ATLANTA IMPACT PROGRAM

Evaluation

72-DF-04-0059

EVALUATION OF THE EFFECTS ON SPECIFIC CRIMES OF UTILIZING POLICE OVERTIME PERSONNEL

APRIL 1973

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TABLE OF CONTENTS

1.0 PREFACE

The Law Enforcement Assistance Administration (LEAA) was created by the Omnibus Crime Control and Safe Streets Act of 1968 for the purpose of improving law enforcement and the criminal justice system in the United States. Its principal means of fulfilling this task is awarding of grants to states, local units of government, private research organizations and universities. Eighy-five percent of LEAA funds is awarded to the states according to population. These are referred to as "block" grants. The remaining 15 percent is awarded by LEAA at its discretion. For fiscal years 1972-1974 a substantial proportion of these "discretionary" funds is being directed to a high impact anti-crime program.

Funding of this program involves concentration of resources on specific types of crime: stranger-to-stranger (robberies, homicides, aggravated assaults, and rapes) and on burglary. These crimes were selected because they are:

1. A statistically significant part of the total crime problem.
2. Crimes that can be affected by a concerted effort of the criminal justice system.
3. A major concern of the general public.

Eight urban cities -- Atlanta, Baltimore, Cleveland, Dallas, Denver, Newark, Portland, and St. Louis -- were chosen for the Impact Program because the highest proportion of crime victims live in cities and it is there that the incidence of crime continues to rise significantly. In Atlanta, the program is housed in the Atlanta Regional Commission, an umbrella planning agency which housed the Criminal Justice program.

The goal of the Impact Program is to reduce stranger-to-stranger crime and burglary by 5 percent in two years and 20 percent in five years.[1] Concentration upon specific crimes represents a unique step in criminal justice planning. Earlier approaches were generally conducted through analysis of one of two conceptual models:

1. Process Model

   Describes and studies the sequential processes which comprise the criminal justice system -- apprehension, adjudication, correctional supervision.

   Generally concerned with documenting these processes and analyzing the flow of offenders moving through a process (workload statistics) and comparing these to the resources expended to perform the process.

2. Component Model

   Studies of individual agencies comprising the criminal justice system.

   Generally aimed at changing procedures in order to obtain maximum effectiveness within the agency.

Each model gives a different perspective of the criminal justice system. The process model is constrained by the

[1] Funding has only been provided for two years, however, although project funds can be distributed over a longer period of time.

resources available within each process and the component model addresses and optimizes a particular component while neglected other elements or components of the system. Neither model focuses upon the basic issues of reducing crime or forcing accountability for expenditures. Analysis of these approaches resulted in recognition that an approach was needed that focused upon the final goal -- a reduction in crime instead of the means-and also considered the complete system. The complete system includes the offense, the victim, the offender, the processes applied, and the components involved. Crime-specific planning initiated under the LEAA Impact Program is such an approach. It provides a framework for criminal justice planning in which the component and process models can be applied. It approaches criminal justice problems by considering sub-problems categorized by type of offense and integrating process and component activities to achieve a common objective -- the reduction of specific offenses. The steps in crime specific planning are shown on page 4.

With crime specific planning as a foundation, a structure was developed for the Atlanta Impact Program. Refer to Figure 2 on page 5. The Police Overtime Project was one outgrowth of this.

2.0 UNDERLYING MOTIVATIONS IN PROJECT SELECTION

The Impact Program needed a visible, operational project "on the streets" to offset mounting criticism of program delay. It was determined that a police overtime project would serve this purpose since it could be easily designed to conform with Impact guidelines and could be quickly implemented. The underlying motivation of the Atlanta Police Department was to provide salary supplements for personnel who participated.

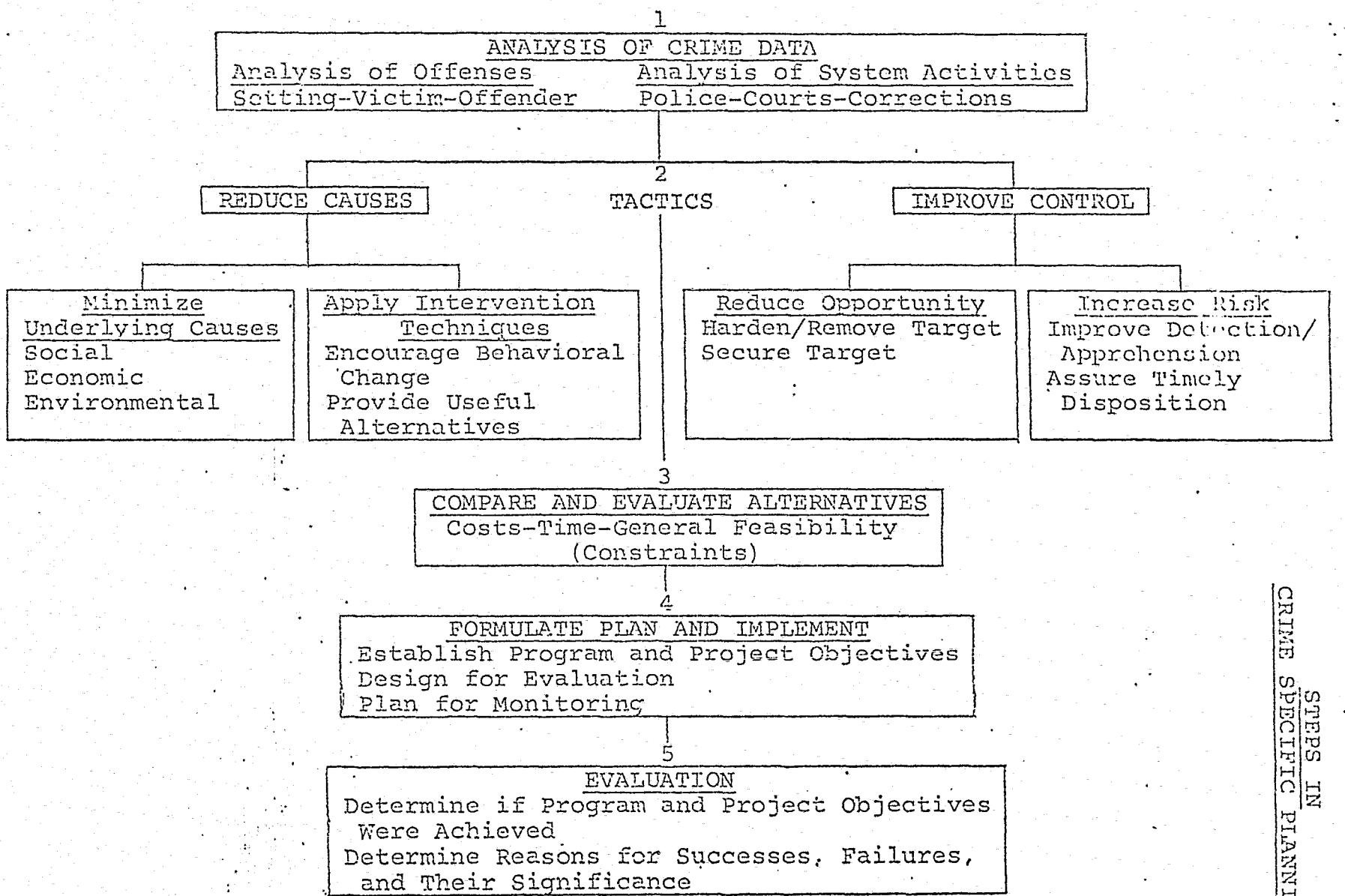


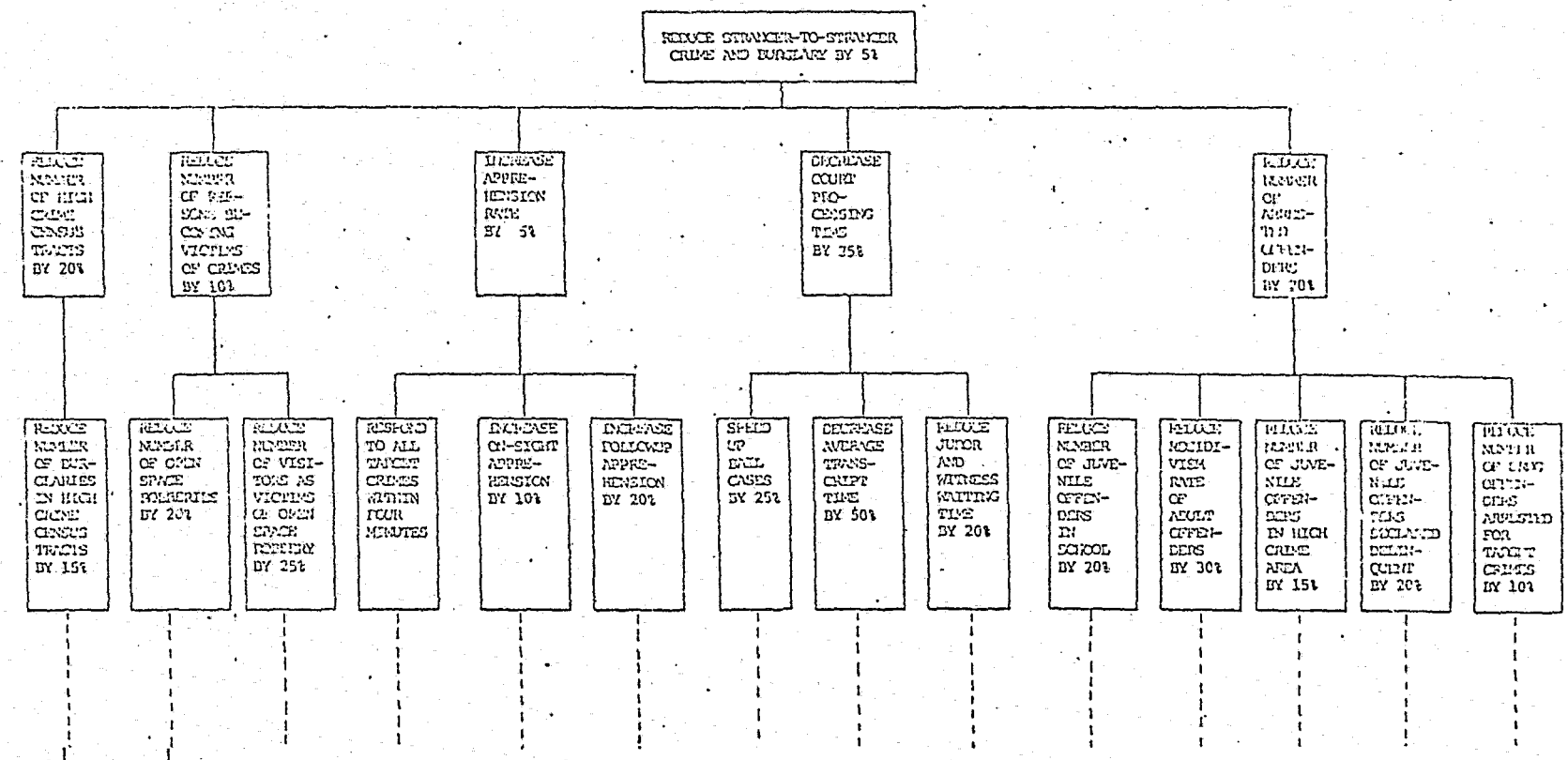
FIGURE 1
STEPS IN
CRIME SPECIFIC PLANNING

PROBLEM STRUCTURE

A. GOAL

B. SUB-GOAL

C. OBJECTIVE



3.0 DESCRIPTION OF THE PROJECT

The Police Overtime Patrol was a six-month project to increase preventive patrol in two high crime areas of Atlanta[2] during high crime hours on high crime days. The project was to concentrate upon reduction of the incidence of robbery and non-residential burglaries. Atlanta Police Department personnel were allocated to the preventive patrol units on an overtime basis. No new employees or equipment were required. Personnel in regularly deployed units of the Atlanta Police Department were not decreased since the patrol personnel worked overtime hours. Overtime units were to be utilized for prevention, interception, and apprehension only and were not to be responsible for answering routine calls for service. Personnel worked two to a car in order to increase safety and apprehension capability. No man was to work more than twelve total hours in one day or more than sixteen overtime hours in one week. The project was implemented August 11, 1972, using eighteen men and nine cars.

4.0 METHODOLOGY

The purpose of this section is to explain and illustrate the approach to evaluation of the Overtime Project. This purpose will be accomplished by detailing the evaluation methodology in a step-by-step fashion and applying the methodology to the Overtime Project. Despite the emphasis upon quantitative measures in the remainder of the section, it is stressed that qualitative input is necessary throughout

[2]The neighborhood names for those areas are Bankhead and East Lake-Kirkwood.

the process in order to supplement the quantitative input and aid in the interpretation of the quantitative measures.[3]

Clarification of terminology was important in order to avoid misconceptions. The following definition of evaluation was adopted:

> Evaluation is the process of determining the amount of success in achieving a predetermined goal or objective where the goal or objective may be either interim, thus determining amount of progress, or final, thus determining level of accomplishment. In addition, wherever possible statistical significance of the level of performance achievement will be determined.

While the above definition was useful conceptually it was also important to have an operational definition. To that end, evaluation was also defined according to the step-by-step activities necessary to perform it. It included the following:

Step 1: <u>Specification of the Measurable Project Goals and Objectives</u>

The words "goal" and "objective" as used at this step referred to the specific accomplishments expected to result from the project activity. Formulation of these included identifying any important limits or conditions under which the results were to occur, for example, in a specific geographical area, with a specific population having particular characteristics, within a specified time frame, etc.

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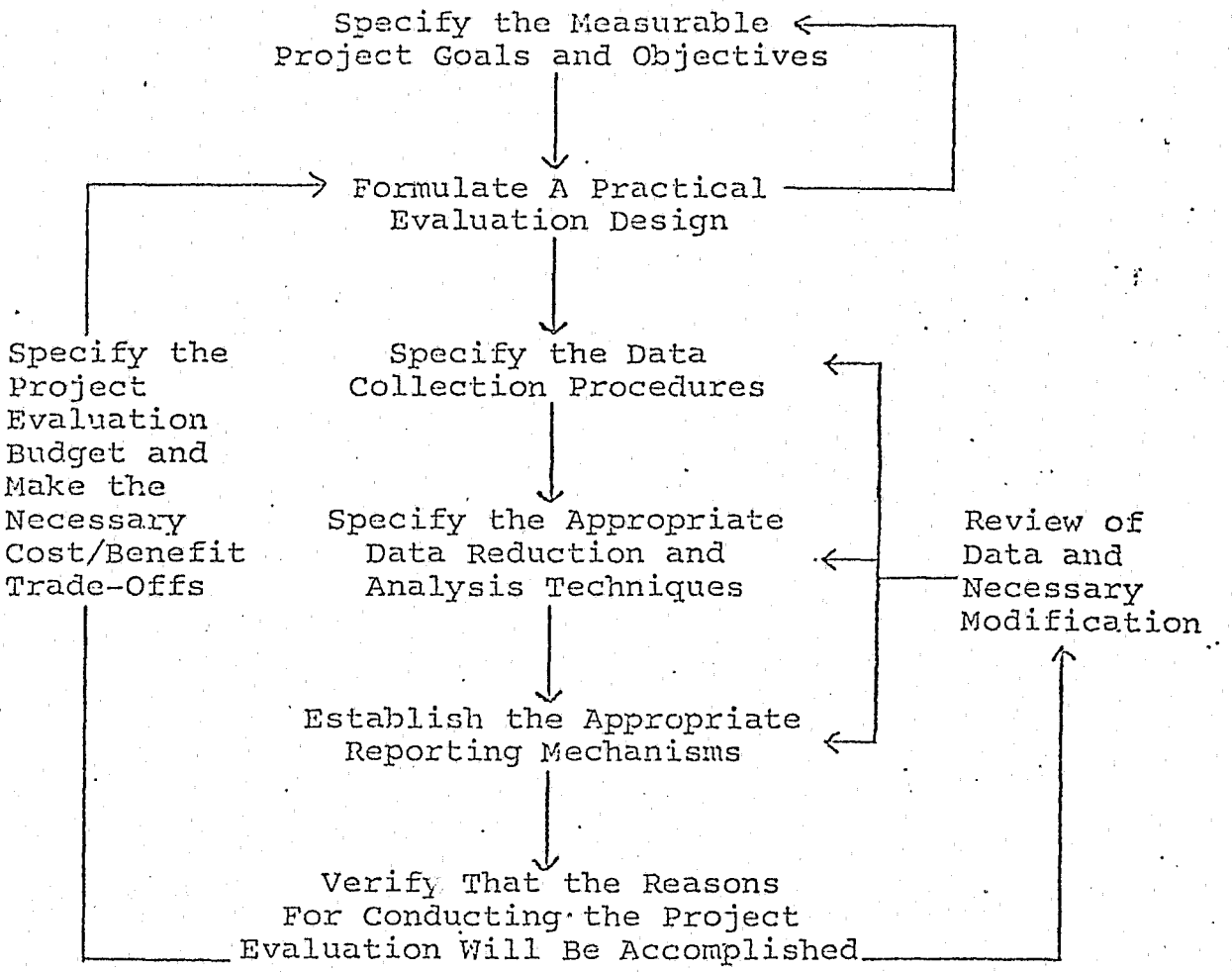
[3]Qualitative inputs were obtained primarily through: 1. Opinion questionnaires and discussions with participating police personnel, non-Overtime officers in the Overtime areas, and personnel from the Planning and Research Department of the Police Department. 2. "Riding" with the Overtime patrol.

FIGURE 3

A SCHEMATIC FLOW MODEL OF THE PROJECT EVALUATION PROCESS



The primary results expected were designated as goals and these were related to the overall LEAA specified program goals. The secondary results were designated as objectives and were relevent, but not necessarily related to the overall LEAA specified program goals. The objectives typically supported the project goals and were important for monitoring considerations with respect to interim performance.

The key to the output desired from this first step in the evaluation process was the word "measurable." The output from this step precisely identified the basic data elements necessary to determine the amount of success in achieving the predetermined goals and objectives. This was accomplished by a three-step process:

1. Converting the goals and objectives to specific criteria which stated the expected levels of accomplishments in numerical terms (number, percentage, index) at specific points in time. Levels of accomplishment were required for both final and interim evaluation at selected points in time as project content and logic dictated.

2. Constructing, for each criterion, performance measures which when implemented measured the actual amount of success for each criterion.

3. Identifying the basic data elements required in order to compute the performance measures.

The goals and objectives had to be measurable in order for the evaluation to be conducted. Thus, the process was an iterative one which terminated only when all of

the above were accomplished and were internally consistent. When it was not possible to convert the goals and objectives to criteria, to develop performance measures for each criterion, and/or to identify the basic data elements for each performance measure, then the process iterated. At the next iteration the following kinds of questions were addressed:

1. Are the key variables and parameters sufficiently well-defined to be unambiguous?
2. Are the goals and objectives sufficiently well-defined that criteria can be specified?
3. Can meaningful performance measures be constructed for each criterion?
4. Is it possible to identify the basic data elements from which the performance measures can be computed?

At each iteration, interaction between CAT program and evaluation personnel and the project personnel from the operating agency was considered essential in order that all elements be finalized in such a way that both interested parties were convinced that the output was satisfactory.

In addition to being measurable, the goals and objectives had to satisfy two other conditions. They had to be feasible; it had to be highly likely that the specific levels of accomplishment could be achieved within the scope of the project. Secondly, the goals and objectives were to be cost-effective, i.e., the expected contribution relative to program goals and objectives had to be sufficient to justify the project cost.

The CAT[4] personnel performed a crucial role in all aspects of the first step of the evaluation process. In particular, the responsibility for assuring the feasibility

[4]Crime Analysis Team of the Atlanta Regional Commission.

of the project goals and objectives rested with the appropriate program planner and the agency personnel. The basic question was whether or not the expected results were realistic, a priori.

The assessment of the cost-effectiveness of the project required an evaluation at the program level. Considerations such as the following were reviewed:

1. Are the goals (primary results) directly related to the LEAA specified goals? Does the level of contribution to the LEAA specified goals warrant the expenditure of the required resources such as budget, manpower, etc.?

2. Are there other on-going Impact projects which are attacking the same aspect of the crime problem? Are there other proposed, or expected, Impact projects which attack the same aspect of the crime problem? Are all the projects desirable? Are they all necessary? What is the most cost-effective combination of projects?

3. Is the project necessary (or desirable) because it complements and reinforces other Impact projects? Are there other Impact projects which complement and reinforce the project under consideration?

4. Will there by any side-effects such as displacement?

5. Are there any external influences, such as projects outside the Impact Program, which might significantly influence the results or costs expected relative to the project?

6. Are there any public or agency concerns, policies, or attitudes which will assist or restrict the project?

In summary, Step 1 provided:

1. Measurable project goals and objectives which were judged to be feasible and cost-effective.

2. Internally consistent criteria, performance measures, and basic data elements.

Step 1 will be illustrated by application to the Overtime Patrol Project.

1. Define the Project's Goals and Objectives:

Goals:

A. Decrease robberies in each of the two overtime areas within six months from date of implementation.

B. Decrease non-residential burglaries in each of the two overtime areas within six months from date of implementation.

Objectives:[5]

C. Reduce fear on the part of the residents and businessmen in the overtime areas.

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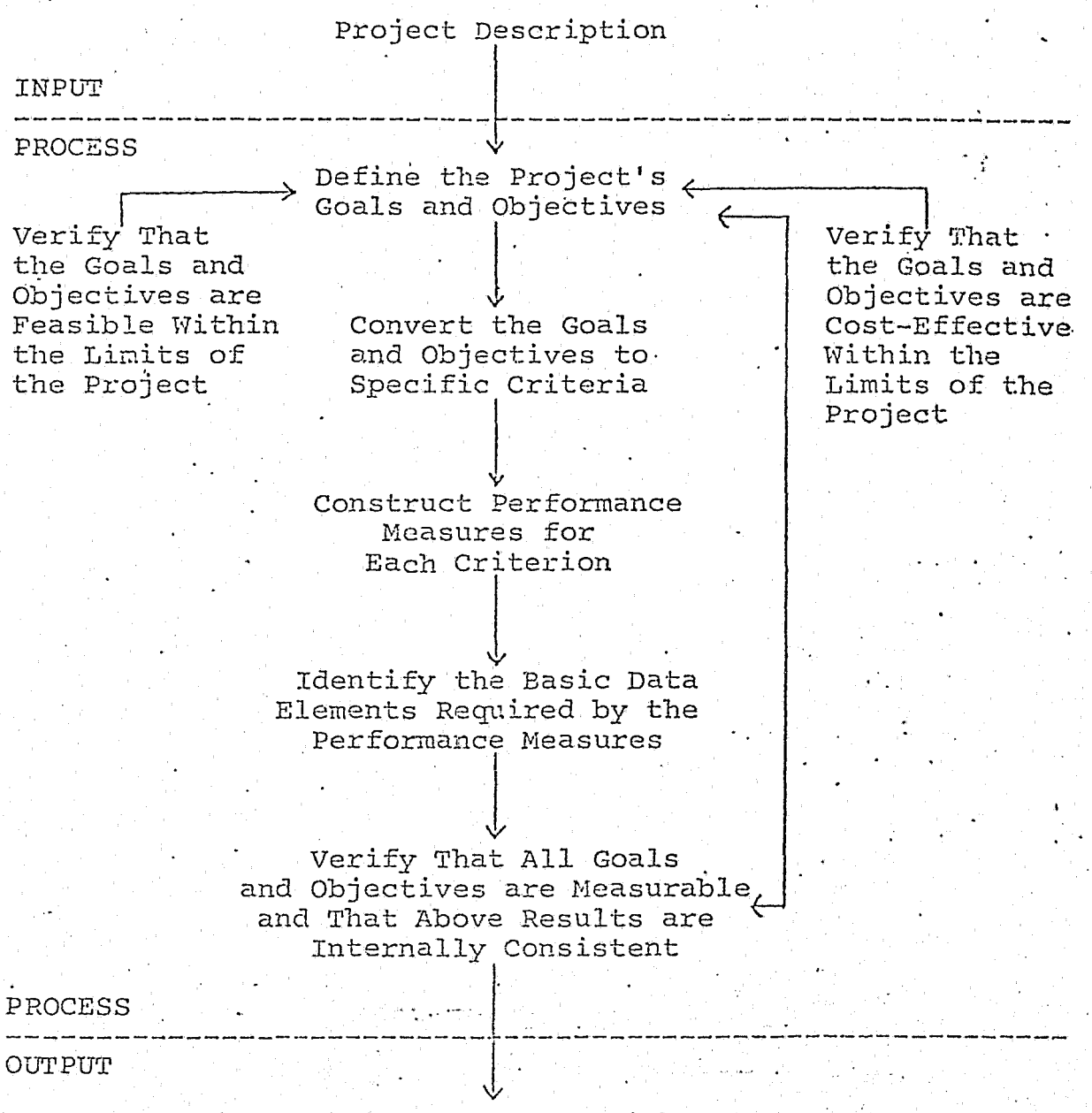
[5] In succeeding grants objectives typically are more directly related to the project goal.

FIGURE 4

A SCHEMATIC FLOW MODEL OF STEP 1: SPECIFY MEASURABLE GOALS AND OBJECTIVES



D. Increase citizen regard for police by the residents and businessmen of the overtime areas.

2. Convert the Goals and Objectives to Specific Criteria:

Criteria:

A. Decrease robberies in each of the two overtime areas by 5% within six months from date of implementation.

B. Decrease non-residential burglaries by 5% in each of the overtime areas within six months from date of implementation.

C. Reduce fear on the part of the residents and businessmen in the overtime areas by at least a three-point shift on a ten-point scale.

D. Increase citizen regard for police by the residents and businessmen in the overtime areas by at least a one-point shift on a four-point scale.

3. Construct Performance Measures for Each Criterion:

A1. Let R_{11} = Average number of robberies committed per month in area 1 for the three months immediately preceding implementation of the project. Since the project will be implemented in August, 1972,

$$R_{11} = \frac{\text{Number of Robberies in the Area (May, June \& July)}}{3}$$

Let R_{12} = Same as R_{11}, except for area 2.

3. Let R_{21} = Average number of robberies committed per month in area 1 for the final three months of the project (recall it is a six-month project):

$$R_{21} = \frac{\text{Number of Robberies in the Area (November, December \& January)}}{3}$$

Let R_{22} = Same as R_{21}, except for area 2.

4. If $\frac{(R_{11} - R_{21})}{R_{11}} \geq .05$ and $\frac{(R_{12} - R_{22})}{R_{12}} \geq .05$,

then criterion 1 (goal 1) will be achieved.

B. Let B_{11}, B_{12}, B_{21}, B_{22} be defined analogous to R_{11}, R_{12}, R_{21}, R_{22}, except for non-residential burglaries. Then, if

$$\frac{(B_{11} - B_{21})}{B_{11}} \geq .05 \text{ and } \frac{(B_{12} - B_{22})}{B_{12}} \geq .05,$$

criterion 2 (goal 2) will be achieved.

C1. Let f_{11} be the average point on the ten-point scale for "fear" in area 1 prior to the implementation of the project. Let f_{12} be the analogous point for area 2.

2. Let f_{21} be the average point on the ten-point scale for "fear" in area 1 at the end of the project. Let f_{22} be the analogous point for area 2.

3. Given 0 = "high fear" and 10 = "low fear", then if

$$f_{21} - f_{11} \geq 3 \text{ and } f_{22} - f_{12} \geq 3,$$

criterion 3 (objective 3) will be realized.

D. Let r_{11}, r_{12}, r_{21}, r_{22} be defined analogous to f_{11}, f_{12}, f_{21}, f_{22}, except with respect to the "regard" scale. Let 0 = "high regard" and 4 = "low regard."

$$r_{11} - r_{21} \geq 1 \text{ and } r_{12} - r_{22} \geq 1,$$

then criterion 4 (objective 4) will be realized.

Each performance measure was calculated at the end of the three month period (October) for the purpose of interim evaluation.

4. Identify Basic Data Elements:

A. For each overtime area, the number of robberies per month for May, 1972, to January, 1973.

B. For each overtime area, the number of non-residential burglaries per month for May, 1972, to January, 1973.

C. Average points on the "fear" scale for prior to the project, at the mid-way (3-month) point, and at the end of the project (6-month point).

D. Average points on the "regard" scale for prior to the project, at the mid-way (3-month) point, and at the end of the project (6-month point).

5. Verify for Feasibility, Cost-effectiveness, and Internal Consistency:

It was verified by discussion between the appropriate police department and CAT people that the goals and objectives (as quantified as criteria) were reasonable and could be expected, a priori, to be feasible results. A review at the program level verified that the goals and objectives were cost-feasible. All goals and objectives were measurable and the goals and objectives, criteria, and basic data elements were internally consistent.

Step 2: Formulation of a Practical Evaluation Design

Discussion of the Process

The key words at this step were "practical" and "design." Consider first the word "design." In order for the conclusions drawn from the evaluation to be valid, it was necessary to separate the impacts of the project activity from the changes which were caused by exogenous factors, e.g., other, perhaps non-Impact, projects. Thus the purpose of the evaluation design was to assure that it would be possible to isolate the changes caused by the project.

There are basically two types of designs which were appropriate -- "control group" and "before-after" designs. These designs are based on quite different logic processes, namely:

1. The logic underlying the "control group" approach is based on an assumption that it is possible to identify two environments; e.g., geographical areas, populations, etc., which have similar characteristics. One of these is designated the control group and the other the experimental group. The basic data elements are collected for both groups. The additional assumptions are made and must be verified that all factors influencing the experimental group, except the project activity, also influence the control group and that all factors influencing the control group also influence the experimental group. Under these assumptions, any differences between the performance measures associated with the experimental group and those of the control group can be attributed to the project.

2. The "before-after" approach is based upon one of two assumptions. It is assumed that the project activity or that the impacts of other changes on the performance measures can be determined. In either case, if the basic data elements are collected before the project is implemented as well as during and after the project, then the impact of the project activity on the performance measures can be determined.

The two approaches -- "control group" and "before-after" -- can be taken simultaneously and should be

when practical. At least one of the approaches must be taken in order to conduct a valid evaluation.

In order to test whether or not the control group was satisfactory, such questions as the following were considered:

1. Are the crime rates the same and are they at the same level and following the same trend?

2. Do the offenders have similar characteristics such as age, race, education, etc.?

3. Are police and/or court operations the same?

4. Are any exogenous factors which are not under CAT control likely to occur with respect to one group and not the other?

Recall that the other key word was "practical" -- the design was to be practical. It had to be possible to collect and manage the required data elements within the resources (both level of effort and number of people) available for this purpose.

Clearly, several iterations within Step 2 and between Steps 1 and 2 may be required before a practical design has been formulated. The outputs from this step in the process were:

1. A practical evaluation design.

2. Identification of required basic data elements.

3. Specification of interim goals and objectives and a timetable of accomplishments.

It is important to explicitly recognize that the basic data elements identified at the end of Step 2 did not have to be the same as the data elements identified at Step 1. Changes could have occurred for two reasons. First, the specification of an evaluation design resulted in baseline as well as performance data. Secondly, consideration of the practicality of the design could have necessitated reiteration through Step 1. This reiteration could have resulted in modification of the performance data. Two classes of data elements were specified:

1. Performance data elements: Data elements required in order to calculate the performance measures specified in Step 1.

2. Baseline data elements: Data elements which summarize pre-project conditions and are sufficient to accurately forecast trends (ideal would be the previous calendar year data and data to date for both project and "control" group).

Illustration of Step 2

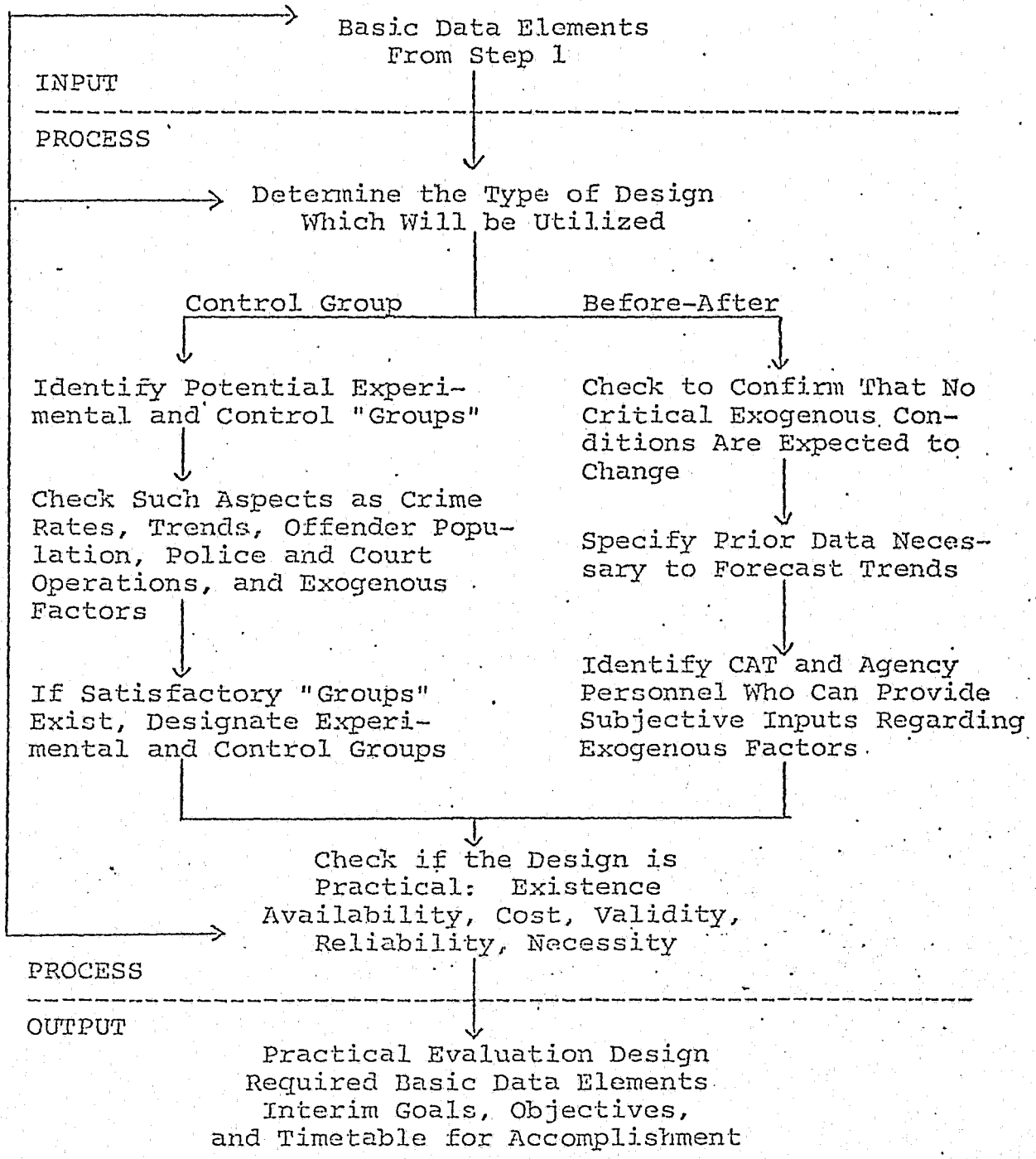
1. Determine the Type of Design Which Will Be Utilized:

   Aspects of both designs were utilized. Before-after data was collected for all the performance measures for both "control" and "experimental" groups. Note that "after" refers to both the three-month (interim evaluation) and the six-month (final evaluation) data.

   The overtime areas: East Lake-Kirkwood area and Bankhead-Gordon Road area were selected as the

FIGURE 5

A SCHEMATIC MODEL OF STEP 2: FORMULATE A PRACTICAL EVALUATION DESIGN



overtime (experimental) areas by the police data. These areas were selected because they are high robbery and burglary areas (police data) and because they are relatively small geographically. Both areas were characterized by police as low-income, large number of minority race citizens, and less than satisfactory with respect to both "fear" and "regard."

The Summerhill area was identified by the police Department as the control area. Police Department personnel felt Summerhill was similar to the over-time (experimental) areas along all the above dimensions. The purpose of the control group was to determine whether or not the project is causing the measured changes or whether or not these changes are occurring elsewhere and for exogenous reasons.

For a complete design, all the basic data specified for the overtime areas should also be collected for the control area. The "before" data should be compared to determine that the control and the experimental areas are similar. In addition, demographic and other pertinent descriptions should be compared.

2. Check If Design Is Practical:

The data on number of robberies and burglaries committed in a geographical area were readily available to the Police Department personnel and could be provided on a week-by-week basis for the months of May, 1972, through January, 1973, with minimal cost and effort and with high reliability

and validity. The other performance data (criteria 3 and 4) were not routinely collected, were less valid and reliable, and required the design and implementation of special data collection systems, including a questionnaire survey of residents and businessmen. Thus, it was decided:

> Only the numbers of robberies and burglaries (the primary goals) weekly for May, 1972, through January, 1973, would be generated for the control area. The other performance data would be collected only for the overtime areas.
>
> The potential control area would be judged as satisfactory if the monthly robbery and burglary rates were at similar levels and following similar trends.

It was also decided that:

> The two overtime areas should be treated as a single experimental area and that this could be accomplished with no loss of data validity or reliability.

As a result of this decision the goals and objectives, criteria, and performance measures were modified to remove the "for each area" considerations. All else in Step 1 remained unchanged.

Given the above decisions, the design was judged to be practical. Interim accomplishment was evaluated at the end of the first three months using the same goals, objectives, and performance measures. Because of the short length of the project, interim levels of accomplishment were not specified a priori.

Step 3: Specification of Data Collection Procedures

Discussion of the Process

The purposes of this step were:

1. To determine how the data would be collected.

2. To specify by whom it would be collected.

3. To decide upon the frequency with which it would be collected.

4. To design the forms to be used for data collection.

The above was formulated for all the required basic data elements.

Some preliminary thinking with respect to data collection was required in Step 2 when analyzing the practicality of the design. To the extent possible, existing data systems were utilized.

To the extent possible, agency personnel were responsible for collecting the data and reporting it to the CAT evaluation personnel. CAT personnel restricted their project data collection to monitoring and validation purposes, to the design of special studies for future information and insights, and to surveys or special data collections for additional information and insights. In determining which data required validation, the following were considered:

1. Which data were most sensitive in the sense of resulting in an erroneous evaluation conclusion?

2. Which data were from existing data systems and which from new systems?

3. Which data could be validated within reasonable cost and time demands?

The actual validation procedure was an audit of project records using spot checks.

Data was collected with a frequency consistent with the time phasing of the expected levels of accomplishments specified in the criteria which were developed in Step 1. It was also collected when unexpected, significant events occurred.

Data and report forms were designed with two characteristics in mind:

1. Convenience of the individual and the agency in summarizing and reporting the data.

2. Consistency of the data format with the requirements of the subsequent data reduction and analysis methodologies.

In some instances the data forms were structured interview instructions or questionnaires. After grant approval and before project implementation, it was the agency's responsibility to identify all data forms and provide an example of each to the CAT for approval.

Figure 6 is a schematic flow model for Step 3. The output is a specification of the data collection procedures.

FIGURE 6

A SCHEMATIC MODEL OF STEP 3: SPECIFY DATA COLLECTION PROCEDURES

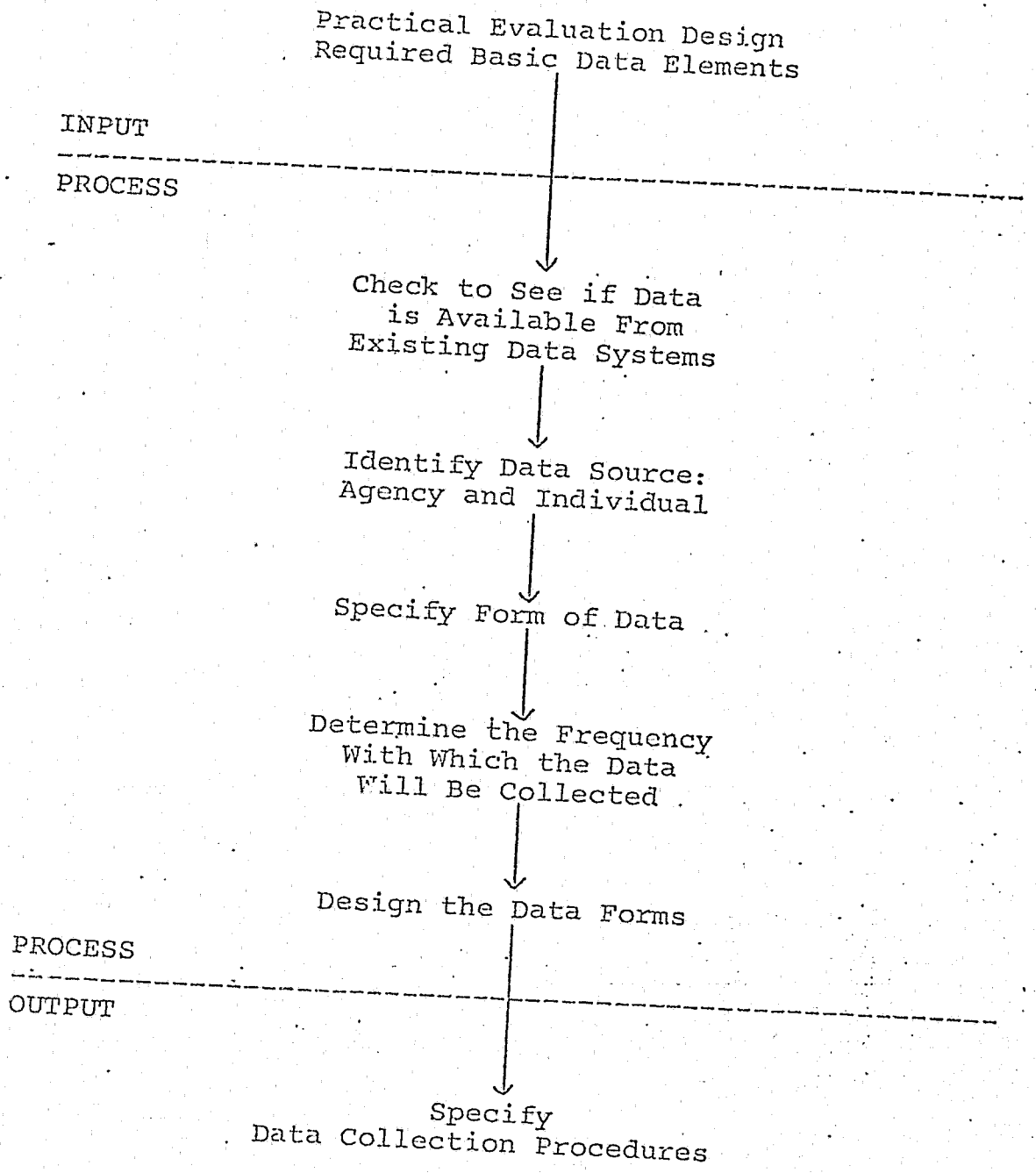


Illustration of Step 3

1. Check If Data Is Available From Existing Data Systems:

The data regarding numbers of robberies and burglaries was readily available from existing data systems. All other data was collected by data systems specifically designed for the purpose of this project evaluation.

2. Identify Data Source - Agency and Individual:

Agency: City of Atlanta, Department of Police

Individual: Major Mike Edwards, Planning and Research

Data Reported To: Ms. T. Sprott, CAT

All data was collected by the agency personnel, except special data collections.

3. Specify Form of the Data:

The form of the data is determined by the data forms which are included in the illustration. (Figures 7, 8, 9, 10).

4. Specify Frequency of Data Collection and Reporting:

Numbers of robberies and burglaries and apprehension data were collected weekly and reported, by week, on a monthly basis.

(Control Area) (Overtime Area)

	Dates								
Burglaries Occurring During Overtime Period									
Business									
Residential									
Burglaries Occurring During Non-Overtime Period									
Business									
Residential									
TOTAL BURGLARIES									
Robberies Occurring During Overtime Period									
Robberies Occurring During Non-Overtime Period									
TOTAL ROBBERIES									

FIGURE 7

SECURITY FEELING QUESTIONNAIRE[1]

Person Interviewed _____

Name of Business _____

Address _____

1. How long have you been in business at this location? _____
2. How many burglaries have you had in the last two years? _____
   Robberies? _____
3. When was your last burglary or attempted burglary? _____
4. Have you or any of your employees been injured as a result of robberies? _____
5. Rate your feeling in regard to personal safety in operating a business in this area on the following scale:

   Very Safe — 10 9 8 7 6 5 4 3 2 1 0 — Very Unsafe

6. Rate your feelings in regard to fear of property loss in operating a business in this area on the following scale:

   I feel confident that I will have no loss — 10 9 8 7 6 5 4 3 2 1 0 — I feel sure that I will have a heavy loss

7. Have you had any problems in hiring persons to work in your business because of fear of robbery? _____
8. What safeguards do you have to deter or prevent burglary and/or robbery of your business? (Alarms, locks, lighting, etc.) _____
9. Rate your feelings about the number of quality of police in this area.

   Adequate Number Well Qualified | Adequate Number Not Qualified | Inadequate Number Well Qualified | Inadequate Number Not Qualified

10. What can the police do to make you feel more secure? _____

[1] Designed by the Police Department. Question 9 was considered by the CAT to be improperly designed but analysis of the pros and cons of requesting that it be changed resulted in the decision to use the form as presented by the Police Department.

FIGURE 9

OVERTIME EVALUATION SHEET

For Week Ending Monday, _____

Officer _____

Shift _____

	F	S	S	M	TOTAL
Robbery Arrests					
Burglary Arrests					
Other Felony Arrests					
Other Misdemeanor and Ordinance Violation Arrests					
Total Arrests					

Total Arrested Persons Bound Over From City Court

	F	S	S	M	TOTAL
Field Contacts					
Vehicle Mileage					

List Suggestions or Comments About the Overtime Program

FIGURE 10

OVERTIME EVALUATION SHEET
BY OTHER OFFICERS IN PATROL AREAS

Officer _____

Assignment _____

Regular or Roustabout _____

Date _____

Please list any comments or suggestions in regard to the operation of the Overtime Patrol Program in this particular area. (Be as brief and direct as possible.

_____

_____

_____

_____

_____

_____

_____

_____

Please evaluate the effectiveness of the Overtime Patrol Program in this particular area on the scale provided below.

Very Effective Not Effective

10 9 8 7 6 5 4 3 2 1 0

Total Non-Resident Burglary Arrests During Past Week Ending Sunday,

_____

The questionnaires designed to measure "fear" and "regard" were to be administered every three months and reported as soon as possible.

In addition, the progress reports required by the monitoring activity were submitted every three months and were supposed to be when the agency believed that critical events had occurred which should be reported. They included the agency's data summaries, observations, and explanations. This was important subjective (qualitative) input to the evaluation.

5. Design the Data Forms:

See the following:

Figure 7: Overtime Data Summary Form
Figure 8: Security Feelings Questionnaire
Figure 9: Overtime Evaluation Sheet
Figure 10: Overtime Evaluation Sheet By Other Officers in Patrol Areas

Step 4: Specification of Data Reduction and Analysis Methods

Discussion of the Process

The output from the previous steps in the evaluation process included quantified performance measures for each interim and final goal and objective (Step 1), specification of the basic data elements necessary for performance measures and for baseline measures (Step 2), selection of a practical evaluation design (Step 2), and appropriate data collection procedures for each basic

data element (Step 3). The focus of Step 4 was on determining the data reduction and analysis methods that would be applied to the data.

Data reduction and analysis methods were required for two primary purposes:

1. To measure the amount of success in achieving the predetermined project goals and objectives, both interim and final.

2. To describe and/or explain impacts and relationships in order to provide knowledge which would be useful in future planning and project activity.

Measures of success in achieving project goals and objectives were critical in order to satisfy the following needs:

1. Monitoring and direction during the project activity, primarily from the interim goals and objectives.

2. Assessment of project success and contribution to program goals, primarily from the final goals and objectives.

3. Recommendations as to whether or not the project activity should be continued, subsequent to Impact support, as an on-going agency activity, from both the interim and final goals and objectives.

Similarly, description and explanation were important to satisfy the following:

1. Analysis of reasons for the degree of success or failure.

2. Identification of possible displacement effects.

3. Improved management practices for project operation.

4. Better information upon which to base future plans and project recommendations.

Thus, there were several considerations in the decision as to what methodologies would be utilized, including the type of information or insight which was sought.

With respect to measures of success, there were two important considerations:

1. Ascertaining the degree to which the project achieved the goals and objectives.

2. Determining if the level of accomplishment was statistically significant or if significance could be supported by some other argument.

The quantified performance measures of Step 1 and the baseline data specified in Step 2 provided the input for determining the degree to which the goals and objectives were attained.

While the above determined if the interim and/or final goals and objectives were realized, it was also important to examine if a valid argument existed for whether or not the project activity had a cause-effect impact. That is, given that the project goal or objective is attained, could evidence be presented to support the hypothesis that the project activity caused the shift?

It is precisely this question which motivated the discussion of "control group" and "before-after" evaluation designs in Step 2. The two most applicable approaches to answering the significance (or causalities) question were:

1. Determining if the actual level of accomplishment was statistically significantly different from the best estimate of the same measure if the project had not been implemented.

2. Determining if the actual level of accomplishment was significantly (not necessarily in a statistical sense) different from what occurred in the control group.

The first approach entailed use of the concept of hypothesis testing as developed in mathematical statistics. The particular test selected was determined by the underlying goals and objectives, the performance measures, and the data constraints and availability.

With respect to descriptive and explicative purposes, the key word was "opportunistic." The individual(s) responsible for evaluation had to be alert for any insights and knowledge that could be gleaned from the available data.

In addition to specifying the data reduction and analysis methods, the following were also accomplished at this step:

1. Identifying the individual(s) responsible for the evaluation analysis.

2. Determining, based on interim goals and objectives and other monitoring considerations, the points in time at which evaluations were to be performed.

3. Detailing how the results of the evaluation would be used, especially with respect to the management and monitoring considerations, such as:

   A. Assisting in overcoming implementation problems.

   B. Identifying needs and opportunities for modification or redirection.

   C. Providing information for continuation decisions.

The output from Step 4 completed the specification of the evaluation component at the project level. It then became the responsibility of the designated individuals to perform the evaluation.

Illustration of Step 4

1. Determine the underlying purposes for the analysis:

   A. Performance measures and the decision criteria were specified in Step 1. However, modifications were decided upon in Step 2. The modified decision criteria are presented below:

   Criterion 1

$$R_1 = \frac{\text{Number of Robberies in Overtime Areas (May, June \& July)}}{3}$$

$$R_2 = \frac{\text{Number of Robberies in Overtime Areas (August, September \& October)}}{3}$$

$$R_3 = \frac{\text{Number of Robberies in Overtime Areas (November, December \& January)}}{3}$$

Interim (3-month) progress:

$$\frac{R_1 - R_2}{R_1}$$

Final (6-month) project performance:

If $\frac{R_1 - R_3}{R_1} \geq .05$, then goal 1 is achieved.

Criterion 2

B_1, B_2, B_3 defined analogous to R_1, R_2, R_3, except for non-residential burglaries.

Interim (3-month) progress:

$$\frac{(B_1 - B_2)}{B_1}$$

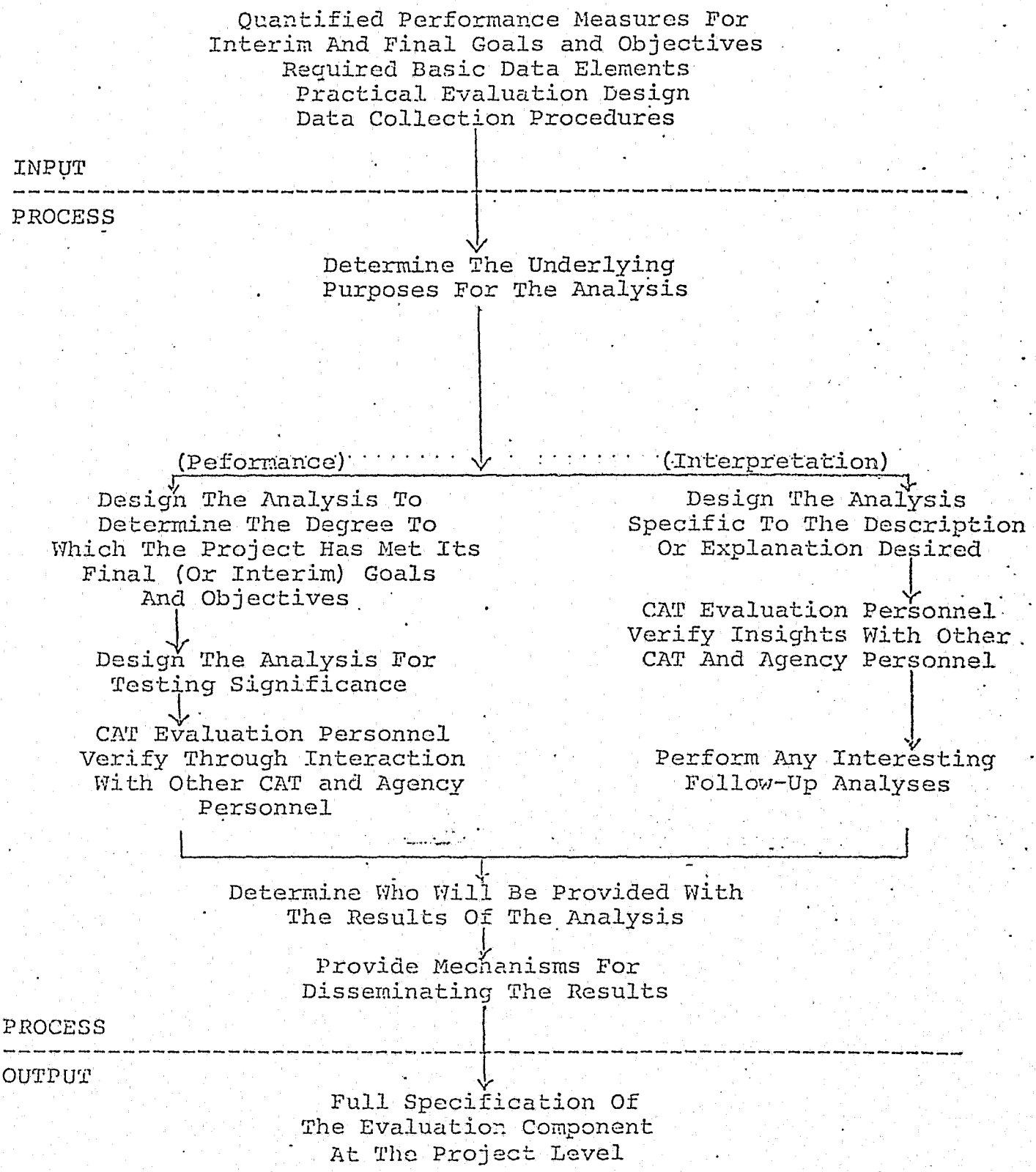
Final (6-month) project performance:

If $\frac{(B_1 - B_3)}{B_1} \geq .05$, then goal 2 is achieved.

FIGURE 11

A SCHEMATIC MODEL OF STEP 4:

SPECIFY DATA REDUCTION AND ANALYSIS METHODS



Criterion 3

f_{15} = Average (over all respondents in sample) point on 10-point scale for "fear" (question 5) question prior to implementation of the project.

f_{25} = Average (over all respondents in sample) point on 10-point scale for "fear" (question 5) question at 3-month (interim) period.

f_{35} = Average (over all respondents in sample) point on 10-point scale for "fear" (question 5) at 6-month (final) period.

Similarly define f_{16}, f_{26}, f_{36} for question 6.

Interim (3-month) progress:

$(f_{25} - f_{15})$, $(f_{26} - f_{16})$

Final (6-month) project performance:

If $(f_{35} - f_{15}) \geq 3$ and $(f_{36} - f_{16}) \geq 3$, then objective 3 is realized.

Criterion 4

r_1, r_2, r_3 defined analogous to f_1, f_2, f_3, except defined on 4-point scale for "regard."

Interim (3-month) progress:

$(r_1 - r_2)$

Final (6-month) project performance:

If $(r_1 - r_3) \geq 1$, then objective 4 is achieved.

Design the analysis for testing significance of project achievement. Data were available on the number of robberies and the number of burglaries for the overtime (experimental) and for the control areas for the months of May-September. Figure 12 summarizes these data in both frequency and trend-plot form. The August data represent the data for the first month after implementation of the project. The control area data were sufficiently similar to the overtime area data to be useful for checking significance with respect to goals 1 and 2 because the same underlying trends were observed in both areas. The only point at which there was considerable discrepancy was for July, Non-Residential Burglaries. Since August and September data were in line for both areas, this was not a serious discrepancy. If (1) the trend in the overtime area decreased and the trend in the control area increased or stayed constant, or (2) the trend in the overtime area stayed constant and the trend in the control area increased, then the reduction would be judged as significant.

Now consider objectives 3 and 4 and questions 5, 6, and 9 on the Security Feelings Questionnaire (Figure 8). Responses to questions 5 and 6 provided the basic data for objective 3 and question 9 for objective 4. Based on the data from the questionnaire administered prior

to the initia[illegible]n of the project, it was possible to compute a confidence interval for the sample average for each question. Let $\bar{X}_5$, $\bar{X}_6$, and $\bar{X}_9$, respectively.

The 95% confidence interval estimates are:

$$2.01 \leq \bar{X}_5 \leq 4.13$$

$$1.73 \leq \bar{X}_6 \leq 3.47$$

$$2.87 \leq \bar{X}_9 \leq 3.27$$

where $\bar{X}_5 = 3.07$, $\bar{X}_6 = 2.60$, $\bar{X}_9 = 3.07$

Thus, if the decision criteria were met, the change would be sufficiently large to conclude that the change was statistically significant. Figure 13 summarizes the data and calculations for computing the confidence interval estimates.

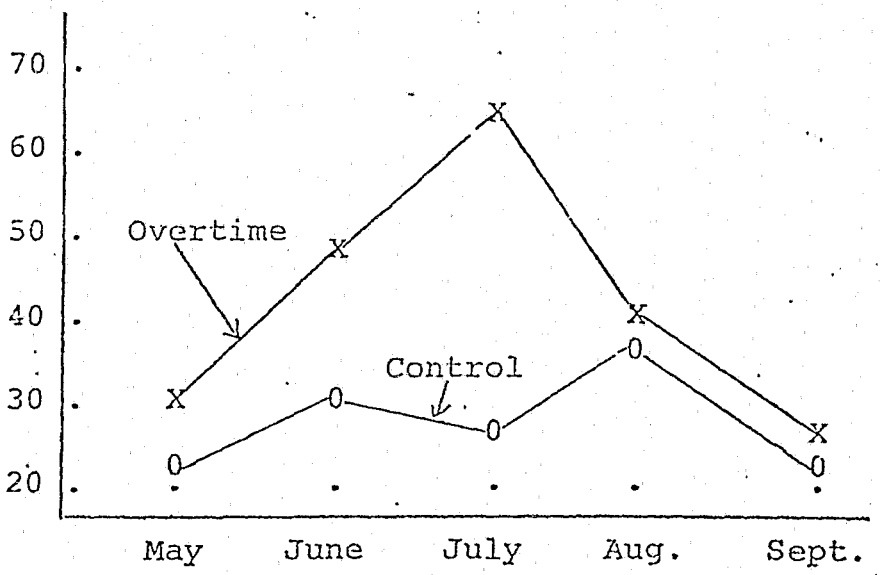
The feasibility of these approaches was verified with the appropriate police and CAT personnel.

B. Descriptive and Explanative Statistics

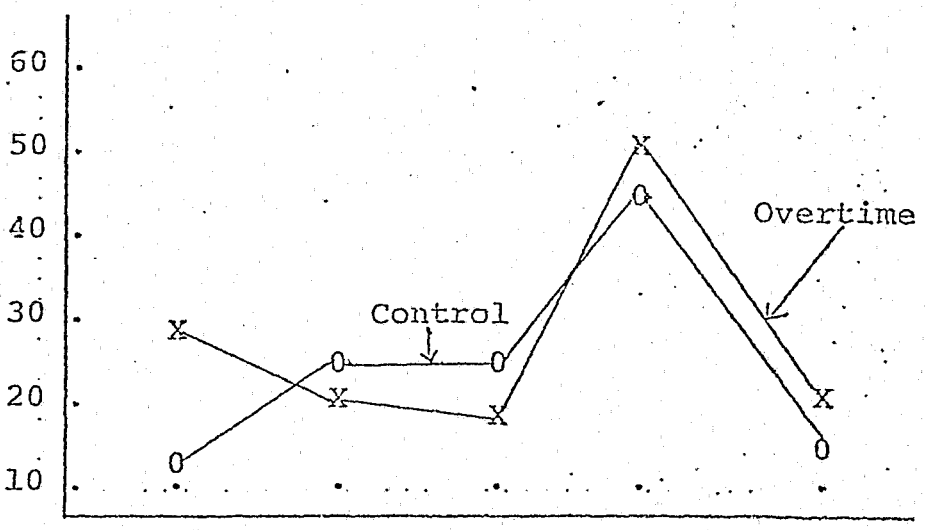
It is re-emphasized that being opportunistic is important in evaluation. The statement, "It is possible that the Patrol has had some effect in shifting the high crime hours to a different time other than those determined by our research prior to the program," was noted in an initial progress report (October 27, 1972). Clearly, this was a displacement of crime -- displacement to different times of the day,

NON-RESIDENTIAL BURGLARIES:

TOTAL FOR MONTH



Non-Residential Burglaries	May	June	July	Aug.	Sept.
X - Overtime Area	29	47	62	44	24
0 - Control Area	22	30	27	40	22



Robberies	May	June	July	Aug.	Sept.
X - Overtime Area	29	20	17	50	19
0 - Control Area	10	22	22	45	15

FIGURE 13

1. BASIC DATA (F = Frequency)

QUESTION 5				QUESTION 6				QUESTION 9			
X	F	X·F	$X^2 \cdot F$	X	F	X·F	$X^2 \cdot F$	X	F	X·F	$X^2 \cdot F$
0	11	0	0	0	11	0	0	1	1	1	1
2	2	4	8	2	3	6	12	3	24	72	216
3	2	6	18	3	7	21	63	4	4	16	64
4	3	12	48	4	2	8	32				
5	9	45	225	5	3	15	75				
8	2	16	128	7	4	28	196				
9	1	9	9								
	30	92	536		30	78	378		29	89	281

---

2. CALCULATE $\bar{X} = \frac{\Sigma \cdot X \cdot F}{F}$

$$\bar{X}_5 = \frac{92}{30} = 3.07$$

$$\bar{X}_6 = \frac{78}{30} = 2.60$$

$$\bar{X}_9 = \frac{89}{29} = 3.07$$

$$s^2 = \frac{n\Sigma X^2 \cdot F - [\Sigma X \cdot F]^2}{n(n-1)}$$

$$s_5^2 = \frac{30(536) - (92)(92)}{30(29)} = 8.75$$

$$s_6^2 = \frac{30(378) - (78)(78)}{30(29)} = 6.04$$

$$s_9^2 = \frac{29(281) - (89)(89)}{29(28)} = 0.28$$

---

3. The 95% confidence interval is $\bar{X} \pm t_{\alpha/2} \cdot \frac{S}{\sqrt{n}}$ where $t_{\alpha/2} = 1.96$ for questions 5 and 6 and $t_{\alpha/2} = 2.045$ for question 9.

QUESTION 5	QUESTION 6	QUESTION 9
$\bar{X}_5 \pm \frac{2.96(1.96)}{\sqrt{30}}$	$\bar{X}_6 \pm \frac{2.45(1.96)}{\sqrt{30}}$	$\bar{X}_9 \pm \frac{2.045(.54)}{5.4}$ $\frac{.54(1.96)}{5.4}$
$\bar{X}_5 \pm 1.06$	$\bar{X}_6 \pm .87$	$\bar{X}_9 \pm .20$

---

4. If averages from later questionnaires fall outside these intervals, it can be concluded that a statistically significant change has occurred.

namely from overtime hours to non-overtime hours. Fortunately, the data were sufficient to test if this insight could be supported by statistical analysis. As shown by the analysis summarized in Figure 14, this insight was supported by the data through the second month of project operation. In the overtime area the number of burglaries committed during overtime hours in the overtime area decreased. However, when compared with the control area, it could not be concluded that the total number of burglaries was decreasing. Thus, there was statistical evidence of displacement in the overtime area but not in the control area during the second month of project operation. The most logical interpretation of that data was that burglaries were being displaced from overtime hours to non-overtime hours. However, this conclusion was altered due to the results of the interim evaluation (3-month) which revealed that the number of burglaries occurring in overtime hours was decreasing in both the overtime and the control areas. Therefore, it could not be concluded that the project activity was responsible for the reduction. Hence, what appeared to be displacement in month two of operation apparently was not.

The interim calculation of the performance measures for the overtime area indicated a 55.9% increase in robberies and a 32.6% reduction in burglaries. If one formed conclusions only on the basis of the performance measures, one would conclude fallaciously that the project was ineffective against robberies

and that the goal of 5% reduction in burglaries in six months already was greatly exceeded in three months. However, when one again looks at the data for the control group, it becomes apparent that factors other than the project activity were responsible for the changes since similar changes were occurring in the control group. Consequently, at this point the evaluation indicated that the project was not having an impact in terms of reduction of goals. The attitudes of businessmen (Objectives 3 and 4) showed shifts in the desired directions. Businessmen indicated they felt somewhat safer in regard to personal safety and fear of property loss. The amount of change in attitude regarding fear of property loss was sufficient to be statistically significant. A street awareness survey was also conducted for explanatory purposes. This was conducted by CAT personnel. The outcome was that there was only a minimal awareness of the project by the "person on the street."

2. Determine Who Could Use the Results of the Analysis:

The results were distributed to:

A. Law Enforcement Assistance Administration (LEAA)

B. State Crime Commission

C. Atlanta Police Department

D. Impact Task Force

and others as deemed desirable

FIGURE 14

CONTINGENCY TEST

OVERTIME AREA

Actual Number of Burglaries	May	June	July	Aug.	Sept.	TOTAL
Overtime Hours	32	36	52	49	11	180
Non-Overtime Hours	25	43	57	73	57	255
	57	79	109	122	68	435

Expected If No Displacement (Expected=Row Total x Column Total ÷ Total)

Overtime Hours	23.6	32.7	45.1	50.0	28.1
Non-Overtime Hours	33.4	46.3	63.9	71.5	39.9

$$\chi^2 = \sum \left[\frac{(\text{Actual} - \text{Exp.})^2}{\text{Exp.}} \right] = 25.32$$

CONTROL AREA

Actual Number of Burglaries	May	June	July	Aug.	Sept.	TOTAL
Overtime Hours	37	28	31	37	22	155
Non-Overtime Hours	26	42	33	52	40	193
	63	70	64	89	62	348

Expected If No Displacement

Overtime Hours	28.1	31.2	28.5	39.6	27.6
Non-Overtime Hours	34.9	38.8	35.5	49.4	34.4

$\chi^2 = 7.90$

Since χ^2 (Overtime Area) $= 25.32 > 13.27 = \chi^2_{4,.01}$

and χ^2 (Control Area) $= 7.90 < 13.27$

There was statistical evidence that the percent of total burglaries occurring in overtime hours was decreasing in the overtime area, but not in the control area.

5.0 FINAL RESULTS

Calculation of the performance measures indicated that the goal of reducing robberies was not met but that the goal of reducing non-residential burglaries by 5% was more than met. Actual calculations are given in Figure 15. However, achievement or non-achievement could not be attributed to the project activity. Since the trend in the control area was similar to the trend in the overtime area and the same types of changes (although different in degree) occurred in the performance measures in both areas, it is reasonable to conclude that the changes were due to some factor(s) other than the project activity.

In an effort to attribute changes to the project activity, the entire overtime patrol was placed in one area (Bankhead) beginning the week of December 12, 1972. Sufficient data for comparison was not provided since the short time period and results to date did not warrant the data collection effort.

For the three months prior to the project, 50% of the total number of burglaries were being committed during overtime hours in the overtime area. In the control area this percentage was 49%. During the months of October, November, and December, these percentages were 30.3% in the overtime area and 25.7% in the control area. This displacement was statistically significant in both areas. The fact that a greater percentage change was found in the control area led to the conclusion that this displacement could not be attributed to the project but was due to other factors.

Although there was a decrease in non-residential burglaries and a displacement of burglaries from overtime to non-overtime periods during the project, the same results were also observed

FINAL EVALUATION: ATLANTA P.D. OVERTIME PROJECT

I. Performance Measures

(Calculated on basis of 13 weeks using

Oct: 10/10 through 11/7 - 4 weeks
Nov: 11/7 through 12/12 - 5 weeks
Dec: 12/12 through 1/16 - 4 weeks)

The performance measure for robbery was not met.

$$R_1 = \frac{66}{3} = 22$$

$$R_3 = \frac{29 + 23 + 29 = 27}{3}$$

$$\frac{R_1 - R_3}{R_1} \geq .05$$

$$\frac{22 - 27}{22} \geq .05$$

The performance measure for non-residential burglaries was met.

$$B_1 = \frac{138}{3} = 46$$

$$B_3 = \frac{30 + 40 + 25}{3} = 95 = 31.66$$

$$\frac{B_1 - B_3}{B_1} \geq .05$$

$$\frac{46 - 31.66}{46} = \frac{14.37}{46} = 31.2\%$$

in the control area and hence there was not sufficient evidence to attribute these results to the project efforts. Although it was not possible to determine exactly the effects of this project, the results obtained did not seem to warrant either additional analysis of the data or continuation of the project.

The subjective interpretations for the apparent lack of success of this project in utilizing police overtime personnel to reduce specific crimes are:

1. Inadequate supervision and information.

2. Misuse of time. For example, answering routine calls, arresting a disproportionately large number of individuals for misdemeanors, or due to lack of supervision, sleeping, going home, or drinking coffee. All of these activities were unofficially cited by more than one policeman once the project was discontinued.)

6.0 LIMITATIONS OF THE STUDY

The study was limited by the inadequacies of present evaluation methodology for social programs. The degree of control that exists in a laboratory experiment simply does not exist for social programs. Assumptions must be made about change that are unlikely or require excessive data collection and analysis to verify. For example, the assumption that all factors influencing the experimental group except the project activity also influence the control group and vice versa.

The necessity of manual data collection also limited the study since its cost, time and effort often made collection of data that would have been useful in formulating conclusions prohibitive.

7.0 RECOMMENDATIONS

If one were unconcerned with cost, time, and effort, the following analyses would be warranted for this project:

1. Analysis of data from prior years to establish trends and seasonal variations. The data should contain a breakdown of robberies and burglaries by overtime and non-overtime periods. This could be used to determine if the project was effective in reducing crimes below prior year levels and whether the change in the times the crimes were committed was due to use of overtime personnel or other causes.

2. A thorough analysis of the control area to determine, for example, whether or not there were non-Impact projects underway in the control area, but not in the overtime area, that could have accounted for the changes in that area.

3. Analysis of effects on the specific crimes of removing the overtime patrols.

The effects of various concentrations of patrols should be studied. It might be that doubling the number of men has no appreciable effect upon crime while tripling the patrol might lead to a significant reduction. Comparisons between the effects on reduction of specific crimes of adding new personnel and using current personnel on an overtime basis also need to be made.

In summary, I would propose that hypothesis testing be instituted in action programs and related to specific crimes. Knowledge derived from tested assumptions is the key to effective decisions.

the same types of changes (although different in degree) occur in the performance measures in both the control and overtime areas, it is reasonable to conclude that the changes are due to some factor(s) other than the project activity.

III. Additional Comments

In an effort to attribute changes to the project activity the entire overtime patrol was placed in one area (Bankhead) beginning the week of December 12. Sufficient data for comparison was not provided since the short time period and results to date did not warrant the data collection effort.

For the three months prior to the project $\frac{56+46+48}{3} = 50\%$ of the total number of burglaries were being committed during overtime hours in the overtime area. In the control area this percentage was $\frac{59+40+48}{3} = 49\%$. During the months of October, November and December, these percentages were $\frac{30+33+28}{3} = 30.3\%$ in the overtime area and $\frac{14+30+33}{3} = 25.7\%$ in the control area. This displacement has been shown to be statistically significant in both areas. The fact that a greater percentage change was found in the control area leads to the conclusion that this displacement cannot be attributed to the project but is due to other factors.

IV. Conclusions

Although there was a decrease in non-residential burglaries and a displacement of burglaries from overtime to non-overtime periods during the project, the same results were also observed in the control area and hence there is not sufficient evidence to attribute these results to the project efforts. Although it is not possible to determine exactly the effects of this project, the results obtained to date do not seem to warrant either additional analysis of the data or continuation of the project.

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$$\frac{22 - 27}{22} \not\geq .05$$

The performance measure for non-residential burglaries was met.

$$B_1 = \frac{138}{3} = 46$$

$$B_3 = \frac{30+40+25}{3} = \frac{95}{3} = 31.66$$

$$\frac{B_1 - B_3}{B_1} \geq .05$$

$$\frac{46-31.66}{46} = \frac{14.37}{46} = 31.2\%$$

II. Significance

Achievement or non-achievement of performance measures cannot be attributed to the project activity. Since the trend in the control area is similar to the trend in the overtime area and

the same types of changes (although different in degree) occur in the performance measures in both the control and overtime areas, it is reasonable to conclude that the changes are due to some factor(s) other than the project activity.

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END

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