BURGLARY REDUCTION PROGRAM
GRANT #1161
FINAL EVALUATION REPORT

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I. General

A. Program Description: General

As originally conceived, the Burglary Reduction Program was intended to produce a 10 percent reduction in predicted burglary rates for three police patrol test sectors in the City of Seattle. Four interdependent program elements were to be employed in service of this goal. The first program element related to target hardening actions by citizens facilitated by the deployment of civilian community organizers into the test sectors. Program element activities were to include: property identification, establishment of citizen "block watches", home surveys, and information dissemination.

The second program element related to police tactics and required the development of a forecasting capability for the identification of vulnerable homes; establishment of a team policing organization for the target sectors; and development of patrol tactic plans on a weekly basis.

Unlike the first two program elements which were directed toward prevention, the third program element was directed toward apprehension. Among the strategies which were a part of this program element were the deployment of police personnel for on-scene arrests based on forecasting of vulnerable areas or homes, an increase in detective manpower with a concommittent increase in primary police investigations, the establishment of a fingerprint file for single prints, and the use of electronic tracking devices to identify major fences.

The fourth and final program element was directed toward increasing the clearance rates for non-residential and commercial establishments. The use of portable stakeout alarms

and "vulnerability forecasting" were the primary methods to be employed in this effort. Each of the program elements will be described in greater detail in subsequent sections.

The results of the first year of operation allow the following statements regarding the effectiveness of the burglary reduction program. First, it appears that citizen target hardening activities are effective for those who receive the services. In addition, there appears to be some residual benefit for the community but this is far from conclusively demonstrated. The expansion of the detective units together with such additional training as needed appears to be an effective method of increasing arrests. The addition of a computerized single fingerprint unit appears to have been a useful method of linking suspects to latent prints.

Strategies open to question include the use of forecasting to identify specific, probable targets. While forecasting may be of benefit in terms of manpower allocation, the technique has not proved to be a useful strategy within the one year period of this grant. Strategies which scatter the limited resources of the civilian component over an impossibly wide area are equally open to question. Strategies which rely on citizen response to media-oriented approaches are clearly not sufficient.

Finally , to the extent that the combined residential burglary reduction strategies were successful, it would appear that the reduction was not caused by increasing related crimes wihtin that police patrol sector. Whether offenders continue the same activities in other non-experimental sectors is open to question and data insufficiencies do not permit the question to be adequately addressed.

I. B. Program Description: Goals and Objectives

As indicated in the preceding section, the Burglary Reduction Program implemented by the City of Seattle had an overall goal of reducing by 10 percent the predicted burglary* rates for three police patrol test sectors. In the original grant application it was noted that, after peaking in 1970, the annual burglary rate of 27.8 (number of burglaries per population thousands) declined to 23.7 in 1971 and further in 1972 to 22.0. Analysis of economic and demographic phenomena thought to be associated with changing crime trends (e.g., economic improvement, high or increasing juvenile population density, significant community in-out migration, etc.) suggested that a gradual increase in the rate of burglaries could be projected to occur in 1973. The projected increase forecast a 1973 total of 12,122 burglaries or a 7 percent increase in the number of 1972 reported burglaries -- an increase which was expected to be evenly distributed over all sections of the City. Thus, a 10 percent decrease in predicted burglary rates would yield, for the test sectors alone, a net decrease of 3.7 percent from the 1972 levels.

Once the various components of the burglary reduction program had begun to operate, the stated overall program goal of reducing burglaries by 10 percent of the predicted rate (or a net reduction of 3.7%) was re-evaluated. This re-evaluation led to the development of two objectives for the program as a whole. The first objective required that a statistically significant pre-post reduction in burglaries in each of the test sectors be demonstrated. The second objective required a statistically significant reduction in residential

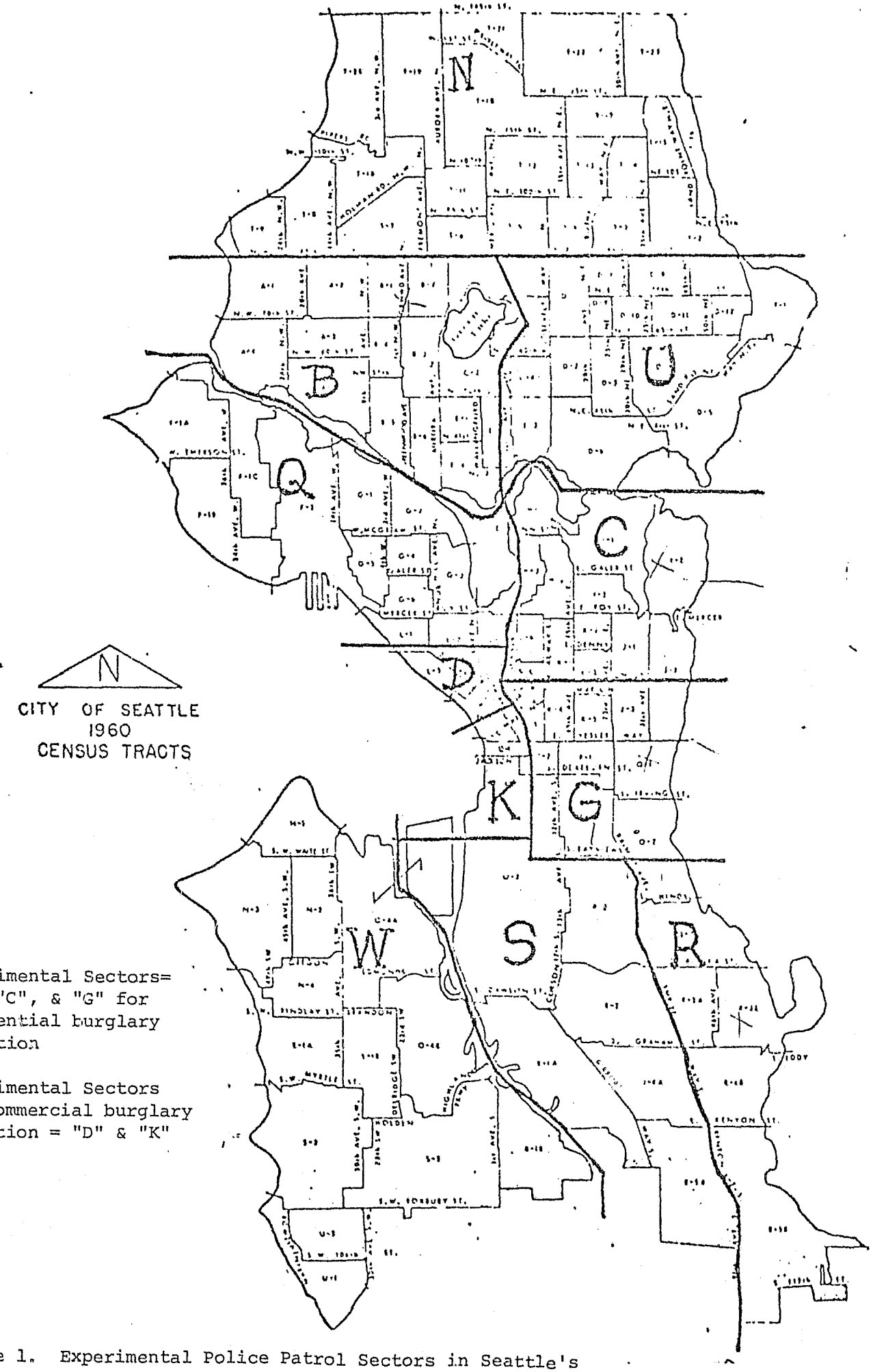
* Unless otherwise noted, "burglary" is defined throughout this report as being those offenses reported to the Seattle Police Department and officially recorded as "burglary".

burglaries be demonstrated in relation to control communities or cities. These restated objectives, the data required for analysis, and the statistical tests to be used are summarized below.

Objective 1. Given the implementation of a residential burglary reduction program in the City of Seattle, a statistically significant reduction in residential burglary rates will be demonstrated based on a comparison of the burglary rates for the prior year with those in the project year.

Objective 2. Given the implementation of a residential burglary reduction program in the City of Seattle, a statistically significant reduction in residential burglary rates will be demonstrated based on a direct month-by-month comparison between the residential burglary rates in the City of Seattle and the comparison cities or communities.

As defined above, testing of Objective #2 required comparable data from other cities or communities. However, modifications in the research design provided other, more viable alternatives. The original research design called for the deployment of civilian organizers and the concentration of police efforts in three test or "experimental" police patrol sectors: Boy, Charlie, and George. Two police patrol sectors, "W" and "R" had been selected as "control" sectors. As can be noted from Figure 1, the southern boundaries of the control sectors also form Seattle's boundary with King County. Concurrent with the development of the City of Seattle's residential burglary reduction program, officials in King County selected the area immediately south of "W" police sector to implement a burglary



Experimental Sectors= "B", "C", & "G" for residential burglary reduction

Experimental Sectors for commercial burglary reduction = "D" & "K"

Figure 1. Experimental Police Patrol Sectors in Seattle's Burglary Reduction Program

reduction program of their own. Early in the King County program, it became felt that some crime dispersion was occurring with offenders being driven from King County to the City of Seattle and, more importantly, into the test sectors. This possible displacement invalidated the use of the control sectors but did create a new opportunity to use the City of Seattle as a whole (minus Boy, Charlie, and George police patrol sectors) as a control. Based on these considerations, Objective #2 was modified as follows:

Objective 2: Given the implementation of a residential burglary reduction program in Boy, Charlie, and George police patrol sectors, a statistically significant reduction in residential burglary rates will be demonstrated based on direct month-by-month comparisons between the residential burglary rates in these experimental police patrol sectors and the City of Seattle as a whole (minus these experimental sectors).

In summary, the overall burglary reduction effort by the City of Seattle was to be evaluated by three separate objectives: reductions relative to predicted rates, reductions based on pre-post test analyses of residential burglary rates in the experimental or test sectors, and reductions based on month-by-month comparisons between the experimental sectors and the City as a whole (minus the experimental sectors).

Beyond overall program evaluation, the original grant application identified specific objectives for each of the four program elements described previously. The individual program elements and the

objectives associated with the elements are indicated below.

I. B. 1. Program Element I. Target Hardening Actions by Citizens

Objectives

a. 70 percent of the area covered by Boy, Charlie and George police patrol sectors will have organized crime prevention programs.

b. All homes within those organized areas will be provided information on crime prevention and their local officers.

c. All homes within those organized areas will be offered free home inspections. A 20 percent response is expected.

d. All homes within the organized areas will be offered property identification. It is anticipated that 60 percent of the residents will accept.

e. 25 percent of the remainder of the City will have community crime prevention programs. The same expectations for the programs will be projected for these areas with the exception of home inspections.

In this context, it should be noted that "target hardening actions" refer to a variety of activities on the part of citizens and/or the community agents assigned the task of assisting the community. These actions or options are identified below:

Property identification. Pens will be made available to volunteers from the area to systematically mark the vulnerable property of all willing residents. The program will involve keeping records of the houses marked so the extent of coverage is known and the program can be evaluated.

Block watch. Maps will be provided to residents showing blocks with the occupant, address and phone number of each house. Volunteers will be trained to organize the neighbors to watch homes in the area. Specific information on the time of day that houses are most likely to be burglarized and the method of entry usually chosen will be provided.

Home surveys. Where possible those homes which are regularly unoccupied at certain times will be identified. This information will be given to patrol officers and immediate neighbors to heighten their sense of the vulnerability of these homes. Special efforts will be made to get residents to notify their neighbors and the police of their planned absence for a weekend or longer.

Information dissemination. Information on ways to make homes safer, on the officers serving their area, and the availability of officers for home inspections will be taken by volunteers to each home. Where the officers in the area find it possible they may deliver some of the information also.

Home Inspections. Community organizers will be trained in the techniques of home inspections and security. They will then offer to carry out inspections of homes and businesses and will recommend improvements that would decrease the likelihood of a successful burglary by an amateur.

Beyond numerical counts of residential homeowners contacted and types of target hardening activities engaged in by these homeowners, it was anticipated that heightened citizen awareness -- particularly as represented through block watch activities -- would lead to a demonstrable increase in the number of burglary-in-progress calls received by the Seattle Police Department. Based on this assumption an additional objective was specified for this program element:

I. B. 1. f. Given the implementation of a community crime prevention effort in experimental police patrol sectors, a statistically significant increase in the number of burglary-in-progress calls will be demonstrated in a pre-post test comparison using the experimental sectors as their "own control".

Thus, for this program element, the defined target population was residential units within the experimental sectors. The actual target population became single and duplex residential units within Charlie and George sectors where residents received property-marking services, home inspections, and where residents participated in block watch activities. Residents of Boy sector were recipients of a burglary-prevention information campaign but did not receive other program element services as extensively as did Charlie and George sector residents for reasons which will be made clear in the operational section of this report.

2. Program Element II. Target Hardening Actions: Police Tactics

The two unique features of the target hardening approach were a new organizational plan -- a variation on team policing wherein shift sector sergeants were to command all police activities carried out during their shift and in their sector regardless of whether these activities were conducted by patrol, traffic, investigation, tactical squad or other police units; and, second, the development of a tactical plan concept. The tactical plan concept was to begin with the crime analysis unit preparing forecasting information on vulnerable homes using frequency analysis and multi-variate correlations to develop the forecasts. These data would be provided to sector officers to aid in the development of a patrol plan. The patrol plan would be developed by the shift sector sergeant and his officers and submitted up the "chain of command" for review and approval. The plan was to propose specific tactical methods based upon the data made available from crime analysis and was to include specific manpower allocation proposals necessary to implement the plan. Three objectives were identified for this program element:

B. 2. a. Development of a forecasting capability for the identification of vulnerable homes.

b. Establishment of the team policing organization for the target sectors.

c. Development of patrol tactic plans on a weekly basis.

The objectives stated above are events which do or do not occur and on that basis are amenable to evaluation. Beyond this, a Management Analyst was to test the relationships between various patrol plans, forecast information, and burglary occurrences in the

experimental test sectors. Based on this analysis, forecasts would be revised, successful tactical plans shared and new plans developed through a continuing cycle of data collection, evaluation, forecasting, plan development and execution.

I. B. 3. Program Element III. Apprehension -- Residential

While suppression of a crime is the main or first priority, an increased level of case clearances is also a necessary element in a burglary reduction program. Four strategies comprised the essential components of this program element. The first strategy related to improved police deployment for on-scene arrests. The forecasting of vulnerable areas or homes was to provide the basis for determining where to deploy cars for apprehension purposes. The process of developing these plans was described in the preceding section.

A second strategy in this program element related to an increase in primary investigative efforts. Immediately following a reported burglary there was to be an intensive follow-up with the victim and neighbors. Every effort was to have been made to develop suspect information. This effort was to be aided by the community organization activities to the extent that neighbors become more observant.

The third strategy in this program element called for the development of a single fingerprint file. Following each burglary the investigating officers were to attempt to lift fingerprints from the crime scene. The Department was to then develop a usable single fingerprint file and increase staff resources to match single prints.

Working from a list of known or suspected burglars provided by detectives, Crime Analysis, Intelligence and patrol officers, the Identification Section was to devise a manual single fingerprint file. Within three months of the start date all fingerprint records available on this list were to have each digit individually coded and indexed. Also, attempts to fingerprint more juvenile suspects under Juvenile Court rules, and close attention to arrested parties to ensure file completion, were to be conducted. By the end the third month, increased attention to latent print searches in the impact area was to be required of all patrol officers. Latents lifted would be coded and indexed in this same file to ensure maximum file utility.

The fourth and final strategy related to the use of electronic tracking devices. Two electronic tracking device systems were to be used to identify major fence operations and their disposal methods. Devices would be attached to property which would be sold by undercover agents to probable fences. The property would then be traced as it moved to identify locations of related fence activities. It was hoped that this procedure would permit the apprehension of persons involved in the distribution system as well as identification of persons bringing property to them.

Four objectives were specified in the original grant as related to the program element and four strategies detailed above.

Objectives

a. The clearance rate for burglary cases in the target area is to be increased by 10 percent over that experienced in the control area. No multiple clearances will be computed.

Criteria for tabulating juvenile clearances will consist of those where, if the juvenile were an adult, an arrest for burglary would result.

b. Determine the effectiveness of various methods of increasing apprehensions.

c. Identify how detective and material resources might best be used in the Department.

d. Determine the productive level of resource commitment to apprehension efforts.

I. B. 4. Program Element IV: Apprehension -- Non-residential

Using the services of a management analyst, a statistician, and the Crime Analysis Unit, members of the tactical squad were to develop and implement plans for the apprehension of individuals involved in the burglary of commercial and light industrial businesses in Seattle's downtown and industrial areas. The use of forecasting methods together with the deployment of stakeout alarms was thought to be an effective strategy. While residential burglary reduction efforts were to concentrate on Boy, Charlie, and George police patrol sectors, non-residential burglary reduction efforts would be concentrated in "D" and "K" patrol sectors -- the downtown and near-downtown areas. Three objectives were developed for this program element:

Objectives

a. Increased clearance rate of 10 percent for burglaries in the "D" and "K" sergeant sectors.

b. Improved forecasting of vulnerable business establishments.

c. Determination of the utility of stakeout alarms.

In summary, the burglary reduction program represented a comprehensive, multi-faceted effort with the overall goal of reducing

both residential and commercial burglaries in selected target areas. Four program elements were involved in this attack on burglary and each had a series of objectives unique to that element.

II. Operation

A. General Statement

The purpose of this portion of the final report is to provide detailed information regarding the methods used to meet the objectives specified in the preceding section. Since four separate, yet inter-related program elements were part of the overall burglary reduction effort, this section of the report will continue to follow the format presented in the previous section and will report operational results within the context of individual program elements.

II. A. 1. Program Element I. Target Hardening Actions by Citizens

This program element did not become field operational until the last three months of 1973. While some preliminary community organization efforts were initiated in September, 1973, for practical purposes, the community organization component may be said to have started effective October 1973. A field staff of five persons (Community Organizers) were responsible for achieving the objectives specified in the previous section. The intent of the grant was to have these five paid staff members locate, energize, and assist neighborhood volunteer leadership to reduce burglary. The scope of their task was such that it quickly became apparent that they would not be able to provide adequate organizational efforts to all three police patrol sectors. Translating this program element's objectives into actual numbers of residences for two of the three sectors

(Charlie and George), it may readily be seen that a staff of five would be insufficient to accomplish the task.

Grant Objectives	In Numerical Terms		
	Charlie Sector	George Sector	Rest of City
Total Households (1970 Census)	27,831	18,879	175,200
1. Information on crime prevention to 70% of the households	19,481	13,215	
Of which,			
2. 20% would have home inspections	3,896	2,643	
3. 60% would have property markings	11,688	7,929	
4. 25%* would join Block Watch Groups	4,870	3,304	
Plus,			
5. 25% of the rest of the City, of which			43,800
a. Information to 70%			30,660
b. No home inspections			0
c. 60% property markings			18,396
d. 25% in Block Watch Groups			7,665

Given these data, it seemed clear that the community organizers would be hard pressed to meet stated objectives while concentrating on Charlie and George patrol sectors without the addition of the third patrol sector, Boy sector. Accordingly, a media-oriented (or dominated) test was devised for Boy sector, a test which would minimize the amount of time spent by community organizers in that area while simultaneously providing an alternative method of securing community support and participation in the burglary reduction effort. In essence, the test included: (1) locating one staff member in the test community in a storefront office, (2) mass mailing of brochures describing this

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* The grant set no percentage expectations for Block Watch. Project staff early in the year estimated 25% response as a guide.

project to 90% of the households (33,000-35,000) in the test area as inserts in City Light bills, (3) publication of articles in the local community newspaper, (4) speaking engagements before any civic-oriented group willing to hear us, (5) use of three University of Washington students to sign up citizens willing to help launch anti-crime efforts in 13 census tracts, (6) a series of meetings in schools and other large facilities in each of those 13 census tracts with a detailed plan for breaking the large number of attendees into geographic groups during the meeting for specific planning sessions. About 20 citizens attended the first of the 13 scheduled community-wide meetings. The next three meetings were even more poorly attended. The remainder of the large meetings were then cancelled.

It should be emphasized that where clear commitments had been made -- to inspect homes, assist in property markings and/or the establishment of block watches -- these commitments to the residents of Boy sector were met.

The need to narrow the focus of the community organizers' efforts did not end here, as will be seen shortly. However, other considerations both theoretical and practical began to emerge.

In order to find civilian, non-paid volunteers and provide them a framework in which to proceed required use of the method of social work practice known as locality development (or community organizing). In order to insure maximum achievement of the numerically massive household services listed above, it was also necessary for staff to provide some services themselves, using the direct service method of practice known as social planning. The combination of those two operational

methods produced a dichotomy that was the project's greatest strength and its greatest perplexity.

Each Block Watch must have a citizen leader. Each of those volunteers (no Block Watch Captain is paid) had to be initially found, convinced of the project's worth, motivated to step forward and assume responsiblity, trained in project methods, and contacted periodically thereafter by the staff members. That work is precisely the work that suffers from neglect when the community organizers on the staff must personally perform home security inspections and property markings in order to meet the tangible, measurable, service goals. There is no better illustration than this of the frustrations encountered in combining locality development and social planning in one project. Despite that, the advantages of the combined methods outweigh the disadvantages, primarily because of the operational balance forced upon a project by the dual responsiblities.

The strength was in the fact that when the two methods of practice (locality development and social planning) were successfully combined, the blend was more effective than either method of practice would have been alone. Basically, locality development stresses "...the fullest possible reliance on the community's initiative,...voluntary cooperation, self-help, development of indigenous leadership and educational objectives...", whereas social planning stresses "...the provision and ordering of goods and services to people who need them. Building community capacity [does] not play a central part."* Employed alone, locality development may produce endless community group discussions

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* Jack Rothman, "Three Models of Community Organization Practice", (University of Michigan School of Social Work, May, 1969), p.3.

at the expense of attacking an immediate community problem (e.g., burglary). Social planning, employed alone, may neglect functional public participation. Employed together in one project, each method of practice insures against the other's dangers.

The perplexity is that, when employed together, the two methods can turn a project into a two-headed administrative monster. For example, basics such as defining the staff's role can be confounded. Of course, the goal is to reduce residential burglary. But the staff will ask whether the method is (1) to organize neighborhood residents to implement their own anti-burglary actions or (2) to provide those anti-burglary actions directly to residents who need them. When answered, "Both", the question becomes, "Which one first?"

Logically, locality development should get underway immediately at project implementation, with direct service rendered later only to those households or neighborhoods which resist all attempts to make of them "developed localities". But community organizing was not a rapid process, especially in periods of time (or in neighborhoods) characterized by skepticism. And the time consumed in the organizing is time not spent in immediately achieving the numerical service objectives. Therefore, the operational objectives for this project element needed to be revised to focus on the realistically achievable essentials.

The community organization project director proposed some of those revisions by memorandum to the Seattle Law and Justice Planning Office dated May 16, 1974. The following recommendations were subsequently approved by the LJPO and adopted as clarified operational objectives.

a. Recommendation: Focus on Single Family Homes. Project staff had observed a trend in the pattern of residential burglary confirming that burglars in Seattle strike single-family homes instead of multiple-family apartments in three out of four cases. That finding was subsequently reinforced by staff examination of 93 reported residential burglaries that occurred in seven census tracts in Charlie sector in August and September 1974. Of the 93 burglaries examined, 70 (75%) were against single-family dwellings.

Also, locality development attempts had not proven effective among residents of multiple-family dwellings. Home security inspections are neither practical nor meaningful to a tenant on any but the ground floor of most apartment buildings and, even then, security improvements must be approved in advance by the landlord who usually has, in addition to legal rights, legal obligations for compliance with several local government enactments pertaining to security and safety.

b. Recommendation: Focus on Neighborhoods with Significant Levels of Burglary. Project effectiveness is difficult to evaluate in an area (usually a census tract) having had a low ratio of homes burgled in the pre-project comparison period. And of course citizens in low risk burglary areas need less immediate help than those more likely to be victimized by burglars.

c. Recommendation: Revise Goal Levels for Service and Community Involvement. Staff experiences and study had indicated that at least 30 percent of the target households need to be served and involved in localized burglary prevention in order to reduce crime measurably but that the investment of project resources required in order to achieve materially more than 30 percent involvement is seldom cost-effective. Thus, the objective for each program service in each priority community should be to serve and involve 30 percent of the target households. That level of implementation (termed "saturation") increased the grant's objective for Block Watch membership from 18 percent of target households and for home inspections from 14 percent and decreased the grant's property marking objective from 42 percent.

In summary, as a result of the recommendations listed above, it was agreed after analysis of census tract characteristics in Charlie and George sectors that communities to receive priority focus would be those (1) having had at least 10 percent of all occupied structures burgled in the prior year and (2) wherein involvement of 30 percent of

families living in one and two-unit* dwellings would equal involvement of at least 8 percent of all the occupied dwellings of all types in the census tract.

The result of that operational definition of objectives was that five census tracts in Charlie sector and five in George sector qualified as priority communities for project implementation. (In Charlie sector, an additional tract that would not have met the priority tests had been chosen early in the grant year because it was suited ideally to early program development.)

Beyond a narrowing of focus and a desirable movement in the direction of translating objectives into highly operational statements, additional insights were gained during the course of implementing this program element. A new "objective", and one which does not so readily translate to meaningful statistics, began to emerge. That objective was having police officers meet the public they serve. The civilian staff's locality development efforts created -- for the first time in Seattle -- a widespread neighborhood climate and a process conducive to police officers' contact with citizens at coffee meetings inside those citizens' homes. Conservatively counted, at least 2,285 citizens met their beat patrolmen at such meetings during the 10-month term of the project, and that number grows steadily as the second year progresses. In large measure, it was those meetings that convinced citizens to participate in this project's other anti-burglary activities. Those meetings could not have occurred without cooperation between police and civilian components of the project.

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* Duplex homes were added to the target household category because, although they are few in number compared to single-family homes, available data processing printouts lump single family and duplex structures together as distinct from multiple family dwellings.

In addition to the development of a citizen volunteer cadre, the encouragement of police-citizen contacts, and direct community services such as home inspection and property marking, the community organizers developed and tested a wide variety of promotional and informational materials. Only 14 documents survived a year of testing. These documents ranged from anti-burglary brochures, citizen interview and home services records, home security check-lists, window decals, and follow-up interview forms. These documents are contained in Appendix A.

In addition to the documents presented in Appendix A, the community organizers implemented a neighborhood burglary report which continues to be published monthly and distributed by block captains rather than by mail. (The project's policy has been to avoid mailing whenever human contact is practical.) In February 1974, the Seattle Women's Commission had voted to recommend in letters sent to community newspapers that those newspapers begin publishing community crime trends as a public service so that residents could protect themselves. The community organizer staff decided at that time to print such a report concerning neighborhood burglary but staff time prevented initiation of that report until second year funding brought a new clerk-typist to the team. The clerk was hired on August 1 and the report was started within two weeks thereafter. It has been very well received by citizens and provides them a return of information about local burglary patterns, serves as a recruitment tool by which block captains can encourage new membership in the block watch, and helps staff keep abreast of patterns of burglary as well. (See Appendix B.)

As the preceeding narrative indicates, the civilian component utilized a variety of methods based on a hybrid theoretical model -- and hard experience. These methods and experiences ultimately were consolidated into a "Community Organizer's Guide to Success." This guide identifies the specific steps found to have been most effective and may be found in Appendix C.

Before concluding the general statement section for this program element, it should be noted that the community organizers may be characterized not only by what they did but by what they did not do. For example, it was not part of the operational method of the project to purchase and distribute great quantities of equipment. Such distributions seem to characterize similar programs nationwide. The Seattle project's view has been that any item of equipment (for example, electric property engravers) will be used by citizens in direct relation to the citizens' investment in the item either in terms of time spent planning the effort or actual cash invested. In Seattle, block watch members contribute approximately half a dollar per household to jointly purchase an engraver through an arrangement with a local supplier who will sell them at cost to such groups, through this project. Seattle's staff has seen evidence from this City's prior, related programs and from other cities indicating that mass, free availability of such equipment does not draw much interest in that equipment on the part of the citizens.

Likewise, a home security inspection performed for citizens, even by an efficient, professional team, may not be as likely to generate home repairs or security improvements by the citizen who lives in

the inspected home. Seattle's staff attempts to involve the homeowner in the inspection process. In June 1974, staff conducted a random 20 percent sampling of inspected households in Seattle to determine whether citizen compliance with recommendations for improved physical security was as low as the 5 percent compliance reported in Alameda, California, where professional personnel had conducted the inspections for citizens. The Seattle sampling revealed that nearly 40 percent (37.8%) of the residents of inspected homes had implemented recommendations made at the time of the inspections, and had done so within 90 days of the inspections. That rate of compliance is impressive in view of the obstacles to it: (1) cash outlay is often required, (2) the recommended security measure may not be compatible with the lifestyle and living patterns of the family, (3) the measure may interfere with privacy or routine activity, (4) malfunctions of hardware may have been experienced previously, (5) the aesthetic values and preferences may be offended by the measure, (6) the resident may lack the manual skills to install the item, (7) the cost of the item competes with the entire spectrum of non-security consumer goods. (See "Monograph: Residential Security", National Institute of Law Enforcement and Criminal Justice publication, December 1973.)

The fact that citizens seemed to carry out security recommendations in a higher proportion of Seattle's inspected homes than in other cities' anti-burglary projects may be attributable to the process involved in this project. That is, a home inspection (or any other of the project's services) does not occur as an isolated incident of service provided by local government. Instead, it occurs as one of

a series of security actions taken with the resident, usually involving the citizen in meeting neighbors, jointly discussing in detail the characteristics of the burglary threat in that particular neighborhood, and electing local leadership. The process also includes meeting the police personnel who serve that community, sharing in the cost of an engraver or other equipment, coordinating a doorbelling or home inspection campaign, receiving a monthly report indicating whether the effort seems to be having the desired effect, setting up a telephone communications network, and a range of related activities that vary to suit needs of any given neighborhood.

II. A. 1. a. Personnel: Target Hardening Actions by Citizens

Staffing throughout the term of the grant remained as it was at the outset of the project: a Project Director, one Clerk-Typist II, one Data Coordinator (responsible to insure data for project planning, monitoring, and evaluation), and five Community Organizers. During the first year, two of the original eight staffers resigned and were replaced. At the start of the second year, staff size was reduced from eight to seven and one-half by promoting the former Data Coordinator to Community Organizer, filling that vacancy with the former Clerk-Typist, and replacing the former full-time Clerk-Typist with a half-time (four hour per day) worker. That cost-saving was possible because the former Clerk-Typist continued to perform most of the office management duties upon being promoted to Data Coordinator (titled "Senior Clerk"), thereby limiting the workload of the new Clerk-Typist to the extent that a half-time position was adequate.

Of the eight staff personnel, five are minorities.

In describing the attributes of effective community organizers, it was observed that prior work experiences and formal education have very little bearing on actual job performance -- and age, sex, and race have even less. More important are attitude, self-discipline, judgment, commitment, stamina, concept of self-worth, and sense of humor. The need for those qualities arises from the nature of the work and, especially, the dual methodology of organizing citizens while simultaneously providing direct security services either as a demonstration for organized groups or as the only way to provide service to neighborhoods that lack the resources to be organized.

While formal education appeared to have little relationship to effectiveness, the community organizers were able to identify five fields of knowledge that they felt relevant to their effectiveness:

1. Full knowledge of the community, its problems, its resources, and its processes;

2. Equally thorough knowledge of the criminal justice system and ancillary systems;

3. Very extensive knowledge of criminal types, elements of crimes, patterns of crimes, and causes of crime including root causes;

4. Processes of negotiation, trade-off, and compromise by which conflicting views, especially among members of small groups, can be brought into harmony; and

5. A basic understanding of the human relations aspects of working as a close-knit, small team and of that team's relations with other agencies and individuals.

Community organizers in Seattle's civilian component of the burglary reduction program scheduled their work-week around the living patterns of the community. The community organizers worked from

10:00 a.m. until 8:00 p.m. weekdays and were off work on Sundays and one weekday. They worked Saturdays routinely. The staff found that at least one-half and as many as three-fourths of the homes were vacant or the occupant asleep or in bath-robe on any day of the week prior to 10:00 a.m. After 8:00 p.m. people tended to disbelieve that a person at the door is a government employee. Even if convinced of the community organizer's legitimacy, the citizens tended to resent an intrusion into their late-evening privacy. Saturdays were prime time for catching people at home. Sundays were too but, again, citizens did not expect a visit on Sunday and tended to resent the intrusion. Staff morale sagged when repeated hostility or coolness was encountered; thus, hours which evoked such response were devoted to purposes other than direct public contact.

Whenever possible, community organizers served a geographic area as a team. Staff found a three-party team to be the most productive. Coordination of scheduling became complex with a larger team and full compatibility of the members less likely than in a three-party team. The difficulty in the team approach was that it was a team of persons of equal "rank", each of whom performs the same basic function. Yet every human group needs a leader. Therefore, choice of the leader and the role of the leader became important. Normally, that potential problem was avoided by assigning specific geographic areas to be the responsiblity of one team member after the team effort had ended, and naming that person the leader. As the team moved from area to area, leadership changed. In hiring staff, it was crucial to select individuals with the ability to work well in such a structure.

In any public involvement project, paid staff comprise only part of the personnel. The topic "Personnel" extends in such projects to the recruitment, selection, and management of human resources beyond the paid staff. Beyond the help of unpaid volunteers, this project spent $1,843.88 of first-year funds at the rate of two dollars per hour for citizen non-professionals who were willing to undergo more extensive training and devote more hours than would normally be expected of a wholly unpaid volunteer. Those paid assistants (termed "community consultants" in the grant) provided nearly a thousand hours (922) of time to the project -- the equivalent of 23 normal 40-hour work-weeks, or nearly six months of time.

The hours donated by unpaid volunteers were not recorded in any systematic way. Each of the nearly 200 block captains devoted hours ranging from as few as five to more than 30 hours. At least a dozen members of the clergy gave personal hours; for example, those who headed the ten churches in the organization called Churches United in Common Effort (CHOICE) and, notably, the Rev. Cecil Murray of the First African Methodist Episcopal Church. The editors of various community newspapers invested time; for example, "The Facts", the "Capitol Hill Times", the "Ballard Outlook". Police officers put at least 300 hours into block watch group meetings and other police personnel (most notably the director of the police component of the grant, Capt. Elmer E. Knechtel) spent great amounts of time directly related to the civilian component's activity. At least 20 senior citizens at the Columbia Club spent several days pasting

address labels on this project's anti-burglary brochure mailers. Employees of Seattle City Light and Pacific Northwest Bell Telephone Company also contributed time in order to get the public information materials distributed. Members of the Northwest Locksmith Association were very actively involved throughout the project's first year. Undergraduate students from most of the major educational institutions in Seattle were contributors of hours.

The list above is only partial. The intent is to illustrate, not to detail, the diverse kinds of "personnel" involved in a citizen-based crime prevention effort.

II. A. 1. b. Policy Decisions: Target Hardening Actions by Citizens

1. Policy: As noted earlier in this report, it was decided to limit geographic coverage to the extent necessary to provide a density of program execution adequate to provide reliable evaluaton of project effectiveness in reducing burglary.

2. Policy: It was decided to implement the project very systematically, block-by-block in most cases, with maximum human contact rather than en masse attempts to bend public opinion toward anti-burglary activity, with the exception of the "media approach" in Boy patrol sector.

3. Policy: It was decided that staff should personally and physically conduct property markings and home security inspections whenever it appeared that citizen action would be very slow in doing either.

4. Policy: It was decided that all persons (paid or unpaid) who would perform any but the most rudimentary work would have to consent to first having a felony records check done by the Seattle Police Department. Only one citizen volunteer was "lost" in a year due to the policy. On the other hand, the policy protected the project from real or contrived disaster and gained the project added police support because the police wisely feared the consequences of charges that burglars could be using the project to gain information.

5. Policy: It was decided that funds set aside in the grant for consultants would be spent on local non-professionals rather than for the advice of professional persons or firms and that citizen consultants would have written contracts at no more than $2.00 per hour. The nature of the effort was such that field experimentation was the

only means of program development. No prior activity in Seattle or elsewhere was identical; therefore, no "expert" could be greatly helpful. The low, $2.00 per hour limit kept away those citizens who might have been motivated solely by self-interest and the written contracts kept the City's fiscal officers informed as to how the funds were being utilized.

6. Policy: It was decided to have low visibility in non-target areas except for mass-media announcements about creation of the project at inception and the approach used in Boy sector, since heavy City-wide publicity would have generated requests for service that the small staff could not have met.

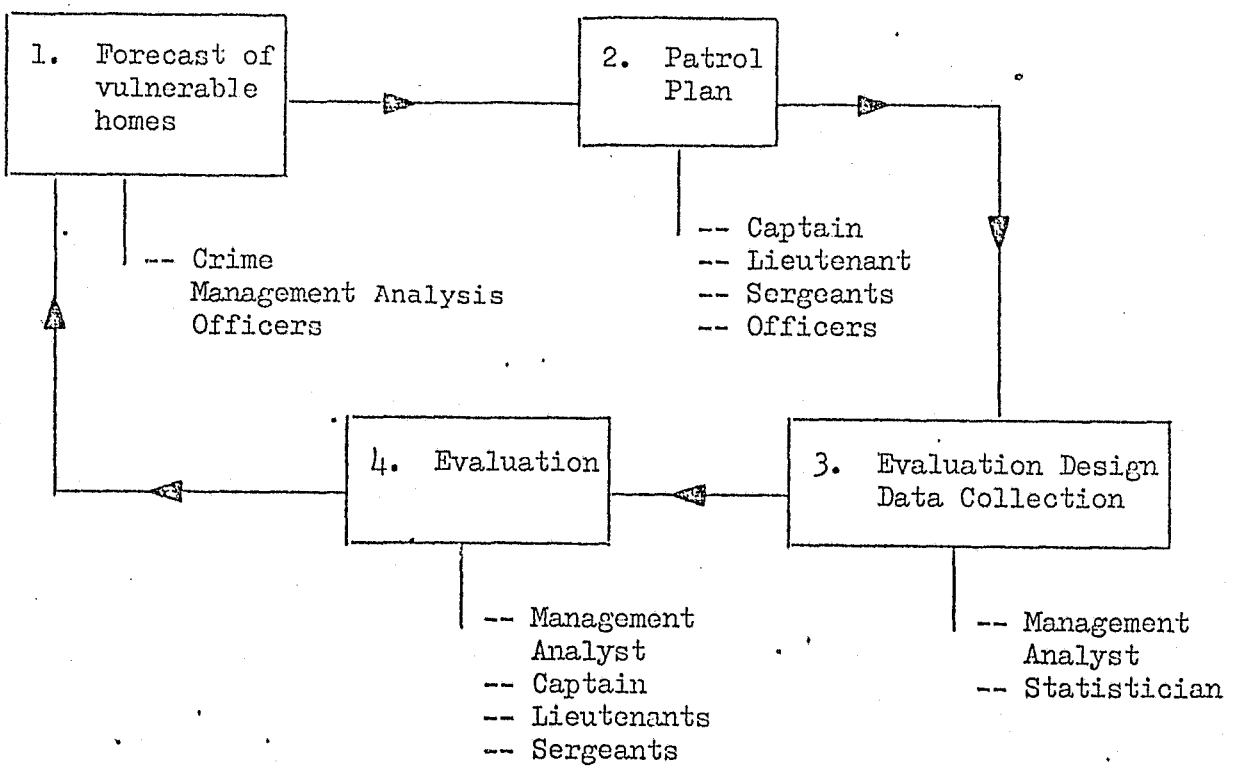
7. Policy: It was decided that field staff work hours would include some hours during evenings and on Saturdays.

8. Policy: It was decided that field staff should enter homes in pairs whenever possible and, when not possible, report their intended whereabouts to another staff member before going into the community. There is physical risk in working in darkness in high-crime areas and greater risk when entering homes to mark property or to inspect the home without a partner. There is also risk of civil suit or criminal charges for alleged misconduct therein. (It is safe to assume that some dangerous residents will be encountered, given a large number of households visited.)

9. Policy: It was decided that staff would work as a team of three and, when possible, more than three in serving any geographic area. Team-mates help bolster one who has had a frustrating day or who is simply tired, bored, hungry, cold, wet, etc. Planning is best when others must review it. Sub-tasks can be rotated to provide some added diversity to the work. Appointments are more likely to be kept when partners are depending on one another.

II. A. 2. Program Element II. Target Hardening Actions: Police Tactics

As indicated previously, two unique features characterized this burglary reduction strategy: first, development of a team policing organization in which shift sector sergeants were to command all police activities carried out during their shift within their sector. This would include activities conducted by patrol, traffic, investigation or other police units and; second, the development of a tactical plan. The Crime Analysis Unit would prepare forecasting information on vulnerable homes using frequency analysis and multi-variate correlations. These data would be provided to sector officers to aid in the development of sector patrol plans. The plan was to propose specific tactical methods based upon the data made available from crime analysis. As new data were received, new plans would be developed in a continuing cycle as illustrated below.



Implementation of the various activities in the cycle illustrated above was thwarted at almost every step in the sequence. While any one problem would have been insufficient to create serious problems in implementation, the problems collectively were sufficient to render this program component all but inoperative. Beginning with the forecasting of vulnerable homes by the Crime Analysis Unit, consistent and diligent effort on the part of the statistical analyst hired for the forecasting purpose failed to produce a practical method of forecasting a particular burglary target, i.e. a specific house, business, etc. Reasonable accuracy was achieved in forecasting the areas prone to burglary and, to a lesser extent, the day of week and time of a burglary.

Among the problems encountered were the slow receipt of burglary reports by the Crime Analysis Unit exacerbated by many reports containing insufficient information regarding the date and the time specific burglaries occurred. It was found that burglary rates became increasingly unstable as the unit of analysis became smaller (e.g. from city-wide, to sector, to car beat). For example, there were only four burglaries in seven days over a three month period in 2-C-5, one of the "busy" car beats in Charlie Patrol Sector. Not withstanding this relatively low average, burglary rates would vary from two to six per week throughout the 100 square blocks of this car beat. Project personnel estimated that the chance of correctly predicting within a 24-hour time span the actual occurrence of a specific residential burglary was .0004 (four hits out of 10,000 stake-outs). This was based on computing the probability of a burglary during the most likely 2-hour period of time within a week for a unit of analysis. This probability was then divided by the number of residences within the unit of analysis to derive the $p = .0004$ estimate.

A second set of operational problems relates to the diversity of police related activities within any given area of the City. In addition to patrol, there were the efforts of the Traffic Division, Criminal Investigation Division (detectives) and the Special Operations Units.

Coordination of all of these activities (and more) required a greater degree of planning and cooperation than had been anticipated in the original grant proposal. Early in the project a problem interferred with officer efficiency and morale. That problem related to the expectation (which was belatedly met) that special pay would be provided for Lead and Assistant Lead officers who constituted key elements in the team policing concept.

A further problem concerned the demands on an individual officer's time which increased due to two factors. First, increased investigation was required at the crime scenes. Second, the officer was more frequently required to attend training sessions designed to acquaint community organization personnel with pertinent characteristics of their beat and to attend community meetings established through the efforts of the community organization teams. Yet there was no relief from the "routine activities" required of many of these officers.

Finally, although cooperation between various police elements was described as "good", the supervisors of various police sub-groups had primary concern for the daily priorities of their individual units, thereby, at least potentially, mitigating the extremely high degree of cooperation which was an inherent assumption of the original grant proposal.

Communications to three precincts, three watches, as well as the other functionaries in the grant program sometimes was difficult. Part of that difficulty was a consequence of the necessity to communicate through many other supervisors.

In summary, delayed and sometimes incomplete information regarding burglary incidents; an inability to pin-point targets and time of crime commission with a high degree of accuracy; and the conflicting demands on an officer's or a unit's time and/or priorities tended to disrupt the efficiency of the forecasting and planning process. Each of these problems was in turn exacerbated by both organizational and communication constraints.

Beyond the attempts to directly implement the second element of the burglary reduction effort, two innovative projects did emerge and are worthy of some comment. The first effort evolved during the mid-period of the grant and relate to the development of undercover police fences.

In February 1974 the East Central Burglary Squad presented an idea for putting two detective "undercover", furnish them with "buy money" and/or equipment to both purchase stolen items and feed other items into the local fencing operations. Stolen items purchased would be held for evidentiary purposes for major cases made and held in abeyance. Other items would be "fed" into the local fences and traced through the operational chain. Cases developed would again be held in abeyance until a predetermined time when all cases would be filed together.

Few Seattle Police Department funds were available for this type of operation and a request to L.E.A.A. to use grant funds in this manner was denied.

With the limited funds and equipment available to the East Central Detectives, several cases were "made". Considerable information was also developed by the undercover officers.

While innovative ideas or tactics almost invariably cost in manpower, money or both, the returns are often very cost effective. The same type of undercover operation proposed for Seattle was used in New York City (AP and UPI news reports 30 September 1974) with tremendous success. A $45,000 expenditure there, resulted in a recovery of $700,000 in stolen property plus $200,000 in stolen checks. Forty-two persons were arrested with warrants for 130 more, a total of 173 criminal cases filed.

The other innovative project which emerged from attempts to implement the second element of the burglary reduction program was the use of an iterative method for modeling the dependence among observations in a time series. This forecasting approach, originally suggested by G.E.P. Box and G.M. Jenkins* is a model building process in that the model is data determined. The intent of building and testing such a model was to determine the feasibility of predicting long range burglary trends and, most importantly, to predict trend changes - either an upward turn given a previous decline or a downward trend given previous incrases. The need for such a model - if effective -- is immediately apparent when one considers long-range manpower planning and deployment considerations for major city police departments.

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* Box, G.E.P. & Jenkins, G.M. Time Series Analysis, Forecasting and Control, Holden-Day, 1970.

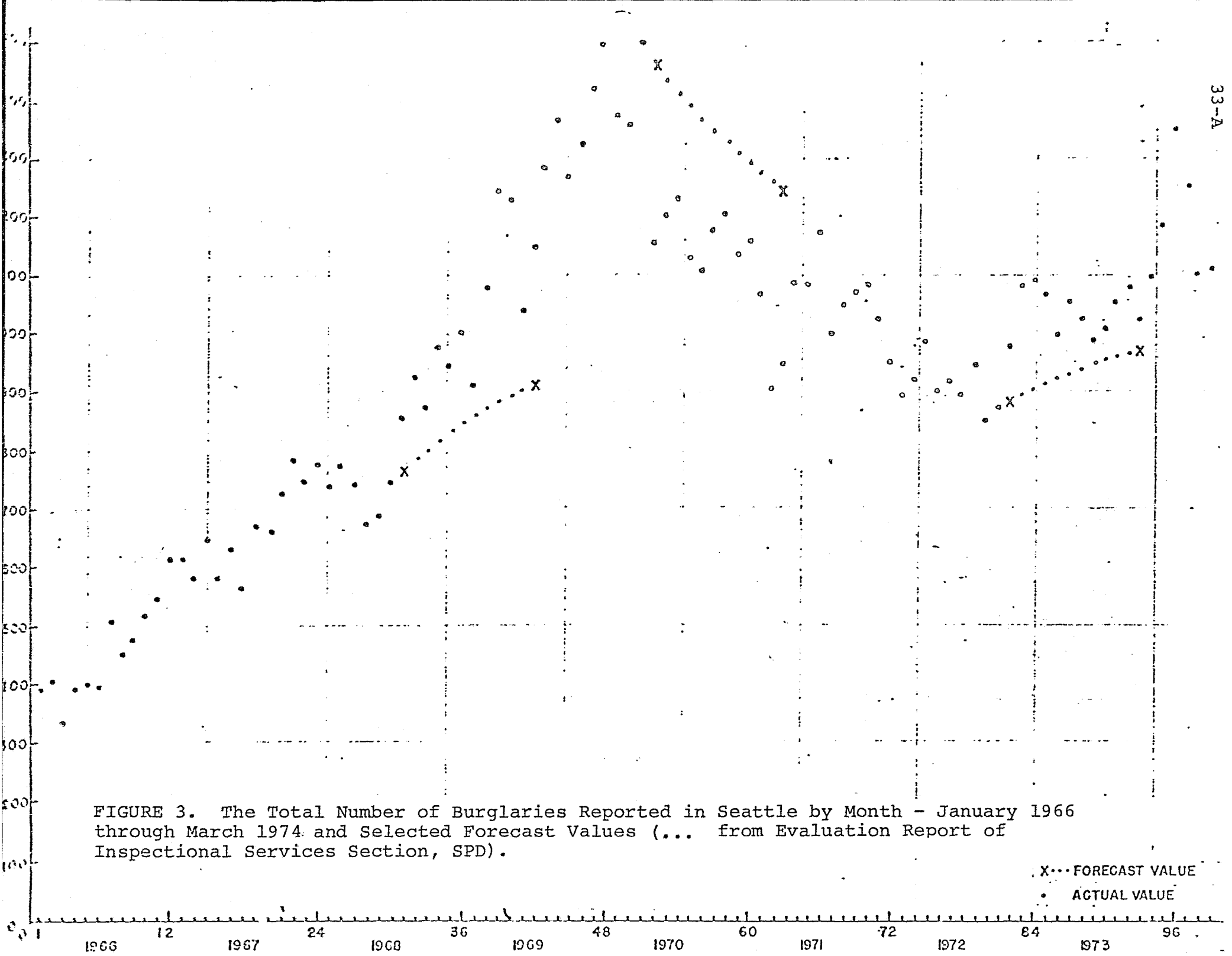

FIGURE 3. The Total Number of Burglaries Reported in Seattle by Month - January 1966 through March 1974 and Selected Forecast Values (... from Evaluation Report of Inspectional Services Section, SPD).

The monthly total of all burglaries, city-wide, during the period from January, 1966 through March, 1974 (99 months) were used as the time series to illustrate the method as applied to burglary series for analysis and forecasting. Using a pre-packaged TIMSER program and the CDC 6400 computer at the University of Washington, data for the 99 months were analyzed, an autoregression model was selected, and a nonlinear least squares subroutine employed. The coefficient of determination R^2, was only 0.168 indicating that less than 17% of the fluctuation had been accounted for--a result which was scarcely encouraging. Figure 3 presents the data for both actual and a selected set of predicted burglary rates in the period from January, 1966 through March, 1974. It should be noted that predicted rates systematically underestimate the extent of increases and decreases even in those selected instances where the predictions are correct in terms of predicting over-all trend changes. Forecasts were also made at time periods other than those known to mark a changing trend. While these other forecasts are not illustrated in Figure 3, it was noted that they tended to show premature forecasts of turning directions. In this context, it should be noted that it is a characteristic of the stationary autoregression model to forecast toward the mean level of the series when the origin of forecast is either above or below the mean level.

The same approach as was used for city-wide burglary rates was employed to test long range forecasting for police patrol sectors using both residential and non-residential burglary incidents in the period from January 1968 through May 1974 for residential incidents, and January 1964 through May 1974 for non-residential data.

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* For a more detailed treatment of the procedures employed, see Final evaluation for Grant #1161 (Burglary Reduction Program) prepared by Seattle Police Dept., Inspectional Services Div.Inspections/Planning Sect

These analyses indicated that the nature of the various burglary series differ from one another. This variation exists between and among sectors as well as car beats. Many series fit the autoregression model while others displayed moving average behavior. Of greatest importance, there was no uniform way to characterize the analyses in general. All series were dominated by "random disturbances" which hampered efforts to find systematic tendencies. The lack of strong systematic tendencies in the series also dampens hope of forecasting future outcomes.

II. A. 2. a. Personnel: Target Hardening Actions; Police Tactics

This program element was officially started September 15, 1973. However, the research team, comprised of a management systems analyst and a statistical analyst, was not formed until October 5, 1973. The program was seriously hampered by the uncertain ending date of the grant. The final date was moved back from September 15, 1974 to July 31,1974. and then, successively forward to August 15th, August 31st,September 15th, and, finally, September 30, 1974. One result of this uncertainty was the early loss of the original research team. The management systems analyst,who was to have assumed a major responsibility for the police portion of the final grant evaluation and who was responsible for the development of the evaluation model and methodology of the police portion of the grant, resigned effective August 15, 1974. As a consequence, staff members from the Inspectional Services Division were forced to assume the responsibility of completing the police portion of the final evaluation. The statistical analyst resigned on July 5th, 1974.

II. A. 2. b. Policy Decisions: Target Hardening Actions: Police Tactics

While many of the comments in the introductory portion of this program element might seem to have called for major policy decisions and revisions, relatively few occurred. A variety of errors did occur but the majority of these errors must be considered part of the learning experience when a complex and innovative strategy depending on many personnel from many different police units is attempted. This is not to suggest that major policy decisions would not need to be made before a similar venture were attempted in the future. These necessary decisions, however, more correctly form a part of the evaluation section of this final report and are, therefore, contained within that section.

One major policy decision does relate more directly to this program element than to any other and this decision concerns the type of evaluation methodology to be used to assess the over-all impact of the project. As noted above, a management systems analyst had been employed to develop an evaluation model and methodology. As had been noted in previous sections that methodology had called for the use of two "control sectors" ("W" and "R" police patrol sectors) to be used as a comparison for events in the "experimental" police patrol sectors (Boy, Charlie, and George). During a meeting attended by a representative from Region X, Mr. Bob Willstadter, the police and civilian project co-directors, Major C.R. Connery, the Commander of Inspectional Services Division, the management systems analyst, Mr. Robert Porterfield, and the Chief of Research and Evaluation for the Law and Justice Planning Office, Dr. Harry Springer, the progress of various project elements and the research methodology to be employed came under searching scrutiny.

The policy decisions which were an outgrowth of those meetings are summarized below.

Policy 1. Given the existence of a burglary reduction program being conducted by King County immediately contiguous with the southern border of one of the control sectors and clear evidence that some degree of dispersion was occurring (a major increase in burglary incidents in the control sector), the validity of direct comparisons between the experimental and control sectors would be open to serious question. Accordingly, it was agreed that the control sectors would not be used for comparison purposes. In lieu of control sectors, the entire City of Seattle minus the experimental sectors would be used as a control.

Policy 2. The evaluation model proposed by the management systems analyst called for comparisons between predicted rates of burglary not only on a city-wide basis but in relationship to the experimental sectors as well. This model called for the development of predictions and a comparison between these predictions and observed events. To the extent that predictions over-estimated the amount of burglary in the experimental police patrol sectors by a margin greater than errors found in predictions for other patrol sectors, events occurring in the experimental sector would have to be assumed to be responsible for creating the greater degree of discrepancy.

It was noted that this methodology posed serious problems for the project as a whole, placing the forecasting element in particular in a "double-bind" situation. To be regarded as useful, predictions needed to be relatively accurate. To be relatively accurate, the predictions would need to be updated with some frequency. If the various program elements in the burglary reduction program were successful in reducing burglary incidents there might indeed be an initial discrepancy between observed and forecast results. However, this "proof" of success was apt to be as short lived as it was "innovative," since revised burglary forecasts would be likely to take the decreased burglary rates in prior months into account thereby leading to lowered forecast rates for subsequence months. The reverse situation would occur were incidents to rise. Thus, in this feed-back spiral the only way for the experimental sector to be demonstrated to be a successful venture was for burglary incidents to pursue an endless downward trend, always managing to "keep ahead" (e.g., below) of the increasingly lowered forecast rates. To the extent that this unlikely series of events occurred (since burglary incidents can't drop below zero), the accuracy of the forecasting method itself would be called into question. This is the essence of the "double-bind" referred to above: one cannot at the same time have accurate forecasts which support the forecasting method; and forecast discrepancies which support the efficacy of the burglary reduction effort. As has been noted above, the forecasting method itself proved above to account for only 17% of the variation noted in month-to-month burglary rates.

As a consequence of these observations and subsequence discussions, it was decided that the Inspectional Services Division and the Law and Justice Planning Office would pursue independent analyses of the over-all effectiveness of the burglary reduction efforts. This policy did not preclude the sharing of data or the conclusions derived from this data. However, the analyses did take somewhat different tacks as will become evident in the evaluation portion of this final report.

A. 3. Program Element III. Apprehension-Residential

This program element encompassed four seperate strategies. The first strategy assumed that it would be possible to forecast vulnerable homes and this forecasting capability would be used as a basis for police deployment for on-scene arrests. As noted under Program Element II, forecasting capabilities did not live up to original expectations. Data extrapolations led to the conclusion that the likelihood of correctly predicting the burglary of a particular residence during the most probable two hour period of the most probable day of the week was .0004 or four "hits" or arrests for every 10,000 stake-outs. Clearly, this strategy could be no better than the forecasts which supported it, and these were not sufficient to warrant confidence in the use of forecasting as a basis for residence-oriented deployment of personnel. Accordingly, this strategy, except on paper, was never implemented.

The second strategy in this program element related to an increase in investigative efforts, both by patrol officers at the primary investigation stage and by detectives in the follow-up investigation stage. This meant that wherever possible, patrol officers, immediately upon response to the burglary call would attempt to gather as much information as possible about the burglary. Officers searched the crime scene for latent fingerprints and other physical evidence.

When conditions warranted, officers conducted a broader canvass of the neighborhood in search of possible witnesses to the burglary. Officers were given additional investigative training in preparation for these tasks. The training consisted of what to look for at the crime scene, and victim/witness interview techniques. In addition, officers were given additional technical training on searching for, lifting and preserving latent fingerprints. To better manage follow-up investigation, the detective manpower levels of the burglary/theft experimental detective sector was roughly doubled. Four additional detectives were assigned to that burglary/theft sector with the stipulation that the additional detectives would only be assigned burglary cases for follow-up at the exclusion of other theft cases. Detectives were also given additional fingerprint training.

During the course of implementing this portion of the grant, both advantages and problems were encountered. A lack of "unit" office space for detectives assigned to the East Central Sector* hampered a team-work approach since these personnel were scattered throughout the physical space allocated to police in general. As detectives increased their investigative efforts on an increasing number of cases, clerical and reporting tasks began to occupy a greater amount of their time. The use of tape recorders was found to be of great assistance in reducing some clerical tasks. Coupled with the increased investigative work which affected both the detective unit and the single fingerpting unit, (to be discussed shortly) additional clerical support was found to be necessary. A clerk was hired in June, 1974 and assisted both units in keeping up with the work load.

* East Central Sector is a geographical area of the City bounded by Lake Washington on the east, the ship canal on the north, Highway I-5 on the west, and approximately Spokane Street on the south. This area includes Charlie and George patrol sectors.

While both the Inspectional Services Division and the Law and Justice Planning Office attempted to determine the effectiveness of this strategy, evaluation efforts were hampered by a variety of factors to be discussed more fully in the evaluation portion of this final report. Notwithstanding these evaluation difficulties, sufficient evidence was gained to suggest that this strategy has the potential of becoming an effective component in a burglary reduction effort, particularly if included as part of a larger effort which contains a civilian component and a single-fingerprint operation as integral parts.

The third strategy in this program element called for the development of a single fingerprint file. The Seattle Police Department developed a manually operated single fingerprint file to identify suspects from latent fingerprints found at burglary scenes. An identification technician with approximately five years fingerprint training and experience with the FBI was hired on October 23, 1973. He was given approximately two weeks of in-service training in Police Department and Police Identification Section duties and techniques as they would relate to his job. Increasing amounts of time were spent each day on developing a coding system and collecting a suspect base. It was agreed that the suspect file should be based on 1973 and 1974 suspects who fell into the following categories:

(1) All burglars arrested in East Central Area

(2) All active burglars living in East Central Area

(3) All burglars given probation or parole in or to the East Central Area.

A coding system which was basically alpha-numeric and which was based on four fingers for each for each hand was selected as being most useful. The fifth and unused print was from the fifth or little finger. This exclusion was based on research which indicated that the little finger appeared in less than 2% of all latent prints found and then usually was found in conjunction with one or more other fingerprints. In addition to coded fingerprints, the file contained such additional available details as suspect age, race, sex, as well as other identification information (e.g., scars, birthmarks, tattoos, etc.). During the course of establishing the single fingerprint file a number of rather diverse problems were encountered. Some of these were:

a. There was no legal method of developing a suspect file on juvenile burglars. Police were not allowed to fingerprint juveniles for identification purposes without a court order.

b. Patrol officers required considerable training in lifting latent prints.

c. Patrol officers were well aware that, in the past, a latent print without a suspect was basically useless. The officers had developed a full blown case of inertia with respect to such prints.

d. Prowler car fingerprint kits were inadequate.

e. Separating laboratory reports (on latent prints lifted) for "C" and "G" Sectors from all other laboratory reports was contrary to current operating practices and somewhat difficult at the start.

f. The identification technician was operating as a file clerk for long periods of time pending additional clerical support.

g. The "manual" operation of the original concept was much too slow and unwieldy.

Given these problems, the identification technician, on his own initiative or with support from other units and agencies;

a. drew up a procedure for fingerprinting all juveniles arrested for burglary and burglary related offenses. This procedure was first presented to the Judges' Committee of the King County Juvenile Court early in January 1974. It included a provision for safeguarding the identity of the juvenile being fingerprinted and was approved in a court order signed 5 February 1974. Subsequently, a limited number of patrol officers received training in "rolling" fingerprints, a fingerprint kit was placed at Juvenile Court and the trained officers were called in to fingerprint juveniles, as necessary, commencing about 5 March 1974.

b. worked with the East Central detectives to establish in-service training for patrol officers in lifting latent prints and crime scene searches.

c. informed police officers of the possibility of developing suspects from latent prints lifted from burglary scenes. Individual officers were also notified of "hits" made on latent prints they had lifted.

d. refurbished prowler car fingerprint kits. Powders, brushes and lifting tapes were reduced to basic essentials and additional training was given in their usage. As a result of b,c, and d above, the quantity and quality of lifted latents increased steadily during the months following.

e. gave instructions to the officers in "C" and "G"Sectors to place their Sector letter in the upper right hand corner of the laboratory report. These reports were easily identifiable in this manner and a great saving in paper sorting time was effected.

f. requested additional clerk-typist help. Budgetary restrictions did not allow additional help as early as January, 1974. Some volunteer help plus help from other members of the Identification Section carried the operation through to 1, June 1974 when a clerk-typist was hired to split her time between the single fingerprint operation and East Central detectives.

g. determined by December 1973 that a manual operation of the Single Fingerprint operation was not feasible. First steps were taken to computerize the system. Computerization required almost complete reworking of the files and considerable re-coding. Technical problems continued until the latter part of April at which time the file became operational from a practical standpoint.

By January 1, 1974 over 400 adult burglaries had been entered into the S.F.P. suspect file. This entailed coding and filing of 3200 plus single prints. By the end of July over 600 suspects were on file - 118 of these were juveniles. Most burglary suspects arrested, released from state institutions, etc., were already "in file" so the primary additions were juveniles. Two interesting developments have been noted. The first juvenile fingerprints for the suspect file were received from Juvenile Court on 4 April 1974. To date, 141 sets of juvenile prints have been placed in file and 11 duplicates (re-arrests) have been noted. Secondly, of 22 victims identified by latent fingerprints lifted from burglary scenes, 6 were also identified by the suspect file as being active burglars themselves.

II. A. 3. a. Personnel: Apprehension-Residential: Single Fingerprint File

As indicated above, an Identification Technician with approximately five years fingerprint training and experience with the FBI was hired on October 23, 1973. A clerk-typist was hired on June 1, 1974, to assist the single fingerprint operation and the East Central Detectives.

II. A. 3. b. Policy: Apprehension-Residential: Single Fingerprint File

A number of policy decisions were made during the development and implementation of this project element. The types of suspects whose

prints would form the intial fingerprint pool, the coding and reference (first manual, then computerized) systems, the introduction of juvenile prints into the file, the modification of prowler car fingerprint kits, and the training of patrol and detective personnel summarize the main decisions, each of which was described in greater detail in the preceding section. Without exception, these policy decisions contributed to the effective implementation of this project element. The shift to a computerized reference system and the inclusion of juvenile prints constitute the policy decisions most likely to have a long range, positive impact. It is expected that the single fingerprint system will be expanded city-wide during the second project year. At such time, it will clearly be necessary to access these records by way of computer reference. Having completed this process during the first year of operation will facilitate all subsequent, similar endeavors. The inclusion of juvenile fingerprints led to eleven "hits" or positive matches between latent prints at a burglary site and juvenile prints on file. During the period of evaluation (March, 1974 through September, 1974) the eleven juveniles constituted more than 30% of all "hits" - a trend which is expected to continue or increase when the single fingerprint operation becomes a city-wide effort.

The fourth and final strategy in this program element, called for the use of electronic tracking devices to be used to identify major fencing operations and to reveal disposal methods. These devices were to be attached to property which would then be sold by undercover agents to suspected fences.

The property would then be traced as it moved in order to identify locations and discover the fencing distribution network. A three-step procedure was used to implement this strategy. The first step called for a survey of available tracking equipment. The second step required the selection of the most suitable equipment together with the preparation of paper-work related to equipment purchase. The final step would be initiated when the equipment was received and related to training of police personnel in equipment use as a necessary prelude to implementation of this strategy. What follows is a chronology of events organized according to the steps described above.

1. Survey of equipment available was started as scheduled:
   a. 13 December 1973: The Wackenhut "Bloodhound" equipment was tested and evaluated.
   b. 17 and 19 December 1973: The Audio Intelligence Devices Inc. (A.I.D.) "Bird dog" was tested and evaluated.
   c. No other companies submitted equipment for testing

2. Purchase of Equipment:

On the basis of the tests and evaluations the decision was to purchase the A.I.D. "Birddog" equipment. Purchasing procedure and problems are detailed below:

   a. 8 January 1974: Decision made as to type and quantity of equipment to be ordered.

b. 18 January 1974: SPD requisition for auto equipment and three tracking systems forwarded to City Purchasing Dept.

c. 30 January 1974: SPD requisition for the special helicopter equipment was forwarded to City Purchasing Department.

d. 4 March: Purchasing Department purchase order made out to A.I.D. for auto equipment and tracking devices.

e. 20 March: Purchasing Department purchase order made out to A.I.D. for special helicopter equipment.

f. 29 March: City Purchase Order for the helicopter equipment received by A.I.D.

g. 1 April: City Purchase Order for the auto and tracking equipment received by A.I.D.
Promised delivery 45 to 60 days in both "f" and "g".

h. 5 June: First "Birddog" unit arrived.

i. 6 June: Training of operators commenced.

j. 8 July: All equipment had been received.

3. Training

Commenced on 6 June 1974 immediately upon receipt of the first vehicular equipment.

It was imperative that the drivers and observers of both cars and helicopters be trained in the correct installation, procedures, and operation of this equipment.

a. Installation: Careful installation of the dual aerials is required due to the "right", "left" and "null" abilities of the equipment. SPD officers designed templates for cars and helicopters to be used that greatly speeds correct installation by removing the need for taking exact measurements each time.

b. Procedure: Equipment must be turned off while vehicle in which it is installed is being started. Failure to do so can change the polarity of the equipment so that a signal coming from one side (left) would appear to the operator to be coming from the opposite (right) side.

c. Operation: The observer must tell the driver what to do, i.e., speed up, slow down, turn, etc. The team must develop a "patter" that conveys its meaning with a minimum of words. At times, split second decisions will be required if the suspect vehicle suddenly turns, stops, etc. Full team knowledge of equipment's capabilities and limitations is vital to successful operation.

In the period from August 1st through September 30, 1974, the "Birddog" tracking devices were used in eighteen cases with what the Seattle Police Department personnel regard as "excellent results." The helicopter was involved in four cases. In one case the helicopter was instrumental in locating a transmitter which had been "lost" by a tracking vehicle.

The essential problem experienced in implementing this strategy was time. Testing was completed and purchase recommendations made on January 8, 1974. Due to lengthy purchasing procedures the actual orders arrived at the supplier on March 29 and April 1,1974. The two month delivery period plus necessary training time added to all of the above, created a situation where only minimal use was possible prior to termination of the Grant. While initial results, however tentative, are positive, it is clear that only the successive extensions of the termination date of the grant allowed any use or evaluation of this equipment.

II. A. 3. a. Personnel: Apprehension-Residential: Electronic Tracking

No new personnel were required for implementation of this strategy.

II. A. 3. b. Policy Decisions: Apprehension-Residential: Electronic Tracking

The major policy decision was to select the "Birddog" equipment manufactured by Audio Intelligence Devices in preference to the "Bloodhound" equipment made by Wackenhut.

Details regarding the testing procedures and criteria for selection may be obtained from the Seattle Police Department, Inspectional Services Division, Inspections and Planning Section.

II. A. 4. Program Element IV: Apprehension - Non-residential

This program element, uniquely, was devoted to the reduction of non-residential burglary offenses. The use of forecasting methods to pinpoint probable commercial or light industrial burglary targets together with the deployment of portable stakeout alarms combined the essential components of this program element. The target area for this effort was to be "D" and "K" police patrol sectors unlike the use of "Boy", "Charlie", and "George" sectors where residential burglary reduction was the primary target.

As previously discussed, the forecasting component did not live up to initial expectations thereby rendering a major part of this program element somewhat in jeopardy. What follows is the chronology leading to the ultimate receipt of portable stakeout alarm systems from Bell and Howell.

1. August 20, 1973 - Memo from SPD Captain Connery to Howard Fordice, Communications Division, General Services Department, confirmed oral arrangements previously made regarding Police/ General Services Department, cooperation in testing alarm equipment.

2. September 13, - memo - Connery to Fordice re decoding systems suggested test of Bell and Howell equipment and also the "SECOM" System marketed by Sonitrol of Seattle.

3. November 12 - memo- Connery to Fordice - Generalized specifications for portable stakeout alarm systems as requested by Mr. Fordice.

Testing and bid procedures were carried out and on:

1. March 14, 1974: SPD submitted a requisition to the City Purchasing Department for the Bell and Howell "TAC II" System.

2. May 15: Bell and Howell received a City Purchase Order for the above equipment. Mr. Jones, Purchasing, explained the delay was due to "clarifying requisition information concerning the Infra-Red Detectors".

3. July 10, 1974: Mr. Jones, Purchasing, advised Sgt. Vert the City purchase order had been misplaced in a Bell and Howell Vice President's desk for approximately one month. Delivery was promised within 45 days of receipt of a frequency from Mr. Fordice, G.S.P.

4. July 12: Mr. Jones talked with Howard Fordice re a frequency.

5. July 16: Fordice gave Mr. Jones a tentative frequency which was determined to be unacceptable.

6. September 18: Sgt. Vert checked with Mr. Webb, Bell and Howell, by telephone, as to status of the order. Webb informed Sgt. Vert that frequency 156.150 was received by Bell and Howell on August 29.

7. August 29: Operating frequency received by Bell and Howell, Bell and Howell expect to receive the frequency "crystals" within four weeks with delivery to be made by early November.

The lack of frequency information was a primary cause for late delivery of the "TAC II" System. Compounded by the other problems detailed above, no equipment has been received or operated during the Grant period.

This concludes the Operations section of the final report. Before turning to the evaluation section, it seems appropriate to pause briefly and summarize some of the lessons learned. First and most obvious is the fact that a multi-faceted, one year long, burglary reduction program is vulnerable to a variety of mishaps.

The most glaring of these mishaps relates to the lengthy testing, purchasing, and equipment delivery time required where equipment such as tracking systems or portable stakeout alarms is required. A second mishap concerns the attempt to tie a variety of evaluation and deployment strategies (whether men or equipment) to an essentially unproven technique such as forecasting.

Burglary prevention strategies which require extensive organizational changes concerning both lines of command and of communication within major city police departments are apt to require more advance planning and a greater preparatory commitment of time, energy, and space than were applied to this grant. The development of a manually referenced single fingerprint file was, in retrospect, an error. Expectations regarding the amount of area coverage which could be provided through the efforts of five community organizers also proved to be grossly over-estimated, necessitated mid-stream strategy changes and substantial retrenchment.

Admittedly, these observations are singularly critical in character and are offered from that same luxurious position as occupied by the Monday morning quarterback. Still, it is not only through our "trials" but our "errors" that we make progress toward developing increasingly efficient crime prevention operations.

III. Evaluation

The evaluation portion of this final report begins where the final portion of the operations section left off -- on a somewhat pessimistic and critical note. Those deeply involved in the task of evaluating criminal justice system programs would agree with scarcely a dissenting vote that evaluation methodology should be an integral part of the initial planning process. Since the collective strategies of this burglary reduction effort involved both a civilian and a police component, some degree of shared evaluation responsibility was a likely outcome and could have been foreseen at the start of the program(s). The management analyst who was given responsibility for developing the evaluation strategy for the police "side" of the grant was not hired until after the grant had begun, thereby violating one of the more frequently violated "rules" of the evaluation game.

In September 1973 one member of the Inspectional Services Division, Mr. Cal Clawson, did have the opportunity to review the evaluation component. He stated, "The principal objective of the burglary reduction grant is to reduce burglaries in the test areas. However, because of the basic design of the test, the possibility of performing a comprehensive statistical evaluation is remote." Mr. Clawson elaborated on this conclusion by noting that various features of the proposed grant would make any type of statistical evaluation somewhat dubious. These features were: failure to select test and control sectors randomly, programming for simultaneous treatments (both civilian and police efforts concentrated in the same experimental area), and lack of a well-defined data base for comparative purposes.

Mr. Clawson was replaced by Mr. Robert Porterfield, the management analyst hired for the purpose of developing the evaluation model. Mr. Porterfield proposed an innovative evaluation model based on discrepancies between forecasted burglaries and observed burglaries in both the experimental and control sectors. Unfortunately, Mr. Porterfield resigned from his position prior to a sustained effort to implement his evaluation model. The task of completing the police portion of the evaluation effort returned to the Inspections and Planning Section where Mr. Samson K. Chang assumed primary responsibility for completion of the evaluation report.

If the police evaluation effort had begun with a legitimate degree of scepticism and was subsequently hampered by changes in personnel, the Law and Justice Planning Office was scarcely in better condition. At the time the grant was prepared, the evaluation staff of the office was severely limited and was forced, of necessity, to provide only modest guidance to the director of the civilian burglary reduction program. In mid-May Dr. Donna Schram resigned from her position as Researcher-Evaluator for the Law and Justice Planning Office to be replaced by Dr. Harry Springer, as Chief of Research and Evaluation. Like Dr. Schram, Dr. Springer was initially faced with a too small staff and too many tasks -- only one of which was the burglary reduction program. Still, some progress was made toward developing somewhat more precise objectives and a modified research design for the overall grant evaluation and for the civilian component.

Shortly prior to the conclusion of the grant period, Dr. Springer resigned to be replaced by Dr. Kenneth Mathews Jr., In summary, three

evaluators from the Law and Justice Planning Office played some role in attempting to develop or implement an evaluation model for the burglary reduction effort. There was, as could be expected, a loss of continuity.

Given the preceding, it may be seen that the evaluation perspective, whether from the police or the civilian side of the grant, was initially pessimistic and was subsequently characterized by shifting responsibilities as new individuals -- the management analyst for the police and the three evaluators for the Law & Justice Planning Office (LJPO) -- assumed varying degrees of responsibility over differing periods of time for the evaluation effort.

With the preceding caveats carefully in mind, there remains but one more additional factor to be mentioned before the evaluation report can begin in earnest. As noted in the Operations Section of this report, agreement had been reached that both the Inspectional Services Division and the Law and Justice Planning Office would contribute separate reports related to the effectiveness of various portions of the burglary reduction program. In the narrative which follows, both versions, where two exist, will be presented. Where disagreements in terms of either conclusions or methodology exist, a third section will be included in an attempt to reconcile existing differences.

Overall Effectiveness of all Strategies (IPS)

Consistent with existing evaluation procedures in the Law and Justice Planning Office, evaluation is based on stated objectives and flows from those objectives. Initially, the burglary reduction program was intended to produce a 10 percent reduction in predicted

burglary rates for three police patrol test sectors in the City of Seattle. An increase of 7 percent was predicted for the City as a whole (1972 vs 1973) and this would have led to a net decrease in residential burglary rates in the test sectors of 3.7 percent. The actual City-wide burglary rate increase was 16.4 percent, indicating that the original prediction was too conservative. This overall objective was modified by the Law and Justice Planning Office to conform to more traditional pre-post test analyses and to the use of an experimental/control group model. However, the Inspections and Planning Section (IPS) of the Seattle Police Department attempted to directly assess the objective as originally stated. The evaluation by IPS included residential, non-residential, and combined burglary analyses.

The primary statistical tool used in the IPS analyses was a non-parametric matched-pair signed-ranks Wilcoxon Test.* Since this non-parametric test does not require that assumptions be made regarding the extent to which selected samples come from a population distributed according to the normal distribution, it was concluded that "the less assumptions a statistical procedure requires, the safer the statistical conclusion. Unfortunately, however, there will be less in the conclusion."**

The IPS report further justified the use of the matched-pair signed-ranks test by noting, "In comparing monthly data for two

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* Siegel, S. Nonparametric Statistics for the Behavioral Sciences New York: McGraw-Hill, 1956, pp. 75-83.

** All quotations refer to material contained in Final Evaluation #1161 Burglary Reduction Grant prepared by the Seattle Police Department, Inspectional Services Division, Inspections and Planning Section.

periods in this study, it seems appropriate to match the two periods month by month; i.e., September 1972 paired with September 1973, October 1972 with October 1973, etc., because they are comparable months."

Using the procedure described above, the number of reported residential burglaries in the three testing sectors: Boy, Charlie and George were analyzed for the period September 1972 through August 1973 vs September 1973 through August 1974. In the pre-test period 3,546 residential burglaries were reported as contrasted with 3,794 for the post-test period. This 6.9 percent increase was not significant at the .05 level of confidence. These results are summarized in Table 1 below.* Recalling the original statement of the program objective, a net decrease of 3.7 percent in residential burglary rates, the increase observed would tend to suggest that the burglary reduction effort had failed to attain its objective. However, this net decrease was predicated on the assumption of a projected 1972 vs 1973 increase in residential burglary rates of 7 percent whereas the observed increase was 16.4 percent.

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* Official SPD crime statistics are kept on a census tract basis. Since Police Patrol Sectors and Car Beats do not correspond exactly with census tract boundaries, a proportional assignment of burglaries corresponding to geographic area within experimental (or control) areas was used to perform this and later analyses. Because of this procedure, fractional burglary values occur.

TABLE I

Pre-Post test reported Residential Burglaries in Boy, Charlie, and George (combined) Police Patrol Sectors. *

	1972-73	1973-74	Difference	Rank	Negative Rank Sum (increase)	Positive Rank Sum (decrease)
Sept.	238.98	343.11	-104.13	-11	-11	
Oct.	307.58	287.65	19.93	2		2
Nov.	296.20	316.20	- 20.00	- 3	- 3	
Dec.	317.34	328.53	- 11.19	- 1	- 1	
Jan.	302.18	322.24	- 20.06	- 4	- 4	
Feb.	302.10	247.99	54.11	8		8
March	303.21	256.35	46.85	5		5
Apr.	309.78	248.30	61.47	10		10
May	305.95	356.62	- 50.67	- 7	- 7	
June	259.21	372.84	-113.63	-12	-12	
July	291.12	351.76	- 60.64	- 9	- 9	
Aug.	312.81	362.09	- 49.28	- 6	- 6	
Total	3546.40	3793.68			-53	25
Average	295.54	316.14				

* Fractional burglary values occur because of lack of exact correspondence between experimental-control areas and official reporting areas. See text, page 55, for further explanation.

Taken from evaluation report of Inspections and Planning Section, SPD

While the "failure" of the burglary reduction effort within the context of a strict pre-post test model may appear somewhat disheartening, it must be noted that the initial premise of the grant was that efforts in isolated experimental areas within a city cannot be fully or accurately interpreted without awareness of the burglary events in the remaining portions of the city. Based on this premise a second series of Wilcoxon tests was conducted by IPS in a pre-post test of reported residential burglary rates for the remaining seven non-testing sectors of the City of Seattle. These results, using the same pre-post test period, note a statistically significant ($p < .01$) 22.5% increase in reported residential burglary rates. These data are presented in Table 2 below. All twelve comparisons are negative indicating that residential burglary increased every month from the 1972 - 73 period to the 1973 - 74 period.

The percentage increase from the base period of September 1972 through August 1973 to the testing period of September 1973 through August 1974 is 6.9% for the three testing sectors while the percentage increase for the seven non-testing sectors is 22.% -- more than three times that of the testing sectors. The percentage increases are obtained in the following way. [('72-3 total) - ('73-4 total)] / ('72-3 total) = (3,546 - 3,794) / 3,546 = -6.9% for testing sectors. (5,366 - 6,577) / 5,366 = -22.5% for the non-testing sectors.

TABLE 2

Pre-post Residential Burglary Rates in the City of Seattle minus experimental Police Patrol Sectors

	1972-73	1973-74	Difference	Rank	Negative Rank Sum (increase)	Positive Rank Sum (decrease)
Sept.	397.00	453.83	- 56.83	- 4	- 4	
Oct.	413.39	535.26	-121.88	- 9	- 9	
Nov.	513.77	613.72	- 99.95	- 5	- 5	
Dec.	521.56	726.38	-204.82	-12	-12	
Jan.	471.77	583.63	-111.86	- 8	- 8	
Feb.	450.84	560.95	-110.10	- 7	- 7	
March	467.72	503.61	- 35.89	- 2	- 2	
Apr.	460.12	478.63	- 18.51	- 1	- 1	
May	376.00	555.29	-179.28	-11	-11	
June	388.73	493.09	-104.36	- 6	- 6	
July	427.81	551.16	-123.35	-10	-10	
Aug.	476.13	520.80	- 44.67	- 3	- 3	
Total	5364.84	6576.35			-78	0
Average	447.07	548.03				

Source: Taken from evaluation report of Inspections and Planning Section, SPD.

The third Wilcoxon test combined all three test sectors and treated these as one area and combined the remaining police patrol sectors in the City as a "control" area. A Wilcoxon test was then performed on the ratio between the experimental and control areas. The ratio indicates the relationship between test sectors divided by non-test sectors as a percentage figure. Comparing the period from September 1972 through August 1973 with the period from September 1973 through August 1973,a 12.1% decrease in the ratio of reported residential burglary rates as observed. This decrease was significant at the .05 level of confidence. Based on this relative decline in burglary incidents in the experimental police patrol sectors, IPS concluded that the grant objective - a 10% relative decline in reported residential burglary incidents had been attained and exceeded .

The next level of analysis in the IPS evaluation concentrated on sector differences. Using a pre-post test model for the period from September 1972 through July 1973 vs September 1973 through July 1974 and concentrating on residential burglaries only, statistically significant increases were observed in five of seven control sectors, but in none of the experimental sectors. Of the three experimental sectors, only Charlie sector was shown to have an actual decrease in the number of reported burglaries and the amount of decrease was not statistically significant. The report notes, however, "caution must be counseled in over-interpreting the result, however. This Sector has displayed a downward trend compared with the rest of the city since 1969. We believe the grant activity accelerated that trend."

TABLE 3

Wilcoxon Test of the Ratio of Reported Residential Burglaries Between Experimental and Control Police Patrol Sectors.

	1972-73	1973-74	Difference	Rank	Negative Rank Sum (increase)	Positive Rank Sum (decrease)
Sept.	60.20%	75.60%	-15.40%	- 7	- 7	
Oct.	74.40%	53.74%	20.67%	11		11
Nov.	57.65%	51.52%	6.13%	3		3
Dec.	60.84%	45.23%	15.62%	9		9
Jan.	64.05%	55.21%	8.84%	4		4
Feb.	67.01%	44.21%	22.80%	12		12
March	64.83%	50.90%	13.92%	6		6
Apr.	67.32%	51.88%	15.45%	8		8
May	81.37%	64.22%	17.15%	10		10
June	66.68%	75.61%	- 8.93%	- 5	- 5	
July	68.05%	63.82%	4.23%	2		2
Aug.	65.70%	69.53%	- 3.83%	- 1	- 1	
					-13	65
Average	66.508%	58.456%				

Source: Evaluation report of Inspections and Planning Section, SPD

A correlational analysis of monthly data conducted by the LJPO evaluation unit did in fact find a statistically significant downward trend in residential burglary rates in Charlie sector between January 1969 and August 1973 ($r=.360$, $p<.01$, $n=56$). However, it should be noted that a corresponding test for a downward trend in residential burglary for the control sectors during the same period of time also was significant ($r=.282$, $p<.05$, $n=56$). These two trends were not significantly different from one another by Fisher's Z transformation ($z=0.45$, $p=.65$). Furthermore, it should be noted that by picking different lengths of time, it is possible to show either stable, downward, or upward trends in burglary rate data.

Since police patrol sectors are themselves divided into "car beats", it was possible to proceed to yet another level of data analysis. In the eight car beats in Boy sector there were statistically significant increases ($p < .05$) in reported residential burglaries in four beats and a statistically significant decline ($p<.05$) in one car beat. In the seven car beats in Charlie sector no statistically significant pre-post test differences were observed. In the six car beats in George sector one car beat displayed a statistically significant ($p<.05$) increase in reported residential burglary rates while no significant differences were observed for the remaining five car beats. These results are depicted in Figure 3 below.

These findings are, of course, consistent with the results reported earlier in that pre-post test comparisons indicate that reported residential burglaries did not decline in the experimental sectors. Comparing the <u>ratio</u> of reported residential burglaries (car beat vs. city as a whole minus the car beat in a pre-post test format) provides a substantially different picture. In boy Sector there was on statistically significant (p. $<.10$) increase and one

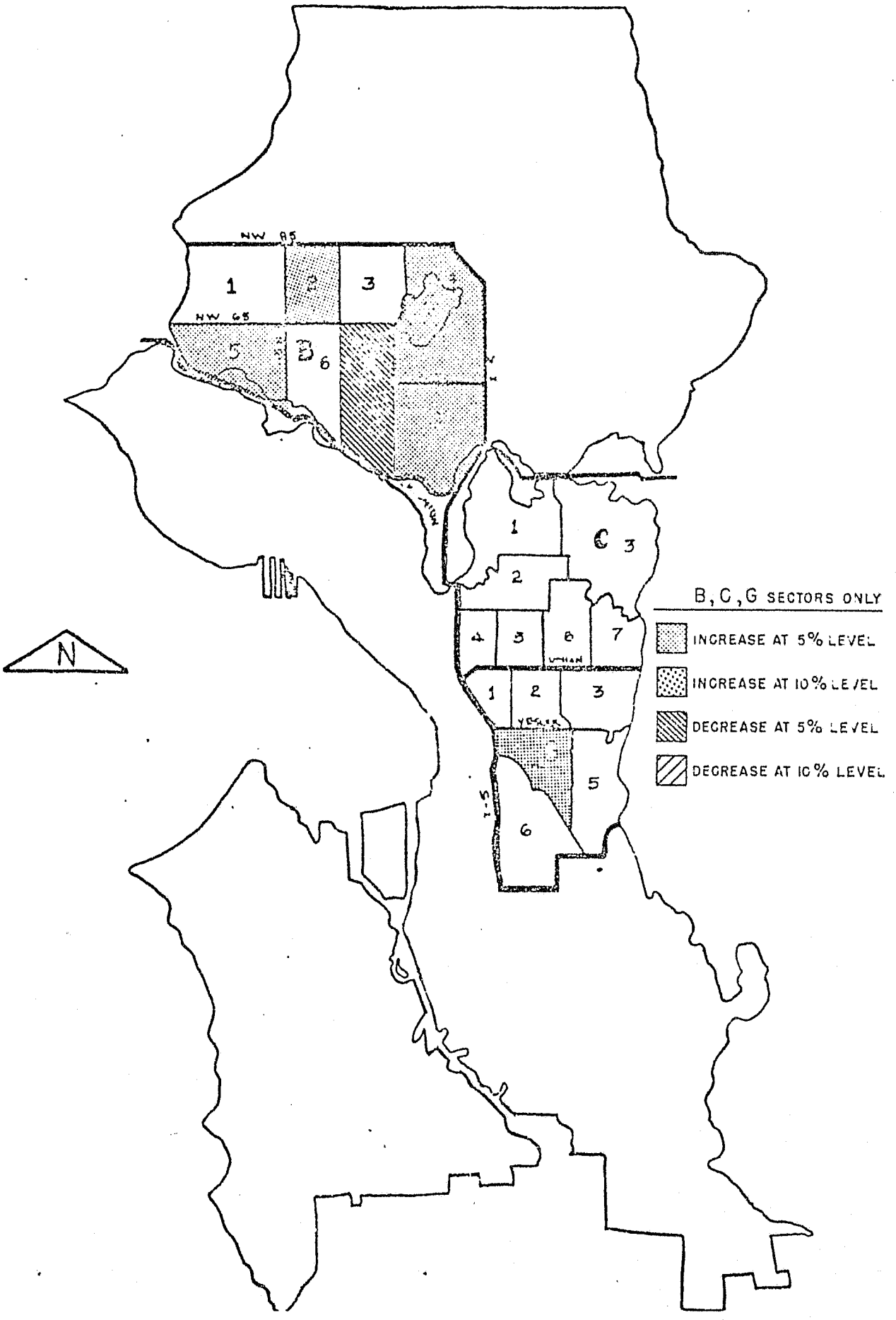

FIGURE 3

Wilcoxon Test of the Pre-post Reported Residential Burglary Rates Within Car-beats of Experimental Sectors.
Source: Evaluation report of INspections and Planning Section, SPD

statistically significant decrease (p. < .05) in the ratio of reported residential burglaries. There were no statistically significant differences in the remaining five car beats.

In the seven car beats in Charlie Sector there were four statistically significant reductions (2 @ p. < .10, 2 @ p. < .05) in the ratio of reported residential burglaries. There were no statistically significant differences in the remaining three car beats. In the six car beats comprising George sector, five beats demonstrated no significant differences, and one beat was found to have experienced a statistically significant decline (p. < 05).

In summary, statistically significant declines in reported residential burglary ratios were observed in six of twenty-one car beats, with one car beat demonstrating an increase. These results of these ratio analyses are reported in Figure 4.

Based on the results reported above, the IPS report concludes, "One of the objectives is to get a 10% reduction in the number of burglaries committed in the test sectors....the project has achieved the first objective." The report also notes, "in spite of the amount of effort spent in this study and the volume of data collected for it, there are still limitations to what can be concluded from it. The test period is only one year which is relatively short from a research and statistical point of view....With due regard to these limitations, the study does seem to yield some interesting results. The effort to reduce burglaries in the relative sense seems to have produced some positive effects, however, they vary between the sectors as well as the car beats."

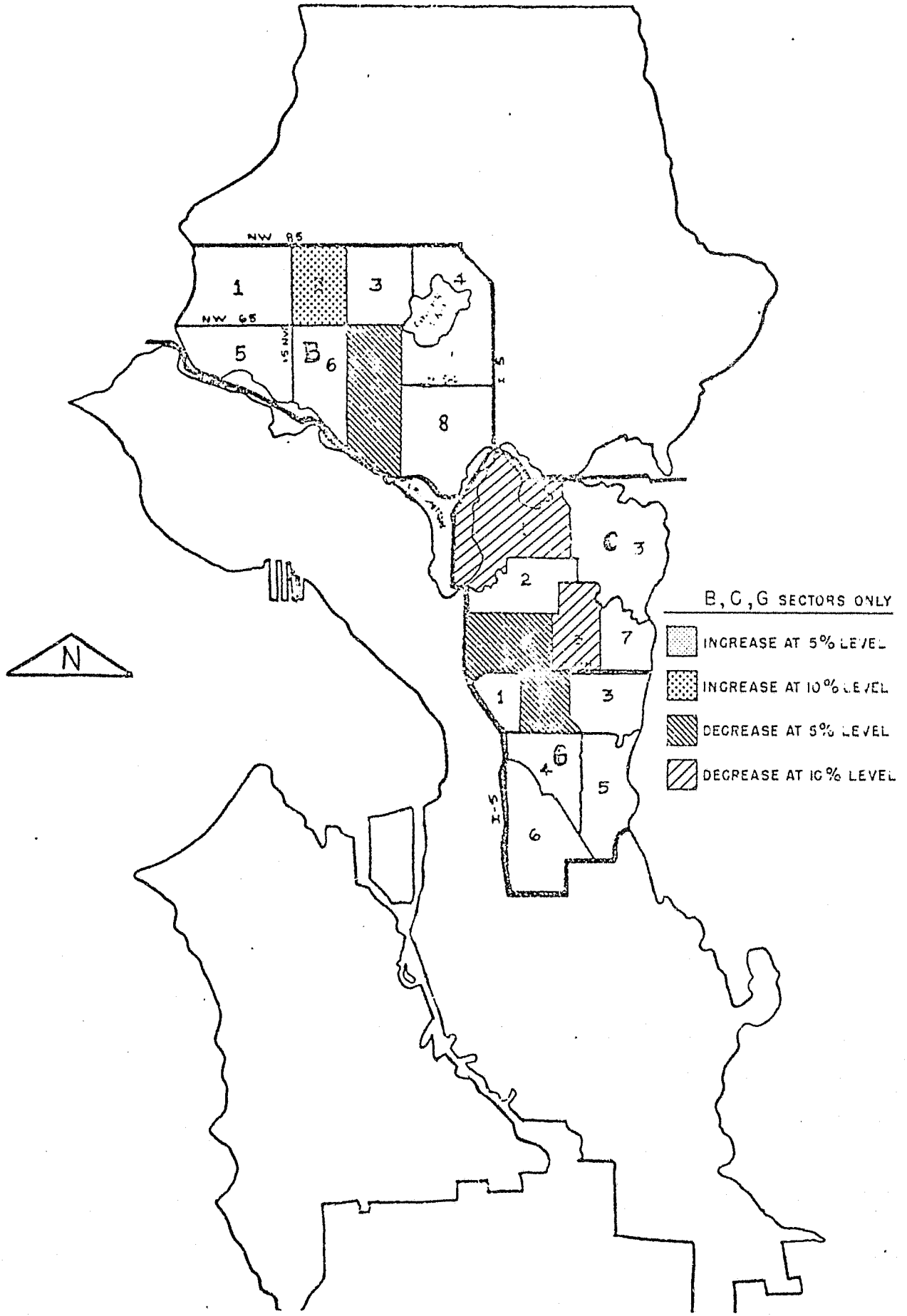

FIGURE 4

Wilcoxon Test of the Pre-post Reported Residential Burglary Ratios Within Car-beats of Experimental Sectors.
Source: Evaluation Report of Inspections and Planning Section, SPD

Overall Effectiveness of all Strategies (L.J.P.O.)

The Law and Justice Planning Office began its evaluation efforts by reformulating the original grant objectives. The first objective stated,"given the implementation of a residential burglary reduction program in the City of Seattle, a statistically significant reduction in residential burglary rates will be demonstrated based on a comparison of the burglary rates for the prior year with those of the project year." This modification removed the need to be dependent on projected burglary rates and returned the project to an evaluation base which was more consistent with traditional research design and formulation.

Reported residential burglary rates for all three police patrol sectors in the experimental group were combined. Using data for the period from October, 1972 through September, 1973 vs. October, 1973 through September, 1974 and a parametric t-test based on paired (October, 1972 vs. October, 1973) "gain score" comparisons, an average monthly increase of 4.24 burglaries was observed. The variability of the data is suggested in a standard deviation of 23.53. This average monthly difference was not found to be statistically significant ($p < .29$).

Employing the same methodology, separate t-tests were conducted for the individual police patrol sectors. George Sector was found to have a marginally significant increase ($p < .07$) in reported residential burglaries. A non-significant increase ($p < .11$) was observed for Boy Sector.

Only Charlie Sector was found to have a "loss" in averaged residential burglaries per month with a 9.23 average loss per month during the twelve month period. This loss, however, was not found to be statistically significant ($p. < .23$). Again, a great deal of variability was noted and was reflected in a standard deviation of 25.28. The data for individual experimental patrol sectors and for the sectors as a whole is presented in Table 4 below.

TABLE 4

Means, Standard Deviations, t-Scores, and Probability levels for Experimental Police Patrol Sectors Based on Gain Score Comparisons

	SECTOR			
	CHARLIE	GEORGE	BOY	TOTAL
Mean Difference	-9.23	13.43	8.52	4.24
Standard Deviation	25.29	22.97	16.90	23.53
t-Value	1.26	2.03	1.75	1.08
Probability *	.23	.07	.11	.29

Before turning to analysis of the second objective developed for the over-all program evaluation, it is appropriate to note that the model for this research design is described by Campbell and Stanley (1966) as a One-Group Pretest-Posttest Design with two replications.

* The likelihood that the observed difference would have occurred by chance alone. If the probability is .05 or smaller, the observed difference is statistically significant.

It is considered to be a "bad example" of research in that it does not control or take into account other factors that might produce significant increase or decrease. For example, if there is a substantial trend in burglary, this design cannot determine if significant change is due to the pre-existing trend or the treatment.

The second major objective for over-all project evaluation was framed as follows: "Given the implementation of a residential burglary reduction program in the City of Seattle, a statistically significant reduction in residential burglary rates will be demonstrated based on a direct month-by-month comparison between the residential burglary rates in the City of Seattle and the comparison cities or communities." This objective was later modified to provide a comparison between the experimental or test sectors as a whole and the City of Seattle minus the test sectors. Thus, in its final form, the objective read:

"Given the implementation of a community crime prevention effort within patrol sectors, a statistically significant decrease in the number of residential burglaries will be demonstrated when these sectors are compared with the City as a whole minus these sectors."

A one-way analysis of variance comparing the mean monthly change in burglary rate in the three separate experimental sectors (C, G and B), with the City as a whole minus C, G and B sectors (or S-) was performed. The research design was essentially a non-equivalent control group design with S- sector as the control group and C, G and B sectors as separate experimental groups. For each of the four areas (C, G, and B and S-), monthly percent change scores were based on the number of burglary incidents as reported by SPD for the comparable months of October 1, 1972 to September 1973, and October 1973 to September 1974.

For example,the first monthly percent change score for C sector was - 18.6. This was based on the number of burglaries committed during October 1973 minus the number committed during October 1972, this difference divided by the number committed October 1972.

Percentage change scores for comparable months were used for two reasons. First, these scores automatically adjust for population differences within the various test areas and should be maximally sensitive to relative change in reported burglaries. Second, by using comparable months (e.g. May 1973 and May 1974), variation in burglary rates due to seasonal fluctuation is also automatically controlled.

This analysis (see Table 5) resulted in statistically significant overall differences ($p < .05$) in average monthly percent change in burglary rates. Dunnett's test, which compares a control group (in this case S- or Seattle minus C,G, and B sectors) with experimental groups, indicates that only C sector was significantly different from S- in that while C showed an average monthly decrease of 5.9%, S- increased 23.3%.

Overall Effectiveness of all Strategies (Summary)

The evaluation reports prepared by IPS and LJPO, while differing in terms of the objectives measured, the methodology employed, and the statistics used, tend to reach the same conclusions. Before addressing these conclusions, it may be useful to attempt to reconcile the differing methodologies. As has already been suggested, the use of forecasted residential burglary rates as an anchor in an evaluation model is highly dependent on the accuracy of those projections.

TABLE 5

Mean, Standard Deviations, and Analysis of Sector Monthly Percent Change in Burglary Rate.

	SECTOR % CHANGE ON MONTHLY BASIS			
	C	G	B	S-
Mean*	-5.93	9.46	18.84	23.33
Standard Deviation	21.99	18.59	31.14	12.01

Source of Variance	df	SS	MS	f	P
Between	3	6,023.54	2,007.85	4.131	<.025
Within	44	21,383.25	485.98		
Total	47	27,406.79			

* Smallest significant difference ($p < .05$, one-tailed test) between S- and test sectors by Dunnett's test is 19.169

Source: LJPO Evaluation Report

An anticipated or projected residential burglary increase of 7% was found to have been grossly inaccurate given the experienced increase of 16.4%. On that basis, little support can be found for the use of this innovative approach.

By the same token, the argument that pre-post test analyses of experimental sector results considered in isolation (without proper regard for the events in the remainder of the city or in an acceptably chosen control area) are apt to represent an inappropriate standard also seems to be supported. The abandonment of "W" and "R" police patrol sectors as control sectors and the use of the City of Seattle minus the experimental sectors in their place is supported in the approaches taken by both the IPS and LJPO evaluators.

It should be noted that the IPS evaluators preferred a non-parametric test since that test required fewer assumptions regarding the extent to which selected samples come from a population distributed according to the normal distribution. Careful examination of Tables 1, 2, or 3 will reveal a particular weakness of this type of statistical test; namely that the test is sensitive to the direction of change but relatively insensitive to the magnitude of change. The parametric tests used by the LJPO evaluators were more sensitive to the magnitude of change and this greater sensitivity accounts, in part, for some of the differences in results.

Parenthetically, it might be noted that the same data analyzed in the one-way ANOVA when tested by means of the non-parametric Kruskal-Wallis one-way analysis of variance, also indicates significant difference at the $p < .05$ level.

A second major difference between the IPS and LJPO evaluations relates to the time periods considered. The IPS evaluators used the period from September 1973 through August 1974 for their analyses.

The LJPO staff used the period from October, 1973 through September 1974. Since the Burglary Reduction Grant assumed a starting date of September, 1973 the IPS approach would appear to have been more appropriate. Before one accepts this conclusion, however, it seems useful to review what actually happened during the month of September 1973. For its part, the civilian component, occupied with rather typical organizational problems, was able to survey only twelve residences during the entire month. On September 15, 1973 eight detectives were assigned to the East Central Sector (Charlie and George police patrol sectors) but these eight were to assume responsibility for both burglary and theft offenses. On November 21, 1973 a total of ten police personnel were assigned to the East Central Sector--eight to concentrate on burglary offenses and two to concentrate on thefts. Thus, at best the project was not implemented until the middle of the month. At that point only the detective or expanded investigation component was active and even this group had somewhat divided functions. For all practical purposes, the civilian community organizers were not yet sufficiently involved to be considered an effective force during the month of September. Finally, the police component was not active in Boy Sector at all.

Given these considerations, a strong case can be made for the LJPO approach. One of the more immediate consequences of excluding the September, 1973 vs. September, 1974 residential burglary data is a substantial improvement in the twelve month pre-post test comparison results.

From Table 1 it can be seen that a net increase of 247 residential burglaries was observed during the total post-test period. Of this, 104 burglaries (42.1%) occurred during the first month of project operation. In other words, almost half of the increase in residential burglaries in the experimental sectors occurred prior to any meaningful burglary reduction efforts by either the police or civilian components.

Finally, it should be noted that the IPS use of Wilcoxon tests in a pre-post test design and the LJPO use of gain score comparisions to test their first hypothesis are subject to the criticisms that these designs are generally and correctly regarded as extremely weak in that they tend to ignore a variety of factors which may contribute in either a positive or negative way to the findings. The lack of a control group for comparison purposes in these analyses contributes substantially to a legitimate scepticism regarding the conclusions reached. The inclusion of ratio data by IPS and the non-equivalent (City minus experimental sectors) control group by LJPO each constitute efforts to improve the experimental design model. Campbell and Stanley (1963, p. 40) regard the non-equivalent control group model as substantially superior to the one-group pretest-post design particularly with regard to questions of internal validity. Internal validity questions, freely translated, are those which speak to the question: "Did the project operation produce the results which were hypothesized?" The non-equivalent control group design is vulnerable to one particular type of internal validity factor; regression toward the mean.

This factor refers to the fact that when a series of measures, in this case, burglaries, tend to be extremely high (or low) when compared to other similar areas, there is a tendency to find that subsequent measures will be less extreme when compared to the average of the other areas.

Since the most impressive results of the Burglary Reduction Project were observed in Charlie Sector, it is appropriate to raise a question regarding the impact of regression phenomena on that Sector. As noted in the IPS section of this evaluation component, Charlie Sector had displayed a slight but statistically significant trend in reported residential burglaries since 1969 (as had the rest of the City during the same period). / Were the regression phenomena operative, this would lead to a prediction that residential burglary rates in Charlie Sector would increase during the course of the project or return toward the average. Since this expectation was not met, it seems reasonably safe to assume that this source of invalidation in terms of internal validity did not play an important role in the findings described above.

Concentrating only on those results where a non-equivalent control group was available either by way of ratio tests in the IPS report or "S-" in the LJPO evaluation, it seems clear that the project did have a favorable over-all impact when compared to the remainder of the City of Seattle. The impact was most evident in Charlie Sector where an actual decline in residential burglary rates was observed. The extent of the over-all decline is measured both by a 12.1% decrease in the ratio of residential burglary rates in the experimental sectors compared with the remainder of the City of Seattle, and by the analysis of variance test conducted by the Law & Justice Planning Office.

The special impact on Charlie Sector is reflected in Dunnett's test by LJPO; and illustrated in Figure 4 which is based on IPS's Wilcoxon tests at the car-beat level and which uses ratio computations, and by the raw data which demonstrates an absolute reduction in residential burglary rates.

Program Element I. Target Hardening Actions by Citizens (LJPO)

Five objectives were originally stated for this program element. These objectives were:

I-1. 70% of the area covered by Boy, Charlie, and George police patrol Sectors will have organized crime prevention programs.

I-2. All homes within those organized areas will be provided information on crime prevention and their local officers.

I-3. All homes within those organized areas will be offered free home inspections. A 20% response is expected.

I-4. All homes within the organized areas will be offered property identification. It is anticipated that 60% of the residents will apply.

I-5. 25% of the remainder of the City will have community crime prevention programs. The same expectations for the programs will be projected for these areas with the exception of home inspection.

In the Operations Section of this report, these objectives, as they relate to Charlie and George Police Patrol Sectors, were translated into numerical terms. In the two sectors alone, five community organizers

would have been involved in facilitating or personally conducting 6,539 home inspections; 19,617 property markings; and presiding over the establishment of 8,174 block watches. These figures do not include data for Boy Sector nor the 18,396 property markings and 7,665 block watches to be established in the remaining portions of the City. To state the obvious, these expectations were unrealistic.

As project personnel began to implement target goals and objectives, two events occurred. First, attempts were made to become more operational so that some estimate of events and progress could be made. For example, it was not clear what an "organized crime prevention program" meant operationally. The Director of the Civilian Componenent of the Burglary Reduction effort suggested the following operational definition of an "organized crime prevention program": any organized presentation about burglary and burglary counter-measures and any citizen action taken there at the community level, including meetings among neighbors, with agency representatives or other resource persons whether or not those meetings or related activities are incident to a "block watch." Included in the definition of an "organized presentation" was a massive mailing to residents in the experimental sectors. More than 28,700 mailers (79% of the 36,136 households) went to residents of Charlie and George sectors.

These mailers were sent directly to residents and provided information regarding the burglary reduction effort while encouraging recipients to contact the civilian burglary reduction staff in order to receive free home inspections, property identification services, and become involved in community block watches. In Boy Sector 35,000 mailers were delivered to City Light and these mailers were included with residents electrical bills. Thus, given the definition of "organized crime prevention program," it may be said that objectives I-1, I-2, I-3, and I-4 were met. In addition to mailings there were a variety of small and large group meetings. For example, a total of 2,285 people predominately from Charlie Sector, met the police officers servicing their communities. With regard to objective I-5, little progress was made. Residents in various non-experimental sectors of the city were given materials and information on request and on some occasions, this assistance did lead to the establishment of block watches.

In addition to those attempts to make the objectives more operational, the civilian component was involved in constantly redefining and narrowing the scope of their operations. Whereas the objectives spoke to covering "an area" or "all homes", early experience indicated that single family residences were the most frequent targets of burglars. For that reason, Community Organizers began concentrating on the residents of single family residences or duplexes. Progressively, the project scope narrowed to exclude Boy Sector whose residents had received the mailings reported above and received such limited services as they requested.

By October 31, 1974, one month beyond a full calender year of operation, the number of residences involved had reached respectable levels (see Table 6.) Comparisons between Table 6 which is based on activity through October 31, 1974 and Table 7 which concludes effective September 17, 1974 provides some indication of the momentum gained by the project.

TABLE 6

Frequency of Civilian Activity in Experimental and Other Police Patrol Sectors

Activity	Police Patrol Sector				Total
	Boy	Charlie	George	Other	
Home Inspections	93	1,438	109	16	1,656
Property Markings	251	1,524	113	22	1,910
Block Watches Groups	29	158	8	0*	195
# Families in Block Watches	332	1,455	85	0	1,872

* More than 200 households outside Boy, Charlie, and George Sectors formed and joined Block Watches but were not thoroughly documented in the Community Crime Prevention files and are not included in this data.

The project narrowed further to exclude George Sector during the latter months of the Grant period, permitting Community Organizers to concentrate their efforts in remaining Charlie Sector. The scope narrowed still further to include those census tracts within Charlie Sector where the largest number of single family residents were to be found. In summary, through progessive steps the project began to concentrate more intensive efforts into increasingly small areas.

Maximum effort was expended in six census tracts within Charlie Sector. Within these six census tracts there were 741 home inspections, 776 property markings, and the establishment of 101 block watches comprised of 910 families. Data for the experimental police patrol sectors as a whole for the period ending September 17, 1974 is presented in Table 7 below.

Table 7

Number of Civilian Actions in Experimental Police Patrol Sectors

Activity	Police Patrol Sector			Total
	Boy	Charlie	George	
Home Inspections	91	1,123	108	1,322
Property Markings	249	1,213	110	1,572
Block Watches*		132	13	145

* The average block watch contains more than nine families

Comparison of the data in Table 7 with the data contained in the operations section regarding the number of residences (a figure which includes multiple dwelling units) indicates that the expected response in each of the civilian activities was seriously over-estimated. Less than 1% of the residents in Boy Sector elected to engage in a home inspection when given the invitation to do so. The same figure applies to George Sector. The percent figure for property markings is scarcely better. Analysis of this data suggests that mailings alone are insufficient to produce a community response. Only in Charlie Sector and, with particular emphasis in the six census tracts where

intensive efforts were undertaken, did citizens take those actions which are thought to be important in protecting themselves from burglary.

Beyond a summary of meetings held, persons contacted and defensive actions taken, is a more central question: What impact did the community crime prevention effort have in reducing residential burglary? Given the design of the program, with both civilian Community Organizers, expanded investigation efforts on the part of police personnel, and the introduction of a single finger-print file, the multiple treatment problem mentioned earlier becomes a central issue. Since Charlie Sector was the scene of greatest effort on the part of the civilian component and was also the only sector to show a statistically significant decline as measured under objective 2, it might seem "obvious" that these results could be attributed to the efforts of the civilian component. However, without some knowledge of the relative contribution of the police, any such statement would be both misleading and premature.

In order to test whether the decrease in burglary rate is attributable to Community Organizers, a correlation between services provided in Charlie and George sector census tracts and percent change in burglary rate was performed. (See Appendix D for raw data). If significant negative correlations were found, this would indicate that as the number of services provided increased, there was a corresponding decrease in reported burglary within those census tracts.

To perform these correlations, services provided between October 1973 and September 10, 1974 were correlated with the percent change in reported residential burglary from the base period of October 1,1972 - September 30, 1973 to the test period of October 1, 1973 - September 30, 1974.

It should be noted that this particular analysis is biased against showing a significant relation. The reason for this statement is that some census tracts did not begin to receive services until late in the test period. Therefore, portions of time within the test period include actual pre-treatment data. However, if span of pre and treatment time were made comparable on the basis of when each census tract began to receive services, it would introduce two other factors that would similarly bias the analysis. These factors are reliability and possible seasonal fluctuation. The latter factor has been discussed above. The problem of reliability refers to the large amount of variability that exists from month to month in burglary data reported on the basis of census tracts. From one month to the next, reported burglaries within a census tract may vary as much as 600%. However, when burglaries are averaged over long periods of time, the fluctuation becomes less extreme.

The results of the correlational analyses (see Table7) indicate that there is a consistent but non-significant relation between the introduction of varying amount of services into Charlie and George sector census tracts and subsequent reductions of the burglary rate.

To determine if the various services when considered simultaneously were related to burglary rates, a multiple correlation (R^2) was performed. This also resulted in a non-significant relation.

TABLE 8

Correlations and R^2 for Community Crime Prevention Activities with Percent Changes in Burglary Rate for the 24 Census Tracts Totally or Partially Included Within Charlie and George Police Patrol Sectors.

Block Watch (1)	Property Marking (2)	Home Inspection (3)	Percent Change (Y)
1.	.9807	.9747	- .2232
2.		.9804	- .2244
3.			- .2826

$R^2_{y \cdot 123}$ = .1348 $F_{3,20}$ = 1.037 , not significant

$R_{y \cdot 123}$ = .3672

However, there are problems in drawing firm conclusions from these results. In addition to the bias already mentioned concerning this analysis, there is an additional problem in that the data are reported burglaries rather than actual burglaries. One of the assumptions within the community organization efforts was that increased citizen involvement will lead to increased reporting of crime and suspicious activities. Schram (1973)[1] found that of those surveyed who had been burglary victims, 54% did not report that fact to the police. If Civilian Component efforts were successful in causing an increased amount of victim reporting, a possible decrease in actual burglaries might not be reflected in official burglary statistics because of the increased reporting rate.

1. Schram, D.C. Study of Public Opinion and Criminal Victimization in Seattle. City of Seattle Law & Justice Planning Office, 1973

To test whether this actually occurred, fewer actual burglaries while increased reporting of those occurring, the following data analyses were performed.

Burglary Victimization Comparisons:

As individuals or families were contacted to receive services, they were asked to complete a short survey. This survey included a question about whether or not they had been burglarized in the last six months (pre-victimization). When six months had elapsed since receiving services, they were recontacted and asked if they had been burglarized since they received services (post-victimization).

These data (See Table 9) provide the most precise available measure on the effectiveness of the Community Crime Prevention Project to reduce or prevent burglaries in that the burglary rate data is for only those residences receiving services. The prior analyses up to this point are based on experimental or post data which include as a major portion of the measures, those residences located within the same geographic area but not receiving civilian component services.

A shortcoming of these data is that they exist only for those residences receiving home inspection, property marking and/or block watch involvement. Ideally, similar victimization data would have been collected from randomly-chosen residences to be compared with possible changes in burglary that would have occurred without Community Organizer intervention. Data necessary for this kind of comparison will be collected during the second year of project operation.

TABLE 9

Pre and Post Victimization Data for Residences Receiving Community Crime Prevention Services

Month Surveyed	Pre		Post	
	Number Surveyed	Number Burglarized	Number Surveyed	Number Burglarized
September 1973	12	0		
October	149	17		
November	426	31		
December	95	9		
January 1974	289	15		
February	422	14		
March	353	13		
April	223	13	58	3
May	272	19	197	8
June	202	5	265	8
July	224	11	165	5
TOTAL	2667	147	685	24

Source: LJPO Evaluation Report

With these precautionary comments in mind, the following comparisons were made. First, a comparison of pre-Community Organizer victimization data with similar 1972 victimization data obtained in Seattle by Schram (1973). Second, a comparison of pre and post Community Organizer victimization data gathered during the same time period was performed.

The reason for the first comparison (pre-CO with 1973 victimization data) was to determine if people requesting Community Organizer services differ significantly from the general population in terms of prior burglaries. It might be that those requesting such service are cautious to begin with and that even without Community Organizer assistance they would have taken actions to lower their chance of being burglarized. An even more plausible argument would be that those who have been burglarized recently are most likely to request such services. This second sort of self-selection would result in pre-victimization data that indicate a higher burglary rate than is true for the general population. If one then assumes that burglars pick targets on a more or less random basis, the probability of any of these prior-burglarized individuals being "hit" a second time during the post period should be equivalent to that of the general population. This would result in post-CO data reflecting a reduced burglary rate that might be due to either self-selection or an actual effect of civilian component efforts, or some combination of both.

Therefore, pre-CO burglary victimization data was compared with burglary victimization data collected by Schram (1973) to insure that recipients of Civilian Component services did not differ significantly by chi-square test from the general population in terms of prior victimization. This approach might be criticized on the basis that

since Schram's data was collected there has been an increase of approximately 17% in reported City-wide residential burglaries. To take this into account, the burglary rate reported by Schram was increased by 17% (this assumes a constant relation between occurrence and reporting of burglary). The burglary rate for the pre-CO period was 5.51 burglaries per 100 households per 6 months. During 1972, the rate was 5.62. If Schram's data is adjusted to reflect the 17% increase in reported residential burglaries, the rate is 6.58 per 100/6 months. Neither of these latter two rates is significantly different from the pre-CO rate (see Table 10).

Although these comparisons with pre-Community organization data obviously are not as satisfactory as one might wish, they do offer some assurance that changes from pre to post periods are not due to self-selection.

If a chi-square analysis is performed on total pre-post victimizations, there is a statistically significant decrease in burglaries ($x^2 = 4.504$, $p < .05$, two tailed test). However, this does not take into account possible seasonable fluctuation or the existence of an overall downward trend in residential burglaries for the test area. To control for these factors and determine if Community Organizer efforts were responsible for decreasing victimization, a chi-square test was performed on pre and post data collected during the same time period, April 1 through July 31, 1974. This comparison (see Table 10) resulted in a statistically significant decrease ($p=.05$, one-tailed test) in that there was a 32.9% reduction in burglary rate (5.21 to 3.50 burglaries per 100 residences per 6 months).

Since this data was obtained for the same time period from the same area, Charlie and George sectors, seasonal fluctuation, time trends, and other agency activities seem unlikely explanations for the observed change.

TABLE 10

Chi-square analysis of burglary victimization data

Comparison of burglary victimization rate for pre-CO survey and 1972 Seattle data (adjusted 6 month rate)

SURVEY	Number of Residences Interviewed		Burglary rate/100
	Burglarized	Not Burglarized	
Pre Co	147	2520	5.51
1973 Study [1]	29	487	5.62
	x2 = 0.0108	Not signficant	

Comparison of pre-CO & 1972 summary data, 1972 data increased by percent increase in reported residential burglary

Survey	Number Burglarized	Number Not Burglarized	Burglary rate
Pre CO	147	2520	5.51
1973 Study[2]	34	482	6.58
	x2 = 0.9762	Not significant	

Comparison of pre and post-CO data obtained during the same time period April - July, 1974.

Survey	Number Burglarized	Number Not Burglarized	Burglary rate
Pre CO	48	873	5.21
Post Co	24	661	3.50
	x2 = 2.6687		
	= $_{1df}$= 1.633	one-tail p = .0516	

1. Schram (1973) data for burglary victimization occurring between Jan.1. 1972 and Dec. 31, 1972. To obtain 6 month rate, total number of burglaries was divided by 2, and "not burglarized" category increased by 29 to maintain same total N (516) as reported in original survey.

2. Schram (1973) victimization data increased by 17% to reflect increase in reported burglaries since calendar year 1972 through Sept. 1974.

Of the 147 households burglarized in the pre period, 120 were reported to the police, 21 were not reported, and in 6 cases it was not known if reporting occurred. Of the 24 households burglarized in the post period, 20 were reported, 3 were not reported, and in one case it was not known. Excluding the unknown cases, this represents a reporting rate of 85.1% for the pre period and 86.95% for the post period. A chi-square test of this difference was non-significant. However, in light of prior victimization studies and particularly Schram's (1973) study in which it was found that only 46% of burglaries were reported, the reporting rates obtained during the pre and post periods are suspect. It may be that these reporting rates are grossly inflated by respondents giving what they perceive to be a socially desirable answer. That is, when contacted by an organization which has as one of its aims to increase reporting, they claim to have reported burglaries when in fact they did not. An attempt to verify whether this actually occurred is presently underway.

Based on the analyses performed above the LPJO evaluation states that it is appropriate to conclude that target hardening activities by citizens were instrumental in significantly reducing burglary within those households receiving and acting upon Community Organizer services. The victimization data indicates that the burglary rate was decreased by approximately a third (32.8%) if a household was involved in a block watch program or received home inspection or property marking services or some combination of these. It is not possible at this time to determine the relative importance of these activities since residences typically received all three services.

During the second year of operation, a victimization survey will be conducted prior to and subsequent to introduction of Community services in an experimental and control area. This will provide information regarding possible displacement effects and will also include a means of verifying victim reporting rates. An additional attempt to assess possible reporting rate changes will involve an examination of the proportion of burglary-in-progress calls to total burglary calls received by the SPD dispatch center.

The analysis of burglary change within police sectors which found a significant decrease for Charlie sector should not be over-interpreted. Although it was the area of maximum Community Organizer effort, there are two factors that should be noted.

1. The number of Charlie sector residences involved in the target hardening aspects of the project, less than 2000, make up a small proportion of the total households within that sector, 27,831 according to the 1970 census. To interpret the overall sector change, a 5.9% average monthly decrease, as due to the approximately 7% of households receiving services, could be unwarranted.

2. There is not sufficient data available to accurately assess the effect that police or related law encorment activities may have had on burglaries within Charlie sector independently of Community Organizer efforts.

However, these qualifications of the sector analysis do not apply to the victimization data. Data for pre and post-burglary rates were compared for the same time period, thus ruling out regression or seasonal variation effects. Since the data for pre and post-comparison were obtained from the same sectors (C and G), it is unlikely that police or other activities were related to observed difference.

For this to be a valid conclusion, it would be necessary to show that with the introduction of target hardening services to each household, this was associated with simultaneous increase of law enforcement or other agency activity for that household.

The failure to find a significant correlation between amount of target hardening activities provided and decrease of burglaries within census tracts is probably due to the problems mentioned in the results section. These were possible change in reporting rates, and the inclusion of pre-Community Organizers data within the post-Community Organizer period.

In summary, the Target Hardening Component appears to have produced a significant decrease in burglaries for those residences receiving service. At this time, there is not sufficient information concerning possible displacement, which of target hardening services are responsible for the observed change, and what effect Community Organization efforts may have had upon reporting rates. During the second year of operation, efforts will be made to obtain data relevant to these questions.

Before concluding the LJPO section on the evaluation of Target Hardening Actions by citizens, it should be noted that a second objective had been suggested concerning changes in the frequency of burglary-in-progress calls. The purpose of this objective was to determine if reporting rates were influenced by Community organizer activities. If increased reporting of burglaries and suspicious activities actually occurred, it would be appropriate to expect a significant increase in the proportion of burglary-in-progress calls to total burglary calls.

This measure would have the advantage of being relatively unaffected by either a change in actual number of burglaries or reported burglaries.

To measure this hypothesized change, data from the Seattle Police Department dispatching computer was to be used. However, due to mechanical problems associated with the initial computer start-up, there was not sufficient data to perform a statistical evaluation of this objective. Data for the second year of target hardening element will be available and this particular aspect of victim reporting will be evaluated in the second year final evaluation report.

III. A. Program Element I. Target Hardening Actions by Citizens (IPS)

The Inspections and Planning Section evaluation report, as it relates to target hardening actions by citizens, suggests that three variables may be considered to be indirect measures of the effectiveness of community organization efforts. First, force of entry might be one way of evaluating the efforts of the citizen component. Assuming a reduction in the ratio of "no force" residential burglaries to be a barometer of success, we find this result in two of the three experimental sectors and only one of the seven non-test, with one of the non-test sectors showing an increase. Unfortunately, the efforts of the citizen component were focused in one test sector only for much of the grant period, bringing into question the cause/effect of the result obtained.

This conclusion was reached by performing Wilcoxon tests of reported residential burglary ratios where no force of entry was indicated. The tests were performed at two levels. In Figure Five the results of these analyses for all City sectors is presented. It should be noted that "R" sector, where a somewhat less significant reduction ($p. < .10$) in no-force entries was observed has been the site of an independent target hardening program dealing exclusively with Seattle Housing Authority Duplex Residences -- some of which are located in that sector. However these Seattle Housing Authority actions did not begin until the last third of the project year.

In addition to performing analyses of "No Force of Entry" at the police patrol sector level, similar analyses were performed at the car-beat level as well, again using burglary ratios. There were significant decreases in the ratio measure of burglaries with no

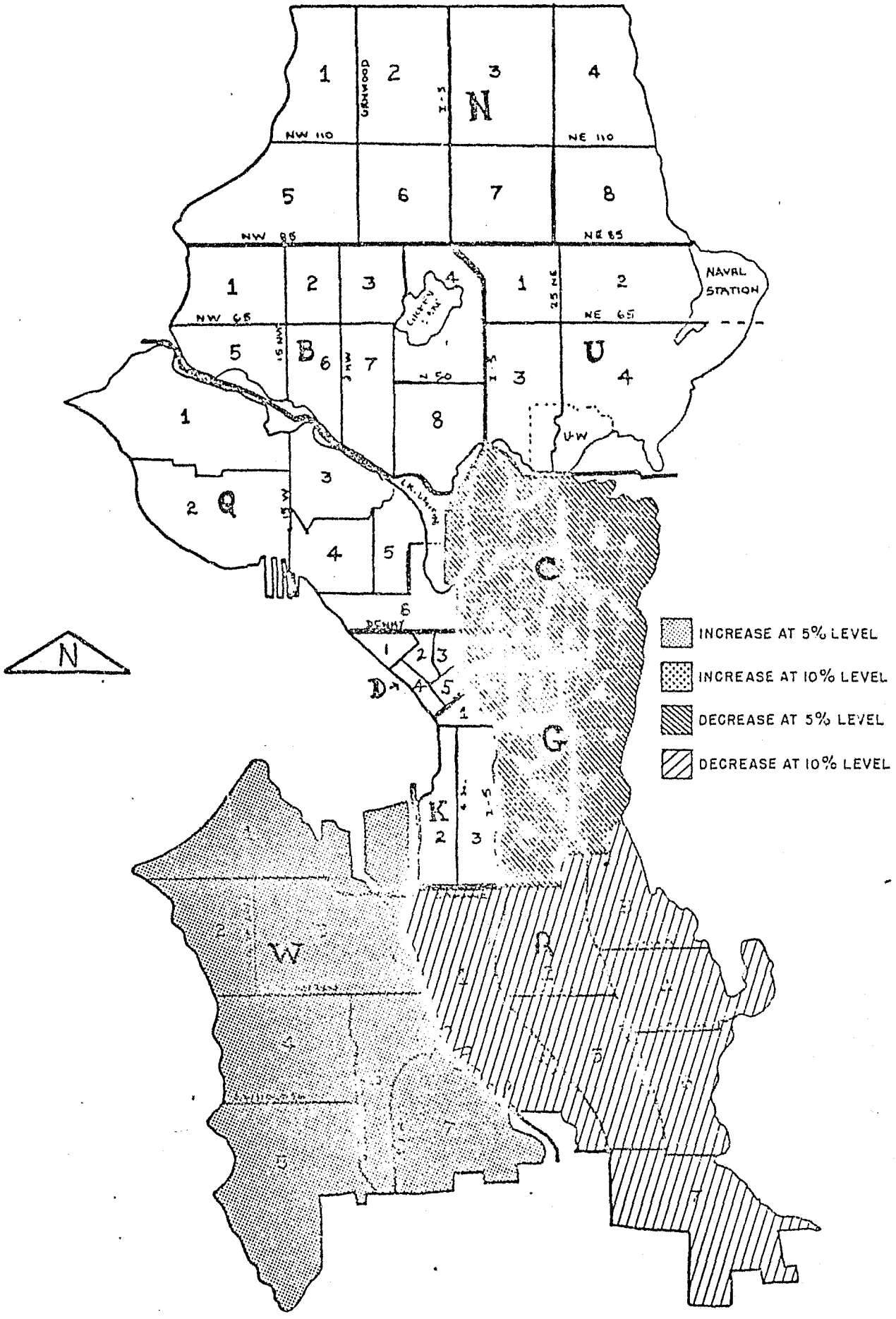

Figure 5. Wilcoxon Tests of Reported Residential Burglary Ratio With No Force of Entry.

Source: Evaluation report of Inspections & Planning, SPD

CONTINUED

1 OF 2

force for entry in 7 of a total of 21 car beats in the three test sectors. Four of the 12 are C1, C2, C5 and C6 and these 4 significant decreases are all in residential burglaries. Car beat C1 contains the major portion of census tract 090 and C2 contains 092 and a small part of 111. Car beat C5 involves census tracts 110, 111, and 112, and C6 covers part of 100 and 112. All these census tracts had some civilian work. However, tracts 091 and 101 do not show any significant decrease (in the ratio measure of residential burglaries with no force for entry). Moreover, B7, G4 and G6 also show significant decrease in the ratio measure of residential burglaries with no force of entry while they were not exposed to any civilian work. Again, it is difficult to draw any definite conclusion here with respect to the car beats and the census tracts in Charlie Sector. These results are presented in Figure 6.

If forced entry constitutes one indirect measure of the effectiveness of citizen actions, so too should the average recovered value of property. Given more than 1,500 property markings, 77.2 percent of which occurred in Charlie sector, it would seem reasonable to assume that, to the extent that property is recovered at all, the average amount of that recovered property would increase in the experimental sectors and particularly in Charlie sector.* Once again, the first level of analysis was City-wide by sector. A significant increase in the average recovered value of stolen property was observed in two control sectors at the .05 level and in a third control sector at the .10 level. Only one test sector was shown to have an improved average of recovered value and that was George rather

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* However, since so few residences receiving C-O services were burglarized (30 by the end of September 1974 on the basis of the follow-up survey), this comparison is of little use.

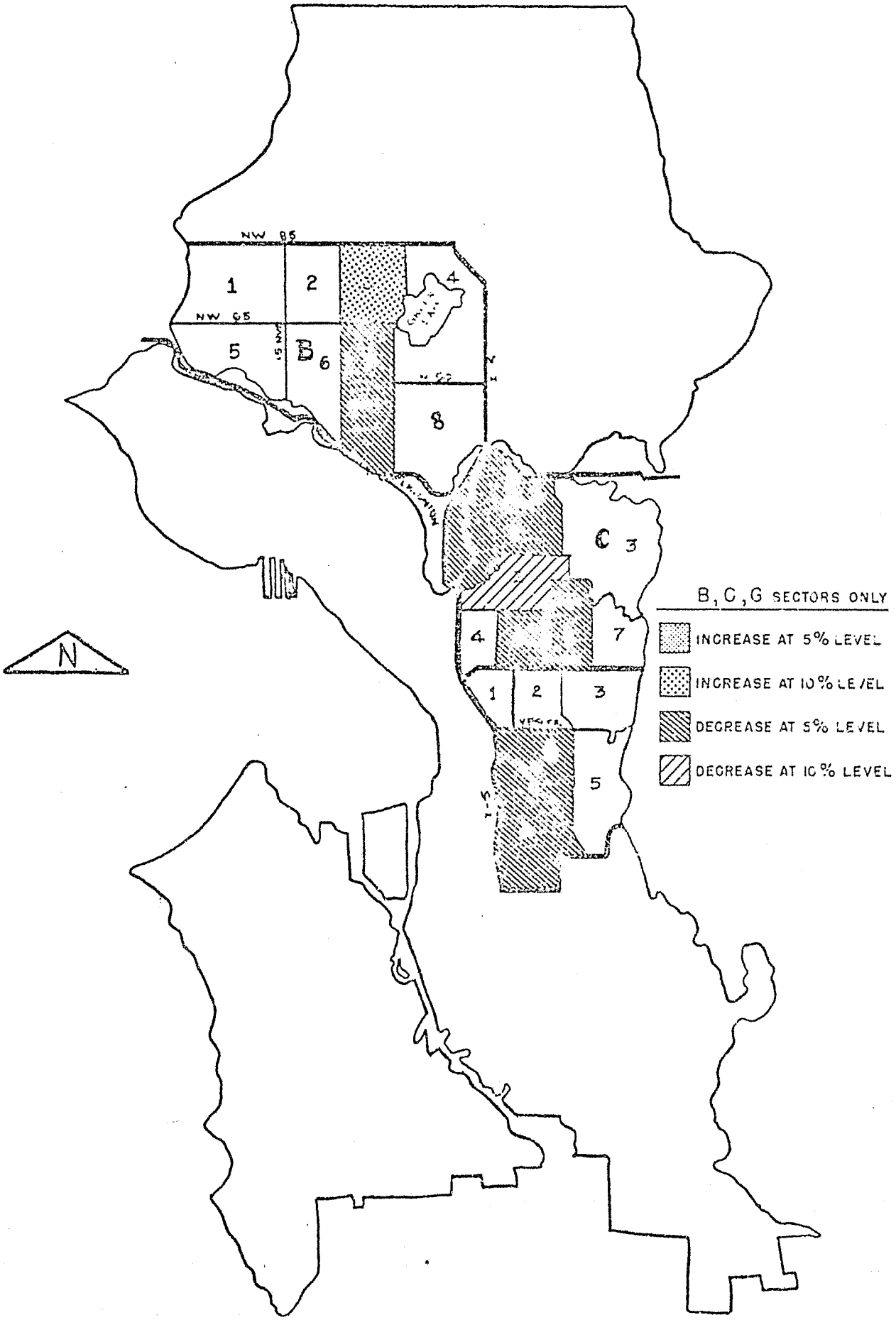

Figure 6 Wilcoxon Test of Reported Residential Burglary Ratio With No Force of Entry - Experimental Sectors

Source: Evaluation Report of INspections & Planning Section, SPD

than Charlie sector. No significant differences were observed for either Charlie or Boy sectors. These results are presented in Figure 7.

The same analysis using Wilcoxon tests was performed at the car-beat level. Only one car-beat in Charlie sector demonstrated a statistically significant change: C5 was found to have an increase in the average recovered value which was significant at the .05 level. In total, 2 of 21 car beats demonstrated improved averages which were significant at the .05 level and 2 other beats were found to have improved averages which were significant at the .10 level. One car-beat in Boy sector illustrated a statistically significant decline ($p. < .05$) in the average recovered value of stolen property. These results are illustrated in Figure 8.

It might be argued that a failure to find a significantly increased average value of recovered property is due to reduced burglary rates in Charlie sector, rather than a lack of effect of property marking. If fewer homes are being burglarized, the use of this criterion as a measure of effectiveness would require that more property is recovered at the same time that burglary rates are demonstrably lower. In addition, these tests are not ratio tests but conform to the one-group pretest-posttest model whose weakness has already been noted.

A somewhat more sensitive measure which still relates to property markings would be a test of the ratio between recovered and stolen

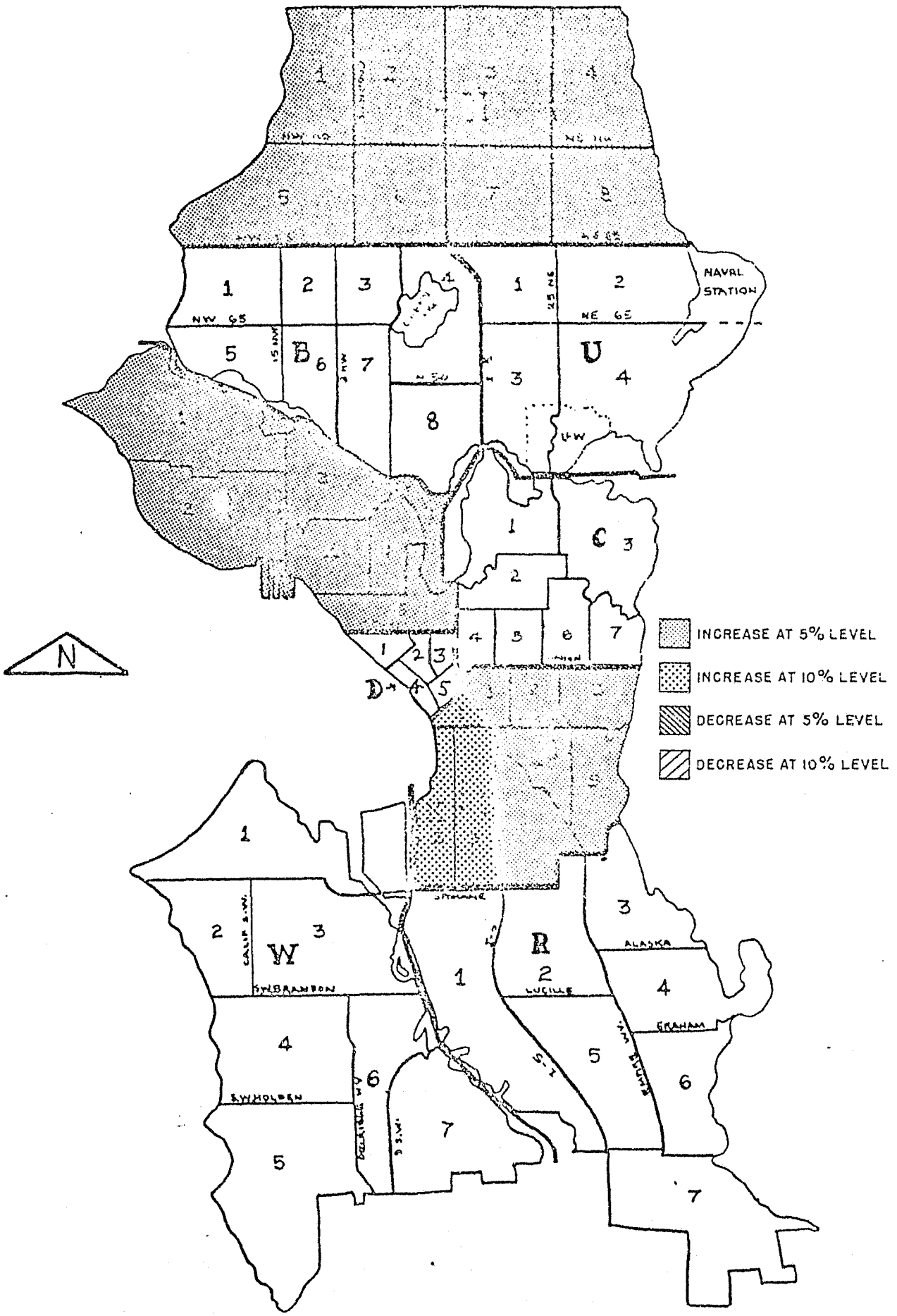

Figure 7

Wilcoxon Test of Average Recovered Value - Reported Residential Burglaries - All Sectors.

Source: Evaluation report of Inspections & Planning Section, SPD.

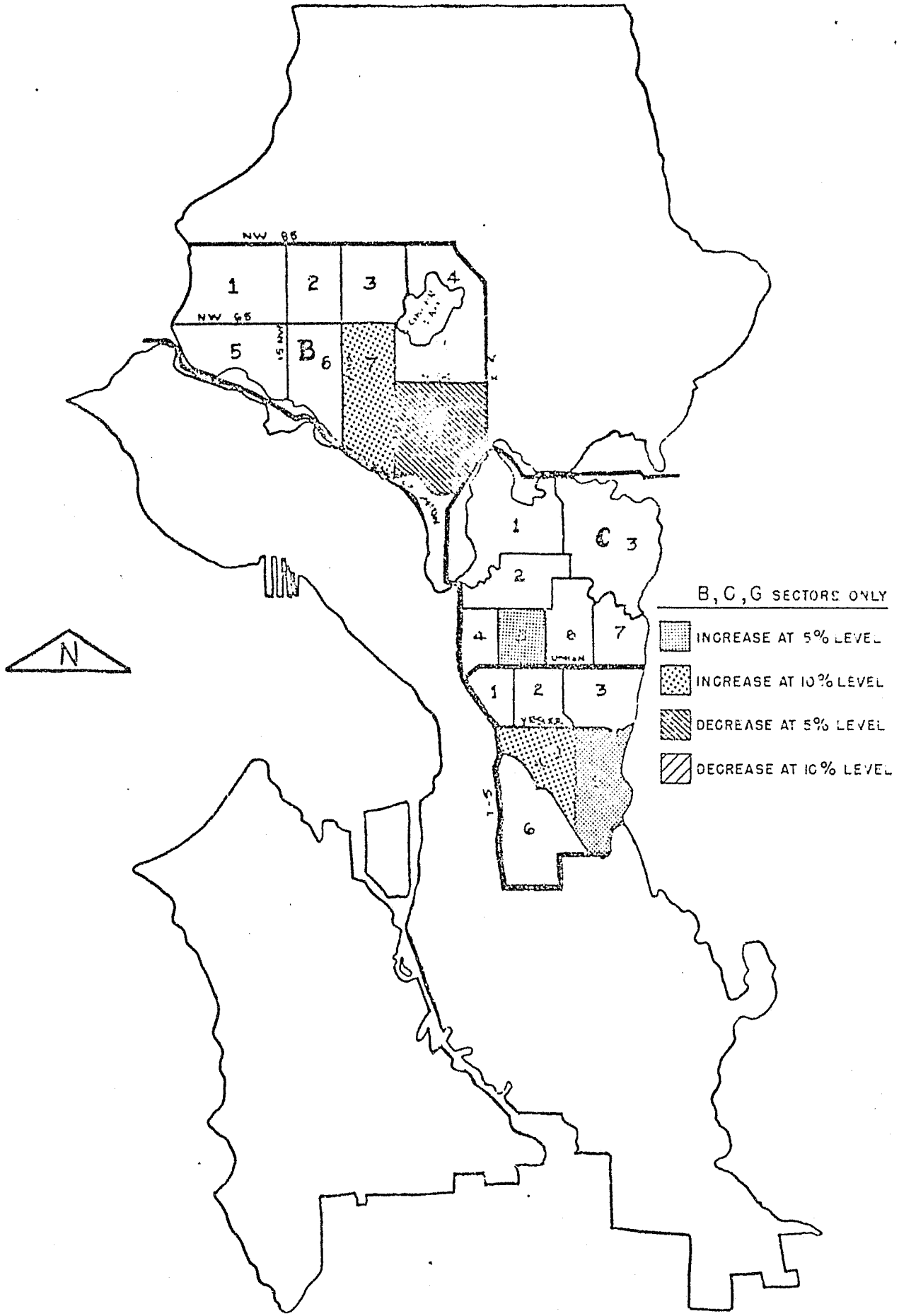

Figure 8 Wilcoxon Test of Average Recovered Value - Reported Residential Burglaries - Experimental Sectors

Source: Evaluation Report of Inspections and Planning Section, SPD

property. Increases in this ratio would reflect not only the amount or value of the recovered property but would also take into account variations in the amount stolen in the first place. Two analyses were performed using Wilcoxon tests of the ratio of recovered/stolen value of property. The first analysis was again a City-wide sector analysis. Increases (improvements) were observed in two control sectors and one of the three experimental sectors. The experimental sector which demonstrated a statistically significant improvement ($p. < .05$) was George sector. These results are presented in Figure 9.

The second analysis of the recovered/stolen value of property was performed at the car-beat level. Only one statistically significant change was observed -- a significant ($p. < .05$) <u>decrease</u> in one car beat in Boy sector. A decrease, of course, represents a lack of improvement whereby the ratio of recovered to stolen goods has declined rather than increased.

As noted previously, maximum community organizer efforts ultimately were devoted to six census tracts within Charlie sector: 91, 92, 100, 101, 111, and 112. Since these were the areas of maximum effort, it follows that maximum results in terms of reductions in residential burglaries should be observed in those census tracts. Using the Wilcoxon tests in a one group pretest-posttest model, analysis by IPS failed to demonstrate statistically significant results for any of the six census tracts. Using ratio data, statistically significant declines (2 @ $p. < .05$, 1 @ $p. < .10$) were observed for two of the six census tracts. An adjacent census tract, 110, was also found to have experienced a significant ($p. < .05$) decline in residential burglaries. These results are summarized in Figure 10.

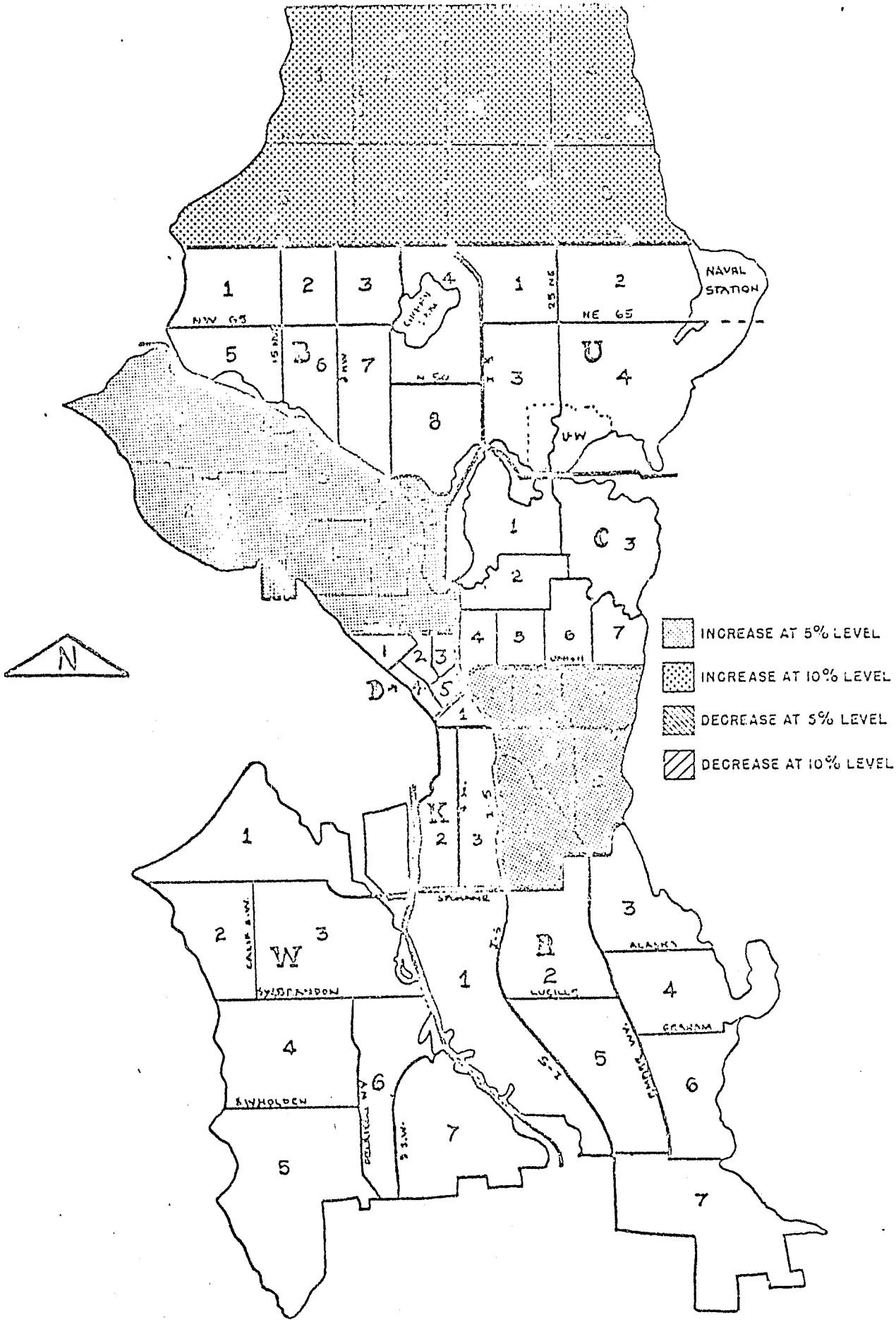

Figure 9 Wilcoxon Test of (Recovered/Stolen) Value - Reported Residential Burglaries - All Sectors.

Source: Evaluation Report of Inspections & Planning Section, SPD

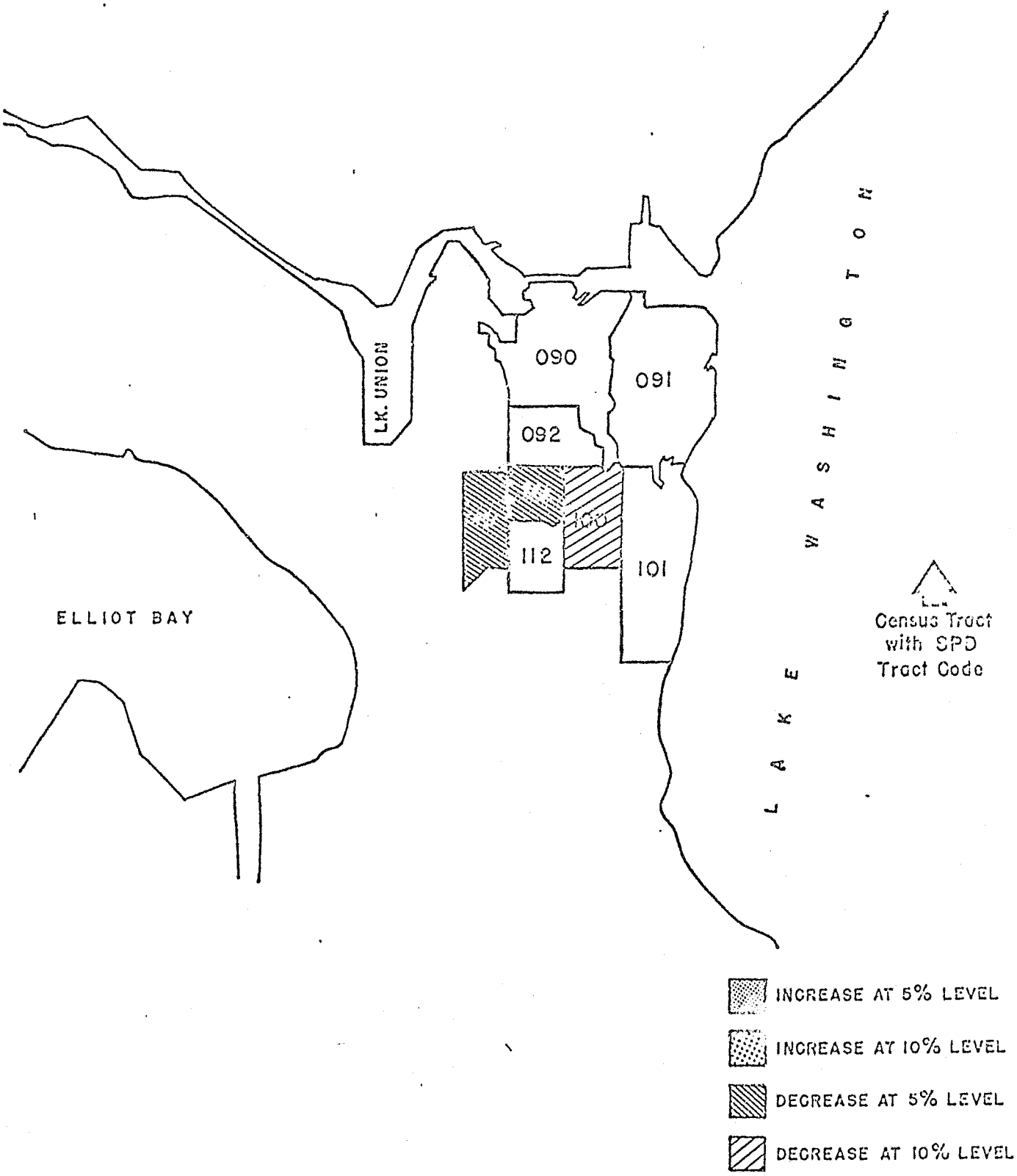

Figure 10. Wilcoxon Test of Ratio of Number of Reported Residential Burglaries by Census Tract

Source: Evaluation REport of Inspections & Planning, SPD

The IPS evaluation concludes: "it is difficult, if not impossible, to draw any definite conclusion concerning the effect of the civilian effort in reducing burglary with the existing data. The difficulty is due to the fact that the original design of the study did not follow the statistical principles of experimental design. The design should have, at least, the following four combinations:

a. At least two car beats with both police and civilian effort.

b. At least two car beats with only police effort.

c. At least two car beats with only civilian work.

d. At least two car beats with neither police nor civilian work to serve as control units.

This simple factorial two-by-two design should provide some basis to separate and to combine the effect of the police and the civilian effort. Since the existing data was not collected according to the design suggested above, the data is analyzed with the best effort that can be rendered within the limitations due to the lack of an experimental model."

III. A. Program Element I. Target Hardening Actions by Citizens (Summary)

Before any meaningful summary of the effectiveness of the Civilian Component of the burglary reduction grant can be undertaken, it is appropriate to review the problems which contributed to the relative lack of conclusive and definitive evidence regarding this portion of the burglary reduction program. First, the initial objectives for this program element were both imprecise and, in the final analysis, wholly inappropriate. The failure to operationally define an "organized crime prevention program" ultimately yielded a

definition so broad as to assure that objectives I-1 through I-4 would be met. It would have been far more appropriate to regard these "objectives" as tasks designed to facilitate the goal of residential burglary reduction. The responses which were expected to such services as free home inspections, property identification, and block watch participation were as unrealistic as were the expectations of achievement on the part of five community organizers. Having begun with poorly defined objectives, the civilian component was further hampered by a research design which placed both civilian and police activities in the same experimental areas: Charlie and George sectors. Irrespective of results, a lingering question remains, "Should the credit/blame reside with the police or the civilian component?

An opportunity to mitigate the multiple treatment program occurred when the civilian component community organizers began to realize the need to restrict their efforts. Had these efforts been concentrated in Boy sector where extensive experimental police efforts were not underway, some degree of independence between the two components might have been achieved. Rather than moving into Boy sector, the community organizers concentrated on Charlie sector where both expanded investigation and the single fingerprint experiments were being implemented.

The lack of an adequate data base for analysis which partially resulted from the lack of clearly defined objectives at the time of program implementation, was evident in the failure to measure the objective relating to increased numbers of burglary-in-progress calls

by citizens.

A final criticism and the one which is crucial to understanding the widely differing analyses and conclusions reported by IPS and LJPO relates to a failure to carefully conceptualize what was meant by "community" or "services to the community". Police patrol sectors, car beats, and census tract designations are all singularly arbitrary definitions of the "community". They are, however, operational definitions and serve to define the boundaries of a program without beginning to address the extent to which the individuals within those boundaries identify themselves as part of a cohesive "community". While sector, car-beat, and census tract analyses may provide useful information regarding the overall impact of programs, the final test of the effectiveness of a program must be the changes which are observed for those who in fact accept the services.

For reasons which were wholly beyond their control, IPS personnel were not in possession of sufficient data to assess the impact of the civilian component on those citizens who accepted one or more of the proferred services. Given these constraints, their attempts to evaluate the effectiveness of the civilian component are both understandable and appropriate. In this context, their conclusion that it is difficult, if not impossible, to draw any definite conclusion concerning the effect of the civilian effort is an appropriate conclusion. Their suggestions for research design modifications to return to classic research methodology is all but inevitable given the data they had available for analysis.

The approach taken by LJPO, though burdoned by a progressively heavy set of inferences, appears to have been a more fruitful tack

and one which clearly benefited by having additional data available regarding the extent to which specific homes received services and the extent to which these homes were burglarized. The conclusion that the target hardening component has produced a significant (32.8%) reduction in post-test burglaries for those citizens who accepted one or more services appears to be valid.

The extent to which these services benefited the "community" -- however defined -- as a whole is considerably less clear. Charlie sector represents the site of the greatest concentration of community organizer efforts (approximately 85 percent of total services) and, within Charlie sector, six census tracts were involved in particularly intensive organizational efforts. Among the three experimental sectors, only Charlie demonstrated a net decline in residential burglaries -- a decline which was statistically significant according to Dunnett's test (see previous evaluation section). A statistically significant ($p. < .05$) decline in the ratio of burglaries with no force of entry was observed for Charlie sector as a whole and for four of seven car beats within that sector. Analysis of the average recovered value of property at the sector or the car beat level or the ratio between recovered/stolen value at the sector level failed to indicate a community wide benefit from the services provided to specific households.

Collectively considered, these findings suggest that target hardening efforts offered to the "community" are maximally effective for those citizens who accept the services. It may also be the case that there is some residual benefit for their less responsible neighbors but this clearly remains to be demonstrated. The relative lack of

responsiveness on the part of citizens in Boy Sector suggests that media-oriented campaigns will not suffice to mobilize community self-protection efforts. Community organization workers clearly are required.

The final comment about program effectiveness concerns cost. In project year perspective plus the month of October, the civilian component of the project spent approximately $127,000 and completed 1,656 home inspections, 1,910 property markings, involved 1,872 households as block watch members, and had 2,285 citizens in neighborhood discussions with their local police. Those services total 7,773 separate security actions, for a unit cost of $17 per service. Most households had all four of those actions; thus, the average cost per household served was $68. However, it is noteworthy that, if the project operates in the future at the rate of productivity achieved in two census tracts (111 and 101), cost per household served could be reduced to approximately $34. The project shows strong probability of sustaining that rate of productivity for the second year of operations.

Given the dilution of community organization worker efforts during the early months of project operation, the reduced cost-per-household-served figure seems realistic. Whether the achievements of the project warrant an expenditure of thirty-four dollars for every household servided is an administrative decision and needs be balanced against other priorities and alternative burglary reduction strategies.

While the ability to demonstrate a positive impact on burglary offenses and the need to do so in a cost-effective manner are issues which must be considered, so too are the somewhat more subtle aspects of a community-oriented program -- aspects which are somewhat less readily amenable to the evaluator's methodological tools but which are no less real for all of that. As the IPS report notes, "It would, however, be complete negligence to overlook some of the extremely positive aspects of the grant and the after-effects caused directly or indirectly by the grant and the poeple involved. It is, most certainly, difficult to evaluate individual contributions, but the general consensus was that the grant had some positive impact on the patrolman's life."

"Two of the test sectors, Charlie and George, are located in Seattle's 'Central Area'. In the past, there have been numerous problems which have arisen between the people who live in this area and the police officers who work there. Generally speaking, it is safe to say that a serious communication break-down existed. However, since the grant was implemented and the attendant publicity and 'person-to-person' situations, some of the tensions have been relieved and, on the surface at least, general relationships have improved. Admittedly a significant portion of this improvement is the professionalization of the department and the on-going efforts to improve overall community relations. However, many officers have remarked that the attempts to assist the community by both the police officers and their civilian counterparts have had a positive and residual effect."

III. B. Program Element II. Target Hardening Actions: Police Tactics (I.P.S.) *

The first objective in this program element called for the development of a forecasting capability for the identification of vulnerable homes. In the Operations Section of this report, the difficulties involved in developing and implementing this portion of the program element were noted in detail and will not be repeated here. Briefly, sustained effort on the part of the statistical analyst hired for the forecasting purpose failed to produce a practical method of forecasting a particular burglary target. (i.e., a specific house, business, etc.) Reasonable accuracy was achieved in forecasting the areas prone to burglary and, to a lesser extent, the day of week and time of a burglary. Analysis of the forecasting attempts indicated that the likelihood of actually predicting the burglary of a particular residence during the most probable two hour period of the most probable day of the week was .0004 (four hits out of 10,000 stake-outs).

A more practical use of the forecasting technique appears to be related to manpower allocation as distinct from stakeouts. This use would require three bits of information:

a. Percentage probability of a burglary occurring,

b. The most likely area of the beat and

c. The most likely number of occurrences for the coming week.

Give previous occurrences (cases) sufficient to establish an M.O., this information could be made available to the district prowler car and sergeant.

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* The impact of this program element was not independently evaluated by LJPO

Many of the prowler car officers were aware of the extent of their area burglary problems prior to receiving the forecasts. A few of the officers and sergeants felt the probability forecast along with forecasts of "most probable time of the day" and "most probable day of the week" were of assistance in planning manpower distribution.

The second objective in this program element indicated the intent to establish a team policing organization for the target sectors. Again, as noted in the Operations Section of this report, a variety of administrative and communication problems arose out of the attempt to implement this portion of the grant. The IPS report summarizes some of these problems, "While the negative comments ran the full spectrum of 'it's a waste of the taxpayer's money' and 'it'll never work,' to ' management will not support it,' the most often heard complaint was lack of time. Even from this 'lower,' or 'operational' level, there was insufficient time for planning, developing and training the teams, implementing the various tactics, and evaluating any successes. Additionally, some of the 'incentive--generating' aspects, as well as some of the novel and exciting tactical ideas which were initially utilized to create enthusiasm among the patrol force, were delayed or omitted entirely. These delays and/or ommissions were sometimes the fault of administrative short-sightedness and sometimes the result of situations over which the grant managers had no control. Regardless of the cause, the ultimate result was often a lack of cooperation and enthusiasm among the officers themselves and with their citizen counterparts."

With regard to the "lack of cooperation and enthusiasim among the officers...and their citizen counterparts," the Director of the Police component of the Burglary Reduction Grant reported,,

"It was felt that the area of assignment to the community organizers was too large to permit the carrying out of all the elements of their portion of the grant. Soon after initiation of the grant increased, participation on the part of the community severely impinged on the available time of the community organizers. This had a multiple effect in that the persons were kept busy with home inspections, property marking, etc. and had less and less time available for meetings with the police contingent and for community meetings."

Some of the training time difficulties were a consequence of the way in which the work of police officers is necessarily scheduled. Because of the 24 hour scheduling of police officers (4a.m.- noon, noon - 8 p.m., 8 p.m. - 4 a.m.) regular training sessions between the police and the civilian contingent as well as regular training sessions with police and the director of the grant were found to be difficult to set up. Increased difficulty was found when attempts were made to hold training sessions with the sergeants and officers from differing watches (work hours). Part of the latter problem arises when one considers that on-duty patrol time is at a premium while off-duty time requires overtime pay.

Among the incentive-generating aspects of the grant were questions relating to special pay for the Lead and Assistant Lead Officers. This problem was not fully resolved and payment was not begun until late June 1974, shortly prior to the end of the first year grant period.

The final objective for this program element was the development of patrol tactic plans on a weekly basis. Since the development of these plans was contingent on the usefulness of the forecasting technique and depended heavily on the police department's ability to make

rapid shifts from "traditional" methods of operation to implement such tactical plans as were developed, it can be seen that achievement of this objective was contingent on the achievement of the two prior objectives. In the sense originally intended by the grant, this objective, like the two which preceded it, was not met. However, attempts to create a more open, more innovative "system" did bear some fruit. One example was provided in the Operations Section and related to the development of undercover police fences. With the limited funds and equipment made available for this innovative and unanticipated extension of the grant several cases were "made" and considerable information was developed by the "underground" officers.

Another area worthy of mention cited in the Inspections and Planning Section evaluation, is the imaginative and novel techniques developed by the officers when given the support and latitude to attack problems on their own. "As an illustration, one of the most often resisted and unpopular subjects in this department has been the suggestion that we (SPD) increase the use of one-man patrol cars. This subject has been virtually "taboo" within the patrolman ranks! When a particular burglary problem developed along the shoreline apartments in the George Sector, the Sector Sergeant told his men to come up with some means of apprehending the suspects as conventional methods were proving ineffective. The first suggestion (which was unanimously agreed upon by the men) was that the traditional car beats within the Sector be redrawn to provide coverage by three two-man cars instead of six which would permit the remaining six officers to saturate the target area----<u>in one man cars</u> "!!

This suggestion came from the men, was approved by their sergeant and lieutenant and resulted in the arrest of the suspect!

Another illustration involving both the George and Charlie Sectors came about when Seattle's Madrona district was being terrorized by a series of rape-burglaries. The suspect was obviously familiar with the area and his victims and seemed to operate comfortably within the existing (and conventional) patrol structure. The two Sector Sergeants on one watch and their combined squads (thirty men in all) tried many different combinations of tried-and-true methods, all to no avail. Once again, with backing guaranteed by their supervisors, the men themselves identified all the problems they were facing and listed alternatives which were available. They finally decided to implement a plain-clothes patrol employing bicycles for silence and mobility. Within a month, the suspect had been apprehended and has subsequently pled guilty to more than a dozen felony charges related to these burglaries.

There were many comments from individual patrol officers which were relevant and interesting but time and space precludes their addition here. Suffice to say that the operational portion of the grant which permitted lower levels of the department structure to participate in the decision and planning processes gave many patrol supervisors a first-time look at a frequently overlooked resource."

Although the specific objectives of the program element were not met, the process of breaking down some of the more

traditional decision making barriers, of sharing responsibility (and accountability), appears to have had a salutary effect whose immediate impact on offenses is noted above and whose long range impact within the Seattle Police Department cannot be assessed at this time.

VI. C. Program Element III. Apprehension - Residential (I.P.S.)

The first objective for this program element involved an excepted 10% clearance rate over that experience in the control area. Multiple clearances were not to be computed. The criteria for tabulating juvenile clearances was that, if the juvenile were an adult, an arrest for burglary would result. Table II is a summary table of all the Wilcoxon test results for all car beats in the experimental Sectors. Since the expanded investigation effort, the second strategy in this program element, involved the use of additional detectives in the East Central District (Charlie and George police patrol Sectors), clearance rates for residential burglaries in these two Sectors are of particular interest. The cells related to residential burglaries in these Sectors have been darkened for easier identification.

Interpreting the Wilcoxon test results for clearance, it would appear on the surface that car beats B7, C3, C5, C6 and C7 have relatively poor records, while car beat B5 has the apparent best one. This interpretation assumes decreases in clearance ratios are "bad" while increases are "good."

This result, however, was sufficiently surprising to cause further look at the data manipulation. It was found that the data array on which the Wilcoxon test was based measured the raw number of clearances between this time period and last. This was discovered at the 11th hour, and time did not permit re-manipulation of the data. Given this approach, it would appear logical that in areas where the number of crimes went down, or to a lesser degree where the relative ratio of crimes went down, clearances would also decrease. The unanswered question remains the relative percentage of clearances per crime committed. Knowing this, these results can still be of interest although much more difficult to relate directly to the purpose of this grant.

The IPS report continues, "In the apparently poor showing in clearances (in Charlie Sector) we confess puzzlement. Earlier analyses had indicated a superior arrest rate for burglary detectives assigned. We suspect a problem in juvenile investigations which are not integrated into the project." Still later, in the Conclusion and Recommendations portion of their report, I.P.S. states, "it is very hard to draw statistical conclusions in this report at this tim- because further study is required. For example, a study of percentage of clearances per crime committed is another way to examine it."

The remaining three objectives for this program element are described below:

> Determine the effectiveness of various methods of increasing apprehensions.

TABLE II

Wilcoxon Test Results Summary Table — Pre-Post Test Clearance Rates

CAR-BEAT	CLEARANCE (1)			CLEARANCE (2)			CLEARANCE (3)			CLEARANCE (4)			CLEARANCE (1) & (2)			CLEARANCE (3) & (4)			CLEARANCE (1) & (3)			CLEARANCE (2) & (4)		
	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B	T/B	R/B	N/B
B1																								
B2																								
B3													(+)10											
B4		(+)10												(+)10										
B5				(+)5		(+)10				(+)10	(+)10				(+)10		(+)5					(+)5	(+)10	(+)10
B6																			(-)10	(-)5				
B7	(-)5	(-)5								(-)5	(-)5		(-)10			(-)5	(-)5	(-)10	(-)5	(-)5				(-)10
B8							(-)5	(-)10								(-)5	(-)10							
C1											(-)10											(-)5	(-)5	
C2											(-)5						(-)10							
C3										(-)5	(-)5					(-)5	(-)5					(-)5	(-)5	
C4															(+)10						(+)10			
C5											(-)10		(-)5			(-)5	(-)5	(-)10	(-)10		(-)10			
C6							(-)5	(-)5								(-)10	(-)10		(-)5	(-)10		(-)5		
C7	(-)5	(-)10														(-)5	(-)5		(-)5	(-)5				
G1										(-)5						(-)10	(-)10							
G2			(+)10		(+)10																			
G3										(-)10	(-)5													
G4				(+)5		(+)10					(-)10													
G5																								
G6				(+)10													(-)10							

T/B = REPORTED TOTAL BURGLARIES
R/B = REPORTED RESIDENTIAL BURGLARIES
N/B = REPORTED NONRESIDENTIAL BURGLARIES

(+) = SIGNIFICANT INCREASE
(-) = SIGNIFICANT DECREASE
5 = SIGNIFICANT DIFFERENCE AT 5% LEVEL
10 = SIGNIFICANT DIFFERENCE AT 10% LEVEL

CLEARANCE (1) = ARREST - ADULT OR ADULT WITH JUVENILE
CLEARANCE (2) = ARREST - JUVENILE ONLY
CLEARANCE (3) = EXCEPTIONAL - JUVENILE ONLY
CLEARANCE (4) = EXCEPTIONAL - JUVENILE ONLY

Source: Evaluation Report of Inspections and Planning Section, SPD

Identify how detective and material resources might best be used in the department.

Determine the productive level of resource committment to apprehension efforts.

The IPS report does not specifically address these objectives. A supplementary report prepared by the Police Component Director provides some additional information regarding the effectiveness of the single fingerprint strategy. Some of these comments were presented in the Operations section of this report. A numerical "picture" of the single fingerprint strategy may be gained by reviewing the contents of Table 12. These results were tabulated subsequent to the inclusion of juvenile prints and subsequent to the conversion to a computerized operation (see Operations Section for additional details). As the table indicates, in the period ending September, 1974 the computer file contained 5,024 prints for 628 subjects: 487 adults and 141 juveniles. Of 585 latent prints submitted to the file, 170 (20%) were legible and acceptable. Given 77 computer runs or attempts to match latent prints with print in the suspect file, 57 runs (74%) resulted in a match or "hit." In 22 of the 57 "hits" (38.6%) the match was between a latent print and a print of the victim's finger entered into the file for control purposes. A total of 35 "hits" (45.5% of the 77 runs) were useful in associating a print in the suspect file with a latent print taken at the scene of a reported burglary.

TABLE 12

Summary of Single Fingerprint Suspect File Activities in the Period from March, 1974 through September, 1974

ITEM	FREQUENCY
Computer base file - total:	628
adult suspects	487
juvenile suspects	141
Total single prints	5024
Average number of possible suspects per run	15
Total computer runs conducted	77
Total "hits"	57
adults	24
juveniles	11
victims	22
Total latent prints submitted	585
Total illegible (unusable prints)	244
Total miscellaneous (palms, tips)	182
Total legible for S.F.P.	170
Crime scenes processed by I.D. technician	46
Court subpoenas for I.D. technician	8
Total burglary cases involved	222

It will be noted from Table 12 that one item refers to crime scenes processed by the I.D. Technician. This line entry speaks to an experiment conducted during the concluding six months of the project period wherein the Identification Technician personally processed crime scenes for fingerprints. This experiment was prompted by the finding that a large percentage of latent prints (71%) were unacceptable for one reason or another. It was found that many patrol officers were lacking in up-to-date training regarding the techniques needed to secure latent prints. The Identification Technician was able to find more and better (more usable) prints for the number of scenes processed. The employment of the I.D. Technician in this field capacity was seen as resulting in "a good training tool for officers and in turn, has increased the quality and quantity of prints they locate."

From these experiences a series of changes or recommended changes emerged which do relate to the objectives cited above. These recommendations are summarized below:

a. Fingerprint criteria should be firmly established and followed with regard to the suspect file. An overly large suspect file contains too many suspect possibilities to be practical, even when computerized.

b. Single print suspect files should be established for each Part #1 crime that occurs in sizeable numbers, i.e., burglary, auto theft, and grouped in suspect file if relating to homicide, aggravated assault and rape.

c. Effective, regularly up-dated training is required for all officers lifting latent prints, "rolling" prints (such as juveniles), etc.

d. Good,practical fingerprint and camera kits are a must for patrol officers, identification technicians and detectives processing crime scenes.

e. Consideration should be given to a street experiment involving the use of crime sc ne technicians trained in both laboratory and identification techniques. It is possible the quality of collected evidence would escalate beyond all expectations.

f. One innovation which was overlooked in the original proposal was the need of a kit of superior quality for collection of fingerprints during crime scene investigations. With the combined efforts of the single fingerprint unit, the detectives and the patrol officers, two such kits were fashioned from mostly available materials.

With regard to the use of detective and material resources (Objective III-3) used in the department, the Police component Director's report indicates that investigative efforts by the detectives assigned to Charlie and George Sectors not only increased but so too did their relationship with primary investogators. One item which was found to be of great assistance to the detectives was the tape recorder. The use of tape recorders for routine recording of investigative materials and reports contributed to the creation of a greater amount of time which, in turn, could be devoted to investigative work by the detectives. Additional clerical help was needed as the investigative work load with its attendent reports increased.

III. C. Program Element III: Apprehension - Residential (LJPO)

In an attempt to determine whether clearance rates (the first objective in this program element) had improved in the experimental area of East Central Area (Charlie and George Police Patrol Sectors), staff from the Law and Justice Planning Office compiled data on all burglary offenses throughout the City of Seattle for the period from January 1, 1974 through May 31, 1974. These data are summarized in Table 13. Review of the contents of that table indicates that 40% of all cases cleared by arrest were cleared in the East Central Area. This area received only 26% of all reported burglary incidents for the City of Seattle as a whole. More than 50% of the arrests made by squad detectives were made by the detectives in the experimental area.

TABLE I3

Summary of Burglary Arrest Information by Sector for the City of Seattle in the period from January 1, 1974 through May 31, 1974

	Total for B/T Unit	North	% of Total	West Central	% of Total	East Central	% of Total	South	% of Total
Total number of cases received	4717	1502	32%	635	13%	1217	26%	1367	29%
Number of cases cleared by arrest	256	74	29%	30	12%	102	40%	50	19%
Number of arrests by squad detectives	49	11	22%	5	10%	26	53%	7	14%
Number of arrests made by other Department personnel (Patrol, etc)	161	35	22%	26	16%	45	28%	55	34%
Number of arrests processed by squad detectives	210	46	22%	31	15%	71	34%	62	29%
Total number of persons charged Felonies	127	28	22%	12	9%	44	35%	43	34%
Misdemeanors	38	7	18%	11	29%	14	37%	6	16%
Total number of persons investigated and released	45	10	22%	8	18%	13	29%	14	31%

Source; Seattle Police Department Burglary-Theft Unit

The relationship between cases received and cases cleared by arrest was explored using inferential statistics. These results are reported in Table 14. Chi-square analysis indicates that a statistically significant (p. .0001) difference between East Central and "All Other" sectors can be demonstrated. Closer examination of the contents of the table suggests that the difference is in favor of the East Central Sector whose detectives did clear significantly more cases, given the number of cases received, than did their counterparts in other sectors of the City.

TABLE 14

Analysis of cases received and cleared in East Central and in all other sectors combined in the period from January 1, 1974 through May 31, 1974.

	East Central	All Other
Cases Received	1,217	3,504
Cases Cleared by Arrest	102	154

In an attempt to determine the effectiveness of various methods of increasing apprehensions (Objective III-2), the raw data which was used in constructing Table 13 was reanalyzed to determine the principal lead resulting in arrest. In Table 13, for East Central burglary arrest information, it may be noted that while 102 cases were cleared by arrest, only 71 individuals were processed by burglary-theft detectives. This discrepancy is due to the fact that there is no one-to-one relation of a single case to a single offender. That is, one case may result in 2 or more individuals being arrested. On the other hand, one individual arrest may result in 2 or more cases being cleared by arrest.

The results of this analysis are presented in Table 15. The data would appear to indicate a superior record for East Central sector detectives. In addition, the highest number of on-scene arrests due to victim and/or witness reports was found in East Central sector and might be considered to be a comment on the relative effectiveness of community organization efforts in general and (with less certainty) block watch groups in particular. The favorable impact on the program appears to be equally evident in the patrol investigation section where other calls or officer follow-up produced a high level of arrests.

The LJPO reports do not directly address either Objective III-3 or Objective III-4 relating, respectively, to the use of detective and material resources and the productive level of resource committment.

Program Element III: Apprehension - Residental (Summary)

As has been the case in previous evaluation sections, IPS and LJPO tended to use different data and different research or statistical methodologies. These differences seem particularly noticeable in respect to this program element, since the analyses would lead to rather differing conclusion regarding the effectiveness of the expanded detective investigation and intensified primary investigation efforts in general. While the Project Director's subjective observations and the analyses performed by LJPO seem to indicate that the expanded detective investigation effort was a substantial success,

TABLE 15

Summary of Principal Lead Sources Leading to a Burglary Arrest by Sector for the City of Seattle in the Period from January 1, 1974 through May 31, 1974

Month: SUMMARY JANUARY 1 through MAY 31, 1974	Total # of arrests	North	% of Total	West Central	% of Total	East Central	% of Total	South	% of Total
ON SCENE ARRESTS									
Silent Alarm	17	6	35%	3	18%	3	18%	5	29%
Victim and/or Witness report	46	10	22%	6	13%	16	35%	14	30%
On View	9	2	22%	3	33%	2	22%	2	22%
PATROL INVESTIGATION									
Suspicious Activities (carrying bulky items, etc)	6	1	17%	1	17%	1	17%	3	50%
Near scene searches	15	5	33%	3	20%	2	13%	5	33%
Traffic stops - items in view of officer	7	2	28%	0	0%	2	28%	3	43%
Other calls yield burglary suspect or officer follow-up	34	3	9%	6	18%	12	35%	13	38%
DETECTIVE INVESTIGATION									
Informant	7	1	14%	1	14%	4	57%	1	14%
Fingerprint	8	2	25%	0	0%	5	62%	1	13%
Distinctive M/O	2	1	50%	0	0%	1	50%	0	0%
Follow-up Investigation	23	7	30%	2	9%	12	52%	2	9%

Source: LJPO Expanded Investigation Evaluation

the IPS report finds few favorable significant differences in clearance rates at the car-beat level!

The failure of the IPS findings to support the LJPO conclusions may be attributed to a combination of factors. First, as the IPS report notes, clearance rate comparisons were made on the basis of raw rather than ratio data. In an area such as Charlie Patrol Sector, where the number of residential burglaries actually declined, the use of ratio or percentage data seems far more appropriate. Simply stated, fewer crimes leads to a descreased probability of increasing the clearance rate.

While the data discussed in the IPS narrative refer to car-beats, Sector level analyses were also performed. These Sector level analyses reveal a significant ($p < .05$) improvement in juvenile-only arrests for residential burglary offenses in George Sector - one of the two East Central police patrol sectors. These data, together with the information collected by LJPO would appear to provide support for the contention that clearance rates were significantly superior in the East Central Sector. These data do not indicate that a 10% improvement in clearance rates was found.

Criticism of the objectives for this program component seems most appropriate. Among other things, the objectives relate to the individual program strategies in, at best, a marginal way.

III. D. Program Element IV: Apprehension -- Non-residential

As noted in the Operation Section of this report, this element involved the combined use of target forecasting and portable stakeout alarms. An operating frequency for use in the alarm system was not received from the supplier until August 29, 1974. This program element was not implemented during the project period and, for that reason, cannot be evaluated.

III. E. Evaluation: Displacement Effects

Evaluation of a crime specific impact program is not complete without attention to the impact that the program has had relative to other offenses. Maltz (1972) states the case succinctly, "There is no immutable law that says that a burglar cannot hold up a liquor store and a robber cannot burglarize a warehouse. If a specific crime or set of crimes is the target of a crime control program, offenders may decide to avoid the target crimes and ply their trade in other way" (pp. 20-21).

The IPS evaluation report directly addresses the question of displacement from one type of offense - burglary - to other types of offenses including robbery, personal larceny, shoplift, car prowl, auto accessories theft, bicycle larceny, building larceny, coin operated machine larceny, miscellaneous larceny and auto theft. Not only Wilcoxon tests, but also plots of the ratio, of the crime volume of each category to the number of reported burglaries for the same period, were prepared. These results are reported in Table 16. It should be noted that an increase in the ratio could result from (a) a decrease in burglary, or (b) an increase in the other crime, or (c) both.

What, for example, does, "Determine the productive level of resource committment to apprehension efforts" mean operationally? It may well be that a serious investigation of the relationship between stated objectives and strategies described would have led to the conclusion that the multiple treatment problems so frequently discussed in this section of the report were of such magnitude as to preclude meaningful evaluation. These multiple treatment problems refer not only to the effort to separate the effectiveness of civilian and police components but to separate the effectiveness of components within the police department itself. Thus, when patrol officers are encouraged to expand their efforts, when an increased number of detectives concentrate in a specific area and on specific offenses within that area, and when an innovative single fingerprint operation is initiated -- all within the same area -- it becomes obvious that a meaningful analysis and firm conclusions are highly unlikely.

Not withstanding these criticisms, some evidence has been presented to suggest that both the single fingerprint and the expanded detective investigation strategies contributed to the over-all results noted for Charlie Sector in particular. A far more sophisticated research design than existed for this program would be required to determine the relative impact of the investigation vs fingerprint components. At least one conclusion seems fairly safe, the electronic tracking device systems which were also a part of this program element strategy contributed very little to the results noted above. The units were not in use until August 1, 1974..

The results indicate that significant increases in ratios were observed for shoplift/burglary in Boy Sector, robbery/burglary and building larceny /burglary in Charlie Sector. A significant decrease in the ratio between miscellaneous larceny/burglary was observed in Boy Sector. No significant ratio changes were observed for George Sector.

A series of significant decreases for five of ten ratios was observed in "W" Sector which may well be due to the surge of burglary in that Sector which dwarfs all other Part I offenses and contributes substantially to the results observed.

Given a decline in the number of burglaries in Charlie Sector, only modest increases in either robbery or building larceny incidents would contribute to the differences in ratios reported above. Based on these observations, the IPS report concludes, "Overall, these data do not demonstrate displacement by crime type."

A second type of displacement is possible in those instances where burglars continue to burglarize but shift from one type of target such as residences to other types of targets such as non-residential properties,apartment houses, hotels, and so on. Wilcoxon tests in a pre-post test model at the Sector level failed to demonstrate statistically significant changes in any direction for nonresidential burglaries within the experimental Sectors. When non-residential ratios were tested on a Sector basis, Boy Sector was found to have a statistically significant decrease ($p. < .05$) in the ratio of non= residential burglaries.

TABLE 16

Wilcoxon Tests of Selected Part I Offenses vs Burglary Ratios For All Police Patrol Sectors in the City of Seattle

ECTOR	ROBBERY / BURGLARY	PERSONAL LARCENY / BURGLARY	SHOPLIFT / BURGLARY	CAR PROWL / BURGLARY	AUTO ACCESSORIES / BURGLARY	BICYCLE LARCENY / BURGLARY	BUILDING LARCENY / BURGLARY	COIN OPERATED MACHINE LARCENY / BURGLARY	MISCELLANEOUS LARCENY / BURGLARY	AUTO THEFT / BURGLARY
B			(+)5						(-)10	
C	(+)5						(+)5			
G										
D				(-)5	(-)5			(-)5		
Q	(+)10		(+)5				(+)10	(-)10		
U			(+)5							
K				(-)5						
W	(-)5					(-)5		(-)10	(-)5	(-)10
R										
N			(-)5							

(+) = Significant increase

(-) = Significant decrease

5 = Significant difference at 5% level

10 = Significant difference at 10% level

Source: Evaluation Report of Inspections and Planning Unit, SPD

Were this type of displacement to occur, offenses in areas adjacent to the experimental areas would be expected to increase as would burglary offenses for the City of Seattle as a whole. One primary indicator for this type of displacement would be the residence of the apprehended offender. If youths or adults living in the experimental Sectors were found to be committing crimes in other parts of the city, strong support could be given to the contention that considerable displacement had occurred. Data speaking to this question were not available at the time this report was prepared.

A second, and somewhat less satisfactory method of assessing this type of displacement, as noted above, relates to burglary rate changes in the remaining portions of the City of Seattle. Burglary offenses did increase throughout the city. Whether this was a consequence of the prevention programs being conducted in the experimental sectors, the prevention program being conducted by King County or a combination of these two events cannot be determined with the data now available.

In summary, displacement to other types of offenses within the experimental sectors does not appear to have occurred with any demonstrable consistency. Displacement to other burglary targets within the Experimental Sectors clearly did not occur. It cannot be stated with any degree of assurance that some degree of area displacement did not occur.

A potentially significant exception to these statements is the increased ratio of robbery incidents in Charlie Sector.

It should be noted that the increased ratio may be a function of decreased numbers of burglaries as well as shifts in criminal behavior. Pre-Post test analysis based on the percent of robberies occurring within Charlie Sector as a function of robberies citywide would speak to this question as would an analysis of the criminal histories of those individuals apprehended for robbery during the period the project was under way. Data for these analyses was not available at the time this report was prepared.

SUMMARY AND CONCLUSIONS

In the preceding pages a complex burglary reduction program made up of four major program elements and a number of sub-strategies has been reviewed. Although evaluation typically and appropriately addresses the issue of effectiveness, no consideration of program, element, or strategy impact would be complete without a summary of the problem encountered and the lessons learned. The lessons learned are summarized below and are followed by an over-all statement of program effectiveness.

1. Complex programs involving both civilian and police components need a high degree of integration in terms of planning, programming of personnel time, evaluation methodology, and statistical approaches. These same programs, to be properly evaluated need a maximum amount of field-operational separation. Multiple treatment problems both within and between the two major components were difficult and, in cases, impossible to resolve. Which one type or one combination of citizen services (target hardening, block watch, property identification, etc.) was most effective?

Which component deserves "credit" for the reduction of residential burglaries in Charlie sector, the civilian unit, the patrol officer who devoted more time at the crime scene, the detective who had the freedom to more fully explore all leads, the identification technician, or the alerted citizen who more frequently called police to identify suspicious activities? There questions are important if not vital to an evaluation and they were not fully answered or capable of being answered given the multiple treatment problem in most instances and the lack of appropriate data in still other instances.

2. Programs which require restructuring of communication or organizational links within police departments require far more preparatory lead time than was available during the first project year. Frustrations regarding time schedules, pay incentives, organizational priorities, and communication channels inevitably had a dampening effect on the project's success.
3. The statement of precise objectives and the linking of these objectives to specific program activities ought not occur as an after-thought but should be a part of the original and initial planning effort. Where standards are suggested or implied as was the case for burglary reduction as a whole and for cases clearances, existing precidents should be required. For example, what evidence is there that a project such as this one can reduce case clearances by 10% or any other percent? If no precident in prior research can be cited, then it seems far more appropriate to seek statistically significant reductions within a pre-post test model.

4. Program components which rely on the testing and ordering of equipment would appear, in the City of Seattle, to need far more lead-time than the one year provided in this grant.

Given these considerations, what can be said about the effectiveness of the burglary reduction program? First, it seems reasonably clear that target hardening activities by citizens can be an effective measure for those who receive the services. In addition, there appears to be some residual benefit for the community as a whole but this is far from conclusively demonstrated. The expansion of the detective units and the concentration of these units on specific crimes together with such additional training as may be needed appears to be an effective method of increasing arrests. The addition of a computerized single fingerprint unit appears to have been a useful method of linking suspects to latent prints. Cost effectiveness data would be most helpful in selecting among and between these different strategies.

Strategies which are clearly open to question concern the use of forecasting to identify specific, probable targets. While forecasting may have some benefit in terms of manpower allocation between shifts or sectors, the technique has not been proved to be a useful strategy within the one year period of this grant. Strategies which scatter the limited resources of the civilian component over an impossibly wide area are equally open to question. Strategies which rely on citizen response to media oriented approaches (as in Boy Sector) are clearly not sufficient.

Finally, to the extent that the combined residential burglary reduction strategies were successful in reducing these offenses in Charlie sector, it would appear that the reduction was not bought at the price of increasing related crimes within that police patrol sector. Whether offenders then tended to continue the same activities in other non-experimental sectors is more nearly open to question and data insufficiencies do not permit the question to be adequately addressed.

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