



ALASKA JUSTICE FORUM

A PUBLICATION OF THE JUSTICE CENTER

Fall 2006

UNIVERSITY of ALASKA ANCHORAGE

Vol. 23, No. 3

The History of Crime Mapping and Its Use by American Police Departments

Sharon Chamard

The use of crime mapping as a tool for policing has a long history, and it has been adopted on a much broader basis since the advent of desktop computers made mapping dramatically easier. The adoption of mapping technology has not been problem-free, however. While the software has lessened the time and labor required to generate maps, the production of sophisticated maps and their integration into policing have not been straightforward.

An Abridged History of Crime Mapping

Geographer Borden Dent, in his article "Brief History of Crime Mapping," traces the origin of the mapping of crime to France, where in 1829 Adriano Balbi and André Michel Guerry created maps that showed the relationship between violent and property crimes and educational levels. Within a few decades this approach—visually displaying differences in crime across geographic units—had spread to England and Ireland. In 1849, Joseph Fletcher created maps that showed the rate of male incarceration for serious property and violent crimes across counties in England and Wales, and in 1861, Henry Mayhew presented a number of maps displaying the English and Welsh county rates for a variety of crimes: rape, assault, bigamy, and abduction, among others.

These early maps are examples of *choropleth* maps—that is, maps that display quantities of things in areas. More specifically, in choropleth maps geographical areas are divided into multisided figures called *polygons*, which are then shaded depending on the value of the variable being displayed. Balbi and Guerry's maps, for example, were shaded with crayon to show different levels in education. More modern choropleth maps are familiar to anyone who followed the most recent election returns: a map of the United States with each state shaded red or

blue depending on the party of the senatorial victor is a very basic choropleth map. An example of a choropleth map of midtown Anchorage is shown in Figure 2.

Sociologists, particularly those associated with the University of Chicago, began using mapping in the first few decades of the 1900s. Among the earliest were Progressive Movement social work educators Sophonisba Breckenridge and Edith Abbott, who, in 1912, mapped where delinquent children had lived in Chicago over the period 1899 to 1903. This map, with each dot standing for one home, is an example of a *point* map—that is, a map in which points representing particular geographical locations, be they addresses or XY coordinates, are the main data element.

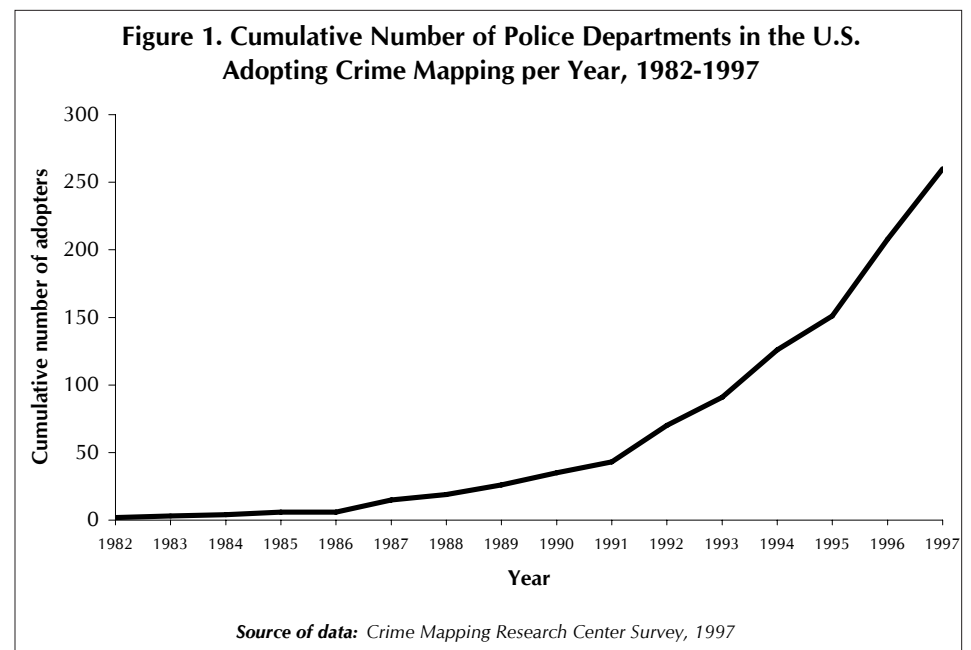
Perhaps the best known maps in criminology were created by the Chicago School sociologists Clifford Shaw and Henry McKay, who constructed a choropleth map using aggregations of addresses of close to 3,000 male delinquents in Chicago for the period

1927 to 1933. The map featured polygon shading to indicate rates of delinquency. Like Breckenridge and Abbott, Shaw and McKay also constructed point maps of the locations of the homes of about 10,000 male delinquents who had come before the juvenile court of Cook County in the years 1934 to 1940. Shaw and McKay noted that the spatial distribution of juvenile delinquents' homes remained fairly constant over these differing time spans, despite the fact that there was a high degree of residential mobility in various areas of Chicago. Their work, with that of others, gave rise to the social ecology approach to studying crime. This approach assumes that crime is to a large extent caused by community- and neighborhood-level variables, such as land use, infant mortality rates, mental disorders, tuberculosis, and the percentages of minorities and families on social assistance.

It is worth noting that all the maps

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Figure 1. Cumulative Number of Police Departments in the U.S. Adopting Crime Mapping per Year, 1982-1997



A BJS Report

Inmate Mental Health and Treatment

Nationwide, more than half of all state prison and jail inmates at midyear 2005 had a mental health problem, as did almost half of federal prisoners, according to a report recently released by the Bureau of Justice Statistics (Tables 1 and 2). These figures are noticeably higher than those for the general U.S. adult population. According to data in the National Epidemiologic Survey on Alcohol and Related Conditions, about 11 percent of those 18 or older in the U.S. are estimated to have mental disorders. Female inmates—like females in the general population—had higher rates of mental disorders than men. The mental health problems also often occurred in conjunction with substance abuse or dependence (Table 3). About a third of state prisoners had received treatment for a mental disorder since admission; 24 percent of federal prisoners and 17 percent of jail inmates had received treatment (Table 4).

The findings of the BJS study were based on personal interviews conducted with a national sample of inmates. The surveys collected information on those experiences of inmates over the previous 12 months that would indicate symptoms of major depression, mania or psychotic disorders. The surveys did not evaluate the severity of the symptoms. Symptoms due to medical illness, substance abuse or bereavement were not excluded from reported results. Inmates in mental hospitals or those physically or mentally unable to complete the personal surveys were excluded from the sample.

Mental health problems were defined by two measures: symptoms as based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV); or a recent history of problems indicated by a clinical diagnosis or treatment by a mental health professional.

The preceding article is based on BJS Special Report "Mental Health Problems of Prison and Jail Inmates," NCJ 213600.

Table 3. Mental Health Problems and Substance Dependence or Abuse Among Prison and Jail Inmates

Mental health problems and substance dependence or abuse	Percent of inmates in —		
	State prison	Federal prison	Local jail
Both	49.3 %	35.3 %	42.7 %
Dependence or abuse only	20.0	9.5	18.0
Mental problems only	39.5	28.0	32.7
None	35.4	25.6	31.1

Source: Bureau of Justice Statistics

Table 1. Recent History and Symptoms of Mental Health Problems among Prison and Jail Inmates

Mental health problem	Percent of inmates in —		
	State prison	Federal prison	Local jail
Any mental health problem	56.2 %	44.8 %	64.2 %
Recent history of mental health problem^a	24.3 %	13.8 %	20.6 %
Told had disorder by mental health professional	9.4	5.4	10.9
Had overnight hospital stay	5.4	2.1	4.9
Used prescribed medications	18	10.3	14.4
Had professional mental health therapy	15.1	8.3	10.3
Symptoms of mental health disorders^b	49.2 %	39.8 %	60.5 %
Major depressive disorder	23.5	16	29.7
Mania disorder	43.2	35.1	54.5
Psychotic disorder	15.4	10.2	23.9

Note: Includes inmates who reported an impairment due to a mental problem. Data are based on the *Survey of Inmates in State and Federal Correctional Facilities*, 2004, and the *Survey of Inmates in Local Jails*, 2002.

a. In year before arrest or since admission.

b. In the 12 months prior to the interview.

Table 2. Prevalence of Mental Health Problems Among Prison and Jail Inmates

Mental health problem	State prison inmates		Federal prison inmates		Local jail inmates	
	Number	Percent	Number	Percent	Number	Percent
Any mental health problem^a	705,600	56.2 %	70,200	44.8 %	479,900	64.2 %
History and symptoms	219,700	17.5	13,900	8.9	127,800	17.1
History only	85,400	6.8	7,500	4.8	26,200	3.5
Symptoms only	396,700	31.6	48,100	30.7	322,900	43.2
No mental health problem	549,900	43.8 %	86,500	55.2 %	267,600	35.8 %

Note: Number of inmates was estimated based on the June 30, 2005 custody population in state prisons (1,255,514), federal prisons (156,643, excluding 19,311 inmates held in private facilities), and local jails (747,529).

* Details do not add to totals due to rounding. Includes state prisoners, federal prisoners, and local jail inmates who reported an impairment due to a mental problem.

Source: Bureau of Justice Statistics

Table 4. Mental Health Treatment Received by Inmates Who Had a Mental Health Problem

Type of mental health treatment	Percent of inmates who had a mental problem in —		
	State prison	Federal prison	Local jail
Ever received mental health treatment	49.3 %	35.3 %	42.7 %
Had overnight hospital stay	20.0	9.5	18.0
Used prescribed medications	39.5	28.0	32.7
Had professional mental health therapy	35.4	25.6	31.1
Received treatment during year before arrest	22.3 %	14.9 %	22.6 %
Had overnight hospital stay	5.8	3.2	6.6
Used prescribed medications	15.8	10.1	16.9
On prescribed medication for mental problem at time of arrest	11.3	7.3	12.3
Had professional mental health therapy	11.5	8.0	12.3
Received treatment after admission	33.8 %	24.0 %	17.5 %
Had overnight hospital stay	5.4	2.7	2.2
Used prescribed medications	26.8	19.5	14.8
Had professional mental health therapy	22.6	15.1	7.3

Note: Excludes other mental health treatment.

Source: Bureau of Justice Statistics

A Look at Immigration Numbers

Antonia Moras

What follows is an overview of the most reliable figures on immigration—both authorized and unauthorized—for the country as a whole and Alaska, in particular.

Authorized Immigrants

Authorized immigrants are those who, in common parlance, have “green cards.” They have been admitted to the United States with permission to stay indefinitely through one of a number of different program routes. (In addition to admittance as immigrants, non-citizens can stay in the U.S. legally for varying periods with differing status—as tourist, diplomat, or student, among other possibilities.) In the data assembled by the Office of Immigration Statistics, which is now in the Department of Homeland Security, they are defined as *legal permanent residents* or LPRs. The Office of Immigration Statistics is the source for the fullest and most detailed data on authorized immigration. The office publishes an annual compendium that shows the number of immigrants and various demographic data, including countries of origin, countries of birth, and state of residence, and type or category of admission. The yearbook also provides data on non-immigrant admissions—refugees and asylees—as well as data on *naturalization*—the process of becoming U.S. citizens for those not born here.

According to the *2005 Yearbook of Immigration Statistics*, 1,122,373 individuals received legal documentation to remain in the U.S. as LPRs, including 1,525 in Alaska. Also, in 2005, 604,280 foreign-born residents became U.S. citizens, including 951 Alaskans. (The total 2005 U.S. population was 296 million. The Alaska 2005 population was 642,000.)

In addition to the yearbook, the Office of Immigration Statistics also publishes a range of analyses of immigration data—for example, discerning the flow of immigration over varying periods to the different states. A September 2005 paper by John Simanski, “Mapping Trends In U.S. Legal Immigration: 1980 to 2003,” reveals that although the flow of immigrants to the state has risen over the two-decade period as it has in the country as a whole, Alaska is very far down in ranking as the state of residence for authorized immigrants—receiving a total of 25,968 individuals as LPRs across the 23 years. These state-of-residence figures are based only on the individual’s declaration at the time documentation was granted and do not reflect ensuing changes in residence.

The U.S. Census, taken every ten years, provides a slightly different perspective on the foreign-born population—both legal permanent residents and naturalized citizens. The census assembles figures at much more detailed geographic levels and, unlike the Office of Immigration Statistics figures, provides a snapshot of the characteristics of the population of a specific place at a specific time. The 2000 U.S. Census listed 37,170 Alaskans as foreign-born. Of this number, 20,011 were naturalized citizens; 17,159 were not citizens. According to the American Community Survey, which is now the Department of Census means of estimating during non-census years, 34,368 Alaskans were foreign-born in 2005 (5% of the total state population), of whom 20,178 were naturalized citizens.

Alaska differs from the nation as a whole with regard to the country of origin of its foreign-born residents. In 1995, for the country as a whole, Mexico was the country of birth for the highest number of immigrants, with 161,445 authorized immigrants, and immigrants from India formed the second most populous group—84,681 individuals. In Alaska in 2005, the countries of birth for the two most populous groups of immigrants were the Philippines (435) and Russia (115). Mexico ranked third (96).

Unauthorized Immigrants

For obvious reasons, there are no precise numbers on unauthorized immigrants—“illegal aliens”—those individuals who stay in the U.S. without currently valid legal documentation. All figures given for state and national totals of unauthorized immigrants are estimates, as are economic figures and other calculations derived from them. The degree of precision to the estimates varies.

Again, the best source is the Office of Immigration Statistics, which in August 2006 released its most recent figures on the unauthorized immigrant population—“Estimates of the Unauthorized Immigrant

Population Residing in the United States: January 2005.” According to this report, an estimated 10.5 million unauthorized immigrants lived in the country in January 2005. This is the figure most commonly used in general media discussions of the unauthorized immigrant population. The estimate for January 2000 was 8.5 million. A comparison of the two figures reveals a growth of 24 percent over the five years. The publication also provides estimates for the five states with the highest numbers of unauthorized immigrants, but not for Alaska. The numbers for 2005 have been derived using an elaborate statistical model which is not valid for population numbers as low as Alaska’s. An earlier study, published by the same office but based on a different methodology, estimated that in 2003, 5,000 unauthorized immigrants were living in Alaska.

Bureau of Immigration and Customs Enforcement (ICE) Figures

Another figure that might throw some light on the unauthorized immigrant population is the number of individuals placed in removal (deportation) proceedings by the Bureau of Immigration and Customs Enforcement (ICE, also in the Department of Homeland Security). For the most part, these individuals were in the country without valid legal documentation. The numbers reflect only those who have come to the attention of ICE. The Alaska ICE office did not respond to repeated *Forum* requests for these numbers. The latest available figure for the state is from FY 2002, when 71 individuals were deported; and 12 agreed to voluntary departure directly from Alaska.

Other Numbers

Since a commonly stated concern regarding immigration is that immigrants draw heavily on public funds—for education,

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Research Sites for Immigration Questions

The vast number of internet sites dealing with immigration questions vary widely in quality and reliability. Two nonpartisan organizations whose sites regularly present the results of solid research studies are:

The Urban Institute at www.urban.org: The Urban Institute has studied immigration issues for over twenty-five years, particularly looking at the impact of

immigration on the economy and the labor market and at the status and well-being of immigrant children.

The Pew Hispanic Center at www.pewhispanic.org: The Pew Hispanic Center, which is part of the Pew Charitable Trusts, focuses on the U.S. Hispanic-Latino population—both citizens and non-citizens.

Immigration numbers (continued from page 3)

health care and public assistance—the *Forum* attempted to gather some other relevant figures for Alaska.

Few government or social service agencies in the state compile data on the immigration status of recipients of their services. Neither the Department of Education nor the Anchorage School District track the immigration status of students; Providence Hospital does not ask patients about their immigration status; and the Public Defender Agency does not maintain data on the citizenship or immigration status of clients.

The Department of Corrections compiles some numbers on the immigration status of inmates, in cooperation with the federal government under the State Criminal Alien Assistance Program (SCAAP). The department submits numbers on those inmates who are not legal residents and have been convicted of a felony or two misdemeanors. According to U.S. Bureau of Justice Assistance data, in 2005 the Alaska Department of Corrections held 22 inmates who were undocumented aliens, for a total 788 inmate days, and 65 whose citizenship and immigration status could not be determined for a total 2,605 days. These inmate days represent less than one-third of one percent of total DOC inmate

days in 2005.

The Division of Public Assistance has numbers on the citizenship status of its recipients—all of whom are legal residents. In June 2006, 4,109 non-citizens were receiving public welfare benefits—3.4 percent of the total statewide number of public assistance recipients—120,550.

Finally—in 2006, 44,307 foreign-born Alaska residents, including 13,552 individuals who were not citizens but were legal residents, received permanent fund dividends—in a total pool of 602,350 eligible applicants.

Antonia Moras is the editor of the Alaska Justice Forum.

Crime mapping (continued from page 1)

described above were made without the benefit of computers. The underlying *base maps*—that is, the maps showing streets, roads, and other major features such as water and railroads—had been drawn by hand. Each point was located manually, and polygons were shaded using ink, pencil, or crayon. Creation of a single map could take many, many hours of tedious labor. In one sense, crime mapping was an idea that arose before its time, before the requisite technology was available. It illustrates what Sean Gilfillan in *The Sociology of Invention* defined as the uselessness of premature invention—“an invention which for any reason did come before its time remains useless and undeveloped until its proper day dawns.” The “proper day” for crime mapping did not come until developments in computer technology made it feasible to run

mapping programs on relatively inexpensive desktop computers.

Prior to the widespread use of desktop computers, the few police departments who did crime mapping relied on primitive techniques such as sticking thousands of pins into large maps attached to the wall. In his essay “Geographic Information Systems and Crime Analysis in Baltimore County, Maryland,” Philip Canter describes the county’s pin-mapping efforts as requiring twelve maps and 70 square feet of wall to cover the entire area of the jurisdiction. While these maps were reasonably good for detecting clusters of criminal activity, they did not permit more sophisticated analyses that incorporated other, nongeographic factors, such as modus operandi or time of offense.

Even with the advent of computers, generating a crime map was no small feat, as geographer and criminologist Keith Harries has noted in *Mapping Crime: Principle and Practice*. Mapping with gigantic mainframe

computers was still extremely labor-intensive. First, there was the work involved in describing the boundaries of the map with numbered coordinates on punched cards. Then came the labor of keypunching the cards, followed by a similar process of coding and keypunching to put the data on the map.

Such labor intensiveness meant that few police departments could afford to produce computerized crime maps. It wasn’t possible for most agencies to afford crime mapping until desktop computers became widely available in the mid-1980s to early 1990s and microprocessor speed increased.

The Advantages and Disadvantages of Desktop Crime Mapping

In their work, David Weisburd and Cynthia Lum argue that the expanding body of

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Choropleth Map of Midtown Anchorage

In the summer of 2006 the Anchorage Assembly considered legislation to enlarge the liquor-license-free buffers around “sensitive uses” (such as churches and schools) from 200 feet to 500 feet. The author of the accompanying article, “The History of Crime Mapping and Its Use by American Police Departments,” constructed the map on the opposite page, which shows schools and churches surrounded by the two buffer sizes, and the point locations of current liquor license establishments—package stores, bars, taverns, restaurants, etc. A choropleth layer shows the zoning in two categories—whether liquor establishments are allowed or not. In addition, a community councils polygon layer breaks the geographic space into smaller areas.

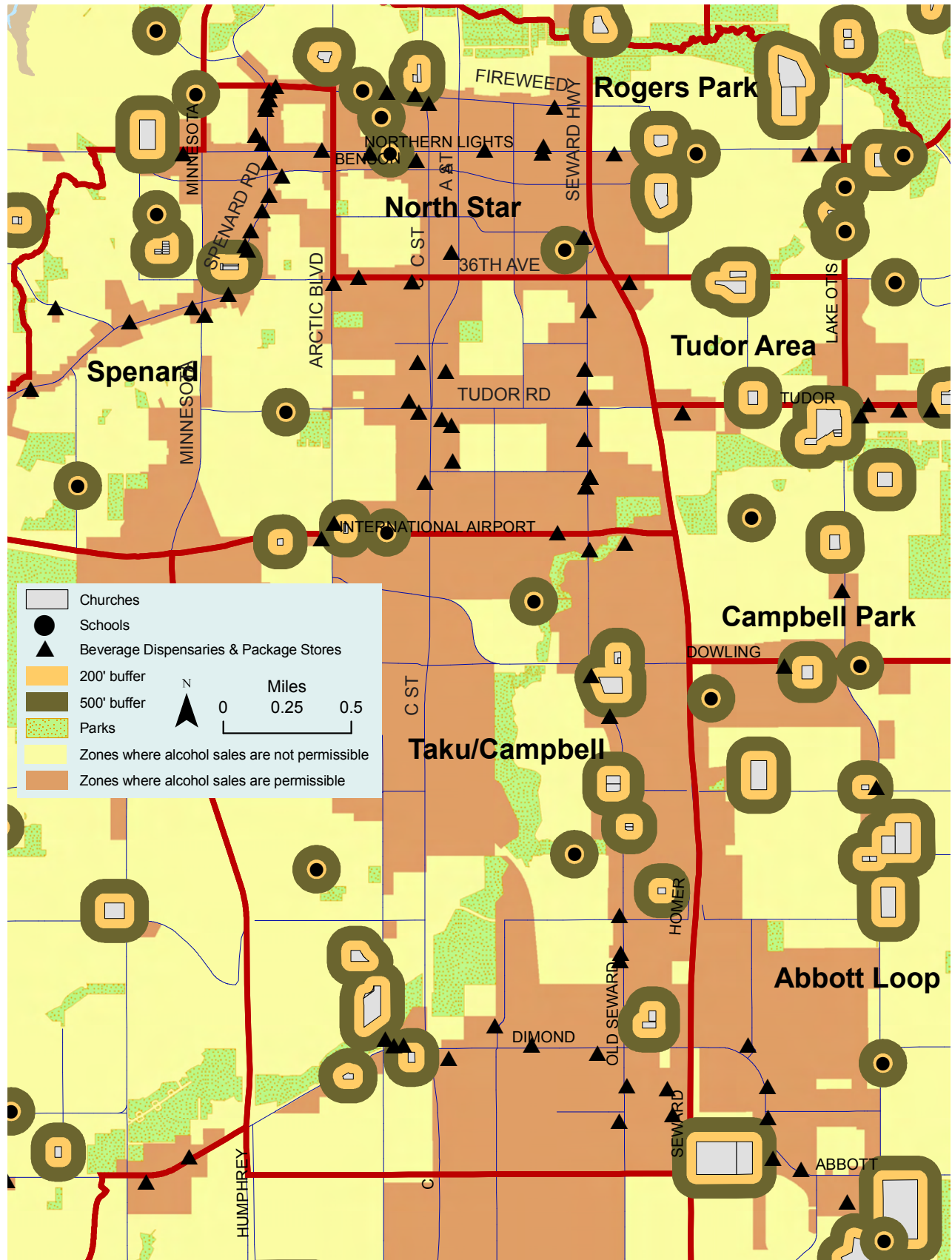
This example includes elements generally considered necessary for a map—a title, north arrow, scale, and legend. Only main roads are drawn, which makes the map more readable because unnecessary details are not included.

There are problems, however, with this map. Schools are

represented by points (addresses) and the churches by polygons (land parcels). Ideally, the schools and churches would be the same type of feature, either both points or both polygons. As it is, the spaces encompassed by the buffers around the schools are smaller than they perhaps should be, because the buffers surround a single point rather than the property line. In reality, some school grounds are quite large, encompassing a city block or more. Also, some points may be misplaced, due to one of two reasons. First, the underlying data from which the points are drawn may be incorrect. Unless the map maker has an intimate knowledge of the geographic area being mapped, it can be difficult to detect erroneous addresses in the data set. Second, the mapping software may have placed the points imprecisely. Like most other products of scientific research, there is a margin of error in maps. With large-scale maps, showing an entire city perhaps, errors in placement of points of a couple hundred feet are not noticeable. Such errors on smaller-scale maps are more readily apparent and can affect conclusions one might draw from a map.

Figure 2. Schools and Churches with 200' and 500' Buffers, Alcohol-sale Outlets and Zones, Midtown Anchorage, June 2006

See "Chloropleth Map of Midtown Anchorage" on opposite page for a discussion of this map.



Crime mapping (continued from page 4)

research on the context of criminal events (e.g., routine activities, situational crime prevention, and criminology of place) has contributed to a paradigm shift in policing. An increasing focus on small geographic areas has led to increased recognition of the value of a hot-spots policing approach, with crime mapping central to this approach. In addition, many agencies have experimented with problem-oriented policing. The value of crime mapping in assisting with problem scanning, analysis, and response assessment is well documented.

Technology change, specifically the increasing availability of desktop computers, has been the main reason for the recent rapid growth in crime mapping by American police departments. Desktop computers have made the creation of maps dramatically faster. Computerized crime mapping now relies less on labor-intensive processes; it is no longer necessary to draw maps by hand using special pens and India ink. Pressing only a few buttons on a keyboard produces similar effects. Desktop computers are also forgiving when one makes a mistake; it is a simple matter to redraw a map.

However, despite the advantages of computerized crime mapping, its adoption by police departments has not been straightforward. A study by the Police Foundation in 2000 found that although many departments could afford the equipment for mapping and had little difficulty finding personnel interested in learning the technology, "the learning curve is often underestimated and integrating the mapping into departmental routine requires substantial planning and effort."

Studies by Thomas Rich and by Cynthia Mamalian and Nancy LaVigne of the National Institute of Justice have found that the majority of departments using crime mapping are creating automated pin maps and generating hot-spot maps. Along a range of difficulty, pin maps and hot-spot analysis are at the low end. For more advanced analysis, some knowledge of cartography and geographic information systems (GIS) is required. Leslie Kennedy in "Repeatable and Emergent Forms: Searching for Crime Spaces and Crime Places," a paper presented in 2002, quotes an observer: "Police departments are going crazy. They thought all they had to do was put up MapInfo, and now consultants are coming along and telling them they need to do neural networks." The complexity of these latest innovations may well prevent their adoption by all but the most technologically advanced departments.

With initial cost outlays for a basic mapping program low, the cost of crime mapping is not an impediment to most police departments. For example, ArcView, the popular software used by about 40 percent of departments doing mapping, according to Mamalian and La Vigne, retails for under \$2,000. Most mapping software is relatively user-friendly, and there are many opportunities to receive training for those who wish to move beyond the manual. While these features of modern computerized crime mapping make it easy for some agencies to start crime mapping, particularly the larger ones with bigger budgets and staff who can devote time to accessing data and learning how to use the software, these features are not as useful for smaller agencies, which may be unable to free up personnel for training.

The Spread of Crime Mapping Use by American Police Departments

A small but growing body of research provides some insight on the use of crime mapping in American police departments and the associated problems. Initially, the technology spread quickly. In 1995, Thomas Rich reported the results of an informal poll

conducted by the International Association of Chiefs of Police in "The Use of Computerized Mapping in Crime Control and Prevention Programs": 30 percent of 280 police departments reported having mapping software. In the Police Foundation study mentioned above, a series of telephone interviews were conducted with personnel in 51 departments that had received grants from the Community Oriented Policing Services (COPS) Office to implement crime mapping. The study concluded that many departments found crime mapping considerably more difficult to implement than they had anticipated and had problems integrating the technology with problem-solving and community policing. The perceived need for technical assistance and training was great.

A more rigorous survey of 2,004 police departments in 1997-1998 conducted by Mamalian and LaVigne at the National Institute of Justice's Crime Mapping Research Center (CMRC) found that large departments (i.e., those with 100 or more sworn officers) were more than ten times as likely to use computerized crime mapping than small departments (36% vs. 3%). Overall, the rate of use was 13 percent, and the average length of use was 3.3 years.

Weisburd and Lum further analyzed these data by graphing responses to the question, "For how long has the department been doing crime mapping?" The result is shown in Figure 1. These two researchers then conducted their own pilot study in 2001 of agencies with over 100 or more sworn officers in order to focus on the relationship between research and crime mapping innovation. They found that this pattern still held, even four years later, suggesting that crime mapping as an innovation has diffused very rapidly among large agencies.

Weisburd and Lum's pilot study examined the characteristics of different stage adopters, classifying responding departments into those who were early adopters, those who were later adopters, and those who had not yet adopted mapping. Early adopters were significantly more likely to have members who attended crime mapping or crime analysis conferences; were involved in a crime mapping or crime analysis email discussion list; had easy access to academic books about crime mapping or crime analysis; and were aware of research on hot spots, crime mapping, or crime analysis. It was implied by this study, but not clearly stated, that there is a network of police departments that communicate about crime mapping through the Internet and at conferences.

A more detailed analysis of the CMRC data undertaken by the author of this article found that diffusion of crime mapping was much more rapid in large police departments



Alaska Justice Forum

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Published quarterly by the

Justice Center
University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508
(907) 786-1810
(907) 786-7777 fax
ajjust@uaa.alaska.edu
<http://www.uaa.alaska.edu/just/>

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University of Alaska Anchorage
ISSN 0893-8903

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than in those with under 100 sworn officers, particularly departments with fewer than 50 sworn officers. In addition, some areas of the country, particularly the Pacific, Mountain, and South Atlantic census regions, experienced much faster diffusion than others, such as, most notably, the New England region.

The Discontinuance of Crime Mapping Use by American Police Departments

To date, there have been only two studies examining the specific issue of why police departments stop using or discontinue crime mapping, both by this author. In the first, data from the Law Enforcement Management and Administrative Statistics surveys from 1997 and 1999 were analyzed in order to investigate the extent of discontinuance of crime mapping and possible explanations. Of the 615 police departments in the sample that reported doing crime mapping in 1997, 242, or close to 40 percent, had apparently stopped mapping by 1999. Department size seemed to be an extremely robust predictor of discontinuance. Large departments, particularly those with 250 or more sworn full-time officers, were significantly less likely to discontinue crime mapping than were

the smaller departments. Of the 111 larger departments, only 3 (or 2.7%) had discontinued, compared to 235 out of 486 (or 48.3%) of the smaller agencies. Lower levels of staffing in the technical support area were strongly associated with discontinuance, but when department size was introduced as a control variable, the relationship became insignificant. So too did the finding that discontinuers had higher levels of funding for equipment. Discontinuers were significantly less likely than continuers to have engaged in problem-oriented policing activities or crime analysis, but again, department size was a strong intervening variable.

In a 2002-2003 study of 347 municipal police departments in New Jersey, *The Adoption and Discontinuance of Computerized Crime Mapping by Municipal Police Departments in New Jersey*, the author found that 12 of 48 departments that had undertaken crime mapping had since discontinued use of the innovation. Departments that discontinued mapping were found to differ significantly from continuers on a number of demographic variables. Discontinuers were significantly smaller than continuers, in terms not only of population served but numbers of sworn and civilian personnel. Continuers tended to

be in jurisdictions with more crime events, although with respect to rates this difference was only statistically significant for violent crime. Neither population density nor geographic size was significantly different for continuers and discontinuers. In general, continuers scored higher on variables related to urbanity; in this sense, discontinuers resemble departments that never adopted mapping in the first place. This finding is consistent with what Everett Rogers noted on discontinuance in *Diffusion of Innovations*: discontinuers are much more similar to those who adopt an innovation very late than to early adopters.

In giving reasons for discontinuance, two respondents in the study cited technical difficulties, such as system failure, manpower demands, or incompatibility with other computer systems. Another department, which had received free mapping software, subsequently abandoned it after only five months because of problems obtaining current base maps.

Other respondents cited nontechnical reasons for discontinuance. One police department in a suburban community of about 10,000 in the northeastern part of

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Crime mapping (continued from page 7)

New Jersey commented that they “did not find mapping to be of great benefit,” while another agency, which reported having done crime mapping for decades, lost its equipment in a flood and had not yet replaced it, although the department intended to take up the technology again.

This small group of discontinuers provides some support for notions about discontinuance presented in the diffusion literature. It is argued that innovations are abandoned for two reasons—replacement or disenchantment.

With this study, disenchantment, or dissatisfaction, was essentially the primary reason for discontinuance given by respon-

dents. Departments that were unhappy with the results of crime mapping or those that had technical problems experienced this disenchantment. Other surveys of crime mapping departments have discovered similar implementation problems. Rich found that difficulties with acquiring data and ensuring data quality were impediments to the increased use of mapping software among the departments in his study. Problems associated with moving data between computer systems and geocoding were also identified by the Police Foundation’s 2000 survey.

As this brief review indicates, the adoption of crime mapping as a widespread policing tool has not been problem-free, despite the available technology. Although more departments are now able to produce and use fairly basic maps, more sophisticated

mapping incorporating multiple variables is not as easily achieved. It is not clear, however, that police departments have much need for complex maps, which may help explain the research finding that departments sometimes abandon mapping after trying it for a period.

*Sharon Chamard is an assistant professor with the Justice Center. This article is largely based on her 2003 doctoral dissertation, **The Adoption and Discontinuance of Computerized Crime Mapping by Municipal Police Departments in New Jersey.***

Rural Justice Bibliography

The Justice Center has released *Alaska Rural Justice Issues: a Selected Bibliography*—an annotated bibliography of books, articles, studies, reports, and other documents related to Alaska rural justice issues published from the early 1990s through early 2006. The work also includes an index of important Alaska Native legal cases and maps relevant to state justice functions. Antonia Moras, editor of the *Alaska Justice Forum*, compiled the bibliography and wrote the accompanying monograph. The work is available on-line at <http://justice.uaa.alaska.edu/>.

DV Protective Order Video

The Justice Center and the Alaska Court System have completed an instruction video on the domestic violence protective order application process—“Domestic Violence Protective Orders”. The court system’s Family Law Self-Help Center will use the video with its clients and also make it available to other agencies.

Stacey Marz, co-director of the Family

Law Self-Help Center, was the project manager for the court system; Antonia Moras of the Justice Center was the producer. Retired Superior Court Judge Rene Gonzalez and Master Suzanne Cole appear in the video.

Similar videos in Spanish and Yup’ik are still in production. Grant funds awarded under the Violence Against Women Act have funded the project.



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