# Friday, April 2, 2004

**7:00 am - 4:30 pm** **Registration** ***Mezzanine***

**7:30 am - 4:00 pm** **Vendor Exhibits** ***Mezzanine***

**8:00 am - 9:30 am** **Concurrent Panels**

## Spatial Technology Showcase Session *Hancock*

***General Audience***

## Data Sharing and Privacy Issues with GIS *Stanbro*

***General Audience***

**Moderator**

**Douglas Hicks** **Minneapolis Police Department**

**Presenters**

**Michael Leitner** **Louisiana State University**

***Visualizing the Location of Confidential Crime Data***
(Michael Leitner, Andrew Curtis)
This paper discusses spatial encoding strategies for confidential (personal) crime data that can be represented as points on a map (in a GIS). The research question is how to best geographically mask individual-level data so as to protect the confidentiality of the (point) location (e.g., the residence of a crime victim) and at the same time to preserve the essential visual characteristics of the original crime distribution. In the presentation, we will provide a review of the literature, outline the experimental design/methodology, and discuss the results of this research.

**J. Andrew Ware** **University of Glamorgan**

***Forecasting and Mapping Crime: An Ethical Conundrum***
(J. Andrew Ware, Jonathan Corcoran)
Accurate forecasting of the temporal-geography of crime (predicting where and when crime is likely to take place) can have immense benefits. If acted upon, accurate prediction should lead to effective prevention. The prediction of criminal activity often involves retrospection and this frequently relies on the use of information appertaining to past perpetrators and/or past victims. Often, however, the most salient of this information is subject to legal and ethical restriction on its use. Thus the ethical conundrum! While the presentation will draw on personal experience, it will provide an objective perspective of the ethical conundrum and suggest means for ameliorating its impact.

**Douglas Hicks** **Minneapolis Police Department**

***Multi-Jurisdiction, Multi-Discipline Database Sharing in Law Enforcement: The New Information Paradigm***

Law enforcement agencies build and have access to many information systems that allow officers to pull up information on a one-at-a-time query basis. These tools are very personnel intensive, and the resulting products can be a nightmare to cross-reference. The Minneapolis Police Department (MPD) has forged alliances with other law enforcement disciplines (courts, corrections, probation, etc.) to share databases. The MPD automatically produces and distributes products on a daily, weekly, or monthly basis integrating information from all the databases designed to meet the particular user needs. Many products are GIS-ready, allowing quick utility by minimally trained GIS users.

## GIS Applications III (Advanced Systems) *Clarendon*

***Advanced***

**Moderator**

**Joseph E. Johnson** **University of South Carolina**

**Presenters**

**Tim Burns** **Department of Justice and Consumer Services**

***Comprehensive Approach to County-Wide Public Safety Data Sharing and Mapping Partnerships***

The Enforcer Geographic Information System is an enterprise, data-sharing initiative designed to coordinate mapping and analysis efforts between local public safety agencies. As a county-wide partnership, project participants have had to address a variety of issues that have impacted the system's development and direction. This workshop will focus on the structure and evolution of the Enforcer Project within Pinellas County, Florida, and the current status of project applications.

**Carrissa Goldner** **Bay Area Rapid Transit Police Department**

***Bay Area Rapid Transit Police Department's System-Wide GIS Safety Solution***

(Carissa Goldner, Kathy Dombrowski)

The presentation will focus upon the police department's cost-effective GIS solution to solve data collection, management, and dissemination problems with the current Dispatch and Records systems.

**Joseph E. Johnson** **University of South Carolina**

***Extracting Meaningful Information from Spatial and Temporal Analysis***

The Advanced Solutions Group at the University of South Carolina has developed and implemented statewide mapping for all critical emergency events as well as a state critical infrastructure information system (Java/Web interface with ArcInfo 8.3 against a SQL Server database). A separate secure counterterrorism event management system was just completed along with a complete statewide fire response management system. The team is now

working with SAS to develop methodologies for the automatic identification of significant data trends as information is spatially and temporally disaggregated. Potential integration of the past multi-agency criminal justice database is also being studied.

## GIS for Public Safety III (Census Data Use) *Arlington*

***General Audience***

**Moderator**

**Donald R. Dixon** **California State University, Sacramento**

**Presenters**

**Safa F. Egilmez** **Santa Monica Police Department**

***Evaluation of the Crime Rate Influencers using Multivariate Analysis and GIS for the Los Angeles County Sheriff's Department, Malibu/Lost Hills Station, and Santa Monica Police Department***

This presentation will give an evaluation of multivariate analysis in combination with GIS analysis for studying the effect of certain crime-rate influencers on the jurisdictional crime rate, using census information. The audience will have an exposure to techniques that can be combined with GIS (crime mapping) in order to better understand crime patterns occurring in their jurisdictions.

**John Markovic** **Vera Institute of Justice**

***Using Census Data to Identify, Map, Assess, and Enhance Community Outreach***

(John Markovic, Anita Khashu)

This presentation will discuss mapping efforts in two projects currently underway at the Vera Institute of Justice. The first project, in partnership with the New York Police Department (NYPD), focuses on identification and assessment of immigrant population groups in NYPD's ongoing efforts to enhance community outreach. In partnership with the Arab American Law Enforcement Association, the second project, Improving Cooperation Between Law Enforcement and Arab-American Communities, is assessing police-community relations in 20 police departments with high concentrations of Arab immigrant and Arab-American populations. The presentation will emphasize how GIS was used in defining outreach areas and in defining/selecting sample sites.

**Donald R. Dixon** **California State University, Sacramento**

***Family Violence in Dallas, Texas: A GIS-Based Assessment***

This paper utilizes a multi-year data set of family violence offenses to illustrate how GIS can be effectively utilized to better understand and, therefore, appropriately address this significant problem. The data set covers a 5-year period and includes over 100,000 offenses. Using ArcView GIS we identified hot spots of family violence in Dallas, Texas. Researchers conducted a social-ecological analysis of the hot spots. They then conducted a citywide analysis of the problem, utilizing statistical models to determine the correlates of family violence in Dallas between 1997 and 2001.

## Local, Regional, and Federal Mapping Initiative III (COMPASS/SACSI) *Berkeley*

*General Audience*

**Moderator**

**Brett Chapman** — **National Institute of Justice**

**Presenters**

**Jim B. Pingel** — **Wisconsin Sentencing Commission**

***GIS as a Tool for Collaboration: Highlights from the Milwaukee COMPASS Project***
(Jim B. Pingel, Nancy Olson)
In 2001, Milwaukee, Wisconsin, joined Seattle as the second grant award under the COMPASS (Community Mapping, Planning and Analysis for Safety Strategies) program. Milwaukee's federal grant ended in 2003, but the project has institutionalized both inter-agency data sharing and an increased reliance on GIS and data-driven problem solving throughout the law enforcement community. This presentation will recap the Milwaukee COMPASS project by highlighting three examples of collaboration between law enforcement and the broader community, in which GIS played a central role.

**Gerard Sidorowicz** — **City of Seattle**

***Seattle COMPASS Experience: Using GIS to Support Community Building***
NIJ's COMPASS project was first implemented in the city of Seattle. While the project was intended to address public safety problems, and continues to do so, it set the foundation for using geographic modeling for developing policies that support youth and families in the city. The presentation will discuss this development using examples of products that support neighborhoods through community building.

**Julie Wartell** — **San Diego District Attorney's Office**

***COMPASS: Using GIS to Identify and Understand Community Safety Issues***
This session will highlight one of the three COMPASS (Community Mapping, Planning and Analysis for Safety Strategies) initiative sites – East Valley (CA). The focus of COMPASS includes collaboration among government agencies and community interests, a comprehensive data infrastructure, and strategic analysis. Experiences regarding GIS-based tools, data sharing, and analytical efforts will be presented. The session will include a demonstration of some of the tools and products that have resulted from this project, particularly emphasizing the use of GIS to help collaborative groups identify and solve public safety problems.

## Research and Theory Development *Georgian*

*Advanced*

**Moderator**

**David Ashby** — **University College, London**

**Presenters**

**Spencer Chainey** **University College, London**

***Exploring the Use of Geographic Information for Identifying Breakdowns in Community Cohesion to Support Effective Police Responses***

In recent years the United Kingdom has been witness to rising incidents of racial, political and economic tensions, alongside increasing problems of certain types of crime. This has led the police to begin to re-assess their responses to criminal activity, particularly in terms of how their role can better prevent crime and pre-empt community fragmentation. This paper presents the first major step in the creation of new national guidance that helps the police monitor levels of community cohesion through the use of geographic indicators. This has involved assessing appropriate geographic datasets and practical processes that support police responses to crime prevention against assessments of emerging tensions.

**Xiaowen Yang** **University of Florida**

***Identifying the Effects of Physical Environment Features on Burglary and Controlling Socio-Economic Variables***

(Xiaowen Yang, Richard Schneider)

This study seeks to demonstrate how different environmental features can affect the occurrences of burglary with controls for specific social-economic variables. The intent is (1) to identify specific features of the physical environment that may contribute to or deter burglary and (2) to introduce a reliable and objective method for identifying the impact of built environment features on the three types of burglary-residential, conveyance, and business.

**David Ashby** **University College, London**

***Geodemographics for Policing: A New Approach to the Analysis of Geographic Variations in Crime and Policing Performance***

Public service delivery is now the primary focus of domestic policy debate in the United Kingdom. Policing is one emergent subject of increasing media attention and public interest, particularly with regard to policing at the neighborhood and community levels. This paper reports on the development of new methodologies appropriate for both the analysis of crime patterns at a local level and the assessment of policing performance within different neighborhood types. New geodemographic classifications are used to profile the crime and policing environments of different neighborhoods, and hence, develop and deploy appropriate and efficient policing strategies at the local level.

## Spatial Analysis and Research III (Crime and Neighborhoods) *Plaza Ballroom Intermediate*

**Moderator**

**Noah J. Fritz** **National Law Enforcement and Corrections Technology Center - Rocky Mountain**

**Presenters**

**Rebecca A. Colwell** **University of Minnesota Geography Department**
**MASTERS LEVEL STUDENT PAPER COMPETITION WINNER**

***Measuring Quality of Life with GIS: Moving Beyond Part I Crime***
In law enforcement, accurate portrayals of the quality of life in residential communities are important for police resource allocation as well as for strategic and tactical policing practices. Standard conventions used by police agencies for determining quality of life include producing tables, graphs, and maps depicting Part I offenses. Through geographic analysis of incident data from the Lincoln, Nebraska, Police Department, this presentation addresses alternative methods for determining the quality of life in communities. A quality of life index that identifies crimes, events, and locations that may provide a clearer indication of neighborhood health will be presented. The benefits of using these indicators are, among other things, better internal communication and more precise distribution of police resources.

**Dan Lockwood** **Savannah State University**

***Mapping Violent Crime in Savannah's Neighborhoods, 1993-1997: Social Disadvantage, Land Use, and Violent Crimes Reported to the Police***
This paper presents an area study on the hypotheses that violent crime is linked to either a subculture of violence, social disadvantage, or land uses such as rental property, retail/office/commercial, or public/institutional.

**Noah J. Fritz** **National Law Enforcement and Corrections Technology Center - Rocky Mountain**

***Ghetto, Where Race and Poverty Meet Crime***
Dr. Martin Luther King articulated a dream of a better society, envisioned 40 years ago – perhaps, in contrast, more of a nightmare today. In the "corners" of inner city impoverished neighborhoods, symbolically labeled as "Ghetto," and in the prisons, poverty and racism remain to be felt. Dr. King probably never imagined that two million U.S. citizens (49 percent of whom are black) would end up behind bars. In 2001, with a heartrending number of prisoners incarcerated, blacks comprise 62.7 percent, and whites 36.7 percent, of all drug offenders admitted to state prison. The American Heritage Dictionary defines ghetto as "a section of a city occupied by a minority group who live there especially because of social, economic, or legal pressure." Although blatantly bigoted laws of slavery and "separate but equal" rules are gone, post-modern racism is perpetuated in ghettos. Social demographics reflect a great disparity between people of color and Caucasians in U.S. statistics. This research employs GIS to identify and analyze high crime neighborhoods (i.e., hotspots) in a large metropolitan "ghetto." It questions interpretations of crime and delinquency by locals in contrast to "street-level bureaucrats." In what form or format does crime and delinquency, as social constructs, present themselves; and what are the temporal and spatial dimensions of crime? What are the social and environmental factors making certain neighborhoods more prone to it than others? How does the community see and experience the framework of "community policing?" Finally, what other social factors help the understanding of particular quality-of-life issues in ghettos?

| 9:30 am - 10:00 am | Break |
|---|---|

**10:00 am - 11:30 am** **Concurrent Panels**

## Spatial Technology Showcase Session *Hancock*

***General Audience***

## GIS Applications IV (Systems Development) *Clarendon*

***Intermediate***

**Moderator**

**Joseph E. Pascarella** **New York Police Department**

**Presenters**

**Erich Seamon** **City and County of San Francisco**

***Fighting Crime in the 21st Century: Implementation of San Francisco's First Real-Time Geospatial Criminal Analysis System, CrimeMAPS***

(Erich Seamon, Tom Bruton)

The city and county of San Francisco's Police Department (SFPD) has recently implemented a real-time criminal analysis and mapping system, titled CrimeMAPS. Developed as a program to facilitate accountability thru technology, CrimeMAPS uses complex systems (citrix technology, storage area networks, clustered, high availability servers), data processes, and advanced geographic information systems (GIS) to compile a variety of police-related incidents into usable, secure map-related applications. In addition to being used by SFPD personnel on a daily basis, CrimeMAPS also provides the public with web-based applications for crime analysis and review. This presentation will review the technology and data methods required to build this world-class system, and it will address the impact CrimeMAPS has had on operational activities in the SFPD.

**Joey Yi Zhou** **Kent State University**

***Internet Mapping Application for Police Problem Solving***

(Joey Yi Zhou, Eric Jefferis)

The goal of this project is to develop an Internet-based mapping application that will assist police problem solving – tentatively called the Internet Mapping Application for Police Problem Solving (iMAPPS). Specifically, the iMAPPS system will inform the Scanning, Analysis, and Assessment phases of the SARA model and will be transferable to other law enforcement agencies as it will be based primarily on a geographically enhanced NIBRS data structure.

**Joseph E. Pascarella** **New York Police Department**

***Deep Infrastructure Base Maps for Public Safety and Homeland Security: A Case Study of the New York City GIS Utility***

The New York City (NYC) GIS Utility, a central repository of mapping data and support

services for government agencies, was established in January 2000 to streamline operations and produce timely mapping information for basic operational needs and critical incidents, such as catastrophic terror attacks and natural disasters. The events and aftermath of September 11, 2001 highlighted the need for this information, particularly to assess the vulnerability of vital structures such as buildings and bridge and tunnel crossings and infrastructure such as telecommunications and the water supply viaducts. This paper examines the issues encountered in constructing the NYC GIS Utility, which is slated for completion in 2004.

## GIS for Policy and Program Evaluation I

*Arlington*

***Beginning***

**Moderator**

**Christopher D. Maxwell** — **Michigan State University**

**Presenters**

**Scott S. Keir** — **Multnomah County Department of Community Justice**

***Using Community Justice Data and GIS Mapping to Support Decision-Making in Multnomah County, Oregon***

(Scott S. Keir, Andrea Westersund)

This presentation will demonstrate how the Multnomah County (Portland, Oregon) Department of Community Justice (DCJ) combines criminal justice data with GIS mapping techniques to assist departmental decisionmaking. By working closely with the county's GIS Unit, the Research and Evaluation Unit of DCJ has been able to provide DCJ decisionmakers with GIS maps of Multnomah County that can play a key role in locating services for the youth and adults in the justice system and in designing culturally competent services for juveniles. Examples of how GIS mapping has been used by DCJ management and staff will be presented and discussed.

**Michael J. Kollmeyer** — **City of Wichita**

***Beat Redistricting for the City of Wichita***

During the fall of 2002, the Wichita Police Department required beat and bureau boundaries redrawn because of population change from migration and annexations, unbalanced call load, and unbalanced total areas. City of Wichita GIS was utilized to research and develop an application to expedite the redistricting process and provide an interactive environment for Captains and Deputy Chiefs to make redistricting decisions on the fly. Utilizing the redistricting tool in ESRI's ArcView GIS, the process was completed in two weeks, a significant improvement over the 6-month process 4 years prior.

**Christopher D. Maxwell** — **Michigan State University**

***Using GIS to Experimentally Evaluate the Impact of "Fixing Broken Windows" on Neighborhood Safety, Social, and Physical Conditions***

(Christopher D. Maxwell, John McCluskey)

This presentation provides baseline information about the design and impact of a program developed through a research-practitioner partnership that is experimentally testing whether

"Fixing Broken Windows" improves neighborhood safety, social, and physical conditions. The presentation will demonstrate how GIS was used to design, manage, and analyze this experimental program. Within this context, a particular focus is placed upon how GIS facilitated the integration of databases gathered from participating agencies to measure decay, displacement, and diffusion of benefits. The presentation will also provide baseline information about the pretests and initial impact of this program on "tagged" houses.

## GIS for Public Safety IV (Problem Solving) *Stanbro*

***Intermediate***

**Moderator**

**Safa F. Egilmez** **Santa Monica Police Department**

**Presenters**

**John W. Conte** **San Antonio Police Department**

***On the Hunter's Trail: The I-10 Kidnapper and GIS***

During the spring of 2001, two children were kidnapped from their homes in two separate incidents. Each of the girls was returned to her parents, each with descriptions of the hunting lodge in which they were imprisoned. Investigators sought to use the power of GIS to bring these descriptors together—a gas meter, a radio tower, and several others landmarks—to guide a statewide search to find the offender before another victim was taken.

**Peter K.B. St. Jean** **State University of New York at Buffalo**

***Systematic Social Observation for Public Safety: Combining GIS, Aerial Photographs, and Video Mapping Systems (VMS) for Neighborhood Crime Analyses and Interventions***

This presentation advances an approach to combine GIS analyses, aerial photographs, and video footages of street blocks for the purposes of better understanding causes, consequences, and interventions against neighborhood crime. The data are derived from the Buffalo Area Neighborhood Study (BANS) and ongoing research on the South Side of Chicago, which uses multiple methods for examining the relationships between neighborhood contents, neighborhood social organization, and neighborhood outcomes such as crime, deviance, and social disorder. The methodological protocols are useful to both scholars and practitioners alike. Implications will be discussed in detail.

**Safa F. Egilmez** **Santa Monica Police Department**

***New Approach for the Graffiti and Accompanying Problems Utilizing GPS and Wireless Enabled Digital Cameras in Connection with GIS***

(Safa F. Egilmez, Roberta Talbot)

In this paper, the new approach developed to overcome graffiti and accompanying problems in the city of Santa Monica will be presented. GPS and wireless communication-enabled digital cameras were utilized to capture and annotate the pictures and send them to a central server. The images and the accompanying information were then automatically transferred to the GIS and analyzed by Crime Analysis Department personnel as well as other city departments. A more efficient problem-solving and resource-allocation strategy was developed using this information.

## Local, Regional, and Federal Mapping Initiative IV (Federal Agencies) *Berkeley*

***General Audience***

**Moderator**

**Jason R. Dalton** — **University of Virginia**

**Presenters**

**Joseph Bertoni** — **Bureau of Alcohol, Tobacco, Firearms and Explosives**

***The Bomb Arson Tracking System and Its Incorporation of GIS Technology***

The Bomb Arson Tracking System (BATS) is a secure Internet based information management and sharing tool developed in concert with state and local law enforcement agencies to better facilitate the sharing information concerning arson and bombings locally, regionally, and nationally. At the center of the BATS application is an imbedded GIS functionality.

**Ed Freeborn** — **National Law Enforcement and Corrections Technology Center - Northeast**

***Using GIS to Support Integrated Border Enforcement Teams (IBET)***

GIS is being integrated into the Central St. Lawrence Valley Integrated Border Enforcement Team (CSLV IBET) to enhance interagency coordination and promote officer safety. Lessons-learned with the CSLV IBET will be applied to other IBETs. The visual and practical impact of GIS and GIS data sharing may facilitate the development of a true cross-border crime mapping system.

**Jason R. Dalton** — **University of Virginia**

***Using GIS for Assessment of Airport Security Threat from Man Portable Air Defense Systems (MANPADS)***

A threat with which many critical infrastructure and homeland security experts are increasingly concerned is that of a shoulder-fired rocket targeting a commercial airliner during takeoff or landing. This problem has been studied from the perspective of target detection, deployment of counter-measures, and defensive ballistics. This paper shows that a cost-effective and accurate means of defending against such an attack is the use of spatial environment analysis using geographic information systems (GIS). These systems create a detailed 3D computer model of the region around the airport. From this model, the locations from which a shoulder-fired anti-aircraft rocket could be launched can be derived. This paper shows that taking preventative preplanning measures to secure the areas from which a rocket can be fired is more effective and less expensive than airborne defense measures.

## Offender Travel Behavior I *Georgian*

***Intermediate***

**Moderator**

**James L. LeBeau** — **Southern Illinois University at Carbondale**

**Presenters**

**Erick E. Barnes** **University of Detroit Mercy**

***Never Cry Wolf, Mapping Out Serial Robbery in Detroit, Michigan***
Robbery is crime that has a unique distinction; it is both a crime against property and a crime against persons. Therefore, those who commit robbery especially serial robbery share a unique type of criminal logic. This paper discusses the role that GIS crime mapping has in identifying the mobility patterns, victimology, and investigation of serial robbers. Several case studies from Detroit will be discussed.

**Elizabeth R. Groff** **Institute for Law and Justice**

***Disaggregating the Journey to Homicide***
This research examines the distance traveled by offenders and victims to their involvement in a homicide. Key research topics include (1) the differences in distance traveled by offenders and victims, by homicide motive; (2) the differences in distance traveled by offenders and victims, by sex and age; and (3) the relationship between street distance and Euclidean distances, by type of homicide. Findings indicate that travel behavior differs between victims and offenders. Travel distance to event location varies according to the demographic characteristics of the offender and victim. Related to the method of measurement, street distance is always longer than Euclidean distance and there is a strong and consistent linear relationship that permits prediction of street distance from Euclidean distance. This research will assist police investigations (e.g., aid in refining suspect lists) and homicide prevention (e.g., by developing richer information about activity spaces of offenders and victims).

**James L. LeBeau** **Southern Illinois University at Carbondale**

***The Routine Arrest Space of Drug Offenders***
Using a database of 32,188 drug arrestees in Charlotte-Mecklenburg, North Carolina, during 1997-2002, this presentation examines the spatial patterns associated with repeated arrests of the same individuals. The space containing the offender's residence(s) and the locations of his/her arrests constitutes the routine arrest space. The size and compactness of the arrest spaces will be compared with the race, age, and gender of the offenders and with the types and frequencies of their offenses. In addition, their arrest spaces will be examined in relation to the spatial proximity of the activities of other offenders arrested for similar or different types of drug offenses.

## Spatial Analysis and Research IV (Auto-Theft) *Plaza Ballroom*
***Intermediate***

**Moderator**

**Rachel L. Boba** **Florida Atlantic University**

**Presenters**

**H. Sebnem Düzgün** **Middle East Technical University**

***An Integrated Approach for Mapping and Spatial Analysis of Auto Theft and Theft From Auto Criminal Incidents***

(H. Sebnem Düzgün, Aygün Erdogan)

An integrated approach for mapping and analyzing spatial distribution of Auto Theft (AT) and Theft from Auto (TFA) criminal incidents at the intraurban level was proposed. The proposed approach was implemented to AT and TFA incidents for the year 2000 in the City of Konya. The spatial pattern and the distribution of two data sets were compared to find whether the different but somehow related incidents are committed by offenders having similar 'activity spaces' in Konya Metropolitan Area. This integrated approach consists of four stages: data collection, visualization, exploration, and modeling.

**Ronald Hughes** **University of North Carolina at Chapel Hill**

***GIS and GPS Applications Within a Commercial Motor Vehicle Enforcement Environment: The North Carolina Experience***

This presentation describes North Carolina's experience in implementing a Geographic Information System (GIS) approach to commercial vehicle enforcement efforts directed toward the reduction of fatal truck-involved crashes. GIS is used to focus on the spatial attributes of enforcement activity as well as the spatial attributes of vehicle crashes. A 13-county 'pilot' study used GPS and in-vehicle GPS event-capture capabilities to address dynamic enforcement 'presence' as well as to integrate data on the spatial attributes of enforcement and the spatial attributes of crashes. North Carolina's strategic plan for the integration of GIS and GPS within a wireless, mobile computing environment will also be discussed.

**Rachel L. Boba** **Florida Atlantic University**

***Auto Theft: Geographic Analysis of Risk***

This presentation will highlight the results of an analysis of auto theft risk as well as provide guidelines for local-level analysts to conduct this analysis themselves. This analysis is being conducted through work on the National Institute of Justice funded project East Valley COMPASS (Community Mapping, Planning, and Analysis for Safety Strategies). Data from Redlands, California, is used to examine geographic and other variables and their ability to predict levels of auto thefts by block group.

**11:45 am - 1:15 pm** **Luncheon and Keynote Speaker** ***Imperial Ballroom***

**Keynote Speaker**

**Tom Casady** **Chief of Police, Lincoln Police Department**

***The Future of COMPSTAT***

**1:30 pm - 3:00 pm** **Concurrent Panels**

## Spatial Technology Showcase Session *Hancock*

***General Audience***

## GIS Applications V (Integrated Systems) *Clarendon*

***General Audience***

**Moderator**

**Michael O'Shea** **National Institute of Justice**

**Presenters**

**Mark Dougherty** **Regional Justice Information Service**

***Building a Multi-Jurisdictional Law Enforcement Data Warehouse***
(Mark Dougherty, Paul Trudt)
The St. Louis County Police Department and the Regional Justice Information Service (REJIS) have established a comprehensive multi-jurisdictional law enforcement information data warehouse (MATRIX) that actively serves over 40 local, county, and federal law enforcement agencies in the St. Louis area. MATRIX allows police agencies to link people and events from different information platforms and to reveal spatial and temporal patterns in near-real time while also reducing the time agencies spend chasing the "paper trail" on individual suspects and/or crime events.

**Hsiu-Hua Liao** **St. Louis County Police Department**

***Utilizing Value-Added Warehouse Data with GIS-Enabled Applications***
(Hsiu-Hua Liao, Paul Trudt)
RAMS and LYNX are two different yet integrated applications used to access the value-added data processed in the new St. Louis regional MATRIX warehouse. RAMS is a desktop application that allows users to map crime events, apply spatial filters, and create a short-list of potential suspects based on a given suspect's past locations and criminal activity. LYNX is a browser-based application that provides detailed original source documents and summary data collected from multiple platforms on individual suspects. Both applications are "geo-enabled" and use mapping components to provide the spatial picture of persons and/or events.

**Richard Rosenfeld** **University of Missouri – St. Louis**

***Assessing Patterns in Crime Over Space and Time Using the St. Louis Regional Data Warehouse (MATRIX)***
(Richard Rosenfeld, Robert Fornango)
The St. Louis regional MATRIX warehouse supports sophisticated and timely reports on aggregate changes over space and time in crime events. This presentation illustrates the use of the MATRIX warehouse for such reports by tracking spatial and temporal changes in crime events within and across selected municipalities in the St. Louis, Missouri region. Presenters demonstrate the development and application of multiple maps for visualizing

spatial and temporal change in selected crime indicators and using statistical tools for evaluating the extent and pattern of change. Speakers then provide a model crime report, suitable for policy analysis, summarizing the resulting crime patterns.

## GIS for Policy and Program Evaluation II *Stanbro*

***Intermediate***

**Moderator**

**Angela Moore Parmley** **National Institute of Justice**

**Presenters**

**James W. Meeker** **University of California, Irvine**

***GIS, a Tool for Analyzing Data Across the Justice System***

Geographic Information System (GIS) analysis has become a powerful tool for law enforcement agencies and researchers. However, other areas of the justice system are just beginning to explore the usefulness of GIS. This presentation focuses on several case studies that show how other justice system agencies could adopt or develop GIS tools for analysis. These examples include a potential application involving a police department and city attorney in civil gang abatement, cross-jurisdictional cooperation among various police departments in a COMPASS project, evaluation of legal service delivery models for civil justice, and an ongoing project with Legal Services Corporation OIG to explore GIS analysis.

**Bryan J. Vila** **National Institute of Justice**

***GIS-Based Approaches to Addressing Street Gang Crime***

(Bryan J. Vila, James W. Meeker)

This talk reviews GIS-based approaches developed and used by the University of California, Irvine (UCI) Focused Research Group on Orange County street gangs during the past decade. GIS provides an excellent toolkit for measuring gang crime, evaluating the impact of counter-gang strategies, and helping to enlist community resources. GIS is valuable for theory development and testing because it can explore complex causal issues about the nature and distribution of crime. As a practical tool it enables communities to combat gangs with empirically driven civil abatement proceedings. Moreover, properly prepared maps effectively communicate sophisticated analyses to policy makers, practitioners, and the general public.

**Ronald E. Wilson** **University of Michigan/MAPS Program**

***Targeting Violent Crime in Small Communities: A Spatial Analysis***

(Ronald E. Wilson, Ronald S. Everett)

This research examines the impact of a violent crime intervention program, Strategic Approaches for Community Safety Initiative (SACSI), which was implemented in small public housing communities in the City of Wilmington, North Carolina. This study uses buffer analysis, t-tests, and kernel density smoothing to examine the impact of the policy, noting that the policy had mixed effects based on type of crime. Further, geographically weighted regression will be used to explain the causes for the continuing violent crime problem.

## GIS for Public Safety V (Mapping Perception) *Arlington*

*General Audience*

**Moderator**

**Elizabeth R. Groff** **Institute for Law and Justice**

**Presenters**

**Matthew J. Giblin** **York College of Pennsylvania**

***Mapping Local Victimization Survey Data: Problems and Prospects***

Police agencies often use community surveys in order to gather information about neighborhood crime and citizen perceptions of the neighborhood, city, and police. This paper uses data from the 2002 Anchorage Adult Criminal Victimization Survey to show the problems and prospects of mapping information about community issues to illustrate the spatial distribution of victimization and the spatial variation in citizen perceptions. The emphasis is on the potential benefits of community surveys such as providing agencies with a better understanding of their jurisdictions and the difficulties and solutions inherent in the process (e.g., privacy concerns, geocoding problems).

**Derek J. Paulsen** **Eastern Kentucky University**

***Falling on Deaf Eyes: Assessing the Use of Crime Maps by Patrol Officers***

An increasingly popular strategy within community oriented and problem oriented policing is to provide patrol officers with crime analysis information in the form of crime maps. The strategy is designed to encourage officers to use maps to determine problem areas within their beats and to modify their patrol strategies accordingly. Despite the promise of crime maps and GIS in general, no research has evaluated the use of crime maps by patrol officers. This paper assesses the effects of crime maps on officers' perceptions of crime patterns and their subsequent patrol activities. In addition, the presentation discusses general problems associated with the implementation and use of crime mapping.

**Elizabeth R. Groff** **Institute for Law and Justice**

***Do Maps Increase Fear of Crime? A Randomized Experiment in Redlands, California***

(Elizabeth R. Groff, Penny Beatty, Heather Couture, Heather Fogg, Brook Kearley)

Although the dissemination of crime information is intended to benefit community members, there is a lack of empirical evidence demonstrating the effects of crime mapping on citizen perceptions and fear of crime. This experiment investigates the effect of two popular types of crime maps, graduated symbol and density maps, on citizen fear of crime in comparison to the traditional table format of crime statistic reporting. The study findings indicate that of the three formats tested, graduated symbol maps should be considered the preferred method for sharing crime information with the public without unduly increasing citizen fear of crime.

## Local, Regional, and Federal Mapping Initiative V (PSN/SACSI) *Berkeley*

*General Audience*

**Moderator**

**Lois Felson Mock** — **National Institute of Justice**

**Presenters**

**Anthony A. Braga** — **Harvard University**

***Mapping Illegal Gun Markets: National, Regional, and Local Patterns***

(Anthony A. Braga, Glenn L. Pierce, Alan Saiz)

Gun trafficking indicators can vary widely based on the level of geographic aggregation examined. The sources of illegal guns are importantly influenced by variations in gun ownership levels, state and local gun laws, and law enforcement policy and programs. In this presentation, researchers examine variance in gun trafficking indicators at the national, regional, and local levels. The discussion also presents preliminary findings for a National Institute of Justice-funded project to disrupt illegal markets operating in Los Angeles, California. Purchasers, possessor, and neighborhood-level indicators are mapped to yield insights on the dynamics of illegal gun transfers resulting in crime gun recoveries in the South (Central) area of Los Angeles. The implications of these suspicious purchase and sales patterns for supply-side interventions are discussed.

**Tim Bynum** — **Michigan State University**

***Use of Mapping for Designing Project Safe Neighborhood Interventions***

One of the principles of Project Safe Neighborhoods is that gun violence can be more effectively addressed through a concentration of efforts on the most serious problems. In many jurisdictions, interventions to reduce gun violence have been geographically based. Crime mapping has proved to be a useful tool for these districts in identifying areas in which to locate such interventions. This presentation will use examples from Detroit and other jurisdictions in discussing how the use of mapping was incorporated with other analysis techniques to identify fruitful locations for gun violence reduction initiatives.

**George Tita** — **University of California, Irvine**

***Using GIS to Examine Local Gun Markets***

Using data obtained by the Southern California Gun Tracing Center, this presentation focuses on how GIS is being used in a problem-solving approach aimed at disrupting local gun markets. The study area is comprised of the 77th Area of the Los Angeles Police Department in South Los Angeles. By examining the joint spatial distribution of where recovered crime guns were first purchased, where the last known legal purchaser resided, and where the possessor of the gun resided, one can begin to determine if guns are being trafficked through "point sources" or "diffuse sources." Analysis suggests that these crime guns are not emanating from concentrated point sources but rather from diffuse sources such as theft and straw purchasers.

## Offender Travel Behavior II (A Metropolitan Crime Travel Demand Model - Part I) *Georgian*

***Advanced***

**Moderator**

**Ned Levine** **Ned Levine & Associates**

**Presenters**

**Richard Block** **Loyola University Chicago**

***Modeling Metropolitan Criminal Travel Behavior***

Testing of the model utilizing robbery incidents for 1997 and 1998 in the city of Chicago will be discussed. In this presentation, the journey to crime for both victims and offenders will be described and modeled, and predicted across the city's Traffic Analysis Zones. The first stage will describe and model origins (home addresses of victims and offenders) and destinations (incidents). Victim origins and incident destinations with known and unknown offenders will be analyzed separately. Incidents that occur at or very close to the victim's or offender's home will be analyzed separately from those that occurred further away. Modeling will incorporate the *CrimeStat III* crime travel demand model. Travel patterns will then be modeled for 6,918 victims and 9,067 offenders who traveled to another traffic zone before becoming involved in a robbery. Actual crime trips will be compared to predicted trips using the technique described in the first presentation.

**Dan Helms** **National Law Enforcement and Corrections Technology Center - Rocky Mountain**

***Modeling Metropolitan Criminal Travel Behavior***

The Crime Travel Demand Model was applied to the greater Las Vegas metropolitan area. Crime data covering three years of various types of activity have been compared to the model, and resulting crime trip forecasting results obtained. The crime trips themselves will be examined to see what they may reveal about the movement of offenders around this large, southwestern metropolis, and how these patterns may differ in directionality, distance, and frequency with those of other cities. The results of forecast crime trips from a base year will be compared with actual crime trip information from the following year to see if the predictive power of this model seems likely to hold promise for improved strategic forecasting of criminal behavior. How this information could be applied in a law enforcement context to actually help ameliorate crime will be considered. Finally, ways in which this model could be applied to macro-level crime trip problems, for example, the transportation of international narcotics shipments, the movement of weapons and criminals involved in international terrorism, or the growth of transnational criminal organizations, will be discussed.

**Ned Levine** **Ned Levine & Associates**

***Modeling Metropolitan Criminal Travel Behavior***

This session will present the theoretical model and will describe the development of a crime travel demand module in the new version of *CrimeStat III*. There are four sections to the module. First, there is trip generation that allows the modeling of crime origins and crime

destinations by zone. Poisson and Ordinary Least Squares regression models have been implemented in this section. Second, there is a trip distribution section that models crime trips from each origin zone to each destination zone. The section also allows the calculation of actual crime trips using observed data (e.g., arrest records) and the comparison to the modeled trips using trip length distribution. Third, there is a modal split section that allows the predicted zone-to-zone trips to be split between different travel modes if sufficient data exist or if reasonable accessibility functions can be estimated. Finally, there is a network assignment section that assigns the predicted trips to a likely route on a network. The model can be used for prediction as well as for testing differential policy effects.

## Spatial Analysis and Research V (Journey to/from Crime) *Plaza Ballroom*

***Advanced***

**Moderator**

**Karen L. Hayslett-McCall** **University of Texas at Dallas**

**Presenters**

**Jared Hewko** **Edmonton Police Service**

***Catching the 'Cook': Using Journey-to-Crime Estimation to Analyze the Shopping Behavior of Methamphetamine Producers***

The production of methamphetamine poses a serious threat to public safety. Large-scale methamphetamine labs are often set up in warehouses. Unless police catch the producer (s) on site, it may be difficult to identify and locate the responsible individuals. This paper demonstrates the use of journey-to-crime estimation methods to model the shopping behavior of methamphetamine producers. Results indicate that such methods can aid in identifying the primary activity nodes (e.g., residence) of methamphetamine producers.

**Yongmei Lu** **Texas State University - San Marcos**

***Journey-After-Crime: How Far and to Which Direction Do They Go?***

This presentation extends the investigation of criminals' travel behavior from journey-to-crime to journey-after-crime. Geographic Information Systems (GIS) and spatial statistics methods are used to examine the spatial relationship between offense locations and crime-related locations. Analyses are conducted on criminals' journeys after auto theft in the city of Buffalo, New York. Results show that auto thieves' trips from vehicle theft locations to the corresponding vehicle recovery locations are local in nature. The travel distances are significantly shorter than randomly simulated trips, and the travel directions are biased from random travel directions as well.

**Karen L. Hayslett-McCall** **University of Texas at Dallas**

***How Far Are They Willing To Go? An In-Depth Examination of the Journey-to-Crime***

Law enforcement personnel and researchers have long been fascinated by an offender's "journey-to-crime." Using GIS and spatial analysis technologies, researchers examine differences between offenders of various ages (including juveniles), ethnicities, gender, and the location of the city from which the offender begins his or her journey. In addition, each

type of crime will be examined to determine if differences exist between and across both Part I and Part II offenses. This research is based on five years of calls-for-service data from a large urban police department.

| 3:00 pm - 3:30 pm | Break |
|---|---|

**3:30 pm - 5:00 pm** **Concurrent Panels**

## Spatial Technology Showcase Session *Hancock*

***General Audience***

## GIS, Crime, and Community Organizations *Clarendon*

***General Audience***

**Moderator**

**Caterina Gouvis Roman** **The Urban Institute**

**Presenters**

**Brad Baker** **Bishop Dunne High School**

***Public Safety and the K-12 Education Partnership***

This session will showcase a successful partnership between a Dallas High School and various police and government agencies. In addition, software and curriculum will be provided to help any police force or agency update their outreach program to reach this very important population that will someday control the future. Topics include: Robbery Task Force, Search and Rescue Mobile Command Post, Serial Burglary, Monthly Hotspot Maps, ArcVoyager CD (Software), Community Atlas Project, ArcLessons, GIS Day.

**Tom Rich** **Abt Associates Inc.**

***Mapping and Incident Analysis in Elementary and Secondary Schools***

The National Institute of Justice provided funding to Abt Associates to develop and disseminate a software application for supporting crime prevention and problem solving efforts in elementary and secondary schools. The application, entitled the School Crime Operations Package (School COP), enables school safety officers or school administrators to enter, maintain, analyze, and map school rule violations and crimes occurring in and around schools. This presentation will provide an overview of School COP, describe the approach used to map incidents within schools, and discuss the results of an evaluation of the application.

**Caterina Gouvis Roman** **The Urban Institute**

***Theory and Practice: Assessing the Capacity of Community Organizations and Institutions***

As evidence of the importance of the neighborhood environment for the well being and safety of residents continues to mount, it becomes increasingly important to provide communities with valid measures of community capacity and social capital that can be

collected inexpensively and repeatedly over time by residents and community agencies. The presentation will discuss the development of new capacity measures and, in particular, the theory being tested and how GIS was used to define key variables. The presentation will highlight the utility of GIS measurement for community organizations and the procedures that will enable local organizations to analyze the information for use in local planning.

## GIS for Policy and Program Evaluation III *Stanbro*

***Intermediate***

**Moderator**

**Angela Moore Parmley** **National Institute of Justice**

**Presenters**

**Timothy M. Bray** **University of Texas at Dallas**

***Liquidity of Crime: A Case for Fluid Beat Boundaries***

Police department beat boundaries are often developed using real or perceived information regarding the geographic distribution of crime, with an aim toward reducing response time and increasing operational efficiency. This information is generally static and based on macro temporal aggregations. Reliance on static, aggregate data may ignore significant temporal variation in the geographic distribution of crime. This paper explores the spatial distribution of crime data in a large city for such variations and presents evidence for reconsideration of police beat structure.

**Kenneth M. Johnson** **Seattle Police Department**

***Issues in the Publishing of Crime Data on the Web***

Crime data is provided in many forms on the World Wide Web. Some agencies display only crime totals by census tract per month. Other police departments show crime data on maps, often at a detail of a "hundred-block." Issues of confidentiality, privacy, effect on commercial activity, and accuracy of data govern whether it is proper to make maps of crime data publicly available on the Web. Methods to protect the privacy of individuals by aggregating at a higher level will be demonstrated. Web sites will be displayed and policies governing them will be discussed.

**Jerry Ratcliffe** **Temple University**

***Pre-jury Racial Bias in Philadelphia's Courts: A Study Using Location Quotients and Force-field Analysis***

This presentation examines the issue of racial representation on jury panels by exploring the spatial dimensions of pre-jury appearance and demographics in the City of Philadelphia. Location quotients are a useful descriptive tool for this type of work, but as this study shows, they can also be employed quantitatively. In addition, the presentation demonstrates an application of force-field analysis, a method more frequently employed by strategic criminal intelligence analysts. The findings of the study signal possible action points for court administrators and criminal justice practitioners.

## GIS for Public Safety VI (Other Disciplines Similar Methods) *Arlington*

***Intermediate***

**Moderator**

**Joseph E. Pascarella** — **New York Police Department**

**Presenters**

**Martin Kulldorff** — **Harvard Medical School and Harvard Pilgrim Health Care**

***A Space-Time Permutation Scan Statistic for Early Outbreak Detection***
(Martin Kulldorff, Farzad Mostashari, Rick Heffernan, Jessica Hartman)
Researchers present and illustrate a space-time permutation-based scan statistic for local hotspot detection and inference. With daily analyses of hospital emergency room data, this method is currently used by the New York City Department of Health for the early detection of localized disease outbreaks. The method automatically adjusts for any purely spatial and purely temporal variation in the data due to, for example, consistent non-time varying geographical differences in health care utilization patterns or naturally occurring day-of-week variation. The method may potentially be useful for the early detection of local crime 'outbreaks' as well.

**Marc L. Swatt** — **Northeastern University**

***Short-Term Crime Forecasting for Small Geographic Areas***
The purpose of this study was to forecast crime reports for burglary and robbery one month in advance for city blocks in a medium-sized midwestern city. A Hierarchical Linear Model (HLM) framework was used to produce monthly forecasts. These forecasts were compared to other baseline models. Results indicate that all models performed reasonably well. The HLM model was more efficient than other models as measured by the ratio of true positives to false positives.

**Joseph E. Pascarella** — **New York Police Department**

***Use of Kernel Smoothing to Identify Shifting Violent Crime Patterns in New York City***
Kernel smoothing spatial analyses are emerging techniques that can be used to identify clusters ("hot spots") of violent crime. Introductory GIS, such as crime mapping, along with crime analysis and management accountability initiatives, such as COMPSTAT, reduced violent crime in New York City by 56 percent from 1994 through 2002. To maintain crime reductions, the next generation GIS for crime analysis and deployment of resources should consist of techniques such as kernel smoothing to identify long-term patterns of violent crime.

## Local, Regional, and Federal Mapping Initiative VI (Weed and Seed) *Berkeley*

***General Audience***

**Moderator**

**Lois Felson Mock** — **National Institute of Justice**

**Presenters**

**Dan Drake** **U.S. Attorney's Office**

***Crime Mapping Efforts in Savannah's Weed and Seed Sites***
(Dan Drake, Richard Strait)
Dan Drake will participate in a panel discussion with Mike Washburn and John (Jack) P. O'Connell. The panel will cover Weed and Seed crime mapping efforts in Seattle and Savannah as well as asset mapping and the Wilmington, Delaware, Journey To Crime project. He will include success in the Savannah Impact (SIP), Savannah Community Alert Network (SCAN) project, impacted by the crime mapping efforts.

**John P. O'Connell** **Delaware Statistical Analysis Center**

***Mapping Helps Understanding of the Effectiveness of Weed and Seed Sites***
(John P. O'Connell, Richard Harris)
Weed and Seed is a national strategy that targets the toughest neighborhoods across the country. The strategy aims to reduce serious crime and illicit drug trade while strengthening the local communities' ability to work with police to maintain social order and improve quality of life for residents. The "Wilmington Crime Index" is a research-mapping tool that allows Weed and Seed leadership to quickly observe the relative shifts in public safety in the Weed and Seed sites as well as in comparison neighborhoods and the city as a whole. Another part of the presentation will display journey-to-crime information for drug dealers. More than half of arrestees selling illicit drugs in the Wilmington Weed and Seed do not reside in those neighborhoods. Maps will show the relationship of the released offenders' residences to Weed and Seed neighborhoods. Lastly, maps showing relationships between drug hot spots and shootings that resulted in injury or death will be discussed.

**Mike Washburn** **Seattle Police Department**

***Crime Mapping Efforts in Seattle's Weed and Seed Sites***
(Mike Washburn, Jeff Wendlandt)
Mike Washburn will participate in a panel discussion with Dan Drake and John (Jack) P. O'Connell. The panel covers Weed and Seed crime mapping efforts in Seattle and Savannah as well as asset mapping and the Wilmington, Delaware, Journey To Crime project.

## Offender Travel Behavior III (A Metropolitan Crime Travel Demand Model - Part II)

***Georgian***

***Advanced***

**Moderator**

**Ned Levine** **Ned Levine & Associates**

**Presenters**

**Richard Block** **Loyola University Chicago**

***Modeling Metropolitan Criminal Travel Behavior***

Testing of the model utilizing robbery incidents for 1997 and 1998 in the city of Chicago will be discussed. In this presentation, the journey to crime for both victims and offenders will be described and modeled, and predicted across the city's Traffic Analysis Zones. The first stage will describe and model origins (home addresses of victims and offenders) and destinations (incidents). Victim origins and incident destinations with known and unknown offenders will be analyzed separately. Incidents that occur at or very close to the victim's or offender's home will be analyzed separately from those that occurred further away. Modeling will incorporate the *CrimeStat III* crime travel demand model. Travel patterns will then be modeled for 6,918 victims and 9,067 offenders who traveled to another traffic zone before becoming involved in a robbery. Actual crime trips will be compared to predicted trips using the technique described in the first presentation.

**Dan Helms** **National Law Enforcement and Corrections Technology Center**

***Modeling Metropolitan Criminal Travel Behavior***

The Crime Travel Demand Model was applied to the greater Las Vegas metropolitan area. Crime data covering three years of various types of activity have been compared to the model, and resulting crime trip forecasting results obtained. The crime trips themselves will be examined to see what they may reveal about the movement of offenders around this large, southwestern metropolis, and how these patterns may differ in directionality, distance, and frequency with those of other cities. The results of forecast crime trips from a base year will be compared with actual crime trip information from the following year to see if the predictive power of this model seems likely to hold promise for improved strategic forecasting of criminal behavior. How this information could be applied in a law enforcement context to actually help ameliorate crime will be considered. Finally, ways in which this model could be applied to macro-level crime trip problems, for example, the transportation of international narcotics shipments, the movement of weapons and criminals involved in international terrorism, or the growth of transnational criminal organizations, will be discussed.

**Ned Levine** **Ned Levine & Associates**

***Modeling Metropolitan Criminal Travel Behavior***

This panel will continue with the theoretical model and will describe the development of a crime travel demand module in the new version of *CrimeStat III*. There are four sections to the module. First, there is trip generation that allows the modeling of crime origins and crime destinations by zone. Poisson and Ordinary Least Squares regression models have been implemented in this section. Second, there is a trip distribution section that models crime trips from each origin zone to each destination zone. The section also allows the calculation of actual crime trips using observed data (e.g., arrest records) and the comparison to the modeled trips using trip length distribution. Third, there is a modal split section that allows the predicted zone-to-zone trips to be split between different travel modes if sufficient data exist or if reasonable accessibility functions can be estimated. Finally, there is a network assignment section that assigns the predicted trips to a likely route on a network. The model can be used for prediction as well as for testing differential policy effects.

## Spatial Analysis and Research VI (E.S.D.A.) *Plaza Ballroom*

***Intermediate***

**Moderator**

**Spencer Chainey** **University College, London**

**Presenters**

**Gaston Pezzuchi** **Buenos Aires Province Police Department**

***Local Crime Modeling with Geographic Weighted Regression (Space Varying Relationships) – Police Confrontations Example***

(Gaston Pezzuchi, Luis Castro)

Following previous studies, and in an attempt to model the spatial phenomena of police confrontations, researchers explored different local approaches and chose geographic weighted regression methods for this study. Preliminary results regarding the influence of socio-economic data, presence or absence of emergency dispute settlement, and overall quantity of events in the offender's residence are presented in an attempt to establish their degree of influence. The presented results indicate the benefits of considering unique spatial characteristics of data (dependency and heterogeneity) at all stages in the analysis.

**Andre B. Rosay** **University of Alaska, Anchorage**

***Exploratory Spatial Analyses of Sexual Assaults of White and Native Victims***

(André B. Rosay, Robert Langworthy)

Using data on the locations of sexual assaults reported to the Anchorage Police Department in 2000 and 2001, we used Exploratory Spatial Data Analysis techniques to (1) identify the locations where sexual assaults were concentrated and (2) examine the correlates of these spatial concentrations. In both analyses, we also examined differences between White and Native victimizations. The spatial concentrations of sexual assault victimizations vary significantly by race as do the correlates of the respective spatial concentrations.

**Sanjeev Sridharan** **Westat**

***Spatial Analysis Techniques to Leverage Social Indicator Databases: Illustrative Analysis of Criminal Justice Planning using Exploratory Spatial Data Analysis***

(Sanjeev Sridharan, Susan Gholston)

Using social indicator databases, spatial analysis techniques can be implemented to provide greater leverage for criminal justice agencies. The basics of Exploratory Spatial Data Analysis (ESDA) will be illustrated using an example of the child risk scale from Virginia. The focus of the presentation is on the utility of ESDA techniques for State agencies to monitor key performance indicators.

**5:30 pm - 7:00 pm** **Development Issues in Spatial Crime Analysis Software Roundtable** ***Stanbro***

**Moderator**

| | |
|---|---|
| **Ronald E. Wilson** | **University of Michigan/MAPS Program** |

**Panelists**

| | |
|---|---|
| **Sean Bair** | **National Law Enforcement Corrections and Technology Center - Rocky Mountain** |
| **Jason R. Dalton** | **University of Virginia** |
| **Ned Levine** | **Ned Levine & Associates** |
| **Jerry Ratcliffe** | **Temple University** |
| **Ronald E. Wilson** | **University of Michigan/MAPS Program** |

***Development Issues in Spatial Crime Analysis Software Roundtable***

In consideration of advances in spatial crime analysis software, the M.A.P.S. program is hosting a round table on issues surrounding custom software development. This roundtable will serve as a venue to discuss common concerns, compare software applications, failures and successes, development challenges and modern methods for the development of these applications. While all interested parties are encouraged to attend, this round table will be of particular interest to those involved in development, design or writing of software. This is intended as an open-discussion forum, and attendee participation will be encouraged.

Software for the spatial analysis of crime is becoming more available. However, they are wrought with problems, such as lack of parameter specifications, difficulty in formatting input, unusable interfaces, not operating to common standards, being fault intolerant and constructed in un-evolvable ways. Further, there is disparity between commercial and custom software in ability to be interoperable and flexible. The results require users to be patient with quirks, errors, lack of error trapping, unintuitive interfaces; documentation is lacking and interface elements that do not follow common standards.

Specialists in their field write many of their own software applications. While this is warranted, many of these specialists are not software engineers and do not keep up with common practices in the development of software. Rather many of them learned how to write code and construct them on their own, or programmers are hired to write the software; and programmers are not necessarily software engineers. In either case, software engineers are not consulted. As a result, many of the programs are not designed and just written as they are developed. These issues are well addressed topics in the discipline of software engineering and advancements are being made. Nevertheless, these are issues that confound those constructing software for any discipline.

While these may seem trivial, these aspects of custom software can drive people away from using it, or using them when absolutely necessary despite being very powerful. Further, these

applications are constructed in languages that are not ideal for evolving in the future nor to support interoperability. These are necessary for maintainability, scalability and evolvability. Because so much money has been invested in these programs it is unlikely that funds will be available to re-develop them again when operating systems change and they no longer run properly.

These problems will remain for the foreseeable future. Therefore, this roundtable will address the aforementioned issues, identify the most pressing problems and discuss new directions to guide those thinking about, or are already developing software for spatial crime analysis. Introduced will be modern software engineering concepts, methods and techniques to make the developers aware. Particularly the Component-based Software Development (CBSD) method will be presented and demonstrated with examples of this concept, techniques available, and tools to facilitate this method.