
THE ENVIRONS OF RAPID TRANSIT STATIONS: A FOCUS FOR STREET CRIME OR JUST ANOTHER RISKY PLACE?

by

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and

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Abstract: *In big cities, public spaces can be dangerous spaces, with predatory street crime concentrated in specific areas or pervading the community. In this study, the geographic distribution of street robbery in 1993-94 is compared in four Chicago police districts. In the two low-rate districts, street robbery was concentrated near rapid transit stations. In the two high-crime districts, although robberies were most likely to occur along main streets, almost every block had at least one street robbery during the two-year period. These two patterns of street robbery graphically illustrate bases both for opposition to and support for problem-oriented policing. Proponents of problem-oriented policing could argue that the general level of street robbery in lower-rate districts might be reduced by concentrating surveillance in the area surrounding rapid transit stations. In contrast, in higher-rate districts opponents of problem-oriented policing might argue that where the risk of predatory violence is high and widely dispersed, the root causes of crime—rather than their symptoms—must be attacked. Problem-oriented policing may be of little use if poverty and lack of jobs, racism, deteriorating housing and family collapse must be ameliorated before predatory street crime can be reduced.*

In big cities, public spaces can be dangerous spaces. However, the nature of the danger varies in different neighborhoods. In some com-

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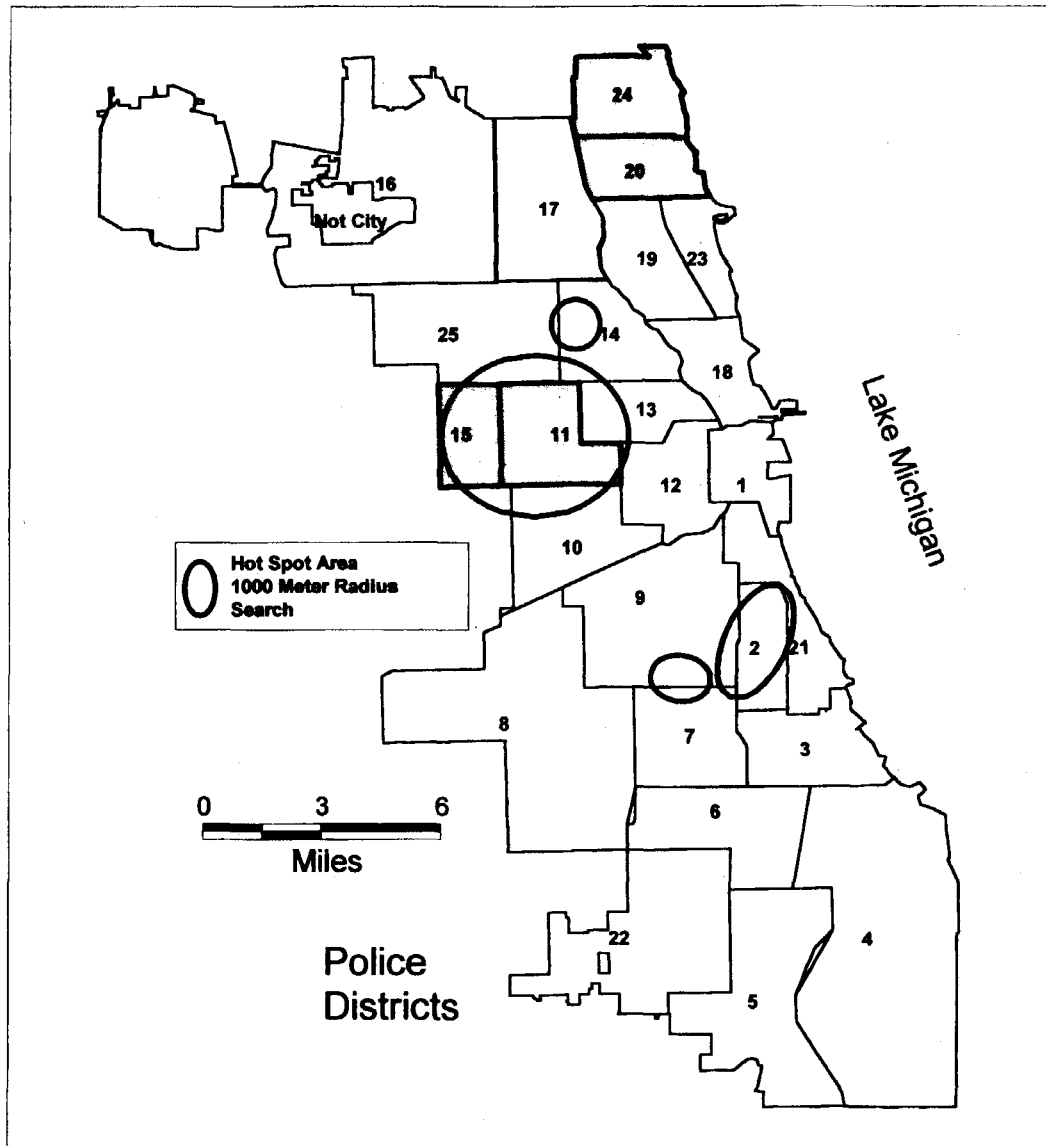
munities, predatory street crime is concentrated in specific areas, while in others it pervades the community. Here, the geographic distribution of street robbery in 1993-94 is compared in four Chicago police districts: two with relatively low rates of robbery, and two with very high rates. The patterns for the two districts are markedly different. In the low-rate districts, street robbery was concentrated near rapid transit stations, while in the high-crime districts, the geographic distribution of robberies was more dispersed. In these latter two districts, robberies were most likely to occur along main streets, yet almost every block had at least one street robbery during this two-year period.

THE TWO STUDY AREAS—FOUR DISTRICTS IN THE NORTHEAST AND WEST SIDES

In the present research, the risk of street robbery in the area surrounding rapid transit stations was compared with the risk in neighborhoods located farther from a station. The ten elevated rapid transit stations in the two most northeastern police districts (20 and 24) and the 12 stations in two West Side districts (11 and 15) of Chicago were examined (Figure 1). The two study areas are about 25 square kilometers each in area. Both areas are predominantly residential. In 1990, 242,000 people lived in Districts 20 and 24 (the Northeast Side). The population of the communities in these two districts has been stable or increasing over the past four decades. In 1990, 162,500 people lived in Districts 11 and 15 (the West Side). In contrast to the Northeast Side, the population of these districts has declined substantially since 1960. Several neighborhoods have lost more than half their 1960 population.

In previous research, one of the present authors found that an area's street pattern was related to crime concentrations. Crimes occurring at liquor-licensed businesses were concentrated at major intersections (Block and Block, 1995). The street patterns of the two study areas are different from each other. The West Side districts are locked into the Chicago grid system of major, secondary and tertiary streets. One expressway borders the districts and another bisects the districts. In contrast, in the Northeast Side Lake Shore Drive enters and ends in District 20, and no expressway enters District 24. Here, the grid system is less fully realized than on the West Side. While residential streets are gridded, major streets are mostly diagonals following old Indian and pioneer trails or the shoreline. Thus, there are fewer major intersections than on the West Side.

Figure 1: Hot Spot Areas of Street Robbery in Chicago, 1993-1994



Although robbery was a problem, rates of reported street robbery in Districts 20 and 24 in the northeast (370 per 100,000 population per year) were below the city average and the median for all districts. Rates of street robbery in the West Side districts were among the city's highest (2,428 per 100,000 population per year). Each area has a district (Districts 15 and 24) that is a pilot district for the Chicago Alternative Policing Strategy (CAPS), which emphasizes close community cooperation. In both of these districts, community groups and block clubs are well-organized.

Districts 20 and 24 (The Northeast Side)

The two northeastern police districts are ethnically, racially and economically very diverse. In 1990, about half the districts' population was non-Latino white, the remainder of the population was equally divided among Latinos, Asians and Blacks. Among the students in one high school in the center of the area are speakers of 47 different first languages. The main streets are lined with shops and services. Several concentrations of taverns, restaurants and shops serve specific ethnic communities.

These two districts are predominantly residential, with housing ranging from single-room-occupancy hotels to high-rise condominiums, townhouses and single-family homes. Although there is governmentally subsidized housing, the Northeast Side is located far from the notorious public housing projects to the south and west. The area immediately surrounding the rapid transit line is generally poorer and more transient than the rest of the community.

In these two districts, people use the rapid transit system to go to work or for recreational purposes. With the exception of Loyola University, a hospital and an electrical regulator manufacturer, there are no large employers. The most northerly station (Howard) is a major terminus, where three rapid transit lines and many suburban and city bus routes converge. The remaining stops mainly serve the residents of the surrounding neighborhoods and the residents of more westerly neighborhoods, with local connecting bus service. The rapid transit line and all stations in the two districts are open 24 hours per day.

Districts 11 and 15 (The West Side)

The two West Side districts are racially homogeneous (over 93% African American). Although there is some public housing in these areas, they do not include the very large projects. Much of the area has been the home turf of the Vice Lords for many years. This long-established

entrepreneurial gang brought some stability to the communities (Block and Block, 1993); however, in 1993 and 1994 this stability was threatened by a South Side gang.

In the West Side districts, major industries including Sears and Western Electric have closed their factories. Many retail businesses and some housing were destroyed in the riots of the 1960s and were never replaced. Entire blocks have only one or two occupied apartments. This area is underserved for both shopping and services. While some areas lack strong community organizations, Bethel-New Life is a potent voice of the community in the area to the west of Garfield Park.

Two rapid transit lines serve Districts 11 and 15, the Lake Street (green line) and the Congress (blue line). Both lines terminate outside the city. Therefore, neither district has a transport hub similar to the Howard Station in the northeast. Since there are few jobs, services or shopping in these communities, public transit is mainly used to go to work or to shop in the Loop (the central part of Chicago's downtown business district). During the time period under study, the Lake Street line had few patrons. Several stations—and, eventually, the entire line—were closed for repair. The Congress line is one of several in Chicago that run along the median strip of an expressway. Stations on this line are located where major surface streets overpass the expressway and are generally quite isolated, with no shopping in the immediate surrounding area.

DATA: THE COMMUNITY SAFETY PROJECT GEOARCHIVE

Our Northeast Side analysis is based on a GeoArchive created by the Loyola Community Safety Project. A GeoArchive contains address-level data from both law enforcement and community sources. The data are linked to computer mapping capability and set up so they can be updated, maintained, mapped, analyzed and used by those who are developing and carrying out strategies of crime reduction in the community (Block and Green, 1994). In practice, the GeoArchive consists of a large set of electronic, transparent areal and pin map overlays that can be quickly and easily combined and analyzed. The Northeast GeoArchive is an application and extension of the GeoArchive created for the West Side of Chicago as part of the Early Warning System for the Street Gang Violence project. Like the Early Warning System GeoArchive, the Community Safety Project GeoArchive is an "Information Foundation for Community Policing" (Block, 1994).

For this paper, all robberies in 1993-94 recorded by the Chicago Police Department were geocoded by address of occurrence. The present analysis includes only robberies and attempted robberies that occurred on the street. Commercial robberies, home invasions and, most importantly, robberies occurring on public transportation or inside a transit station have been excluded. Although many street robberies occurred near a rapid transit station, the victims may or may not have been en route to or from a station.

DISTRICTS 20 AND 24 (THE NORTHEAST SIDE): STREET ROBBERY FOCUSED NEAR RAPID TRANSIT STATIONS

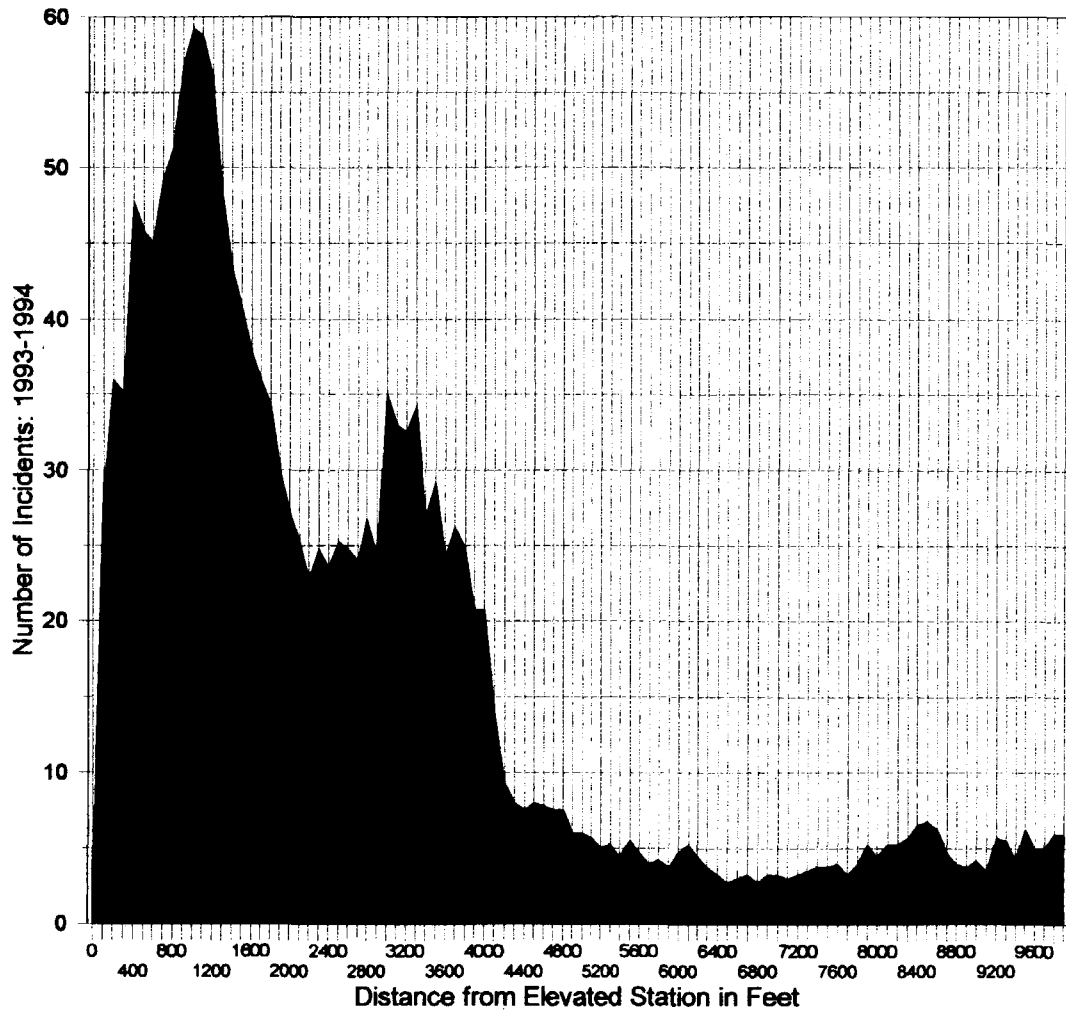
Public transportation attracts riders because it is relatively convenient and inexpensive. Once the decision to ride a train or bus is made, however, the public transport patron must traverse a public space and wait at a public stop or station. Rapid transit stations and the businesses around them tend to attract and bring together potential targets and offenders. Riders anonymously await their train or bus in places where standing around is not suspicious. Anyone can linger, and patrons of the public transit system must wait.

Rapid transit system managers understand that crime and fear of crime are bad for business. Therefore, new stations are designed, old stations are retro-fitted, and personnel are hired to control criminal behavior (Webb and Laycock, 1992; Chaiken et al., 1974). Researchers have largely ignored the risk of street crime in the areas surrounding rapid transit stations, however, especially outside the central business district (for exceptions, see Levine et al., 1986; Piano, 1991; Loukaitou-Sideris and Banerjee, 1994).

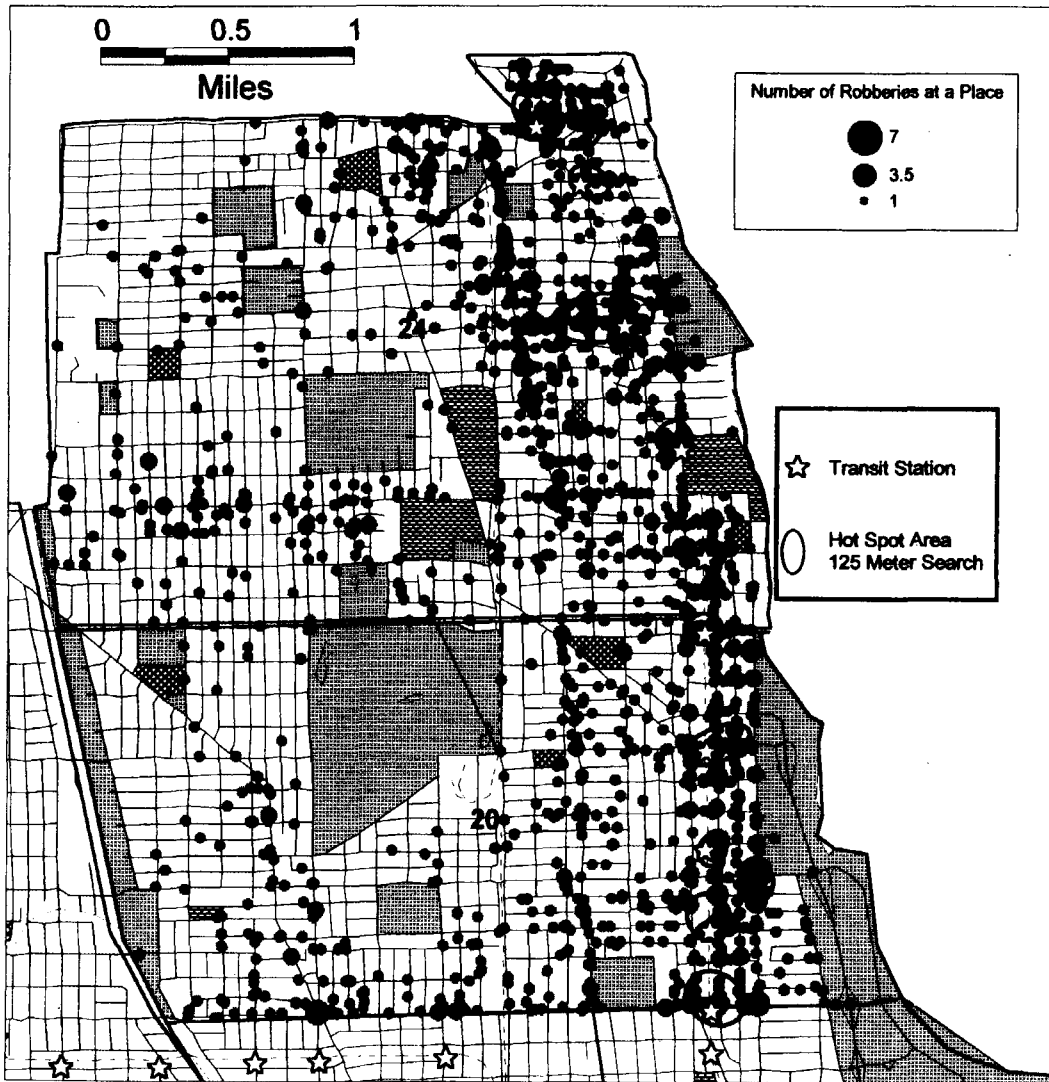
As the data discussed below demonstrate, in the two districts in the Northeast Side, the risk of street robbery was much higher in areas immediately adjacent to a rapid transit station than in the surrounding community. In the area around rapid transit stations, potential targets and offenders, service businesses (both legal and illegal) and, at times, a lack of guardians coincide to create an oasis of potential targets for street robbers.

During 1993 and 1994, 1,793 robberies occurred on the street at 1,563 different places in Districts 20 and 24. Street robberies (Figure 2) were not concentrated immediately at the station but about 1 to 1/2 Manhattan blocks away (1 block = 650 feet or 200 meters).¹ A secondary peak occurred at around five blocks from the station, mostly along Clark Street, a

**Figure 2: Northeast Side (Districts 20 and 24)
Distance from Elevated Station by Number of
Incidents for 1993-1994**



**Figure 3: Northeast Side (Districts 20 and 24)
Street Robberies 1993-1994: Number at a
Location and Hot Spot Areas**



commercial strip with many taverns and carry-outs (Block and Block, 1995). After this secondary peak, distance to a rapid transit station and number of street robberies were unrelated.

Figure 3 depicts the location and concentration of all street robberies in the two northeastern study districts in 1993 and 1994. Circles represent locations where robberies occurred. The greater the size of a circle, the greater the number of robberies occurring at that location. Rapid transit stations are shown by stars. The shaded areas are parks, schools, cemeteries and other institutions. By visual inspection, street robberies were clearly concentrated along the rapid transit line, especially near stations, and along Clark Street, west of the line. Thirty-six (35.9%) incidents occurred within two Manhattan blocks (396 meters or 1,300 feet) of a transit station; 57 (56.9%) incidents occurred within four blocks (792 meters or 2,600 feet).²

The ellipses in Figure 3 represent "hot-spot" areas of street robbery. Hot-spot area ellipses define the most concentrated locations of occurrence of incidents (Block, 1994). In these two police districts, street robberies were remarkably concentrated. Every rapid transit station in the two districts is in a hot spot area. Ten of eleven hot spot areas include a rapid transit station. Three hundred ninety-six (396) street robberies occurred within the 0.76 square kilometers (0.29 square miles) of the hot-spot areas. Over the two years, 521 street robberies occurred per square kilometer within a hot-spot area (1,357 per square mile). In contrast, there were 56.6 street robberies per square kilometer (146.6 per square mile) outside these areas. Overall, 22.1% of the street robberies occurred in 2.9 percent of the area, and the density of street robberies in hot-spot areas was 9.3 times that outside these areas.³

One might hypothesize that the number of street robberies would be greatest near the station with the highest volume of passengers (Howard). Targets are plentiful near high-volume stations, but these stations are better guarded than less-patronized stations and there are more civilian observers. A high level of guardianship negates the great number and good choice of potential targets. Near lower-volume stations, fewer potential targets are available, but there are also fewer civilian observers and less of a police presence. Overall, passenger volume and number of street robberies were unrelated ($r^2 = +0.05$).⁴

Figure 4 magnifies the far northeast area of District 24. The northernmost hot-spot area includes the Howard terminus station. Southwest of the station is commuter parking and a bus terminal for the many routes serving this station. The area is always well-patrolled. To the east are small shops, including convenience stores, laundromats, currency exchanges,⁵ and an adult bookstore and video rental. Under Illinois' local option law,

there are no liquor licensees in this area. The direction of the ellipse indicates a possible predator pattern focused against patrons of these shops and the more affluent residents of the apartments and condominiums along Lake Michigan to the east.⁶

The hot-spot area immediately to the south (Jarvis) includes the least-used station on the line (an estimated 1,350 incoming passengers per weekday in 1994). It is one of several stations that remain open all night but are unattended after 12:30 a.m. A small shopping plaza, a garage and a few other stores occupy the area around the station. Beyond these, the area is residential. In 1994, robbers killed a transit rider just outside the station at 4:00 a.m.

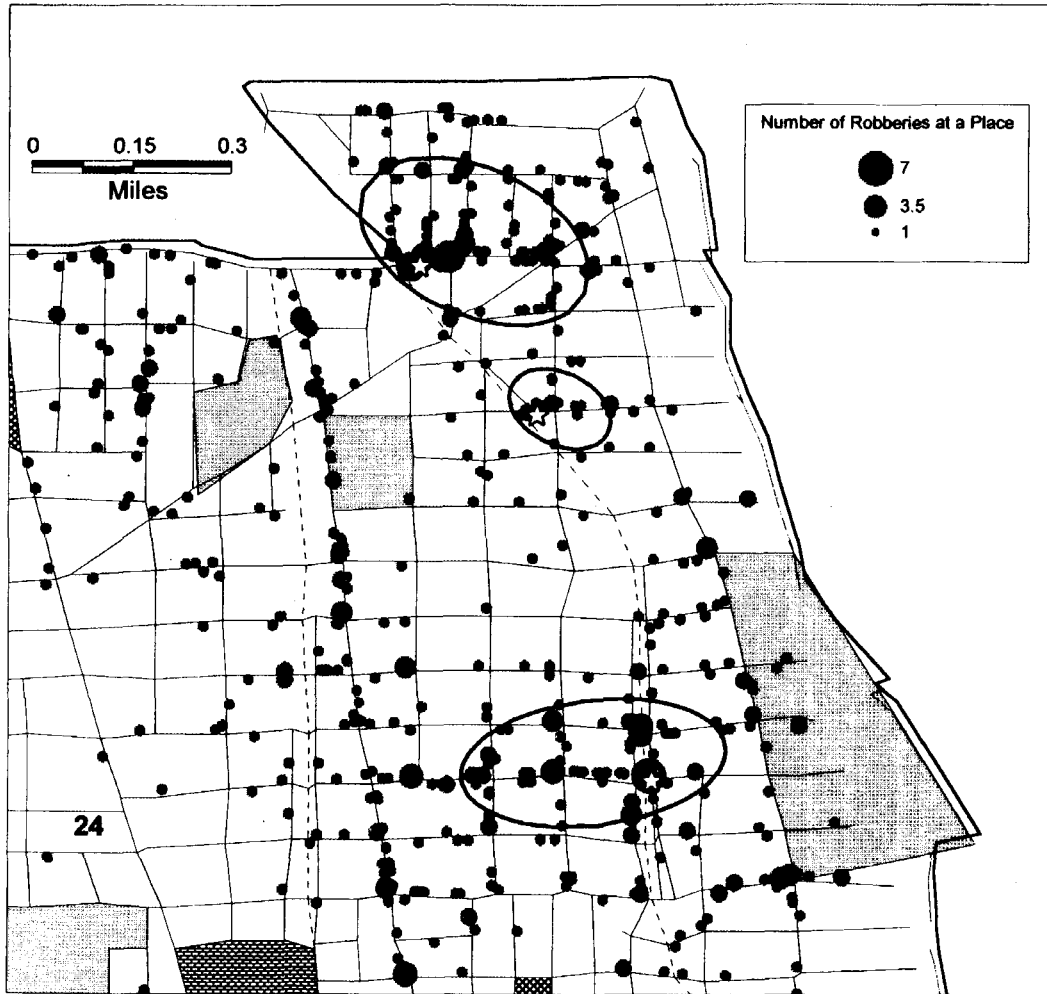
The southeasterly hot-spot area includes a rapid transit station (Morse) and its secondary exit. This neighborhood shopping strip is seen by community residents as the area of highest risk for street crime in District 24. In reaction to community residents' demands and earlier spatial analysis, this area has been a focus of both community policing and resident anti-crime activity. For example, the physical structure of the secondary exit was altered to make it more visible from the street. The success of these efforts in reducing crime is currently being evaluated.

The Third Dimension: Concentration in Time

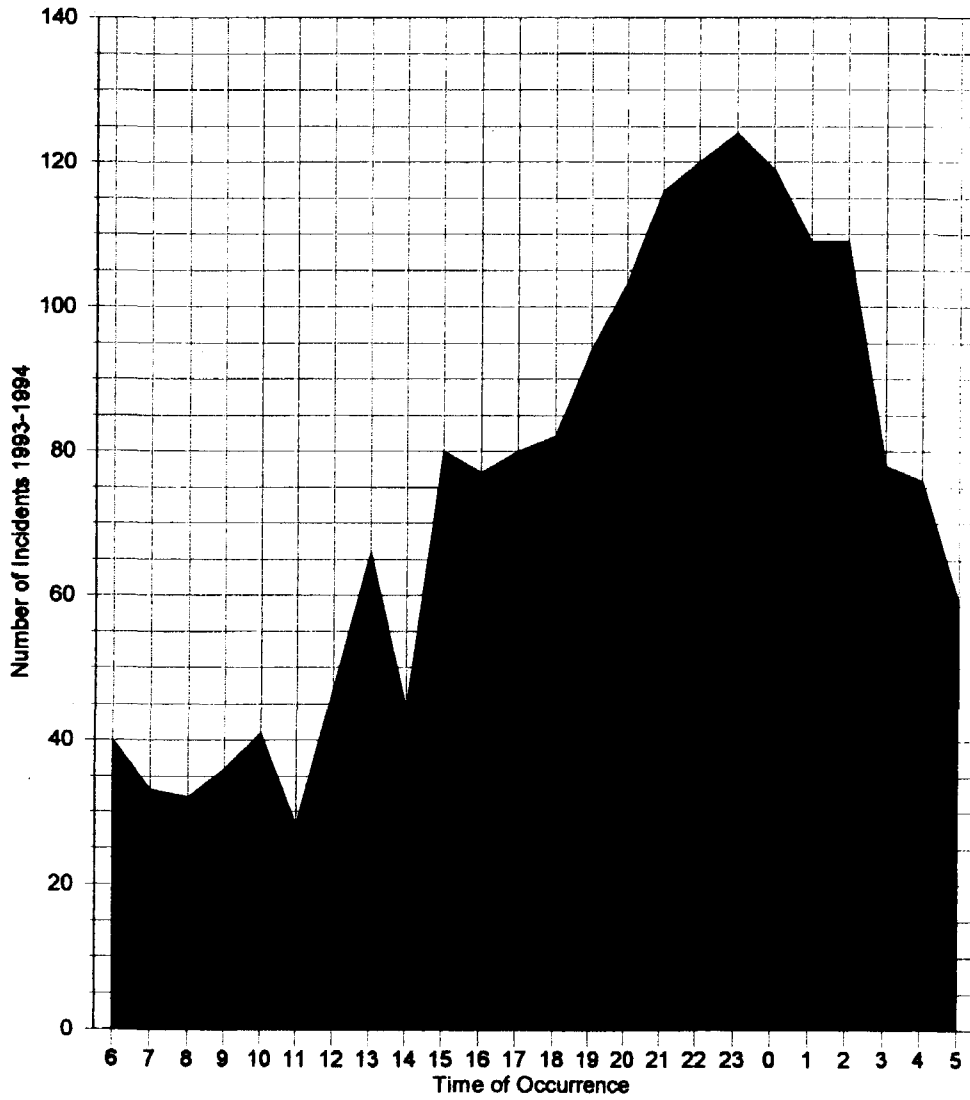
Street robberies were concentrated not only in space but in time (Figure 5). Surprisingly, they do not peak during the morning and evening rush hours, but are concentrated late at night (11:00 to 12:00 p.m.) and in the early morning. A 2:00 a.m. peak coincides with the closing time for most taverns and bars. At these times, local bus routes are no longer operating. The few people who are about then must walk or take a cab. In these late-night and early-morning hours, neither community policing nor resident patrols are active. The ability of some potential targets to resist and the likelihood that their victimization will be observed are both low.

Space and time are independent, additive contributors to the risk of street robbery. The distribution of incidents over 24 hours was only slightly related to the distance from an elevated station (figures not shown). Twenty-five percent of street robberies within two blocks of an elevated station occurred between midnight and 4:00 a.m. This figure corresponds closely to the percentages of incidents occurring at other locations: 24% of those two to four blocks away and 21% at a greater distance occurred during that period.

**Figure 4: Northeast Side (District 24 Only)
Street Robberies 1993-1994: Number at a
Location and Hot Spot Areas**



**Figure 5: Northeast Side (Districts 20 and 24):
Time of Occurrence of Street Robbery by Number
of Incidents 1993-1994**



DISTRICTS 11 and 15 (THE WEST SIDE): RAPID TRANSIT STATIONS ARE NOT THE ONLY RISKY PLACES

Observation of the clear relationship between proximity to a rapid transit station and level of street robbery suggested replication of the analysis in an area with a greater number of street robberies. As seen in Figure 1, a hot-spot area of street robbery encompasses almost all of Districts 11 and 15.⁷ During 1993 and 1994, 7,887 street robberies occurred at 5,686 places in these districts.

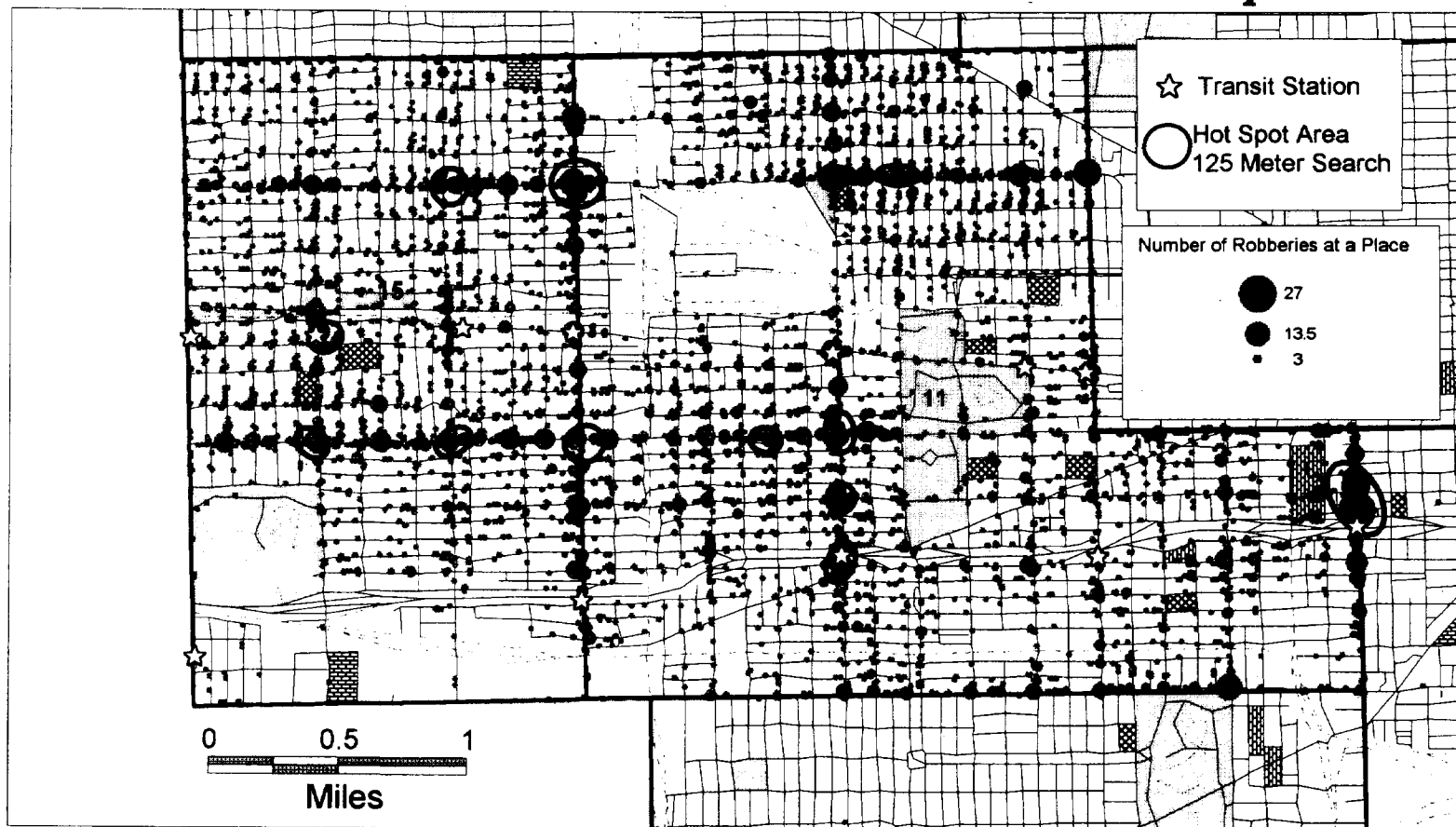
Only one of the two rapid transit lines in this area was in use during the entire two-year time period. However, it is clear that the pattern of street robbery is very different from that on the Northeast Side (Figure 6). As in Figure 3, circles represent the location of occurrence of a street robbery. Larger circles represent places with multiple occurrences. However, on the Northeast Side, the largest circle represents seven occurrences. On the West Side, the largest circle represents 27 incidents at the same address. West Side street robbery is dispersed throughout the area. Only industrial areas and railway yards are free of street robberies. A resident of these communities should be realistically concerned with predatory crime on any residential or commercial block in the area.

Two of the five rapid transit stations on the Congress line are associated with hot-spot areas. The most easterly hot spot contains a single address near the station, with 27 reported incidents. One block to the east of this station is a high school the proximity of which may result in a high risk nearby (Levine and Wachs, 1986). However, street robberies are also frequent along major streets and especially at the intersection of two major streets. During 1993 and 1994, 803 reported street robberies occurred along 1.9 miles of street—from Garfield Park to Cicero on Madison and from Lake to 5th Avenue on Pulaski. Of the 13 hot-spot areas detected, 5 were along these two intersecting street segments.

In the West Side districts, 1,179 street robberies occurred in 1993 and 1994 in the 0.53 square kilometers of the hot-spot areas (2,224 per square kilometer or 5,761 per square mile) compared to 6,708 incidents (265 per square kilometer or 694 per square mile) outside any hot-spot area. In the densest hot-spot area, at the intersection of Pulaski and Madison Streets, 5,206 robberies occurred per square kilometer (13,483 per square mile) over the two study years. Overall 14.9% of the street robberies occurred in 3.8% of the area, and the density of incidents was 8.4 times as high in the hot-spot areas as outside them.

In Districts 11 and 15 of the West Side, the environs of some rapid transit stations were very dangerous, but the risk of street robbery was

**Figure 6: West Side (Districts 11 and 15)
Street Robberies 1993-1994: Number at a Location and Hot Spot Areas**



much more diffused than in northeasterly districts. In these West Side districts, intensity of risk of street robbery varied by intensity of use of street. On the West Side, major streets occur at one-mile intervals. Each major street was a focus for street robbery. Secondary streets also occur at one-mile intervals (one-half mile from a primary street). These secondary streets were secondary foci of street robbery. All other streets are tertiary, and are mostly residential. These streets had a lesser, but still high, risk of street robbery.

Similarly, street robbery was much more evenly spread over the day than in the northeasterly districts (Figure 7). In Districts 11 and 15 of the West Side, the number of street robberies increased earlier in the day than in the northeastern districts and basically remained at a stable peak from 3:00 p.m. to 11:00 p.m., declining steeply thereafter. With a general lack of amenities, including bars and taverns, peaks of street robbery did not occur at the closing hours for liquor licensees (2:00 and 4:00 a.m.) as they did in Districts 20 and 24 of the Northeast Side.

In contrast to the northeasterly districts, the problem of predatory street crime was more dispersed over the entire community on the West Side. A resident of District 20 or 24 on the Northeast Side can hope to reduce robbery risk by avoiding certain clearly demarcated times and areas. While the main shopping streets are especially dangerous, a resident of District 11 or 15 on the West Side must be constantly vigilant at most times and on every block, including his or her resident block.

DISCUSSION

In his discussion of the intensity of use of place, which was based upon research conducted in Oakland, CA, Angel (1968) closely predicted the relationship between distance from a rapid transit station and number of street robberies. Street robberies on Chicago's Northeast Side did not peak immediately outside rapid transit stations because too many people might have observed the incident. However, of the 1,793 street robberies occurring in Districts 20 and 24 (the Northeast Side) in 1993 and 1994, 39% occurred within 1,000 feet of a rapid transit station. In these districts, the number of street robberies peaked a short distance away from the station, where enough potential targets would still have been on the street but guardianship would have declined. Similarly, the volume of robbery did not peak during the morning and evening rush hours when police patrol and patronage would have been the greatest. The volume of robberies was greatest during periods when fewer, and perhaps less coherent, targets and observers were likely to have been present. On Chicago's Northeast

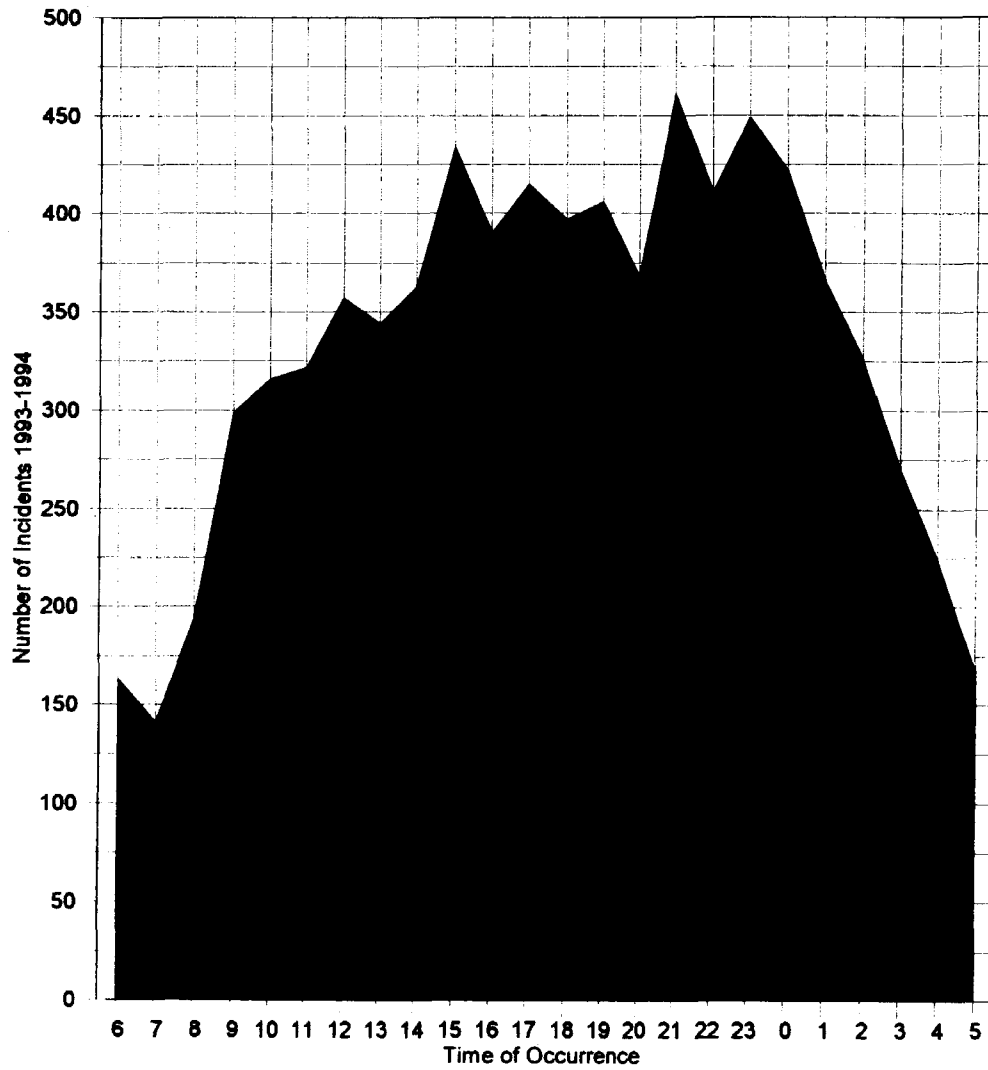
Side, distance from a rapid transit station was a surrogate measure of the combined effects of the number of potential targets and guardians. The number of robberies peaked where the density of targets would still have been high but civilian and police surveillance would have declined.

In these two districts, the area around rapid transit stations is likely to attract two pools of offenders, those who live in the neighborhood and those who travel to it. As observed by several geographers (Piano, 1991; Rhodes and Conly, 1991; Rengert and Wasilchick, 1985), the criminal's mental map has a distance-decay function. The further from home, the less detailed the map becomes and the less likely it is that the criminal will commit a crime. The low-rent housing that surrounds many of these stations may be attractive to street criminals; however, the rapid transit line may also widen the mental map of young street criminals from other neighborhoods who are looking for attractive targets in communities with more affluent residents (Pyle, 1974).

Residential rapid transit stations not only attract many potential targets and offenders to public and semi-public spaces, but they also attract the legal and illegal businesses that serve them. Near these stations are bars, convenience stores, laundromats and currency exchanges. All these businesses are open late and have mostly cash transactions. Some, especially laundromats, have little supervision. Several stations appear to have drug dealing areas nearby. (The second author had to break off his observation of one area when a drug dealer's lookouts became suspicious). In the Northeast Side, the areas surrounding rapid transit stations are convenient and relatively safe for both buyers and sellers of illegal drugs. These legitimate and illegal businesses may themselves be attractors and creators of additional risk, and may shelter potential offenders.

In contrast, in Districts 11 and 15 on the West Side, street robberies were more scattered, with concentrations along major streets and their intersections. Of the 7,887 street robberies occurring in the two districts, 17% took place within 1,000 feet of a rapid transit station (compared to 39% in the northeastern districts studied). On the West Side, intensity of street use rather than distance from a transit station appeared to determine the number of targets and observers. Areas with many street robberies were linear, along main streets, rather than focused around rapid transit stations. However, even these main streets may not be used intensively. A shopper on these streets or a resident of these communities was at risk of street crime on nearly every block. The demarcation of intensively and non-intensively used places was not as clear here as on the Northeast Side. The environs of two rapid transit stations were dangerous, but their danger was only part of a milieu of risky places.

**Figure 7: West Side (Districts 11 and 15):
Time of Occurrence of Street Robbery by Number of
Incidents for 1993-1994**



TIME AND SPACE: THE POTENTIAL FOR CRIME REDUCTION

Along with the concerns of the residents of Districts 20 and 24 in Chicago's Northeast Side and the obvious pattern of crime that centered on the rapid transit stations in these communities, this research was inspired by earlier studies of bus stops in Oakland and Los Angeles, CA [Wilson, 1973; Levine and Wachs, 1986]. However, this is not just research on a big city problem. Where the pattern found on the Northeast Side is replicated for other stations and cities or for bus and trolley stops, suggestions for problem-oriented policing are plain. The areas in which robbery was concentrated are small and well-demarcated. For such districts, effective street robbery reduction must focus at and near transit stations, and cannot close down late at night. Citizen and police patrols and community policing strategies that end with the evening rush hour cannot affect the late hours when risk is highest.

If the areas around rapid transit stations present a unique convergence of opportunities for street crime, then increased surveillance or guardianship by the community and police may decrease the overall level of violence. Elimination of late-night train service and the substitution of some form of personal transit that delivers riders closer to home may also be a possible crime-reduction strategy. The advantages and disadvantages of allowing patrons to flag a bus or request a mid-block stop rather than waiting or walking from a fixed stop should be assessed. The small savings generated by eliminating late-night ticket takers should be carefully weighed against the risks created.⁸

The implications of this research for crime problem solving in the West Side districts are not nearly so clear. The pattern of street robbery was much more dispersed. Concentrating on those intersections where risk was greatest might only result in a move to other major or secondary intersections or residential streets. Reducing risk by increasing personal public transit might be of some use, but the problem of predatory street crime is all-pervasive.

The two patterns of street robbery identified in this research graphically illustrate bases both for opposition and support for problem-oriented policing. In Districts 20 and 24, 370 street robberies occurred per 100,000 inhabitants per year in 1993-94. Proponents of problem-oriented policing could correctly argue that the general level of street robbery in these districts might be reduced by concentrating surveillance in the area surrounding rapid transit stations. In contrast, in Districts 11 and 15,

2,428 street robberies occurred per 100,000 inhabitants per year in 1993-94. Opponents of problem-oriented policing might argue that in these districts, where the risk of predatory violence is high and widely dispersed, the root causes of crime rather than their symptoms must be attacked. Poverty and lack of jobs, racism, deteriorating housing and family collapse must be ameliorated before predatory street crime can be reduced. These are not problems that can be solved by the police or community alone. Where poverty is widespread and predatory street crime occurs anywhere, problem-oriented policing may be of little use in crime reduction.



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NOTES

1. Manhattan distance, along the street grid system, is approximated by calculating the sum of the change in longitude and latitude from the transit station to the location of occurrence.
2. The concentration of street robberies in the southwest corner of the map is probably due to the close proximity to another rapid transit station, just beyond District 20's boundary, that is on another transit line.
3. Population-based rates were not calculated, because the population living a short distance from a rapid transit station is not related to the number of patrons. Unfortunately, the Transit Authority maintains only very rough estimates of patronage.
4. The Transit Authority measures daytime traffic volume for only one work week a year. The number of late-night riders is unknown.
5. In Chicago, currency exchanges offer banking and ancillary services for people without a checking account. They cash checks, write money orders and issue licenses. They are open around the clock or have late-night hours. Only a few offer foreign currency exchange services.

6. The elliptical shape demonstrates the problem of analyzing crime patterns along a jurisdictional boundary. Crimes occurring northwest of the station are committed outside the Chicago city limits and not reported for this analysis.
7. There were 43,000 street robberies in Chicago in 1993-94. Because STAC analysis is limited to 16,000 points, a random sample of one-third of the incidents was used to calculate the hot-spot areas.
8. As we completed editing this chapter, another late-night patron was killed by robbers at an unattended station.

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