. One thing that is quickly learned in public presentations to the community is that the presence of a map can sometimes be a simple problem solver. It is common for a community or neighborhood to perceive a problem that is not supported by data. For example, we once had a local community group that felt that crime was out of control in their neighborhood. They had experienced several burglaries and thefts and felt that their neighborhood was particularly afflicted. However, a review of the data by Crime Analysis showed that the crime in that neighborhood was no worse than in any other in the area. But as community policing teaches us, when a neighborhood perceives a crime problem, it becomes a problem for the police department to help resolve regardless of what the data show. The public expects and has a right to have their concerns addressed by the police.

In this case, crime maps that plotted the various crimes and contrasted them to adjacent neighborhoods were prepared for a community meeting . It was interesting to note that by the end of the meeting, even though no direct resolution of the perceived problem had been agreed upon, the group was very satisfied with what they had seen. Much of this was attributable to the crime mapping which was presented.

Often just the presence of a map, as opposed to statistical charts and graphs, in a community meeting shows the members that the police are at least aware of the problem within the neighborhood. The crime maps and the information that they contain are easily recognized and understood by most people. It is common after a community meeting for the members to come up and find their own residence on the map and check the area around their homes. Sometimes the presence of these maps seems to have an almost comforting effect.

In the last few years, more and more advances have occurred in GIS, especially their use in the area of analysis tools. The Mesa Crime Analysis Unit tries to work to keep abreast of these developments and to utilize them to best serve the department and community.

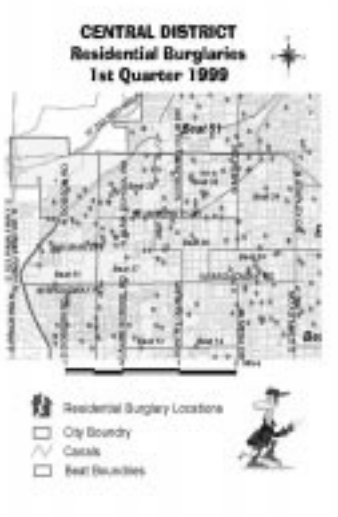
One major problem that the Crime Analysis Unit had to address was the amount of public requests for information that were referred to it. The department's policy is to answer each request as best it can. Unfortunately, these requests quickly became unmanageable and demanded much more time than the unit could afford. A solution was needed where the level of service to the public would remain, while the unit's members were available for more analysis duties.

John Werner is currently serving as a crime analyst with the Mesa Police Department and has worked with that unit for the past two and a half years. Prior to that, he retired as an officer from the Mesa Police Department with over 20 years of service in various administrative and specialty positions.

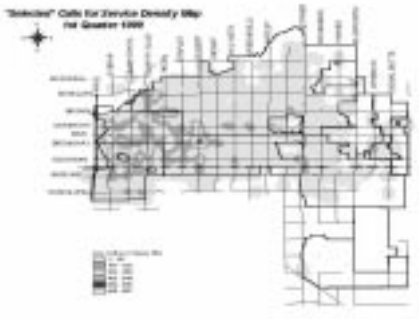
It was agreed that the Internet could be effectively used to post informational maps and statistics to which many of the public requests could be referred. Rachel Boba of the Tempe, Arizona Crime Analysis Unit, has written an excellent paper on this specific subject. Our unit has borrowed some of her ideas and has made good use of them. Her paper can be reviewed at the following website: www.tempe.gov/cau/#Table of Contents - *Problem Solving in Crime Analysis: Using the Web Page as a Solution*, Rachel Boba, Ph.D., Crime Analyst, Tempe Police Department.

The majority of requests that are received from the public concern the relative safety and security of residence locations, neighborhoods, or apartment complexes. This information is very difficult to quantify and, for obvious reasons, members of Crime Analysis could not provide an opinion as to if a neighborhood is "safe." Other areas of information that were often-requested concerned calls to schools, accidents at intersections, vehicle thefts, and burglaries. Using these often requested areas as guidelines, the Crime Analysis Unit developed several maps and charts which were placed on the department website (www.ci.mesa.az.us/police/crime_analysis_unit.htm). These maps and statistics are updated regularly. Citizens who call or request information are now referred to the website first. If they have no Internet access, copies of the web information are made from the site and sent to them. The results of these efforts were quickly seen in a significant drop in public requests to the unit.

The Mesa Crime Analysis Unit tries to maintain a high level of training and education within the unit, especially in the ever-developing area of GIS. As an example, the unit developed an animated density map of the City, which shows the relative density of calls for service over a one-year period. This public map was placed on the web (www.ci.mesa.az. us /police/anidensmap. htm) .



The map was constructed by utilizing the police calls for service (CFS) data for the entire year of 1998. SPSS 9.0 was used to break down this CFS data by month and each month was then saved as a DBIV file. For the actual mapping process, ArcView along with the Spatial Analyst Extension, was used to create a density map for each separate month. Each saved file was then geocoded and the CFS density calculated. When calculating the CFS density for each month it is important to be consistent with regard to the settings that are used. There are many opinions on what settings to use and a very good article can be found on the subject at: www.esri.com/news/arcuser/0199/crimedata.html. In this case a cell size of 75 feet and a search radius of 0.5 mile was used to calculate each month. It is important that the view not be changed at all when calculating or viewing the maps as this will effect the animation. Once each month's density is calculated, it is displayed in the appropriate layout with a red rectangle drawn around the appropriate month. The layout for each month was exported as a graphic file (jpg) and then saved separately. JPG was used because of the compression and to help limit the final file size and speed up the loading time from the Internet. Animation Shop 1.02 was used for the animation. A free evaluation copy of this program can be located at: www.jasc.com. Each month's jpg was brought in as a separate frame in the animation and then the "fade" effect was used for transition between frames.



The animation was then rendered into an animated GIF file and posted to the Web. The Animation Shop program gives you several resolution options when rendering the GIF file to reduce the file size. Because of the large file size, we used a setting that reduces the color selection to reduce the download time. This change did result in the loss of some colors, but the loading time was reduced significantly. Normally, on any map produced in the unit, we will have a legend. The usual legend for density maps shows calculated calls for service per square mile. Often, the scale will list a high density of CFS per square mile. For the web map, it was felt that in a map of this type (for public consumption) the legend for density might be too confusing and could be misinterpreted by the average person, so it was eliminated.

As designed, this specific map is for public display and interest. There is no legend and it is mainly an "end in itself." However, the unit is currently developing other strategies using animated density maps over time. As an example, we are developing density maps that focus on

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a patrol district. Utilizing all calls for service during a shift over a given time period (quarter), a density map is produced that demonstrates where the calls occur in the district during the shift (days, swings, or graves). These maps progress through the hours of the shift. This type of animated map can show the patrol officers where to direct their patrol efforts during the shift and can aid in assignments within the shift while potentially helping reduce crime by predicting where the problems will arise and increasing police presence in those areas ahead of time.

The Mesa Crime Analysis Unit will continue to work on this project and other GIS projects and innovations. Computer crime mapping is a relatively new analysis tool; however its capabilities are limited only by the

Feedback:
We welcome your reactions and ideas about this and other issues of *Crime Mapping News*. Contact Emily Powell at the Police Foundation by phone: (301) 721-9793, fax: (202) 659-9149 or email: epowell@policefoundation.org

vacy concerns with geocoding data. This is changing quite quickly, however. As this issue continues to generate thought and discussion, and as more crime analysts and GIS-savvy police executives talk to one another, they will discover that they are not alone. Other departments are struggling with the same questions; the same issues are confronting every other industry or service area that holds large amounts of data. The child support collection agency, school district, register of deeds, motor vehicle department, vital statistics bureau, county appraiser, clerk of court, and other public officials who process such data in public records. Some of these agencies are also beginning to make these vital records available on the Internet. They are, or will be, confronting issues of privacy versus access to public records.

Crime mapping and the distribution of mapping products via the Internet is in its youth, and has tremendous potential for public benefit. The evolution of the field mirrors the entrepreneurial spirit that stimulates the Internet in general. New applications are surfacing regularly, and are more current, more interactive, and offer more information than the first generation of static crime maps. It would be a mistake to weigh down the dynamic evolution of crime mapping and Internet distribution of information prematurely with standards that are unlikely to succeed in solving the complex issues of privacy versus accessibility.

About the National Institute of Justice
Crime Mapping Research Center

In response to many inquiries about the Crime Mapping Research Center at the National Institute of Justice, we would like to provide the following information:

Over the last decade, the criminal justice community has begun to reap the valuable analytic benefits of geographic information systems (GIS) technology. This powerful technology enhances the ability of researchers and practitioners to identify hot spots and analyze spatial patterns of crime and criminal behavior.

In 1997, the National Institute of Justice (NIJ) established the Crime Mapping Research Center (CMRC) to promote research, evaluation, development, and dissemination of GIS technology for criminal justice research and practice. The Crime Mapping Research Center promotes computerized crime mapping through:

- **Research,** including fellowships, intramural activities, and NIJ-funded grant awards.
- **Evaluation** of current criminal justice applications and needs.
- **Development** of training programs and new analytic software.
- **Dissemination** of information through conferences, workshops, a listserv, and a web site.

The CMRC will hold its Third Annual Crime Mapping Conference, *Expanding the Boundaries*, on December 11 -14, 1999 in Orlando, Florida. The *Expanding the Boundaries* conference theme was chosen to reflect the fact that mapping within criminal justice expands beyond analysis of crime data and is beneficial to varied criminal justice and social service agencies. Additional information about the CMRC and on-line conference registration can be found on the CMRC web site: **http://www.ojp.usdoj.gov/cmrc/** .

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News & Information: For the latest grant announcements, press releases, and upcoming events

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.

Visit the COPS Site today!

New material is posted to the site daily. Check it often for the latest news on the COPS program.

Upcoming Conference Schedule

August

August 13-15, 1999
Association for Information Systems (AIS)
1999 Americas Conference
Site: Milwaukee, Wisconsin.
Contact: Lawrence West or Brian Mennecke
Email: lwest@bus.ucf.edu or menneckeb@mail.ecu.edu
Web: http://www.isworld.org/ais.ac.99

August 14-21, 1999
19th International Cartographic Association (ICA) General Assembly and Conference
Site:Westin Hotel Ballroom
Government Conference Center, Ottawa, Ontario, Canada
Contact: ICA Ottawa 1999 (613) 992-9999
Fax: (613)995-8737
E-mail ica1999@ccrs.nrcan.gc.ca
Web: http://www.ccrs.nrcan.gc.ca/ica1999/

August 15-16, 1999
Geospatial Information & Technology Association (GITA)/ McGraw-Hill Joint ExecuNet Forum.
Site: Beaver Creek, Colo
Contact: John Kayser (303) 337-0513
E-mail: jkayser@gita.org,
Web: http://www.gita.org

August 21-25, 1999
URISA 1999 Annual Conference and Exposition
Site: Navy Pier, Chicago, IL
Contact: URISA (847) 824-6300
E-mail: info@urisa.org

August 29-September 2, 1999
National States Geographic Information Council (NSGIC) 1999 Annual Conference
Site**:** Hotel Monteleone, New Orleans, Louisiana
Contact: NSGIC (603) 643-1600
E-mail: nsgic@aol.com
Web: http://www.nsgic.org

September

September 8-10, 1999
1999 AR GIS Users Forum Conference
Site: Eureka Springs, AR
Contact: Phyllis Smith (501) 569-8534
E-mail: pnsmith@ualr.edu

September 12-14, 1999
Information Technology Annual Conference/ Expo
Site**:** Hyatt Regency, Atlanta, Georgia
Contact: EEI Meeting Services
701 Pennsylvania Avenue, N.W.,
Washington, D.C. 20004-2696
Fax: (202)508-5360

September 24-27, 1999
1999 International Map Trade Association (IMTA) Conference and Trade Show
Site: Ottawa Congress Center
Ottawa, Ontario, Canada
Contact: IMTA (815) 939-4627
Fax: (815) 933-8320
Web: http://www.maptrade.org.

September 27-29, 1999
Municipal and Environmental Applications of GIS Using ArcView
(sponsored by University of Wisconsin-Milwaukee)
Contact Non-Credit Registration Office, University of Wisconsin-Milwaukee (888) 545-4700 or (414) 227-3139
Fax: (888) 545-4600
Web: http://www.uwm.edu/dep/ccee

September 28-30, 1999
Association for Geographic Information Conference 1999
Site: Olympia, London
Contact: Gayle Gander 0171 334 3746;
Fax: 0171 334 3791
Email: gayle@agi.org.uk
Web: http://www.agi.org.uk/pages/agiconference/agi99.htm

September 29-October 1, 1999
14th Annual Northwest ESRI User Group Conference
Site: Sunriver Resort, Sunriver, Oregon
Contact: ESRI
Web: http://newberry.deschutes.org/eogisug/1999conf.htm

September 29-October 2, 1999
Association of Pacific Coast Geographers 1999
Site: John Ascuaga's Nugget in Sparks
Reno, NV
Contact: Gary Hausladen and Chris Exline (702) 784-6999
Fax: (702) 784-1058
E-mail: hausl@unr.edu
Web: http://www.csus.edu/apcg/meetings.htm

October

October 4-5, 1999
15th Annual New York State Geographic Information Systems Conference
GIS: Tools for Connecting to the Real World
Site: Holiday Inn-- Turf
Albany, New York
Contact: Carol Weinheimer or Horace Shaw (315) 470-6891
Fax: (315) 470-6890
Web: http://www.esf.edu/conted/programs/nysgis99.htm

October 5-7, 1999
Trimble Worldwide Users Conference
San Jose, CA
Contact: Stacy Marshall (408) 481-8465
E-mail: user_expo@trimble.com
Web: www.trimble.com/surv_map/userconf/

October 5-7, 1999
1999 Minnesota GIS/LIS Conference
Site:St.Cloud, MN
Web: http://www.mngislis.org/conf99.htm

October 8-10 1999
New England - St. Lawrence Valley Division of the
Association of American Geographers Annual Meeting
Site: University of Maine at Farmington
Contact: Cathleen McAnneny (207) 778-7432
E-mail: mcanneny@maine.edu
Web: http://bondo.wsc.mass.edu/dept/garp/nestvaldepts.htm

October 6-8, 1999
International Association of Crime Analysts
1999 IACA Conference
Site: Sheraton Baltimore North Hotel
903 Dulaney Valley Road
Towson, Maryland 21204
Contact: (410) 321-7400
Fax: (410) 296-9534
Web: http://www.iaca.net/99con.htm

October 6-8, 1999
Street Smart and Address Savvy
Site: St. Anthony Hotel
San Antonio, TX
Web: http://www.urisa.org/address99/addressannounce.htm

October 7-8, 1999
1999 Virginia GIS Conference
Site: Abingdon, Virginia
Contact: Chris Gensic or Maureen Karch (804) 982-5538
E-mail: vapdc@virginia.edu
Web: http://www.institute.virginia.edu/vapdc

October 8-9, 1999
Association of American Geographers
Middle States Division Annual Meeting
Site: West Chester University, Sykes Union
Contact: James P. (Jake) Lewandowski (610) 436-2724
Fax: (610) 436-2889

October 14, 1999
Geographic Information Systems in Public Works
Site: Carson Center
Carson, California
Contact: Doug Abramson (949) 472-3505
Fax: (949) 472-8373
E-mail: douga@rbf.com

October 17-22, 1999
ESRI Southeast Regional Users Group SERUG 99 Annual
Conference
Site: Wyndham Orlando Resort, Orlando, FL
(formerly the Orlando Marriott International Drive)
Contact: J.J. Meadows (850) 877-7275
Web: http://www.gis-services.com/SERUG/default.htm

October 19, 1999
GIS IRELAND 99 Annual Conference & Exhibition
GIS Serving the People
Site: The Grand Hotel, Malahide, Ireland
Contact: Conference Director, IRLOGI (01) 6082544
Fax: (01) 6773072
E-Mail: info@irlogi.ie
Web: http://www.irlogi.ie

October 20-22, 1999
Palm Beach - Broward County GIS Expo
Site: Sugar Sands community Center
Boca Raton, FL
E-mail: gisexpo@co.palm-beach.fl.us
Web: http://www.sfrpc.com/gisexpo/gisexpo.htm

November 1999

November 4-5, 1999
1999 Mid-West/Great Lakes ARC/INFO User Group
Site: Park Place Hotel, Kansas City, MO
Contact: Nancy Mulvaney, (217) 333-2882
Email: nmulvaney@uiuc.edu
Web: http://msdis.missouri.edu/mwglaiug

November 10-12, 1999
Driven By Data: An Advanced Symposium on the Use and
Potential of Geospatial Data
Site: Regal Biltmore Hotel, Los Angeles, California
Web: www.drivenbydata.org

November 15-17, 1999
ESRI European User Conference
Site: Munich, Germany
Contact: ESRI-Germany, 49-8166-6770
Email: info@ESRI-Germany.de
Note: This conference is only open to ESRI software users.

November 20-24, 1999
Executive Conference on Integrated Information Systems
Site: (Cesii), Hotel Caribe Royale, Orlando, Florida
Contact: James Black (303) 604-2566
Email jdblack@jblack.com
Web: http://www. cesii.com

November 22-26, 1999
AURISA 99 Conference
Site: Fairmont Resort - Leura, Australia
Contact: AURISA, +61-2-6257-3299
Email: aurisa@acts.ccmail.compuserve.com

ABOUT THE POLICE FOUNDATION

The Police Foundation is a private, independent, not-for-profit organization dedicated to supporting innovation and improvement in policing through its research, technical assistance, and communications programs. Established in 1970, the foundation has conducted seminal research in police behavior, policy, and procedure, and works to transfer to local agencies the best new information about practices for dealing effectively with a range of important police operational and administrative concerns. Motivating all of the foundation's efforts is the goal of efficient, humane policing that operates within the framework of democratic principles and the highest ideals of the nation.

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