
DEFINING THE "HOT SPOTS OF CRIME": OPERATIONALIZING THEORETICAL CONCEPTS FOR FIELD RESEARCH

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Abstract: *This paper addresses the difficulties of transforming theoretical definitions of place into operational terms, where the rigid boundaries of place in the abstract conflict with the more fluid social definitions of place. The process of operationalizing computer-constructed hot spots for the 1988-89 Minneapolis Hot Spots of Crime Experiment (Sherman and Weisburd, 1995) provides examples of the mutual effects between experimental design requirements and practical concerns of both field research and operational policy.*

The Hot Spots of Crime Experiment (hereafter referred to as Hot Spots) suggests that there are at least three different points of decision at which abstract concepts of space ("location," "place," or slightly larger aggregates like hot spots) must be negotiated in operational terms: (1) in the nature of the *human techniques and practices* that assign activities to particular addresses in official records; (2) in the attribution of *public space* (which has no "address") to *private property* (which has, or is, an address); and (3) in the conflict over *the nature of boundaries*, which are distinct and

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discrete in computerized representations but invisible and fluid under conditions of field operations and observations. Of the three, the first is relatively minor and manageable once the patterns are recognized; it is the latter two that pose the greatest difficulty for research. This paper identifies the issues, as well as the debates and their resolutions, that bore on the manner in which the hot spots were ultimately defined and selected.

INTRODUCTION

A researcher practitioner split is widely lamented in conversation but barely acknowledged in the criminological literature. The theoretical questions that motivate researchers are of little practical value to those engaged in the day-to-day response to criminal and disorderly behavior, particularly street cops. Aggregate data are required to answer the sociological questions that dominate the criminological portion of criminal justice research, but the data (and even the questions addressed to them) are so attenuated from the legal, social and personal realities of street encounters that they have little bearing on policy—and almost none on practice. Even viewed in their most positive light, these data produce few insights or innovations useful for the patrol officers who must intervene in and resolve individual events.

That "cops are concrete thinkers; they want to be told what to *do*" is a constant management problem recognized by police supervisors from the rank of chief down to that of sergeant. The processes of transforming written policy into onstreet practice are difficult in any police agency, and they are enormously compounded when trying to operationalize the requirements of a social science field experiment in which the agency is participating.

The Hot Spots of Crime Experiment provides one case study in which both dilemmas are present. It was devised to answer a broad sociological question: Does the presence of formal guardianship (represented by the police) deter offending and disorderly behavior? The research was dominated by the demands of experimental design that superseded many (though not all) operational considerations, and by the command-and-control methods required to implement the experimental design, which required concessions that may have diluted program effects.¹ Hot Spots, which would limit the patrol officers' traditional control over their daily

work activities, presented a special set of challenges in transforming theoretical concepts into operational terms.

THE HOT SPOTS EXPERIMENT

On December 1, 1988, patrol officers of the Minneapolis (MN) Police Department began a yearlong experiment testing the effect of police presence on crime. Unlike the Kansas City Preventive Patrol Experiment's attempt to create "omnipresence" (Kelling et al., 1974), the Minneapolis experiment focused the police presence in small, tightly defined geographical areas, or "hot spots" of crime. Hot Spots was an experiment that tested the deterrent power of police presence. Its underlying premise was that the Kansas City experiment squandered the availability of police presence by distributing it sporadically throughout large areas where no crime occurred (and thus where none could be deterred). Hot Spots would correct that flaw by identifying the smaller places where crime was concentrated, and focusing police presence there. The experimental design also made corrections for several other shortcomings of the Kansas City study, such as a lack of statistical power and the inability to document true differences in police presence among the beats (Sherman and Weisburd, 1995).²

The Hot Spots experiment hypothesized that an increase in the degree of formal public guardianship that was consistent over time—represented by the visible presence of a police officer or officers, without regard to their specific activities—would be sufficient to change the ecological profile of a given place in a positive fashion, reducing the incidence of crime and disorder. This paper examines the Hot-Spot experiment's conceptualization and operationalization of the unit of analysis, the "place."

MAPPING THE HOT SPOTS

Drawing upon a distinction between predatory street crime and mere public disorder—"hard" and "soft" crime, respectively—first articulated by Reiss (1985), Sherman and Weisburd describe the process of creating a "hot spot" thus:

We defined hot spots operationally as small clusters of addresses with frequent 'hard' crime call activity, which also had substantial 'soft' crime calls for service... We then limited the boundaries of each spot conceptually as being easily visible from an epicenter...

...A computer mapping program, MAPINFO, was then employed to locate most of the addresses, so that visual inspection of the computer

printouts for each map grid could identify what appeared to be visually connected clusters of these addresses...

All 420 clusters with 20 or more total hard crime calls were inspected by field staff. The inspections had three principle goals. One goal was to reconfigure the boundaries suggested by the computer map, in order to be more consistent with the visual contact definition. The second was to determine whether the type of premises at each address was eligible. In order to limit the sample to places where crime occurred in public and could reasonably be deterred by police presence, we decided to exclude all residential and most commercial buildings over 4 stories (including two hotels), almost all parking garages, department stores and indoor malls, public schools, office buildings, and residential social service institutions (such as homeless shelters). Parks were also excluded because they have their own police. Finally, a few "magnet phone" locations, at which events occurring elsewhere are routinely reported, were excluded.³

The third goal was to determine the visual proximity between the clusters, and the possible contamination of each site by patrol car presence in the next closest site...The general principles of their reconfigurations were these:

1. No hot spot is more than one standard linear street block.
2. No hot spot extends for more than half a block from either side of an intersection.
3. No hot spot is within one standard linear block of another hot spot.

The field inspections were also essential for correcting the errors of the computer mapping program in locating the street addresses in relation to each other (Sherman and Weisburd, 1988).

These principles were supplemented by a short series of operational refinements directed toward field workers:

When you check the hot spots, please look for:

- 1) visual contact (i.e., addresses that should be added or subtracted); and,
- 2) likelihood that most activity will not be deterred by police patrol (i.e., most crime occurs indoors—and does not depend on access).

Hot Spot Rules:

- 1) All addresses should be visible from one central point.

- 2) If you have an intersection you may go 1 /2 an average block in both directions. Otherwise a hot spot should not be more than a linear block.
- 3) You may include two intersections in a hot spot only if you do not go down other streets from the intersection (Sherman and Weisburd, 1988).

These rules were the bare bones of the field inspections, which raised a number of questions unanticipated when the original definitions for hot spots were devised.

THE PROCESS

A research database was constructed from an archive database of Minneapolis 911 calls maintained by the Crime Control Institute, and each eligible record was coded as hard or soft crime. From the smaller, crime-only database, the MapInfo software package produced clusters of addresses defined as hot-spot candidates based on the number of hard crime calls. From 420 potential sites, 110 hot spots were selected and randomly divided into two treatments groups: 55 police presence sites and 55 control sites.

Each of the final 110 sites had to be mapped for the benefit of the police officers covering the patrol hot spots, and for the observers who would be recording the police presence in all of the sites. Where the MapInfo maps plotted only addresses contributing hard crimes, the operational maps were more detailed, containing building "footprints," text descriptions of each property, and identification of the major call-generating addresses (to focus the observers' attention on critical areas). These "footprint maps" would define for both groups of participants the boundaries of each hot spot, with corresponding implications for dosage measurement. Creating the maps in essence saying "this address is part of the hot spot, this one is not"—brought into sharp focus several issues that had been raised but not resolved during the selection phase.

ISSUES OF DEFINITION

Transforming hot spots from statistical constructs to two- and three-dimensional spatial entities introduces several new considerations. Calls archived in the 911 database are attributed primarily to single addresses clearly defined by property lines: the database had no capacity to define public space other than intersections.⁴ Permanent and temporary obstructions interfere with visual and sometimes aural perception of activity. The nature of what constitutes "one block" varies, occasionally creating

issues of artificial censoring of logical areas. Human variation in perceptions, definitions and behaviors (particularly the ways in which they mobilize the police) have wide-ranging influence in defining logical hot spots (those reflecting human activity patterns rather than statistically compiled reporting patterns).

1. The Issue of Public Space

Most hot spots contain a fairly well-defined "public space," consisting of front yards, sidewalks and the street. However, the majority of residential blocks in Minneapolis are split down the middle by an alleyway, which provides access to rear entrances and parking areas, including garages. Sherman and Weisburd's definition "failed to solve the problem of crimes occurring at rear entrances to addresses listed in the data," but that problem also afflicts the "nighttime sight and sound" definition (1988:14).

For all but the most arcane constructions, though, no more than two sides of a building can be seen from any given position on the street or alleyway. In multiple-building configurations, each building obscures part of an observer's view of the next building in most perspectives. There are other semipermanent visual obstructions: trees, shrubs, fences and parked vehicles of varying sizes create an everchanging visual screen that obscures parts of the hot spot. Defining perimeter boundaries had to be done within those limitations, concentrating on the public areas of the streets and fronts of the buildings as the most frequent and logical areas of interaction, and thus of observation. The standard hot spot configuration was that of the linear block, with the "plus-sign" shape of a four-way intersection constituting a strong secondary category.

Except for a handful of idiosyncratic areas (around lakes, the Mississippi River or freeway interchanges), Minneapolis is laid out in a grid pattern. In most residential neighborhoods, the blocks are rectangular: the east-west block sides ("top" and "bottom") are half the length of the north-south block sides. In this context, a hot spot could extend outward along the eastwest axis to include all of the block top (or bottom) to the next intersection in both directions, and contain the same physical dimensions as the "half a block" length pertinent to the longer north-south sides. In some cases, strict adherence to the rule conflicted with a logical sense of the spot under consideration. In most instances, such conflicts were resolved by constructing the boundaries to conform with the social sense of the place under consideration, regardless of what might be permitted under the rules (in some cases, constriction was necessary to

preserve the remainder of the hot spot from visual contamination by another nearby site).

The first operational question is what buildings (addresses) constitute a hot spot. The two primary alternatives are to include: (1) just the buildings contributing calls to the analysis database, or (2) both contributing addresses and any noncontributing ones between them. A collateral question is whether to incorporate the noncontributing addresses on the opposite side of the street, in those sites where the contributing addresses are all on one side.⁵

If the hot spot is to be limited to one side of the street, there is a secondary issue of how to treat "street curtilage"—the large open area in front of the property lines where the police will actually be parked.⁶ Though a fight in the middle of the street in front of a contributing addresses might not be considered "in" a one-sided hot spot,⁷ there are strong logical arguments for including it in the experiment.⁷

Beyond those considerations lies a more important one: where the crimes are being committed. If call activity reflects events occurring in the public space, the "night-time sight and sound" rationale suggests that the deleterious effects of the activity is felt throughout the area, and reporting patterns are largely a matter of happenstance. This argues for a more inclusive hot spot definition. But if the reported criminal activity is primarily occurring inside private space, behind closed doors, there would be no need to include anything more than the handful of addresses that define the statistical hot spots.

That question was keenest in the candidate sites that were primarily residential. Assault calls were coded as hard crime, and "hard crime" was essentially stranger-to-stranger predatory crime, according to Sherman and Weisburd's (1988) definition. However, independent observations indicated that anywhere from one-quarter to two-thirds of the assault calls in a given day were for domestic disputes between familiars and intimates, primarily inside their abode. Domestic calls were coded as soft crime, so the issue had implications for the process of hot-spot definition through artificial inflation of the hard crime numbers in certain residential areas.⁸

In Minneapolis, a preliminary examination of the call data to resolve the inside/outside issue was ruled out as too time consuming and expensive. Discussions of the problem brought out the point that the "common sense" view of policing—that police can deter activity only in the public spaces, and cannot affect what goes on inside—has no particular empirical basis, and should be open to testing. Accordingly, all Hot Spots decisions contained an assumption that the perpetrators of the crime would either be active within the public spaces or pass through them before committing crimes inside buildings. Even if the crime was domestic

in nature (as in spousal assault), or occurred within the confines of buildings that housed both predator and victim (as certain burglaries were), the offender had to leave the building at intervals and would be sensitive to the activity of the neighborhood to some degree.

This "boundaries" question also carried a practical concern, one which helped to resolve the Minneapolis dilemma: police patrol had to be conducted somewhere within the public area. Officers had to walk within view of the buildings, and almost certainly would park their squad cars in locations where they would likely be seen from all sides. While statistical compilations could be limited to individual addresses, the dosage effect would be generalized to all buildings within the sight-and-sound definition. Those addresses would also reap the benefits of any deterrent effects of increased police presence, on the assumption that they were also at risk of victimization by dint of their proximity to the generating addresses.

Moreover, to conclude otherwise led in the direction of hairsplitting that could have been fatal to the operational side of the experiment. To be "in" their hot spot, officers had to be parked on the side of the street where the contributing-address buildings were, but they would be "out" of the hot spot if they parked across the street, equally in view but 20 feet farther away. That violated common sense—particularly as the police would define that commodity—and had the potential to alienate the majority of the patrol force from the experiment. It also artificially censored the deterrent effect the police presence might have on new arrivals in the noncontributing addresses. As a result, hot spots were deemed to include both sides of the street(s), and all buildings leading to, or across from, the last contributing address in each direction.⁹

The Sherman and Weisburd (1995) definition that "the boundaries [will be] easily visible from an epicenter" gives the impression that the hot spot surrounds the observer, and a fast twirl will reveal all of it (or at least the front of all of it). However, the statistical hot spots tended in many instances to be lopsided, with all the defining addresses on one side of a block (partially a product of the MapInfo technology, but equally a function of land use and call distribution). In a few instances, the hot spot "turned the corner," with contributing addresses on only one side of the second blockface. In such cases, the only point from which an observer could see the front doors of all the buildings was from a vantage point on the far corner of an intersection. If the intersection was not itself a contributing address, a case could have been made that one could only see all the addresses of that hot spot from outside the hot spot.

Had the field staff used common understanding of "epicenter" (borrowed from seismology), many around-the-corner addresses would have been dropped, limiting the configurations to intersections and linear block

faces only. An alternative method of correction, deleting around-the-corner portions of the original maps, posed several difficulties and was not seriously entertained. It would have been too time consuming; it potentially might erode the "hard-crime" selection threshold and require costly after-the-fact adjustments; and in some sites where corner buildings were missing, even around-the-corner addresses were visible from an epicenter. Of necessity, the "epicenter" was redefined in terms of the rule that "all addresses should be visible from one central point."

Frequently, that "one central point" was the middle of an intersection. That fact, in turn, raised an issue of whether the primary focus was that the police could *see* all parts of the hot spot (in which case almost all addresses that were "around the corner" would have to be eliminated) or could *be seen* from points in the hot spot (which raised a similar issue, with slightly different emphasis on line-of-sight from inside buildings). The question was rendered moot by the subsequent adoption of a flexible definition in which both the police and the observers were presumed to be mobile within the hot spot, insuring both surveillance and visibility to others throughout the site.

2. Intersections

Intersections created a novel problem for the mapping process. Unlike building addresses, with definite space and fixed curtilage, the operational definition of intersections, as reflected in the activity attributed to them, was fairly elastic. Although many calls for police service are attributed to intersections, relatively little criminal activity takes place in the intersecting roadways, and for good reason: the routine passage of motor vehicles makes the roadways fairly dangerous for victims and perpetrators alike. Instead, assaults, purse-snatchings, and other crimes take place on the sidewalks, in front of and alongside buildings.

The public space associated with "building" and "intersection" thus overlaps, and the boundaries of the intersection tend to creep beyond the curbs of the streets. Bus stops (notorious locations for strong-armed robberies because the victims are stationary, and frequently preoccupied or distracted) are usually set back from the corner, at least by the width of a crosswalk and stop line, and frequently more so. Persons who are accosted or assaulted on the sidewalks tend to give an intersection as their location when they call from nearby pay phones, and intersections function as a place to meet the police.

The human variations of the CAD system input also demonstrated the imprecise definition of "intersection." Observational research on calls in progress¹⁰ and anecdotal evidence from officers indicated a strong possi-

bility that activity that occurred in public spaces might be attributed to a nearby building.¹¹ If the incident was witnessed by an unaffected third person in a building and reported from a phone there, the call could very well be attributed to that address rather than to the intersection.¹² Whenever an intersection was included in, or acted as the epicenter of, a four-directional hot spot, this public space fell within the hot-spot boundaries and the question was moot. But when hot spots "turned the corner" of two intersecting blocks, several operational questions resulted: whether or not the intersection was in such a hot spot; whether it included all four corner buildings, which each have a view of the open space that comprises both the technical and the elastic, common-sense intersection; or whether it included just the "pivot building" on the corner where the hot spot "turned."

The same rationale that extended the hot spot to the addresses on the opposite side of the street resolved these questions. The police presence would have an influence through all the public space, to and perhaps into the nearby buildings. Some of this ripple effect was sacrificed beyond the perimeter boundaries, but it did not make sense to drop it altogether in those locations where it would be the strongest. The argument for the "at risk" locations also applied to the buildings on the far side of a hot spot's arc as it "turned the corner."

Here, too, was a practical consideration very similar to the "hairsplitting" discussion of the public space issue. The best observation spots for linear-block and right-angle hot spots were frequently at the intersections, giving the police the most complete view of the public spaces of both blocks. The nature of perspective and necessity (particularly in hot spots where one-way streets restricted the available parking options) often placed those observation spots on the outside of the arc, on the far corner that ordinarily would have been disqualified as "outside the hot spot." The police would be *at* the intersection but not in it, parked a short distance back alongside one of the corner buildings. It made little sense to antagonize the police by handing them counterintuitive instructions, or to limit their effectiveness by restricting their vision. Accordingly, all four corners of an intersection were included in the map definition of the intersection.

A different question was posed when the hot spot's configuration was a full linear block with an intersection at each end. The instructions—"You may include two intersections in a hot spot only if you do not go down other streets from the intersection"—did not provide guidance as to whether including the corner buildings as a *de facto* part of "the intersection" would violate the rule. The dilemma was one of potentially forfeiting some of the calls reporting activity in the intersection, or creating a structural violation of the rules. But all of the rationale applied to other

intersection questions applied to this as well. By including the corner buildings, the full potential for capturing intersection activity was retained, and a common definition of "intersection" employed throughout the universe of hot spots.

3. Variants: Where "One Linear Block" Did Not Apply

Some of the hot spots incorporated large, sprawling parking lots whose area approached or exceeded the "one linear block" yardstick. These potential hot spots added another element that had not been anticipated in the original formulation of the rules: the expanse of open areas. What distinguished them from the public space contained by the two sides of a standard blockface was their greater width. Though the territory covered by these locations was immense compared to the more compact hot spots, the fields of vision within them were wide and clear. These sites, too, had partial obstructions to vision, but a great deal of public space could be scanned from any single point on the perimeter or within the hot spot.

Five hot spots fit this category. Some exceeded the one linear block rule, if the interior of some larger buildings was considered as part of the hot spot. In one patrol hot spot, the front door of a large grocery store with a street address on 26th Avenue actually sat on the east side of what would be 27th Avenue. The building extended eastward to 28th Avenue, encompassing the whole of an entire city block. The store's parking lot encompassed another full block between 27th and 26th Avenues to the west,¹³ and the hot spot's outdoor "visible space" was primarily that of the parking lot. Though its two-block property was clearly larger than the block-length definition (which did not apply to it because of the idiosyncratic configuration), it and three similar control sites fell easily within the original "nighttime sight and sound" definition propounded by Sherman and Weisburd (1988) by virtue of the large open spaces.

One hot spot extended across two short blocks because its primary central space was open. In this case, the definition sprang largely from well-documented knowledge of the social definition of the space. The area had been the scene of gang activity (contesting a small retaining wall between a fast-food restaurant on one block and a strip mall's parking lot on the adjacent one). It was also a hangout for local drunks who panhandled money from customers, then bought and shared alcohol from a liquor

store in the shopping mall. Because the street and crime traffic between the two was so closely related, this was deemed to be a single "spot."

OPERATIONAL CONSIDERATIONS

When the Hot Spots Experiment was devised, Sherman and Weisburd (1995) envisioned a constant parade of squad cars entering areas, staying for a few minutes, then leaving for a few minutes and returning. This pattern, which simulates the intermittent police crackdown model (Sherman, 1990), was urged in order to increase the uncertainty about apprehension for potential offenders, and to stretch the police presence out throughout the day. However, low initial totals of police presence were recorded by the observers and noted on police logs. To ensure a proper level of police presence, through their lieutenants and sergeants the precinct commanders began assigning responsibility for specific hot spots to specific cars. In practical terms, assigning cars to specific hot spots meant that a hot spot received one or two "lump-sum" doses of police presence. If possible, a squad would "sit" on the hot spot for the full hour and a half that it was responsible for, then leave.¹⁴

Operational concessions had to be made to the Minneapolis Emergency Communications Center (MECC), an independent city agency not staffed by or under the control of the police department. Since MECC personnel were rated on the quickness with which they dispatched calls, they looked upon every car on the air as "theirs," and complained when squads tried to take themselves off the 911 dispatch queue in order to "get their time in" on a hot spot. The city budget officer intervened to try to force an additional concession, hinting broadly that the experiment might have to be terminated. His objection was answered, but it placed further strain on the police department's ability to establish a steady presence in the hot spots.

One concession was made to the officers themselves, as the request came from some who were doing their best to maintain the sort of police presence that the principal investigators had first envisioned for hot spots. Several officers were in the habit of taking control of their hot spots during their time there, aggressively patrolling on foot, and going up and down the alleyways. Going the length of the block to circle around took them out of the hot spot, and they wanted to know if they would "get credit for" hot spot patrol for the few minutes they were outside the boundaries completing an alley-back-to-the-street circuit. The answer was a rule of thumb that allowed them to walk no more than half a block outside the

hot spot on foot patrol, if the squad car was parked inside the hot spot as a visible reminder of their proximity.

THE "IF I WERE A MUGGER" RULE

The observers brought up a question not anticipated in formulating the original set of rules: how to code a patrol car parked just outside the boundary of the hot spot, clearly in sight but not technically "in" the hot spot. This situation could occur when officers answered a call at an address just outside the hot spot, or when a shortage of parking spaces required an assigned car to park just outside the boundaries but in such a way that allowed an officer to observe most of the activity in the public space of the hot spot.

For the observers, this question was a functional equivalent of the "public space" issue that had been raised as part of the definition process. If "presence" was established by visual recognition, and/or an ability to hear disorderly proceedings nearby, then for all practical purposes a car (or an officer) just outside the boundary exerted a "presence" every bit as real as that of an officer ten feet away but inside the boundary.

The answer was the "if I were a mugger" rule. Observers were told to ask themselves, "If I were a mugger, would I be deterred from mugging someone here and now because of the presence of the police at that particular location?" If the answer to the question was yes, the observers were to record the officers "present" in the hot spot even if they were physically outside the boundaries.

The research staff recognized the potential objection that the lawabiding observers' backgrounds might make them more "deterable" than a street tough, but the underlying issue was that of presence rather than actual deterrence. Because defiance was a potential element in the street tough's decision to commit a crime despite visible signs of police presence (Sherman, 1993), the critical in/out decision was to be made on a more general basis. As a practical matter, the observers could not second-guess a street tough's decision-making process; they could only code on the basis of their own perceptions. (A similar issue had been raised concerning the observers' sensitivity to "disorderly behavior," and it had been resolved the same way.) Anecdotal reports from the observers indicated that such "on the boundary" decisions were relatively few.

IMPLICATIONS FOR RESEARCH

The Hot-Spots Experiment suggests that there are at least three different points of decision where abstract concepts of space must be

negotiated in operational terms: (1) in the nature of the *human techniques and practices* that assign activities to particular addresses in official records; (2) in the attribution of *public space* (which has no "address") to *private property* (which has, or is, an address); and (3) in the conflict over *the nature of boundaries*, distinct and discrete in computerized representations but invisible and fluid under field conditions.

Human Practices, Official Records

Maintaining records is subject to human decision making and human error. For instance, a calltaker's practice of entering the address of the caller displayed on the E911 screen could distort the attribution of the problem from the *problem's* location to the *caller's* location.

"Magnet phones" were usually pay phones at convenience stores, gas stations and other locations.¹⁵ Many residents of the low-income neighborhoods (where the large majority of hot spots candidate sites were located) could not afford private phone hookups, and depended upon pay phones. Persons needing the police would go to these public locations, often up to six blocks away, to call 911. Because they waited to meet the police at the phone, the place to which the police were sent to meet the complainant was registered as the address where the phone was located in the "address" line of the dispatch record. Frequently, that address remained as the address of record for the event.

A similar condition of elasticity concerns the intersection as a place, discussed above. As a major landmark more readily identified than a single building on a block, intersections may be used as the "location" of public-space events that are actually farther down a block, and equally applicable to a specific address. But because activities in public space can be mobile, and may not be at the original site upon the arrival of the squad, the intersection acts as a functional "high ground" for the arriving squads. It offers the best possible location for scanning the maximum amount of public space quickly, and a short move forward or back permits observation of the public space of the alleyways.

Public Space and Private Property

In the abstract, the lines between public space and private property are rigid and distinct. In real life, they are not. Behaviors occurring in public space—to which all persons have theoretically equal access—extend into private spaces through the faculties of vision and hearing. Such extensions form the very essence of concepts of "natural surveillance" and

"informal control" (see, e.g., Newman, 1972, 1976), though the directionality goes from private to public in those schemes.

Obstreperous behavior on a public corner may not be a problem for the participants in public space, who engage in it by common consent, by virtue of free assembly. The noise that such conduct produces may be a problem for someone located within private space, who objects to one or more of its features: volume, content (obscenity, etc.), participants' ethnic identity or age, or some combination thereof (unsupervised juveniles being raucous on a school night, for example). Similarly, the noise and/or visual clutter produced by individuals who perform repairs on automobiles parked on a public street (even if it is the mechanic's personal vehicle, and not an unlicensed business operation) become "problems" for other residents who view that behavior as a sign of decline (Skogan, 1990).

In cases of such contested legitimacy, police calls-for-service systems frequently attribute the call to the *address* where the activity is a problem (the caller's address), not the *place* where the activity occurs. That creates potential problems for location-specific projects (like the hypothetical "contributing-addresses-only" configuration that hot spots might have been). However, the difficulties are less severe in inclusive schemes such as the actual hot spots configurations, inclusive of all addresses within the perimeter. There may be spillover activities at the boundaries, but the major contributing activity takes place within the hot spot.

"Presence": The Nature of Boundaries

The preceding discussion focuses primarily on the locations at which criminal or disorderly activity occurs, and in which it can be observed by a police officer. The original theoretical definitions of hot spots—all addresses within nighttime sight and sound of each other—center on the patrolling officer and what he or she could observe while on hot-spots patrol. Yet the concept of "police presence" depends more upon the ability of the residents of, and visitors to, the area to perceive the officer.

The hot-spots discussions among field staff, and between field staff and the principal investigators, never addressed directly the abstract concept of "presence." In retrospect, a tacit assumption can be discerned, that a police officer (or a visible symbol, such as a marked patrol car) exerted a uniform level of "presence" or deterrent effect throughout the entire hot spot, regardless of where in the hot spot the officer was. That assumption extended to whether or not the officer moved around within the hot spot on foot patrol, or remained stationary in a parked vehicle.

In the concern over contamination by proximity, however, there is a similarly tacit recognition that the police officer can be observed from

farther distances, with varying degrees of influence over the behavior of potential offenders. The "if I were a mugger" rule acknowledges that distinction in practical if subjective terms. Because quantification is almost impossible, it must be assumed that the additional quantum of police presence included under the mugger rule was balanced by an equivalent amount of disturbance from events taking place outside the hot-spot boundary but visible or audible within the hot spot.

In a like vein, the resolution of the debate over "interior" crime and "public-space" crime contains the tacit acknowledgment that deterrence, at least general deterrence, rests upon reciprocal awareness. Police observation of wrongdoers does not constitute a specific deterrent unless and until the wrongdoer is aware of that surveillance. A potentially weaker specific deterrence results from the offender's awareness of the police when the officers are not aware (or not yet aware) of the offender. Over time, a series of specific deterrence encounters may aggregate into a more general deterrent based upon increased awareness of police presence; indeed, the results of the Hot Spots Experiment suggest strongly that such a generalization occurs (Sherman and Weisburd, 1995).

It is tempting to visualize the situation in terms of a fixed square and a moving circle. A hot spot is the fixed square, with firm, clearly delineated, semipermeable boundaries. The moving circle is the "zone of influence" surrounding the figure of the police officer, emanating from his or her person in concentric rings of diminishing force (the closest analogy is that of the "aura"). As he or she moves up and down within the hot spot, the locus of the most powerful influence (the area closest to him or her) shifts back and forth. The immediate influence may fluctuate slightly, depending upon his or her position and whether or not he or she enters one of the buildings in the hot spot, but the residual influence accumulates over time at a constant rate throughout the hot spot. Experimental boundaries are fixed by the predetermined dimensions of the *physical* place, not by the aspects of the more fluid *social* place.

Near the edges of the hot spot, while the officer is inside the patrolled area, part of his or her influence extends beyond the fixed boundaries. In experimental terms, the hot-spot boundary censors that influence, and examines only that part which affects the space inside the perimeter. While the officer's presence nearby may indeed produce a crime-quelling deterrence in the adjacent public and private space, that influence is of no consequence to the experiment because the physical space anchors the issues of measurement.

From outside, however, the hot-spot boundary is semipermeable: an officer's authority extends across the hot-spot boundary through the auspices of the "if I were a mugger" rule, adding a small quantum of

"presence" from patrol that occurs outside the formal experimental space. It is primarily the immediate presence, the strongest influence, that is admitted to the quantum of "patrol dosage" in this case: the farther the officer is from the hot-spot boundary, the more attenuated is his or her influence over the behavior in the further reaches of the hot spot.

Social space dominates the observations of activity within and around the physical space, and the hot-spots boundaries are similarly permeable from outside in terms of the sights and sounds that constitute soft crime. However, the disorder and crime incidents were a secondary measure: the primary task of the observers was to verify the differential presence in the patrol and control hot spots. The main effects of the experiment hinged on the effects of patrol presence within the hot spots on reported crime and calls for service.

The Hot Spots fieldwork transformed a series of loosely linked points (the individual addresses that generated three or more "hard crime" calls) into a coherent, threedimensional space. In doing so, it arbitrarily established the "place" for research purposes in terms of an understanding more attuned to the social notion of "place" than any of the possible statistical ones. Research and policy demands thus had a reciprocal, though mismatched, influence upon one other.

It would have been possible, for instance, to construct different analyses based on combinations of and compromises on the criteria actually used. Operational maps that included all buildings could have been given to patrol officers and observers (thus avoiding the potential "in/out" difficulties described above), but with a statistical analysis conducted only using the contributing addresses. A hot spot might have been defined as the contributing buildings, or all buildings on one side of the street, plus the public space in front of it (up to the front door of the buildings opposite), but at a cost of censoring calls about public space activity reported from the excluded buildings opposite. As the combination of addresses into hot spots acted as a leaven to some of the wide fluctuation of call totals at individual addresses, the inclusion of all contiguous addresses and their opposites across public space stabilized vagaries in reporting activity.

The Minneapolis Hot Spots of Crime Experiment was based upon a year-long manipulation of police practices. The legacy of similar research efforts in the past suggested that sabotage of the experiment by the officers was a potential hazard (Kelling et al., 1974; Sherman and Berk, 1984), and efforts were made to keep officer objections to a minimum in hopes of avoiding such resistance. Perspectives not found in social science design influenced many of the definitional decisions of the experiment. Future research may assess the differences obtained by using contributing-points

constructs rather than contiguous-space ones, and distinguishing more fully the tradeoffs between the conceptual realities of the map and those of the territory itself.



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NOTES

1. Nevertheless, the outcome of the experiment still showed a consistent, statistically significant reduction of crime and disorder in the patrolled hot spots (Sherman and Weisburd, 1995).
2. Patrol officers were to provide a total of three hours of presence in each patrol hot spot daily—an hour and a half in the late morning and afternoon, and another hour and a half in the evening, up until 3 a.m. The observers followed a randomized observation schedule, observing police and street activity in 100 of the 110 hot spots for 70-minute intervals, primarily during the evening hours. They used one checklist to record the type and duration of police presence, and another to record various elements of crime and disorder.
3. Magnet phones are problematic because they represent human reporting patterns more than crime occurrence patterns: a magnet phone artificially concentrates reports of events that take place over a broad geographical area. Time constraints made it impossible to check on the offense report histories of all suspected magnet phones, but an analysis of calls to half a dozen of those spots thought to be magnets found that over 90% of the hard crime activity had occurred in the hot spot itself. In some cases, even though shoplifting calls (THEFT and THEFTH nature codes) for large supermarkets or retail stores dominated the call totals, hot spot status was

justified by a sufficient number of other hard crime events (such as robberies occurring in the store parking lots).

Only one true "magnet phone" was eliminated: a 7-Eleven convenience store on the south side. It was known to be a magnet phone from information developed during the RECAP experiment. Even when the 7-Eleven's address was dropped from the analysis, however, the activity attributed to other addresses, particularly the intersection, still qualified as a hot spot. The people who congregated in the area caused enough problems while there to put the immediate area high on the list of potential hot spots, even without the call-lines contributed by the 7-Eleven store or its outside public phones (though logically, those phones probably reported some of the activity at the intersection). The intersection became part of the experiment as a patrol hot spot.

4. Public parks have addresses in the database, but they are defined by a single street address assigned to whatever structure—clubhouse or utility shed—sits on the park, regardless of how large the physical area of the park may be. An area may be half a city block or as large (at the extreme end) as a major lake such as Lake Calhoun or Lake Harriet, which cover many acres.

5. This issue was resolved operationally in December, by Weisburd. After riding with some of the field observers, he suggested that observers position themselves in such a way as to focus their attention on the major contributing addresses. Since the intersections were usually large contributors, and fields of vision included the fronts of almost all addresses, all were included by fiat.

6. In legal terms, curtilage refers to the grounds and outbuildings associated with a particular property, within the limits of deeded property. The term "street curtilage" is an invention of necessity for this discussion, by the first author. It extends the notion of curtilage outward, past the deeded boundaries into the contiguous areas of public space where there are informal expectations of association. The most commonly recognized of those expectations is that of the ability of the property owners to use the street immediately in front of their home for parking, for either themselves or their guests.

7. The Minneapolis CAD system required that a street address be entered in order for the CAD to accept the call. Operational practice was address-based and technology-driven. As a rule, all street activity that was not in or around an intersection was attributed to one of the building addresses in the block, usually to the address from which the call reporting the problem originated. Information that the problem might be in the street or

down the block was often conveyed in an "added remarks" field, but no practical means existed to systematically identify such calls.

8. Subsequent negative reactions of patrol supervisors, upon seeing the original lists of hot spots, were based on the intuitive understanding that the call activity in the residential areas was primarily domestic in nature.

9. Even within this definition, however, there were variations and "no man's lands" of excluded-category buildings, though any such properties were clearly marked on the footprint maps given to police officers and observers.

10. Gathered by the principal author while working on a related project.

11. For examples, see the cases histories of the RECAP addresses at 1025 Portland Av S and 700 Hennepin Av S in the RECAP casebook (Buerger, 1992).

12. In doing so, the call-taker provides the responding squads with the origin of the complaint, in case the officers wish to speak with the reporting person. The "outside" location of the call, which frequently includes direction of travel, descriptions, etc., is then given in the "added remarks." Since many of these necessary details would not fit in the address block, and would have to be added in remarks anyway, the call-taker utilizes a certain economy of information-packaging in this way. That, in turn, is necessary in the hectic climate of information-gathering, recording and disseminating when the dispatch center is active.

13. This was one of the spots investigated as a potential magnet phone, developing more detailed information about the nature of the crime calls here. Some of the calls attributed to the address occurred in the block-wide parking lot, but others actually took place inside (purses snatched from grocery carts, money snatched from open cash drawers, etc.).

14. Police officer activity while on a hot spot ranged from an aggressive foot patrol (of a type and quality worthy of the best community policing officers) to an hour and a half spent sitting in the police car, oblivious to activity around them. Anecdotal information supplied by some supervisors late in the experiment suggested that at some busy times, the police "presence" was in fact a "phantom car"—a parked squad with no officer nearby. Overall, however, the police presence was real, if grudging, as the Minneapolis Police responded to a distasteful task with professional commitment. The December foot-dragging was resolved, and there were no attempts to sabotage the project as there had been in Kansas City.

15. Certain apartments—particularly those of resident caretakers—could be magnet phones in apartment buildings, as persons without private phones would go to a friend's apartment or to "the super" to call the police when they were experiencing trouble. However, because those calls reflect activity within the hot spot, masking only a specific location within a building, they were of no concern to the determination of hot spot sites.

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