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Problem-Oriented Guides for Police
Problem-Solving Tools Series
No. 6

Understanding Risky Facilities

by
Ronald V. Clarke and John E. Eck



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About the Problem-Solving Tools Series

The problem-solving tool guides are one of three series of the *Problem-Oriented Guides for Police*. The other two are the problem-specific guides and response guides.

The *Problem-Oriented Guides for Police* summarize knowledge about how police can reduce the harm caused by specific crime and disorder problems. They are guides to preventing problems and improving overall incident response, not to investigating offenses or handling specific incidents. The guides are written for police—of whatever rank or assignment—who must address the specific problems the guides cover. The guides will be most useful to officers who:

- understand basic problem-oriented policing principles and methods
- can look at problems in depth
- are willing to consider new ways of doing police business
- understand the value and the limits of research knowledge
- are willing to work with other community agencies to find effective solutions to problems.

The tool guides summarize knowledge about information gathering and analysis techniques that might assist police at any of the four main stages of a problem-oriented project: scanning, analysis, response, and assessment. Each guide:

- describes the kind of information produced by each technique
- discusses how the information could be useful in problem-solving
- gives examples of previous uses of the technique
- provides practical guidance about adapting the technique to specific problems

- provides templates of data collection instruments (where appropriate)
- suggests how to analyze data gathered by using the technique
- shows how to interpret the information correctly and present it effectively
- warns about any ethical problems in using the technique
- discusses the limitations of the technique when used by police in a problem-oriented project
- provides reference sources of more detailed information about the technique
- indicates when police should seek expert help in using the technique.

Extensive technical and scientific literature covers each technique addressed in the tool guides. The guides aim to provide only enough information about each technique to enable police and others to use it in the course of problem-solving. In most cases, the information gathered during a problem-solving project does not have to withstand rigorous scientific scrutiny. Where police need greater confidence in the data, they might need expert help in using the technique. This can often be found in local university departments of sociology, psychology, and criminal justice.

The information needs for any single project can be quite diverse, and it will often be necessary to use a variety of data collection techniques to meet those needs. Similarly, a variety of analytic techniques may be needed to analyze the data. Police and crime analysts may be unfamiliar with some of the techniques, but the effort invested in learning to use them can make all the difference to the success of a project.

Acknowledgments

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Cynthia E. Pappas oversaw the project for the COPS Office. Research for the guide was conducted at the Criminal Justice Library at Rutgers University under the direction of Phyllis Schultze. Stephen Lynch edited this guide.

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Introduction

In any large city just a handful of bars give the police far more trouble than all the rest put together. The same is true of many other types of establishments, such as schools, convenience stores, and parking lots. In each case, just a few produce far more crime, disorder, and calls for police assistance than the rest of the group combined. This phenomenon—called "risky facilities"—has important implications for many problem-oriented policing projects. In particular, it can help police focus their energies where they are needed most and can help in selecting appropriate preventive measures. This guide serves as an introduction to risky facilities and shows how the concept can aid problem-oriented policing efforts by providing answers to the following key questions.

1. What are risky facilities?
2. How widespread are risky facilities?
3. How is the concept of risky facilities different from hot spots and repeat victimization?
4. How can the concept of risky facilities assist problem-oriented policing projects?
5. How can risk be measured?
6. How is the concentration of risk among facilities calculated?
7. Why do facilities vary in risk?
8. How are risk factors identified for a particular group of facilities?
9. How can risk be reduced?



What are Risky Facilities?

We open with a definition of facilities and provide some examples. We then discuss risky facilities and explain how this concept is related to other crime concentration theories.

Facilities

Facilities are places with specific public or private functions, such as stores, bars, restaurants, mobile home parks, bus stops, apartment buildings, public swimming pools, ATM locations, libraries, hospitals, schools, parking lots, railway stations, marinas, and shopping malls.

Facilities vary greatly in the crimes they experience. Medical facilities, for example, are likely to have different types and levels of crime than do police booking facilities. In addition, there is likely to be a great variation within any broad category of facility. For example, although both are medical facilities, dental offices are likely to have different levels and types of crime than are emergency rooms. Because such distinctions are critical to the success of risky facility analyses, it is important to begin by carefully defining the type of facility that is to be examined; only then proceed to an examination of the type and frequency of crime that the particular type of facility experiences.

Risky Facilities

One important principle of crime prevention holds that crime is highly concentrated among particular people, places, and things; as this principle suggests, focusing resources on these concentrations is likely to yield the greatest preventive benefits. This principle has spawned a number of related concepts that are routinely used by police in problem-solving projects, including:

- repeat offenders (individuals who commit a disproportionate amount of crime)
- hot spots (areas and places where many crimes occur)
- repeat addresses (locations with many crimes—a form of hotspot)
- repeat victims (individuals who suffer a series of crimes in a short time span)
- hot products (items that are stolen more often than other products).

Risky facilities is another recently described theory of crime concentration that holds great promise for problem-oriented policing.[1] The theory postulates that only a small proportion of any specific type of facility will account for the majority of crime and disorder problems experienced or produced by the group of facilities as a whole.

As a rule of thumb, about 20 percent of the total group will account for 80 percent of the problems. This is known as the 80/20 rule: in theory, 20 percent of any particular group of things is responsible for 80 percent of outcomes involving those things.[2] The 80/20 rule is not peculiar to crime and disorder; rather, it is almost a universal law. For example, a small portion of the earth's surface holds the majority of life

on the planet; a small proportion of earthquakes cause most earthquake damage; a small number of people hold most of the earth's wealth; a small proportion of police officers produce the most arrests; and so forth. In practice, of course, the proportion is seldom exactly 80/20; however, it is always true that some small percentage of a group produces a large percentage of any particular result involving that group. Later in the guide we will show you how to determine whether the 80/20 rule holds true for any particular group of facilities.

The 80/20 rule can be a useful initial assumption: when confronting a problem, start by assuming that most of the problem is created by a few individuals, places, or events. Although this first approximation is not always correct, it is probably correct more often than assuming that the problem is spread evenly across individuals, places, or events. Careful analysis can then test whether this starting assumption is correct.

How Widespread are Risky Facilities?

The first paper to discuss the concept of risky facilities identified nearly 40 studies of specific types of facilities that included data about variations in the risks of crime, disorder, or misconduct.[3] These studies covered a wide range of facilities and many different types of crime and deviance, including robbery, theft, assault, and simple disorder. All the studies showed wide variations in risk in the facilities studied and in many there was clear evidence of high concentrations of risk consistent with the definition of risky facilities.[§] Here follow a few examples.

- **Convenience stores.** A national survey found that 6.5 percent of U.S. convenience stores experience 65 percent of all convenience store robberies.[4]

- **Bars and taverns.** Around 30 percent of the 1698 taverns in Milwaukee, Wisconsin experienced about 80 percent of violent incidents reported between 1986 and 1990.[5] Similarly, 3 of the 15 (20 percent) bars in Shawnee, Kansas, accounted for 62 percent of calls for police service between 2002 and 2004.[6]

- **Gas stations.** Ten percent of Austin, Texas gas stations accounted for more than 50 percent of calls for drive-offs and drug crimes between 1998 and 1999.[7]

- **Schools.** Eight percent of schools in Stockholm, Sweden experienced 50 percent of the violent crimes reported in 1993 and 1994.[8] In another study, researchers found that 18 percent of Merseyside schools in North West England reported 50 percent of calls for burglary and criminal damage.[9]

§ Not every study provided clear evidence that a small proportion of the facilities accounted for a large proportion of the crime, disorder, or misconduct. Rather, some reported differences between facilities in crime numbers or rates; for example, Matthews, Pease, and Pease (2001) reported that "4 percent of banks had robbery rates four to six times that of other banks." Although consistent with the concept of risky facilities, these figures do not satisfy a key component of the definition: they do not demonstrate that a small number of high-risk banks accounted for a large part of the robbery problem. However, this does not mean that risks for the facilities studied were not highly skewed. Rather, it only means that the data did not allow the distribution of risk to be examined.

- **Payphones.** A 1998 study found that 20 percent of hoax calls to the fire brigade made from public telephone kiosks in Merseyside came from just 3 percent (33 out of 1189) of the phones.[10]

- **Bus routes and bus stops.** Another study in Merseyside showed that about 4 percent of bus routes experienced 80 percent of all reported crime incidents on bus routes and that about 5 percent of bus stops experienced nearly 30 percent of vandal attacks. Similarly, a study of 38 bus stops located within a high crime area of Los Angeles, California showed that 20 percent of the stops suffered about half the crime at all these bus stops.[11]

- **Shops.** A national survey undertaken in 2000 found that 1 percent of 4315 small businesses in Australia experienced 66 percent of all crimes reported in the survey.[12] Similarly, a study of shoplifting in 78 stores in Danvers, Massachusetts found that 20.3 percent of the stores experienced 84.9 percent of the shoplifting incidents (see Table 2).[13]

Although the studies in this list are just a few of those that have produced evidence of risky facilities, such results make it clear that this form of crime concentration is quite widespread.

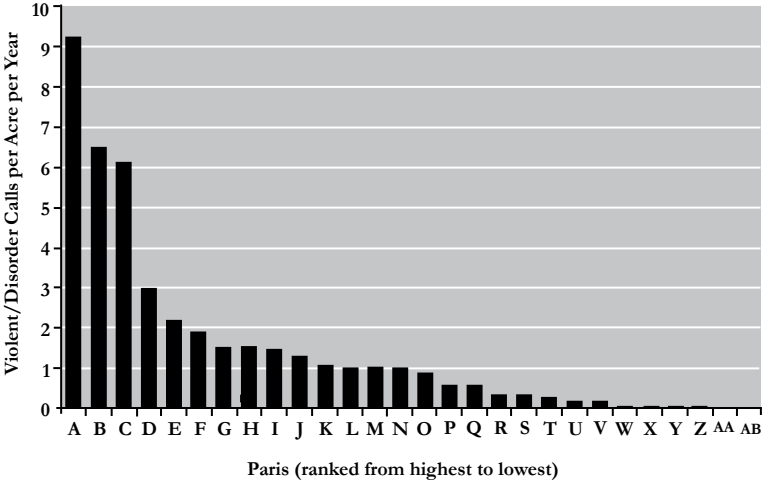
John Eck



A Low Cost Motel: The risk of crime varies a great deal among facilities of the same type.

When analysts plot the number of crimes at each facility under investigation, they almost always create a graph with a reclining-J shape. This can be seen in the example in Figure 1, based on the work of crime analysts in Chula Vista, California. In that study, all parks over two acres in Chula Vista were ranked from the most crime (on left) to the least. The heights of the bars show the number of crimes in each park. As can be seen, three parks had far more crime than any of the rest and most parks had very little crime.

Figure 1: CRIME RISK IN CHULA VISTA PARKS (over 2 acres)



Adapted from: J. Stedman (2005).

How is the Concept of Risky Facilities Different from Hot Spots and Repeat Victimization?

Risky facilities can show up as hot spots on a city's crime map. Indeed, specific hospitals, schools, and train stations are often well-known examples. But simply treating these facilities as hot spots misses an important analytical opportunity: comparing the risky facilities with other like facilities. Such a comparison can reveal important differences between facilities that can account for the differences in risk, thereby providing important pointers to preventive action.

In addition, risky facilities are sometimes treated as examples of repeat victimization. However, this can create confusion when it is not the facilities that are being victimized, but rather the people who are using them. Thus, a tavern that repeatedly requests police assistance in dealing with fights is not itself being repeatedly victimized, unless it routinely suffers damage in the course of these fights or if members of staff are regularly assaulted. Even those participating in the fights may not be repeat victims, as different patrons might be involved each time. Indeed, no one need be victimized at all, as would be the case if the calls were about drugs, prostitution, or stolen property sales. Calling the tavern a repeat victim can be more than just confusing, however, because it might also divert attention from the role mismanagement or poor design plays in causing the fights. By keeping the concepts of repeat victimization and risky facilities separate, it may be possible to determine whether or not repeat victimization is the cause of a risky facility and thereby to design responses accordingly.

How Can the Concept of Risky Facilities Assist Problem-Oriented Policing Projects?

The concept of risky facilities can be helpful in two types of policing projects. First, the concept can be useful in crime prevention projects that focus on a particular class of facilities, such as low rent apartment complexes or downtown parking lots. In the scanning stage, the objective is to list the facilities involved along with the corresponding number of problem incidents in order to see which facilities experience the most and which the fewest problems. This might immediately suggest some contributing factors. For example, a study of car break-ins and thefts in downtown parking facilities in Charlotte, North Carolina revealed that the number of offenses in each parking lot was not merely a function of size.[14] Rather, it was discovered that some smaller facilities experienced a large numbers of thefts because of some fairly obvious security deficiencies. This finding was explored in more depth in the analysis stage by computing theft rates for each facility based on its number of parking spaces. The analysis found that the risk of theft was far greater in surface lots than in parking garages, a fact that had not been known previously. Subsequent analysis compared security features between the multilevel and surface lots and then within the members of each category in an effort to determine which aspects of security (e.g., attendants, lighting, security guards) explained the variation. This analysis guided the selection of measures that were to have been introduced at the response stage; and had these been implemented as planned (which was not the case), the assessment stage would have examined, not merely whether theft rates declined overall, but whether those at the previously riskiest facilities had declined most. Obviously, this type of analysis can be conducted within any group of facilities.

Second, risky facilities analysis can be helpful to crime prevention efforts that focus on a particular troublesome facility. In this sort of analysis, the scanning stage consists of comparing the problems at a particular facility with those at similar nearby facilities. For example, in a project that won the Herman Goldstein Award for Excellence in Problem-oriented Policing in 2003,[15] police in Oakland, California discovered that a particular motel experienced nearly 10 times as many criminal incidents as did any other comparable motel in the area. Although in this case the analysis convinced Oakland police to address the problems at the motel in question, in other cases analysis might reveal that some other facilities have far greater problems than the one which was the initial focus of the project. Comparing the facility being addressed in the project with other group members can also be useful in the analysis, response, and assessment stages described above.

How Can Risk be Measured?

Police reports and calls for service data are the most common sources of information about crime and disorder events. However, using these data can lead to errors if care is not taken to check for some of the following potential problems.§

§ Many of these data problems are also encountered when studying hot spots and repeat victimization. For further information see Deborah Weisel, *Analyzing Repeat Victimization, Problem Solving Tools Series No. 4.*

1. Underreporting. Not all incidents of crime and disorder are reported to the police. In fact, reporting practices can vary considerably from facility to facility, which can seriously distort estimates of risk concentration. For example, a facility that always reports crimes to the police will appear to suffer more incidents of victimization than will a similar facility that experiences the same number of incidents but reports fewer to police. Such distortions can be difficult to discover, which is why it can be important to ask facility managers about their reporting policies or to ask beat officers whether the recorded crime rates match their own perceptions of the crime problems at the facilities in question. In some cases, administrative records kept by a regulatory agency or the facilities themselves might be more accurate. For example, records of vandalism repairs kept by schools or other public facilities might be more accurate than police records of vandalism. However, these administrative records can be difficult to compare among facilities. Sometimes, it might be feasible to survey facility managers to obtain estimates of the number of incidents and at the same time to gather information about management practices (see below). However, surveys can be expensive and difficult to conduct if they are to provide reliable information.

2. Incomplete address matching. When using police records, it can sometimes be difficult to determine whether two different events occurred at the same facility. There are several reasons for this.

a) Precise address information is sometimes unavailable for large facilities, such as parks, parking lots, or sports venues.
b) Some facilities have multiple addresses, including different street addresses.
c) Police sometimes record offense locations as intersections or hundred-block addresses, which can make it difficult to determine whether an event occurred at a particular facility.
d) Police data sometimes fail to distinguish between residential and commercial addresses or fail to make important distinctions between types of residential properties, such as apartment blocks or single-family dwellings.

Incident reporting forms and police records can be revised to improve geographical information gathering; moreover, the increased use of geocoding for crime reports will gradually help resolve some of these difficulties.

3. Mixed use locales. Sometimes, multiple facilities are situated at the same location. For example, some buildings with ground floor retail establishments have apartments on the floors above; hotels not only contain guest rooms, but also bars and restaurants. In addition, use may vary by time of day or day of week, at the same place. For example, a building that functions as a church on Sundays might house a daycare center or soup kitchen during the week. Although it can be difficult to determine which facility is responsible for which crime, such distinctions are crucial to determining which type of response to apply.

4. Infrequent events. Where specific crime or disorder events are common, it is relatively easy to describe the distribution of crimes per facility. However, this can be more difficult for rarer events, such as homicide or rape, because short period estimates are unlikely to show a crime distribution that is distinguishable from a random variation. As a consequence, it may be necessary to analyze many years worth of data before any meaningful patterns become apparent.

5. Long time periods. Studying facilities over long time periods can produce results that are confounded by changes in the facilities themselves; for example, some may go out of business, others may come into being, and yet others may be altered, both physically and managerially.

6. Facilities with no events. Facilities that experience none of the events in question may be invisible if police data are the sole source of information, because police data only show locations with one or more events. Excluding such facilities can distort the assessment of the 80/20 rule. If a regulatory authority licenses the facilities under study (for example, locations that serve alcohol), then data from the regulatory agency can be compared to police data to estimate the number of facilities that experience no events. Remember, however, that it can be difficult to get accurate counts of facilities that are not required to register with some authority.

7. Small numbers of facilities. Some facilities are more common than others. In a moderate sized city, for example, there will be few hospitals. Given at least two facilities, it is likely that one will have more crime than will the other. Although this can have some very practical consequences, the population may be too small to make any meaningful comparison. In such cases, analyzing data from a larger region may be more productive.

8. Random variation. It is possible to find random concentrations of crime, although this is more likely to occur when only a few facilities with only a few incidents are being examined. In such cases, try checking the same facilities for a different time period. If the rank order of incidents is roughly the same in both periods, then it is probable that the variation is not random. Box 1 provides an example.

Box 1: Testing for random variation in risk

A study in England in 1964 found that absconding rates for residents in 17 training schools for delinquent boys ranged from 10 percent to 75 percent. To determine whether this variation was random, researchers reexamined the absconding rates two years later (1966) to see if the variation was much the same. They found that by and large the variation was consistent between the two years. For example, School 1 had the lowest absconding rate and School 17 the highest rate in both years (see the table below). In fact, the correlation was 0.65 between the two years.§ Because the variation was relatively stable and because very few boys would have been residents in both years, researchers determined that the variation was probably due to differences in management practices rather than to differences in the student populations.

§ Correlation coefficients can be calculated quite simply from an Excel spreadsheet.

Training School	Absconding Rate	
	1964	1966
1	10%	10%
2	13%	38%
3	14%	14%
4	21%	18%
5	21%	23%
6	22%	14%
7	22%	21%
8	24%	29%
9	25%	33%
10	26%	37%
11	27%	25%
12	28%	47%
13	29%	45%
14	32%	43%
15	34%	26%
16	46%	27%
17	75%	50%

Source: Clarke and Martin (1975)



How is the Concentration of Risk among Facilities Calculated?

§ Reproduced with permission from Clarke and Eck (2003).

Once a satisfactory measure of the problematic events for a defined group of facilities has been obtained, the following six-step procedure can be used to determine whether the 80/20 rule applies.

1. List the facilities alongside a count of the number of relevant events (e.g. thefts, assaults, calls for service) at each facility. Remember, it is important to verify that each facility on the list is of the type being investigated and that every crime attributed to each facility did in fact occur at that facility. (See Box 2 for a discussion of creating such a list and verifying its content.)

2. Rank the facilities according to the number of events associated with each, from highest to lowest. (Table 1, page 23, is a list of hypothetical pubs along with the associated number of reported assaults.)[§] Determine whether there is something that differentiates the facilities at the top of the list from those in the middle or at the bottom. For example, are the pubs at the bottom of the list popular evening entertainment spots for young people? Are they all located in a downtown entertainment district? Are they all owned by the same company? If so, then these similarities might account for the problem. If there are clear and obvious differences, then divide this list into meaningful categories, with separate ranked lists for each. Each category may pose a distinct problem. For each separate category, continue with Step 3. (For this example, assume that there are no important differences.)

3. Calculate the percentage of events that each facility contributes. For example, in Table 1 there are a total of 121 assaults. The first pub, the White Hart, contributed 31 of these. So the White Hart accounts for 25.6 percent of the problem. The third column shows the percentage.

4. Cumulate the percentages, starting with the riskiest facility. This shows the proportion of events associated with each percentile (i.e., worst 10 percent, worst 20 percent, and so on, up to 100 percent). The fourth column shows what is called the cumulative percentage; that is, the percentages from the third column are added starting with the White Hart and going down.

5. Calculate the proportion of the facilities that each single facility represents. In our example, there are 30 pubs, so each represents 3.3 percent of the pubs. Then cumulate these percentages in the same direction as in Step 4 (top down in column 5).

6. Compare the cumulative percentage of facilities (column 5) to the cumulative percentage of events (column 4). This shows how much the riskiest facilities contribute to the overall problem.

Box 2: Defining and Listing Facilities

In order to analyze crime concentrations, it is first necessary to define the type of facility to be examined; only then is it possible to create a list of facilities that meets that the definition. Ideally, all places that fit the definition and that are in the area of study will be on the list once and only once. In addition, facilities that do not fit the definition will not be on the list. The further the list departs from this ideal, the more likely it is that the results will be misleading.

Identifying all facilities of a particular type in any given area can be troublesome: not only can it sometimes be difficult to develop an appropriate working definition of the type of facility at issue, but problems can also arise in regard to the data management practices of relevant public and private agencies.

Here is an example of creating a list of facilities that illustrates these points. A research team at the University of Cincinnati, Ohio wanted to determine why a few bars had numerous violent incidents, whereas most of the others had none or only a very few. To do this, they needed a definition of "bar" and a list of facilities that met this definition.

Researchers defined "bar" as a place that met four conditions: (1) it had to be open to the general public, rather than restricted to members or rented out to private parties; (2) it had to serve alcohol for onsite consumption; (3) some patrons had to come to the place for the primary purpose of consuming alcohol; and (4) there had to be a designated physical area within the place that served as a drinking area. Locations that did not meet all four conditions were excluded from the study.

To obtain a list of locations meeting this definition, researchers began by consulting records from the Ohio Division of Liquor Control. These records showed that 633 places within the city limits were licensed to serve hard liquor. Based upon their personal knowledge, researchers were able to exclude a number of locations from consideration, reducing the list to 391 possible bars. To isolate the real bars, researchers then compared the remaining locations to the most recent bar guide in a local weekly tabloid that catered to young adults, which contained both a brief written description of the locations and numerous commercial advertisements. The tabloid information revealed that at least 198 of the 391 places fit the definition used. The tabloid list was incomplete, however, as there were an unknown number of city bars that were not reviewed by the tabloid staff. A check of the online Yellow pages verified several more bars. Private fraternal organizations were eliminated from consideration because they were not open to the general public. For most of the remaining places, researchers phoned or visited the sites, examining the physical locations and interviewing owners and employees. Onsite visits revealed several restaurants had areas that looked like bars, but these were eventually eliminated from consideration when it became clear from interviews that they were more decorative than functional or that they were used for other purposes (e.g., to hold carryout orders for customer pickup or to provide overflow seating where customers could eat). Ultimately, researchers identified 264 facilities that fit the definition of bar. These then became the subjects of the study.

Table 1:
The Distribution of 121 Assaults in 30 Pubs

	No. of Assaults	% Assaults	Cumulative % assaults	Cumulative % pubs
White Hart	31	25.6	25.6	3.3
Union	17	14.0	39.7	6.7
Feathers	13	10.7	50.4	10.0
Wellington	11	9.1	59.5	13.3
Black Prince	8	6.6	66.1	16.7
Angel	7	5.8	71.9	20.0
George & Dragon	6	5.0	76.9	23.3
Cross Keys	6	5.0	81.8	26.7
Saracen's Head	4	3.3	85.1	30.0
White Bear	4	3.3	88.4	33.3
Mason's Arms	3	2.5	90.9	36.7
Cock	3	2.5	93.4	40.0
Badger	3	2.5	95.9	43.3
Hare & Hounds	1	0.8	96.7	46.7
Red Lion	1	0.8	97.5	50.0
Royal Oak	1	0.8	98.3	53.3
George	1	0.8	99.2	56.7
Cross Hands	1	0.8	100	60.0
Rose & Crown	0	0	100	63.3
King's Arms	0	0	100	66.7
Star	0	0	100	70.0
Mitre	0	0	100	73.3
Dog and Fox	0	0	100	76.7
Griffin	0	0	100	80.0
Plough	0	0	100	83.3
Queen's Head	0	0	100	86.7
White Horse	0	0	100	90.0
Bull	0	0	100	93.3
Swan	0	0	100	96.7
Black Bear	0	0	100	100



Why Do Facilities Vary in Risk?

Because there is no single reason why facilities vary in risk, it is important to determine which reasons are in operation in each particular case. The most important sources of variation in risk follow.

1. **Variations in Size.** Facilities of the same general type can vary quite markedly in size; other things being equal, one would expect larger facilities to report more problematic incidents than smaller ones. Of course, examining variations in the number of incidents without controlling for size can sometimes be important. For example, if you were to discover at the scanning stage that the great majority of incidents occurred in just a few facilities, irrespective of size, you would know where to concentrate your efforts in order to bring about the maximum reduction in the overall problem. For some analyses, however, it can be important to control for size. There are various ways to estimate size. For example, acreage might be appropriate for parks, number of spaces for parking lots, shelf footage for self-service stores, number of students for schools, number of rooms and occupancy rates for hotels and motels, and so forth. One example of such an analysis comes from a study of shoplifting in Danvers, Massachusetts. The store with the most shoplifting incidents in Danvers was one of the largest in the city. But this was not the whole story, however, because when size was taken into account by calculating the number of shoplifting incidents per 1000 square feet (see the final column of Table 2), the riskiest store turned out to be the one that had been ranked 15th on the list before the outcome was corrected for size.

Table 2
Reported Shopliftings by Store, Danvers, Massachusetts
October 2003 to September 2004

Store	Shopliftings	Percent of Shopliftings	Cumulative Percent of Shopliftings	Cumulative Percent of Stores	Shopliftings per 1000 Sq. Ft.
1	78	26.2	26.2	1.3	1.54
2	42	14.1	40.3	2.6	0.70
3	28	9.4	49.7	3.8	0.22
4	16	5.4	55.0	5.1	0.24
5	15	5.0	60.1	6.4	0.28
6	12	4.0	64.1	7.7	0.31
7	11	3.7	67.8	9.0	0.09
8	11	3.7	71.5	10.3	0.16
9	9	3.0	74.5	11.5	0.28
10	7	2.3	76.8	12.8	2.82
11	5	1.7	78.5	14.1	0.16
12	5	1.7	80.2	15.4	0.10
13	4	1.3	81.5	16.7	0.35
14	4	1.3	82.9	17.9	0.12
15	3	1.0	83.9	19.2	3.32
16	3	1.0	84.9	20.5	0.90
17	3	1.0	85.9	21.8	0.02
7 stores with 2 incidents	14	4.7	90.6	30.8	0.08
28 stores with 1 incident	28	9.4	100.0	66.7	0.06
26 stores with 0 incidents	0	0.0	100.0	100.0	0.00
Total stores = 78	298	100.0	100.0	100.0	0.15

Unfortunately, it is not always easy to obtain the data needed to correct for the size of the facilities under study. For example, a study of downtown parking lot thefts in Charlotte, North Carolina was impeded when the city was unable to provide data about the number of spaces in each lot.[16] As a result, police officers had to visit each lot and count the spaces by hand.

2. **Hot products.** A risky facility that does not have a large number of targets might have targets that are particularly desirable. For example, Store 15 in Table 2, which had the highest rate of shoplifting in the city per 1000 square feet, specialized in selling small, high value electronic items that meet the CRAVED criteria, i.e. they are Concealable, Removable, Available, Valuable, Enjoyable, and Disposable.§

§ See Clarke, Ronald (1999). *Hot Products*. Police Research Series. Paper 112. London: Home Office. (Accessible at www.popcenter.org)

3. **Location.** It only makes sense that facilities that are located in high crime areas are likely to be at a greater risk for crime. However, why this is so is the subject of much debate. One theory holds that habitual offenders tend to live in high crime areas and that such offenders prefer not to travel too far to commit crime. One way of testing this theory is to study facilities that are located in close proximity to each other. If all nearby similar facilities have similar levels of crime, but the crime levels in these nearby facilities are different from similar facilities located in other neighborhoods, then proximity to offenders might be the explanation. However, if crime levels at similar facilities vary within the neighborhood itself, or if crime levels are similar across neighborhoods, then you might do well to look for a different cause. Another way of testing this theory would be to examine the addresses of the offenders who commit crimes in these facilities: if those who offend in high risk facilities live near such facilities, then location might explain the heightened risk of victimization; and conversely, one would expect those who offend in low risk facilities to have traveled a greater distance to do so. On the other hand, if offenders travel about the same distances

to both types of facilities, or if no clear pattern emerges, then it may be that the proximity of offender populations to potential targets is a less than useful explanation. For example, when the Chula Vista Police Department looked at the locations of motels they found that all of them—high and low crime—were located in high crime areas.[17]

4. **Repeat victimization.** Because some places attract people who are particularly vulnerable to crime, it can sometimes be useful to compare the individuals who have been victimized in risky and non-risky facilities. If re-victimization rates are different, then repeat victimization may be the cause of the elevated risk. On the other hand, facilities that cater to different populations that have different vulnerabilities may themselves vary in risk. For example, an apartment building with a large number of domestic violence calls might have many repeat domestic violence households, whereas a building with few calls might have no repeat domestic violence incidents.

5. **Crime attractors.** Facilities that draw in large numbers of offenders are crime attractors. Crime attractors have high numbers of offenders and high offense rates. For example, some bars have a reputation for attracting unruly crowds; some even include this ability to attract a rough crowd in their advertising. Such facilities are likely to experience a high rate of victimization. For example, an investigation of corner drug markets in Cincinnati, Ohio suggested that some corner grocery stores catered to the drug trade in a number of ways, thus attracting offenders.[18] Diagnostic checks can involve analyzing arrest records and other information containing offender names.

6. **Poor design and layout.** For any group of facilities, there are important design features that can improve security. For example, users of ATMs are less likely to be robbed if the machine is located in an enclosed vestibule that requires a cash card for entry, if the vestibule has windows, if surveillance

cameras are installed, and so forth.§ Similarly, there are a number of design standards that can reduce shoplifting, including reducing the number of store exits, eliminating blind corners and recesses, creating clear sight lines in aisles, reducing the height of displays, placing goods away from exits, and carefully deploying mirrors and lighting.§§ When design guidelines are not followed, the risk of crime increases.

§ See Mike Scott, *Robbery at Automated Teller Machines, Problem Specific Guide No. 8* (Washington, D.C.: Office of Community Oriented Policing Services, U.S. Department of Justice, 2001).

§§ See Ronald Clarke, *Shoplifting, Problem Specific Guide No. 11* (Washington, D.C.: Office of Community Oriented Policing Services, U.S. Department of Justice, 2002).

7. **Poor management.** When management does not exercise proper control over its establishment, a risky facility can develop. If high crime facilities have few rules, lax enforcement, poor security, or other features or omissions that help offenders detect targets, commit crimes, and get away, then poor management may be an important factor in the rate of victimization. Similarly, if high crime facilities have many targets or more highly desirable targets (either hot products or repeat victims), but managers fail to enhance target protection, management must bear some responsibility for the crime problem. The important role of management is illustrated in Box 3, which shows how crime greatly increased in certain low rent apartment buildings after they were acquired by a notorious slumlord.

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A Sign Outside a Bar: How managers regulate patron conduct can have a big influence on crime risk.

Box 3: Slumlords, Crime in Low Rent Apartments and Neighborhood Blight

In every large city, a few low-cost rental apartment buildings make extraordinary demands on police time. These "risky facilities" are often owned by slumlords — unscrupulous landlords who purchase properties in poor neighborhoods and who make a minimum investment in management and maintenance. Building services deteriorate, respectable tenants move out, and their place is taken by less respectable ones — drug dealers, pimps, and prostitutes — who can afford to pay the rent but who cannot pass the background checks made by more responsible managements. In the course of a problem-oriented policing project in Santa Barbara, California, Officers Kim Frylsie and Mike Apsland analyzed arrests made at 14 rental apartment buildings owned by a slumlord, before and after he had purchased them. The table clearly shows a large increase in the number of people arrested at the properties in the years after he acquired them. There was also some evidence that the increased crime and disorder in these properties spilled over to infect other nearby apartment buildings — a finding that supports the widespread belief that slumlords contribute to neighborhood blight.

Property	Year Acquired	No. of Units	Average Pre-Owning	Yearly Arrests Post-Owning
1	1977	4	0	1.6
2	1982	15	0	16.9
3	1983	8	0	2.3
4	1985	8	0	4.5
5	1985	10	0.1	6
6	1986	16	0.2	27.9
7	1986	6/8	0	3.4
8	1987	5	0	8.3
9	1987	12	0	11.3
10	1988	6	0.4	8.1
11	1991	10	0.2	9.3
12	1991	10+	2.3	21.8
13	1992	4+	1.1	0.7
14	1992	4	0.2	10.7

Source: Clarke, Ronald and Gisela Bichler-Robertson (1998). "Place Managers, Slumlords and Crime in Low Rent Apartment Buildings". Security Journal, 11: 11-19.

Table 3
Responses to Risky Facilities

Cause	Description	Responses
Size	Facility is large and attracts many users, some of whom become victims.	If the number of crimes per user is very small compared to most other facilities, then one option is to do nothing. Alternatively, identify those most likely to become victims and the circumstances associated with their victimization, then focus on these individuals and circumstances.
Hot Products	Facility contains a large number of things that are particularly vulnerable to theft or vandalism.	Remove hot products. Provide additional protection to hot products.
Location	Facility may be located in close proximity to offenders.	Hire additional security. Tailor management practices to the peculiarities of the area.
Repeat Victims	Facility contains a few victims who are involved in a large proportion of crimes.	Provide victims with the information or inducements they need to make behavioral changes that will reduce their likelihood of victimization. Provide information or protection to victims so that they are not victimized again.
Crime Attractor	Facility attracts many offenders or a few high rate offenders.	Remove offenders through enforcement and incapacitation or rehabilitation. Deny access to repeat offenders.
Poor Design	Physical layout makes offending easy, rewarding or inducing risk.	Change the physical layout in conformity with principles of Crime Prevention through Environmental Design (CPTED).§
Poor Management	Management practices or processes enable or encourage offending.	Change management procedures, paying particular attention to practices that influence repeat victimization.

§ For additional information on CPTED principles see *Using Crime Prevention through Environmental Design in Problem Solving Response Guide* No. 6.

How are Risk Factors Identified for a Particular Group of Facilities?

There is no single reason that explains why some facilities have far more crime than other facilities of the same type. Rather, the full explanation usually involves a combination of the seven factors discussed above; remember though, that the relative contribution of each will vary from case to case. In many problem-oriented projects it might not be possible to explain completely the variations in risk between facilities, because such analysis is usually only possible after detailed research that can take weeks or months to complete. However, it is usually possible to get some idea of how each of the seven factors contributes to the problem by comparing high and low crime facilities. We previously explained how to do this when we discussed the various ways of testing the influence of location, hot products, repeat victimization and crime attractors. In some cases, quantitative data such as facility size will be readily available. In others, it might be necessary to survey the facilities to discover the relevant information. For example, in the project mentioned above that focused on thefts from cars in Charlotte's downtown parking facilities, police surveyed the lots to gather information about hours of operation, attendants, fencing, lighting, and other security measures. This provided many ideas for reducing crime in the riskiest facilities. In another Charlotte study, a police survey found that the theft of household appliances from construction sites was much lower when builders delayed installation until the homes were ready for occupancy.[19]

Direct observation and discussions with managers and police familiar with the facilities (see Box 4) can yield valuable insights into the reasons for variations in risk between facilities. In addition, interviews with apprehended offenders can reveal how they evaluate the difficulties, rewards, and risks of preying upon the facilities in the sample.[§] Similarly, interviews with victims—particularly repeat victims—can be revealing.

§ See Scott Decker, *Using Offender Interviews to Inform Police Problem Solving, Problem Solving Tools Series No. 3* (Washington, D.C.: Office of Community Oriented Policing Services, 2005).

Box 4: Identifying drug markets in privately-owned apartment complexes

In Newark, New Jersey, a project funded by the U.S. Department of Justice Office of Community Oriented Policing Services (the COPS Office) focused on drug dealing in low cost private rental apartment complexes.[20] During the scanning stage, 22 possible sites for intervention (out of a total of 506 private apartment complexes) were identified through an analysis of police data and interviews with officers in the Newark Police Department's Safer Cities Task Force and Special Investigations Unit. Subsequent interviews with district commanders revealed a special problem with four apartment complexes located close to entry and exit ramps for Interstate 78, which provided out-of-town buyers with easy access to drug markets. The buyers could briefly enter the city, purchase drugs at the complexes, drive around in a loop and quickly exit again. Authorities implemented a traffic management plan that disrupted the loop by creating one-way streets and dead-ends. The traffic plan was reinforced with additional enforcement at the four sites and will eventually dovetail with a long-term project by the state to rebuild the ramps to route traffic away from residential areas.

Your ability to understand the reasons for the variations in risk will be greatly assisted where there is an existing Problem-Oriented Policing Guide that deals with the facilities that are the focus of your own project. Although it will not tell you which factors are important in your sample, it will provide more specific suggestions than are provided by the general discussion above.

As of June 2006, ten guides focused on problems within specific types of facilities.[§]

- Assaults in and Around Bars (No. 1)
- Drug Dealing in Privately Owned Apartment Complexes (No. 4)
- Robbery at Automated Teller Machines (No. 8)
- Thefts of and From Cars in Parking Facilities (No. 10)
- Shoplifting (No. 11)
- Bullying in Schools (No. 12)
- Burglary of Retail Establishments (No. 15)
- Disorder at Budget Motels (No. 30)
- Bomb Threats in Schools (No. 32)
- School Vandalism and Break-Ins (No. 35)

§ New guides are constantly being added; a list of those in preparation is available at www.popcenter.org.

How Can Risk be Reduced?

Although there are many ways to reduce risk (see Table 3), it is important to focus on those that are most likely to succeed. For example, it is usually impossible to do anything about the size and location of specific facilities. Similarly, changing a facility's physical design can be difficult or costly and would only be justified in an extreme case. On the other hand, it may be easier to change business practices that facilitate or encourage crime and disorder; this, however, cannot be done without the full cooperation of those who own or manage the facilities, as they are usually the ones who must implement and pay for the measures. Before moving on to a discussion of the various ways of convincing facility managers to make the changes necessary to reduce crime or disorder, it is important to understand some of the reasons why they might not have done these things on their own. The reasons can include the following.

1. If high crime facilities face different circumstances than low crime facilities, even following the same practices as at the latter may not be effective in reducing problematic incidents at the former. Under these circumstances, special crime prevention efforts may be needed at the high crime facilities.

2. Managers of high crime facilities might not know what to do to remedy the situation. This sometimes occurs because of poor communication between managers and owners. Training programs that transfer information from knowledgeable low crime facilities to high crime facilities can help under these circumstances.

3. High crime facilities might face higher prevention costs than low crime facilities, especially if the former are located in older structures that are more costly to adapt to modern crime prevention standards. For example, older structures sometimes contain lead pipes, asbestos, and other materials that are costly to handle. Newer structures do not contain these materials, making renovation easier and cheaper. Similarly, where high crime facilities spend less on prevention than do newer low crime facilities, the failure to implement preventive measures might merely be a way of reducing operating expenses. This is most likely where the cost of crime falls more heavily on customers and patrons than it does on owners and management. Lowering costs can help in these circumstances. Examples include subsidized toxic waste removal, low interest loans, extra police protection, and other similar efforts.

4. Some businesses profit from criminal activity. At the extreme, owners or employees are directly involved in criminal activity. In other cases, however, businesses might simply feed off deviant activity, without any direct involvement by owners and employees. For example, dealers and buyers might make up a disproportionate share of the customers at a convenience store located in an area where drug trafficking is frequent. In such a case the store owner might ignore the illegal activities because the offenders are her best customers.

5. Managers and owners of high crime facilities sometimes believe that police bear the sole responsibility for reducing crime. Consequently, their crime prevention efforts consist exclusively of complaining to the police and trying to get them to do more to prevent crime at their facilities.

Although it always best to assume that managers and owners want to reduce crime and disorder in their facilities and that they will be open to working with the police and others to implement the necessary changes, the list above suggests that they will sometimes resist implementing remedial measures. Consequently, it will sometimes be necessary to exert a certain amount of coercion, either directly or indirectly. There are several ways that this can be done.§

§ For a more extensive discussion of obtaining cooperation see Mike Scott and Herman Goldstein, *Shifting and Sharing Responsibility for Public Safety Problems, Problem-Oriented Response Guide No. 3* (Washington, D.C.: Office of Community Oriented Policing Services, U.S. Department of Justice, 2005).

1. *Publicity.* The greater risk of using a particular facility can be made known to the public. Publishing statistics regarding calls for service from local motels or crimes in local parking lots can shame managers into acting or force them to act to avoid losing business.

2. *Sanctions.* Local governments can use civil enforcement procedures to shut down facilities that are persistent trouble spots. There is considerable evidence that the threat of civil sanctions is quite effective in coercing owners to address victimization problems.[21] Sanctions can range from fines to license revocation and facility closure.

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Demolition of a Former Bar and Drug Dealing Hot Spot: Removing a very risky facility can be the best way to reduce crime.

3. *Certification programs.* Police and local authorities can certify premises and facilities for their security. These certification programs can be voluntary or compulsory. For example, police in the United Kingdom operate a voluntary safe car parks scheme of this type.[22]

4. *Voluntary codes of practice.* Managers or owners of specific types of facilities in a particular region or locality can agree to follow certain practices designed to reduce crime. An example of this would be the accords made between the managers of pubs and clubs in entertainment districts in Melbourne, Surfers Paradise, Geelong, and elsewhere in Australia to reduce drink-related violence.[23]

5. *Performance Standards.* Recently, the Chula Vista Police Department has been experimenting with the use of performance standards.[24] Based on an analysis of crime frequency and negation, a maximum number of crimes is established for facilities of a particular type. This standard can be expressed as a rate, to account for size. Facilities that exceed the performance standards are sanctioned. Along the same lines, the Oakland Police Department entered into an agreement whereby a motel chain agreed to attempt to reduce crime and disorder at one of its problem motels.[25] This agreement was guaranteed by a performance bond that required the chain to pay $250,000 to the city if the goal was not reached within two years. It was left to the motel chain to decide which security measures to introduce; it decided to upgrade lighting and fencing, replace the managers and security guards, conduct pre-employment background checks on all new employees, establish strict check-in procedures, maintain a list of banned individuals, and prohibit room rentals of more than 30 days. Crime was greatly reduced by this initiative (see Table 4), which earned the Herman Goldstein Award for Excellence in Problem-Oriented Policing for 2003.

Table 4
Calls for Police Service
Oakland Airport Motel

	Calls for Service
1998	197
1999	212
2000	242
2001	38
2002	1
2003	3*

**Through March 2003*

In practice, a combination of approaches—both a carrot and a stick—might be the most effective strategy. Because business owners can be politically powerful, it may be far easier to reduce crime if management is induced to cooperate without engaging in a political battle. In this regard, it is important to recall the guiding principle of this guide, the 80/20 rule: most of the problem is likely to be the result of a few facilities. So it might be that enlisting the support of the majority of facility owners and managers—whose contributions to the problem are minor—to change the behavior of the few—whose contributions to the problem are major—can aid police in winning the political struggle. This can also reduce costs by focusing resources where they are needed most, which can aid in tailoring responses to particular settings, thereby increasing the chances that interventions will be effective.

Endnotes

[1] Eck, Clarke, and Guerette (2007).
[2] Kock (1999).
[3] Eck, Clarke, and Guerette (2007).
[4] National Association of Convenience Stores (1991).
[5] Sherman, Schmidt, and Velke (1992).
[6] Eck, Clarke, and Guerette (2007).
[7] La Vigne (1994).
[8] Lindstrom (1997).
[9] Bowers et al. (1998).
[10] Hirschfield and Bowers (1998).
[11] Newton (2004); Loukaitou-Sideris and Eck (in press).
[12] Perrone (2000).
[13] Eck, Clarke, and Guerette (2007).
[14] Clarke and Goldstein (2003).
[15] Oakland Police Department (2003).
[16] Clarke and Goldstein (2003).
[17] Chula Vista Police Department (2004).
[18] Madensen et al. (2005).
[19] Clarke and Goldstein (2002).
[20] Zanin et al. (2004).
[21] Eck (2002).
[22] Smith, Gregson, and Morgan (2003).
[23] Homel et al. (1997); Felson et al. (1997).
[24] Chula Vista Police Department (2004).
[25] Oakland Police Department (2003).

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Recommended Readings

- **A Police Guide to Surveying Citizens and Their Environments**, Bureau of Justice Assistance, 1993. This guide offers a practical introduction for police practitioners to two types of surveys that police find useful: surveying public opinion and surveying the physical environment. It provides guidance on whether and how to conduct cost-effective surveys.

- **Assessing Responses to Problems: An Introductory Guide for Police Problem-Solvers**, by John E. Eck (U.S. Department of Justice, Office of Community Oriented Policing Services, 2001). This guide is a companion to the *Problem-Oriented Guides for Police* series. It provides basic guidance to measuring and assessing problem-oriented policing efforts.

- **Conducting Community Surveys**, by Deborah Weisel (Bureau of Justice Statistics and Office of Community Oriented Policing Services, 1999). This guide, along with accompanying computer software, provides practical, basic pointers for police in conducting community surveys. The document is also available at www.ojp.usdoj.gov/bjs.

- **Crime Prevention Studies**, edited by Ronald V. Clarke (Criminal Justice Press, 1993, et seq.). This is a series of volumes of applied and theoretical research on reducing opportunities for crime. Many chapters are evaluations of initiatives to reduce specific crime and disorder problems.

- **Excellence in Problem-Oriented Policing: The 1999 Herman Goldstein Award Winners.** This document produced by the National Institute of Justice in collaboration with the Office of Community Oriented Policing Services and the Police Executive Research Forum

provides detailed reports of the best submissions to the annual award program that recognizes exemplary problem-oriented responses to various community problems. A similar publication is available for the award winners from subsequent years. The documents are also available at www.ojp.usdoj.gov/nij.

- **Not Rocket Science? Problem-Solving and Crime Reduction**, by Tim Read and Nick Tilley (Home Office Crime Reduction Research Series, 2000). Identifies and describes the factors that make problem-solving effective or ineffective as it is being practiced in police forces in England and Wales.

- **Opportunity Makes the Thief: Practical Theory for Crime Prevention**, by Marcus Felson and Ronald V. Clarke (Home Office Police Research Series, Paper No. 98, 1998). Explains how crime theories such as routine activity theory, rational choice theory and crime pattern theory have practical implications for the police in their efforts to prevent crime.

- **Problem Analysis in Policing**, by Rachel Boba (Police Foundation, 2003). Introduces and defines problem analysis and provides guidance on how problem analysis can be integrated and institutionalized into modern policing practices.

- **Problem-Oriented Policing**, by Herman Goldstein (McGraw-Hill, 1990, and Temple University Press, 1990). Explains the principles and methods of problem-oriented policing, provides examples of it in practice, and discusses how a police agency can implement the concept.

- **Problem-Oriented Policing and Crime Prevention**, by Anthony A. Braga (Criminal Justice Press, 2003). Provides a thorough review of significant policing research about problem places, high-activity offenders, and repeat victims, with a focus on the applicability of those findings to problem-oriented policing. Explains how police departments can facilitate problem-oriented policing by improving crime analysis, measuring performance, and securing productive partnerships.

- **Problem-Oriented Policing: Reflections on the First 20 Years**, by Michael S. Scott (U.S. Department of Justice, Office of Community Oriented Policing Services, 2000). Describes how the most critical elements of Herman Goldstein's problem-oriented policing model have developed in practice over its 20-year history, and proposes future directions for problem-oriented policing. The report is also available at www.cops.usdoj.gov.

- **Problem-Solving: Problem-Oriented Policing in Newport News,** by John E. Eck and William Spelman (Police Executive Research Forum, 1987). Explains the rationale behind problem-oriented policing and the problem-solving process, and provides examples of effective problem-solving in one agency.

- **Problem-Solving Tips: A Guide to Reducing Crime and Disorder Through Problem-Solving Partnerships** by Karin Schmerler, Matt Perkins, Scott Phillips, Tammy Rinehart and Meg Townsend. (U.S. Department of Justice, Office of Community Oriented Policing Services, 1998) (also available at www.cops.usdoj.gov). Provides a brief introduction to problem-solving, basic information on the SARA model and detailed suggestions about the problem-solving process.

- **Situational Crime Prevention: Successful Case Studies**, Second Edition, edited by Ronald V. Clarke (Harrow and Heston, 1997). Explains the principles and methods of situational crime prevention, and presents over 20 case studies of effective crime prevention initiatives.

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- **Using Analysis for Problem-Solving: A Guidebook for Law Enforcement**, by Timothy S. Bynum (U.S. Department of Justice, Office of Community Oriented Policing Services, 2001). Provides an introduction for police to analyzing problems within the context of problem-oriented policing.

- **Using Research: A Primer for Law Enforcement Managers**, Second Edition, by John E. Eck and Nancy G. LaVigne (Police Executive Research Forum, 1994). Explains many of the basics of research as it applies to police management and problem-solving.

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