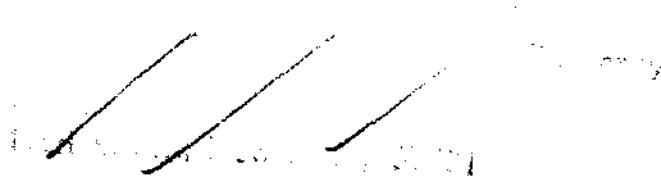

A Re-Evaluation of Crime Prevention Through Environmental Design Program in Portland, Oregon

Executive Summary



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James Kushmuk
Sherri U. L. Whittemore

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U.S. Department of Justice
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James L. Underwood

Acting Director

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ABSTRACT

This report presents a re-evaluation of the Portland, Oregon Crime Prevention Through Environmental Design (CPTED) program sponsored by LEAA during the period 1974-78. This second evaluation of CPTED was intended both as a follow-up to an earlier study performed in 1977 by the Westinghouse Electric Corporation (CPTED contractor), and as an Independent assessment. The evaluation studied the impact of CPTED efforts on conditions in a commercial area of Portland known as the Union Avenue Corridor (UAC).

The most important finding of the re-evaluation was a reduction in commercial burglaries which could be attributed to a combined security survey and streetlighting program implemented as part of CPTED. Decreases in commercial burglaries following this intervention were sustained for a two-year follow-up period. Decreases in street crimes, commercial robbery, and residential burglary which could be attributed to CPTED activities were not found.

The results for fear of crime indicated levels of fear somewhat higher than what would be expected based on actual crime conditions. This trend is consistent with other research, most notably the findings of the Northwestern University Reactions to Crime Project. It is apparent that signs of social disorganization also contribute to a community's fear of crime.

Other conditions on the UAC (including quality of life, physical security, physical appearance, and social cohesion among the business community) showed a pattern of stabilization since the end of the CPTED demonstration two years prior to the re-evaluation.

The most successful CPTED strategies were the Security Advisor services and the organization of the business community around crime prevention concerns. The massive architectural improvements planned for Union Avenue were the least successful. These were apparently more difficult to make happen during the relatively short demonstration period.

The most important lesson learned from the Portland experience is that realistic goals must be set when selling a CPTED program to a community. An implementation period of five years will most likely be required during which time a strong facilitator (such as the role Westinghouse played in Portland) will be required.

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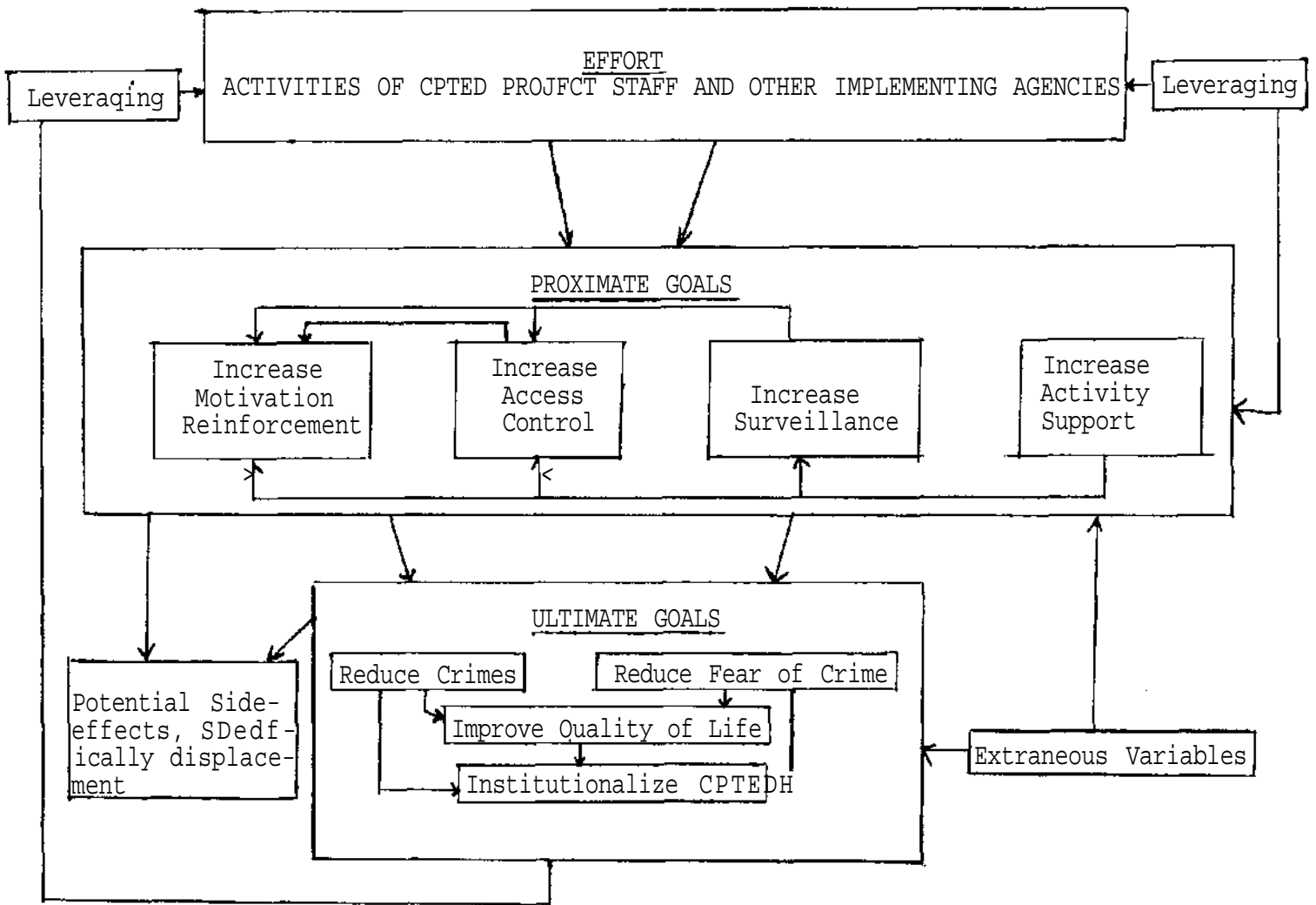
INTRODUCTION

The influence of the urban environment on crime has long been recognized. Yet it was only two decades ago that the integration of urban design theory and crime prevention theory began with landmark works by Oane Jacobs (1961), Shlomo Angel (1968) and Oscar Newman (1972). Jacobs, an urban scientist, postulated that essential to preventing crime is a social climate marked by feelings of community cohesion and territoriality, a sense of belonging to and protecting one's "turf." Angel and Newman, both architects, were most concerned with how physical aspects of the environment increase the likelihood of criminal behavior. Angel formulated the idea of a "critical intensity zone," stating that the number of pedestrians on the street (either too many or too few) is a critical factor in determining whether or not a street is safe. Observing and collecting data on various New York City housing projects, Newman proposed a number of building design characteristics which reduce the opportunities for crime, creating the concept of "defensible space." These and related works marked the beginning of contemporary theory on crime prevention through environmental design.

Further development of the idea of crime prevention via urban design occurred during the early 1970's with a series of projects sponsored by Housing and Urban Development and the Law Enforcement Assistance Administration. The culmination was a national demonstration program called Crime Prevention Through Environmental Design (CPTED). The first two-year \$2 million CPTED contract was awarded in 1974 by LEAA's National Institute to a consortium of criminologists, social scientists, architects, and urban planners headed by the Westinghouse Electric Corporation. A second \$2 million contract extended the program through mid-1978. The broad goal of this effort was to develop, implement, and evaluate CPTED demonstration programs in three environmental settings: A residential community, a commercial strip, and a school.

CPTED Theory

CPTED and its intended effects has been conceptualized as shown in Figure 1. The immediate or proximate goals of the program involve bringing about changes in the physical and social environment; specifically, increasing Access Control, Surveillance, Activity Support, and Motivation Reinforcement (Kaplan, et al., 1978).



As the arrows indicate, the proximate goals are not mutually exclusive. Increased access control provides support for increased Motivation reinforcement; Increased surveillance serves to increase access control and motivation reinforcement; and increased activity support promotes increases in the other three.

Figure 1

Revised CPTED Conceptual and Evaluation Framework
 (Extracted from Westinghouse final report; Kaplan, et al, 1978; p. 8-12)

Access Control attempts to prevent unauthorized persons from entering businesses, residences, or other areas for criminal purposes. These strategies work to reduce the opportunity for crime. Hence, Access Control encompasses both traditional target hardening behaviors (better locks, doors, alarm systems, etc.) and psychological barriers (crime prevention stickers, landscaping, design of streets and pedestrian areas) which signal to the potential criminal that the area is protected. Surveillance involves increasing the ability of legitimate users of the environment to observe intruders and, thus, increases the perceived risk of committing a crime. Access Control and Surveillance are generally mechanical concepts which more often involve physical and architectural design features rather than strategies aimed at the social climate of the area.

Activity Support and Motivation Reinforcement, although distinct in the CPTED model, are very similar in that both are most concerned with people's attitudes toward their environment. These strategies attempt to produce positive attitudes toward the environment among the non-offender population (social cohesion, feelings of territoriality) while at the same time creating disincentives for offenders to commit crime. In actual practice, these two concepts will involve both physical and social strategies, such as design features which give people an identification with their environment, creation of new social networks, promotional events, and community efforts to detect and prevent crime.

Underlying the four key CPTED concepts is the idea of OTREP. Crime opportunity is a function of target, risk, effort, and payoff (Kaplan, et al., 1978). An environment where few easy targets exist, where the perceived risk of being caught is high, where the effort required is great, and where the payoff is small is the most secure against crime. CPTED strategies have been designed with this model as a basis.

As Figure 1 indicates, the attainment of CPTED's four proximate goals should, in turn, lead to reductions in the level of crime, reductions in fear of crime, and improvements in an area's quality of life. CPTED attempts to break the spiralling downward cycle where poor social/economic or crime conditions lead to an abandonment of the environment (both in the physical and psychological sense), increased crime and fear of crime, and further decline and abandonment. In the crime/environment analysis of a community, all three factors must be considered and impacted upon if crime prevention efforts are to be successful in the long-run.

CPTED does not view the initial attainment of the "ultimate" goals as an end point. Crime, fear of crime, and quality of life are environmental conditions which must be maintained. Hence, the

institutionalization of CPTED concepts and favorable environmental conditions is important. CPTED, in its ideal state, should result in the self perpetuating process shown in Figure 1.

Overview of CPTED in Portland

The demonstration of CPTED in the commercial environment was implemented in Portland, Oregon during the period of 1975-77 in a declining mixed-use commercial strip known as the Union Avenue Corridor (UAC). Over this two-year period, the Westinghouse consortium worked closely with local government leaders and planners in an effort to design and implement a revitalization program for the UAC which would apply and test CPTED concepts. Westinghouse provided technical assistance, which included aiding in the development of grants and other funding strategies (direct funding was not a part of the national program), voicing CPTED concerns in the implementation of the Union Avenue Redevelopment Program, and providing important linkages between federal, state, and local governments. In short, the national contractor was designated as facilitator for the Portland CPTED project. It was felt that a successful CPTED program must be developed from within the community. As part of the demonstration, an evaluation was performed by Westinghouse (see Lavrakas, et al, 1978 and Kaplan, et al, 1978).

Statement of Purpose

The purpose of this project was to perform a re-evaluation of the Portland CPTED project. This re-assessment came two years after the Portland demonstration officially ended (January, 1978). The re-evaluation built upon the first study of CPTED in order to provide follow-up on the attainment and institutionalization of CPTED goals. Equally important was the purpose of providing a second independent assessment of CPTED which addressed major issues of interest to the National Institute of Justice and local policy-makers. These issues were the following:

1. What was the effect of the Portland CPTED effort on the objectives of the program? That is, what was actually accomplished, what was implemented, when, and how, and did these activities affect crime, fear of crime, quality of life, or have any other unanticipated effects?
2. What did the program leave after it was completed and did it get adopted by anyone in the area? Thus, did city government continue CPTED activities or apply any of the concepts or practices for use elsewhere; did the businessmen or organizations adopt any of the ideas or continue already adopted activities; and finally, did the community make any changes or adopt any new attitudes related to the CPTED program?

3. Did any particular strategy or combination of strategies seem to be most effective, and why? Here the emphasis was on the comprehensive nature of the CPTED program.
4. What was learned from the Portland CPTED experience? Here the emphasis was on policy, activities, planning and implementation.

This set of questions provided the basis for interpreting the re-evaluation findings.

THE PORTLAND CPTED PROGRAM AND FIRST EVALUATION

The Union Avenue Corridor

In Portland, Oregon the Union Avenue Corridor (UAC) was selected as the demonstration site for testing CPTED theory in a commercial setting, the UAC is a 3/4 mile long, four block wide, mixed-use commercial strip. The UAC runs north and south and is located in the northeastern part of Portland just across the Willamette River from the main downtown area of the city. Located along the length of the UAC are various types of businesses: light industry, new and used car dealerships, grocery and variety stores, banks, fast food and regular restaurants, taverns, gas stations, drug stores, and wholesale outlet stores. The residential neighborhoods surrounding the UAC are comprised of good to fair to poor housing and the population is moderate to low-income and racially mixed. Approximately half of Portland's black population lives in the general north and northeast areas surrounding the UAC.

During the 1930's, 40's and early 50's, the UAC was one of Portland's thriving commercial districts. Part of this vitality could be attributed to the fact that Union Avenue was the major north-south state highway system through the city. However, by the late 1950's Interstate-5 had been completed and the majority of all north-south traffic was routed away from Union Avenue. Also, during the early 1960's a large shopping mall was built near, but not within, the southern boundaries of the UAC. This development was influential in drawing business away from the corridor. The effects of the shopping mall and the reduction of traffic due to the new interstate highway contributed significantly to the eventual economic decline and subsequent dilapidated appearance of the UAC. Racial disturbances also occurred during the late 1960's. The UAC took on a fortified appearance, businesses closed, and further economic decline and urban decay occurred. Accompanying these declining conditions was an increase in predatory crime. The 1974 crime rates (per 1000 persons) for robbery, burglary, assault, and purse-snatch were about three times higher in the UAC than in the city as a whole. The conditions which existed in the UAC in the early 1970's and the contributing rationale for these conditions were not unique to the UAC nor to Portland, but were in many ways representative

of similar commercial sites in other U.S. cities. This was a major consideration in selecting Portland.

The decline of the Union Avenue Corridor had been an issue of concern to city officials before CPTED efforts began in 1974. During the late 1960's, the section of Portland comprised of the UAC and the surrounding neighborhoods was designated as a Model Cities area. Under this HUD-sponsored program, attempts were made to reverse the urban decline which was occurring through strategies aimed at employment, economic development, physical improvements, education, youth services, and public safety. The thrust of Model Cities, much like CPTED, was to bring about social and physical improvements via citizen participation in community affairs.

Portland also participated in LEAA's High Impact Anti-Crime program during the early 1970's* The UAC was an area of focus for Impact efforts to reduce burglary and street crimes. The purchase and installation of improved streetlighting on Union Avenue were funded through Impact as were the services of the UAC Security Advisor (both CPTED strategies). Portland was chosen for CPTED not only because of its crime problem in the UAC but also because of its interest in and commitment to CPTED concepts. This was the context in which the program was implemented.

One aspect of the area's social climate is also worth noting. Following the riots and civil disturbances which occurred during the late 1960's and early 70's, there was a period of relative quiet in the Union Avenue area. In recent years, however, there has been some resurgence of racial tensions around two issues: school desegregation and use of excessive force by the police. One organization in particular (the Black United Front) has been vocal on these issues and has organized a number of peaceful but highly visible activities in protest of school and police practices (most notably, a school boycott in 1979). The Black United Front has often been portrayed as being representative of only a minority of blacks, yet their presence has been strong during the past two years and has undoubtedly had some effect on attitudes in the area. These conditions provide the social context in which the re-evaluation of CPTED was performed and should be kept in mind when interpreting the evaluation findings.

The Westinghouse CPTED Effort and Evaluation

The basic design of CPTED was to build from existing programs and funding sources and help the city implement a comprehensive crime prevention program. After a year of working with city officials, Westinghouse developed a demonstration plan for the UAC (Bell, et al., 1976) which recommended seven strategies, with no assurance that all would be implemented nor that the program would be restricted to these activities alone. The seven strategies were:

1. Creation of a "Safe Streets for People."

2. Creation of a Residential Activity Center and mini-plazas.
3. Corridor promotion.
4. Improved transportation.
5. Security Advisor services.
6. Increased law enforcement support.
7. "Cash Off the Streets" program.

The first two strategies involved physical redesign of certain streets and intersections, improved lighting, massive road improvements on Union Avenue, and social strategies intended to increase the constructive use of the built environment. These changes would improve the area's safety, make it more attractive, and provide activity nodes for residents and shoppers. Corridor promotion was concerned with planned community events (such as clean-up days and open-air markets), organization and support of the business and residential communities, and economic development. In order to improve transportation, plans were made to upgrade bus waiting areas and provide special public transportation for the elderly and handicapped. Employing a full-time security advisor was a major component of the Westinghouse plan. This advisor would be responsible for conducting a security survey program which would recommend target hardening techniques to businessmen and residents. The SA would also make crime prevention presentations and provide technical assistance to the Union Avenue Redevelopment Program. As a means of increasing law enforcement support, improved police patrols, revision of patrol district boundaries, and the creation of a store-front police precinct on Union Avenue were proposed. The final planned strategy was Cash-Off-the-Streets which would discourage citizens (especially the elderly) from carrying large amounts of currency when on the streets while advertising this fact to potential purse-snatchers and robbers.

The successful implementation of these strategies depended upon a number of city agencies working together toward common goals. The CPTED program was closely tied in with the city's Union Avenue Redevelopment Program and the Portland Police Bureau's Crime Prevention Unit. A Westinghouse onsite coordinator was hired in March, 1975 to provide general coordination between the various agencies and diverse interests which CPTED involved. A new coordinator was hired in mid-1976 and worked through the end of 1977; January, 1978 marked the official end of the commercial demonstration in Portland.

Westinghouse performed an in-house evaluation of its Portland effort in 1977 (Lavrakas, *et al.*, 1978; Kaplan, *et al.*, 1978) which was intended to determine if: (1) the Portland program represented

a valid application of CPTED theory to a commercial environment (program success), and (2) the ultimate goals of reduced crime, reduced fear of crime and improved quality of life were achieved (theory success). The evaluation gathered archival data on crime rates and economic conditions in the Union Avenue Corridor; survey data via interviews with businessmen, residents and key people within the community; and observational data measuring pedestrian activity in the corridor.

The Westinghouse evaluation found that the following CPTED strategies were implemented during the demonstration period:

- Commercial and residential security surveys.
- Installation of high-intensity and infill street lighting.
- Creation of a Safe Streets for People.
- Installation of new bus shelters with good surveillance ability.
- Organization and support of the business community.
- Community events (market and clean-up days).

It was also found that other environmental improvements related to CPTED were being planned but had not actually been implemented during the demonstration. These included an 80-unit housing project for the elderly which would be linked to Union Avenue by a redesigned safe street, a \$4.5 million road improvement program, new businesses locating in the corridor, and the possible construction of a new Veteran's Hospital in the area. Part of the task of re-evaluation was to follow-up and report on these planned improvements. A complete analysis of these strategies appears in the results section.

The second level of Westinghouse's evaluation was concerned with the extent to which the CPTED effort brought about desired changes in the physical and social environment, or the attainment of proximate goals. In this area, the program was judged as a moderate success in the commercial environment and a lesser success in the surrounding residential sector. The proximate goals of increasing the physical security and surveillability of the commercial area achieved high levels of success. The areas where goal attainment was lacking included physical improvements designed to increase constructive use of the environment (Residential Activities Center, activity nodes) and improving psychological dimensions (creating an attractive environment which people could identify with). The evaluation found an increase in crime prevention behavior among businessmen and a high degree of cohesiveness among the business community (through the formation and operation of the Northeast Business Boosters); the residential community experienced little change in these areas.

Despite shortcomings in the attainment of proximate goals, the Westinghouse evaluation concluded that the Portland effort was a reasonable program success. Regarding theory success, a number of analyses were performed on crime, fear of crime and quality of life indicators in order to determine if the program had achieved its ultimate goals.

A time-series analysis found a significant decrease in reported commercial burglaries following the performance of security surveys of 210 Union Avenue business establishments. This and other supporting evidence strongly suggested that this reduction in commercial burglaries was very likely due to the OPTED security program. Time-series analyses were also performed for commercial robbery and residential burglary (for the same time frame) to test for crime displacement; there was no evidence of displacement (no increases) to these two crime types. There were no significant reductions in crime associated with the streetlighting program (using time-series analysis), although a good test of the effectiveness of streetlighting was not possible due to limitations imposed by the manner in which the new lights were installed.

The results for fear of crime indicated little improvement in this area. It was hypothesized that a decreased fear of crime would be reflected in greater usage of the built environment by the non-offender population. An observational measure of pedestrian activity found no significant increase in environmental usage during the last year of the demonstration, leading to the conclusion of no reduction in fear of crime. This conclusion was supported by the perceptions of residents and key community people, both of whom felt that Union Avenue is still a high crime area even though 1977 crime rates did not justify such a reputation.

The final area of program impact explored in the Westinghouse assessment was quality of life. Using indicators of the level of business activity on Union Avenue, it was found that the economic vitality of the area had improved since the early 1970's. Businessmen felt that some economic uplifting had occurred since the early 1970's and expressed confidence in the future of Union Avenue. Residents generally felt that the quality of their lives (as reflected by the conditions of schools, parks, streets and neighborhoods) was fairly good and that improvements had occurred during 1977, as did community leaders. Although large and widespread improvements were not reported, those familiar with the area did feel that there was some movement toward a better quality of life.

Based on the weight of the available evidence, the Westinghouse evaluation drew some qualified conclusions about the theory success of OPTED. Westinghouse concluded that the Portland OPTED project was moderately successful—that is, it had at least to some degree achieved its ultimate goals at the time when the demonstration ended.

EVALUATION METHODOLOGY

The prime consideration in designing this evaluation was to provide pertinent and usable information about Portland's CPTED program to the National Office of Community Crime Prevention and to local policymakers and planners. A second desire was to follow-up on the earlier Westinghouse study. Consequently, many of the Westinghouse measures were included in the re-evaluation. Other measurement indicators were revised and new measures were developed specifically addressed to the four major issues.

The first task of the re-evaluation was to collect process information on the Portland CPTED program and impact data from the first evaluation. An extensive review of Westinghouse CPTED documents on the Portland program was performed (Bell, et al., 1975, 1976; Kaplan, et al., 1977; Lavrakas, et al., 1978; Kaplan, et al., 1978; and Pesce, et al., 1978). In addition, interviews were conducted with key people who were involved in the implementation and evaluation of CPTED. Other data sources included grants written for CPTED strategies and documents of planned Union Avenue programs proposed under CPTED.

The second task was to follow-up on the original CPTED evaluation by collecting data for a two-year follow-up period (1979-80). The general methodology was to compare conditions on the Union Avenue Corridor (UAC.) before, during, and after the demonstration as a means of determining what lasting effects the program actually had. Attention was given to both intended and unanticipated effects, the latter including crime displacement, program spin-offs, and changed attitudes toward crime prevention programs.

The re-evaluation focused on two areas: (1) An analysis of CPTED strategies implemented in Portland and (2) An assessment of CPTED's five major goal areas for the commercial environment. This two-stage design followed the methodology used in the original evaluation of CPTED, where both "program" success and "theory" success were evaluated (see Lavrakas, et al., 1978). In the current evaluation, the analysis of strategies provided a measure of program success, or the extent to which CPTED design concepts were validly applied to the Portland commercial environment. Given that a valid CPTED program was implemented, the second step was to assess the impact of this program on CPTED goals, or theory success.

The analysis of the CPTED strategies was concerned with determining the current status and relative success of the various interventions which had been implemented in the UAC. The analysis of each strategy was accomplished by examining the following four areas:

- Activities and environmental re-design in support of each strategy implemented during the demonstration period.
- Activities and environmental re-design during the post-demonstration period.
- Estimated cost (where available) of implementation and maintenance.
- Degree of attainment and success.

Data elements for these measures included information from key-people involved in the implementation of CPTED; documentation of project activities, costs, and accomplishments; perceptions of key-people; and evaluator judgment as to level of success.

The second part of the evaluation focused on the attainment of five major CPTED goals:

1. Improve the physical condition and security of the environment.
2. Increase social cohesion.
3. Reduce the level of crime.
4. Reduce fear of crime.
5. Improve the quality of life.

Data elements used for assessing physical factors were: Perceptions of the UAC's physical condition by businessmen, residents, and key people; usage of the built environment; degree of target hardening behavior by businessmen and residents; and evaluator observation. Social cohesion was assessed through perceptions of businessmen and residents regarding community cohesiveness, attitudes toward the police, and police/community relations.

Reductions in the level of crime, the fear of crime, and improvements in the quality of life were CPTED's ultimate goals. Data elements for these areas included the following: Monthly reported crimes on the UAC for commercial burglary, commercial robbery, residential burglary, and street crimes from January, 1975 through December, 1979; city-wide UCR crime rates for the same time period; crime victimization among businessmen and residents; perceptions of crime and the crime problem in the UAC; perceptions of fear of crime and of the UAC's reputation for safeness; perceptions of economic vitality and residential quality of life; number of ongoing businesses, business openings, and business closings; and the market value of UAC commercial property.

Data Collection and Analysis

Data collection was accomplished through interviews with Union Avenue businessmen, residents, and key community people; retrieval of archival crime and economic data; observation of pedestrian activity on the UAC; and collection of process information on program activities.

As in 1977, interviews were conducted with Union Avenue businessmen. A sample of $n=78$ businessmen was randomly selected within the corridor's three subsections (northern, central and southern) so that each geographic area was equally represented. Beginning in November, 1979, businessmen were interviewed in-person on the UAC until all interviews were completed in January, 1980. The final sample represented about one-quarter of all operating businesses in the area. Although only about half of the sample was able to recall the CPTED/Union Avenue Project by name, nearly all of the businessmen had some recollection of specific CPTED strategies, such as the streetlighting project and the security survey program.

Telephone interviews were performed on a sample of $n=101$ residents. This sample was also geographically stratified in terms of the three sub-sections. The interviews were initiated in May, 1980 and completed during June.

In order to provide for direct comparison, most of the items from the 1977 Westinghouse surveys were included in the current businessmen and resident instruments. Comparisons over time were made to determine if perceptions and behaviors have stabilized or have changed during the past two years. A descriptive analysis of the 1979-80 survey data was performed (i.e., frequency and percent of response patterns) and these findings were compared with those of the 1977 Westinghouse evaluation. The 1979 businessmen sample ($n=78$) was found to be comparable to the 1977 Westinghouse sample ($n=136$) along demographic variables, but there were some differences in the residential samples (1980 sample of $n=101$ and the 1977 sample of $n=177$). The 1980 residential sample had proportionately more females (+13%) and fewer persons over 60 years old (-9%). These differences were accounted for in the analysis of "fear of crime" items by looking at the bivariate relationships between each item and sex or age.

Interviews with key-persons were also performed which were designed to obtain information about the re-evaluation's major issues. A total of 15 individuals from city government, the Portland Police Bureau, the UAC community, and other agencies were interviewed. These individuals were selected based on their involvement in the implementation of CPTED or their special knowledge of the UAC and its conditions.

Reported crimes for the UAC and Portland were collected for the period January, 1975 - December, 1979 for the following crimes: commercial burglary, commercial robbery, residential robbery, and "street" crimes (non-commercial robbery, assault, purse snatch, and rape). ^ These crime categories were based on Uniform Crime Reporting (UCR) definitions.

Monthly city-wide crime rates were collected from Police Bureau UCR reports. For each month, the Union Avenue crime totals were subtracted from the city-wide UCR totals in order to construct a comparison index for testing the effects of CPTED strategies. This index is referred to as "Portland" crime in the Results section.

It is important to note that the current evaluation used a different data source than the earlier Westinghouse study for UAC crimes. The re-evaluation used the master log of all Portland crimes and tabulated out UAC crimes, while the Westinghouse study used a secondary source of crime data.

In order to test for the effectiveness of the CPTED commercial security survey and street lighting programs in reducing crime, time-series analyses on the UAC and Portland data were performed. The security survey and street lighting interventions were the two CPTED strategies amenable to time-series analysis, since precise intervention points could be identified. It was also hypothesized that these two strategies, being the most successful and visible CPTED activities in Portland, would have the strongest impact on crime.

Information on Union Avenue business activity was originally collected by the Westinghouse evaluation for the early 1970's through 1977; the re-evaluation updated this information through 1979. The economic indicators used include the number of ongoing businesses, and business openings and closings at year's end. These data were retrieved from the city's Business License Division. Information on UAC commercial property values (in comparison to other commercial areas of Portland) was collected from a recent market analysis of the Northeast section of Portland (see Inner Northeast Portland Market Analysis, 1980). These measures provided a description of the UAC's economic vitality.

1 Regarding street crimes, it was not possible to distinguish between stranger-to-stranger and non-stranger-to-stranger assaults so that both were included in the street crime category. Likewise, no distinction was made for assaults which occurred on the street compared to those which may have occurred indoors; again, both were included in the "street" crime category.

As in the 1977 study, the re-evaluation also included an observational measure of pedestrian activity on the UAC during the night hours. Observation runs determined the number of persons on the street and information on their age, sex, race, and type of activity; the re-evaluation has replicated the technique used in the Westinghouse study (see Lavrakas, et al, 1978). The observations were used to provide a descriptive analysis of use of the environment by the public; specifically relative usage of the environment by black and white citizens. A total of n=32 observations were performed on randomly selected evenings during the Winter and Spring months.

A Note on Data Limitations

An inherent weakness of the evaluation design used to study CPTED was the lack of a "control group" with which to compare findings on the UAC. The evaluators were keenly aware of the internal validity problems caused by the lack of a non-equivalent control site - most notably, the difficulty in separating out the effects of historical events from program effects. In the early stages of this study, attempts were made to identify a comparable control site in Portland, but this proved impossible. It was discovered that Union Avenue was unique as a commercial area, especially in regards to its combination of racial make-up and social/economic factors. Given these circumstances, the decision was made to use city-wide crime data as a control- By using a city-wide index of crime, the evaluation was able to determine if crime changes observed on the UAC were unique to that area, and, therefore, attributable to CPTED activities. Unfortunately, a similar index of comparison was not available for the businessmen and residential surveys. Perceptions of crime and fear of crime as measured by the UAC survey instruments were compared to trends found in related research; specifically, the findings of the Northwestern "Reactions to Crime" projects. This provided some means of comparison for the UAC findings.

A more general point regarding evaluation limitations is worth mention. CPTED was indeed a difficult program to evaluate because it happened in the midst of many other things and because the implementation of the program was often diffuse. The key question is: Were the observed changes on Union Avenue really due to the presence of CPTED, or would they have happened anyway given the city's ongoing efforts to revitalize the area before Westinghouse came along? The evaluation has attempted to answer this question by determining how important Westinghouse was as a catalyst for change on the UAC. Nevertheless, CPTED was implemented within a very specific political and social context, as described in this report. This context should be kept in mind when attempting to generalize the results of this evaluation to other cities or commercial sites.

IV

EVALUATION RESULTS

Analysis of Strategies

The re-evaluation conducted a follow-up analysis on those strategies which were implemented or initiated during the CPTED demonstration phase. This analysis focused on the strategies listed below.

Security Advisor Services
(Sgt. Gerry Blair)

Street Lighting

Physical Redesign

- UA street improvements
- Redesign and reconstruction of Knott Street into a "Safe Street for People"
- Installation of bus shelters along UA

Organization and Support of Business and Neighborhood Groups

- Northeast Business Boosters (NEBB)
(Warren Chung)
- Neighborhood Associations

Economic Development

- Portland Development Commission's (PDC) efforts to stimulate revitalization in the UAC area
(Thomas Kennedy, PDC; Dennis Wilde, Portland Planning Bureau)
- Housing projects
- V.A. Hospital
- Residential Activities Center

Promotional Events

Each of these CPTED interventions was assessed in terms of: 1) activities implemented during the demonstration phase; 2) follow-up, new activities, and spin-offs occurring during the post demonstration period; 3) estimated costs, if available, of implementation and maintenance and 4) level of attainment or success of the strategy.

SECURITY ADVISOR SERVICES

Sgt. Gerry Blair was actively involved in crime prevention prior to the inception of CPTED and was in charge of the Police Bureau's Crime Prevention unit. This unit's efforts were focused primarily on preventing commercial crimes, working closely with Portland's business community.

1. Demonstration Phase

Sgt. Blair was appointed as the full-time Security Adviser (SA) for the CPTED project as well as for LEAA's Night Crime Deterrence project; He was on project from August 1975 through March 1977. Sgt. Blair provided security services to the businessmen and residents of the UA area. He was supportive of and coordinated community and promotional efforts such as the Sunday Market and clean-up days. The SA was actively involved in organizing and mobilizing the business community into a cohesive group (NEBB). He was also responsible for conducting and/or coordinating the commercial and residential security surveys which were performed in the UA area.

There were 210 security surveys conducted on UA commercial establishments in February 1976; follow-up surveys were conducted in September 1976 and February 1977. The first follow-up survey found that 33 percent of the businessmen had complied with the recommendations contained in the security surveys; after the second follow-up survey, the compliance rate was 52 percent.

One hundred and sixty security surveys were performed on UA residences in the Alberta-Killingsworth area during 1976. Since the residential security survey program contained provisions for installing security hardware were installed on these homes by Veterans who were hired through CETA.

2. Post Demonstration

After the SA's position was abolished, the Police Bureau's Crime Prevention Division (CPD) assumed some of the SA's functions. The lists of businesses and residences which had been surveyed under the SA's direction were turned over to the CPD. Some limited follow-up on the original surveys has been performed and the CPD has, through its own residential security survey and locks program, conducted additional security surveys of homes in the UA area. Also, the CPD has been working with the neighborhood associations to upgrade UA's physical appearance and security. The programmatic efforts of the CPD are, however, targeted to a wider geographic area and thus are less concentrated in the UAC area proper than were the efforts of the SA.

3. Estimated Costs

- The LEAA Lighting and Night Crime Deterrence Grant paid a portion of the Security Adviser's position: \$78,000.
- An estimated 170 man-days of police officer time to conduct commercial security surveys and follow-ups: \$12,500 from the Portland Police Bureau.

- An estimated 200 man-days of police officer time to conduct residential security surveys: \$16,500 from the Portland Police Bureau
- Funds from CETA, Office of Planning and Development, for installation of locks in Alberta-Killingsworth area: \$26,000 for labor, plus \$13,500 for locks, equals \$39,500.

4. Level of Attainment

The Security Advisory strategy was adjudged to be highly successful. Part of the reason for this success was that Sgt. Blair (the SA) and the Bureau's Crime Prevention unit had some semblance of a commercial crime prevention program ongoing and had already made contacts and initiated crime prevention efforts in the UAC area prior to the inception of the OPTED project.

There has been a high degree of institutionalization of the SA's efforts. The CPD has assumed some of the functions formerly performed by the SA. There is continued target hardening behavior among the businessmen and there has been a sustained reduction in commercial burglaries. The SA was the one major OPTED strategy which was fully implemented and which has had some lasting impact.

STREET LIGHTING

1. Demonstration Phase

High intensity street lights were installed along the UAC. The lights were 250 watt high pressure sodium lights, and are the same type that the city uses on all major arterial or high traffic streets. On the residential side streets surrounding the UAC infill lighting consisting of 175 watt mercury vapor lights was installed. All lights were installed during the period of January 1976 through February 1977. There was no regular or systematic pattern to the installation of the lights.

2. Post Demonstration

There have been no new lights installed in the UAC area since February 1977 and there have been no other types of improvements made to any of the existing lighting in this area. Other than normal maintenance and replacing burned-out bulbs with new bulbs, nothing new has happened to the street lighting in the UAC and it is the same as it was at the end of the demonstration phase.

3. Estimated Costs

- LEAA Lighting and Night Crime Deterrence Grant provided \$362,000.
- There are no figures available on maintenance from Broadway to Alberta; Portland General Electric is responsible for maintenance on the street lights from Alberta north to Lombard,

4. Level of Attainment

The street lighting component of the CPTED project in Portland was a high to moderate success. The street lights probably account for some of the reduction in commercial burglaries since the improved lighting does make it possible to more readily observe what is happening in and around the commercial establishments (i.e., improved surveillability). However, the lighting did not seem to have its intended impact on street crimes, (see the results from the time-series analysis of the street crime data).

There is a high degree of institutionalizations for the street lighting strategy. Although no new lights have been installed, or other improvements made, the street lights have been well maintained (e.g., poles painted, or replaced, burned-out bulbs replaced, etc.)

PHYSICAL REDESIGN

1. Demonstration Phase

Street Improvements. In order to physically improve the appearance and enhance traffic flow and accessibility, it was proposed that Union Avenue itself be redesigned and that major street improvements be made. During 1976, a commitment of \$4.5 million from transferred highway funds was made in order to accomplish this project. No actual work on the UA street improvements occurred during the CPTED demonstration phase.

Knott Street as a "Safe Street for People." Knott Street was redesigned and reconstructed into a "safe street" by modifying the street's curbs, traffic pattern, landscaping, and lighting. These improvements were made during September 1976 through March 1977.

Installation of Bus Shelters. In November of 1975, eleven high-surveillability bus shelters were installed along UA. The shelters are three sided structures with plexiglass in the upper half of each side. Although no street lights were expressly installed along each shelter, most of them are adequately lit and one can see and be seen.

2. Post Demonstration

UA Street Improvements. The first phase of the reconstruction of the entire UA strip began in January 1980. All road improvements and construction are scheduled to be completed by the end of 1981, at a cost of \$9.5 million.

The physical appearance of the strip will be improved and the redesign of the street, which includes medians and left-turn-only lanes, will enhance the traffic patterns. However, there are some concerns about what the new street design will do to the UA area. Some people feel that the present redesign will turn Union Avenue into a side-freeway. People will use the Avenue as an alternative route to the traffic-congested 1-5 freeway and will just "whiz" by at 40 mph. Other people feel that the traffic pulled-off the freeway and onto UA will increase the number of people who will stop and shop along UA.

A more immediate and crucial problem is the resolution of the parking situation which has arisen because of the street improvements. The UA street redesign, with its center median strips, precludes on-street parking and this is causing great concern among the UA businessmen; they feel their businesses will suffer. To alleviate this problem, the businessmen and the City are attempting to develop off-street parking facilities. The two groups, however, are at odds about several issues concerning the development of these facilities, (e.g., number of facilities, size, location, etc.). A citizens' group is even putting pressure on the City Council so the Council will not grant zoning variances for 150 foot deep parking lots. The citizens' group feels this size of lot will destroy their neighborhoods. At present, only one large off-street parking area has been approved. The businessmen feel that if sufficient parking is not made available, the street improvements could harm rather than help the business community and eventually cause an economic re-decline of the area.

Knott Street and Bus Shelters. Except for normal maintenance, nothing has been done to Knott Street or the bus shelters. The planned landscaping around the shelters was not completed. It would have been too costly, too difficult to maintain and in some cases, the shrubbery and trees would have reduced visibility and surveillance.

3. Estimated Costs

- UA street reconstruction: \$9.5 million from State highway funds.

No costs figures were available for the Knott Street reconstruction, or for the bus shelters and their installation.

4. Level of Attainment

UA Street Improvement. It is too early to evaluate or judge the success of the re-design of UA. At present, there are mixed opinions about the impact of the new street on UA's businesses.

Knott Street and Bus Shelters. The success of these strategies is moderate to low. Knott Street is more attractive, but it hasn't achieved its main purpose as a "safe street" with improved and safer access to and from UA. The street does not seem to be used any more frequently than it was, nor is it considered that much safer than other streets in the area.

The bus shelters do provide protection for bus commuters and one can see up and down the Avenue fairly well. Although there is adequate lighting near or around the shelters, the lighting would be better if the shelters were lit more directly. Also, the lack of telephones in the shelters or at least close to all shelters has been criticized.

For all other physical and architectural improvements proposed in the Commercial Demonstration Plan (Bell, eta], 1976) the level of success is low. Most of the proposed changes never happened.

ORGANIZATION AND SUPPORT OF BUSINESS AND NEIGHBORHOOD GROUPS

The Northeast Business Boosters (NEBB) existed as a loosely-knit group of Union Avenue businessmen prior to the inception of the CPTED project. Warren Chung, a UA businessman, was one of the prime movers behind this group. Mr. Chung and the other organizers intended that NEBB would be a vehicle to encourage UA businessmen to become involved in various programs which would draw the UA business community together and at the same time promote the UA businesses.

When it became apparent that Union Avenue was to be the commercial demonstration site for CPTED, Sgt. Gerry Blair (the soon-to-be appointed Security Advisor) met with and suggested to Warren Chung and a few other key businessmen that the NEBB group could function as a linkage between the CPTED project staff and the UA business community. By assuming this role, NEBB could ensure that the concerns of the business community were known to the project staff; NEBB could be the network by which information about CPTED was shared among the businessmen; and NEBB would provide an organized means for promoting utilization by the businessmen of the crime prevention technique being proposed by Sgt. Blair and the CPTED project.

1. Demonstration Phase

Northeast Business Boosters (NEBB). In November of 1976, the UA area business community was formally organized into the Northeast Business Boosters. As noted above, the CPTED Security Advisor was instrumental in developing, organizing, and providing a focus for this businessmen's group. The group held regular meetings throughout 1976 and 1977.

NEBB was a focal group during the CPTED demonstration phase. They worked closely with the SA, Portland Development Commission, Westinghouse Corporation, and the Westinghouse onsite coordinator. NEBB also attempted to articulate the problems and concerns of the UAC business community to Westinghouse staff and to city officials.

Neighborhood Groups. Although attempts were made to mobilize the residential neighborhoods, very little organized activity occurred. The neighborhood associations were not as enthusiastic about working with the SA as the businessmen were.

2. Post Demonstration

Northeast Business Boosters (NEBB). This business group is still viable and active. They still meet once a month as a general group and also meet at other times for the board meetings. Average attendance is around 20-25 people; attendance has been up lately due to the interest in and concern about the street design (i.e., parking problem).

The NEBB group continues to stress and utilize crime prevention techniques and maintains a good working relationship with the Police Bureau and its Crime Prevention Division.

NEBB has also become an important linkage between the business and residential communities. It has been helping to build trust and confidence among people in the area.

Neighborhood Groups. Recently, there has been some participation in crime prevention activities among the neighborhood groups/associations. In 1977 there was a Neighborhood Security Program. However, there is still resistance among the UA residents to participate in crime prevention activities, or cooperate and/or work with the police. This is especially true among the black residents of the area. (In fact, tensions between the black community and the police have been increasing of late; see earlier discussion).

The neighborhood associations in the UAC have been involved in other types of community activities. They have taken over and are sponsoring some of the promotional events (e.g., clean-up and market days) which were formerly sponsored under the OPTED project. The residential cohesiveness is better. There is a more cooperative spirit toward the business community and increased cooperation between the residents and the businessmen.

3. Estimated Costs

- No cost figures are available for these interventions.

4. Level of Attainment

Northeast Business Boosters (NEBB). The organization and development of the business community was a highly successful strategy. Part of the success was due to the fact that some type of organized businessmen's group existed prior to the OPTED project, and that Mr. Chung, Sgt. Blair and a few other key people were astute enough to build on NEBB's existing foundation and coalesce NEBB into an active and involved component of the OPTED project.

NEBB has improved UAC's social environment and has provided businessmen with a sense of identity and purpose. The group has also maintained its commitment to crime prevention activities.

Neighborhood Groups. The efforts to organize the residential community achieved limited success. This strategy was rated at a low level of attainment. The residential groups have not been particularly active, nor involved with crime prevention activities. The racial problems in this area have been increasing, and the black-white "polarization" of attitudes toward the police has caused continued problems with efforts to mobilize the residents to participate in crime prevention activities (see Residential Interview results).

ECONOMIC VEVELOPMENT

Economic revitalization of the Union Avenue area was ongoing prior to CPTED. Thomas Kennedy of the Portland Development Commission had for some time, been actively involved in promoting economic development in the UA area. He was also involved in the early stages of the CPTED planning process and had assisted in developing the economic revitalization strategies for Union Avenue which were proposed as part of the CPTED demonstration project.

1. Demonstration Phase

Portland Development Commission. The UA Portland Development Commission (PDC) was active in promoting the UAC area and attempted to encourage new businesses to develop in the area. Plans were initiated for a large department store to establish a warehouse and distribution center in the area. Other new businesses (e.g., a few fast food chains) were also planning to locate in the UAC. During the CPTED project one new business located in the area (i.e., Winchell's Donuts).

Housing Projects, VA Hospital and Residential Activities Center. During 1975 through 1977 efforts were made to develop and locate near Emanuel Hospital a new housing project (Elliot 2) and a new VA Hospital. Also, during this same time, attempts were made to purchase a site for the proposed Residential Activities Center. By the end of the CPTED demonstration, none of these activities had been initiated.

2. Post Demonstration

Portland Development Commission. Continued efforts by the PDC to bring new businesses into the UAC have produced some results. Tektronix, a manufacturer of electronic instruments, has located a branch plant in the UA area. Twenty-one new jobs have been created and eventually the firm will employ 50 area residents. A major fast-food business (Popeye's Chicken) has also been established. Another electronics firm, Nel-Tech, will, in the near future move into the area. Initially this business will employ 15 - 20 local residents and expects to employ about 110 people by December of 1982. There are other businesses which are considering moving into the area, but as yet no firm commitments have been agreed upon.

Another positive sign for UAC's economic development is that the property values are going up at the same rate as the rates in other comparable areas of the city. "Land prices along Union Avenue currently range from \$1.75 per square foot to \$6.00 per square foot, depending on the owner's motivations and goals. Generally a parcel that has a clear commercial use will range from \$4.00 to \$6.00 per square foot. Land for industrial uses will range from \$1.75 to \$3.00 per square foot, depending on size and location." (Inner Northeast Portland - An Income and Market Analysis with a Discussion of Development Potential - October, 1980-by Pacific Economica, Inc., page 21.)

Housing Projects, VA Hospital and Residential Activities Center.
No progress has been made on locating Elliot 2 and the VA Hospital in the Emanuel Hospital area. Both these projects appear to be dead for now. Also attempts were made to purchase land for the Activities Center, but again, there has been no progress made with the project.

Other new housing projects have been developed in the UAC area. Unthank Plaza was built on Williams and Sacramento Streets and Woodlawn Condominiums were built next to Woodlawn Park. These housing developments were completed during 1978-79. There has also been renovation of some of the homes in the older UAC neighborhoods. The new housing and the renovation have contributed to UAC's improved appearance and increased the area's stability.

3. Estimated Costs

The PDC received a Community Redevelopment Block Grant; \$380,000 was made available for UA improvements.

There are no cost figures available for the other economic development projects.

4. Level of Attainment

The economic development strategies achieved a moderate level of success. There are many positive things happening and several new businesses and housing projects have been developed and established in the UA area. A few other businesses are considering locating in the UAC. However, many of the proposed projects and ideas never happened. The department store's warehouse and distribution center located in another area of the city. The residential Activities Center is still being considered, but the private sector (re: mini shopping mall) will not make a commitment.

The PDC and NEBB continue to actively work with the city and private developers. Essentially these two groups have taken over the role of Westinghouse as the "catalyst" for the UAC.

PROMOTIONAL EVENTS

1. Demonstration Phase

A Clean-up Day on Union Avenue (one-day event in August, 1976) and a SundayCrafts Market Day (one-day event in October, 1976) were the only two UAC promotional events that occurred during the CPTED demonstration.

2. Post Demonstration

The UAC neighborhood associations have picked up the sponsorship of corridor promotional activities which were staged during the demonstration phase. These events are being planned, but have not as yet taken place.

3. Estimated Costs

No cost figures.

4. Level of Attainment

This strategy achieved a low degree of success. Only two events were actually held and few visible results occurred. Although other events are being planned, to date nothing has happened.

Assessment of CPTED Goals

PHYSICAL CONDITION OF THE UAC ENVIRONMENT

CPTED attempts to promote positive use of the environment while discouraging criminal use. From a business perspective, this was measured as the extent to which UAC establishments were open for business and the degree to which local residents used these establishments. During 1979, all but one of the businessmen reported being open at least five days per week with 60% of the sample open six or seven days. These figures were nearly identical to the 1977 findings indicating that the accessibility of UAC business establishments had remained constant. Most of the 1979 businessmen (71%) reported no change during the past two years in the percentage of customers who were local residents.

The relationship between use of the environment by customers and fear of crime was also explored. Businessmen were asked if they thought customers limit their use of the area because of fear of crime. In 1979, 38% of the businessmen who depend upon local residents (n=56) reported that most or some of their customers had limited shopping on the UAC because of fear of crime - this figure compared to 57% for the 1977 sample (n=100). Businessmen saw fear of crime as less of an inhibiting factor than in 1977, although there was still a sizable proportion who believed that fear of crime prevents people from shopping on Union Avenue.

During 1975-77, efforts were made to physically improve Union Avenue through clean-up days, the elimination of derelict structures and planned architectural improvements. These physical changes would contribute to a positive appearance and would create an environment which people would more readily identify with and protect. In 1979, businessmen were asked to report on any physical changes they had noticed since the end of the demonstration (January, 1978). Three-quarters of the sample reported changes reflecting an improved appearance of Union Avenue. These improvements were most often new businesses making physical improvements and the continued cleaning up of the area.

An item was also included which provided a measure of how UAC conditions affected business in comparison to non-UAC factors. In 1979, businessmen reported that the "physical appearance of Union Avenue" and the "poor state of the general economy" had the most negative impact on their business; these factors were rated as harmful by 43% and 42% of the sample, respectively. Of lesser importance were the "UAC crime rate" and "Union Avenue parking or traffic conditions" (each mentioned by 26% of the sample). Factors which were generally not rated as harmful included better shopping facilities in other areas, inadequate police patrols on the UAC, migration of people out of the city, and revitalization of the nearby downtown area. These findings were comparable to the 1977 data, except for a greater tendency in 1979 to view the poor state of the economy as problematic.

Between 1975 and 1977, a full-time CPTED Security Advisor provided crime prevention services to Union Avenue businessmen including the completion of security surveys on 210 Union Avenue businesses. Of interest to the re-evaluation was whether these services have had any lasting impact on the physical security of Union Avenue. The results indicated that businessmen continued to use target hardening techniques in 1979. The physical security of Union Avenue had not changed substantially since 1977, except in two areas (inside lighting at night and crime prevention stickers) where there was less of a tendency to target harden in 1979.

Although the Union Avenue Security Advisor position was terminated at the end of the demonstration period, the Portland Police Bureau continued to provide city-wide crime prevention services. About one-third of the 1979 businessmen reported having participated in some type of police sponsored activity - generally a security survey or a community meeting - since the end of the demonstration. CPTED efforts to encourage businessmen to protect themselves against crime appear to have had some lasting effect resulting in good physical security and continued use of crime prevention methods.

Residential survey items relating to the physical environment indicated that, generally, residents used protective measures more in 1980 than in 1977. The engraving of valuables was the only behavior used more frequently in 1977, with all other measures in the opposite direction. Residents were also asked about their participation in neighborhood crime prevention activities (security surveys, block meetings, etc.). The participation rate in 1980 was about 10% in comparison to a reported participation rate of 7% in 1977. Overall, the physical security of the residential community had improved since 1977.

SOCIAL COHESION

Social cohesion was first measured as the extent to which businessmen and residents were supportive of law enforcement efforts on Union Avenue. Businessmen in 1979 reported having very favorable (41%) or favorable (45%) attitudes toward the police. Only a minority of businessmen said they felt unfavorable (10%) or very unfavorable (3%). These results were comparable with 1977 attitudes (40% very favorable and 47% favorable).

In 1979, there were some clear differences between white and black businessmen regarding attitudes toward the police. Nearly all of the 62 whites in the sample (59) felt favorable toward the police, but among the blacks, there were mixed attitudes. Eight of the black businessmen were favorable, 7 unfavorable, and 1 neutral. Although there are too few blacks in the sample to draw a firm conclusion, it did appear that black businessmen on Union Avenue were less supportive of the police. Of the 10 unfavorable responses given by the 1979 sample, 7 were from black businessmen.

For UAC residents, there was no overall change between 1977 and 1980 attitudes toward the police. For the 1980 interviews, just over three-quarters of the sample (77%) expressed favorable attitudes toward the police (in comparison to 81% in 1977). A shift had occurred in terms of race, however. In 1980, whites were becoming more favorable toward the police while blacks were expressing more unfavorable attitudes. In 1977, 16% of the whites expressed unfavorable attitudes in comparison to 23% of the blacks; in 1980, the respective figures are 7% for whites and 36% for blacks.

Residents were also asked about the general level of social cohesion in their neighborhoods. There were no significant changes between 1977 and 1980 in the extent to which neighbors help each other or in terms of the number of families a person can depend on for help. There was a shift, however, in the degree to which neighbors discuss crime with each other, with less of a tendency to discuss crime in 1980 (27% of the sample) than in 1977 (49%).

LEVEL OF CRIME: SURVEYPATA

In both the current and earlier surveys, businessmen were asked how many times they or a person within a block of their business had been a victim during the past three months for the following crimes: commercial burglary, commercial robbery, assault, purse-snatch, street robbery, and vandalism. These results along with 1977 results are presented in Table 1. The victimization rates for 1979 closely match the patterns found during 1977 for the crimes of business burglary, business robbery, vandalism, and street crimes. None of the 1977-79 differences in Table 1 were found to be statistically significant.

As in 1977, residents in 1980 were asked whether they had been victimized (regardless of crime type) for a six month recall period. There was a tendency toward more victimization in 1980, although this difference was found to be statistically non-significant. In 1980, just over one-quarter of the sample (27%) reported being victimized between one and four times (in comparison to 17% in 1977) during the past six months.

Perceptions of crime were measured by asking businessmen what they thought their chances were of being victimized on the UAC - specifically, whether there has been any change since January, 1978. A majority of businessmen in the sample perceived no change in the likelihood of being personally victimized on Union Avenue during the post-program period; those who did see change thought that their chances were decreasing.

These findings were consistent with perceptions of how the general UAC crime problem had changed during the two-year follow-up period. Businessmen in 1979 either saw crime as not changing

TABLE 1

VICTIMIZATION OF BUSINESSMEN OR PERSONS
 WITHIN ONE BLOCK OF BUSINESS
 (3-MONTH RECALL PERIOD)

<u>Crime Type</u>	Percentage Reporting One or More Victimizations	
	<u>1977 Sample</u>	<u>1978 Sample</u>
Business Burglary	18%	24%
Business Holdup	1%	A%
Purse Snatch	18%	14%
Assault	21%	14%
Street Robbery	6%	3%
Vandalism	40%	37%

or fluctuating (48%) or as becoming less of a problem (39%). The current group of businessmen also tended to rate crime as less severe than the 1977 sample. In 1979, 17% of the businessmen rated crime as a severe problem in comparison to 37% in 1977. Crime on Union Avenue was generally perceived as a moderate problem (62% of the current sample in comparison to 50% of the 1977 sample).

Residents were also asked to rate the general UAC crime problem. In 1980, nearly half of the residents (45%) saw no difference between the UAC crime problem and the rest of the city. Among those who did see a change, however, most thought that crime was more likely to occur in the UAC in comparison to the rest of Portland. In terms of the severity of the UAC crime problem, half of the 1980 residents saw crime as a moderate problem, one-third perceived crime as a minor problem, and the remainder saw crime as a serious problem.

Businessmen and resident perceptions of crime and of their chances of being vicimized, pointed to a stabilization of the general crime rate on Union Avenue. There were no major shifts between the 1977 and 1979-80 surveys.

LEVEL Of CRIME: REPORTED CRIME VATA

The evaluation collected data on the following crimes for the period January, 1975 through December, 1979: commercial burglary, residential burglary, street crimes, and commercial robbery. Time-series analyses were performed on both UAC crime and "Portland" crime (that is, city-wide minus UAC) to test for the crime reduction effects of the CPTED security survey and streetlighting interventions. 1

The CPTED security surveys and streetlighting were implemented during the same 14-month time period during 1976-77. Testing for a gradual intermention effect over this 14-month period, a significant effect on UAC commercial burglaries was found ($t = -3.35, p < .01$) while the decline in commercial burglaries for the rest of the city was found to be non-significant. The ratio of UAC-to-Portland crime was also examined, a proportion which should decline if the reductions in UAC commercial burglary could be attributed to CPTED. A significant reduction was found for this ratio ($t = -2.23, p < .05$). The average monthly percentage of UAC commercial burglary-to-Portland commercial burglary was reduced from 3.9% in the pre-intervention months to a 2.5% average in the post-period. The time series results indicated that a significant decline in commercial

1 A more complete discussion of the time-series methodology and results is presented in the full CPTED re-evaluation report, and in a separate document (Griswold, et al, 1980) prepared by the Institute of Policy Analysis (Eugene, Oregon) who performed the analyses of CPTED crime data.

burglaries did occur as a result of the combined security survey and streetlighting programs. Furthermore, this decreased level of crime was sustained. The time-series for UAC commercial burglary and for the UAC-to-Portland ratio are presented in Figures 2 and 3, respectively.

Changes in residential burglary on the UAC were not expected as a result of CPTED since nearly all of the program interventions focused on the commercial strip. However, one possible unanticipated effect of CPTED might be displacement of burglaries to the adjacent residential neighborhoods once the commercial strip was secured against crime. Hence, residential burglaries were also analyzed to test for a possible displacement effect. It was found that no displacement of burglaries to the surrounding residential area had occurred. Neither had there occurred a reduction in residential burglaries which, if found, might be indicative of a diffusion effect from the high-visibility activities which took place on the nearby commercial strip.

Unlike burglaries which can be prevented through both better street lighting and target hardening, it was hypothesized that street crimes (assaults, street robberies, purse snatches, and rapes) would only be impacted by the street lighting. Furthermore, the effect should be strongest for nighttime street crimes and in the middle subsection of the UAC. The middle section is where most nighttime and "street life" activities take place. A significant decline was found for UAC street crimes in the middle section ($t = -2.29$, $p < .05$). However, the findings for the ratios of UAC-to-Portland crime were found to be non-significant for both "middle" and "night-time" crimes. These findings indicated that street crime did not decline to any greater extent in the UAC than in the rest of the city. There appeared to be no measurable effect of streetlighting on UAC street crimes.

Although CPTED interventions were generally targeted for burglary prevention, it was hypothesized that the security surveys might have some effect on business robberies. Security recommendations regarding silent alarms, types of safes, and other robbery prevention methods could have resulted in greater security against business holdups in the area. Since most of the businesses were open only during the day, street lighting should have had little or no effect on commercial robbery. Hence, only the effect of the security survey program was tested for. Based on the time-series analyses, there was no significant reduction in UAC commercial robberies which could be attributed to CPTED.

FEAR OF CRIME

In CPTED theory, reducing a community's fear of crime is as important as reducing crime itself. Fear of crime can cause the non-offender population to limit its use of the commercial environment

Figure 2. Monthly UAC Commercial Burglaries

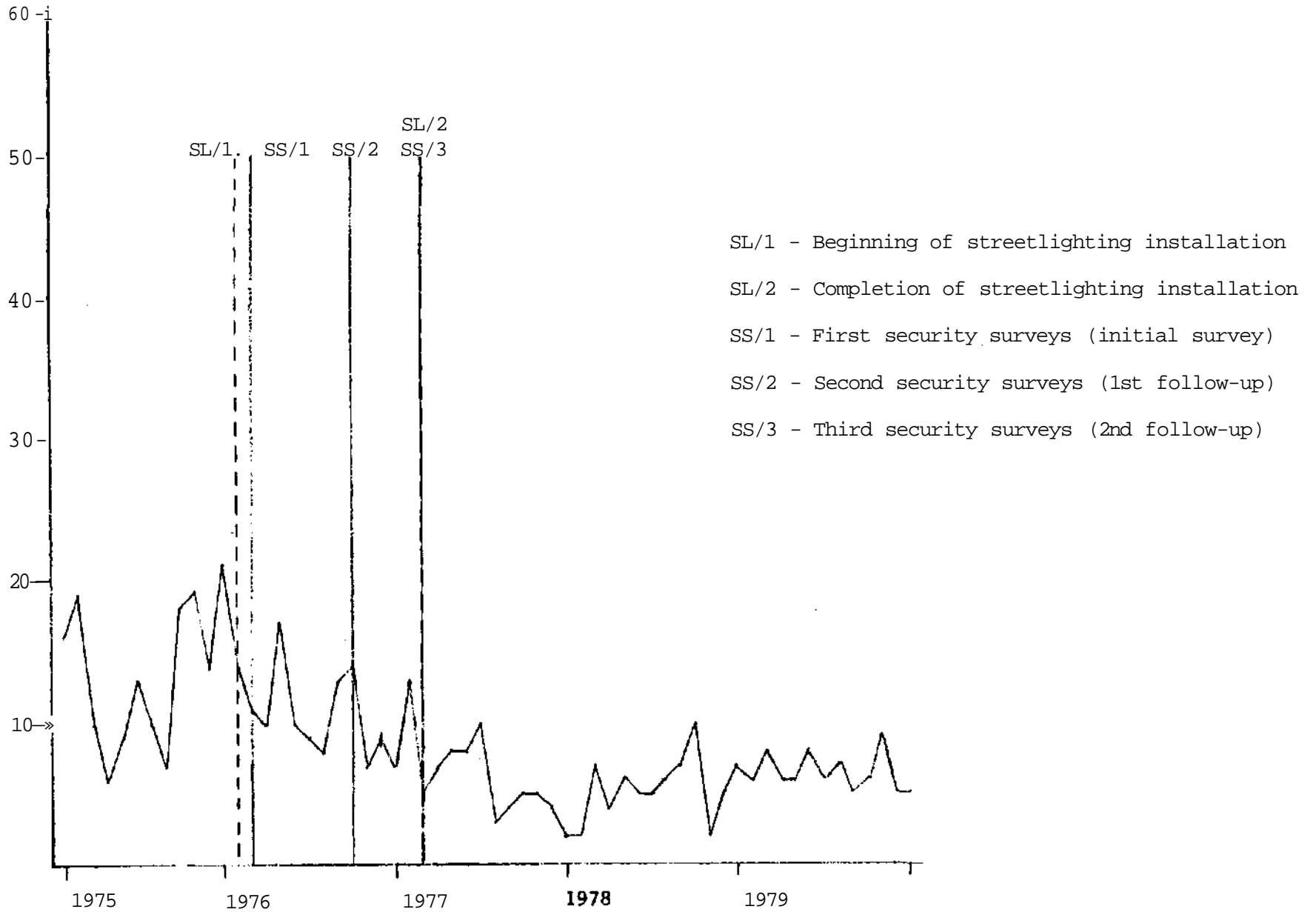
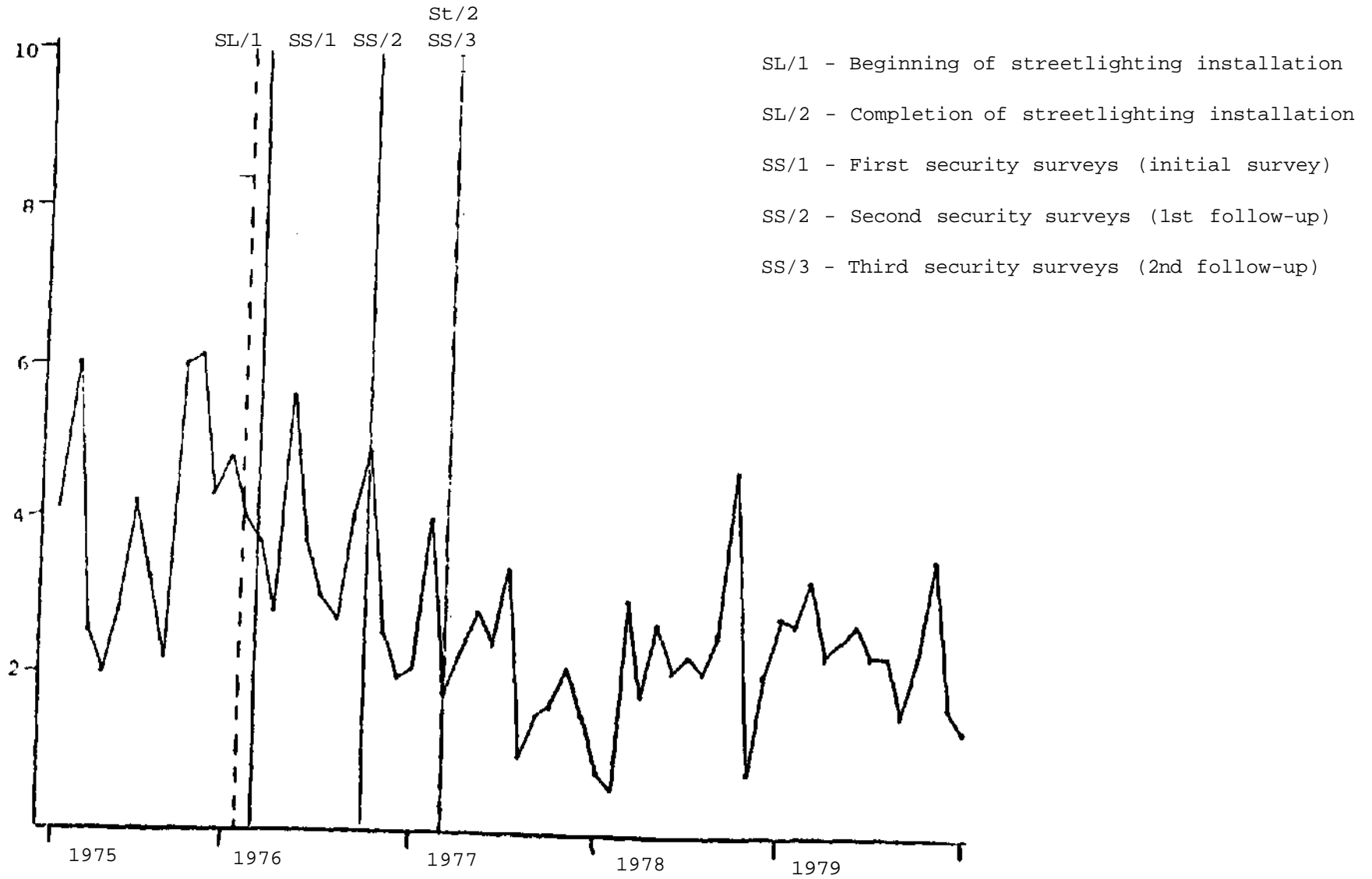


Figure 3. Monthly JAC/Portland Percentages of Commercial Burglaries



which, in turn, can lead to further economic decline, higher crime rates, and more fear of crime.

As an indicator of fear, businessmen were asked how often they were concerned about certain crime types. These results are presented in Table 2. Comparing the 1979 levels of concern with those measured two years ago, there were both similarities and differences. Burglary was still of concern to most businessmen in 1979 and, to a lesser extent, business holdups. Although street crimes were still rated as less of a threat than business burglaries and robberies, there was a greater fear of assault and vandalism among the 1979 businessmen.

Businessmen generally did not avoid walking on the UAC during the daytime because of fear of crime (68% of the 1979 sample), but most businessmen (73%) were fearful of using the UAC at night. Of particular concern was avoiding the night-life area located in the middle section of the corridor. These findings were comparable to the 1977 data. White businessmen in the 1979 sample were especially fearful of walking on the UAC at night. Of the 61 white businessmen, 50 (or 82%) said they were afraid to walk on Union Avenue at night in comparison to 6 out of 16 blacks (38%).

Results reported earlier on use of the UAC in relation to fear of crime among local residents are also relevant here. In review, businessmen in 1979 saw fear of crime as less of a factor preventing pedestrians from using the UAC shopping and service facilities than did the 1977 group. Thirty-eight percent of the 1979 sample, however, still believed that fear of crime was a factor affecting the public's willingness to shop on Union Avenue.

Most businessmen in 1979 (86%) thought that customers felt safe while using the UAC during the day. For the night hours, however, businessmen who were able to judge customer safety at night (n=53) thought that customers felt unsafe. A similar pattern was found for perceived employee safety - although nearly all of the businessmen (92%) said that their employees feel safe during the day, just over half of the 1979 sample perceived employees feeling unsafe at night.

Residents' fear of burglary had not changed since the earlier survey (26% were worried in 1980 in comparison to 21% in 1977). There was a shift in the direction of more fear of being assaulted or robbed in 1980, but this change was found to be statistically non-significant. In 1980, 27% of the sample was very worried about person crimes in comparison to 19% in 1977.

Residents were also asked how often they use the UAC during the daytime and nighttime, and how safe they feel. The results

TABLE 2

CONCERN ABOUT CRIME AMONG
UNION AVENUE BUSINESSMEN

<u>Crime Type</u>	Percentage Concerned Most or Some of the Time	
	<u>1977 Sample</u>	<u>1979 Sample</u>
Business Burglary	65%	65%
Business Holdup	45%	49%
Assault	24%	32%
Street Robbery	30%	33%
Vandalism	69%	59%

indicated a tendency toward more usage both during daytime and nighttime hours. In 1980, 83% of the sample used the UAC at least once during the week in the daytime (in comparison to 72% in 1977), and 50% used the UAC at least once during the week at night (in comparison to 37% for 1977). Correspondingly, there were greater feelings of safety while on the strip, especially at night. In 1977, 52% of the sample felt safe on the UAC at night; this figure had increased to 63% for 1980, an increase which was found to be statistically significant ($t=2.36$, $p<.02$).

Fear of crime items were also analyzed by age, sex, and race of respondent. In terms of the factor age, it was found that the elderly had become more fearful in 1980. The elderly were more fearful for both burglary (69% of the elderly subsample in 1980 vs. 49% in 1977) and person crimes (67% in 1980 vs. 43% in 1977). The non-elderly population's fear of either property or person crimes had not changed. The fear of crime among the elderly was further supported by their reported usage of the corridor and feelings of safety while on the UAC.

Relative to the variable sex, there were no shifts in fear of crime between 1977 and 1980. The findings for both time samplings were what would be expected based on other fear of crime surveys; that is, women were more fearful of person crimes and more fearful at night than men were.

For the factor race, the hypothesized higher level of fear of crime among white residents (based on their lower level of usage of the UAC at night) was not substantiated in the analysis of the fear of crime items. Blacks and Whites (who each account for about half of the area's population) reported using the UAC to about the same degree, even though pedestrian observations indicated that Blacks use the area more. The results for feelings of safety followed a similar pattern. During the day, 10% of the Blacks and 11% of the Whites felt unsafe while on the UAC; for nighttime use, the corresponding figures were 37% for Blacks and 41% for Whites. There are no significant racial differences. In comparison to 1977, fear of crime for Blacks had not changed during the follow-up period, while Whites tended to become less fearful.

In summary, the residential survey results tended to show a slight decrease in fear of crime since 1977 for the non-elderly sub-population, while the elderly sub-population exhibit behaviors and attitudes that indicated more fear of crime. The elderly in 1980 were especially fearful of being robbed and assaulted; they tended to use the UAC less and felt less safe. These unexpected findings are very likely an effect of historical influences other than CPTED. National Roper-poll data have indicated similar trends of an increase in fear of crime among the elderly and a stabilization among the non-elderly nationwide for the same time period of the two CPTED surveys.

One unexpected finding was that fear of crime among black residents was not different than the fear level of Whites, while the pedestrian activity data indicated greater usage of the UAC by Blacks during the night hours. In 1980, it was found that Blacks accounted for about 75% of the night-time pedestrians, even though the population of the area is equally divided between Blacks and Whites. This suggests that usage of the built environment may not only be a function of fear of crime, but of other factors. One plausible explanation is that black residents use the UAC more not necessarily because they are less fearful of crime than Whites, but because they have a greater identification with the area. This is borne out by the fact that most of the restaurants, bars, and other night-life businesses on the UAC reflect black culture. It appears as though Blacks in this area of the city have staked out the UAC as their "turf." Whites may use this area less than Blacks not because they are more afraid of crime, but because they fear or respect the strong black presence in the area.

QUALITY Of LIVE

The final CPTED goal was to improve the quality of life for both the business community and local residents. Quality of life is not only a matter of improving crime conditions but also relates to the area's economics.

As a means of assessing the UAC's economic vitality, businessmen were asked about changes in their gross sales. About 60% of the 1979 businessmen reported increases in sales since 1970, with a slight tendency to report more gains for the project period (1975-77) than before or after. Of those businessmen who did experience gains, most (80%) reported that their increases represented real business growth above and beyond the greater costs of running their operation due to inflation, higher wages for employees, etc. These self-reported increases point to a steady improvement in the UAC's economic vitality since the early 1970's, when economic conditions were at their lowest point.

Businessmen were also asked to rate Union Avenue's economic vitality in comparison to other commercial areas of the city for the years 1970, 1977 and 1979; ratings were also elicited in the earlier businessmen survey for the years 1970 and 1977. In the more recent survey, businessmen had a much lower opinion of the UAC's economic vitality than they did two years before. In 1977, half of the businessmen thought that the UAC at that time was worse off economically than other commercial areas - this was a substantial improvement over perceptions of economic conditions in 1970. In 1979, however, businessmen thought that the UAC was not as good as other areas of the city in 1977 and continued to be worse off in 1979 - about three-quarters of the sample shared this perception.

At least part of this economic outlook may have been due to some general feelings of pessimism over the state of the economy. More importantly, however, the current negative view may have been a reflection of disillusionment with what CPTED was actually able to accomplish to improve the area economically. Feelings of enthusiasm in 1977 over planned improvements which would bring more business into the area may have given way to feelings of disillusionment two years later when many of these changes had still not occurred (e.g., mini-plazas, Residential Activity Center). In addition, businessmen may have felt that other declining areas of the city had made more gains during the past years in comparison to Union Avenue. In fact, efforts were undertaken by city government and private developers to improve the adjacent old-town and downtown areas during the 1977-79 time lapse. Thus, the recent attitudes may have reflected a belief that city government was placing more resources in other areas of the city given that the CPTED demonstration was over. Whatever the reasons, it was clear that businessmen were more pessimistic about the vitality of Union Avenue that they were during the demonstration period.

Although most businessmen viewed the UAC as worse off economically than other commercial areas, there were feelings that conditions would improve. Sixty-two percent of the 1979 businessmen thought that the UAC's economic vitality would increase over the next five years; only 6% thought it would become worse, while 32% believed there would be no change. Furthermore, a majority (76%) said they had no intentions of moving their business out of the corridor. Those who were considering a move generally said that their decision was not influenced by conditions on Union Avenue or the relative attractiveness of other city areas. Thus, businessmen were at a point where some feelings of disillusionment had set in about what CPTED actually accomplished economically for Union Avenue, but they did feel confident about the area's economic future. This may have been in anticipation of the massive street redesign program which was initiated at the time of the 1979 interviews. Many businessmen viewed this effort as a major step forward in improving the appearance and viability of Union Avenue.

The data on business activity are presented in Figures 4 and 5. These results indicated that business activity on Union Avenue had stabilized during and after the demonstration period. Union Avenue has gained and maintained some economic strength since the years before CPTED when the number of operating businesses was substantially lower. The organization of the business community near the end of 1976 around the Northeast Business Boosters was probably a major factor contributing to this stabilization. The findings on business activity were supported by a market and economic analysis of the Union Avenue Corridor (see Inner Northeast Portland Market Analysis, 1980), where it was found that recent land prices for Union Avenue property were comparable to other commercial areas of Portland which traditionally have had a more positive reputation than the UAC.

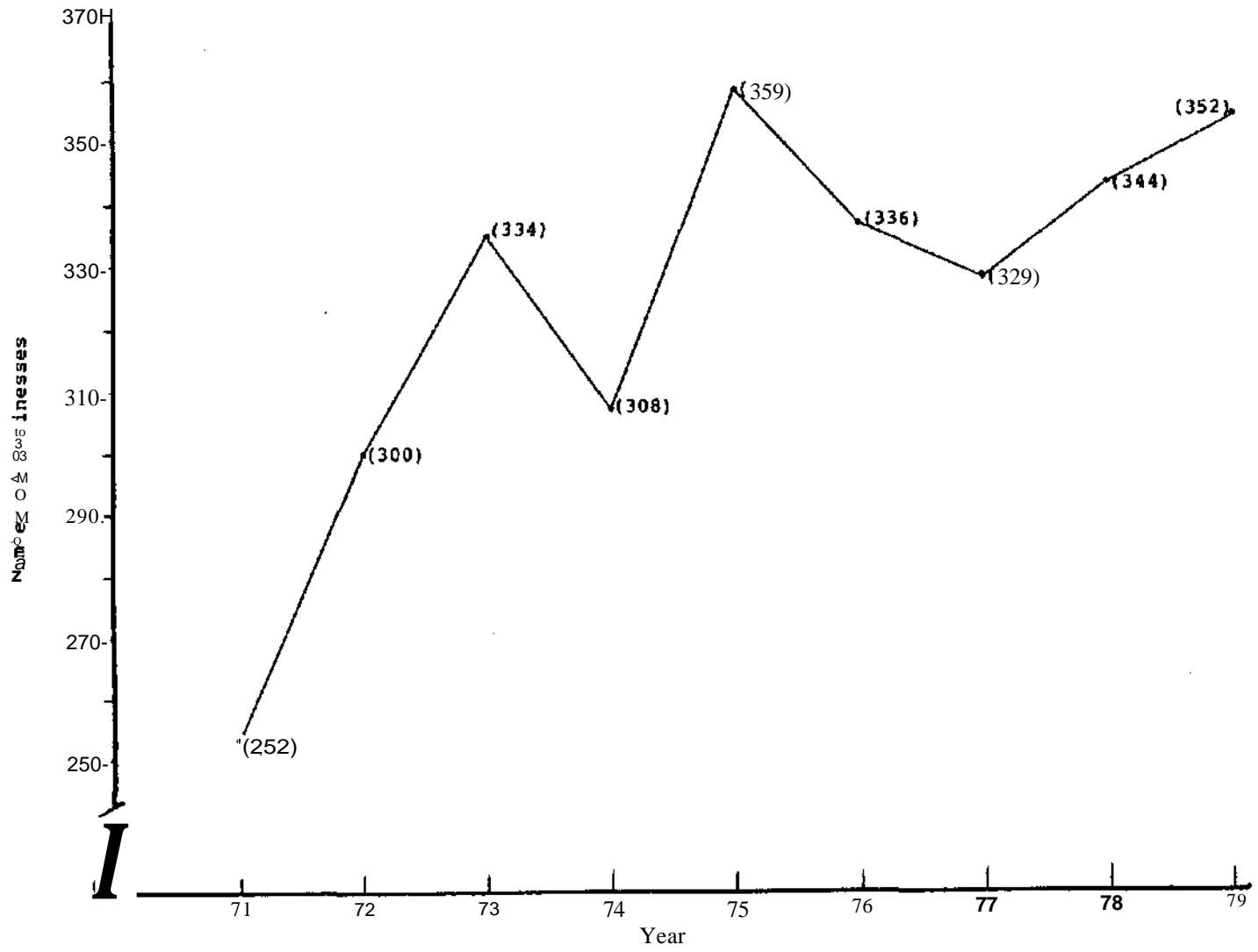


Figure 4. ONGOING BUSINESSES ON THE UAC AT YEAR'S END

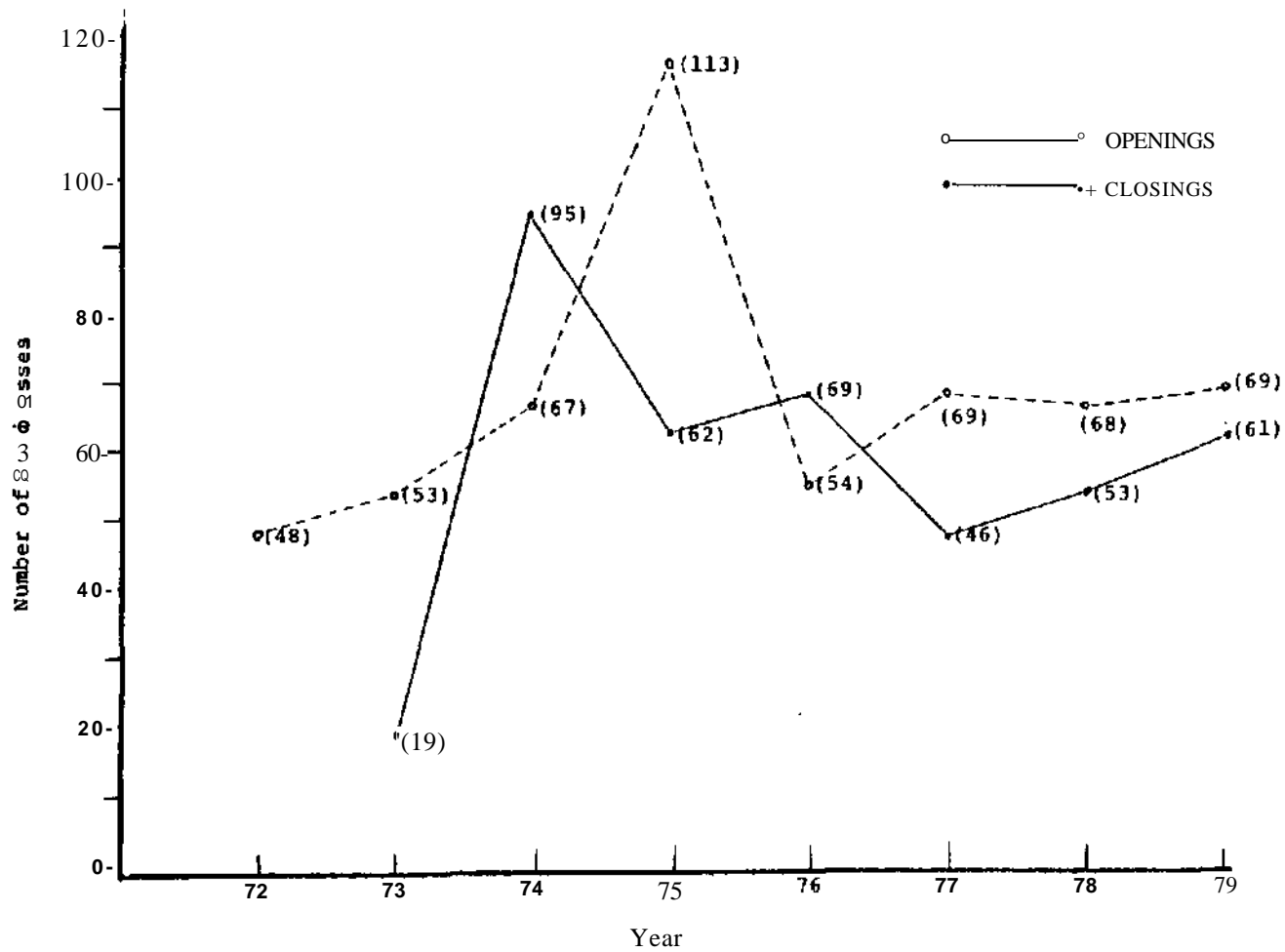


Figure 5. BUSINESS OPENINGS AND CLOSINGS ON THE UAC AT YEAR'S END

In addition to the economic vitality of the UAC commercial district, the quality of life of the adjacent residential community was also assessed. When asked to rate their neighborhood's livability, 56% of the 1980 residential sample rated their area as "nice" or "very nice." This was an increase over 1977 attitudes which approached statistical significance ($t=1.86$, $p<.10$). In 1977, only 46% of the sample rated their neighborhood in positive terms. Items relating to quality of schools, parks, lighting, streets, and upkeep of neighborhoods showed slight, but non-significant tendencies toward a better quality of life in 1980. When asked about police-community relations, there tended to be more polarization in 1980 (more positive and negative responses and fewer neutral responses than 1977), with relatively more Blacks indicating poor police-community relations than Whites.

Residents were more positive about the future livability of the UAC than they were in 1977. In the current sample, 11% thought the area's quality of life would improve over the next five years in comparison to 4% for 1977. This optimism was very likely due to the anticipation of positive effects of the Union Avenue street redesign which was underway when the residents were interviewed.

DISCUSSION AND CONCLUSIONS

The first two evaluation issues were concerned with what the CPTED effort actually accomplished in Portland both in the short-term and over a longer period of time two years beyond the initial demonstration. The focus of discussion for these two evaluation questions is the attainment of the five CPTED goals.

The two immediate goals of CPTED were to improve physical conditions on the commercial strip and to increase the level of social cohesion among the businessmen and residents within the area. The physical appearance of Union Avenue appears to have been positively affected as a result of the program, yet the area has not changed as dramatically as was originally planned under CPTED (e.g., activity nodes, Residential Activities Center). One of the major proposed physical changes was just getting underway as the current evaluation was being performed. The Union Avenue street re-design will have a positive effect on the appearance of the commercial strip. Aside from the street re-construction, the UAC's physical appearance has not changed substantially since the end of the demonstration, although some small positive improvements were noted. The somewhat dilapidated appearance of Union Avenue is still rated by many businessmen as a factor which is harmful to business. In conclusion, it appears that gains have been made in changing the abandoned and dilapidated appearance of Union Avenue, although some of the massive architectural improvements proposed under CPTED were not fully realized.

A second component of the physical environment is the degree to which the area is secure against crime. Whereas physical appearance is most concerned with the CPTED concepts of activity support and motivation reinforcement, physical security is concerned with access control and surveillability. The results of the re-evaluation indicated that the UAC continues to rate high in these latter two areas. The CPTED street lighting and security survey programs have contributed to increasing both access control and surveillability. Businessmen continue to employ target hardening measures to the same level as during the demonstration period, while residents appear to have increased their use of protective measures against crime. In conclusion, CPTED has had some lasting effect on crime prevention behavior among businessmen and residents. Businessmen, however, appear to have been more willing than residents to participate in police-sponsored crime prevention efforts. In this sense, the business community benefited more from the CPTED attempts to mobilize citizens against crime.

Mobilizing businessmen and residents against crime represents one aspect of increasing the area's social cohesion. Among businessmen, CPTED was successful in this area through the organization

of the Northeast Business Boosters and the continued activity of this organization in the areas of crime prevention and economic development. Within the residential community, a similar organization which worked closely with the UAC Security Advisor was never formed. CPTED efforts in Portland were primarily directed to the commercial district.

In addition to the citizenry's willingness to work with the police on crime prevention efforts, social cohesion was also measured as the general attitudes of businessmen and residents toward the way police carry out their law enforcement duties. As was true during the demonstration, both groups, during 1978-80, expressed favorable attitudes toward the police. During the past two years, however, some polarization has occurred along racial lines. The attitudes of Blacks in the area have deteriorated. This finding must be viewed in a broader social context, however. Black citizens in Portland have become increasingly vocal about their concerns over police and school issues independent of the CPTED program. Although racial issues were not a big area of concern in the implementation of CPTED it is evident that social cohesion has deteriorated during the past two years because of these issues.

In conclusion, CPTED appears to have achieved an overall moderate degree of success in bringing about positive and lasting changes in the physical and social environments. The results indicated that the program was most successful in increasing the area's access control and surveillance. These two CPTED concepts are most related to positive changes which took place in the UAC physical environment, most notably the target hardening efforts and the improved street lighting which have both been maintained through the post-demonstration period. Somewhat less successful was bringing about changes in the social environment. Although businessmen were organized into a cohesive group which worked toward preventing crime and revitalizing the commercial strip, there were no indications of a like effort in the residential community. Currently, the residential community is not experiencing a high degree of social cohesion.

CPTED's ultimate goals were to reduce crime, reduce fear of crime, and improve the quality of life. For these long-range goals, the re-evaluation found some improvements which could be attributed to the CPTED program and a general stabilization of conditions within the UAC over the past two years. The most notable finding was the significant decrease in commercial burglaries attributable to the CPTED commercial security survey and street lighting programs. The time-series analyses of crime data indicated significant declines in commercial burglary following these two interventions, declines which were not observed to the same degree in the rest of the city. The evaluation also found that the actual number of businesses in the area had not declined during the same period, which, if were the case, could serve as one alternative explanation of the decrease in commercial burglaries. Decreases in street crimes within the UAC were also indicated for the subsection where most nighttime activity takes place. However, this decrease did not reflect a change unique

to Union Avenue and, therefore, a conclusion as to whether this decrease was due to CPTED street lighting cannot be made. The re-evaluation found no impact of the program on commercial robbery. Furthermore, there was no displacement or diffusion of the CPTED effect into the adjacent residential community. Other positive signs related to the crime level were the attitudes that crime was not as much of a problem for the UAC as it was in the early 1970's or during the demonstration period, and the finding that victimization among residents and businessmen had not changed to any significant degree during the post-demonstration period. In short, improvements in the UAC crime conditions did occur with a general stabilization of this effect over the past two years.

The fear of crime within the UAC appears to have not changed substantially since the end of the CPTED demonstration. Residents and businessmen are still somewhat fearful of crime, especially during the night hours. Most affected are the elderly who expressed an increased fear of crime in the 1980 residential surveys. Given the improved crime conditions in the area which appear to have occurred both during and after the demonstration, the citizenry's fear of crime is somewhat higher than what would be expected. This suggests that fear of crime (i.e., people's attitudes toward their environment) is more difficult to change than the actual crime level. Once an area has an unsafe reputation, it is difficult to change this attitude. Reductions in fear of crime appear to lag behind positive changes in the actual crime level.

The findings for fear of crime in the Portland UAC are consistent with the general conclusions of the Northwestern Reactions to Crime Project (see Lewis and Salem, 1980; Podolefsky, 1980; and Skogan and Maxfield, 1980). It is apparent that fear is not a direct correlate of crime victimization. Social and political forces also contribute to the general level of fear in a community, especially when these forces create an atmosphere of social disorganization. These factors must be given consideration when planning community crime prevention strategies. In Portland, the issues of school desegregation and police harassment as vocalized by a segment of the community may have been signs of social disorganization to all citizens in the area. Thus, fear of crime may not have been reduced even though commercial burglaries and street crimes did show declines.

The final goal of CPTED was to improve the quality of life for both the commercial and residential communities. The results for this area were similar to findings for actual physical improvements which took place within the UAC. Steady gains in the area's economic vitality were found which fell somewhat short of large-scale improvements originally anticipated when CPTED was being implemented. In short, the UAC continues to gain economic strength at a slow but steady pace. Although economic conditions were found to be improving, there was some pessimism among businessmen regarding the area's economic vitality in comparison to the rest of the city. Part of the business community believes that city government has shown more commitment to other redevelopment areas of the city, while Union Avenue experienced some loss of support toward the end

of the demonstration. This attitude was not only expressed in the interviews with businessmen, but also in the perceptions of some of the UAC community leaders. One unanticipated effect of the CPTED program appears to have been some disillusionment among the business community in the face of proposed physical and economic changes not coming about as quickly as anticipated in the original CPTED planning. This suggests that there is some danger in losing community support for CPTED if too much is promised too soon. A realistic timeline must be established in the planning of broad and far-reaching changes which are to take place within the commercial environment.

The findings regarding physical conditions, social cohesion, crime, fear of crime, and quality of life indicate that some degree of institutionalization of CPTED goals has taken place. Positive changes in these areas which occurred during the demonstration have been sustained during the two year follow-up period. The program was most successful in maintaining high levels of access control and surveillability within the commercial environment. The proximate goals of increasing activity support and motivation reinforcement were given less attention in the actual implementation of CPTED and experienced lower levels of success. Access control and surveillability, being more mechanistic concepts, appear to have been easier to accomplish within the short period of the initial demonstration. Beyond institutionalized changes within the immediate physical and social environments, CPTED also demonstrated some lasting impact in the areas of reduced crime and, to a lesser extent, reduced fear of crime and improved quality of life. It is clear that these conditions have not worsened since the end of the demonstration, while many signs of improvement were present. Improvement in these areas, however, appears to have taken longer than anticipated in the original CPTED design. The results suggest that a four to five year period is needed for CPTED to become fully institutionalized within the commercial environment.

Concerning the third evaluation issue, the most effective strategies were the Security Advisor services, the organization and support of the business community (Northeast Business Boosters) and the street lighting program. The economic development strategies and the redesign and reconstruction of Union Avenue have the potential for success. At this point in time, it is too early to judge their overall and long-term impact.

The Security Advisor not only provided direct services but was also instrumental in helping the UAC business community organize itself. The Northeast Business Boosters played an important and crucial role by actively promoting and applying CPTED concepts. NEBB continues to be a viable and effective organization in attempting to improve conditions on Union Avenue and bringing about stabilization within the area. It should be noted that both of these strategies existed, to some extent, prior to CPTED. However, the demonstration provided the impetus which organized, strengthened and focused the activities of the Security Advisor and NEBB.

The street lighting program achieved a moderate to high degree of success. The improved lighting improved both the area's surveillability and physical appearance. Although the evaluation could not conclude that the street lighting had a positive impact on reducing street crime, it very likely contributed to the reduced level of commercial burglary in the area.

The combination of strategies which appears to have been the most successful was the security survey and street lighting programs. These two strategies together brought about a reduction in commercial burglaries. Another combination which succeeded was the combined efforts of the UA Security Advisor and the Northeast Business Boosters. Their close working relationship and high degree of cooperation contributed greatly to the success of crime prevention efforts in the UAC.

The final evaluation major issue was concerned with lessons learned from the Portland experience with CPTED. Based on the evaluation findings and the interviews with key people, several lessons on the implementation of crime prevention through environmental design programs emerged.

First, a realistic timeline must be established when planning CPTED programs which include extensive changes in the physical and social environments. The Portland experience indicated that more than two years is required to fully implement and institutionalize a CPTED program. Thus, CPTED should not be over-sold when planning the program with a community. A CPTED program which promises many changes over a short period of time runs the risk of producing high levels of anticipation which can turn to disillusionment when these changes do not come about quickly. Efforts must be made to devise programs based on a realistic set of expectations if long-term community support is to be secured. The Portland experience indicates that five years is a realistic timeline for the institutionalization of CPTED.

A second lesson derived from the Portland program is that changes in the social environment are more difficult to accomplish than visible changes in the physical environment. Social cohesion, motivation reinforcement, and activity support are more elusive concepts than access control and surveillability. Although they are less costly to implement than physical redesign strategies, social strategies require a more concerted effort among various community groups. The success of the Northeast Business Boosters indicates that the business community tends to be a more cohesive group which is more easily organized around common concerns (i.e., crime prevention and economic revitalization). On the other hand, the residential community includes diverse interests which gives it less potential for social cohesion. In a racially-mixed community, existing differences between the attitudes of various groups should not be minimized. It is possible that a higher degree of social cohesion within the residential community would have been achieved had more attention been given in the program to existing racial problems.

A third lesson concerns the implementation of CPTED strategies. It appears that strategies which involve a small number of agencies and special interests (e.g., Security Advisor) are easier to implement than those which require broad support from a number of government, private, and community groups (e.g., street redesign). The latter types of strategies require a longer implementation schedule and are more tied into the political decisionmaking process. Hence, they run the risk of running out of political support before they are implemented if there are shifts in political actors. In this sense, the role of Westinghouse was important during the demonstration phase. The facilitative role Westinghouse played was crucial for ensuring that CPTED concepts remained a viable part of the Union Avenue Redevelopment Program, especially when changes in the political climate occurred. Furthermore, it was the opinion of many of the key people that this facilitative role ended too quickly. A post-demonstration facilitator (e.g., a representative from the Mayor's Office) would probably have hastened the process of institutionalization. Future CPTED efforts should designate a facilitator from within the community (ideally, someone with political authority) to ensure a high degree of institutionalization.

A final lesson of CPTED in Portland is especially important in the current climate of decreased federal and state spending. A successful CPTED program can be implemented by depending heavily on existing resources. Crime prevention can be grafted onto existing businessmen and neighborhood organizations. Although an advocate for CPTED concepts (such as the role Westinghouse played) will be necessary, this can come from within city government. Greater efforts can also come from the private sector. Economic development efforts should emphasize crime prevention through environmental design as a means to greater stability of a commercial area. Strategies which have been traditionally supported by the federal government can be picked up by the private sector. In short, a successful CPTED program of the future will have to rely more on integrating CPTED concepts into existing community concerns and less on outside support.

In closing, it can be concluded that the Portland CPTED effort did have some positive and lasting effects on the declining Union Avenue Corridor. It can also be concluded that CPTED was an ambitious effort which could not accomplish all that was planned for the relatively short demonstration period. Union Avenue has experienced both positive growth and setbacks during the past five years, yet the weight of available evidence points to slow but steady improvement in the area.

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