
SPACE, PLACE AND CRIME: HOT SPOT AREAS AND HOT PLACES OF LIQUOR-RELATED CRIME

by

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Abstract: *This chapter examines the relationships among place, space and the specific situations of Chicago taverns and liquor stores and crimes in those places, and suggests applications of these findings for crime prevention. With a GeoArchive data set of police, census and liquor license information from January to June 1993, we identify the densest concentrations (Hot Spot Areas) of places, events occurring at those places, and incidents occurring in the surrounding areas; compare place and space attributes of the 49 high-incident places to a sample of 49 low-incident places; and examine the relationship between places and incidents in two police districts. Three types of places emerged, each of which had a different relationship to crime attraction, generation, and control and each of which would require different strategies for intervention. The high-crime levels at these places reflect the general crime pattern of the area. A program of intensive police and citizen patrols to reduce street crime in such an area is currently being evaluated.*

It is increasingly common for investigators of crime patterns to take a multi-dimensional approach. Trickett et al. (1992:1) state the case clearly: "Considered separately, area and individual theories neglect the inter-relationship of criminogenic factors at the individual and community levels." Current research is confronting the equally formidable tasks of developing

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multiple-perspective theory (for example, Sampson and Wooldredge, 1987; Bottoms and Wiles, 1992; Fagan, 1993) and creating methodologies to study such theory (Land and Deane, 1992; Raudenbush, 1992), though both problems are still a long way from being solved.

To more clearly define the linkage between area and individual, it is first necessary to clarify the link among area, place and specific situation. We see them as generally hierarchical. The specific situation that provides the backdrop and often the mechanism for interpersonal conflict is rooted in a place—the particular small area that reflects and affects the routine activities of the participants in the short run, and plays a role in the specific conflict at hand.¹ Each place, in turn, is rooted in a space, a larger area governing long-run routine activity patterns of potential participants in conflict situations.

It has become a truism to say that the interaction between victim and offender occurs in the context of a specific place. The evidence for this is difficult to evaluate, however, since studies define "place" variously as a point in space (a building, park, intersection, under a viaduct, classroom) or as an area (a census block or tract, community area, police district, or sometimes even a city or a Standard Metropolitan Statistical Area). In reality, the two are fundamentally different. In this paper, we explicitly separate them, defining the latter as "spaces"—two-dimensional areas that contain the events, specific situations and spatial attributes characteristic of individual places. Such spaces provide context or backdrop (Brantingham and Brantingham, 1993, 1994) for places and specific situations.² Spaces may be defined by arbitrary boundaries like a police district or census tract, or by activities and travel patterns, perceptions of residents or outsiders, or the clustering of places or events in the landscape. Because "Hot Spot" Areas (C. Block, 1990; 1994) identify clusters of actual events or locations, regardless of arbitrary boundaries, they allow us to link situation to place and place to space.

It is important to recognize how the characteristics of places affect and in fact define the characteristics of the areas where they are located, and how places are in turn affected by these areas. Liquor-related violence is a case in point. Most treatments of alcohol and violence (Parker and Rebhun, 1993; Pernanen, 1993) concentrate almost exclusively on characteristics of individuals or, at the most, characteristics of specific social situations, and give short shrift to place or area (Fagan [1993] is an important exception). At the same time, the literature linking drinking and violence in specific places (bars, taverns) is growing rapidly.

This paper addresses the relationships among individual, specific place and area aspects of liquor-related crime (violence and other criminal incidents), and argues that a combination of individual, place and area

perspectives can yield better descriptions of the problem and a firmer foundation for the development of intervention strategies.

CLUSTERS OF CRIMES, AND HIGH-CRIME PLACES

The relationship between crime and place is neither uniform nor static. Extensive research has shown that occurrences of social disorder, crime and law enforcement activity tend not to be randomly scattered in space, but are clustered in certain areas (Curtis, 1974; Pyle, 1974, 1976; Rengert, 1980, 1981; Swartz, 1980; Brantingham and Brantingham, 1984, 1993; Rose, 1979; Maltz et al., 1991; Skogan, 1991).³ These spatial patterns may evolve or change over time. For example, while neighborhood levels of violence and social stress may be related to levels of violence cross-sectionally (Messner and Tardiff, 1986), change in one may not produce change in the other, and the relationship patterns may disappear over time (Bursik and Webb, 1982).

Further, various kinds of disorder or criminal activity may follow completely different spatial patterns. Just as offenders may specialize in a particular crime or complex of crimes (Kempf 1986; Wolfgang et al., 1972), and certain potential victims may be particularly vulnerable to particular kinds of repeated victimization (Block et al., 1985; Farrell and Pease 1993), so certain places (locations) and spaces (areas) may provide a high-risk setting for a disproportionate number of certain kinds of criminal incident (Suttles 1972; Roncek 1981; Stark 1987; Bursik and Grasmick 1993).

Crimes cluster in places or spaces for a variety of reasons. A specific location or an area may be a preferred target for potential offenders. Some sorts of place may have inherent characteristics that generate or attract certain types of crime, for example, a tavern or liquor store (Roncek and Bell, 1981; Roncek and Pravatiner, 1989; Roncek and Maier, 1991) an abandoned building (Spelman, 1993), public housing (Roncek et al., 1981) or a high school (Roncek and Lobosco, 1983; Roncek and Faggiani, 1985). In addition, certain businesses attract commercial burglary (Walsh, 1986) and homes with certain characteristics attract residential burglary (Smith and Jarjoura, 1989; Cromwell et al., 1990; Farrell and Pease, 1993; Clarke, 1983, 1992). In addition to these "target locations," crime may cluster in a space (a neighborhood or a group of city blocks) as a result of routine activities, e.g., a nightlife area (see Felson, 1987; Garofalo, 1987) or of community disorganization, instability and lack of social services in the area (Sampson, 1985; Spergel, 1976; C.R. Block and R. Block, 1992).

It is not always recognized, however, that different types of crime may cluster in different areas of the city. R. Block and C.R. Block (1992) have

found that the Chicago areas where, for example, instrumental homicide was densest, were not necessarily the same areas where street-gang-related homicide was densest. The densest areas of street gang violence may be located in neighborhoods that are otherwise relatively low in crime. In contrast to Thrasher's (1963) pioneering study of Chicago in the 1920s, today's high-gang violence areas are not necessarily areas of the highest social disorganization. Similarly, in their study of crime-related calls for service in Minneapolis, Weisburd et al., (1991:14) find that examination of the correlations among crime call occurrences across places raises a strong challenge to the hypothesis that all crimes are linked.

There are two dimensions to place—the characteristics of individual places (addresses, facilities, buildings), and the cumulative effect when individual places are aggregated into spatial clusters (Hot Spot Areas). Early Chicago School sociologists were interested in the social ecological phenomenon in which "the whole is greater than the sum of the parts." More recently, Rossmo (1994; see also Rossmo and Fisher, 1993) has addressed this *potentiation*. He points out, for example, that "bars and nightclubs in close proximity and with simultaneous closing times can create crowd effects that lead to disturbances, crime, and violence (p. 11)."

There are also two dimensions to space, the area forming the context or backdrop for place-level events. First, a space has attributes that are strictly area-level (for example, a neighborhood's reputation, population structure, poverty level or housing stock). Second, a space has attributes that are aggregates of place characteristics (for example, the number of taverns or abandoned buildings per square mile or per block in a neighborhood). In addition, the boundaries of a space can be defined in several ways—through arbitrary political or bureaucratic boundaries (such as Census tract, ward or police district); through perceptions or cognitive maps of residents (e.g., the way the Chicago Community Areas were originally defined); and through empirical analysis of actual clusters of events, places, or traffic patterns (e.g., Hot Spot Areas).

In 1989, Sherman et al. (1989:46) asked whether "places vary in their capacity to help *cause* crime, or merely in their frequency of *hosting* crime that was going to occur some place inevitably?" We argue that both processes actually occur simultaneously. High-crime places contribute to a high-crime space, both additively and through potentiation; in exchange, a high-crime space may provide the contextual backcloth that encourages high-crime places within its borders. Therefore, the question that needs to be asked is, "How are these processes interrelated?" To answer this

question, it is important to examine in more detail the mechanisms governing links among individuals, places and areas.

TAVERNS, BARS, LIQUOR STORES AND CRIME

This analysis was initiated by a request to the Loyola Community Safety Project (see R. Block, 1994) from neighborhood community groups for information about the relationship between taverns and crime in the Rogers Park/ Edgewater communities of Chicago. One of the central concerns of the project's Advisory Board members was the large number of taverns, liquor carryouts and liquor-licensed convenience stores in the area. They felt that these places were closely linked to drug problems and violent crime, and that specific bars and convenience stores were especially problematic. The board, therefore, asked the Community Safety Project to analyze the relationship between the location of taverns and liquor stores and criminal behavior in the neighborhood.

Some studies attempt to link individual, situational and place attributes as they contribute to the generation of violence {for a discussion, see Fagan, 1993}. Most, however, focus on the individual and the situation (Shoham, 1968; Roman, 1981; Steadman, 1982; Fingarette, 1988). There has yet to be definitive study that disentangles the separate and interactive effects on violence levels of the characteristics of the people who patronize a tavern or liquor store, the social and physical characteristics within the place, and the space or physical environment in which the place is embedded.

Taverns and liquor stores represent a type of semi-public place that allows relatively unquestioned behavior. Like laundromats or rapid transit stations, access to liquor establishments is generally open to the public, strangers are often thrown together in a proximate setting, and standards of behavior and surveillance may be limited. But unlike these other places, the consumption of alcohol is normative.

At the individual level, research has demonstrated that the relationship between alcohol use and aggression is far weaker than that between alcohol use and social class, gender or aggression. However, alcohol use does affect aggression, and seems to do it through two mechanisms—a physiological effect that narrows the range of perceived options in a situation and increases willingness to take risks (Centers for Disease Control and Prevention, 1984; Goodman et al., 1986; Fagan, 1990) and a culturally defined social effect of time out (Cavan, 1966; Anderson, 1978) or disinhibition (Collins, 1988; Pernanen, 1991, 1993). Cavan's (1966:10-11) ethnographic study of 100 San Francisco taverns in the early 1960s, for example, found that taverns provide settings for time-out periods,

"temporary halts of the ongoing order of activity during which patterns of behavior irrelevant or even inappropriate to the activity of the game may be engaged in without counting," and that the "unseriousness" of such settings defines behavior as permissible or "normal trouble," although it would be considered out of line in another setting (Cavan, 1966:67-87).

A growing body of research addresses the situational and environmental design characteristics that provide settings conducive to violence within taverns. Graham and colleagues (1980) categorized Vancouver, CAN taverns into three types—skid-row taverns with high levels of unreported aggression; neighborhood working-class taverns with regular customers who more or less control the level of aggression; and attractor bars and discos where environment, the crowd, and bouncers combine for high levels of aggression. Felson et al. (1986) explored the role of the situation, specifically the bouncer, in barroom brawls, and Gibbs (1985) looked at the mechanisms used in bars to regulate violence. A series of excellent studies of nightclubs and discos in Sydney, AUS (Homel and Clark, 1994; Homel and Tomsen, 1991; Tomsen et al., 1991; Homel et al., 1992), and of Vancouver's Skid Road (Rossmo, 1990), explore detailed characteristics of high-violence versus low-violence locations.

The final angle of the individual-place-space triangle remains relatively unexplored—the relationship between violence occurring at a tavern and aspects of the surrounding area or neighborhood (the contextual backdrop). Some tavern research emphasizes the effect of place on space, such as Rossmo's (1994) treatment of the potentiation effect of densely clustered taverns on area crime, or Florence (1995), who explains a lack of association between place guardianship and levels of assault in taverns by suggesting that violence is displaced to the surrounding area. Roncek and Bell (1981) and Roncek and Maier (1991) also concentrate more on the effect of place on space than on that of the contextual backdrop on crime in taverns. However, a study of convenience store robbery found that the likelihood of crime depends upon both the environmental structure of the store and the nature of the community (Capone and Nichols, 1976). The same mechanism may operate for taverns: in high-crime neighborhoods, both the place and the individual customers are likely to be at great risk.

However, the cumulative and aggregate effects of place attributes on violence in spaces—the effects on neighborhood safety of dense clusters of taverns or dense clusters of criminal incidents occurring at taverns—have not been addressed empirically. Our work with clusters of street-gang-related incidents (Block and Block, 1993a; Block and Green, 1994) suggests that information about the densest areas of individual incidents (street-gang-related violence and drug offenses) or places (abandoned

buildings, taverns) is often vital for understanding the ecology of a neighborhood, and for developing successful strategies for intervention. In this paper, we apply this principle to liquor-related crime.

METHODS

Data: The Community Safety Project GeoArchive

Our analysis was based on a GeoArchive that was created by the Loyola Community Safety Project specifically for the Rogers Park/ Edgewater community. A GeoArchive is a database containing address-level data from both law enforcement and community sources, linked to computer mapping capability, and set up so that it can be updated, maintained, mapped, analyzed, and used by those who are developing and implementing strategies of crime reduction in the community.⁴ Community groups, beat committees, aldermen and state representatives, and the police regularly query the GeoArchive, and request additions or expansions.⁵

The Rogers Park/ Edgewater GeoArchive is an application and extension of the GeoArchive created for the West Side of Chicago as part of the Early Warning System for Street Gang Violence project. In practice, it is a large set of electronic transparent areal and pin map overlays that can be quickly and easily combined and analyzed. Like the Early Warning System GeoArchive, it is an "Information Foundation for Community Policing" (C.R. Block, 1994; Block and Green, 1994).

The community groups wanted to know the relationship between the locations of taverns and liquor stores and criminal behavior in the neighborhood. Our source for location data was a citywide list of addresses of establishments with a liquor license, supplied by the City of Chicago Department of Revenue to the Illinois Criminal Justice Information Authority for integration into the GeoArchive. Three types of license were included in the analysis presented here: tavern, packaged goods and incidental consumption.⁶ We decided not to limit the analysis to formally-defined "taverns," because to have done so might have biased the sample by race or poverty level. In poor neighborhoods of Chicago (many of which are predominantly African American or Latino), the corner package goods store may also function as a tavern, even including chairs and tables. To have excluded all liquor stores would have excluded these establishments in poor neighborhoods, and possibly biased the analysis. For similar reasons, we also included private or semi-private social clubs or meeting

halls, which may play a role similar to taverns in some ethnic communities.

Thus, the "liquor establishments" in this analysis include the taverns and liquor stores (including carryouts and convenience stores) holding a Chicago liquor license in 1993—a total of 5,947 different places. (Although there were over 7,000 licenses, a given tavern or liquor store may have more than one license.) To create the second data set analyzed in this paper—crimes occurring in these liquor establishments—we geocoded the liquor license addresses and then matched the coordinates with a geocoded data set of all police-recorded criminal incidents (ranging from vandalism through homicide) in the first six months of 1993 in which the police investigator had designated "tavern or liquor store location."

Over the six-month study period, 3,364 incidents known to the police occurred at Chicago liquor establishments: at least one incident in each of 2,059 different places. The incidents included a wide variety of violent and property crimes, drug offenses, misdemeanors, license and city ordinance violations, as well as some non-criminal incidents (6%; see Table 1). Thirty percent (1,027) were violent offenses, ranging from five murders and 48 telephone or bomb threats to 83 simple assaults, including 137 U.S. Federal Bureau of Investigation (FBI) Index robberies (attempted and completed) and 801 FBI Index assaults (aggravated assault or battery).⁷ Another 31% (1,044) were FBI Index burglaries or thefts. Although we recognize that specific types of offenses may differ in their relationships to place and space, we did not disaggregate them in the initial analysis presented here. Our purpose was to provide an overall description that would lay a foundation for future analysis of crime-specific patterns.

Because information on traffic patterns is not available for each of the 3,364 places, we are unable to calculate rates based on the number of people patronizing each establishment. The licensing information available to us did not include the type of license (on-premise or off-premise; two a.m. or four a.m. closing).⁸ For the same reason, we cannot control for or analyze the specific physical or situational characteristics of each place. As Homel and Clark (1994) and Graham and others (1980) have shown, the social, physical and size features of the establishment may affect both the number and type of incidents that occur there. However, they also found that overcrowding was a more important predictor of violence and aggression than was the number of patrons. A location with relatively few patrons may still be overcrowded.

In contrast to Homel and Clark's (1994) and Graham et al.'s (1980) detailed and meticulous observational studies of a small number of taverns, the subject of the present study is an analysis of crime patterns

Table 1: Offenses Occurring in a Tavern or Liquor Store¹ in Chicago: January to June, 1993

Offense Type	Number	Percent
Index murder	5	.1
Index criminal sexual assault	1	.0
Index robbery	137	4.1
Index assault	801	23.8
Index burglary	319	9.5
Index larceny/theft	725	21.6
Index motor vehicle theft	4	.1
Index arson	5	.1
Simple assault	83	2.5
Telephone or bomb threats	48	1.4
Firearm law violations	56	1.7
Drug offenses (possession, selling, etc.)	180	5.4
Gambling, fraud, deception	121	3.6
Prostitution, sexual misconduct, lewd conduct, public indecency, etc.	31	.9
Vandalism, looting, trespassing	317	9.4
Liquor law violations (sales to minors, employing minor, etc.)	305	9.1
Other criminal (interference with judicial process, violation of order of protection, child abuse, endangering child, resisting an officer, false police report, other license violations, etc.)	37	1.1
Non-criminal (suicide, injury to citizen, lost or found property, weapons turned in, fire calls, etc.)	189	5.6
Total	3,364	100.0

1. Offenses known to the police (reported, and not unfounded by police investigation).

at or near the universe of all Chicago establishments with a liquor license. While we can identify high-incident locations and places, we cannot describe their specific characteristics, except by reputation. Though these

limitations in the data are important, they do not detract from the value of a general survey of space and place over a large urban environment.

Techniques: STAC Analysis and Coordinate Matching

With the liquor license data set and the tavern and liquor store crime data set, we were able to describe the densest concentrations of Chicago taverns and liquor stores, as well as the densest concentrations of crimes occurring at those places. In addition, this analysis uses geocoded data on all homicides in Chicago from 1988 to 1992 found by police investigation to have involved liquor use, and all robberies, aggravated batteries, drug offenses and burglaries, in the first six months of 1993.⁹ The descriptive tool for searching for and delineating the densest clusters of these places and incidents on the map was Hot Spot Area Ellipses calculated using the STAC (Spatial and Temporal Analysis of Crime) package. STAC Hot Spot Area searches begin with individual pin map data and build areas that reflect the actual scatter of events, regardless of arbitrary or predefined boundaries. STAC finds the densest clusters of events on the map and calculates the standard deviational ellipse that best fits each cluster.¹⁰

Coordinate matching is potentially a powerful technique—its spatial links can generate information that previously did not exist. For example, even though the Chicago Police Department does not record information on "convenience store" locations, incidents occurring at convenience stores can be identified by matching to a list of store addresses. However, this tool should not be used blindly. In our initial analysis, only 60% of the incidents that the police recorded as occurring at a tavern or liquor store were matched to addresses of liquor licenses in the Department of Revenue file. While investigating the reasons for this problem and developing and testing solutions, we discovered some limitations and qualifications of coordinate matching, particularly when applied to sets of information originally collected for different purposes.

Our first thought when confronted with 40% non-matches was to question the accuracy of either the liquor license file or the police file, or both. We discovered, however, that in this case both data sets contained relatively accurate information. Since liquor licenses are a state revenue source, the addresses they include can be assumed to be fairly accurate, if somewhat outdated. The Chicago crime analysts we consulted told us that the "tavern or liquor store location" designation on the incident file is recorded fairly accurately. On the other hand, approximate addresses may be sufficient for police investigation. It sometimes is enough to know that a crime occurred at a bar at Wilson and Broadway or at the "Red

Rooster." Police who work the beat know the bars in their area. Moreover, the same tavern or liquor store may actually occupy several different addresses. A tavern, for example, may extend across several storefronts, with the office and address for liquor-license correspondence at one place but the entrance for customers next door. Thus, even though both the liquor license address and the police address may be accurate, the coordinate matching procedure may still not detect a match.

A GeoArchive, by definition, consists of spatial databases that have been collected by many different agencies for many different purposes. Analysis of a GeoArchive is dependent upon accurate address information that is accurately converted into x and y or longitude and latitude coordinates. However, because accurate address information may be considerably less useful for one agency than another, the accuracy, precision or definition of that data may differ.

Lessons Learned about Coordinate Matching Techniques

Specifically, we discovered the following problems that might occur when address-matching two data sets:

(1) *Definitional differences.*

These accounted for the majority of the address-matching errors. They may occur in several ways:

- a) Police may code incident locations to the nearest corner rather than to a specific mailing address.
- b) If a bar or liquor store occupies several addresses, the police may code a different address than that on the license.
- c) If the address of a tavern or liquor store is not obvious, the officer may approximate the address.
- d) Of the 3,364 incidents, 104 were violations of liquor license regulations, some of which could not be matched to the address of a place currently holding a license.

(2) *Coding or recording errors.*

In a few cases, no tavern or liquor store with a liquor license was located near (within a one-block radius of) the address that the police identified as being a tavern or liquor store. These could be errors in police coding.

(3) *Map accuracy.*

Initially, we assumed too much accuracy for the underlying electronic street map. We discovered that the same address, geocoded twice by standard mapping software, may be assigned slightly different x and y coordinates. This problem makes exact match comparisons difficult not only between but also within data sets. For example, the coordinates of multiple incidents occurring at the same address will not necessarily be geocoded to the same coordinates.

While there is no simple solution to these problems, the following techniques can improve the accuracy of the coordinate matching analysis presented here:

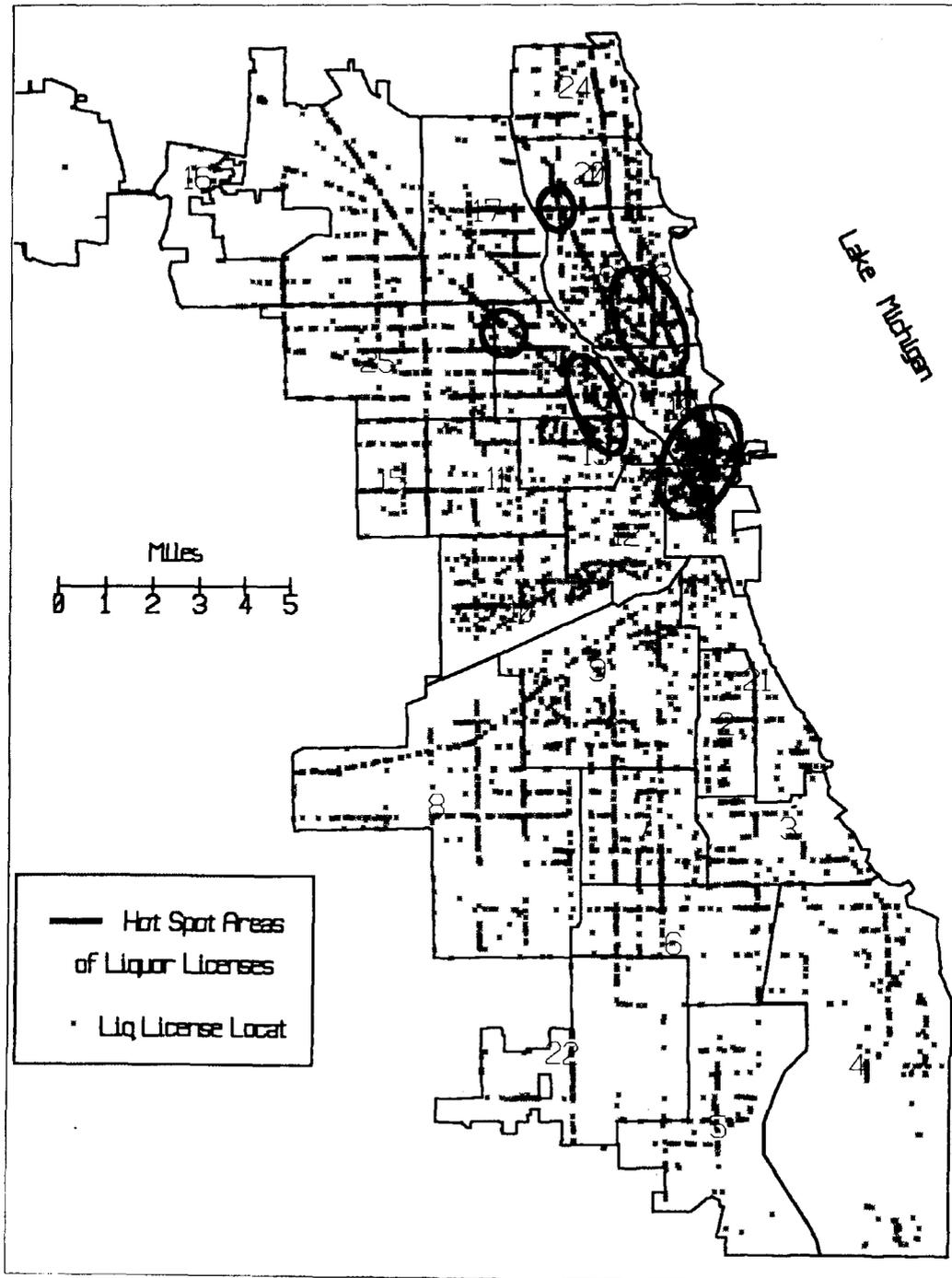
(1) Before address-matching, we rounded geocoded points to the nearest 100,000 of a degree rather than the 1,000,000th provided by the program. (One millionth of a degree is about three feet of latitude and, in Chicago, four feet of longitude.) At 100,000th of a degree, therefore, we allowed an address match to be accurate within a radius of about 20 feet. Even this level of accuracy may be excessively optimistic; it approximates the accuracy of the aerial maps that are the basis of the electronic map. Still, rounding in this way increased matched addresses from 60 to 85% and eliminated the "map accuracy" problem and many of the problems resulting from multiple nearby addresses or approximate addresses.

(2) Because the coordinate matching results were still not perfect, we did not rely only on those results for our analysis, but used multiple methodologies. For example, we looked not only at crimes occurring at a tavern or liquor store address but also within a one-block (1/8 mile) radius of each establishment (a "buffer"). Not surprisingly, buffers of high-incident taverns often overlapped, especially when they occurred in Hot Spot Areas of tavern and liquor store crime. For example, of the 49 highest-incident places, four were located a half block of each other, and another three were all within a block of the Wrigley Field Stadium.

CONCENTRATIONS OF LIQUOR LICENSES; CONCENTRATIONS OF TAVERN CRIME

The 5,947 establishments holding a liquor license are scattered throughout the city (Figure 1), but they are not randomly distributed. They tend to follow major streets (occurring every mile on Chicago's grid) and

Figure 1: Liquor License Locations 1993



diagonal streets (the oldest and most commercial). The five ellipses in Figure 1 show the densest concentrations (Hot Spot Areas) of the 5,947 places. All five areas of high liquor license concentration are on the North Side. The most easterly two Hot Spot Areas are in hotel and night life areas to the north of the Loop, one of these in a fashionable singles area along Broadway and Clark Streets. The two Hot Spot Areas to the west are in regional shopping centers along Milwaukee Avenue, and the most northerly is at Lincoln Square, another regional shopping area.

Dense concentrations of the 3,364 criminal *incidents* occurring at a tavern or liquor store (Figure 2) do not necessarily occur in areas where those *places* are highly concentrated. Of the six Hot Spot Area ellipses of incidents, Ellipse 1 in the Loop, Ellipse 2 on the near North Side and Ellipse 4 on the West Side intersect with place Hot Spot Areas, but Ellipse 3 is much further north and Ellipse 6 is much further south than any of the place hot spots. If we superimpose the incident Hot Spot Areas on a Census tract map showing liquor license locations per 100,000 population (Figure 3), we again see that concentrations of tavern or liquor store criminal incidents are not always found in the same area as concentrations of places with liquor licenses. For example, there are several census tracts on Chicago's South Side and West Side with a high density of liquor establishments but no Hot Spot Area of tavern crime, even though both areas have high rates of other types of crime (see R. Block and C.R. Block 1992). Four of the six Hot Spot Areas of tavern or liquor store crime are, in fact, located across census tracts with a relatively low density of liquor licenses. Thus, it is not necessarily true that dense concentrations of places selling liquor are dangerous. Whether measured by Hot Spot Areas or population-based rates, areas with a high density of liquor licenses will not always have a high density of criminal incidents in taverns or liquor stores.

Similarly, crime in places selling liquor may not necessarily be a reliable indicator of levels of liquor-related violence. In their analysis of alcohol use and homicide, Goodman and colleagues (1986:144) stress the "importance of considering situational variables in developing approaches to homicide prevention." Is a proliferation of taverns in a neighborhood a risk factor for alcohol-related violence and homicide? Are concentrations of tavern crime coincident with concentrations of liquor-related homicide?

The densest concentrations of liquor-related homicide (Figure 4) are scattered much more generally across the city than concentrations of tavern or liquor store crime.¹¹ The six densest concentrations (Hot Spot Area ellipses) of incidents known to the police in liquor stores or taverns (Figure 2) cover only 4% of the city's land area and include less than 9% of its population, but accounted for 23% of the crimes occurring in taverns

Figure 2: Location of Tavern and Liquor Store Police-Recorded Incidents, January-June 1993

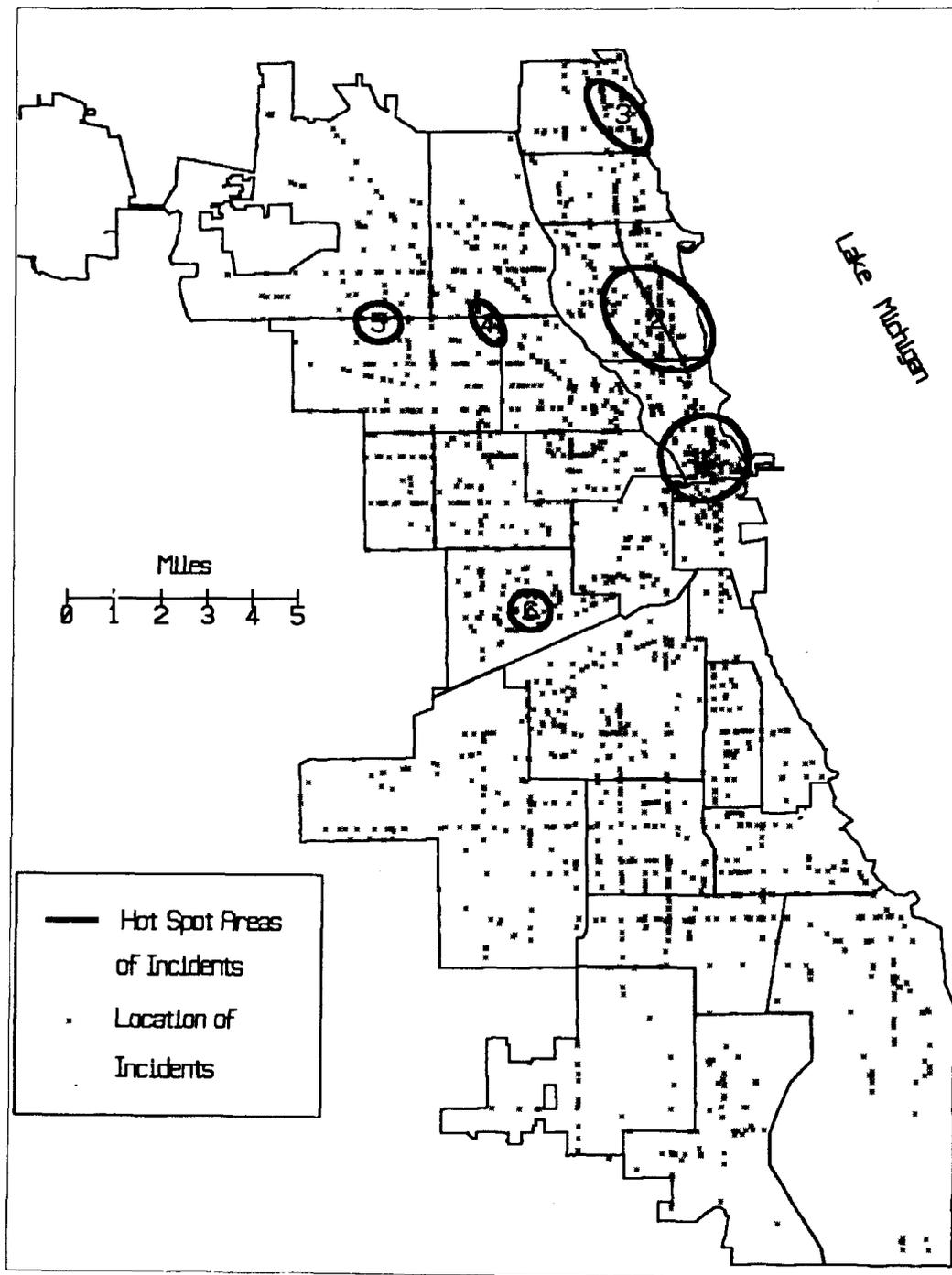
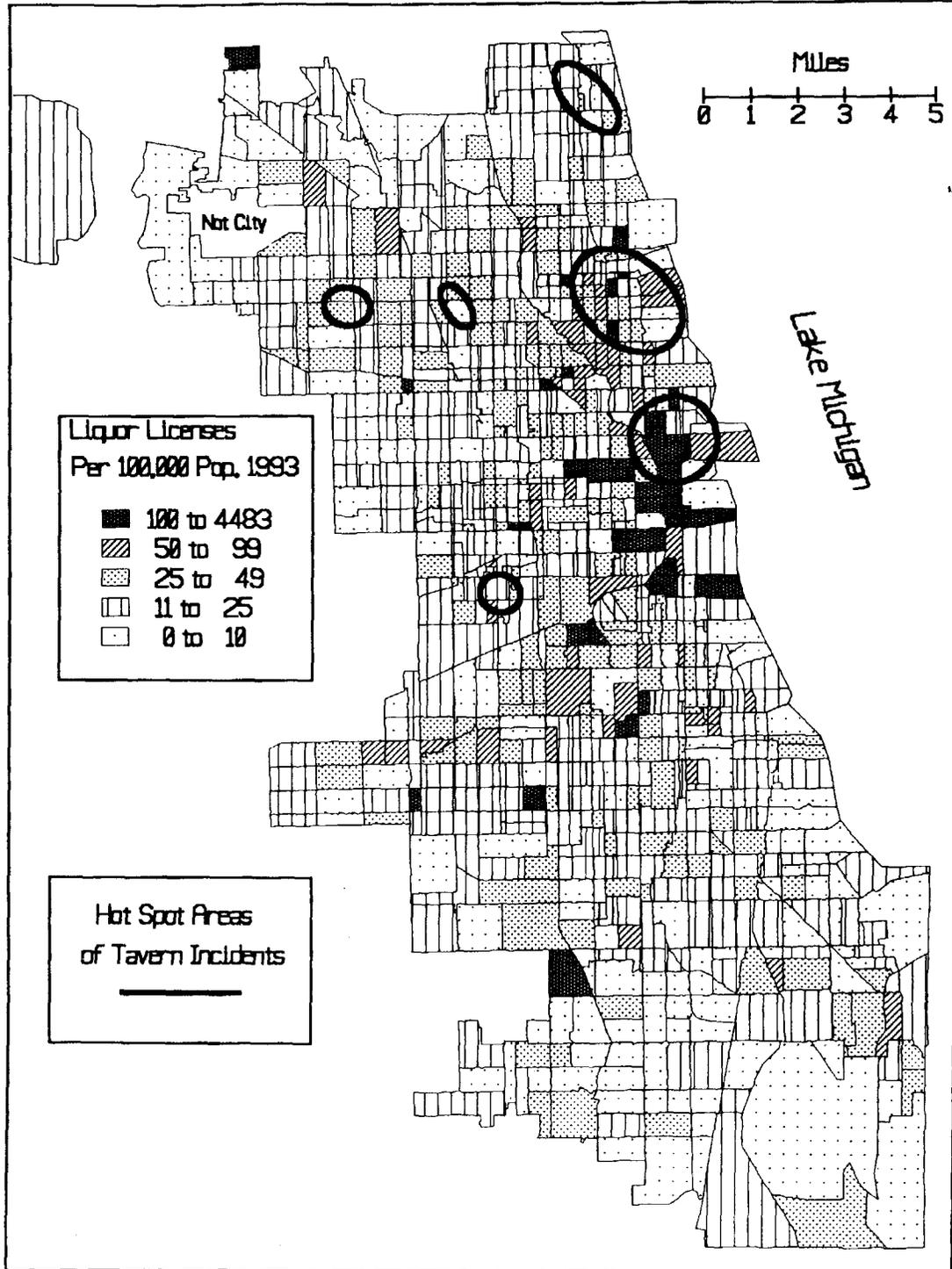


Figure 3: Density of Liquor Licenses and Incidents in Taverns and Liquor Stores Chicago Census Tracts 1993



or liquor stores. There were 139 incidents per square mile over the six-month study period in the ellipse labelled 1 in Figure 2, 51 per square mile in Ellipse 2, 69 in Ellipse 3, 100 in Ellipse 4, 61 in Ellipse 5 and 65 in Ellipse 6. In contrast, there were 12 tavern or liquor store crimes per square mile in the land area of Chicago outside any of the Hot Spot Areas. In contrast, Hot Spot Areas of homicides involving liquor use (dark-line ellipses in Figure 4) occurred across the city, with four of the six occurring on the South Side.

In no case does one of the six Hot Spot Areas of crime occurring at a tavern or liquor store (Figure 2; also shown with diagonal shading in Figure 4) intersect with a Hot Spot Area of alcohol-involved homicides. Thus, concentrations of such homicide do not coincide with concentrations of taverns or tavern crime. Instead, they are in some of the poorest city neighborhoods and are associated with the densest clusters of aggravated batteries (vertical line shading in Figure 4) and robberies (horizontal line shading in Figure 4) in the city.

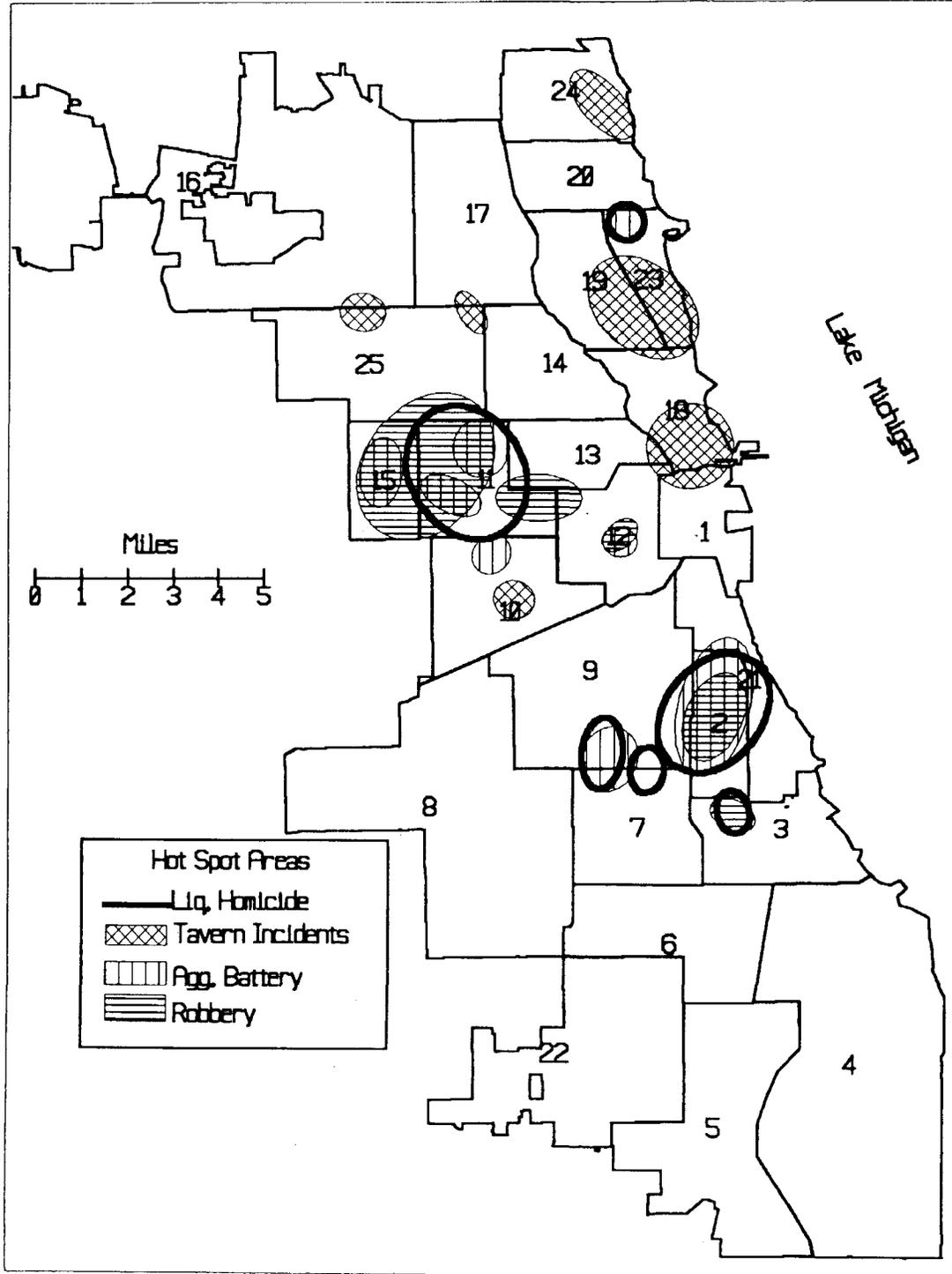
Therefore, it does not seem likely that either density of liquor establishments, by itself, or density as an indicator of consumption, is strongly related to criminal activity. What, then, does determine high concentrations of criminal activity in places selling liquor? Are tavern and liquor store crime Hot Spot Areas due to the influence of one or two individual establishments that have extremely high rates of crime, or is there a potentiation effect of dense groups of high-crime liquor establishments? To investigate these questions, we turned to an analysis of the characteristics of individual Hot Spot Areas of crimes occurring in taverns or liquor stores and the characteristics of individual high-crime liquor establishments.

HIGH-CRIME PLACES AND HIGH-CRIME AREAS

What are the common characteristics of the six areas in Chicago with the densest concentrations of crimes occurring in a tavern or liquor store (see Figure 2)? We have already seen that these tavern crime Hot Spot Areas do not necessarily occur where there are dense concentrations of places selling liquor. However, they may be geographically determined in other ways.

Hot-spot areas of tavern crime tend to be associated with main streets, particularly main diagonal streets, which are the oldest and most commercial in the city. Intersections of diagonal, off-grid streets and major grid streets are generally regional shopping and entertainment areas, and several of the tavern crime Hot Spot Areas are found at these intersections. Five of the six ellipses in Figure 2 are located on Belmont Avenue (a grid

**Figure 4: Liquor-Involved Homicides 1988-1992
Aggravated Battery, Robbery, Tavern Incidents
January-June 1993**



street), Clark Street (diagonal) or at the intersection of the two. Ellipse 4 is located at the intersection of diagonal Milwaukee and Belmont Avenues, a regional business center. Ellipses 1 and 2, at Division and diagonal Rush Streets and along the diagonal Lincoln, Clark and Broadway Streets, are both nightlife areas; Ellipse 1 has been a bright-lights area for generations. Ellipse 3 stretches along diagonal Clark Street as it intersects with several main grid streets in the Rogers Park neighborhood.

There are exceptions to this geographic rule, however. Ellipse 6 is not located at a diagonal-grid intersection, but at the main crossroads of Little Village, a rapidly expanding neighborhood (see Block and Block, 1993a). Ellipse 5 is located where Belmont Avenue and Cicero intersect, and reflects a few high-crime tavern and liquor stores, each with numerous reported incidents, at this major intersection.

A possible reason for the common perception that bars go together with violence and other crime may spring from a tendency to generalize from a few notorious bars or taverns where many crimes do occur. What are the characteristics of the highest-crime taverns or liquor stores in Chicago? From January through June 1993, 49 Chicago taverns or liquor stores had at least five incidents recorded by the police—a total of 375 incidents in six months over all 49 places. The place with the most reported incidents, a dance club, had 40 criminal incidents reported over the six-month study period. Of these 49 highest-crime places, 19 are in a Hot Spot Area of tavern or liquor store crime, 11 in Ellipse 1 and three in Ellipse 2 (Map Two). Others are located far from concentrations of liquor establishments, and, indeed, far from any commercial or residential structure.

Some high-incident bars and nightclubs, especially those in Ellipses 1 or 2, are clearly attractors of aggression. They include, for example, a nightclub that features boxing and mud wrestling.¹² Many of these clubs are popular with young adults and well known to college students.¹³ Some isolated "attractor" high-crime places may be purposefully established in a largely empty industrial area, or, as in one case, across the street from a cemetery. Because Illinois residents of a voting precinct may vote themselves "dry," the owners of an attractor establishment may attempt to avoid areas that are predominantly residential.

What were the crime patterns in and around those taverns and liquor stores at which many incidents were reported? Many of the 49 highest-crime places are located in trendy nightlife areas that are tavern or liquor store crime hot spots (Ellipse 1 and 2). Within a one-block (one-eighth mile) radius of a club located in Ellipse 1 at Division and Rush Streets, there are 41 other establishments with a liquor license.¹⁴ Eighty-four incidents at a tavern or liquor store were recorded in this one-block radius

in the six months. Counting not only those in taverns and liquor stores but also those outside them, Chicago police recorded 13 robberies, 18 other violent offenses and 78 drug offenses within a one-block radius of this club in only six months.¹⁵

What is the general milieu of crime around high-crime tavern and liquor stores, compared to other places selling liquor? The appropriate analysis to answer this question would compare characteristics of the area around each high-risk tavern or liquor store to characteristics of a sample of similarly located but lower-risk places. However, recognizing that census information inadequately represents the population patronizing a bar or tavern, and having no idea of the sampling distribution of crimes occurring around liquor establishments, we drew a random sample of 49 Chicago taverns or liquor stores that had only one police recorded incident in the study period, and compared this sample to the high-risk tavern and liquor stores. Following from our investigation of hot areas and hot places above, the highest-crime and one-crime samples are subdivided into those located in a Hot Spot Area for tavern crime and those outside these ellipses (Table 2).

Nineteen (39%) of the high-crime taverns and liquor stores are located within a Hot Spot Area of tavern and liquor store crime, compared to 10 (20%) of the single-incident places. High-crime taverns and liquor stores within Hot Spot Areas of tavern crime are often located in an area with a concentration of liquor licenses (averaging over 17 licenses in a one-block radius). Single-incident taverns within a Hot Spot Area are in locations with fewer surrounding liquor licenses (10 within a block radius), as are all taverns and liquor stores outside Hot Spot Areas (about five within a block).

The mean number of criminal incidents occurring in high-crime taverns and liquor stores in Hot Spot Areas was over 11 in six months, higher than the 5.7 in hot establishments outside these areas.¹⁶ Because STAC bases its Hot Spot Area calculation on proximity of incidents, this difference may result in part from the computing algorithm. However, a comparison of the mean number of tavern and liquor store incidents occurring within a one-block (one-eighth mile) radius of each place—a standard area that would not be affected by STAC calculation—yields even stronger results (Table 2). Mean incidents within this radius were far higher for hot places inside a Hot Spot Area (39) than for hot places outside Hot Spot Areas (8) or for low-crime taverns inside (5) or outside (3) a Hot Spot Area ($p < .001$).

Of the 3,364 incidents occurring at a tavern or liquor store, 26% were assaults or batteries. High-crime places had significantly more violent incidents (except for robbery) than low-crime places ($p < .001$), but there

Table 2: Comparison of High-Crime to One-Incident Taverns and Liquor Stores

High Crime: all places with 5+ incidents from January through June, 1993

One-incident: sample of 49 places with one incident from January to June

	High Crime/ In a Hot Spot Area	Low Crime/ In a Hot Spot Area	High Crime/ Not in Hot Spot Area	Low Crime/ Not in a Hot Spot Area	Significance of F
Mean ^a # Crimes at Place	10.8	1.0 ^a	5.7	1.0 ^a	NA
Robberies	.00	.20	.16	.08	NS
Other Violence	.89	.20	.70	.31	.001
Drug Offenses	.16	.20	.20	.15	NS
Mean # in a One-Block Radius:					
Liquor Licenses	17.31	10.20	4.60	4.79	.001
Incidents at Taverns	39.21	5.10	8.00	3.41	.001
Robberies	8.05	10.00	10.57	9.79	NS
Other Violence	9.84	4.40	9.33	7.87	NS
Drug Offenses	28.15	2.00	29.07	26.67	NS
% of One-block-Radius Incidents at this Place	41.9%	30.8%	78.7%	49.2%	.001
Mean Home Value in Block (\$)	124,616	139,814	81,152	65,152	.001
Percent one-person households in block	39.7%	34.1%	24.4%	23.8%	.001
Percent single parent households with child in block	3.8%	4.6%	16.2%	16.2%	.001
% with an EL Station in one-block radius	31.6%	10.0%	6.7%	7.7%	.05
Totals: Number of places in each category	19	10	30	39	

^a In "low crime" places, by definition, there was only one incident.

was no significant difference in the mean number of robbery or drug offenses. Further, even though the total number of incidents occurring within a one-block radius was significantly higher for hot places in a Hot Spot Area, there was no significant difference in the mean number of robberies or of other violent or drug offenses occurring in the surrounding one-block area. Thus, the only significant difference in levels of crime was for non-robbery violence occurring at high-crime places located within an area of concentrated police-recorded incidents at taverns or liquor stores.

With block-level census information, we characterized the three or four blocks covered by a circle drawn at a one-block radius (one-eighth mile) around each of the 98 taverns and liquor stores (49 high-crime and 49 single-incident). Comparing blocks within or intersecting with a Hot Spot Area of tavern or liquor store crime to blocks located outside these dense areas, Hot Spot Area blocks appear to be of higher socioeconomic status (Table 2). Housing is more expensive: mean home values around a low-crime place are over twice as high if the place is located in a tavern crime Hot Spot Area than if it is not, and housing values around a high-crime place are also much higher ($p < .001$) if it is in a Hot Spot Area. The percent one-person households is higher and the percent of single-parent households with children under age 18 is lower in Hot Spot Area blocks than in others.

A high-crime tavern or liquor store located within a Hot Spot Area is far more likely to be near a rapid transit (Elevated) station than any of the other three categories of place. An El station was found within a one-block radius "buffer" for 32% of the high-crime/ Hot Spot Area places, but for only 10% or less of the low-crime places and for only 7% of the high-crime places that were not in a Hot Spot Area. In research currently underway, we have found a very high degree of association between proximity to a rapid transit station and risk of street crime.

High-crime taverns and liquor stores within Hot Spot Areas of tavern or liquor store crime tend to be hotter than those outside these areas, with significantly more violent offenses occurring at the place itself. These establishments also tend to be surrounded by more places with a liquor license, and by higher levels of crime. High-crime places located in a Hot Spot Area average four times as many liquor licenses and over four times as many criminal incidents within a one-block radius, compared to other high-crime places. Further, even when located within a Hot Spot Area of tavern or liquor store crime, low-crime places tend to be surrounded by fewer other places with a liquor license and experience much less crime in their immediate areas than high-crime places.

The contextual backdrop for taverns or liquor stores located within a Hot Spot Area of tavern crime provides a sharp contrast to other places.

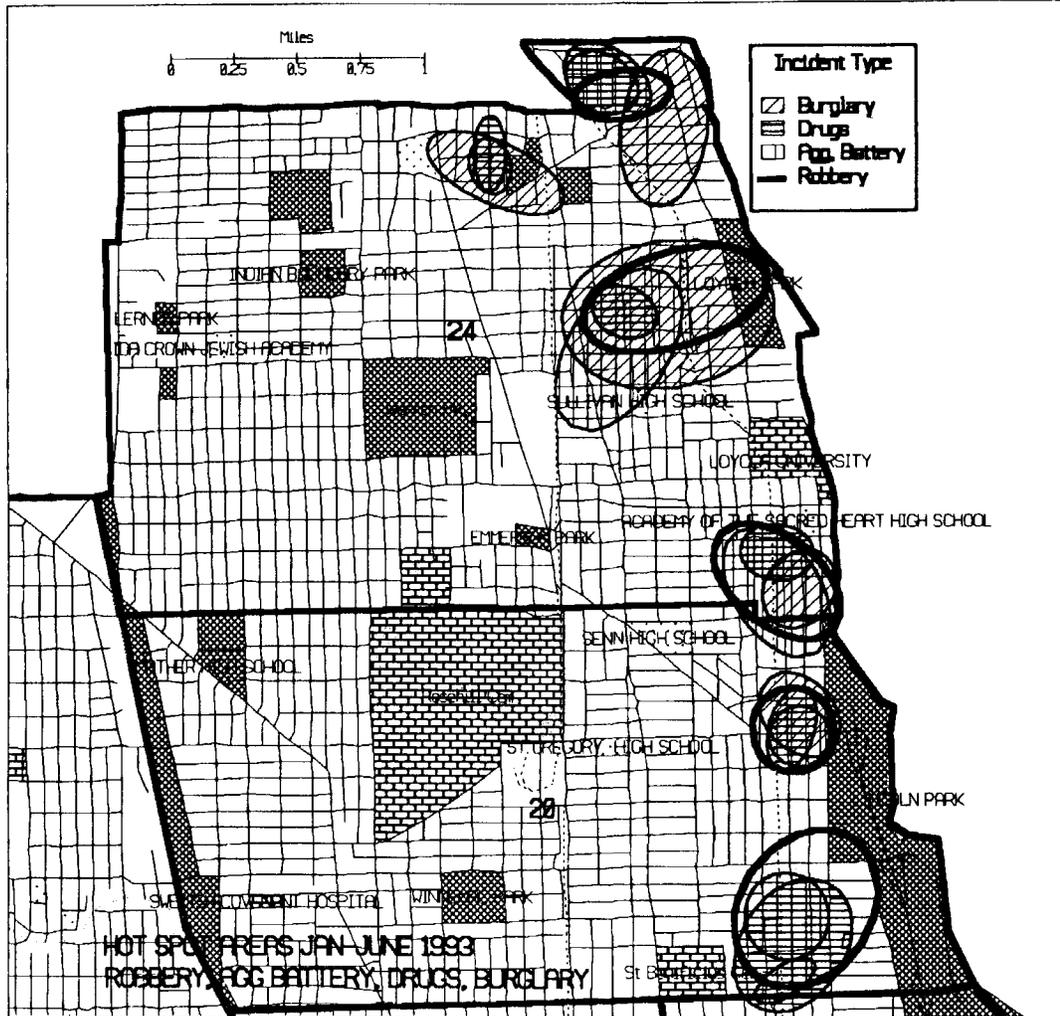
Taverns or liquor stores in a Hot Spot Area of tavern crime are likely to be in relatively affluent singles neighborhoods, close to many other places holding a liquor license as well as to an Elevated station. Not all high-crime taverns and liquor stores are located near an El stop, only those within a tavern-crime Hot Spot Area. Hot taverns located outside of a Hot Spot Area are the least likely of the four categories to be near an El stop. This reflects a fundamental difference between high-crime attractor bars, which may be selectively located far from residential or other traffic, and high-crime bright-lights area bars, which are subject to the potentiation effect of densely concentrated activity.

A COMMUNITY-LEVEL ANALYSIS

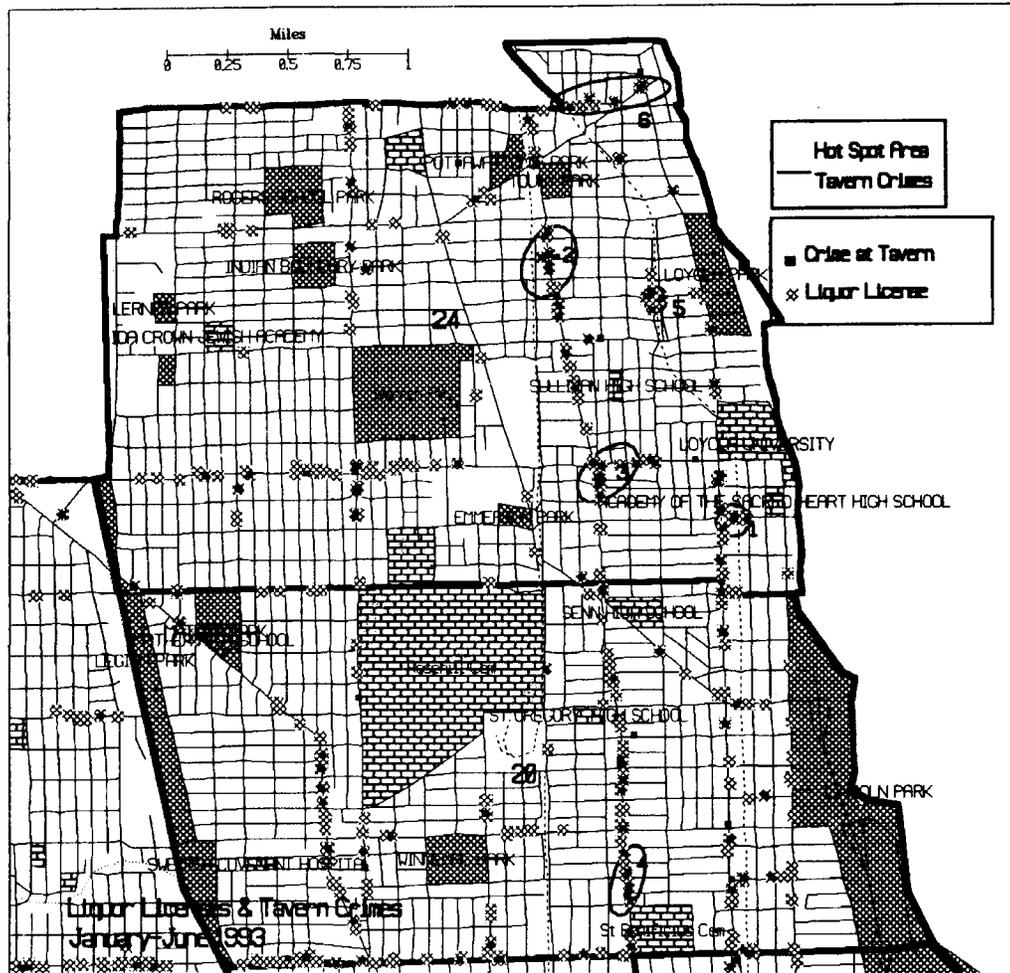
To carry this analysis to the neighborhood level, and to answer the question that originally inspired it, we compared concentrations of taverns and liquor stores to concentrations of crimes occurring in a tavern or liquor store and concentrations of other crimes, in the Rogers Park, Edgewater and West Ridge communities (Chicago Police Districts 20 and 24) from January through June 1993 (Figures 5 and 6). Hot Spot Areas of four serious crimes—burglary, drug offenses, robbery and aggravated battery—are grouped along Clark Street or associated with stops on the Howard Elevated Line (Figure 5). The ellipses usually overlap each other; each burglary Hot Spot Area is related to a drug offense Hot Spot Area, although often at a slight distance. The pattern of criminal-incident Hot Spot Areas in Districts 20 and 24 is typical of relatively low-crime districts. Crime incidents are highly concentrated, typically in a few transient and impoverished locations and near rapid transit stations. In districts with higher crime rates, the pattern of crime is more random. In those areas, community safety problems are not simply those of specific blocks or buildings but of the general structure of the community.¹⁷

Like the citywide Hot Spot Areas of tavern or liquor store crime, the six densest concentrations of such incidents in Districts 20 and 24 are also highly clustered in certain areas rather than scattered randomly across the map (Figure 6). Half of them (Ellipses 2, 3 and 4 in Figure Six) are located along Clark Street in a dense corridor of liquor establishments. In early 1993, there were 84 places holding a liquor license along the 3.6 miles of Clark Street in Districts 20 and 24. Within one-half block (325 Feet) of Clark Street, 69 offenses occurring at taverns or liquor stores were recorded by the police in the first six months of 1993. In total, 45 aggravated batteries, 80 robberies and 45 drug offenses occurred along this section of Clark Street. Many of the robberies occur late at night, with peaks at 2 a.m. and 4 a.m. corresponding to licensed closing hours.

**Figure 5: Hot Spot Areas January-June 1993
Robbery, Aggravated Battery, Drugs,
Burglary**



**Figure 6: Liquor Licenses and Tavern Crimes
January-June 1993**



However, contrary to the expectations of the Community Safety Advisory Board members, there are long stretches along Clark Street with many liquor licenses but little crime in taverns or liquor stores.

In all three Clark Street ellipses, crime levels in the surrounding community are relatively low. Ellipse 2 in Figure 6 represents a concentration of ethnic bars, attracting clients from around the city. Ellipse 3 may, in part, be geographically determined. It centers around Clark Street's intersection with the largest business street in the two districts (Devon Avenue), but also reflects another concentration of ethnic bars (attracting a different ethnic group). Ellipse 4, to the south, centers around another attractor, a liquor-licensed roller skating rink that is one of the 49 highest-crime taverns or liquor stores in the city. Incidents in Ellipse 4 reflect the overflow from that rink. They occur both at the rink itself and in nearby bars, a situation similar to that of the isolated attractor establishments in the citywide analysis presented earlier.

The other three neighborhood Hot Spot Areas (Ellipses 1, 5 and 6 in Figure 6) are not on the Clark Street corridor, but are associated with stops at Granville, Morse and Howard on the Elevated rapid transit line. Ellipse 6, around the Howard Street stop at the northeast corner of the map, is a major public transit transfer point. Three rapid transit lines and many bus lines end here. This station and the area surrounding it historically demarcated "dry" Evanston from "wet" Chicago, and were examples of social ecology often cited by early Chicago School sociologists. Ellipse 6 is located in a generally impoverished area where levels of street crime are very high, and reflects the typical pattern in such neighborhoods. Within a one-block radius of the licensed convenience store with the highest number of incidents in Ellipse 6, 69 drug offenses, 25 aggravated batteries and 28 robberies were reported in the first six months of 1993.

Ellipse 5 in Figure 6 centers on the Morse rapid transit station, where Hot Spot Areas of several crimes overlap (see Figure 5). Within a one-block radius of the convenience store that has the highest number of incidents in Ellipse 5, 29 robberies, six aggravated batteries and 13 drug offenses were reported in the six-month study period. While this area has always been highly transient, crime has recently increased, perhaps reflecting the community's increased poverty. However, neighborhood organizations remain strong in this area, with much of their activity concentrated on crime reduction through continuous observation.

Ellipse 1 in Figure 6, which also encompasses an Elevated stop, is in a corridor of residential poverty just north of another area where several crime Hot Spot Areas overlap (see Figure 5). The immediately surrounding area contains mostly single-room apartments and single-room occupancy hotels, with high-rise condominiums along the lakefront to the east and

single-family and two-flat residences to the west. Ellipse 1 also contains an attractor dance club that was among the 49 highest-crime establishments in the city. Even though this club was "voluntarily" closed for a month during the six-month study period (and permanently closed after the study period), there were still 22 robberies, 11 aggravated batteries and 55 drug offenses recorded within a one-block radius.

The locations of the six Hot Spot Areas of tavern or liquor store crime in Districts 20 and 24 were only weakly associated with the overall crime pattern. Half of them (Ellipses 1, 5 and 6) coincide with areas having the densest concentrations of other offenses (Map Five). In these Hot Spot Areas, tavern or liquor store crime is probably closely associated with characteristics of the surrounding neighborhood: poverty, ease of access and escape (each Hot Spot Area encompasses an Elevated stop), and a ready supply of victims for predatory crime. In contrast, the other three Hot Spot Areas of tavern or liquor store crime in the neighborhood have individual characteristics that attract or generate crime, despite relatively low levels of crime in the surrounding area.

The community members that had requested this analysis were surprised that we did not find the clear relationship between liquor place density and crime that they had expected. However, they and the police department are using the results to reduce crime in the area. In response to the analysis showing high density of crime around most Elevated train stations in Districts 20 and 24, local community organizations have established their own patrols to reduce drug-related and predatory crimes. Police District 24 has used this crime pattern analysis for tactical planning. The identification of specific problem areas along the Clark Corridor (Ellipses 2, 3 and 4 in Map Six) assisted police and community groups to differentiate among the many bars, restaurants, and taverns located on this thoroughfare, and to focus intervention strategies where they were most needed.

With this information, and as part of Chicago's community policing strategy (called CAPS), which is being piloted in this neighborhood, law enforcement and community organizations have combined to fight crime in the blocks around the Morse Avenue Elevated station. The Loyola Community Safety Project pointed out the danger to passengers once they get off the train. Under the leadership of Commander Byrne, the police department has added foot and bicycle patrols to the area and often holds roll call at the rapid transit station. Citizens now sit by the station every day observing the passing scene as a warning to would-be robbers and

drug dealers. The entire area has a moratorium on new liquor licenses or the transfer of old ones.

An evaluation is currently underway of the success of these projects in crime reduction. However, changes in the business strip have become obvious to the community. Where once there were many vacant stores, now there are few. The major store in the Morse neighborhood, shuttered for two years, has been rebuilt as a combination drug and food store. In addition, the spatial analysis methodology used here (STAC Hot Spot Areas and the GeoArchive database) is being adopted for use by district patrol officers and citizen organizations, and is a basis for the expansion of CAPS citywide. While the Loyola Community Safety Project is not responsible for all these changes, the very clear depiction of the problem presented by the project sparked discussion and action by the community and the police.¹⁸

The computer mapping technology of the Loyola Community Safety Project and the Area 4 Gang Violence Reduction Program have been adopted by the Chicago Police Department. Using District 24 as a pilot and a very easy-to-use computer interface, patrol officers at the district level now have the capability to plot the pattern of specific crime types on their beat within 24 hours of occurrence. Crime analysis capabilities have been given to the patrol and community policing officers that were never available to them before.¹⁹

DISCUSSION

Contrary to conventional wisdom, the initial assumptions of the community members whose questions initiated this project, and some academic research, this Chicago study found that concentrations of liquor establishments should not be used as a surrogate measure for crimes occurring in liquor establishments or for a high level of criminal incidents in the surrounding area. Hot-spot areas of incidents occurring in a tavern or liquor store that are known to the police do not necessarily coincide with dense clusters of the establishments themselves, nor do they coincide with areas in which crime levels in general are high or in areas with a high level of lethal violence related to alcohol use.

This analysis of the effects of place and space characteristics on crime in places holding a liquor license and in the area surrounding these places suggests that we can better understand crime in and around Chicago taverns and liquor stores if we categorize them along two dimensions: the attributes of the place (whether or not the establishment itself is high-crime relative to other places), and the attributes of the surrounding area (whether or not the place is located within a Hot Spot Area of police-reported incidents that occurred at a tavern or liquor store). Those places

Table 3: Crime Patterns in Taverns and Liquor Stores

		Is the place high-crime (high number of incidents known to the police)?	
		Yes	No
Is the place located within a Hot Spot Area of Police-Recorded Incidents in Taverns or Liquor Stores?	Yes	Nightlife Area with many high-crime places; often near an Elevated station	Private club
	No	(1) Convenience store or carry-out in a poor area, often close to an Elevated station (2) Isolated establishment: dance and music club or tavern	Neighborhood establishment: bar, restaurant or carry-out

that typically fall within each cell of the resulting four-fold table (Table 3) differ in the situational and environmental factors that generate, attract or control violence and other crime. Therefore, the strategies that will effectively reduce levels of criminal incidents in each type of place/space situation are also different.

High-crime places within a Hot Spot Area of crime at taverns or liquor stores are often in nightlife areas serving as playgrounds for the city's young adults or for a specific ethnic group. Often located in an affluent singles area close to public transportation, these areas have many high-crime establishments in close proximity, creating a potentiation effect, and attract patrons from around the city. They may also contain one or more attractor bars or clubs that account for a disproportionate amount of the criminal incidents in the neighborhood. Some of these clubs seem to explicitly condone or even encourage violence.

Although the incidence of crime is very high in these places, the risk-per-patron's visit may be slight, since they often tend to attract very large crowds. However, they generate a heavy volume of work for the police and can be a nuisance for the neighborhood. In these areas, high-crime

bars and taverns might be closely regulated for liquor law and fire code violations. Beyond this, police work might concentrate on boundaries—the transitional space between nightlife areas and residential neighborhoods. In addition, police might check for driving under the influence and increase street patrol as the 2 a.m. and 4 a.m. closing times approach.

There are two types of high-incident taverns and liquor stores that are not located in a Hot Spot Area of tavern or liquor store crime. Some places are isolated dance or music clubs. In Chicago, these are often far from any population concentration. Perhaps the often-realized power of a club's neighborhood residents to vote their precinct dry has resulted in the isolation of many of these clubs. This threat plus increased enforcement of code violations and driving laws might decrease tavern-related crime.

Most high-crime places not in a tavern-crime Hot Spot Area, however, are located in impoverished and disrupted communities. The high levels of crime at these locations reflect the crime levels of the surrounding neighborhood more than they reflect a concentration of tavern and liquor store crime. For example, within a one-block radius of a liquor store at which five incidents were recorded, located near a 63rd Street Elevated stop, 45 robberies, 20 other violent crimes and 88 drug arrests were reported during the six-month study period. In addition to being located in a high-crime area, these high-crime places typically have other characteristics that put them at risk. Many of them are located near an Elevated station or an expressway interchange, generating high traffic and offering easy access and escape with low surveillance. Also, convenience stores are one of a group of semi-public places where behavior and presence are not questioned. In this, they are similar to laundromats and rapid transit stations.

Thus, the high level of crimes in these places reflects an interaction between the high general levels of crime in the surrounding community and specific routine activities generated by the attributes of the place and its location—the coincidence of victims and offenders and the availability of transportation to bring potential victims to the area and provide quick escape. The Chicago Alternative Police Strategy is currently evaluating the success of augmented police and citizen patrols to reduce crime in one such area (Morse Avenue near the Howard Elevated line; Ellipse 3 in Map Five).

Even though a tavern or liquor store is *low-incident*, it still may be located within a Hot Spot Area of concentrated crime in taverns or liquor stores. Most of these are social clubs or restaurants that control their clientele and manage the situation so that violence or other criminal incidents do not occur or are handled privately and quietly if they do. In many ways, these places are similar to low-incident places that are not in

a Hot Spot Area. These tend to be convenience stores or neighborhood bars serving neighborhood residents, scattered throughout the city mostly in poor or working-class residential neighborhoods. As Graham and colleagues (1980) point out, these places exert strong social controls to limit access and constrain behavior. Both social clubs and neighborhood bars limit and sanction behavior, though they utilize different control mechanisms to do so. However, the low-crime nature of both types of place is also determined by their geography. Compared to similarly located high-crime places, they are much less likely to be near an El stop. Thus, neither the attributes of the place itself nor the attributes of its location in space would be enough by themselves to explain levels of crime; both must be taken into consideration simultaneously.

In Chicago nightlife areas, only some clubs have high levels of criminal incidents. In two nightlife areas (Ellipse 1 and 2), the potentiation effect of many densely concentrated places holding liquor licenses may be related to increased risk of violence and other crimes. However, differences in riskiness among the places within these nightlife areas is probably determined, as Homel and Clark (1994) found, by the physical and managerial structure of the club. Similarly, only some of the convenience stores and carryouts in poverty-stricken areas have high levels of crime. To differentiate those establishments with many or few incidents, it is also necessary to observe their physical and social structure and management policy.

The location of high-crime taverns or liquor stores and the location of Hot Spot Areas of tavern and liquor store crime are, in part, geographically determined. Hot-spot areas are located at major intersections, especially intersections of grid with diagonal streets. Five of six Hot Spot Areas of tavern-related crime include either Clark Street or Belmont Avenue. High-incident licences at attractor bars and clubs are either in Hot Spot Areas near a rapid transit station or relatively isolated far from either rapid transit or residential neighborhoods. High-incident convenience and liquor stores are in poorer neighborhoods and are often near rapid transit stations and expressway exits.

Poverty and community disruption explain more of the variation in liquor-related homicide than does the density of places holding a liquor license. In general, the density of places holding a liquor license is not a key determinant of the relationship between alcohol and crime. Alcohol-related homicide follows the pattern of most non-gang-related homicide, and occurs most frequently in impoverished communities that have relatively few bars or taverns and that may even be underserved by convenience stores. Further, the level of crime occurring near taverns and liquor stores is not closely linked to the level within them, even for high

crime places. It does not seem likely, therefore, that either density of liquor licenses, by itself, or density as an indicator of consumption, is strongly related to criminal activity.



NOTES

1. Following LaFree and Birkbeck (1991:75), we define *situation* as "the perceptive field of the individual at a given point in time." They argue that, "Although it is generally recognized in the social sciences that the 'situation' is indispensable for understanding behaviour, thus far criminologists have not devoted systematic attention to situational analysis" (1991:73).
2. Aggregated areal data are sometimes used as a metric for individual-level data. Many models of neighborhood disorganization or social stress (for example, Curry and Spergel, 1988) include area crime levels as part of the predictive instrument as well as the phenomenon being predicted. A model designed to *predict* neighborhood violence must analyze the relationship between neighborhood social stress in one time period and violence in a later time period.
3. The field of environmental criminology, also called the criminology of place and situational prevention, has generated numerous research studies on this topic. For reviews, see Brantingham and Brantingham (1981, 1984) and Clarke (1983).
4. A GeoArchive is one kind of GIS (geographic information system). For more detail, see Block and Green (1994).
5. Because of problems of confidentiality and concerns about the value of this information for real estate speculators, all requests for information must be approved by the project director or technical coordinator.
6. For more detail, see *GeoArchive Codebook* (Green and Whitaker, 1994).
7. In Illinois, simple assault is a threat. Index assault includes aggravated assault, aggravated and simple battery, and attempted murder.
8. In Chicago, a premise may have more than one license. In working and lower class neighborhoods, the same establishment may have an on-premise and an off-premise license.
9. The source for the homicide data is the Chicago Homicide Dataset (see Block and Block, 1993b).

10. STAC was developed by the Illinois Criminal Justice Information Authority. For more information, see C. Block (1990, 1994).

11. While the intoxication of victim or offender is not recorded for most criminal incidents, it is available for homicide.

12. After the study period, this particular club was permanently closed following a homicide and a "suspicious" fire. Occasionally life imitates statistics.

13. Intrigued by the notoriety of these clubs, the senior author identified one as an example to a group of graduate students. Given the example, they accurately identified most of the others.

14. Analysis of events within a "one-block radius" here is calculated by counts within a circle of one block (in Chicago, an eighth of a mile), not within a square block.

15. We present counts here rather than population-based rates, because the resident population is not equivalent to the population at risk in any of these Hot Spot Areas. Very few people live permanently in the area around Division and Rush. While it might have been possible, in principle, to have gathered information about the number of patrons, to do this for the 5,947 places holding a liquor license or even for the 2,059 taverns or liquor stores with at least one incident would not have been feasible. Unfortunately, sales figures are not available by individual place; the data would have to be collected by visiting each place across representative times and days of the week. However, in a current analysis of crime around El stops, we have been able to obtain data on the daily traffic through the stop.

16. By sample definition, only one incident occurred at the random-sample taverns and liquor stores.

17. These are general conclusions based on spatial analysis done for the evaluation of the Chicago Alternative Policing Strategy (forthcoming).

18. Figures 5 and 6, presented either as color overheads or live on the computer, are extraordinarily useful tools for depicting a community's crime problems. These tools inspire discussion and the quest for potential solutions.

19. This project is based upon Mapinfo for Windows, with a special interactive user interface (ICAM) developed by the Chicago Police Department that requires very little training on computers.

REFERENCES

- Anderson, E. (1978). *A Place on the Corner*. Chicago, IL: University of Chicago Press.
- Block, C.R. (1990). "Hot Spots and Isocrimes in Law Enforcement Decision Making." Paper presented at the Conference on Police and Community Responses to Drugs: Frontline Strategies in the Drug War. University of Illinois at Chicago, December.
- (1994). "STAC Hot Spot Areas: A Statistical Tool for Law Enforcement Decisions." In: *Proceedings of the Workshop on Crime Analysis through Computer Mapping*. Chicago, IL: Illinois Criminal Justice Information Authority.
- and R. Block (1992). "Beyond Wolfgang: An Agenda for Homicide Research in the 1990s." *Journal of Criminal Justice* 14:31-70.
- and R. Block (1993a). *Street Gang Crime in Chicago*. NIJ Research in Brief. Washington, DC: U.S. National Institute of Justice.
- and R. Block (1993b). "Overview of the Chicago Homicide Project." In: C. R. Block and R. Block (eds.), *Questions and Answers in Lethal and Non-Lethal Violence 1992: Proceedings of the First Annual Workshop of the Homicide Research Working Group*. NCJ 142058. Washington, DC: U.S. National Institute of Justice.
- and L.A. Green (1994). *The GeoArchive Handbook: A Guide for Developing a Geographic Database as an Information Foundation for Community Policing*. Chicago, IL: Illinois Criminal Justice Information Authority.
- Block, R. (1994). "Spatial Analysis in the Evaluation of the 'CAPS' Community Policing Program in Chicago." In: *Proceedings of the Workshop on Crime Analysis through Computer Mapping*. Chicago, IL: Illinois Criminal Justice Information Authority.
- and C.R. Block (1992). "Homicide Syndromes and Vulnerability: Violence in Chicago's Community Areas Over 25 Years." *Studies on Crime and Crime Prevention* 1:61-85.
- M. Felson and C.R. Block (1985). "Crime Victimization Rates for Incumbents of 246 Occupations." *Sociology and Social Research* 69:442-451.
- Bottoms, A.E. and P. Wiles (1992). "Explanations of Crime and Place." In: D.J. Evans, N.R. Fyfe and D.T. Herbert (eds.), *Crime, Policing and Place*. London, UK: Routledge.
- Brantingham, P.L. and P.J. Brantingham (1993). "Environment, Routine and Situation: Toward a Pattern theory of Crime." *Advances in Criminological Theory* 5:259-294.

- and P.J. Brantingham (1994). "Location Quotients and Crime Hot Spots In the City." In: C.R. Block and M. Dabdoub (eds.), *Workshop on Crime Analysis through Computer Mapping: Proceedings, 1993*. Chicago, IL: Illinois Criminal Justice Information Authority.
- Brantingham, P.J. and P.L. Brantingham (eds.) (1981). *Environmental Criminology*. Beverly Hills, CA: Sage.
- and P.L. Brantingham (1984). *Patterns in Crime*. New York, NY: Macmillan.
- Bursik, R.J. and H.G. Grasmick (1993). *Neighborhoods and Crime: The Dimensions of Effective Community Control*. New York, NY: Lexington Books.
- and J. Webb (1982). "Community Change and Patterns of Delinquency." *American Journal of Sociology* 88:24-42.
- Capone, D.L. and W.W. Nichols, Jr. (1976). "Urban Structure and Criminal Mobility." *American Behavioral Scientist* 20:199-213.
- Cavan, S. (1966). *Liquor License: An Ethnography of Bar Behavior*. Chicago, IL: Aldine.
- Centers for Disease Control and Prevention (1984). "Alcohol and Violent Death—Erie County, New York, 1973-1983." *Morbidity and Mortality Weekly Report* 33:226-227.
- Clarke, R.V. (1983). "Situational Crime Prevention: Its Theoretical Basis and Practical Scope." In: M. Tonry and N. Morris (eds.), *Crime and Justice: An Annual Review of Research* Vol. 4. Chicago, IL: University of Chicago Press.
- (ed.) (1992). *Situational Crime Prevention: Successful Case Studies*. Albany, NY: Harrow and Heston.
- Collins, J.J. (1988). "Alcohol and Personal Violence: Less than Meets the Eye." In: N.A. Weiner and M. Wolfgang (eds.), *Pathways to Criminal Violence*. Newbury Park, CA: Sage.
- Cromwell, P.F., J.N. Olson and D.W. Avary (1990). *Breaking and Entering: An Ethnographic Analysis of Burglary*. Newbury Park, CA: Sage.
- Curry, G.D. and L.A. Spengel (1988). "Gang Homicide, Delinquency, and Community." *Criminology* 26:381-405.
- Curtis, L.A. (1974). "Spatial Distributions." In: *Criminal Violence: National Patterns and Behavior* (chapter 7). Lexington, MA: Lexington Books.
- Fagan, J. (1990). "Intoxication and Aggression." In: M. Tonry and J. Wilson (eds.), *Drugs and Crime*. Chicago, IL: University of Chicago Press.
- (1993). "Set and Setting Revisited: Influences of Alcohol and Illicit Drugs on the Social Context of Violent Events." In: S.E. Martin (ed.), *Alcohol and Interpersonal Violence: Fostering Multidisciplinary Perspectives*. Rockville, MD: NIAAA, National Institutes of Health.
- Farrell, G. and K. Pease (1993). *Once Bitten, Twice Bitten: Repeat Victimization and its Implications for Crime Prevention*. Crime Prevention Unit

- Series Paper No. 46. London, UK: Police Research Group, Home Office Police Department.
- Felson, M. (1987). "Routine Activities and Crime Prevention in the Developing Metropolis." *Criminology* 25:911-932.
- Felson, R.B., W. Baccaglini and G. Gmelch (1986). "Barroom Brawls: Aggression and Violence in Irish and American Bars." In: A. Campbell and J.J. Gibbs (eds.), *Violent Transactions: The Limits of Personality*. Oxford, UK: Basil Blackwell.
- Fingarette, H. (1988). *Heavy Drinking: The Myth of Alcoholism as a Disease*. Berkeley, CA: University of California Press.
- Florence, R. (1995). "Guardianship and Tavern Violence: An Exploratory Analysis." Master's thesis. University of Maryland, College Park.
- Garofalo, J. (1987). "Reassessing the Lifestyle Model of Criminal Victimization." In: M.R. Gottfredson and T. Hirschi (eds.), *Positive Criminology*. Newbury Park, CA: Sage.
- Gibbs, J. P. (1985). "Law and Social Control." In: J.P. Gibbs (ed.), *Social Control: Views from the Social Sciences*. Beverly Hills, CA: Sage.
- Goodman, R.A., J.A. Mercy, F. Loya, M.L. Rosenberg, J.C. Smith, N.H. Allen, L. Vargas and R. Kolts (1986). "Alcohol Use and Interpersonal Violence: Alcohol Detected in Homicide Victims." *American Journal of Public Health* 76:144-149.
- Graham, K. L., L. LaRocque, R. Yetman, T.J. Ross and E. Guistra (1980). "Aggression in Barroom Environments." *Journal of Studies on Alcohol* 41:277-292.
- Green, L.A. and R.B. Whitaker (1994). *Early Warning System GeoArchive Codebook*. Chicago, IL: Illinois Criminal Justice Information Authority.
- Homel, R. and J. Clark (1994). "The Prediction and Prevention of Violence in Pubs and Clubs." In: R.V. Clarke (ed.), *Crime Prevention Studies*. Vol. 3. Monsey, NY: Criminal Justice Press.
- Homel, R. and S. Tomsen (1991). "Pubs and Violence: Violence, Public Drinking, and Public Policy." *Current Affairs Bulletin* (December):20-27.
- and J. Thommeny (1992). "Public Drinking and Violence: Not Just an Alcohol Problem." *Journal of Drug Issues* 22: 679-697.
- Kempf, K. (1986). "Offense Specialization: Does it Exist?" In: D.B. Cornish and R.V. Clarke (eds.), *The Reasoning Criminal*. New York, NY: Springer - Verlag.
- LaFree, G. and C. Birkbeck (1991). "The Neglected Situation: A Cross-National Study of the Situational Characteristics of Crime." *Criminology* 29:73-98.
- Land, K.C. and G. Deane (1992). "On the Large-Sample Estimation of Regression Models with Spatial- or Network-Effects Terms: A Two-Stage Least Squares Approach." In: P.V. Marsden (ed.), *Sociological*

- Methodology*, 1992. American Sociological Association, Vol. 22. Oxford, UK: Basil Blackwell.
- Maltz, M.D., A.C. Gordon and W. Friedman (1991). *Mapping Crime in its Community Setting: Event Geography Analysis*. New York, NY: Springer - Verlag.
- Messner, S.F. and K. Tardiff (1986). "Economic Inequality and Levels of Homicide: An Analysis of Urban Neighborhoods." *Criminology* 24:297-317.
- Parker, R.N. and L. Rebhun (1993). "Alcohol and Homicide: A Deadly Combination of Two American Traditions." Manuscript (October). Berkeley, CA: Prevention Research Center.
- Pernanen, K. (1991). *Alcohol in Human Violence*. New York, NY: Guilford Press.
- (1993). "Alcohol Related Violence: Conceptual Models and Methodological Issues." In: S. Martin (ed.), *Alcohol and Interpersonal Violence: Fostering Multidisciplinary Perspectives*. NIAAA Research Monograph No. 24. Washington, DC: U.S. Department of Health and Human Services.
- Pyle, G. F. (1974). *The Spatial Dynamics of Crime*. With E.W. Hanten, P.G. Williams, A.L. Pearson, II, J.G. Doyle and K. Kwofie. Chicago, IL: Department of Geography, University of Chicago.
- (1976). "Spatial and Temporal Aspects of Crime in Cleveland, Ohio." *American Behavioral Scientist* 20:175-197.
- Raudenbush, S. (1992). "Statistical Models for the Effects of Social Context on Individual Development." Paper presented at the annual meeting of the American Society of Criminology,
- Rengert, G.F. (1980). "Spatial Aspects of Criminal Behavior." In: D.E. Georges-Abeyie and K.D. Harries (eds.). *Crime: A Spatial Perspective*. New York, NY: Columbia University Press.
- (1981). "Burglary in Philadelphia: A Critique of an Opportunity Structure Model." In: P.J. Brantingham and P.L. Brantingham (eds.), *Environmental Criminology*. Beverly Hills, CA: Sage.
- Roman, P.A. (1981). "Situational Factors in the Relationship between Alcohol and Crime." In: J.J. Collins, Jr. (ed.), *Drinking and Crime: Perspectives on the Relationship between Alcohol Consumption and Criminal Behavior*. New York, NY: Guilford Press.
- Roncek, D.W. (1981). "Dangerous Places." *Social Forces* 60:74-96.
- and R. Bell (1981). "Bars, Blocks and Crimes." *Journal of Environmental Systems* 11:35-47.
- and J.M.A. Francik (1981). "Housing Projects and Crime." *Social Problems* 29:151-166.
- and D. Faggiani (1985). "High Schools and Crime." *Sociological Quarterly* 26:491-505.

- and A. Lobosco (1983). "The Effect of High Schools on Crime in their Neighborhoods." *Social Science Quarterly* 64:598-613.
- and P.A. Maier (1991). "Bars, Blocks, and Crimes Revisited: Linking the Theory of Routine Activities to the Empiricism of 'Hot Spots.'" *Criminology* 29:725-753.
- and M.A. Pravatiner (1989). "Additional Evidence that Taverns Enhance Nearby Crime." *Sociology and Social Research* 73:185-188.
- Rose, H. M. (1979). "Lethal Aspects of Urban Violence: An Overview." In: H.M. Rose (ed.). *Aspects of Urban Violence*. Lexington, MA: D.C. Heath.
- Rossmo, K. (1990). "The Impact of Place on Urban Crime: Vancouver's Skid Road." Paper presented at the annual meeting of the Canadian Association of Geographers,
- (1994). "Strategic Crime Patterning: Problem-Oriented Policing and Displacement." In: C.R. Block and M. Dabdoub (eds.), *Workshop on Crime Analysis through Computer Mapping: Proceedings, 1993*. Chicago, IL: Illinois Criminal Justice Information Authority.
- and D.K. Fisher (1993). "Problem-Oriented Policing: A Cooperative Approach in Mount Pleasant, Vancouver." *RCMP Gazette* 55:1-9.
- Sampson, R.J. (1985). "Neighborhood and Crime: The Structural Determinants of Personal Victimization." *Journal of Research in Crime and Delinquency* 22:7-40.
- and J.D. Wooldredge (1987). "Linking the Micro- and Macro-Level Dimensions of Lifestyle-Routine Activity and Opportunity Models of Predatory Victimization." *Journal of Quantitative Criminology* 3:371-393.
- Sherman, L.W., P.R. Gartin and M.E. Buerger (1989). "Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place." *Criminology* 27:27-56.
- Shoham, S. (1968). "Points of No Return: Some Situational Aspects of Violence." *Prison Journal* 48:29-33.
- Skogan, W.G. (1990). *Disorder and Decline: Crime and the Spiral of Decay in American Neighborhoods*. New York, NY: Free Press.
- Smith, D.A. and G.R. Jarjoura (1989). "Household Characteristics, Neighborhood Composition and Victimization Risk." *Social Forces* 68:621-640.
- Spelman, W. (1993). "Abandoned Buildings: Magnets for Crime?" *Journal of Criminal Justice* 21:481-495.
- Spergel, LA. (1976). "Interactions between Community Structure, Delinquency, and Social Policy in the Inner City." In: M.W. Klein (ed.), *The Juvenile Justice System*, Beverly Hills, CA: Sage.
- Stark, R. (1987). "Deviant Places." *Criminology* 25:893-908.
- Steadman, H.J. (1982). "A Situational Approach to Violence." *International Journal of Law and Psychiatry* 5:171-186.

- Suttles, G.D. (1972). *The Social Construction of Communities*. Chicago, IL: University of Chicago Press.
- Swartz, R.D. (1980). "A Spatial Analysis of Retail/Commercial Homicides in Detroit: 1968-1974." In: D. Georges-Abeyie and K. Harries (eds.), *Crime: A Spatial Perspective*. New York, NY: Columbia University Press.
- Thrasher, F.M. (1963). *The Gang: A Study of 1,313 Gangs in Chicago*. (Abridged ed., with introduction by J. F. Short, Jr.) Chicago, IL: University of Chicago Press, 1927.
- Tomsen, S., R. Homel and J. Thommeny (1991). 'The Causes of Public Violence: Situational 'Versus' Other Factors in Drinking Related Assaults.' In: D. Chappell, P. Grabosky and H. Strang (eds.), *Australian Violence: Contemporary Perspectives*. Canberra, AUS: Australian Institute of Criminology.
- Trickett, A., D.R. Osborn and D. Ellingworth (1992). "Explaining Crime Victimization using Individual and Area Characteristics." Paper Presented at the annual meeting of the American Society of Criminology.
- Walsh, D. (1986). *Heavy Business: Commercial Burglary and Robbery*. London, UK: Routledge and Kegan Paul.
- Weisburd, D., L. Maher and L. Sherman (1991). "Contrasting Crime General and Crime Specific Theory: The Case of Hot Spots of Crime." With M. Buerger, Ellen Cohn and A. Petrosino. *Advances in Criminological Theory*. New Brunswick, NJ: Transaction Books.
- Wolfgang, M.E., R.M. Figlio and T. Sellin (1972). *Delinquency in a Birth Cohort*. Chicago, IL: University of Chicago Press.