Crime Prevention through Environmental Design

by Paul R.A. Stanley

CRIME PREVENTION THROUGH

ENVIRONMENTAL DESIGN: A REVIEW

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ABSTRACT

There is growing interest in the use of environmental design to reduce the incidence of certain types of criminal activity. Crime prevention approaches based on attempts to identify social, psychological and economic origins of crime have failed to produce significant practical results. The environmental design approach seems to offer the possibility of more or less immediate pay-offs in terms of crime reduction. It assumes that much criminal activity is impulsive - the result of opportunity rather than careful planning; by reducing opportunities, therefore, one reduces crime. This paper presents an overview of the theory and evidence which gave rise to the environmental design approach. It presents the basic principles and techniques of 'defensible space' - aimed essentially at producing a physical environment supportive of the social control of crime - and looks at the range of options for target hardening; examples of current applications are cited. It is proposed that there should be a coordinated program to encourage both experimental projects and research in this field.

SUMMARY

CRIME PREVENTION THROUGH
ENVIRONMENTAL DESIGN: A REVIEW

SECTION I - INTRODUCTION: This section introduces the
topic and general approach of the report. Environmental
design has been receiving increased attention as a means
of crime prevention. It seems to offer the possibility of
more practical payoffs than do the more socially, economically
oriented crime prevention activities directed at the
"causes" of crime. The report sets out to provide an
overview of current work and ideas in the field, presented
with the needs of those having practical crime prevention
responsibilities in mind.

SECTION II - ORIGINS AND BASIC ASSUMPTIONS: Environmental
design approaches provide no cut-and-dried solutions to
crime prevention problems. Successful application of these
approaches calls for some understanding of the theory and
practical experience on which they are based. Psychological
theory suggests that there is a systematic relationship
between behaviour and the environmental context in which
it occurs; some urban planning theorists suggest high urban
crime rates are a function of the breakdown in social
controls attributable, at least in part, to the nature of
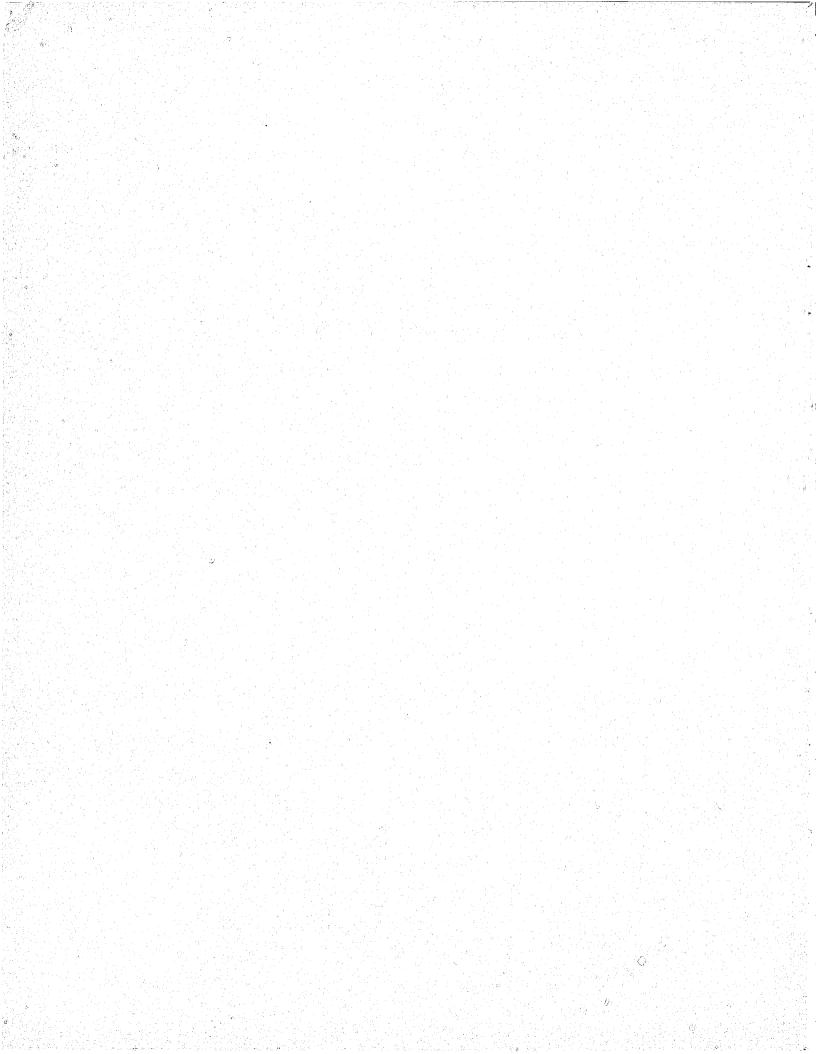current urban forms. Studies of crime have shown that some

types of location seem more conducive to criminal activity
than others, a fact recognized by those having practical
day-to-day contact with criminal activities. This section
concludes with a discussion of the significance of opportunity
as a key precipitating factor in many types of criminal
activity.

SECTION III - AN OVERVIEW OF CURRENT WORK: This section
reviews the two main approaches to crime prevention through
environmental design. "Definsible Space" uses physical
design as a means of stimulating a sense of identity with
housing (and other) environments which will result in an
active concern for both property and "neighbours". "Target
Hardening" concentrates more directly on making it physically
more difficult for a would-be offender to reach his target.
Both approaches should be applied on a cost effective basis.
Current applications of these ideas include: incorporation
into building codes, application of both techniques to
specific districts within a city, publication of manuals
on residential security, use in subway design, etc.

SECTION IV - GUIDELINES FOR APPLYING DESIGN TECHNIQUES IN
CRIME PREVENTION: This section emphasizes the need to
take a systematic approach in considering the use of
design techniques in any crime prevention situation. The
steps recommended are: think in crime prevention terms;
bring together people with common concerns but different

perspectives; take as a starting point the criminal
activity or activities, rather than a generalized crime
prevention program; develop as much information as possible
about the characteristics of the criminal activity to be
combated; do not be limited in the range of possible
solutions; take a critical, cost effective approach to
proposed design solutions; take into account the characteristics
of the residents or community in developing solutions;
monitor and evaluate the effectiveness of a system/approach
once adopted.

SECTION V - A NEED FOR FURTHER RESEARCH: The environmental
design approach is relatively new and this section suggests
areas in which further research is required. Suggested
research topics are: the extent to which opportunity is a
key factor in specific types of criminal activity; the
likelihood that crime will simply be displaced either in
terms of physical location or type of criminal activity;
detailed studies of the circumstances associated with
different types of crime; the probability that environmental
design changes will in fact produce the patterns of social
behaviour needed to deter crime. The section concludes with
a recommendation that there should be a mechanism to co-
ordinate the research and experimental projects carried out
in Canada, to ensure an effective exchange of information
and the opportunity to benefit from experience.

SECTION I

INTRODUCTION

There has developed over the past five years a growing interest in the possibility of using the physical environment as a means of reducing certain types of criminal activity. It has long been recognized by the police and others, that some physical settings are more conducive to crime than others; they can point to parts of a city and even areas in or around specific buildings which constitute high-risk zones from a crime point of view. It is only in the last several years, however, that this knowledge has been put to use in crime prevention strategies.

Essentially it is believed that one can design new physical structures, or modify existing ones, in a way which will significantly reduce the likely or actual incidence of crime; this is true for individual buildings and for communities or neighbourhoods. The rationale is that it will:

- Remove easy targets for those who might commit crime on impulse;

- Make it more difficult or risky for the would-be offender to reach his target;

- Increase the chances of apprehension during or after the criminal act.

As we shall see later in the paper, there is evidence to suggest that in all three ways this approach could have a very direct impact on crime figures.

This approach is encouraging and yet, at the same time, calls for caution in its application. It is encouraging in that it seems to offer the possibility of a rather direct assault on crime with both immediate and possibly long-term payoffs. Part of its appeal lies in the notable lack of success of the more traditional crime prevention approaches, which have been directed to the social, psychological and economic 'causes' of crime. The rather physical, pragmatic nature of this new approach does, however, raise the danger that it will be applied in a rather "cook book" fashion, without due regard for its limitations and the needs of the particular situations in which it is being applied. It is important to recognize that this constitutes one more weapon in the arsenal of crime prevention techniques and should not be used to the exclusion of work in the other areas. It is acknowledged throughout this paper that there is a continuing need to approach crime prevention from the need/motivation point of view, as well as from the opportunity component.

The purpose of this paper is to present an overview of current work and ideas in this field. We have

tried to do this in a way which will permit a genuine under-
standing of what is possible and practical from the point
of view of those concerned with crime prevention. The
paper is organized into a discussion of the research
theories which led to the present work; an overview of
what is currently being done in the field; some guidelines
for those who may have responsibility for specific crime
prevention programs; and a final section which raises some
of the unanswered questions in the present work and suggests
themes which should be the topic of further research.

SECTION II

ORIGINS AND BASIC ASSUMPTIONS

For all its merits, the environmental design approach provides no cut-and-dried solutions to crime prevention problems. If we are to benefit, therefore, from its application, it is important that those who are responsible for its use should have some knowledge of the research and assumptions on which it is based. All too often new ideas are accepted in the criminal justice system as "solutions" and applied with expectations which are unrealistic, and without any real understanding of the key variables in a given situation. It is an underlying theme of this paper that the use of physical design techniques in crime prevention will, ultimately, only be useful if applied with reasonable expectations as to their effectiveness, an awareness of the dangers to be avoided and the steps which should be taken to maximize chances of success.

To do this effectively does not require any detailed knowledge of the disciplines from which the approach has evolved. In this chapter we have tried to summarize the research and thinking which have led to the

current interest in this approach. It will be seen that its origins combine a certain educated speculation with some careful research and, finally, a recognition and acceptance of knowledge acquired by practitioners from extensive practical experience.

It is impossible to point to any one body of research or theory and claim that that is the origin of the current interest. In many ways it seems to be "an idea whose time has come".

SOME THEORIES ABOUT THE RELATIONSHIP BETWEEN ENVIRONMENT AND BEHAVIOUR

The environment has for so long been a relatively stable component of man's experience, that we have tended to ignore the interaction between environment and behaviour. However, with the dramatic changes which have taken place, and which continue to take place, in the nature of our man-made physical environment, we have at last started to recognize that this environment is more than merely a context or setting. Behaviour and environment are part of a dynamic process, with the latter having a potentially significant impact on the nature of the former.

An indication of this growing interest in man/environment relationships is the development of a new

academic discipline - "environmental psychology". Although
many other disciplines are involved in this endeavour, it
is the psychologist who articulates, most explicitly, the
underlying assumptions of the man/environment studies.

Essentially environmental psychology takes as its
starting point the assumption that there is a consistent
and, hence, predictable relationship between human behaviour
and the physical context or environment in which the
behaviour takes place. One of the more well-known psychologists
in this field [1] has put forward a number of principles
regarding the nature of this relationship. Some of these
are particularly important to consider in a later discussion
of this approach to crime prevention. Stated briefly, these
assumptions are:

- An individual's physical surroundings exert
  considerable influence on his behaviour, and
  this is true even when he is largely unaware
  of those surroundings.

- "If the physical setting is changed in a way
  which is not conducive to an established
  pattern of behaviour, that behaviour will be
  displaced to another location."

- "The behaviour which occurs in any physical
  setting is a function of the physical, social
  and administrative structures of that setting,
  and behaviour can be changed by any one of
  those elements of the setting."

- "If a change is made in any component of the
  physical setting, it will have some effect on
  all other components of the setting (social,
  administrative or physical), and this will
  eventually lead to a change in the characteristic
  behaviour patterns of that setting as a whole."[2]

It is important to note that these are indeed only assumptions about the nature of the relationship between the physical environment and human behaviour. There is no clearly defined, one-to-one relationship between the two. As is clear from a number of these assumptions, the physical component of any setting interacts with the social and administrative structures of that setting to influence the type of behaviour which occurs.

It should be remembered that these assumptions are based, for the most part, on controlled studies in which the physical environment was relatively uncomplicated and clearly limited the range of behaviour that was possible. Obviously the more complex the environment both in physical and social terms, the more difficult it is to identify determinants of, or even significant influences on, behaviour.

The Impact
of Planning

The environmental design approach to crime prevention ranges from relatively small modifications to existing structures, to the layout design of whole residential projects or communities. The work being done at the community level owes much to the school of thought which believes that the current rates of crime stem from the breakdown in traditional social controls. Essentially, the

reasoning suggests that current urban forms do not permit the kind of inter-action between neighbours which is necessary for the development of a sense of "community" - an essential pre-requisite for the existence of informal social controls and maximum effectiveness of formal social controls.

This approach is associated most directly with the writings of Jane Jacobs[3], who has bitterly attacked current methods of city planning and rebuilding, claiming that because of poor design there is no opportunity for a sense of community identity to develop. She points particularly to the impersonal nature of high-rise apartment buildings and the tendency to lay out areas without providing the mix of facilities (work, residential, retail, recreational, etc.) which are an essential part of any "true" community.

It should be noted that Jacob's ideas have come in for severe criticism from the planning professions and others [4]. Critics claim that they over-simplify the extremely complex process involved in the development of community identity. Others believe that they represent a somewhat romantic attachment to the past and call for new solutions to the problems brought about by the realities of present-day urban life - greater mobility, crowding and identity with groups based more on shared interests than

proximity of residents. It must be remembered, nonetheless, that this school of thought has been very influential in the growth of interest in design solutions. Even if we accept the criticisms regarding over-simplification, it would be a mistake not to recognize that, however falteringly, these ideas have started an approach to crime prevention which, with careful application and refinement, may well have more impact on crime figures than the attempts to identify and combat social and economic causes of crime.

In summary, there are some persuasive arguments linking certain types of behaviour to their environmental context. There is, however, no clear-cut understanding of the mechanisms by which the physical environment influences human behaviour.

THE EVIDENCE LINKING CRIME WITH THE CHARACTERISTICS OF THE PHYSICAL ENVIRONMENT

From an overview of the theoretical basis for this approach, we turn to crime statistics for some very practical evidence that there is a consistent relationship between certain types of physical location and both the frequency and type of criminal activity associated with them.

The kind of evidence presented in this section is, it must be recognized, common knowledge to those who have practical day-to-day contact with criminal activities. The police will warn you to avoid certain areas of a city; residents of housing projects try to avoid being alone in certain areas of the project; and building maintenance people are only too well aware of special targets for malicious damage. It is only recently, with the growing concern for direct crime prevention methods, that this practical knowledge is being used to bring about changes in built environments to make them less vulnerable. Some examples are presented in the following paragraphs:

- The New York City Housing Authority has over the years kept detailed records of the nature and location of crimes committed within its properties. A summary of these statistics indicated that in apartment buildings the grounds, lobbies, elevators and stairs have relatively high felony rates and are significantly more dangerous the larger the apartment building (5).

- Other studies have shown that robberies against commercial operations, such as stores, gas stations, etc., most typically involved sites on or near a corner, making for easier escape routes for the offender. A more careful study of the premises involved showed that the interior of stores most often robbed are concealed from the street by window layout or parked vehicles; furthermore, robberies are more likely to occur in areas where there is little pedestrian traffic, particularly at night(6).

- It was shown in the same series of studies that in residential settings burglars are most likely to choose ground-floor apartments as their targets, confirming the New York Housing Authority's statistics that in public housing projects the danger spots were parking lots, enclosed areas not visible from the street, or sidewalk and laundry rooms (7).

These are but a few of the many studies and
statistics which show clearly that both certain types of
location and certain physical characteristics of an
environment bear significant relationships to either over-
all crime levels or to specific types of criminal activity.

CRIME AS A FUNCTION
OF OPPORTUNITY

A critical dimension in these environmental
design approaches to crime prevention is the extent to which
the criminal behaviour concerned is a result of an opportunity
presenting itself, i.e. what one might term impulsive crime,
versus crime which is powerfully motivated by economic,
social or psychological factors. The implications of this
dimension are far-reaching and important.

Stated in its simplest terms, the question becomes
to what extent does any particular criminal act occur because
the potential criminal sees an easy target and decides,
more or less on the spur of the moment, that his chances
of success are high. Opportunity in these circumstances
may arise because the offender can be sure no one will
witness the crime - as a result of poor lighting or the fact
that the location is visually isolated, or because the
premises are poorly protected, or the victim has little
chance of resisting or obtaining help.

If it can be shown that criminal behaviour, or even certain specific types of criminal behaviour, are largely influenced by opportunity, then environmental design approaches offer real promise of success. If, however, the opportunity factor is relatively unimportant compared with the degree of motivation, then changes in the environment may only increase the risks the offender is prepared to take - possibly significantly increasing the risk of harm to victims of crime; or the criminal behaviour may simply be displaced to other locations presenting an easier target.

At this point, work done in the area seems to indicate that opportunity is indeed a significant factor in many types of crime. We present below a number of quotations from victimization studies which have been carried out in different parts of the United States:

- "Preliminary studies indicate that over 75% of today's crime occurs as a result of avoidable victim action or inaction, which presents to the offender the opportunity to commit the crime." (8)

- "By far the greatest proportion of street crime and burglary is the result of opportunity rather than of careful and professional planning."(9)

- "It is hypothesized that crime is a function of opportunism, and that areas of high crime density typically are both easily accessible to and well-known by the criminal, are known to offer high likelihood of finding a victim at a given time and involve little risk of police apprehension." (10)

Unfortunately, there has not been sufficient research to state with any certainty the extent to which displacement will occur when particular environments are made safer from criminal attack. The evidence to this point is, however, consistent with what one might expect from the evidence regarding opportunity [11]. Notably it would seem that there is some displacement of criminal activity in geographic terms - i.e. an increase in the number of comparable types of crime in locations close to the protected areas. The evidence does, however, suggest an over-all reduction in crime as a result of the environmental design changes. At the present time, we can only say, very tentatively, that there does not appear to be any significant displacement in terms of other types of crime.

SUMMARY

In this section we have seen that there are persuasive arguments and some evidence to indicate that environment is an important element in the process of crime. In the following chapter we shall present an overview of the different approaches and techniques which have tried to use that evidence as a way of preventing, or at least reducing, criminal activity.

SECTION III

AN OVERVIEW OF CURRENT WORK

In this chapter we will try to provide an idea
of the range of techniques and approaches of those currently
using architectual/environmental design as a crime prevention
method. The purpose is to expose readers to the wide range
of different ideas and approaches in sufficient detail for
them to recognize possible use in their own area of
responsibility; we are trying to raise the level of awareness
rather than provide step-by-step solutions.

We reiterate our theme that it is safer to
consider each crime prevention situation as being more or
less unique. We can but provide a number of general principles
and access to some very specific techniques, which must be
chosen and modified in the light of the particular social,
environmental, and administrative structures of that situation.
The various approaches and techniques referred to in this
section have been carefully referenced so that more
detailed information can easily be obtained.

The section is organized on the basis of the two
major approaches being used - "defensible space" and "target
hardening". This is followed by examples of current applications
of these two approaches.

DEFENSIBLE SPACE

Most of the work done in this area has been in public housing projects in the United States. Faced with alarming crime statistics, resulting in heavy financial and social costs, architects and social scientists (most notably Oscar Newman [12] and William Yancey [13]) suggested, and offered evidence to show, that the architectural design of these projects contributes very significantly to the high levels of crime.

Following on the theoretical base outlined in the previous chapter, they state that it is possible to design the physical environment of housing projects (and indeed many other types of built environment) in ways which will create patterns of behaviour and interaction leading to a sense of ownership and responsibility on the part of residents for their own living environment. The authors refer to this as a sense of "territoriality" and claim that once this has been achieved residents will be more aware and concerned as to what happens on "their territory", noticing and even challenging intruders. At the same time, by increasing the frequency of social interaction, it is possible to create sufficient sense of community to bring back the kind of social controls which, in more integrated communities, are such a powerful deterrent to crime. In turn, this concern and watchfulness on the part of residents will be, in itself, a powerful deterrent to the potential offender.

The Techniques for
Creating Defensible Space

There are a number of principles or techniques for environmental design associated with the defensible space concept. To create the sense of territory and the kind of social interaction which are the basis of defensible space, Newman employs the following design features or modifications:

- The use of real or symbolic boundaries to identify space as belonging to a particular residence. For example, the use of walls, fences or laid-out gardens which although they pose no real barrier to a potential intruder, clearly indicate that these grounds belong to the residents of the building in question.

- The clustering of residential units to increase the frequency of contact between residents and hence the recognition of one another and, by extension, of strangers. Small hallways with three or four apartment entrances clustered around them are, for example, considered much safer than the long straight halls with central elevators and 10 or 15 apartment entrances.

- The use of facilities, such as stores, playgrounds, rest areas, etc. to increase the frequency of use of under-utilized and hence potentially dangerous areas. Parking areas and laundry rooms are, for example, usually isolated and as a consequence considered extremely dangerous areas; one might make them more visible, and hence introduce a greater deterrent factor, by locating small retail outlets or recreational facilities in their proximity, thereby increasing the flow of pedestrian traffic.

- The use and location of windows and lighting to increase natural surveillance of such areas as parking lots, playgrounds, lobbies and walkways.

One of the really critical factors in terms of
opportunity for crime and conversely deterrence of
crime is the surveillance factor. People are
afraid to use areas where they are hidden from
view and thus present easy targets for criminal
attack; conversely the fact of being seen and
possibly identified seems to be a significant
deterrent to casual or impulsive crime. (14)

As indicated above, much of the work which has
been done in developing this defensible space concept has
been in public housing. In his work, Newman emphasizes
the need to avoid stigmatization of these projects through
design characteristics, thereby making them targets of attack
from outside and, at the same time, decreasing the sense of
ownership and responsibility on the part of the residents.
All too often public housing is "institutional" in its
appearance, and while this may be functional, it seems to
characterize the tenants as being inferior citizens.

In the context of public housing, Newman compares
highrise apartment buildings very unfavourably with the
smaller two or three storey buildings. Essentially the larger
apartment buildings with their single entrance, long hallways
and often rather barren grounds are the antithesis of all
that is central to the defensible space concept. It is
important to recognize, however, that the same is not
necessarily true for high-rise apartment buildings designed
for other socio-economic groups. In fact, there is evidence

which indicates that the well-kept, prestigious apartment
block with a doorman and certain basic security devices
is in fact one of the safest living environments in the
major urban centres of the United States. [15] Again, this
is another clear indication of the need to assess each crime
prevention problem on its particular merits.

Although the defensible space concept was designed
primarily in the context of residential settings, it is
possible that the concepts might be modified for use in
other physical locations. It might be possible, for example,
to design the layout of department stores in a way which would
increase the employees' concern and sense of responsibility
regarding shoplifting. Public buildings, parks and other
commercial, industrial and recreational facilities might be
designed in a way which would create a greater sense of
responsibility on the part of users, leading to reductions
in vandalism, etc.

TARGET HARDENING

In contrast to the defensible space approach, the
proponents of target hardening techniques use physical
design in a much more direct manner. Thus, rather than
trying to create an environment conducive to the development
of social controls, they set out to make it physically more

difficult or hazardous for the determined offender to reach his target and to reduce the amount of "impulsive" crime by physically removing or reducing the opportunity factor. (16)

The techniques used in target hardening activities range from the very specific (and obvious) use of improved locks and stronger doors to very complex security systems. It is not the intention of this report to catalogue or assess available security devices (although in some of the references provided, this information is available); an understanding of target hardening is, however, important as it is an important element in the environmental design approach, both as part of the defensible space idea and in its own right.

In its most sophisticated form, the approach consists of security systems designed specifically to combat certain types of crime in a particular location. (17) Typically one would use some combination of manpower (building guards, housing authority police, citizen patrols, etc.) and equipment (locks, armour, electronic monitoring and detection devices) to make individual buildings or complexes of buildings safer for the tenants or users.

The major proponents of this security system approach stress that it must be modified to meet the needs and characteristics of each specific situation. The nature of threat posed in that situation must be understood; the costs, both economic and social, of the present or likely criminal activity must be carefully assessed; alternative approaches to developing a security system for that particular situation must be considered in the light of their costs and likely payoffs, and these must be measured against the costs incurred by the present level of criminal activity.

Although the target hardening approach is much less behaviourally oriented than that of defensible space, it does have important behavioural implications from the point of view of both the potential offender and the resident or potential victim. The dimensions of these implications on both potential offender and victim are set out below:

- Clearly it has a very direct bearing on the question of opportunity and impulsive criminal behaviour. If, in fact, impulsive crime is as significant as suggested earlier, the target hardening approach should have a very noticeable effect on the incidence of crime. We mentioned earlier the cost/benefit element of this approach, and one must assume that the professional criminal will engage in the same kind of risk/benefit analysis - although, of course, following our discussion on motivation versus opportunity, there is a much greater risk of displacement with the professional criminal.

- Although this approach does not rely on the active participation of the resident, it does require a conscious acceptance on their part, in that the more effective the security system, the greater is the likelihood that it will intrude on the privacy of the individual resident. The presence of such obvious security elements as guards, electronic surveillance equipment, etc. are, also, a constant reminder of potential danger; in fact this may indeed increase social costs, perhaps unnecessarily, by raising the level of fear associated with that residence.

CURRENT APPLICATIONS

In varying degrees, the principles and techniques embodied in these two basic approaches - defensible space and target hardening - are being used in a wide variety of situations both in Canada and the United States. In this section we present a sample of projects and activities in an attempt to provide some sense of the range of possible applications of these approaches. They include a number of different types of location and some idea of the different ways people are trying to implement these ideas. At the risk of repetition, it should again be stressed that a number of these applications have come about quite independently of the academic research which has been done in the area. People who have had to cope with crime problems on a day-to-day basis have recognized many different kinds of environment/crime relationships and have tried to apply this information in a crime prevention context.

Again, the intention in presenting these examples
is to give the reader a chance to see potential for application
in his own area of responsibility. Each of the examples is
referenced and more detail can, of course, be obtained from
the original sources.

- In some American states, building codes have
  been and are being revised to incorporate
  either defensible space design considerations,
  or improved design security measures. This is
  occurring, for example, in California, New
  York and New Jersey. (18)

- In some parts of Canada the staff of the Central
  Mortagage and Housing Corporation have indicated
  an interest in working with the police in their
  community to develop ways of combating crime in
  housing projects for which they are responsible. (19)

- Given the very direct monetary incentives, it
  is perhaps not surprising that the insurance
  industry in Canada both recognizes and acts upon
  information regarding physical design and crimes,
  particularly robbery and burglary. Areas of
  certain cities are, for example, considered poor
  risks, and insurers will be very reluctant to
  provide burglary coverage in those areas. Better
  insurance premiums or better conditions of cover-
  age are sometimes available for those who have
  security devices on their residences or place of
  business. In the case of commercial insurance
  against risks of theft and burglary, underwriters
  or their agents will take a very direct interest
  in not only the security systems of premises, but
  also physical layout and activity patterns
  associated with those premises. Premises will
  be analyzed in terms of their "risk management"
  and policy holders warned of such dangers as
  keeping inventory near shipping/receiving areas
  or garbage disposal areas. (20)

- In some communities, both in Canada and the
  United States, police visit residences and
  business premises on a systematic basis, to
  advise on how to secure the premises against

burglary. They analyze them in terms of the
degree of force required to gain entry and the
kind of physical barrier needed to prevent such
a forcible entry. (21)

- Studies which have been done on residential security
in the United States have been published in the
form of manuals dealing with every aspect of
crime prevention in residential context. (22)

- A number of workshops on crime prevention through
environmental design have been held in Canada by,
for example, the Centre of Criminology at the
University of Toronto and the Justice Secretariat
to the Ontario Government. These provide an
opportunity for important exchanges of ideas
and experience between different schools of academics
and police, architects, builders, managers, tenants,
etc. (23)

- It has been suggested that design modifications can
make a subway system less vulnerable to criminal
activity. Such factors as the use of space,
visibility, and the flow of people can be designed
to make the individual traveller or the subway
property less vulnerable to attack. (24)

- One of the most ambitious applications is that
being undertaken in Hartford, Conneticut. Here a
combination of target hardening, street lighting
and defensible space concepts is being used in a
major crime control exercise for entire residential
communities. The techniques used are developed
after a careful study of information about crime
in that area. It is proposed that successful
techniques be written up in the form of user
manuals for other locations. (25)

- A similar study is being co-ordinated by the
Westinghouse company in the United States. A
strip development in Portland, Oregon, with a
relatively high crime rate involving such felonies
as assault, robbery and burglary is the subject
of intensive investigation from a crime prevention
point of view. The location, time and nature of
criminal activity is being studied, and crime
prevention techniques involving both social and
environmental measures are being pursued. It

involves such social measures as persuading
people to carry smaller amounts of money and, of
particular importance, publicizing this campaign
for the benefit of the would-be offender; in
physical terms it will involve among other things
the demolition of certain unused buildings along
the strip which seem to be special focal points
for criminal activity. (26)

In general, it is clear that there are a wide
range of techniques currently being used to bring environ-
mental design into the battle against crime. Some are
based on very practical common-sense ideas, requiring very
little in terms of physical change to the environment.
Others are based on rather complex assumptions about the
nature of social interaction and social control and will
require much more careful monitoring before any general
benefits can be claimed.

SECTION IV

GUIDELINES FOR APPLYING DESIGN TECHNIQUES
IN CRIME PREVENTION

This section is, in a sense, a manual for those
with crime prevention responsibilities and for those in
environmental design fields who wish to apply their skills
to crime prevention ends. Earlier sections of the report
have emphasized that, for all its merits, the environmental
design approach offers no clear-cut solutions which can be
generally applied. Until more is known, it is important
to take each situation and develop an approach based on the
needs and particular social, environmental factors involved.
Although this may seem unnecessarily time consuming, we
believe that, at this point, it is essential if useful
results are to be obtained.

These guidelines, then, represent a more or less
structured means of ensuring that the more important dimensions
of a situation are taken into account and the full range of
possible solutions considered. They are presented in a
series of steps to be followed, each with an account of the
more important associated variables.

1. Think in Crime Prevention Terms.

An essential, and one might say obvious, first
step in any endeavour of this kind is a general

orientation towards crime prevention on the part
of all concerned. This factor is mentioned
specifically as it is clear from the review of
the literature that many relatively straight-
forward environmental considerations are simply
ignored or not recognized. (27)

If security factors had greater priority among
other design criteria, then architects and builders
would be more concerned with such details as the
strength of doors and hinges, the type of locks
used and the location and accessibility of windows.
Security factors are, however, only one of a number
of design criteria which must be accommodated and,
until recently, they seem to have been among
the least important.

It is no less important for the users of residen-
tial and commercial premises to have the same
concern for crime prevention. As the police have
pointed out, (28) it serves little purpose to talk
to tenants or homeowners about improved security
systems if they habitually leave doors and/or
windows unlocked during their absence.

2. <u>Bring Together People with Common Concerns But</u>
   <u>Different Perspectives</u>.

   Those responsible for programs or specific
   projects based on this approach should, as far
   as possible, ensure that the perceptions and
   experience of a cross-section of interested parties
   are used in developing solutions. The police,
   architects, builders, building managers, community
   workers and tenants themselves working together
   can bring about a much greater understanding of
   the problems from their day-to-day exposure to
   the situation and/or their practical experience
   or conceptual knowledge. In this way a number
   of possible approaches can be explored in terms
   of both their cost, effectiveness and likely
   acceptance by the residents. This approach
   avoids solutions which reflect only the particular
   discipline of the person or group responsible for
   the project.

3. <u>Take as a Starting Point the Criminal Activity or</u>
   <u>Activities, Rather Than a Generalized Crime</u>
   <u>Prevention Program</u>.

   Identifying this as a discrete step in the process
   ensures that the objectives of the project are
   clearly stated and understood. In view of the
   qualitative decisions which must be made during
   the project, there will be a much greater chance

of success if they are made with a clearly defined
objective in mind: "To reduce the opportunities
for burglary" is a much easier concept to work
with than the more general "to reduce crime in
this housing project".

If the project involves modifying an existing
environment, the crimes which are associated with
that environment should be clearly identified;
in the case of a new development a combination of
research data and the practical experience of
the police in that area should be used to
anticipate the most likely criminal activities.

This step also serves to establish from the
outset the extent to which a crime prevention
project is warranted. If it is established that
this is a relatively low-risk crime situation,
the nature and extent of the initiatives to be
taken will be very different from those where
crime poses a serious problem.

4. Develop as Much Information as Possible About the
   Characteristics of the Criminal Activity to be
   Combated.
   This is a logical next step in the decision-making
   process for the project. Having established that
   certain types of criminal activity pose a problem,

one must then obtain as much information as
possible in order to facilitate the decisions
regarding the most appropriate action to be taken.
Again, this reinforces the point that there are
no "packaged" solutions and success depends,
therefore, on identifying the nature of the problem
as clearly as possible. Building up this
information, one should try to identify for each
type of criminal activity:

- any specific locations;
- the time of day or night;
- details of the victim(s) involved;
- details of the criminal activity itself,
  including the modus operandi and an indication
  of the level of skill involved.

This information, together with available research
data on offender behaviour, will help to establish
the extent to which design solutions are likely
to prove effective, an indication of the kinds
of approach that may be taken, and, possibly, some
indication of the side effects which might result
from a successful introduction of design approaches.

By way of illustration, the following indicate
some possible courses of action which might be
adopted if the information is collected properly:

- If it is established that much of the criminal
  activity takes place under cover of darkness,
  then clearly one of the design solutions to be
  considered would be improved lighting and
  surveillance opportunities.

- If it is shown that the most typical criminal
  activity is burglary and the modus operandi
  indicates that the offenders are inexperienced
  non-professionals, then the design solutions
  would simply be a question of better locks,
  combined with an educational program to ensure
  that tenants become less careless and more
  security conscious. The evidence suggests that
  "non-professional" burglars respond very much
  to perceived opportunities and hence, deterrence
  may not be that difficult.

The examples chosen above may seem somewhat
simplistic; we are convinced, however, that once
a problem has been clearly identified, possible
solutions will, typically, seem very straightforward.

5. <u>Do not be Limited in the Range of Possible Solutions.</u>
   As any approach to crime prevention becomes
   particularly well known, there is a tendency for
   people to pursue that particular approach if not

to the exclusion of, then certainly in preference
to, other solutions. We suggest here that there
are real benefits to being open-minded and
considering all of the design techniques which
might be used in a given situation, from better
lighting and target hardening to defensible space.

At the same time, other approaches to crime
prevention should be considered, either in
conjunction with or as alternatives to, the design
solutions; this would include victim education,
better management of buildings, better identification
of property, etc.

6. Take a Critical, Cost-Effective Approach to
   Proposed Design Solutions.
   On the one hand, some indication should be obtained
   of the costs involved in the existing crime
   situation. Some of these will be possible to
   measure very precisely in financial terms: the
   cost of replacing stolen or damaged property;
   the insurance premiums which are a function of
   the loss or damage; and, more approximately, the
   cost associated with police time. Albeit at a
   more subjective level, it is possible to make an
   assessment of the social and emotional costs
   which result from the criminal activity. If, for

example, it is clear that the lives of residents
are dominated by fear of assault or personal
injury, then, clearly, these costs must be
considered very high.

These costs should be weighed against those which
will be incurred by introducing different types
of crime prevention solutions. Again these will
have both the direct monetary component - the
costs of design changes, security personnel, etc.,
and the more intangible social, emotional costs -
such as those which result from loss of privacy,
the constant reminder of danger or insecurity,
etc.

7. Take Into Account the Characteristics of the
   Residents or Community in Developing Solutions.
   This represents another critical variable in the
   decision-making process. One of the principal
   difficulties in transferring a particular
   environmental design solution from one situation
   to another is that its impact on another community
   may be very different from that of its community
   of origin. Different socio-economic, ethnic and
   age groups use and respond to their physical

environment very differently. Their pattern
of social interaction may also be markably
different. Thus, a design solution which has
proved effective in a working-class, black
community in the United States may prove totally
ineffective if applied elsewhere.

Although this is clearly most important in the
case of defensible space solutions, calling as
they do for changes in behaviour patterns, it is
still important in the target hardening approach.
Communities will have very different acceptance
levels for elaborate security systems or housing
designs which intrude on their privacy.

One must again stress the importance of working
with a community, both directly and through those
who have worked in that community, to increase
the changes of producing solutions which will
be effective and acceptable to the communities
involved.

8. Monitor and Evaluate the Effectiveness of a
System/Approach Which is Adopted.
Based on the evidence which is available at
this time, the environmental design approach
seems to offer the promise of real progress in

the crime prevention field. There is still
so much to learn, however, that it is essential
that any practical endeavours in this area
should be approached on an experimental basis.
This is important in that it will avoid un-
realistic expectations on the part of practitioners
and hence, premature disillusionment. An
experimental approach will also encourage a
greater openness in applying the concept and
objectivity in assessing the effectiveness of
specific approaches. Finally, it is important
in that it will encourage those involved to
record their experiences, thereby making it
possible for a sharing of experience and the
development of a systematic body of knowledge
in the field.

SECTION V

A NEED FOR FURTHER RESEARCH

Throughout this report it has been necessary to strike a balance between optimism and caution. The environmental design approach to crime prevention, encompassing both target hardening and defensible space concepts, seems to be the most exciting advance in crime prevention in many years. The more established study of social, economic, and psychological 'causes' of crime offer little by way of impact on crime figures. The effects of the environmental approach could, however, be both dramatic and more or less immediate. However, the work which has been done to this point raises many, as yet, unanswered questions. There is an urgent need for more information, information which can only be obtained from basic research on a number of important issues, and from the evaluation of experimental demonstration projects applying environmental design techniques.

In this section we suggest some kinds of research which are required. Undoubtedly, there is a good deal of research being carried out to improve the technical aspects of security systems. While this is an essential part of the crime prevention process, it is beyond the scope of this

paper, where our interest focused on the social behavioural considerations involved.

The two major parts of this section deal, first, with specific topics for research and, second, with the need to develop a program for co-ordinating activities in this area within Canada.

RESEARCH TOPICS

The Importance of
Opportunity in
Criminal Behaviour

Undoubtedly this topic is, at present, the single most important research need in the whole of the environmental design approach, having important implications for both the defensible space and target hardening approaches. A number of studies have indicated that much criminal behaviour is of an impulsive nature, i.e. the behaviour is largely motivated by the opportunity which exists in the offender's environment at the time. The extend to which this is true, obviously, has important implications for a crime prevention approach based on environmental changes which, in effect, reduce opportunity. It would seem critical, therefore, to develop a much clearer understanding of the role of opportunity in different types of criminal behaviour. The

research questions then become:

- Is it possible to identify certain specific
types of criminal activity as being largely
"impulsive"?

- To what extent is it possible to categorize
these types of criminal activity according
to the nature of the offence, characteristics
of the offender and the nature of the oppor-
tunity triggering the offence.

Closely allied to the opportunity question are
the issues involved in displacement of crime. If we make
it more difficult to commit a certain type of crime in a
particular location:

- Will this mean that the same type of crime
will increase in other neighbouring locations,
as individuals seek out other opportunities;

- Will there be a rise in other, possibly more
serious, types of crime in the same location
as the individual resorts to other means to
achieve his ends. (29)

Again, we should be able to relate this kind of
information to types of crime and characteristics of the
offender.

We would stress that research of this kind should
be done in a number of different settings. Because so much
of the earlier work has been carried out in residential
areas, we must not forget that the same issues apply in depart-
ment stores, factories, warehouses, parks and other
leisure facilities. The opportunity factor may be even
more significant in these kinds of settings.

Information on
Different Types of Crime

Over and above the opportunity factor, it is
important to develop as much information as possible regarding
the circumstances of different types of crime. Much of
the research done to date has looked at the social and
psychological correlates of crime, and the situational
factors which are now so important to our current approach
have been largely ignored. We suggest there is a need for
the following kinds of information:

- those types of crime associated with iden-
  tifiable types of location - or even specific
  areas - which pose a threat to the surrounding
  community both at a social/emotional level
  (in terms of fear, etc.) and financial level
  (in terms of loss or damage to property);

- as much meaningful data as can be collected
  about the crime situation: specific locations,
  number of people involved, nature of victims,
  time of day, offender characterists (including
  level of skill) where available.

This kind of information is important to those
responsible for crime prevention through environmental
design. It enables them to assess the extent of changes
which may be justified and what the nature of those changes
should be.

The Behavioural
Assumptions of
Defensible Space

The defensible space concept makes a number of
rather significant assumptions about individual and social
behaviour. If it is to be possible to use this concept in
any meaningful way in Canada, we must establish more clearly
an understanding of the social and behavioural dynamics
involved. The key questions in this area would seem to be:

- The extent to which changing patterns of inter-
  action through design modifications will bring
  about the kind of social cohesion (however
  minimal) necessary for the development of
  interest and informal social controls. There
  is an extensive body of literature which
  suggests that patterns of social interaction
  are influenced significantly by a variety of
  social, economic and ethnic considerations. It
  is important to establish, therefore, whether
  what seems to be true in low socio-economic
  communities in the major urban centres of the
  United States will apply in the many types of
  community in Canada (and indeed in other parts
  of the United States). (30)

- The defensible space concept requires that
  individuals intervene in situations where a
  crime might occur, e.g. the presence of a
  stranger in one's "territory", or where a crime
  has in fact taken place in that territory.
  Although the appropriate intervention behaviour
  may require nothing more than asking a stranger
  if he requires assistance or reporting a crime
  to the police, there is no clear-cut evidence
  that a sense of identity with the particular
  territory will be sufficient motivation.
  Studies by sociologists and social psychologists
  indicate that there are a large number of
  variables involved in the decision to inter-
  vene in any kind of anxiety-provoking situation.
  It is quite possible that the design solution

in itself may not be sufficient to overcome
some of the inhibiting factors. Research is
needed, therefore, on the extent to which people
will intervene in different kinds of situations
and the critical factors influencing their
decision to do so. (31)

THE NEED FOR A
CO-ORDINATED STRATEGY

If Canadians are to derive any significant

benefits from the environmental design approach, there is

a real need to co-ordinate activities in this area. The

ideas have obviously generated a good deal of interest and,

in one form or another, the ideas are being pursued in

different parts of the country by people with an interest

in crime prevention, architectural design and the development

of policy and legislation.

We have noted a number of times that, in terms of

its current applications, the approach is a relatively new

one and should, pending identification of valid defensible

space design criteria, be considered experimental.

We would suggest that it is important for some

group or individual to take the initiative and co-ordinate

activity in this area over the next several years. Unless

this is done, progress will be random, mistakes will be

repeated and practitioners will become disillusioned with

the approach or, perhaps even worse, enthralled and adopt it without any real assurance of results.

To ensure that this does not occur requires a number of steps:

- There must be a clear statement of the approach, its strengths and limitations and of the priorities of its development (hopefully this paper will contribute to that end).

- There should continue to be an exchange of ideas and experience between those who have an interest in the field, at both a practical and theoretical level. The results of these exchanges should be publicized as widely as possible.

- A program of research should be initiated to build up a solid base of knowledge about the critical factors involved.

- Opportunities for demonstration projects should be identified and pursued with a monitoring and evaluation component built into them. This evaluation component should be an essential condition attached to any funding of such projects.

- These demonstration projects should include both target hardening and defensible space approaches and should be carried out in different types of communities.

- The co-ordinator should keep as up-to-date a record as possible, of those doing work in this area of either a research or practical nature and encourage dialogues and exchanges of ideas.

- The co-ordinator should arrange, perhaps on a 12-month basis, regular reviews when those involved would be able to assess progress and review emerging issues.

If it should prove possible to develop and
follow through on a program such as the one outlined above,
we may experience some tangible progress in crime prevention
and, at the same time, develop a useful working model for
introducing and monitoring change in the criminal justice
system.

FOOTNOTES

1. Although there are now many psychologists active
   in this field, Proshansky has provided a useful
   overview of the field and we recommend the book
   of readings which he has edited, Environmental
   Psychology. New York: Holt, Rinehart and
   Winston, 1970.

2. These 'principles' are taken from an article,
   "The Influence of the Physical Environment on
   Behaviour: Some Basic Assumptions", written by
   Proshansky and his colleagues and included in
   his book (ibid.) pp. 27-37.

3. The most comprehensive statement of Jane Jacobs'
   ideas is presented in The Life and Death of Great
   American Cities, New York: Random House, 1961.

4. See, for example, the article by H.L. Nieburg
   "Crime Prevention by Urban Design" in Society,
   Vol. 12(1): p. 41-47, 1974, and book reviews by
   M. Heppenfeld (p. 136) and A. Melamed (p. 137)
   in the Journal of the American Institute of
   Planners, V. 28, 1962.

5.   Oscar Newman's work in 'defensible space'
        (see page 15 of this report) originated as a
        result of his study of this data; see Oscar
        Newman, <u>Architectural Design for Crime Prevention</u>
        published by the National Institute for Law
        Enforcement and Criminal Justice, (N.I.L.E.C.J.)
        Washington, 1971.

6. & 7.   See, for example, a detailed study by Gerald
          Luedtke & Associates of five precincts in Detroit,
          Michigan, published as <u>Crime and the Physical</u>
          <u>City: Neighborhood Design Techniques for Crime</u>
          <u>Reduction</u> by N.I.L.E.C.J., Washington.

8.   This is quoted from the opening statement of a
        crime prevention seminar held in Washington on
        April 12 and 13, 1972. The proceedings have been
        published by N.I.L.E.C.J. under the title:
        <u>Urban Design, Security & Crime.</u>

9.   Based on a review of research undertaken on
        this subject entitled "Community Crime Prevention:
        An Overview" and reported in the <u>Law Enforcement</u>
        <u>Assistance Administration Newsletter.</u> Vol. 4,
        No. 3, 1974.

10. See Angel, S. Discouraging Crime Through City
Planning, University of California, Berkley, 1968.

11. As, for example, the discussion on displacement
in "Crime as Opportunity", Research Report
being prepared for publication by the Home Office
Research Unit, London, England.

12. "Defensible space" as a crime prevention concept
has received its widest recognition through
Newman's book, Defensible Space, Crime Prevention
Through Urban Design, New York: The MacMillan
Company, 1972.

13. William Yancey's study of a housing project in
St. Louis, Missouri, examined the impact of
architectural design on the development of social
behaviour in a working class neighbourhood; his
findings and commentary were published as
"Architecture, Interaction and Social Control:
The Case of a Large Scale Public Housing Project"
in Environment and Behaviour, Vol. 3., 1971, pp. 3-21.

14. These techniques are presented both in Newman's
book and in an earlier monograph, "Architectural
Design for Crime Prevention", published by the

National Institute of Law Enforcement and
Criminal Justice: Washington, 1971. They also
appear in summary form in a number of other
N.I.L.E.C.J. publications, such as <u>Deterrence of</u>
<u>Crime in and Around Residences</u>, Washington, 1973.

15. It should be noted that such a building satisfies
at least some of Newman's defensible space
requirements; it provides, for example, clearly
marked boundaries which give residents and staff
a well-defined territory; with its doorman and
security staff, it provides consistant surveillance,
although, of course, this is surveillance by
staff and not residents.

16. As noted later in the report (page 20), target
hardening cannot be considered simply in physical
terms; it too has important social and psychological
components.

17. One of the best statements of this approach is
contained in a paper presented by M. Liechstein,
<u>Reducing Crime in Apartment Dwellings: A Methodology</u>
<u>for Comparing Security Alternatives</u>, presented
at the 37th Annual Meeting of the Operations
Research Society of America, Washington, D.C.,
April 20-22, 1970.

18.   The National Crime Prevention Institute in the School of Police Administration, Louisville, Kentucky, keeps a record of many city ordinances related to security. They informed us that the Oakland ordinance is considered a model of its kind.

19.   Information obtained from telephone discussions with a sample of social development officers from Central Mortgage and Housing Corporation.

20.   Information provided by insurance underwriters and agents interviewed in Toronto and Montreal.

21.   We spoke to crime prevention officers in police forces across Canada, and a number reported having or giving active consideration to such programs. Some have published brochures for the public on the subject; the Hamilton-Wentworth force, for example, has a comprehensive brochure, Burglary Prevention, prepared for businessmen in their region.

22.   What seems the most comprehensive of these manuals was published in 1973 by the National Institute of Law Enforcement and Criminal Justice at the U.S. Department of Justice in Washington,

D.C., under the title <u>Residential Security</u>.
It looks at all aspects of residential security
in a cost/effectiveness framework - degree of risk,
physical security devices, design standards,
citizen patrols, security guards and legislation.
See also <u>Deterrence of Crime in and Around</u>
<u>Residences</u>, N.I.L.E.C.J., Washington, 1973, and
Angel, S., <u>Discouraging Crime Through City</u>
<u>Planning</u>, University of California, Berkley,
1968.

23.   The proceedings of the workshop at the University
of Toronto have been published and provide a good
general overview of Canadian activities and concerns
in this field; see "Environmental Design and
Modification", in <u>A Crime Prevention Workshop</u>,
Report of the Proceedings, Centre of Criminology,
University of Toronto, May 21 and 22, 1975.

24.   See Harris, O.L., Jr., <u>Methodology for Developing</u>
<u>Security Design Criteria for Subways</u>, Carnegie-
Mellan University, Pittsburgh, Pennsylvania,
1971. We believe also that crime prevention
criteria were a major feature in the design of the
new subway system in Washington, D.C.

25.   For a brief summary of the project see "Hartford
        Project Will Serve as Institute's First Model,"
        in the Law Enforcement Assistance Administration
        Newsletter, Vol. 4, No. 1, 1974.

26.   At the time of preparation we were unable to
        obtain written material on this project; an
        outline of the project was presented at the
        annual meeting of the American Society of
        Criminology, Oct. 30 - Nov. 2, 1975 held in
        Toronto.

27.   Most of the authors we have referred to stress
        this point, and we would mention specifically
        the overview in the L.E.A.A. Newsletter, Vol.4,
        No. 3 1974: "Community Crime Prevention: An
        Overview".

28.   In our discussion with police officers, this
        point was made by almost everyone we spoke to, and
        it seems to be as true for the businessman as
        for the homeowner.

29.   As mentioned earlier (footnote 11) the evidence
        on this point seems to indicate some geographic
        displacement, but very little change to other types

of crime. However, much more research is needed on both these displacement questions to provide more solid evidence.

30.   In reviewing the literature on this question, we identified some 12-15 variables which seem to be associated with the development of social cohesion. They include: lifestyle, stage in life cycle, length of residence, values, social class, work status, need for privacy, perception of changes, and aspirations. We suggest three articles to provide a good cross-section of the research in this field: Gans, H., "Effect of the Move from City to Suburb" in L. Duhl (ed.), The Urban Condition, New York: Basic Books, 1963; Suttles, G., The Social Order of the Slum, Chicago: University of Chicago Press, 1968; Yancey, W., "Architecture, Interaction and Social Control: The Care of a Large Scale Housing Project". Environment & Behaviour, Vol. 3, No. 1, March 1971.

31.   In a study undertaken in Edmonton, Alberta, James Hackler sets out the important dimensions of the intervention question; see "The Willingness to Intervene: Differing Community Characteristics", Social Problems, Vol. 21, No. 3, 1974.

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