

**Crime Prevention
Through
Environmental Design:
The Commercial Demonstration
in Portland, Oregon**

Executive Summary

**Allan Wallis
Daniel Ford**
Editors

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U.S. Department of Justice
National Institute of Justice

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Harry M. Bratt
Acting Director

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Abstract

The Portland CPTED Commercial Demonstration was an experimental program designed to reduce crime (and the fear of crime) in urban commercial strips and adjacent residential areas. The program included tactics involving physical modifications, police activities, local merchant groups, and social organizations.

The commercial demonstration was part of a larger program intended to develop and demonstrate the utility of a multi-strategied approach to crime prevention, known as Crime Prevention Through Environmental Design (CPTED). The other elements of the program were a school demonstration in Broward County, Florida, and a residential demonstration in Minneapolis, Minnesota.

The site of the commercial demonstration was a three and one-half mile commercial strip, Union Avenue, in northeast Portland. Over the period of the demonstration, commercial burglary and residential burglary in adjacent areas were significantly reduced. In addition, the local businessmen's perception of area safety improved.

Acknowledgements

The planning and evaluation of the Portland CPTED Commercial Demonstration was funded by the National Institute of Law Enforcement and Criminal Justice contract no. J-LEAA-022-74. The work was carried out by a consortium of firms headed by the Westinghouse National Issues Center. The original reports on the project were developed by Howard M. Kaplan, Kenneth C. O'Kane, Paul J. Lavrakas, and Edward J. Pesce. The present report was edited by Allan Wallis and Daniel Ford.

Other key members of the Westinghouse staff were Robert A. Carlston, Larry S. Bell, Lewis E. Hanes, and W. Anthony Wiles. Key consultants included Dr. James Tien and Stephanie Gould of Urban Systems Research and Engineering, Inc.; Victor Rouse and Annemarie Riemer of Barcon-Ashman Associates; and Charles Murray of the American Institutes of Research.

Appreciation is expressed to the many people of the City of Portland who helped to develop the demonstration concept and to move the demonstration from concept to reality.

INTRODUCTION

Crime Prevention Through Environmental Design is an attempt to reduce crime and fear in a particular setting, by reducing criminal opportunity while simultaneously fostering positive social interaction.

A principle means by which CPTED attempts to achieve its goal is through the modification of the physical environment: e.g., street lighting, providing activity areas, and closing streets. Physical changes can have a significant effect when they are designed and executed with the consent and active support of various user groups. The CPTED approach, however, does not rely exclusively on physical strategies. It also incorporates social tactics which, for example, enable the residents of a neighborhood to become better acquainted with one another; managerial tactics, such as economic incentives for complying with security recommendations; and law enforcement tactics. CPTED, in short, does not advocate a single tactic for a particular crime problem. Rather, it offers a range of tactics for reducing criminal opportunity at a site. Moreover, the approach attempts to select tactics which will interact positively with each other to produce a greater net effect.

There are four basic dimensions of the crime-opportunity structure which CPTED attempts to manipulate:

* Surveillance. The objective of surveillance tactics is to put the offender under threat of being observed, identified, and apprehended. Surveillance may be conducted in a formal manner, as when police or other security personnel perform routine checks of an area. Surveillance may be aided by mechanical means, as when closed-circuit TV is used in commercial establishments, residential structures, or even public streets. It may also be informal or natural, as when the legitimate users or residents of an area take note of strangers or even inquire as to their business.

* Movement control. This dimension concerns the ease

with which an offender can move through a site. The use of streets, paths, and corridors may be limited to specified users. Real and symbolic barriers may be employed to inform outsiders that a particular environment is restricted. Movement control may also be achieved by controlling access through the use of hardware, such as gates and locks. Regardless of its form, the objective of movement control is to put the offender at greater risk of detection and apprehension if he or she should attempt to engage in a crime.

* Activity support. These tactics reinforce existing activities or introduce new activities in a setting, enabling the legitimate users to become acquainted with each other and therefore to be in a better position to distinguish strangers from other legitimate users. Such activities may directly concern crime prevention. They may also be activities not directly related to crime, but supporting social interaction which, in turn, creates a better environment for implementing preventive activities.

* Motivational reinforcement. These activities enhance the desire of citizens to engage in crime-prevention behavior. Motivation may range from economic incentives, such as reduced insurance premiums for carrying out particular security measures, to the social reward of being part of a community of people who feel responsible for each other.

In addition to being an experiment in a multi-strategied approach to crime prevention, the CPTED program was intended to develop a method for project implementation which would involve broad local participation.

THE CPTED DEMONSTRATION PROJECT

For the most part, crime prevention programs have tended to be single-problem, single-solution efforts. Insofar as physical modifications were advocated, the emphasis was on target hardening. In the late 1960s, a new attitude toward the role of the physical environment in crime prevention emerged. The work of Elizabeth Woods, Jane Jacobs, and Schlomo Angel helped bring about this change of emphasis. Perhaps most significant was the work of Oscar Newman, whose theory of "defensible space" -- and demonstration projects based on that concept -- showed that the physical environment could promote improved surveillance, enhance "neighboring," and establish clear territorial control of areas in a site. The role of the physical environment was thus seen, not only as increasing the effort necessary to perpetrate a crime, but as promoting the kind of social environment which would increase surveillance and mutual aid, thus further reducing criminal opportunity.

In 1974, the National Institute of Law Enforcement and Criminal Justice (now the National Institute of Justice) awarded a contract to a consortium of firms headed by Westinghouse for the development of the CPTED approach. As initially conceived, the approach was to demonstrate the applicability of the "defensible space" concept in a number of urban settings. Newman's work had focused primarily on public housing projects; the CPTED demonstrations were to involve schools, commercial areas, private housing, and mass transportation. The expectations for the program were overly optimistic. Early in the effort, it became apparent that the amount of scientific knowledge upon which the program could be based was inadequate.

The Westinghouse project team found the concept of "defensible space" to be too limited for the program environment. Indeed, Oscar Newman himself was beginning to go beyond the narrow physical focus of his earlier work. The degree to which physical design alone could generate proprietary attitudes in public environments was questionable. For example, no design directives existed that could be used to develop territorial feelings in the thousands of individuals briefly passing through a subway station. A partial result of this realization was that the transportation demonstration was removed as one of the components of the project.

Three demonstrations were thus executed under the CPTED program: a commercial demonstration in Portland, Oregon, reported here; a demonstration in four high schools in Broward County, Florida (Broward County CPTED Schools Demonstration: Executive Summary); and a residential demonstration in the Willard-Homewood neighborhood in Minneapolis, Minnesota. Simultaneously, the Hartford Center for Criminal and Social Justice conducted a demonstration similar in concept in Hartford, Connecticut (see Reducing Residential Crime and Fear: the Hartford Neighborhood Crime Prevention Program, 1979).

The purpose of the demonstrations was twofold: first, to show the applicability of the CPTED approach to a variety of different sites; and second, to develop and disseminate information on the process involved in planning and implementing similar programs. The results of the latter objective are reported in Crime Prevention Through Environmental Design: an Operational Handbook.

The results of the CPTED demonstrations do not conclusively validate the approach. The Portland commercial demonstration was relatively successful. The schools in the demonstration achieved a reduction in crime and fear, but the results were more modest than those achieved in Portland. Finally, the residential demonstration failed to achieve its anticipated effect, yet the Hartford demonstration (conducted by the Hartford Institute of Criminal and Social Justice) did show that the

basic approach advocated by the CPTED program could be successfully implemented in a residential neighborhood.

The purpose of reporting on the demonstrations is not solely to document where they were successful. It is also to share the difficulties involved in engaging in such programs. It is hoped that future attempts will be able to avoid some of the pitfalls and extend the possibility of success.

SITE SELECTION

Commercial environments include downtown central business districts, regional shopping centers, shopping malls, neighborhood convenience stores, and commercial strips. Commercial strips were selected for the demonstration because of their susceptibility to crime problems, due in part to their configuration, the types of enterprises located there, and changes in shopping trends that have frequently had a negative impact upon the vitality of such areas. The strips (which are also known as "commercial ribbons" or "string commercial areas") include those business activities that have traditionally developed along major streets and highways, providing services for the users of these thoroughfares as well as for nearby residents. The strips can connect with urban shopping districts or can be confined within non-commercial neighborhoods.

While the commercial strips characteristically evolved around highway-oriented uses, their existence can have serious impacts upon nearby residential neighborhoods. People from the neighborhoods may be inclined to use the strips for much of their convenience shopping (provided that appropriate goods and services are available) so these areas can sometimes offer positive benefits for local residents. On the other hand, some crime originating in the commercial areas may be displaced into adjacent neighborhoods, in which case the strips can constitute serious liabilities to residents.

In assessing the CPTED potential of commercial strips, the consortium used crime-related, environment-related, and program-related criteria. The following points were considered particularly relevant:

* The types of crime problems found within the target site should be those that can be alleviated by CPTED.

* The target site should have a sufficient level of crime and fear to justify the time and cost involved in a CPTED program.

* There should be readily available crime and environment data.

* The site should have strong support and interest from community decisionmakers; various public and private organizations should be committed to improvements in the area.

* Supporting programs should be underway or planned for the target site. These programs could provide funding assistance and expand the scope of CPTED strategies.

* The site selected and the model designed for each CPTED target should facilitate evaluation and the generalization of findings to other sites.

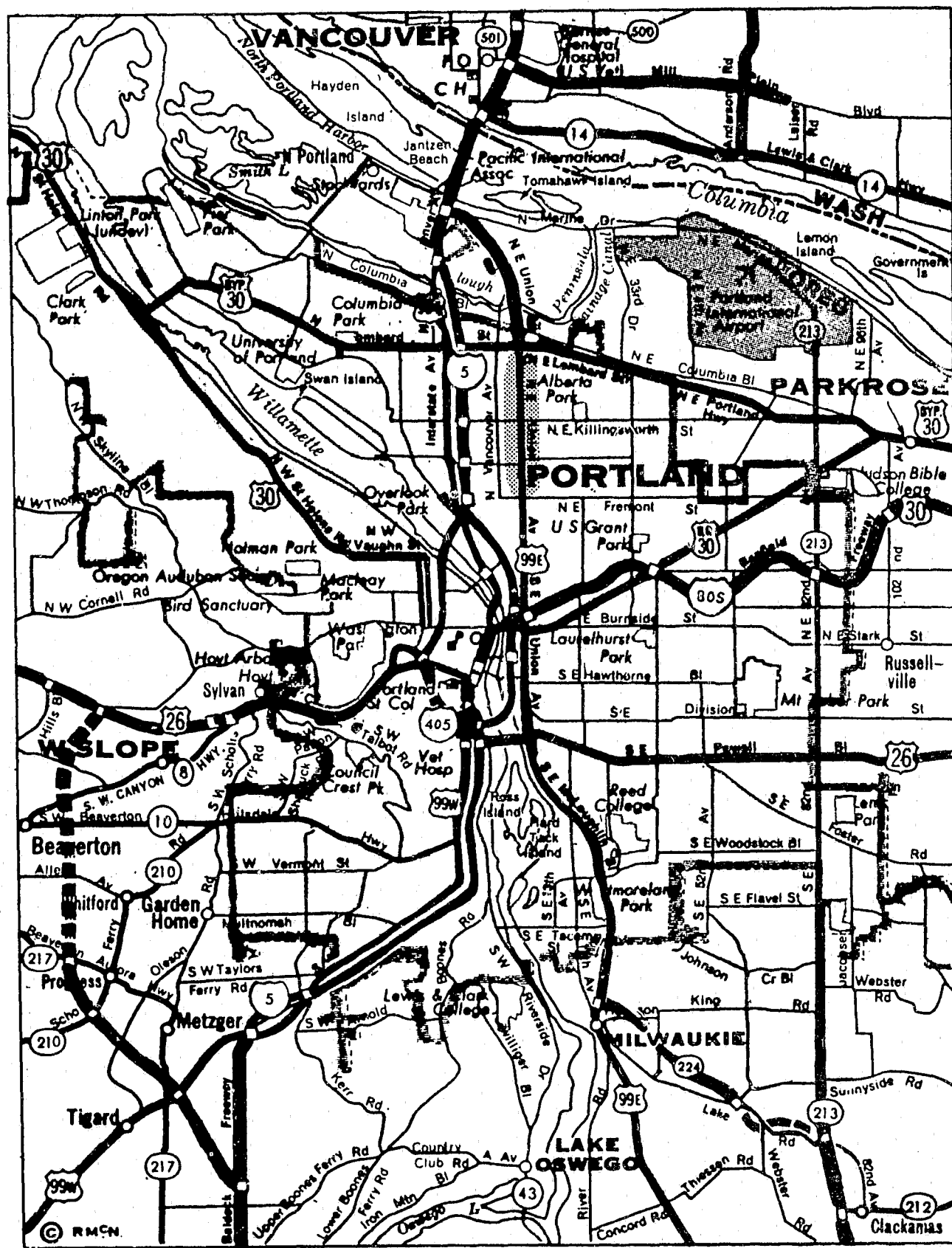
The site selected for the demonstration was the Union Avenue Corridor (UAC) in Portland, Oregon. The City of Portland in general met the criteria for the demonstration. It had a significant level of reported crime: in 1970, the index crime rate was 2.2 times that of the nation. Local law enforcement agencies had maintained good records. In addition, Portland had been the site of an Impact Crime Reduction Program, conducted under the auspices of LEAA. This program had compiled extensive victimization data to enhance the baseline information necessary for the demonstration.

Portland, and specifically the Union Avenue site, also had existing supporting programs. An ambitious redevelopment plan was already underway that could incorporate CPTED strategies. There was also strong local interest and support for a crime-prevention demonstration project, particularly the city government and the mayor. The site selected was also part of Portland's Model Cities effort; community groups formed under that program continued to provide voices for area interests.

The Union Avenue Corridor is a three and one-half mile urban arterial commercial strip, located in the northeastern section of Portland, and running from the central business district to the Columbia River on the city's northern boundary. This strip was once a thriving commercial area along one of the city's four major north-south routes. Union Avenue connected traffic crossing the Willamette River on the Stark Street Ferry, originating from downtown Portland, to the Vancouver Ferry that crossed the Columbia River to Vancouver, Washington (see figure 1).

The area's commercial boom (at its peak in the 1930s) was over by the 1960s. The street since was marred by vacant lots, boarded-over windows, derelict structures, and night spots of dubious reputation. A number of businesses had posted for-sale signs, but potential buyers were reluctant to invest in the area due to fear of crime.

Union Avenue's social and economic decline follow a familiar pattern. First a major shopping center was built



Union Avenue Corridor

1 -- Map of Portland Showing Union Avenue Corridor

nearby in 1960, upstaging smaller neighborhood businesses. In the mid-1960s, Interstate 5 drew more business away from the corridor. In addition, many people who could afford to leave the neighborhood did so, taking their businesses with them to more affluent surroundings. Those who could not relocate their homes and businesses were often those most vulnerable to crime problems: the elderly, the poor, and small minority enterprises.

About half of the residents in the neighborhood surrounding Union Avenue are black, and the business strip is the only area in the city that has an appreciable number of black-owned businesses. Racial inequities led to significant damage to Union Avenue property during the period of civil disturbances in the late 1960s. Some distrust between black and white residents continues. This distrust has impeded the cooperation needed to restore social and economic vitality.

The Union Avenue corridor carried a disproportionate share of the city's crime burden. While the area had only about 1.2 percent of the city's population, it sustained about 5 percent of the violent crimes, more than 7 percent of the personal robberies, and more than 5 percent of the purse-snatches. A 1973 survey of Union Avenue businessmen concluded that most of them identified crime as the single most important problem affecting business operations.

On the positive side, economic development appeared to have a solid base despite a business decline in the area. Some substantial business anchors remained, including a large department store, several clothing stores, a national chain supermarket, drug stores, and several banks. Many of the homes in the area were in good condition, owing in part to the previous Model Cities and Neighborhood Development Program activities.

The UAC site has a relatively stable population of about 4,500 people. The major neighborhoods abutting Union Avenue, and forming part of the demonstration site are Woodlawn, Vernon, King, Sabin, Irvington, Humbolt, Boise, and Eliot (see figure 2). Some of these neighborhoods, notably Eliot, had plans drawn up by the Planning Bureau to guide new development.

A number of organizations, including the Mayor's Office and the Portland Police Bureau, were concerned with finding effective solutions to the crime problems along Union Avenue. The mayor served as chairman of the Union Avenue Steering Committee, and the Police Bureau sent its Strike Force to the Union Avenue Corridor on several occasions to reduce burglary and street robbery incidents. In addition, the Portland Crime Prevention Bureau conducted numerous block meetings in the area to alert the community to techniques for reducing

residential burglaries. All of these factors made it apparent that a real and broadly based commitment to improve the Union Avenue Corridor existed within the city.

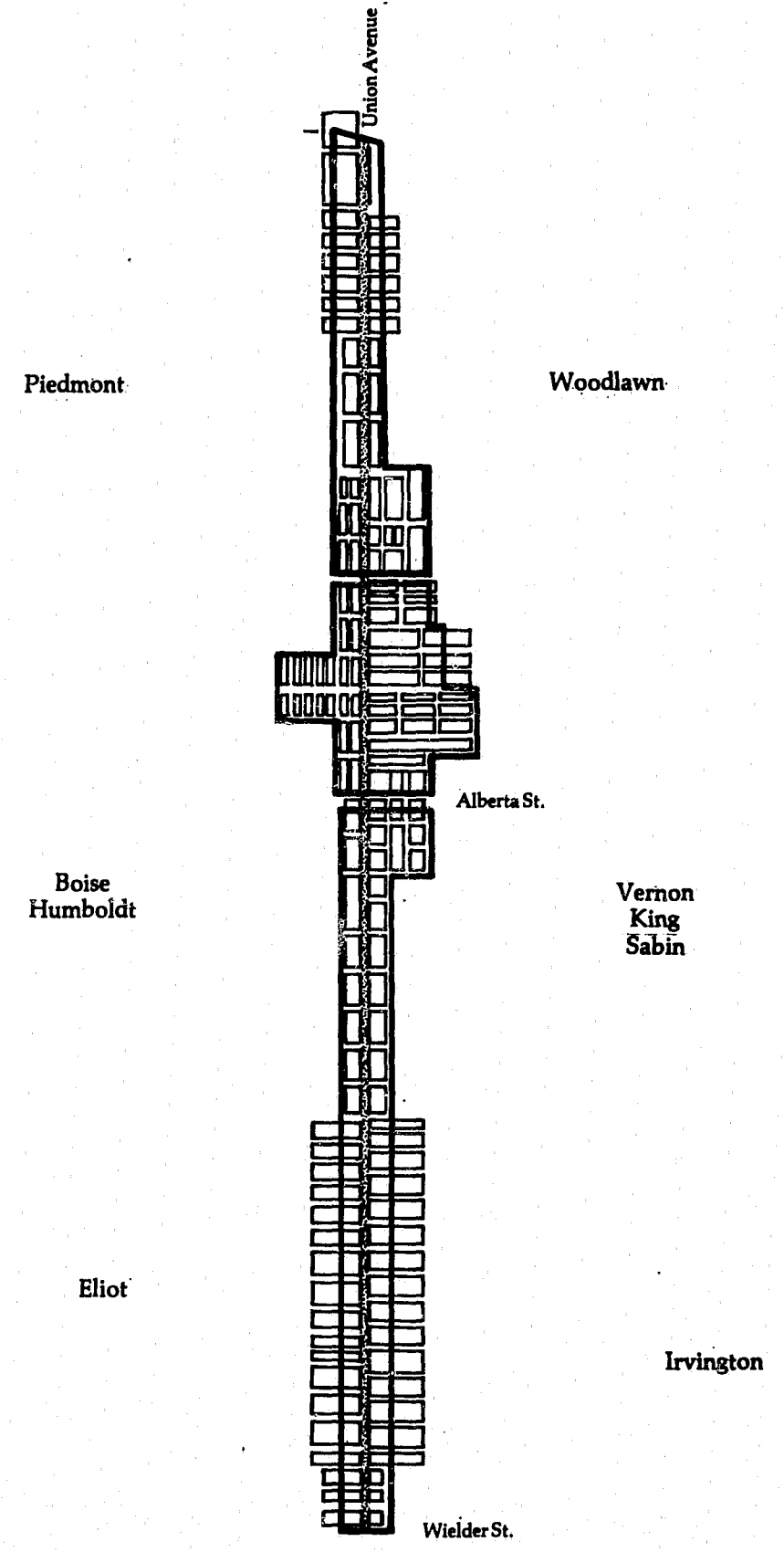


Figure 2. Union Avenue Corridor & Adjacent Neighborhoods.

PROJECT INITIATION

The Union Avenue Corridor, as noted earlier, was found to have a disproportionate share of the city's crime problem. Local businessmen felt that the crime problem was the single greatest obstacle to the successful operation of their businesses. Visual surveys revealed that few people were on the streets at any given time. The presence of vacant land and derelict buildings added to the impression of a decaying area.

Table 3 summarizes UAC crime data in comparison with data for the city as a whole. Analysis revealed that the major crimes to be addressed by the demonstration should be assault, robbery, burglary, and purse-snatch. Half the assaults were found to occur on the streets, usually after dark. Street robberies were also most frequent after dark. The UAC was also found to be the most heavily victimized burglary area in Portland, with burglaries more frequent in the surrounding residential areas than in the commercial strip itself. Incidents of purse-snatch in the target area were found to be four times the citywide rate, generally occurring at night and on the street. Thirty percent of purse-snatch victims were found to sustain some injury. Fear was the major issue with the area users in general.

During the early stages of the project, a list of persons and organizations representing different perspectives on residential and business issues and priorities was compiled. Existing programs that could offer support to demonstration efforts were identified -- for example, those formed during the late 1960s and early 1970s as part of the Model Cities program. Meetings were held prior to site selection and continued with broader representation, particularly from local residents, after Portland was chosen as the demonstration site. These meetings provided a forum for residents, businessmen, city officials, and representatives from neighborhood institutions to discuss problems and opportunities along Union Avenue. The Portland Development Commission later took the lead in organizing committees to support the implementation of the various CPTED strategies.

CRIME TYPE		NUMBER	RATE PER 1,000 PERSONS
Residential Burglary	Portland	9,187	24:1,000
	Union Ave.	310	68:1,000
Commercial Burglary	Portland	2,824	7:1,000
	Union Ave.	82	18:1,000
Street Robbery	Portland	842	2:1,000
	Union Ave.	53	12:1,000
Street Assault	Portland	722	2:1,000
	Union Ave.	38	8:1,000
Purse Snatch	Portland	619	2:1,000
	Union Ave.	34	8:1,000
Total Burglary & Robbery	Portland	14,797	39:1,000
	Union Ave.	517	115:1,000

The statistics in the above table were compiled by the Portland Human Resources Bureau using Portland Police Department Strike Force data for five months (Oct. 1973--Jan. 1974) and 1970 Census information for the City of Portland.

A Concept Plan emerged from this initiation phase. Some of its highlights:

- * Street lighting
- * Bus shelters
- * Highway improvements, including landscaping, lighting, and rebuilding
- * Safe-passage corridors
- * Residential service centers and activity centers
- * New bus routes and transportation for the handicapped
- * Security advisor services
- * Rehabilitation design review
- * Commercial design review
- * Cash-off-the-streets

In addition to identifying CPTED tactics, the concept plan indicated the participants who should be involved in implementing specific strategies. It also identified potential funding sources and developed a work schedule.

Released in January 1975, the concept plan (together with reviews and comments upon it) became the foundation for a formal demonstration plan that was released in March 1976.

PROJECT PLANNING

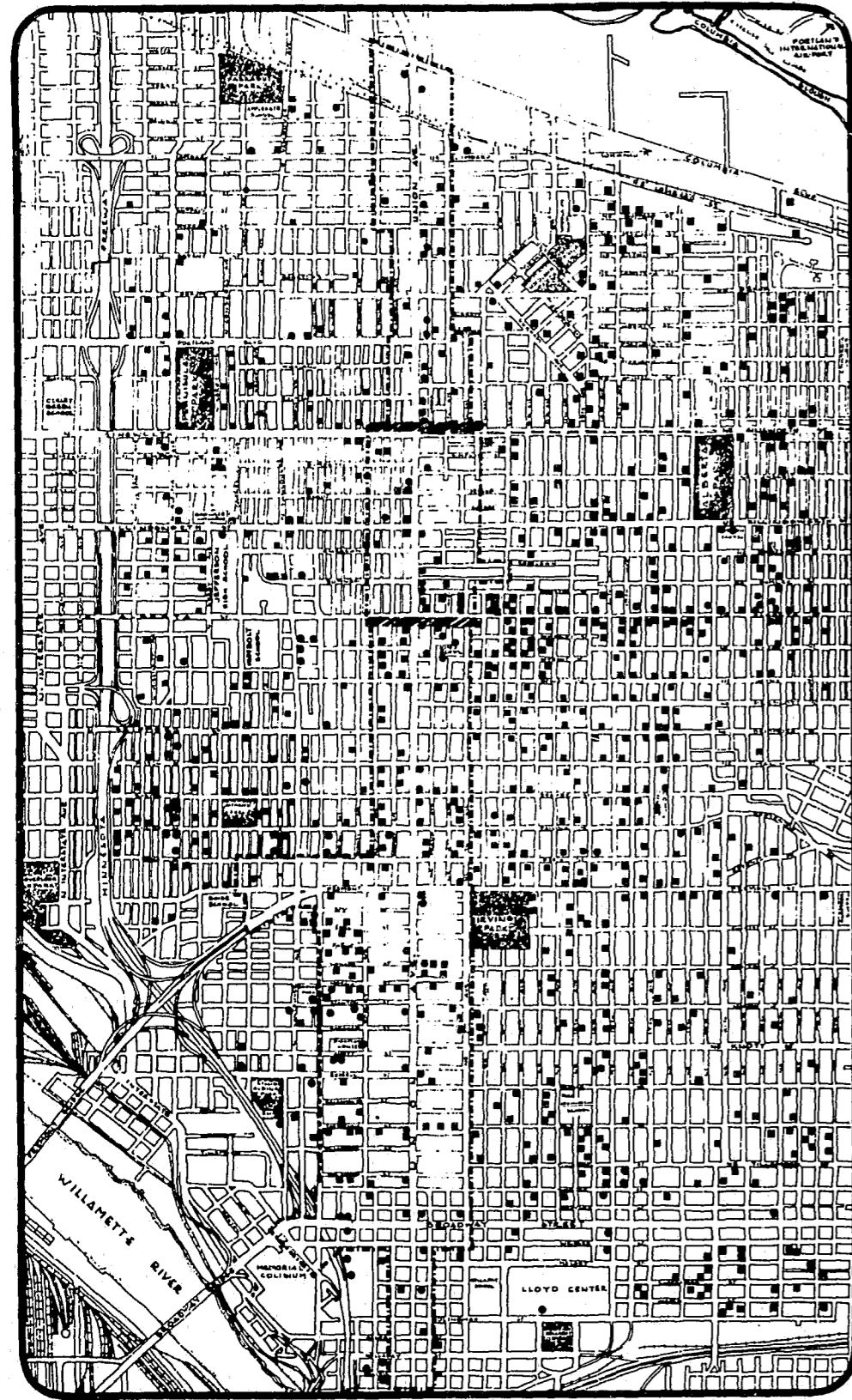
The planning phase involved a more detailed analysis of crime patterns at the site, including an evaluation of police incident reports for the UAC for an entire year. As is apparent from figures 4 and 5, these crimes were not uniformly distributed along the corridor. Crime clusters coincided for the most part with "nodes" of commercial activity. They also appeared to be influenced by the proximity to Jefferson High School.

The analysis team evaluated area crime characteristics, which are briefly summarized below:

* Victims. Victims of personal crimes -- assault, purse-snatch, and robbery -- tend to be disproportionately white and female. Given the unusually high percentage of blacks residing in the area, the disparity in victimization between blacks and whites is significant. A similar but less significant disparity appears in victimization of females and older persons. Crime Panel statistics for Portland as a whole indicate that the heaviest burden of personal crimes (i.e., assaults, robberies, and personal larcenies) falls on males and persons under twenty years of age, yet about half of the known victims of personal crime in the UAC were over the age of forty, and more than half were female. Victims of commercial robbery and burglary also appear disproportionately white and older, but this victimization pattern may well conform to the economic characteristics of the area.

* Offenders. Most offenders appear to be under the age of twenty-five. Offenders for all personal crimes (except of course for purse-snatch) were likely to be armed, most often with a gun.

* Time. Consistent with national crime patterns, assaults and commercial burglaries tend to occur in the evening. Street robberies and purse-snatches are concentrated in the late afternoon and evening. The temporal distribution for residential burglaries, however, appears somewhat anomalous, since



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UNION AVENUE CORRIDOR

--- Union Ave. Corridor
 Primary Target Area
 ■ Residential Burglary
 ● Commercial Burglary

Sample = 1 out of 3 incidents for
 the one-year period from
 October 1973-September 1974

Data Compiled from Portland Police
 (Strike Force) pin maps by Urban
 Systems Research and Engineering, Inc.

Prepared for
 Westinghouse Electric Company
 by
 Borien Aschman Associates, Inc.
 November, 1974



4 -- Residential and Commercial Burglary Along UAC

nationally this crime is most likely to occur during the day-time, when residents are least likely to be home. No particular pattern could be noted by day of the week except for some tendency for assaults and street robberies to occur more frequently on Fridays and Saturdays.

* Location. As is apparent from figures 4 and 5, commercial crimes (both robbery and burglary) are clustered along streets with concentrations of retail establishments, while residential crimes are concentrated in areas of single-family housing. The locations of street crimes are for the most part predictable except for the relatively large number of street crimes occurring in parking lots (which, in the case of both assaults and street robberies, appear frequently to be adjacent to taverns).

* Impact. The known consequences of crime -- fear, injury, and economic loss -- can be approximated by quantitative techniques, but the extent to which these consequences (in themselves extremely serious) contribute to economic, social, and physical deterioration can only be hypothesized. Such deterioration is evident along the corridor, is more pronounced than elsewhere in the city, and is undoubtedly attributable in part to the crime problem in the area.

The crime-environment analysis also included examination of the law enforcement practices in the area, including deployment practices, response time and rate, and community programs. The analysis also considered elements of the physical and social environments which might have affected past crime rates and (if made a focus of the demonstration) might help lower future crime rates. These elements included land use, density, location of parking areas, traffic patterns, and the like.

STRATEGIC PLAN

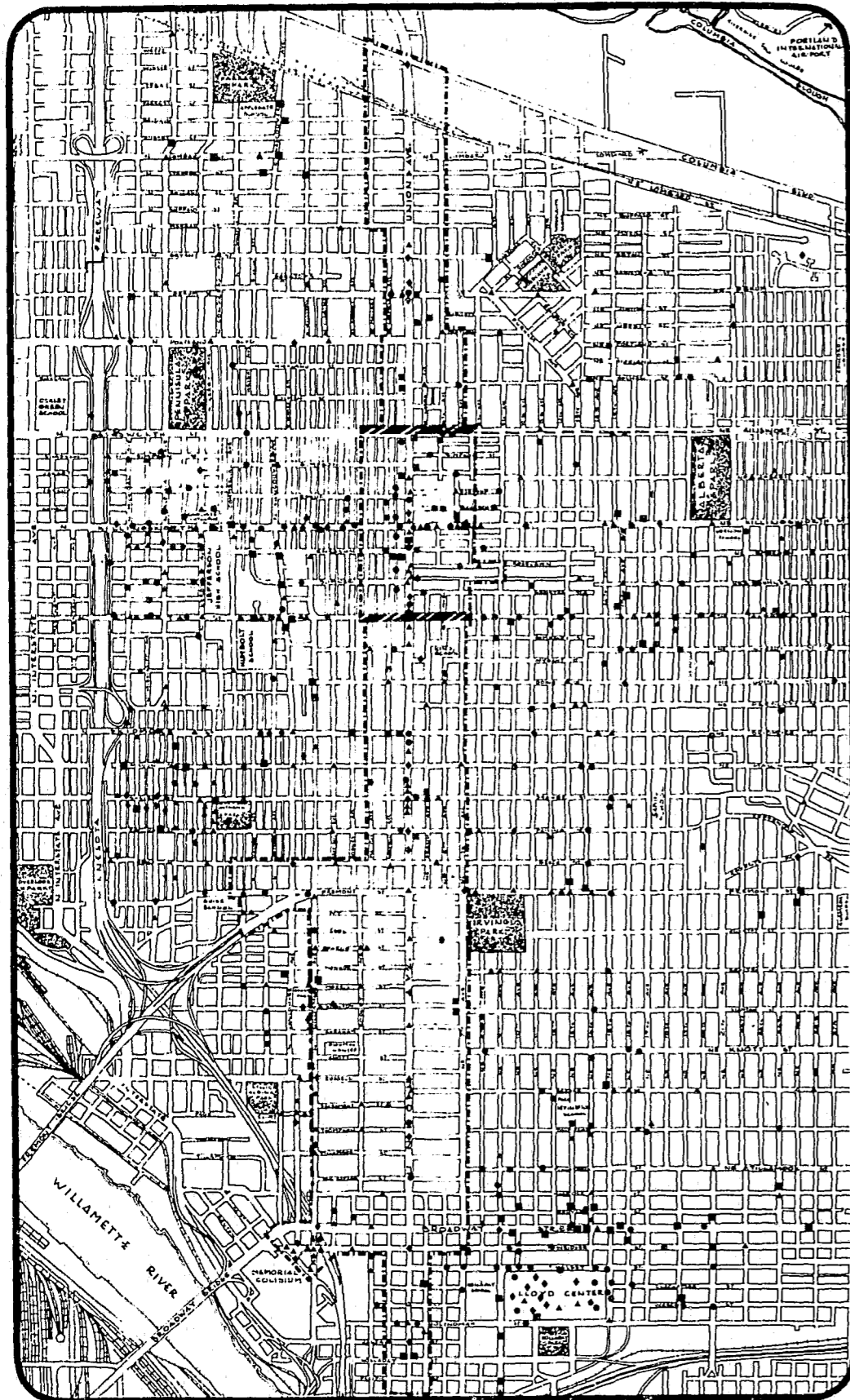
The Strategic Plan for the commercial demonstration was based in part on the following operating hypotheses, drawn from the problem analysis phase:

(1) Frequently the commercial areas which have the most serious street crime and fear-of-crime problems are also areas which are in a relatively deteriorated condition. Consequently one approach to reducing street crime and attendant fear is to revitalize the physical, economic, and social character of the commercial environment.

(2) The physical, economic, and social vitality of a commercial strip depend in part upon the extent to which these

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UNION AVENUE CORRIDOR

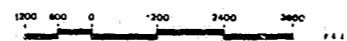


----- Union Ave. Corridor
 Primary Target Area
 ▲ Street Robbery
 ● Street Assault
 ■ Purse Snatch
 ■ Commercial Robbery

Total incidents for the one year
 period October 1973-September 1974.

Data Compiled from Portland Police
 (Strike Force) pin maps by Urban
 Systems Research and Engineering, Inc.

Prepared for
 Westinghouse Electric Company
 by
 Barton Aschman Associates, Inc.
 November, 1974



5 -- Street Crimes and Commercial Robbery Along UAC

areas provide appropriate and valued activities and services which are conveniently accessible to local residents. The need for symbiotic relationships between the commercial strips and nearby residential neighborhoods must be recognized in planning CPTED strategies.

(3) Fear of crime can be anathema to the vitality of a commercial strip, discouraging establishments from locating in the area and reducing the number of persons willing to take advantage of existing businesses and activities. Thus there is further abandonment, deterioration, and crime.

(4) Through the application of CPTED programs to assure proper design and use of space (i.e., the built environment) stranger-to-stranger crimes and fear of crime can be reduced.

These hypotheses were translated into seven specific strategies to be implemented in the demonstration:

* Safe streets for people. This strategy was designed to reduce the opportunities for crime, improve crime reporting, and reduce fear by creating safe-passage corridors through physical, social, and law enforcement tactics. These would include landscaping improvements, traffic pattern alterations, lighting, and such social tactics as blockwatch and encouraging residents to use their newly provided area, thus providing more natural surveillance. One of the prime objectives was to create a sense of territoriality among residents of the area by creating a positive and distinct identity for the area.

* Mini-plaza or residential activities center. These plazas were conceived as safe locations where residential streets connect with bus waiting areas located along the commercial strip. They would improve the appearance of the area by means of landscaping, graphics, social amenities, telephones, bus shelters, and other facilities. The plazas were also designed to bolster neighborhood pride and identity for residents and businesses in the area.

* Corridor promotion. Two projects were suggested as possible means to restore public confidence along Union Avenue: weekend markets, to attract more shoppers and businesses into the area; and the Woodlawn Neighborhood Shopping Center, a mini-mall development designed to enhance the commercial character of the area. By reversing the impression that the corridor was experiencing deterioration and public abandonment, this strategy would reduce fear of crime in the area.

* Transportation improvements. These would include a bus program for the elderly and handicapped, weekend market shuttle buses, improved bus services and shelters, and street

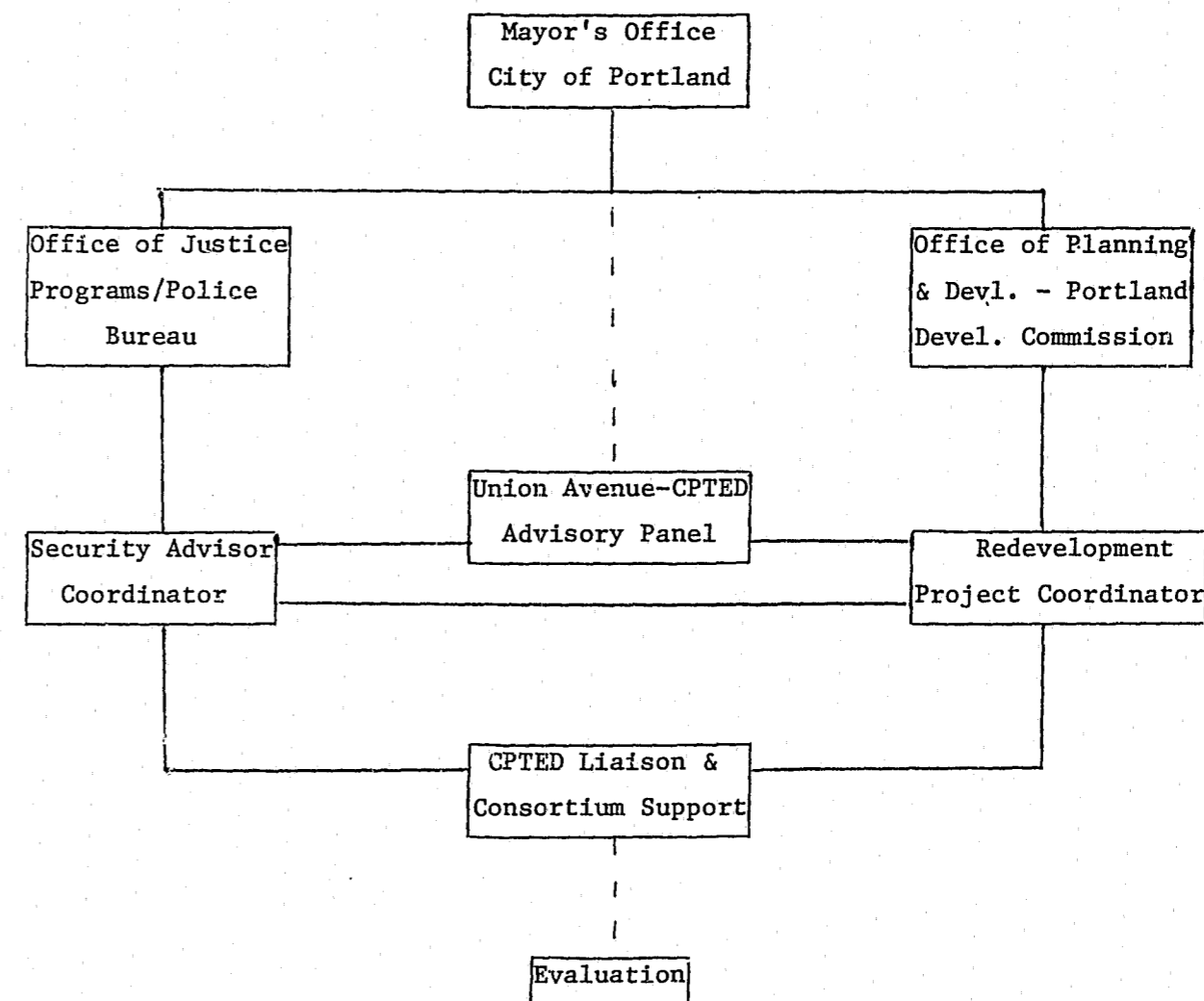
and sidewalk improvements. These improvements were designed to reduce the crime-risk exposure of citizens to street assaults, to stimulate and support commercial activity, and to provide stronger links between the area and other important employment and market areas of the city.

* Security advisor services. This program would include commercial and residential security surveys and followup, organization of citizen involvement, and security awareness promotion. The security services were primarily aimed at reducing the opportunity for commercial and residential burglary and robbery. The program involved both social tactics (citizen participation) and physical tactics (target hardening).

* Law enforcement support. This would include patrol surveillance, special support to the Union Avenue Corridor activities, revised police patrol districts, storefront operation on the corridor, and improved communication. This strategy was intended to improve police-community relations, to encourage citizens to report suspected or known crime events, and to increase the effectiveness of police patrol efforts. Another benefit of improved law enforcement support would be crime deterrence as a result of increased police visibility.

* Cash-off-the-streets. This tactic would encourage people not to carry significant amounts of currency on the streets and would enable them to communicate this fact to potential purse-snatchers and robbers. The program would include special bank checking services for the elderly, commercial business support, and a public awareness campaign.

For a number of reasons, it was important that the project be implemented and coordinated by locally based organizations and people. Accordingly, the demonstration plan called for a local Redevelopment Program Coordinator and a local Security Advisor Coordinator to be assigned key management roles. These coordinators were to receive planning, management, and technical assistance from an on-site CPTED representative. A Union Avenue CPTED Advisory Panel, made up of city agency representatives and other knowledgeable citizens, would be organized; this panel would review demonstration progress to ensure compatibility with other city programs and activities. The structure of the management plan is shown in figure 6.



6 -- CPTED Commercial Demonstration Project Organizational Relationships

PROJECT IMPLEMENTATION

The implementation phase of the Portland demonstration began with organizing an implementation team and finalizing the demonstration plan.

STAFF ACTIVITIES

The Westinghouse CPTED coordinator was present on a part-time basis from March 1975 to June 1976, and full-time from September 1976 through February 1978. With consortium support, the coordinator helped the city of Portland develop and implement the UAC revitalization efforts.

Three staff members from the Portland Police Crime Prevention Unit provided security advice, assisted the Northeast Business Boosters (NEBB), helped coordinate the Sunday Market and Clean-up Day activities, and supported the commercial and residential security surveys from October 1975 through December 1977, for approximately 350 man-days. The cost of police participation is estimated at \$25,000 to \$30,000.

The Union Avenue Office of the Portland Development Commission had three staff members involved in CPTED activities from December 1976 through December 1977, for a total of 310 man-days. These individuals provided various support services to the business and residential communities. The cost was approximately \$32,000.

Throughout the project, the City of Portland provided ad hoc staff for the development, review, promotion, and implementation of activities.

Finally, the CPTED coordinator, Crime Prevention Bureau staff, and UAC-PDC staff provided support and review services for planning other UAC revitalization activities. These included the Knott Street housing project for the elderly, a

total redesigning of Union Avenue, construction of new businesses, and the possible construction of a new veteran's hospital.

IMPLEMENTATION ACTIVITIES

A number of tactics were implemented in UAC to bring about changes in the physical and social environments, including commercial and residential security surveys, installing high intensity and infill street lighting, creating a "safe street for people," building new bus shelters, organizing and supporting the Northeast Business Boosters (NEBB), Sunday Market and Clean-up Days, and assistance for other environmental changes.

Security Surveys

The City of Portland received an LEAA grant to provide Security Advisor Services and to make street-light improvements in Northeast Portland; \$78,000 was earmarked for security purposes. The Portland Police Department's Crime Prevention Bureau performed security surveys of all UAC businesses and approximately 160 residents in the Alberta-Killingsworth area. The commercial surveys were performed in February 1976, with follow-up surveys in August 1976 and February 1977. For each original survey, a police officer inspected the premises in order to identify security deficiencies. When a deficiency was identified, recommendations for improvements were made (e.g., install better locks). The police subsequently checked to determine the extent to which their recommendations were followed.* Twenty-five officers were involved in the surveys and follow-ups for approximately 170 man-days at an estimated cost of \$12,500.

The residential surveys were performed in August and September of 1976. Limited funds were available for these surveys and subsequent target-hardening efforts. Thus, a decision was made to concentrate the surveys and improvements in an area east of Union Avenue, between Alberta Street and Killingsworth Street. Approximately 160 residents were surveyed by police, requiring approximately 200 man-days for an estimated cost of \$16,500. As these residences were owned by lower-income persons, public money was available for some of the recommended

*Costs for all security improvements were incurred by the businessmen, as no public funds were available for purchasing security devices for private businesses.

improvements. From April 1977 through August 1977, security devices were installed by veterans hired on a CETA grant at an estimated labor cost of \$26,000. The total cost of the security devices that were installed (e.g., locks) is estimated at \$13,500. Money for these improvements was provided by the Portland Office of Planning and Development using HCD funds.

Street Lighting

The same LEAA grant provided \$362,000 for the street-light improvements. Installation of high intensity lights on Union Avenue and infill lighting in residential side streets began in January 1976 and was completed by March 1977. This work required approximately ten man-years of labor for an estimated cost of \$210,000; material costs were approximately \$151,000. The work was performed primarily by an outside contractor for Portland's Street Lighting Department.

Safe Street for People

Knott Street was designated as a "safe street for people." It was repaved, curbs were reconstructed to narrow the street at several points in order to slow down the traffic, sidewalks were repaved with walk-up ramps at curbs, and physical amenities and landscaping were provided both for functional and aesthetic purposes.* Construction began in September 1976 and was completed by February 1977; landscaping was done in March of 1977. In total, approximately \$120,000 in labor and \$70,000 in materials were committed to the Knott Street redesign. In addition, it is estimated that \$13,500 is required for yearly maintenance.

Bus Shelters

In November 1975, eleven new bus shelters were installed in various locations throughout UAC. Total labor costs were approximately \$2,000, with material costs estimated at \$21,000. These shelters provide riders with protection from the weather, have a functional appearance, and are transparent to afford two-way surveillability.

Northeast Business Boosters

A businessman's organization, the Northeast Business

*In November 1977, construction began on a housing complex for the elderly near the west end of Knott Street. It is intended that Knott will function as a safe passageway to Union Avenue for the elderly.

Boosters, was organized and maintained through the efforts of the Crime Prevention Bureau staff, CPTED coordinator, PDC staff, and key UAC business leaders. NEBB met monthly after its start-up in June 1976 with an average attendance of twenty to thirty members. Support services were provided by the PDC and the Crime Prevention Bureau staff. NEBB maintained an average membership of 100, and strongly supported the CPTED revitalization efforts.

Special Events

Clean-up Day and Sunday Market were organized to improve the appearance of the area and to promote community spirit. Clean-up Day occurred in August 1976 and Sunday Market in October 1976. Support services were provided by the Crime Prevention Bureau staff at an estimated cost of \$1,800. Approximately one-fourth of the businesses participated in Clean-up Day; Sunday Market had an attendance of over 500 persons.

FACTORS AFFECTING SPECIFIC TACTICS

Many tactics were proposed during the Initiation and Planning phases; others were developed later. Some were implemented as proposed, others were revised, and still others were delayed or dropped. Such results had been anticipated because of the experimental nature of the project. The following comments suggest the range of circumstances affecting various strategies.

* Residential services center. The original plan called for a neighborhood shopping center at the corner of Dekum and Union Avenue. A local economist and the Portland Economic Development Director did a market feasibility study, with assistance provided by the consortium. The results were not encouraging for business development in that area at the present time.

* Road improvements. Approximately \$4.5 million in Federal highway funds were made available to the Union Avenue Redevelopment program. A full-time coordinator, hired by the City Public Works Bureau, worked on plans for construction, which was scheduled to begin in early 1979. Plans called for a complete overhaul of three and one-half miles of Union Avenue, adding left-turn lanes, a median strip, directional signals, landscaping, and trees to make the street more amenable to vehicular and pedestrian traffic.

* Community organization. The formation and support of the Northeast Business Boosters was a major improvement in

UAC's environment. Efforts to organize the residential community into a cohesive group were not as successful. The CPTED and Redevelopment projects both drew on existing neighborhood associations created under the Model Cities program. CPTED advisory committees were formed, but they were not very stable. Many presentations on revitalization and crime prevention efforts were made to citizen's groups, but these groups were not directly involved with CPTED. Police-community coordination could have been aided by the proposed relocation of the police North Precinct headquarters. The move had favorable public support, but plans had to be abandoned when the Public Works bill, under which the move was to be financed, was vetoed.

* Bus shelters and transportation improvements. The Tri-Met Transit Company installed eleven transparent, three-sided bus shelters in the Union Avenue area. Original plans called for telephones, lights, mini-plazas, and landscaping near the bus shelters, but implementation of most of these plans proved too costly. Limited landscaping was done and some of the shelters happened to be located near phones. A special bus service, known as LIFT, was created for the elderly and the handicapped. This dial-a-bus system was offered free to the indigent; others paid what they could. It has proven highly successful in UAC and other low income areas of the city.

* Mini-plaza. Design consultants were asked to draw up plans for mini-plazas at major intersections and bus stops. However, the city parks department would not approve the construction of these small parks, primarily because of maintenance considerations. An alternate plan called for a mini-plaza adjacent to the neighborhood shopping center. Since the neighborhood shopping center has not yet materialized, plans for the mini-plaza were also suspended.

* Special events. A farmer's market was held throughout the warm months of 1977, providing low-cost fresh produce to residents of the area. Although the CPTED Demonstration Plan had not included this activity, it served the purpose of drawing people to the commercial area -- a positive happening in the general revitalization effort.

* Business development. Several large business concerns indicated renewed interest in the Union Avenue location. A BMW dealership opened in the area in 1976, along with a number of smaller concerns. A national franchise restaurant chain purchased land in the area, although no development has yet taken place. A major national department store chain also expressed interest in developing a warehouse-office complex along Union Avenue. There was general support for the warehouse from the city and local business people, with some concern that a number of residences would have to be demolished. Meetings with

neighborhood associations affected by the proposed warehouse are now taking place and a decision has not yet been made.

* Cash-off-the-streets. This was one of the original strategies of the CPTED effort, designed to reduce the number of robberies and assaults, particularly against the elderly. A preliminary advisory committee was formed and plans were made to submit a grant application to the Administration on Aging. In addition, there was apparent support from local banks and savings and loan establishments. CPTED technical assistance was also provided. However, the grant application was not approved. In addition, local branches of the banks found that statewide changes in policy were needed to implement some of the proposals, such as paying utility bills at the bank and issuing special identification cards. These changes could not be accommodated in the CPTED project. Since local interest remains high, this strategy may eventually be established under on-going crime prevention programs in the city.

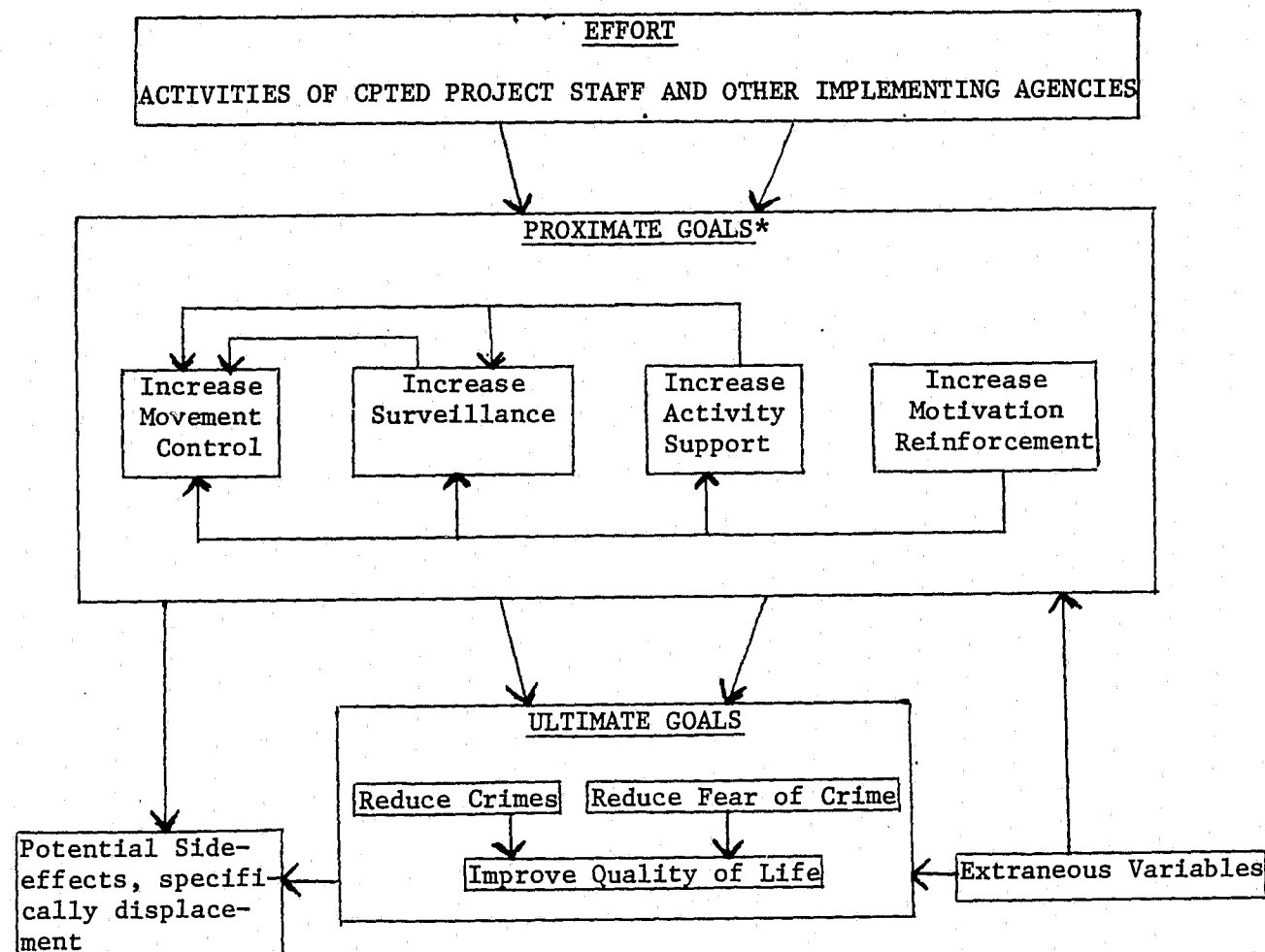
PROJECT EVALUATION

The evaluation was designed to assess two aspects of the demonstration. The first was whether the CPTED strategies had been properly and adequately implemented. If implementation was faulty, then it would be difficult to conclude that the project either proved or disproved the CPTED theory. The second objective of the evaluation was to determine whether the results of the project did in fact support the theory.

The evaluation model for the Portland demonstration is illustrated in figure 7. The model is based on the assumption that in order to evaluate the CPTED process (i.e., program success), one had to first know what effort was expended on the project. This included knowledge of the amount, cost, and timing of project activities, and the activities of other groups related to the planned environmental changes. It was hypothesized that the activities of the implementing groups would lead to increases in access control, surveillance, activity support, and motivational reinforcement -- in other words, that project activities would affect the crime-opportunity structure at the site.

Changes in the opportunity structure constitute measures of attaining the near-term goals of the project. These near-term or proximate goals must be met before a valid measure of the attainment of ultimate goals can be made. The ultimate goals of the CPTED approach are to reduce crime and the fear of crime, thereby improving the quality of life in the area. Depending on the specific environment of a CPTED project, there may be other ultimate goals -- for example, in the commercial demonstration an improvement in the economic vitality of the area might be considered an ultimate goal.

Once the types of effort, the proximate goals, and the ultimate goals have been identified, two final considerations must be addressed: extraneous variables and possible side-effects. Extraneous variables are factors which may have influenced the attainment of the project's ultimate goals, but which



*The four proximate goals are not mutually exclusive. Surveillance increases also serve to increase movement control; increased activity support promotes increased surveillance and movement control; and increased motivation reinforcement provides support for increases in the other three.

have no relationship with project activities. For example, a general economic recession occurring during the implementation of the project would probably have a significant impact on the economic vitality of the area, but its effect would be independent of project activities. Other factors which could influence a project outcomes are changes in local politics, media reports, the weather, racial disturbances, and the like. Any effect associated with these extraneous variables could easily be confused with the impact of the CPTED project.

A second consideration is the occurrence of possible side-effects, specifically displacement. Any crime prevention project must be sensitive to the possibility that while it may meet its specific crime-reduction goals within the target area, it may simultaneously be displacing these crimes to other targets, areas, times, or types of offenses. An example of displacement would be the application of a target-hardening tactic aimed at reducing unlawful entry without force. While it may reduce the incidence of this specific offense, there may be a comparable increase in unlawful entry with force. Similarly, while a project may reduce the crime rate within its target area, offenders may commit crimes in a new locale. In addition to displacement, CPTED strategies can lead to other negative side-effects. For example, it is possible that in sensitizing citizens toward crime prevention techniques there will be an increase in reported crime in the area. Such an increase does not necessarily mean that the incidents of crime in the area are on the increase, but clearly it confounds the measure of project success.

EVALUATION DESIGN

Three different types of evaluations were actually involved, concerning the assessment of effort, proximate goal attainment, and ultimate goal attainment.

The evaluation of effort involved documenting the number, type, and quality of project activities, and the time and cost involved in executing them. This documentation included the cost of support activities (such as project planning) as well as the cost of direct activities (such as implementing physical changes). The data used in the evaluation of effort included project files, observations, and interviews with key persons and area users.

The evaluation of proximate goals involved determining if the project's effort or activities altered the opportunity structure at the site by increasing movement control, surveillance, activity support, or motivational reinforcement. Measures of these dimensions of the crime-opportunity structure were

made before and after project implementation. Thus improvements were measured against a baseline of existing conditions in the project.

Data on changes in the physical security of the UAC included documenting the type and quantity of physical security measures employed by businessmen and residents. Judgments of the quality of improvements were obtained through interviews with area businessmen, residents, and patrol officers. Interviews were also used to measure improved surveillability. In addition, observations were made by trained researchers comparing surveillability before and after project implementation.

Data on changes in activity support consisted of documenting the type and quantity of CPTED-related physical amenities. This was done through observation and key person interviews.

Finally, data was gathered concerning motivational changes. Interviews with area users and key persons were designed to assess if the perception of the area's aesthetic quality, physical cohesiveness, and safety had improved. Questions were also included concerning the perceived effectiveness of the police and the degree of social cohesiveness in the area.

As stated earlier, achievement of the proximate goals was a necessary prerequisite for continuing to an evaluation of whether the project had attained its ultimate goals. These were a reduction in crime, a reduction in the fear of crime, and improvement of the quality of life in the area.

Changes in the crime rate were measured through reports maintained by the police and through victimization surveys. Police file data on crime in the UAC was collected for the period October 1974 through September 1977 (thirty-six months). This data was analyzed using multiple time-series design. In this type of design, change is evaluated over a series of measurement points, in this case monthly increments, rather than in a single before-and-after comparison. The analyst tests for a significant difference in the frequency of incidents over the measurement period, and for a significant change in the slope or direction of the incidents occurring before and after implementation.

Changes in fear were measured in two ways: first, through self-report items on questionnaires and interviews; second, through observation of the use people made of the area's facilities. The latter measure was employed under the assumption that, if people felt safer in the area, they would tend to utilize it more fully. Both measures were used in a before-and-after comparison design.

The final measure of project success in achieving the ultimate goals was changes in the quality of life in the UAC. Data for this measure were drawn from city business files and from interviews with area businessmen concerning their perceptions of the economic vitality of the area.

As originally planned, the evaluation was to include a matched control area. The control would help to account for alternative explanations of findings which might have been affected by extraneous variables or side effects. Cost and time constraints, however, did not allow for the utilization of a control area.

RESULTS AND DISCUSSION

Two sets of data have been presented to indicate the effort expended to implement and maintain the project: description of the project activities and documentation of some costs associated with them; and assessment of the quantity and quality of the immediate changes in UAC's environment, including the costs of these changes. The figures presented represent only a portion of the effort actually expended. The indirect costs associated with the on-going and ad hoc support provided by consortium and city staff would have to be included in order to present a true picture of the overall effort. It can only be noted that the indirect costs were substantial (see table 8).

EVALUATION OF PROXIMATE GOALS

The proximate goals of the demonstration were to increase movement control, surveillance, activity support, and motivational reinforcement.

Movement Control

The Portland Police Crime Prevention Unit performed security surveys of nearly all UAC businesses in February 1976. Of the businessmen interviewed, 81 percent recalled having a security survey performed for their own establishment and 40 percent recalled having a follow-up survey. When asked the extent to which they followed the police recommendations, 29 percent stated that all security recommendations were followed, 21 percent followed almost all of the recommendations, 12 percent followed some, and 13 percent did not make any of the recommended improvements. (The remaining 25 percent were not surveyed or needed no improvements.) Thus, the majority of businesses made at least some security improvements as a result of the surveys.

<u>ACTIVITY (AND FUNDING SOURCE)</u>	<u>AMOUNT</u>	<u>CPTED STRATEGY IMPACT</u>
Highway Improvements including automobile and pedestrian improvements, signals, walks (Federal, State, City, HCD)	\$4,500,000	Safe Streets Transportation Services
Lighting Improvements infill and new (LEAA -- \$403,000, city -- \$44,000)	447,000	Safe Streets Law Enforcement Support Security Advisor Services
Project Improvements Knott St. and other (HCD, local)	500,000	Safe Streets Transportation Services
Commercial Rehabilitation (HCD, City, private)	100,000	Security Advisor Service Corridor Promotion
Residential Rehabilitation (HCD, local revolving funds)	40,000	Security Advisor Service Safe Streets
Commercial Development BMW dealership and other (private)	300,000	Corridor Promotion Safe Streets Security Advisor Service
TOTAL	\$5,887,000	

8 -- Estimated CPTED-Related Investment (as of February 1978)

Businessmen and residents also were asked what security measures they had taken or planned to take. Forty-six percent of the businesses had a burglar alarm, and another 7 percent had plans to install one. Eleven percent had a silent alarm for robbery; 4 percent had plans to install one. Eighteen percent had a gun on the premises for protection; 24 percent had some other weapon. Finally, 43 percent of the businesses reported displaying crime-prevention stickers as an attempt to discourage would-be offenders.

When asked what security measures they have at their homes, 84 percent of the residents stated they always lock their doors when away from home; 50 percent indicated having special locks on doors; 34 percent had special window locks; 10 percent had a burglar alarm; 38 percent had a gun that could be used for protection; 13 percent had a specially trained guard dog; 23 percent had a regular dog; and 51 percent had engraved their valuables with an ID number.

Interviews with the UAC patrol officers showed that it was their unanimous judgment that the target-hardness of UAC businesses was generally adequate, while physical security at residences was generally inadequate. These officers were also unanimous about the positive impact of the commercial security surveys in improving the physical security of UAC businesses.

Surveillance

For the most part, surveillability deals with the adequacy of lighting in the environment and the presence or absence of structural and natural impediments to viewing. Sixty-eight percent of the businesses have outside lights that were turned on at night, and 84 percent kept inside lights on at night. In addition, less than 5 percent of the businessmen considered the Union Avenue street lighting as insufficient. Paralleling this, a majority of the residents (69 percent) regarded the quality of street lighting in UAC as good, with an additional 22 percent describing it as fair; only 9 percent of the residents felt the street lighting was inadequate.

For an additional perspective on the surveillability of UAC residents were asked how likely it was that an offender would be seen committing a crime. Twenty-three percent responded "very likely," 26 percent said "somewhat likely," 18 percent said "somewhat unlikely," 12 percent said "very unlikely," and 21 percent were uncertain. In general, it appeared that there was adequate surveillability in UAC. This conclusion was supported by the CPTED team's own visual assessment of UAC's lighting and absence of structural impediments to surveillance. This judgment was formed during more than 20 drives along Union Avenue.

Activity Support

Part of the CPTED theory suggests that the environment should contain physical amenities, public and private structures and facilities, and public areas that will encourage use by citizens. In the original commercial demonstration plan, recommendations were made to provide mini-plazas on Union Avenue and a Residential Activity Center. Neither of these tactics was carried out. The major post-1974 accomplishments to increase the usability of UAC's built environment seem to be the improved street lighting, the redesign of Knott Street, and an increase in the number of business establishments. Forty-eight percent of the residents described the quality of the area's parks and playgrounds as good (only 13 percent said they were poor), although there were some comments that there was a disproportionate usage of parks by minority group members. Observations disclosed that there was little (other than the parks) in the UAC built environment for positive recreational purposes. Regarding shopping facilities, there was a diversity of commercial establishments. Yet, for the most part, these stores and restaurants apparently were not competitive in quality, quantity, or cost of merchandise with other local shopping centers (e.g., Lloyd Center).

From the perspective of the businessmen, 27 percent felt that insufficient parking was a major hindrance to their businesses. In addition, 17 percent regarded the current Union Avenue traffic patterns as a hindrance to business success. These difficulties may be remedied with the planned and partially implemented redesign of Union Avenue by Portland's Bureau of Streets and Structural Engineering.

Interviews with key persons uncovered mixed opinions about the capacity of UAC's physical environment to promote a positive usage. Most felt that while many citizens shop at local establishments, they do so mostly because of proximity, not because they are especially attracted to the stores for quality or economy. These individuals held mixed opinions regarding the trend of residents' use of UAC commercial establishments. Some feel there has been an increase in reliance on local stores since 1974, while others have noticed no change.

While an environment may contain useful structures and facilities, it is of interest for a CPTED evaluation to document the extent to which the citizenry does in fact utilize them. Most businesses were open five days a week (41 percent) or six days (43 percent), for an average of 54 hours a week. Of the businesses which have customers from UAC, 23 percent perceived an increase in local customers in the past year, 58 percent saw no change, and 18 percent felt there has been a decrease in the proportion of their customers who were local residents. On the average, UAC residents report shopping or eating

at Union Avenue establishments about twice a week during the day and about once a week at night. There was no observed difference in the frequency of residents shopping or eating at Union Avenue businesses between the spring and fall residential interviews.

It was the judgment of the CPTED team and also of most of the interviewed key persons that residents, for the most part, used the commercial environment because of its proximity; when afforded a choice, they shopped or ate elsewhere. There is presently not a high motivation for residents to use the UAC.

One of the factors which it was assumed would affect the utilization of area facilities was their appearance. Through the business interviews, it was found that only 15 percent of the businessmen regarded the physical appearance of their own business as a major hindrance to business success. Yet 45 percent considered the general physical appearance of UAC as a major hindrance to success. Interviews with residents indicated that 55 percent of the residents rated the physical appearance of streets (in terms of street repair and street trash) as good, but only 35 percent regarded the upkeep of residential property as good; in fact, 25 percent considered it poor to very poor, with the remaining 40 percent describing it as fair.

Consistent with the CPTED team's observation of the aesthetic quality of UAC's built environment, the respondents in key-person interviews rated UAC's present physical appearance as, at best, somewhat unattractive. When asked whether they had observed any changes in UAC's aesthetic quality since 1974, key persons noted that both businesses and residents had started to improve the neighborhood, but the process has been a slow one. For the most part, the community leaders were optimistic that this improvement would continue as residents gained more neighborhood spirit and pride.

Through observations of the UAC built environment, judgments were made about UAC's degree of personalization and the clarity of defined spaces. In general, there was little in the environment that was distinctly "Union Avenue." An exception might have been an attractive new wall mural depicting minority group recreational activity. In addition, Knott Street may come to be identified by residents in the southwest as a "model" street. Other than these few instances, there was little to note as a CPTED-type change in the degree of personalization of the built environment. Observations also indicated that UAC has no unusual clarity of defined spaces -- that is, CPTED has had no visible effect on the area's psychological boundaries.

Thus, it was concluded that there has been relatively little impact on these psychological dimensions of UAC's built environment.

Motivational Reinforcement

To assess the extent to which residents were motivated to talk about crime problems, a question was asked about how often crime was a topic in neighborhood discussions. Many UAC residents reported never or almost never discussing crime with neighbors (51 percent); 31 percent discussed it sometimes; 17 percent discussed it often. The final information available about residents' crime-prevention behavior came from the businessmen interviews. When asked whether residents would report a suspicious or criminal act, 41 percent of the businessmen predicted most would, 25 percent said "some would, some wouldn't," and 33 percent felt most residents would not make bystander crime reports.

From first-hand knowledge of the UAC revitalization efforts, it appears that little was done to affect residents' crime-prevention behavior. On the other hand, a concerted effort was made to raise businessmen's awareness of crime-prevention techniques. Crime prevention has been a major topic of discussion at NEBB meetings. Forty-three percent of the surveyed businessmen were aware of local crime-prevention meetings in the three months before the interview; 13 percent reported attending at least one meeting. Twenty-seven percent of the surveyed residents were aware of citizen crime-prevention meetings in the five months before the interview, and 10 percent reported attending at least one meeting. In addition, approximately 30 percent of the residents were aware that the City of Portland was making a special crime-prevention effort in UAC.

The UAC business community was organized into an apparently stable social network, the NEBB. This clearly has been a major accomplishment of the revitalization effort. In contrast, UAC residents have not, to date, been brought together into one representative community group. (One factor affecting this is that the Union Avenue Corridor crosscuts eight district neighborhoods, each with its own association.) The residential sections of UAC are ethnically diverse, and this appears to present a barrier to community cohesiveness. Residents themselves are mixed in their opinions about local togetherness: 46 percent of the residents say neighbors mostly go their own ways, while 38 percent feel most people help each other out.* This difference of opinion was also found in the key-person interviews. While a majority described UAC community spirit as low,

*For an additional perspective on the degree of neighborhood cohesiveness, residents were asked "how many families they know well enough to ask a favor of." The average response was five (4.924; SD = 5.49), but it is interesting to note that 23 percent knew only one or none.

others felt that some subsections had a positive togetherness. In the same way, some key persons described the change in community spirit since 1974 as slightly better; others said slightly worse. The evaluators' judgment in this matter was that the UAC residential community felt a normally unspoken tension due to racial differences. These racial differences seem to be confounded by citizen perceptions of community cohesiveness: whites were relatively more negative, blacks were relatively more positive.

The evaluation of social changes also looked at law enforcement behavior. In the Union Avenue area, both businessmen and residents perceived local police as doing a good job. Specifically, 87 percent of the businessmen and 80 percent of the residents were "favorable" or "very favorable" about police job performance. Two-thirds of the residents described the general quality of police-community relations as fair to very good. Nineteen percent were uncertain about the state of police-community relations; 15 percent described it as poor. (Many of the residents with negative attitudes had apparently been victimized within the last year and were generally pessimistic about the resolution of their cases. Whether this is a comment on the police, the courts, or the entire criminal justice system is uncertain.)

Paralleling these opinions, 90 percent of the businessmen regarded the level of police protection as adequate. On the average, they perceived the police as passing by their business, on patrol, about every half-hour throughout the day and night. This they apparently felt was a sufficient level of patrol effort.

Finally, despite their generally positive attitude toward the police, residents showed mixed opinions when asked to estimate the likelihood that an offender would be caught by the police. Twelve percent felt it was "very likely," 25 percent felt "somewhat likely," 23 percent "somewhat unlikely," 19 percent "very unlikely," and 21 percent were "uncertain" about the likelihood that an offender would be caught.

For their own part, the patrol officers in the area felt that safety had been improved, because the perceived risk to offenders had been increased. At present it is uncertain if this opinion is valid, since it would require direct interviewing of offenders operating in the area.

CPTED theory suggests that, if citizens have a positive identification with their environment, they will act in ways that will help attain CPTED's ultimate goal of crime reduction. Both businessmen and residents showed a somewhat high level of identification with UAC. This statement is based, in

part, on the findings that less than 6 percent of the businessmen and less than 24 percent of the residents felt that it was likely that they would move from the area in the next few years. However, there probably are others who would plan to move if they could (e.g., the elderly) but cannot afford to do so; thus, these percentages are most likely low. Personal contact with UAC businessmen and residents indicated that the majority of them felt part of UAC and were optimistic that the quality of life in the area will improve.

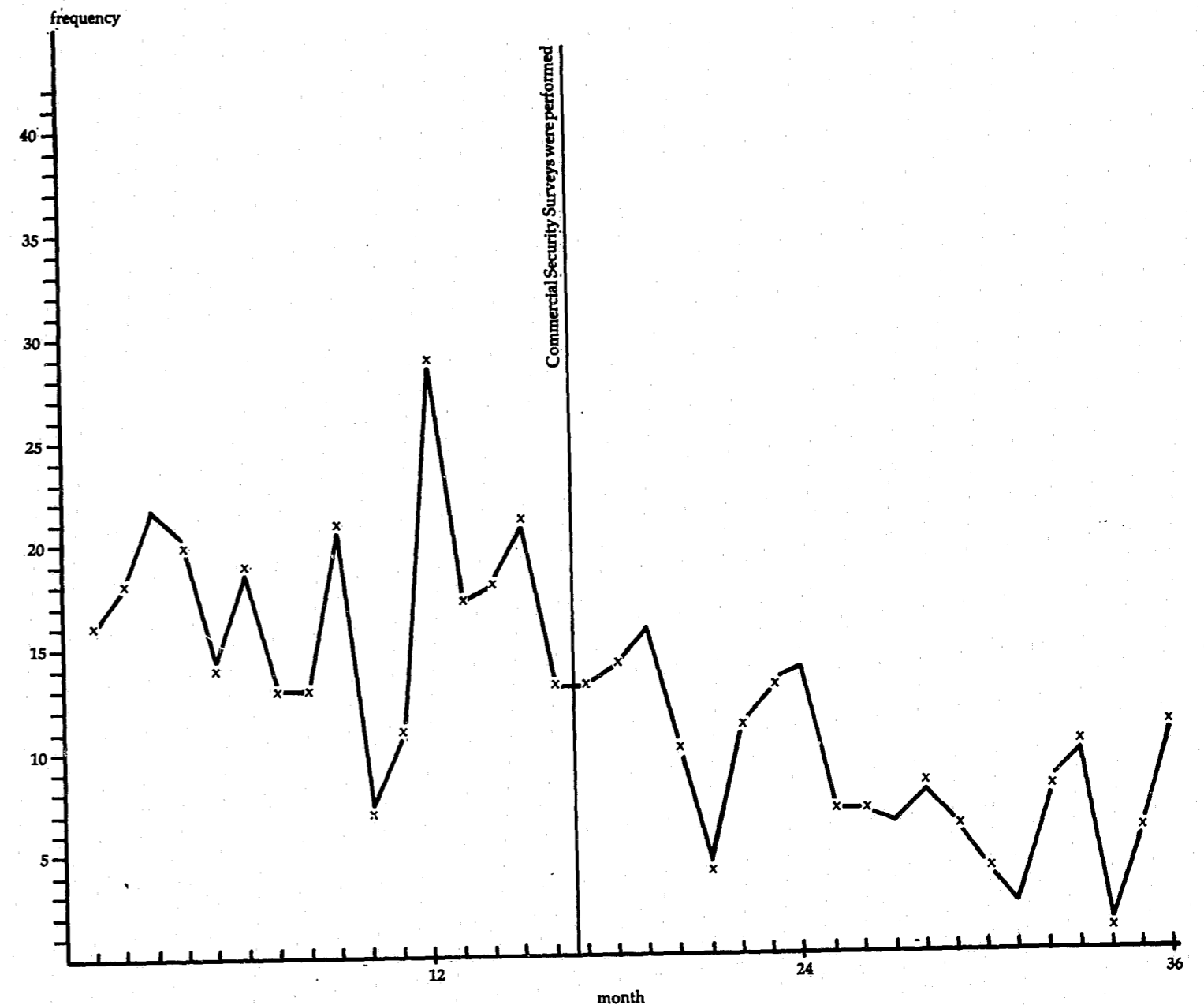
EVALUATION OF ULTIMATE GOAL ATTAINMENT

The project had three ultimate goals: crime reduction, fear reduction, and improvement in the quality of life.

Crime Reduction

UAC crime reports for three years (October 1974 through September 1977) were retrieved from police files for commercial burglary, residential burglary, commercial robbery, street robbery, purse-snatch, street assault, and rape. The target area was bounded by Broadway on the south, Rodney on the west; Lombard on the north; and 7th Avenue on the east. The observed monthly frequencies for individual types of street crime were low, so they were combined into a monthly count.

It was hypothesized that the commercial security surveys performed in February 1976 would bring about a reduction in commercial burglary. Figure 9 suggests that coinciding with and following the commercial surveys, there was indeed a decrease in commercial burglary. Time-series analysis indicated that this observation is statistically valid. Both a significant decrease in level ($t(32) = -2.57, p < .01$) and a significant decrease in slope ($\bar{t}(32) = -5.18, p < .001$) occurred after the commercial security surveys. For the sixteen months prior to February 1976, the average monthly incidence of commercial burglaries was 16.38; for the next twenty months, the average monthly rate was 8.45 -- a decrease of 48 percent. In addition, the rate showed a significantly decreasing trend; i.e., as time went on, commercial burglaries continued to occur less frequently. Information from the Portland Police Bureau indicates that, while there was a slight overall decrease in commercial burglaries in 1976 and 1977 for all of Portland, it was not comparable to the reduction in UAC. To be more confident about the conclusion that the security surveys brought about significant reduction in commercial burglaries, it is helpful to look at the reported crime rates for residential burglaries and commercial robberies. Commercial security surveys



9 Commercial Burglaries, 10/74-9/77

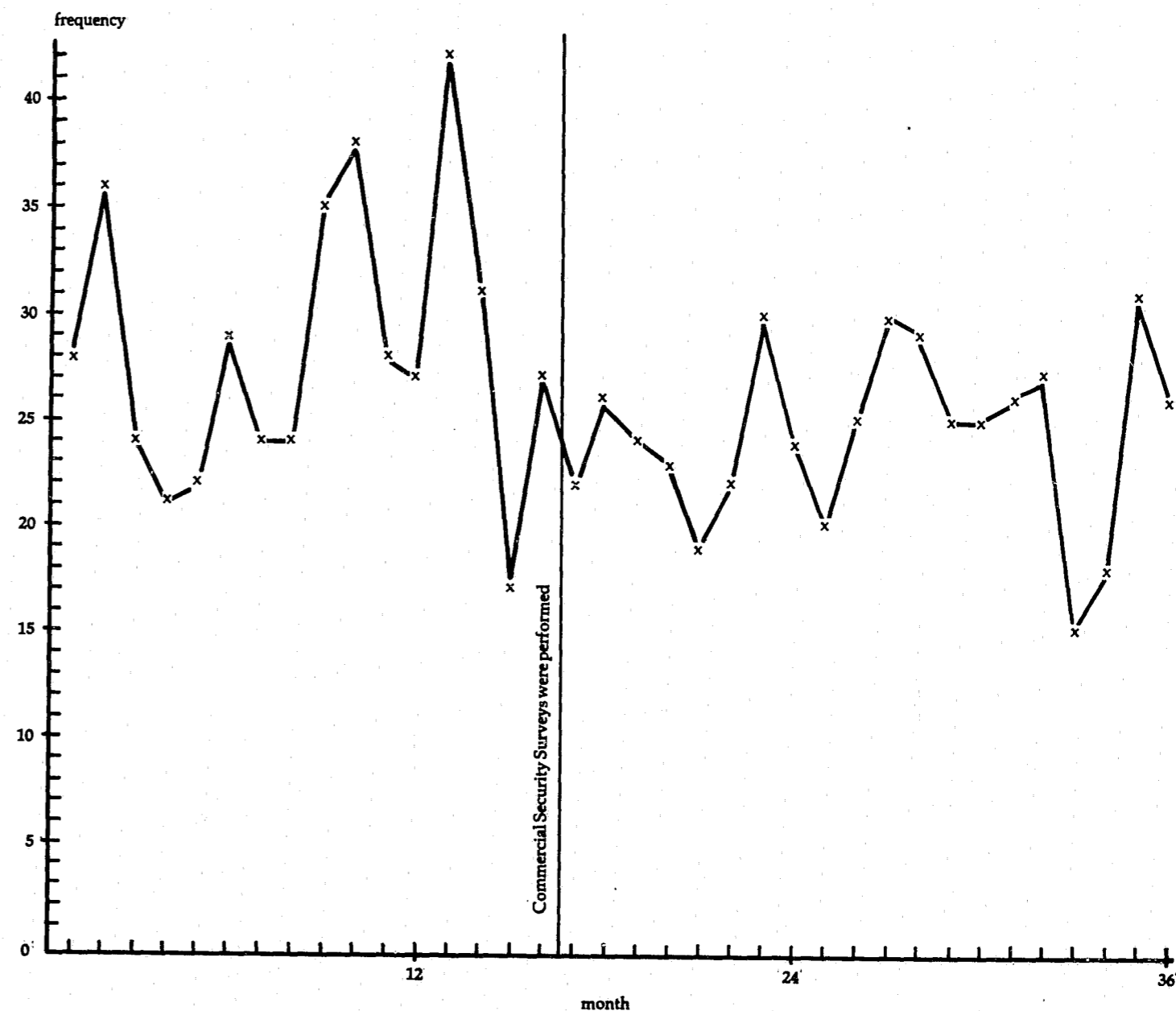
would not necessarily have an impact on these two crimes. Thus they can serve as comparison groups for the commercial burglary data.

Figure 10 suggests that, coinciding with and following the commercial security surveys, there was a decrease in residential burglary. Time-series analysis indicated that there was in fact a significant decrease in level ($t(32) = -1.98$, $p < .05$), but not in slope ($t(32) = -.53$, n.s.), during the twenty-month period after February 1976. For the sixteen months prior to February 1976, the average monthly incidence of residential burglaries was 28.31; for the next twenty months, the average monthly rate was 24.35 -- a decrease of 14 percent.

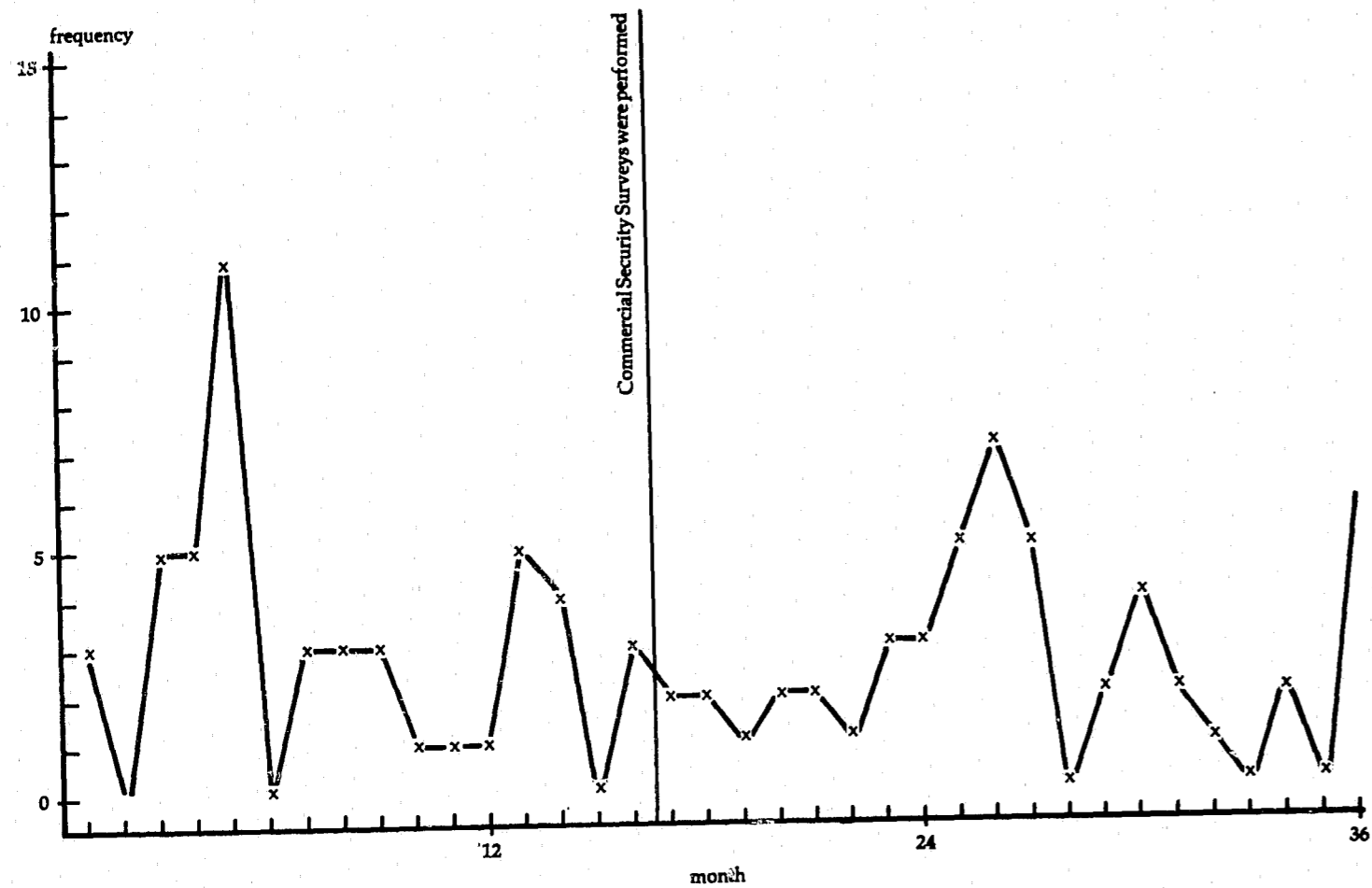
This observed decrease in residential burglary is especially interesting. First, it fairly well rules out the possibility that there was a displacement of burglaries from the commercial to the residential settings; second, it raises the possibility that the commercial security surveys may have had some effect on the residential environment. Third, the size of the average monthly reduction in residential burglaries was considerably less than the comparable reduction in commercial burglaries.

Figure 11 indicates no basic change in the reported rate of commercial robbery following the commercial security surveys. The time-series analysis supports this conclusion with no significant change in level ($t(32) = .01$, n.s.) or in slope ($t(32) = .96$, n.s.). For the sixteen-month period prior to February 1976, the average monthly incidence of commercial burglary was 3.00; for the next twenty months, the rate was 2.50. While this represents a decrease of 17 percent, time-series analysis indicated that it was not significant, as it may be due to chance fluctuation or to a trend unrelated to the security surveys. Furthermore, the low level to begin with created a data density problem, thereby minimizing the significance of any comparison.

Considering the results of the time-series analyses for commercial burglary, residential burglary, and commercial robbery, the following conclusions seem valid. It was suggested by Sgt. G. Blair, the CPTED Security Advisor for UAC, that the commercial security surveys were not simply a movement control (i.e., target hardening) tactic. The surveys brought a relatively large number of police officers to Union Avenue during February 1976, August 1976, and February 1977. This inordinate visibility of police officers may have become part of the "treatment" at work here. This modification of the movement-control hypothesis can explain the data. The much larger reduction in commercial burglaries vs. residential burglaries suggests that the surveys and related security improvements did in fact help decrease commercial burglary. Yet there may have



10 Residential Burglaries, 10/74-9/77



11 Commercial Robbery, 10/74-9/77

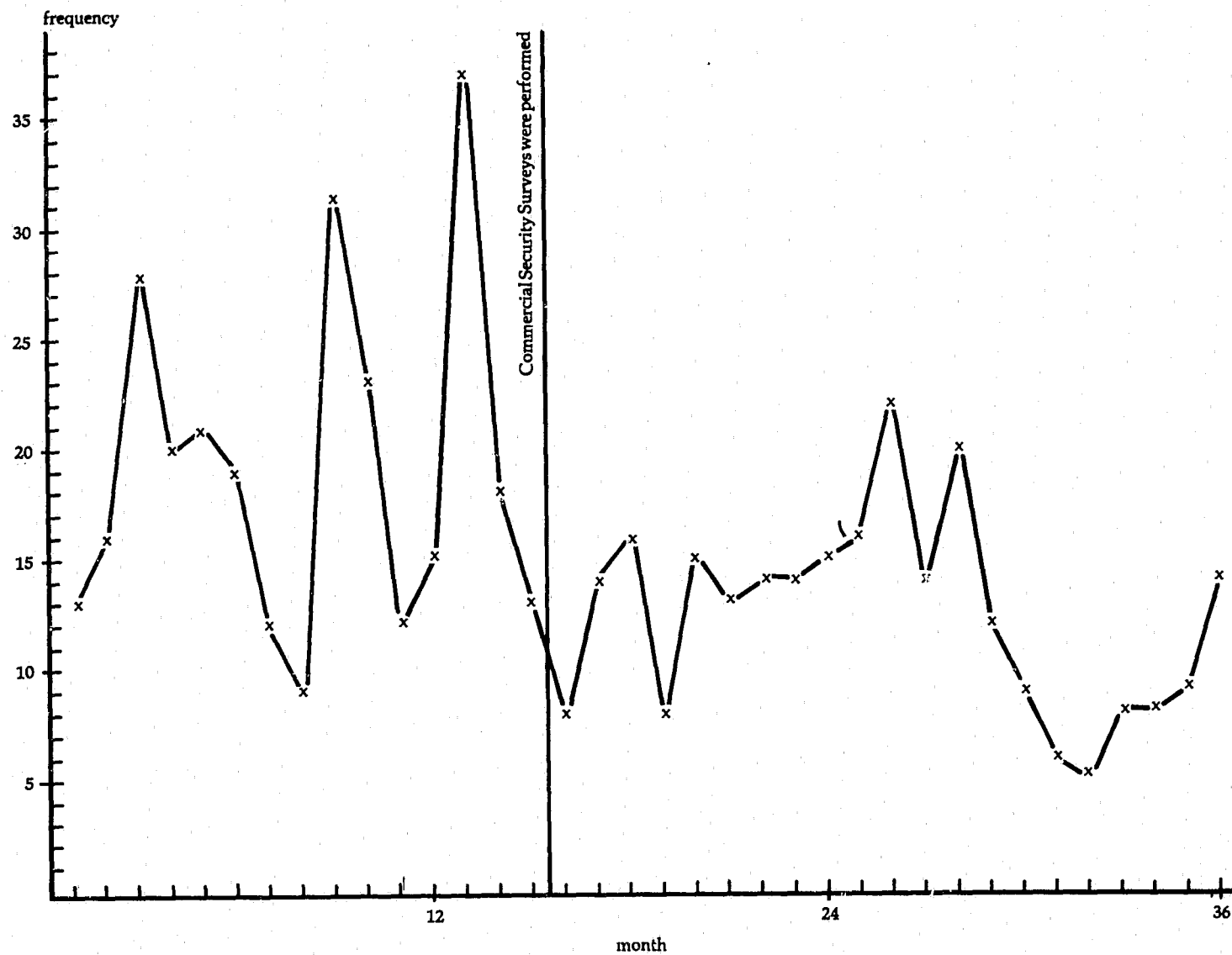
been a spillover effect, due to police visibility, which could account for the smaller but significant reduction in residential burglary. Finally, the security surveys were not primarily aimed at reducing robbery; the fact that there was no significant decrease in commercial robbery supports the reasoning that the security surveys had an impact on the potential population of burglars. Therefore, it is felt that the reductions in commercial and residential burglaries should be regarded as due more to the activity of conducting the commercial security surveys than to the security measures taken in response to the survey.

A second major CPTED change in the physical environment was the installation of high-intensity lighting. In theory, such lighting increases the potential for natural surveillance and causes an increase in perceived risk to potential offenders. This CPTED tactic should therefore bring about a decrease in street crime. Figure 12 indicates that there was a drop in the average monthly incidence of UAC street crime following the commencement of street-light installation. But time-series analysis indicated that there were no statistically significant changes in level ($t(32) = -1.09$, n.s.) or in slope ($t(32) = -.49$, n.s.) following December 1975. For the fifteen-month period prior to January 1976, the average monthly incidence of street crime was 19.13; for the next twenty-one-month period, the average monthly rate was 12.38 -- a decrease of 35 percent.

Further inspection of Figure 12 suggests a likely explanation. In the period before January 1976, there was so much fluctuation in rates, or unexplained variance, that little confidence can be placed in any single estimate or average of the pre-lighting monthly rates. For any pre-/post-comparison to be statistically significant, either the decrease or the monthly incidence rates would have to be much greater.

There is an additional issue as well. The high intensity lights were installed throughout 1976. The installation rate could not be determined; therefore, an analysis that took degree of completion into account was not performed. Had this information been available, a more sensitive analysis could have been performed, which in turn might have indicated a significant reduction in street crime. In lieu of this, it is felt that the present data support only the tentative conclusion that the installation of high-intensity lighting seems to be associated with a major reduction in street crime.

In addition to the data that was collected from the police department, victimization information was collected in the businessmen and residents' interviews. Table 13 shows the proportions of businessmen in the spring ($n = 48$), summer ($n = 38$),



12 Street Crime, 10/74-9/77

Percentage Experiencing Crimes
in Past 3 Months

Type of Crime	Spring	Summer	Fall
Break-in	10.4	18.4	24.5
Hold-up	8.3	7.9	4.1
Purse-snatch	20.8	26.3	10.2
Street Assault	19.1	34.2	14.3
Street Robbery	14.6	7.9	2.0
Vandalism	35.4	63.2	28.6

13 -- Victimization Rates for Businessmen

and fall (n = 49) samples who experienced crimes at or within a block of their businesses during the three-month period before the interviews. Because of the small samples, none of these rates indicates a significant increase or decrease throughout 1977. For residents, 15 percent of the spring sample and 20 percent of the fall sample stated that they, or a member of their family, had been victimized in UAC during the past six months. This proportion is comparable to the 1977 victimization rate for all of Portland,* and suggests that UAC did not deserve a reputation as an especially high-crime area. In conclusion, we find that the victimization data complement the conclusions from the reported crime data: UAC's crime rate had decreased since the early 1970s, when UAC had a disproportionate share of Portland's crime.

Fear and Perception of Crime

The average businessman regarded the current UAC crime problem as moderate. Yet 38 percent still considered it a major hindrance to the successful operation of their business. When asked whether their chances of being a victim of burglary,

*Personal communication from Sherrill L. Whittemore, Office of Justice Programs, City of Portland, January 31, 1978. Using 1977 UCR figures, 11 percent of Portland's citizenry appears to be victimized, while using results from a 1977 victimization study in Portland, the 1977 victimization rate is estimated at 26 percent.

robbery, assault, or vandalism had changed in the past six months, most businessmen (67 to 75 percent) felt there had been no change. Nonetheless, 40 percent thought there had been a decrease in crime since the early 1970s; 35 percent perceived no basic change; 15 percent thought that crime had generally increased; and 11 percent were uncertain.

Paralleling the perceptions of businessmen, most UAC residents regarded the current crime problem as moderate, with only 18 percent describing it as severe. Most residents said that their daily lives in UAC are relatively unaffected by crime. Most of the key persons who were interviewed also described the UAC crime level as moderate; these individuals thought there had been a decrease in crime since 1974.

In general, these citizen perceptions of UAC's crime rate support the findings of the time-series analyses on the reported monthly crime data. Therefore, it is concluded that there has been a general decrease in crime in UAC since 1974, and that at least some of this change should be attributed to the CPTED revitalization efforts.

Pedestrian activity was used as an indirect measure of fear of crime. It is hypothesized that the level of fear in an environment is directly related to how frequently people use that environment. In order to collect behavioral measures presumably related to fear, observations of UAC pedestrian activity level were taken from April through November 1977. In addition, AIR had collected somewhat comparable data in October 1975 and January 1976.

Using a time-series analysis,* it is found that the average number of pedestrians on Union Avenue remained stable through the 1977 observation period ($t(68) = -1.095$, n.s.). In addition, there was no indication that the number of persons using Knott Street, Dekum Street, or Woodlawn Park increased over time. Thus there is no behavioral evidence that the level of fear changed during 1977. Despite this, it is interesting to note that the UAC built environment was used to a greater extent by blacks than whites. (The UAC population was approximately 50 percent black and 50 percent white.) The average number of blacks on Union Avenue (mean = 44.63; SD = 20.96) was significantly greater ($t(72) = 17.32$, $p < .001$) than the average number of whites (mean = 14.60; SD = 8.95). In addition, the average number of blacks who used Woodlawn Park (mean = 13.10; SD = 19.59) significantly exceeded ($t(72) = 5.75$, $p < .001$).

*In this analysis time of day, temperature, and precipitation were controlled, as each was significantly correlated with the observed number of pedestrians. These correlations were $r(71) = -.659$, $p < .001$; $r(71) = .591$, $p < .001$; and $r(71) = .329$, $p < .005$, respectively.

the average number of white park users (mean = 2.58; SD = 5.22). This pattern is interesting in light of the opinions of some of the patrol officers that whites avoided public areas because of fear. It is uncertain whether this is a valid explanation of the fact that blacks were three times more likely to be pedestrians on Union Avenue, and five times more likely to use Woodlawn Park, than were whites.

A final comparison is somewhat qualitative. During twenty observational runs (1975 to 1976) an average of 38.5 persons were observed. During the 1977 observational runs, an average of 59.23 persons were observed. Unfortunately, these values are not exactly comparable, as the first observations were made on parallel residential streets as well as on Union Avenue. But to the extent that the 1975 to 1976 observations and the 1977 observations are comparable, it suggests that more persons began to use UAC's built environment. Here again, it is interesting to note that the ratio of blacks to whites in the 1975 to 1976 AIR observations was 2 to 1, compared with 3 to 1 in 1977.

In addition to the observational data, interviewed residents were asked how often they shopped or ate on Union Avenue during the day and at night, and how often they took nighttime walks. As reported earlier, residents patronized Union Avenue businesses about twice a week during the day, about once a week at night. Residents interviewed in the spring reported taking one nighttime walk per week (.96), while residents interviewed in the fall took less than one (.48). This is a significant difference between spring and fall ($t(174) = 2.47$, $p < .02$), but is most likely due to normal seasonal variation. In contrast to the reported difference in the number of walks between spring and fall, there were no differences in their frequenting of UAC businesses. It is concluded that these data support the findings of the behavioral observations; that is, there was no apparent change during 1977 in usage of the built environment, and therefore no indication of any change in fear of crime.

Perceptions of Fear and Concern for Crime

During 1977, the average businessman reported to be slightly concerned that he might be victimized while in UAC. But a comparison among the spring, summer, and fall businessman samples indicated that the fall group was significantly less concerned about being victimized ($F(1,128) = 6.11$, $p < .03$); that is, they were more likely to feel "almost never" concerned about being victimized than were the spring and summer groups.

When asked how safe their employees felt in UAC, the vast majority of businessmen (91 percent) responded that

employees felt at least reasonably safe during the daytime. On the other hand, it was the opinion of 50 percent of the businessmen that their employees felt somewhat unsafe to very unsafe working at night in UAC. These perceptions of employees' fear remained stable across the spring, summer, and fall samples.

Similarly, 74 percent of the businessmen perceived their customers as feeling at least reasonably safe during the daytime, while 82 percent thought customers felt somewhat unsafe to very unsafe shopping in UAC at night. These opinions are not completely in accordance with residents' descriptions of their own fear levels. Fifty-five percent of the residents reported feeling very safe on Union Avenue during the daytime; 24 percent felt reasonably safe; 17 percent felt unsafe. At night, reported fear increased, but not to the extent perceived by businessmen. Fifty percent of the residents still described themselves as feeling reasonably safe; 18 percent felt somewhat unsafe; 28 percent felt very unsafe. Not surprisingly, it is the older residents who experienced the most nighttime fear ($r = .45, p < .001$).

Residents' concern about the possibility of a break-in was relatively low. Forty-four percent described themselves as not at all worried that their home would be burglarized; 34 percent were somewhat worried; 21 percent were very worried. Similarly, residents' concern about being robbed or assaulted on UAC streets was relatively low. Fifty-six percent were not at all worried about robbery or assault; 23 percent were somewhat worried; 18 percent were very worried. It is interesting to note that there were no significant age differences associated with a person's concern for robbery, assault, or burglary.

Businessmen and residents were also asked how their behavior had been affected by fear of crime. Thirty-seven percent of the businessmen avoided certain Union Avenue intersections during the day; at night, 74 percent of the businessmen avoided certain intersections. In addition, businessmen on the average avoided three times as many places at night as during the day. At all times the Killingsworth to Russell section of Union Avenue was most avoided, with the Fremont intersection as the one place that businessmen stayed away from most. There were no data from prior years to determine if these rates represented a change, but comparing the spring, summer, and fall responses, no change was evident during 1977.

Regarding the effect that fear of crime had on their customers' behavior, 40 percent of the businessmen thought that some of their customers had limited their use of UAC businesses in the past few years; 31 percent thought hardly any had stopped coming to UAC stores. (The remaining businessmen were uncertain.) Regarding the effect fear of crime had on hiring

employees, 71 percent of the businessmen said it had not caused any problems, while it had been a slight-to-moderate problem for 21 percent, and a severe problem for 5 percent.

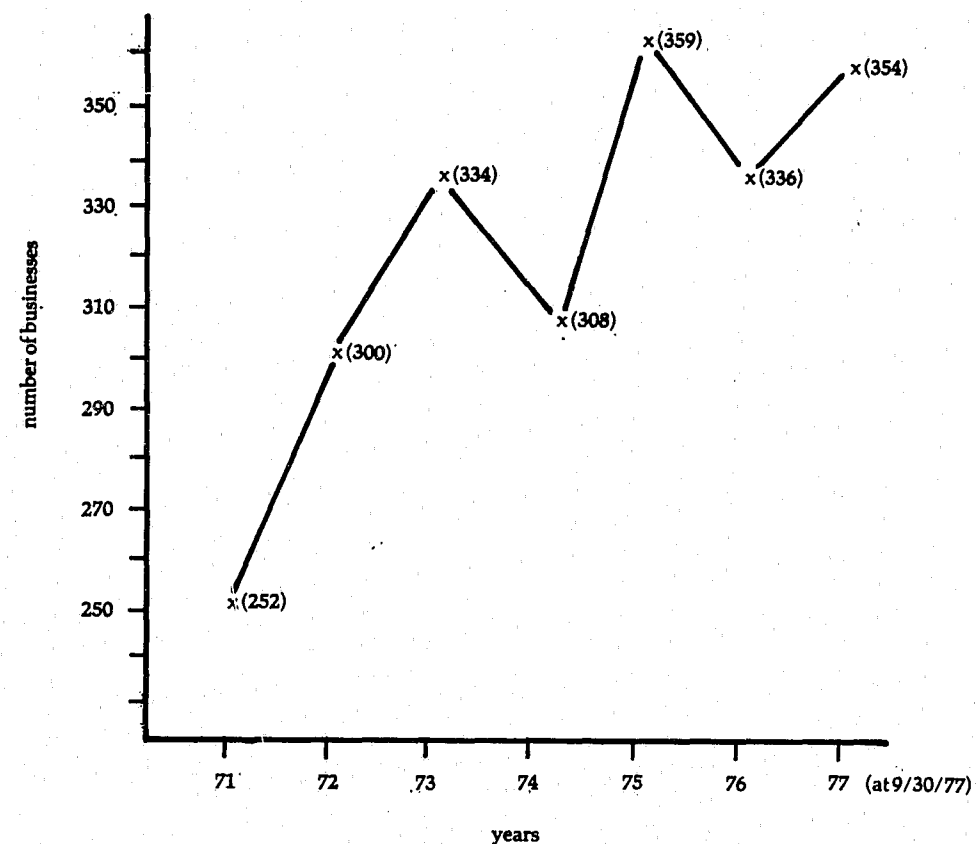
The final data gathered on the behavioral effects of fear regarded the carrying of weapons by residents. Twenty percent reported carrying a weapon at night in UAC. Given this and the other findings on the behavioral effects of fear of crime it is our conclusion that fear of crime still had a slight-to-moderate effect on businessmen's and residents' behavior. There is no indication that this level changed during 1977.

A final issue regarding fear of crime is the UAC's poor reputation for safety. Residents felt that it was significantly more likely for a crime to occur in UAC than in most other sections of Portland ($t(153) = 4.31, p < .002$). There was no change in this perception between the spring and fall resident surveys. (This negative perception is in contrast with the findings that UAC's victimization rate is comparable to Portland's overall victimization rate.) Key persons agreed with the residents' perceptions that UAC has a reputation as a high-crime area. But it is important to note that most of the key persons felt that this reputation was presently undeserved -- that while crime was still somewhat of a problem, UAC deserves a better reputation. In addition, some key persons commented that if the trend for decrease in crime continued, and if the media continued to publicize the fact, then UAC's reputation will become a realistic one in the near future.

Quality of Life

The final goal of the project was to improve the quality of life in the area. This essentially involved improving its economic vitality. From January 1, 1971, to October 1, 1977, the number of businesses in the UAC increased significantly, with 252 businesses existing on December 31, 1971, and 354 on September 30, 1977 ($\chi^2(6) = 25.90, p < .001$). As shown in figure 14 the rate of growth was not constant. It appears that the period 1971 to 1973 represents a business boom, while the latter period (1975 to 1977) shows a stabilizing of the growth pattern.

This overall growth appears to have occurred uniformly throughout UAC, favoring neither Union Avenue itself nor its adjacent areas. While the percentage of ongoing businesses situated off Union Avenue has grown steadily and evenly, this change is not statistically significant ($\chi^2(6) = 3.70, n.s.$). In 1971, 27.38 percent of all businesses were situated off Union Avenue; by 1977, this percentage had only increased to 33.33 percent. However, there appears to be a greater



14 -- Ongoing Businesses at Year's End

dispersion of those businesses. In 1971, 23 Union Avenue cross-streets contained commercial activity; by 1977, this number had increased to 35. It is not known whether this increase represented a recovery of abandoned commercial sites or an encroachment on residential space.

As shown in figure 15, the annual rate of new business openings has not been constant ($\chi^2(5) = 46.00, p < .001$). In 1973, 1974, 1976, and 1977, the number of openings was fairly stable, averaging approximately fifty a year. In 1975, however, there were one hundred and thirteen new businesses. As is also apparent in figure 15, the annual rate of business closing has not been consistent ($\chi^2(4) = 63.1, p < .001$), with 1974 having a high of ninety-five. The annual number of closings decreased thereafter.

Unlike the pattern for overall growth in businesses, a differential pattern of openings and closings is apparent for Union Avenue vs. adjacent areas. Sites located off Union Avenue generally experienced a significantly higher rate of openings than Union Avenue ($\chi^2(4) = 10.48, p < .05$), especially after December 31, 1974. In general, however, these differential rates are not reflected in the length of time the businesses existing on September 30, 1977, had operated, whether on or off Union ($t(352) = 1.00, n.s.$). This suggests that, although there has been an overall growth off Union Avenue, with longstanding, stable businesses as its bulwark, it is also subject to fleeting and perhaps unsound commercial endeavors.

A review of city tax files revealed an increase in business receipts for 1975 as compared to 1974. This trend supported the businessmen's estimate of the changes in their sales. (Of the one hundred and thirty-six businessmen surveyed, 45 percent were able and willing to respond to questions about their volume of sales.) For instance, while 1971 was seen to be a 3 percent increase from 1970, there was a 25 percent increase between 1975 and 1976. In addition, positive growth and acceleration were projected for the 1977 year, with businessmen expecting their sales to represent 194 percent of their 1970 year (less than 11 percent of the respondents expected lower sales).

Because there is insufficient information regarding the influence of inflation and the increase in business expenses, one must use extreme caution in making inferences about gains in gross receipts on Union Avenue. There is uncertainty whether, after the effects of inflation and the costs of operating expenses are removed, there has been real net growth.

The percentage of transactions that a business conducted in Portland can be viewed as a probable indicator of its basic nature and focus. Businesses whose activities are concentrated outside Portland or the state are most likely to be

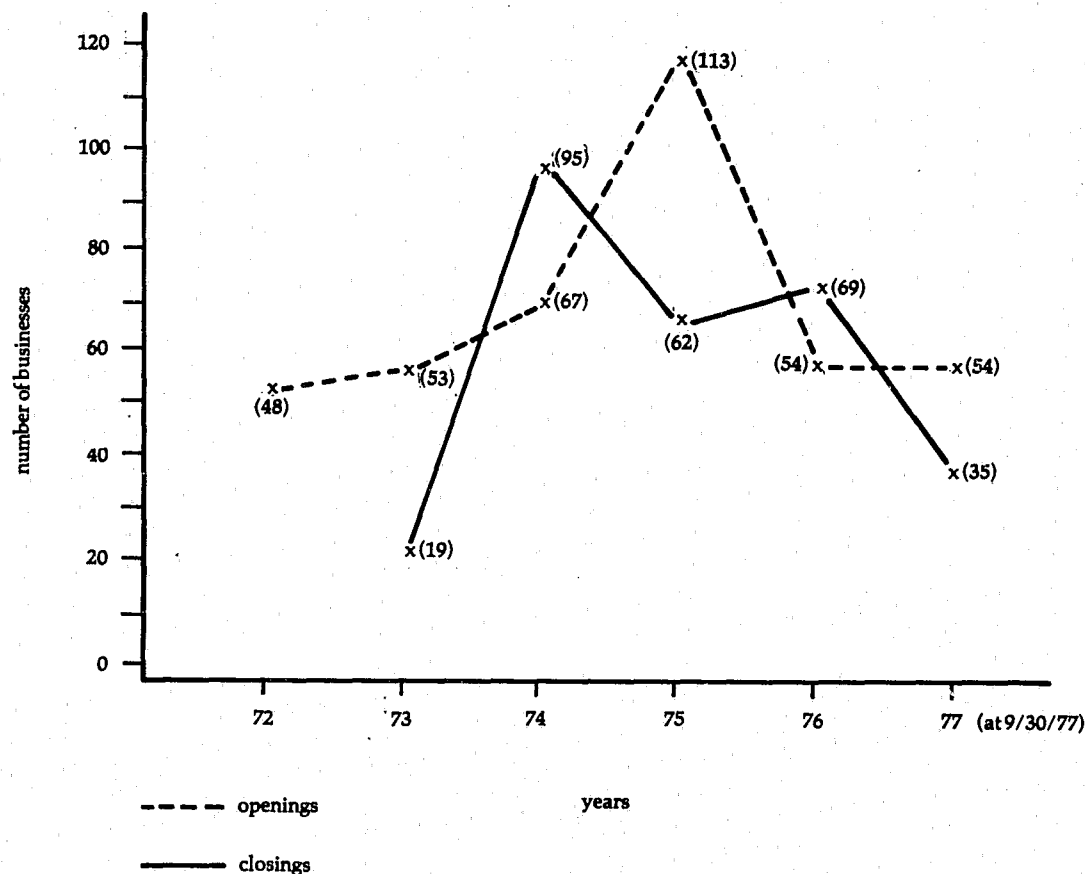
industrial, serving commercial rather than residential clients; accordingly, the relationship between conditions at the business site and customer behavior is less direct. General service and retail operations, on the other hand, are more likely to be influenced by local conditions and the attitudes of local shoppers -- that is, consumer businesses should be more sensitive to the effects of changes in UAC.

Comparing 1975 and 1976 with 1974, there were no average differences in the amount of gross receipts between commercial and consumer activities ($F(1,97) = .05$, n.s.). Nor were there differences, considering the percentage of business conducted in Portland, in the amount of increase to gross receipts for businesses located on or off Union Avenue ($F(1,97) = .32$, n.s.). However, there was a significant increase when comparing 1975 to 1976 ($F(1,97) = 11.30$, $p < .001$). Inspection of the average increase shows the largest change to have occurred in businesses located off Union that disperse their goods and services mainly outside of Portland.

With the enhanced dispersion of business throughout UAC, with increases in consumer sales activity, and with differential growth of businesses located off Union Avenue, it appears that UAC had become somewhat more industrialized. The lack of more than minimal growth for consumer businesses (specifically those situated on Union) suggests there was some reluctance to shop in the main UAC business district. Consumer activity may have shifted in part to areas nearer to home (perhaps only as convenience shopping) or other parts of Portland where a wider range of goods and services was offered.

Perceptions of Economic Vitality

As with the perception of crime vs. actual crime, it is interesting to compare perceptions of UAC's economic vitality to the actual financial status of UAC businesses. Comparing UAC with other commercial areas of Portland, the majority of interviewed businessmen described UAC as the same or somewhat worse. This represents a significant improvement ($t(136) = 3.21$, $p < .001$) since the early 1970s, when most businessmen saw UAC as somewhat worse to definitely worse than other commercial areas of Portland. Furthermore, 84 percent of the businessmen had no plans to move their business from UAC; 10 percent were uncertain about a move; and only 6 percent had a moving plan. These results support the findings from the financial data: the economic health of UAC businesses has improved since the early 1970s, and this is reflected in businessmen's confidence in UAC's future.



15 -- Business Openings and Closings at Year's End

Quality of Residential Life

The vast majority of UAC residents were generally positive about their schools, parks, streets, and sidewalks, and upkeep of yards. Seventy-six percent described the area's quality of life as "just o.k." or "nice." Twelve percent felt UAC was a "very nice place" to live, while another 12 percent described it as "not a nice place." In addition, there was a marginal trend for residents to feel that UAC had become a better place to live in the past year ($t(172) = 1.59, p < .10$). Persons who were more positive about the past year's change in the quality of life were significantly more likely to be aware of the CPTED-type revitalization efforts;* three-fourths felt the changes had improved UAC living conditions.

When asked what UAC would be like in five years, residents had a significant tendency to predict that living conditions would be better ($t(184) = 3.67, p < .001$), with only 19 percent expecting conditions to be worse. Supporting these findings, 75 percent of the residents stated that they had no plans to move from the area in the next year or two.

The community leaders and patrol officers who were interviewed held similar opinions. Most felt the area was an "o.k." place to live, and had seen a slight improvement in UAC's quality of life since 1974. Anecdotal information highlighted the perceived improvement as one of "attitude," that is, the community had come to feel optimistic about UAC's future. These key persons were mixed in their assessment of the impact of the city's revitalization efforts on the quality of life. Most of the patrol officers saw little if any tangible effects, but felt these efforts were "a step in the right direction." Community leaders, on the other hand, assessed the revitalization effort as having a positive impact, especially on the business community.

Based on its evaluation experience, the project team formed opinions similar to those of key persons. That is, the quality of life in UAC seems to have improved in the past few years, compared with the late 1960s and early 1970s. At least part of this improvement, especially the renewed confidence in the area, should probably be attributed to the revitalization efforts.

*Fifty-seven percent of the 177 residents interviewed were able to recall at least one of the changes in UAC's built environment.

DISCUSSION

Table 16 presents a judgment of the degree to which the project's proximate goals were attained in UAC, synthesizing the findings presented above. The overall conclusion: CPTED was a moderate success in the business environment and a lesser success in the residential environment.

<u>Proximate Goals</u>	<u>Degree of Attainment</u>
PHYSICAL ENVIRONMENT	
1. Increased physical security	High (Business); Low (Residential)
2. Increased surveillability	Moderate
3. Increased potential for usability	Low-Moderate
4. Improvement in psychological dimensions	Low
SOCIAL ENVIRONMENT	
1. Improved crime prevention behavior	Moderate (Business); Low (Residential)
2. Improved law enforcement response	No change necessary because it was already good
3. Increased community cohesiveness and social networks	High (Business); Low (Residential)
4. Increased psychological barriers	Low-Moderate
5. Increased usage of built environment	Low-Moderate
6. Increased identification with UAC	Low-Moderate

16 -- Attainment of CPTED Proximate Goals

Given that conclusion, it is reasonable to review

available evidence to determine the success or failure of the CPTED theory. This requires asking "to what extent were the ultimate goals attained?" and "can these attainments be attributed to the CPTED project?"

As was noted earlier, reported crime data indicates that commercial burglary and residential burglary were reduced after the commercial security surveys. This is deemed to be a valid conclusion and an indication that CPTED was at least partially responsible for a reduction in UAC's crime rate. This conclusion is also supported by businessmen's and residents' perceptions of the UAC crime rate. In general, UAC businessmen and residents still felt a slight-to-moderate fear of crime. Anecdotal evidence suggests that this represents a decrease since the early 1970s, but no data is available to support the conclusion that CPTED brought about a reduction in fear of crime. The team's qualitative judgment was that the revitalization efforts had some positive impact on fear reduction, but this judgment was not advanced with great confidence. Fear of crime is a perception that can be influenced by many factors independent of the actual crime rate. Until a greater residential cohesiveness occurs in UAC's social environment, the impact of physical strategies (e.g., security surveys) on crime reduction may not be reflected in a proportional decrease in fear of crime.

Conclusions about the impact of the CPTED approach on the local quality of life must be qualified. In the business community, there was a renewed confidence in UAC, and it was the general opinion of those interviewed that the CPTED efforts played an important role in building this confidence. On the other hand, the present evaluation could not collect enough data to draw methodologically valid conclusions about CPTED's impact on the business community's quality of life. (There was no non-UAC comparison group, nor enough years of data, for a time-series analysis.)

As for the quality of residential life, here again no methodologically valid conclusions are possible. Nonetheless, the overwhelming trend of the data suggests that the CPTED changes contributed to residents' somewhat optimistic outlook about the UAC, but not to the extent that the business community's confidence had been strengthened.

In summary, the CPTED commercial demonstration was judged to be a qualified theory success. From a criminal justice perspective, this recommends CPTED as a concept for further testing. From the City of Portland's perspective, it recommends that the CPTED approach to revitalizing UAC be continued.

END