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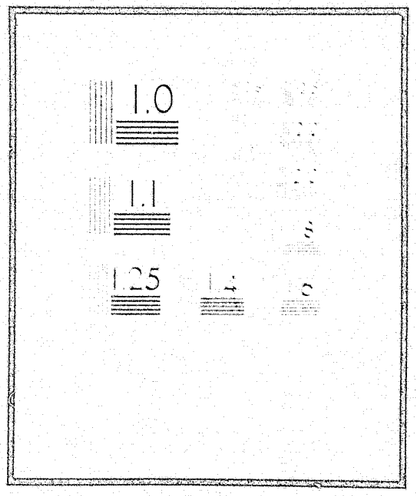

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LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE
WASHINGTON, D.C. 20531

Date filmed

ATLANTA IMPACT PROGRAM

EVALUATION PLAN

January 1973

CENTRAL FILE

36684

ATLANTA REGIONAL COMMISSION
Suite 910, Equitable Building
100 Peachtree Street, N. W.
Atlanta, Georgia 30303

ATLANTA REGIONAL COMMISSION SUITE 910 100 PEACHTREE STREET ATLANTA, GEORGIA 30303 TEL. (404) 522-7577

January 16, 1973

NCJRS
SEP 2 1 1976
ACQUISITIONS

Mr. Jim Higdon, Administrator
State Crime Commission
1430 West Peachtree Street
Atlanta, Georgia 30309

Dear Jim:

The Atlanta Regional Commission is pleased to submit to the State Crime Commission the Evaluation Plan for the Atlanta Impact Program. The Evaluation Plan includes a budget element running through July, 1974, which is in addition to the approved budget for the Atlanta Impact Program.

We value this plan very highly since we know that effective crime specific planning is dependent upon the knowledge gained from a good and sound evaluation component.

If you have any questions concerning this Evaluation Plan or any other matters of mutual concern, please do not hesitate to call.

Sincerely,

Dan Sweat

Dan E. Sweat, Jr.
Executive Director

a

Attachment

ATLANTA IMPACT PROGRAM

EVALUATION PLAN

January 1973

ATLANTA REGIONAL COMMISSION
Suite 910, Equitable Building
100 Peachtree Street, N. W.
Atlanta, Georgia 30303

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1.0 OVERVIEW OF EVALUATION AND THE EVALUATION PLAN

1.1 Purpose of the Evaluation Plan

The purposes of this document are:

1. To provide a description of the evaluation structure and methodology of the Atlanta Impact Program.

2. To develop and justify a budget for the fiscal support of the evaluation component of the Program.

3. To provide insights into evaluation for personnel at the individual project level.

These purposes will be accomplished in three major sections: Program Evaluation, Project Evaluation, and Management of Evaluation. In addition, the evaluation component of each specific project submitted as of December 4, 1972, will be presented in detail.

1.2 Definition of Evaluation

Clarification of terminlogy is important in order to avoid misconceptions. The following definition of evaluation has been adopted for use in this evaluation plan:

> 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 is useful conceptually it is also important to have an operational definition. To that end, evaluation is also defined according to the activities necessary to perform it. It includes the following activities:

1. Formulation of measurable goals and objectives:

   A. Identification of desired end results.

B. Identification of any important limits or conditions under which the results are to occur. For example, in a specific geographical area, with a specific population having particular characteristics, within a specific time frame, etc.

2. Identification of the criteria to be used in measuring the amount of success in achieving the goals and objectives.

3. Identification of the performance measures for each criterion.

4. Selection of an evaluation design that is practical given existing resources and conditions.

5. After thorough consideration of data necessity, availability, reliability, validity, and cost, determination of:

   A. Data elements necessary for each performance measure.

   B. Where the data can be found.

   C. How the data will be collected.

   D. How the data will be managed.

6. Determination of the analytical techniques that will be applied to the data to yield:

   A. Information regarding accomplishment.

   B. Information which helps to develop the cause and effect relationships that explain the results obtained.

7. Establishment of the mechanisms necessary to report the analytical results to decision makers and others who need this feedback.

Two important concepts arise in listing the activities necessary to perform evaluation. First, in the process of measuring the amount of success in achieving a predetermined goal or objective, a well-designed evaluation should also provide insights which help explain causes, effects, and their

relationships. Second, data and information are not synonomous terms. Thus, the data elements and the analytical techniques should be selected according to the information desired from the evaluation.

Two additional considerations arise. First, it is crucial that the choice of project goal(s) be germane since the project goal(s) will determine the criteria for "success." Secondly, the proportion of, and relationship to, the total problem represented by the project goal is important with respect to its power to produce an effect on the whole. In subsequent sections, the following convention will be used. Project goals refer to those accomplishments which can be used to relate the project accomplishments to program objectives, sub-goals, and goals. Project objectives typically refer to accomplishments which support the project goals.

These steps are applied to two levels of evaluation: Project Evaluation (Section 2.0) and Program Evaluation (Section 3.0). Section 4.0 describes how the evaluation process will be managed by the Crime Analysis Team.

1.3 Reasons for Performing Evaluations

As suggested in the preceding section, evaluation information is required for three different types of measures:

1. External measures which determine the amount of success in achieving the predetermined goal(s) or objective(s).

2. Internal measures which determine the efficiency and effectiveness of the project or program activity, identify the difficulties or stumbling blocks which were encountered, and describe how these were overcome or why they could not be overcome.

3. Research measures which yield insights into cause-effect and other relationships which are useful as an empirical and theoretical base for future project and program planning.

Specifically, evaluation is performed on the Atlanta Impact Program for the following reasons:

1. To provide insights into activities, cause-effect relationships, and other relationships which will assist in planning and designing future crime impact programs and projects.

2. To provide information which yields insights into good project management practice and which assists in anticipating and overcoming potential difficulties or stumbling blocks in future projects.

3. To provide the information necessary for deciding whether to continue, modify, or stop on-going projects and programs.

4. To determine if LEAA national goals are achieved.

5. To provide the information necessary to assist in deciding whether the project activity should be continued after the immediate time period of Impact support.

Note that reason 1 is concerned with future planning, design, and project selection; that reason 2 is concerned with improved project management; and that reasons 3, 4, and 5 are primarily concerned with assessment and control of current activities. To the extent possible, given limited resources, personnel, and data, all five reasons will be pursued.

Although emphasis is on the collection, analysis, and interpretation of statistical data, evaluation cannot be restricted solely to statistical analyses of data. Evaluation also requires on-going interaction with program and project personnel and the utilization of "subjective" data as well as "objective" data. Clearly, the two types of data should be used in a complementary manner, e.g., the project personnel may believe something is occurring (subjective) and the evaluation personnel may be able to perform a statistical test to support or refute the belief using the available data (objective). Evaluation, especially for reasons 3, 4, and 5, must be as objective as possible. However, subjective inputs should not be ignored. The subjective data should be used to complement the objective data.

1.4 Overview of the Evaluation Plan

The primary reason for performing evaluation is to determine if the Atlanta Impact Program has achieved the national goal established by LEAA, namely, to reduce stranger-to-stranger crime and burglary within the Atlanta city limits by 5% in two years and 20% in five years. Hence, the a posteriori evaluation is clear. Compare the number of stranger-to-stranger crimes and burglaries at the various points in time and determine if the desired reductions have been accomplished. In addition, in Atlanta every possible attempt will be made to determine if the overall program impact, as well as specific impacts of individual projects, is significant in a statistical sense.

To assist in program planning and control and in interim evaluation for the Atlanta Impact Program, the planning effort resulted in the establishment of four strata of achievement aims designated as goal, sub-goals, objectives and sub-objectives (projects). At the highest level is the LEAA established goal. At the lowest level are the projects intended to reduce the incidence of crime. The two levels in between are designed to logically relate the possible projects to the LEAA goal in a way which guides the selection of projects with the highest expected impact and assists in the interim evaluation.

Appropriate evaluation will be conducted at each level or strata. Section 2.0 of this document details the procedures for project evaluation. Section 3.0 details how the hierarchical structure of goal, sub-goals, and objectives will be utilized to translate project evaluations into program (goal) evaluation. Thus, it will be possible to relate project progress to progress relative to the LEAA established goal as well as to sub-programs, where several projects combine to form an area of emphasis typically at the objectives level. Section 4.0 describes how the evaluation process will be managed by the Crime Analysis Team.

1.5 Some Recognized Difficulties in Evaluation Data

Even if the data used in evaluation were perfect, evaluation would be an extremely difficult task. Unfortunately, crime data are far from perfect.

Maltz[1] presents an excellent summary of some data difficulties. They are summarized in this evaluation plan because it is essential that the evaluation and project personnel keep them in mind during data specification, collection, analysis, and interpretation. Maltz identifies the following:

1. Crime Categories: Uniform Crime Reports

   A. Difficulties in categorizing by the legal definition of the criminal acts and distinguishing between them in any specific instance.

   B. The data is furnished by state and local law enforcement agencies and is subject to inconsistencies of data classified by dissimilar data respondents who have not been adequately trained in data classification.

2. Unreported Crimes

   A. The UCR statistics are based on crimes reported to the police and it is well known that many crimes go unreported.

   B. Many of the programs and projects influence the number of crimes reported and, hence, may lead to an evaluation which exaggerates or minimizes the impact.

3. Inaccuracies in Reported Crimes

   A. Definitions of categories do not necessarily remain the same over time and must be continually checked.

   B. "Systematic inaccuracies may occur in order to make a project or program look good or bad depending on whether it is liked or disliked" or to justify an a priori decision.

---

[1]Michael D. Maltz, "Evaluation of Crime Control Programs," U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, April 1972, pp. 27-32.

4. Crime Rates

   A. Crime rates, as presently calculated, do not reflect the true situation; e.g., the rape rate should be calculated by dividing the number of rapes by the number of women, since they are the population at risk.

   B. Frequency of crimes in an area is influenced by the potential criminal population in the area. The potential offenders in stranger-to-stranger crimes are usually considered to be males between 16 and 25 years of age. Any significant shift in population characteristics in the area should be taken into consideration during evaluation.

Clearly, the above list is not exhaustive and similar problems arise at all levels including federal, state, local, area, and project levels. In order to enhance the quality of evaluation, these and any other potential data difficulties must be recognized and taken into consideration.

Another important difficulty which is almost impossible to adequately control is the problem of displacement. Again, drawing on Maltz's summary, displacements may occur:

1. To other crimes.

2. To other means of committing crimes and other crime targets.

3. To other geographical areas or localities, e.g., streets to the subway, etc.

4. As statutory displacement, e.g., a change in the legal status of a behavior - what would happen if alcohol became illegal or marijuana became legal?

Whenever feasible, these and other forms of displacement must be considered for evaluation.

One final general difficulty will be discussed here. The conditions under which evaluation data are collected are far from ideal in the statistical experimental design sense. This problem, along with suggestions

for minimizing it, is discussed in detail in Section 2.0 - Project Evaluation. It is sufficient at this point to summarize and indicate:

1. "Ideal" control groups may or may not exist and, if they exist, it may be too expensive in terms of time and cost to collect the control data. It is unlikely that another area exists which has the same crime rates at the same level following the same trend, has crimes being committed by similar offenders, has similar police operations within it, and has similar populations being policed.

2. "Before-after" evaluations are statistically valid only if no exogenous factors change, no socio-economic conditions change, sufficient prior data exist to accurately forecast trends, and boundary conditions are monitored.

Again, extreme caution must be exercised in the selection of areas within which projects will be implemented.

A specific difficulty in Atlanta is the introduction of a new reporting system. When similar systems have been implemented there has been a significant increase in the number of reported crimes.

The police reporting system is currently being modified and a revised reporting system will be implemented during January, 1973. Two changes will be implemented:

1. An expanded report format which provides for more complete information.

2. A report review system which has two aspects:

   A. A report review by a Report Review Officer who will check content, completeness, validity, etc., of the individual reports.

   B. A random spot check by the Inspections Division to verify that reports are being completed for each occurrence, i.e., that officers are filling out reports for each offense and investigation which should be reported.

Thus, two new checks are being imposed on the officer:

1. Did he file a report when he was supposed to?

2. Did he complete the report properly?

In addition, more complete information will be generated.

The revision to the police reporting system is expected to have an immediate and continuing impact on the number of impact crimes reported. This impact is expected for the following reasons:

1. The individual officer will not be as free to "down-grade" crimes because of the check by the Report Review Officer.

2. The individual officer will not have as much discretion regarding whether or not to file a report because of the spot checks by the Inspections Division.

3. As the individual officer receives feedback from the Report Review Officer he is expected to increase his ability to properly classify the crimes which he is investigating, thus resulting in more accurate and uniform classification of the reported crimes.

Our expectation is that the number of impact crimes reported will increase when this modification is adopted. The increase will result from the change to the police reporting system and should not be interpreted as an increase due to more crimes being committed.

In subsequent sections of the evaluation plan, it will be argued that there are two reasons for performing quantitative analyses:

1. To measure performance and evaluate it against prior goals and objectives.

2. To determine if the impacts resulting from project performance can be viewed as a significant change in a statistical sense.

Fortunately, it will be possible to estimate statistically the change in impact crimes reported as a result of the modified police reporting system. Three reasons for change were cited earlier and it was indicated that two changes could be expected: reclassification (due either to improper "downgrading" or to lack of knowledge regarding proper definition of the classification) which will be initiated by the Report Review Officers; and failure to file a report which will be discovered in the random spot check by the Inspections Division. Personnel in the Research and Planning Division of the Police Department believe that most of the change will result from reclassification.

In order to estimate change due to reclassification two studies will be conducted:

1. There are twelve Report Review Officers who will undergo extensive training during December, 1972. As a part of that training they will examine reports associated with the impact crimes. Each of the twelve trainees will examine 50 to 75 reports from each impact crime category. Data will be collected regarding:

   A. Number of reports reviewed in each impact crime category.

   B. Number of reports which were reclassified into each impact category.

   C. Number of reports which were reclassified out of each impact category.

   These data will be used to obtain both confidence interval and point estimates of percentage of change due to reclassification for each impact crime category.

2. Similar studies will be conducted during the first six months after the new system is implemented. The same data will be collected and the same estimates will be calculated.

The results of these two studies should provide the information necessary to obtain a valid estimate of the change due to reclassification.

The other change in the number of reported impact crimes is due to the spot checks and the related increased likelihood of a report being filed. Two estimates of this will be obtained also:

1. For each impact crime category, data on number of impact crime complaints received, number of impact crimes reported, and number of reports of unfounded crimes will be collected for the twelve months prior and subsequent to implementation of the new police reporting system. Based on this data, confidence interval and point estimates of percentage of change due to failure to file a report will be calculated.

2. Data will be collected which summarize the results of the spot checks by the Inspections Division. Thus, data on failure to file under the new system will be collected.

The results of these two studies should provide an estimate of the change related to failure to file a report.

In summary, it is recognized that the new police reporting system will influence the number of crimes reported and data will be collected to provide estimates of this change.

1.6 Definitions of Key Terms

Stranger-to-Stranger: Offender is not a relative or personal acquaintance of the victim, and any personal contact has occurred only in ciricumstances related to the criminal act.

High Crime Census Tract: Any census tract which has 24 or more robberies or 110 or more burglaries per 6 months, or a combination of 130 or more robberies and burglaries.

Victim: A person who is a target of a target crime.

Visitor: A person physically present within the city limits of Atlanta whose legal residence is not within the SMSA.

Juvenile Offender: A person who is 16 years of age or under who commits a target crime. After July, 1973, due to legislative reclassification the age range will be 13-17.

Recidivism: Re-conviction of a target crime offender for a felony within one year after release.

Delinquent: A person between the ages of 13 and 16 who has been adjudicated by the juvenile court as delinquent for a target crime under the Juvenile Court Code of Georgia. After July, 1973, due to legislative reclassification the age range will be 13-17.

Drug Offender: A person arrested for a target crime with positive traces of drugs shown through urinalysis tests.

Target Crimes: Stranger-to-stranger homicide, aggravated assault, rape, robbery, and burglary.

Response Time: Time in minutes from time telephone rings in Police Department until police officer arrives at the scene of the report.

On-Site Apprehension. Apprehension made by a police officer of an offender or a suspect at the scene of the crime or during hot pursuit. Hot pursuit is uninterrupted pursuit immediately after the officer's arrival at the scene.

Court Processing Time: Time in days from indictment to filing of appeal.

2.0 PROJECT EVALUATION

2.1 Purpose of this Section

The purpose of this section is to explain and illustrate the approach to evaluation which will be utilized at the project evaluation level. This purpose will be accomplished by detailing the evaluation methodology in a step-by-step fashion and by applying the methodology to an actual project. Despite the stress on quantitative measures in the remainder of this section, it is emphasized that qualitative input will be collected throughout the process in order to supplement the quantitative input and aid in the interpretation of the quantitative measures.

2.2 Reasons for Performing Project Evaluation

Project evaluation is critical for numerous reasons, including:

1. To determine the amount of success in achieving the predetermined project goals and objectives.

2. To provide the information necessary for deciding whether to continue, modify, or stop on-going projects.

3. To provide one important information input to program evaluation, i.e., to determine if the LEAA goal and Atlanta sub-goals and objectives are being achieved.

4. To provide insights into cause-effect and other relationships which will assist in planning and designing future crime impact programs and projects.

5. To provide insights into good project management practice and into anticipating and overcoming potential difficulties or stumbling blocks.

6. To provide information which will assist the local agencies in determining whether the project activity should be continued after termination of the Impact Program.

As stated in reason 3, project evaluations will be used as one input to program evaluations. The mechanism for accomplishing this is discussed in Section 3.0, Program Evaluation. It is important, however, to recognize that project evaluation is important per se (reasons 1, 2, 4, 5, 6) as well as an input to program evaluation (reason 3).

2.3 Overview of the Project Evaluation Approach

Subsection 1.2 described evaluation in terms of the activities necessary to conduct an evaluation. The remainder of this section (2.0) applies these activities to project evaluation. Figure 2.1 is a schematic flow model of the project evaluation process which will be used by the CAT evaluation personnel. This flow model is presented for two reasons:

1. To describe the structure of the remainder of this section. Each step will be discussed in detail and illustrated by application to an existing project.

2. To demonstrate that although project evaluation can be described as a step-by-step process, there are important feedbacks or iterations including:

   A. Successive iterations to confirm that measurable goals and objectives and the evaluation design are consistent, i.e., that the evaluation design will, in fact, result in a feasible means for evaluating the amount of success in achieving the specified goals and objectives.

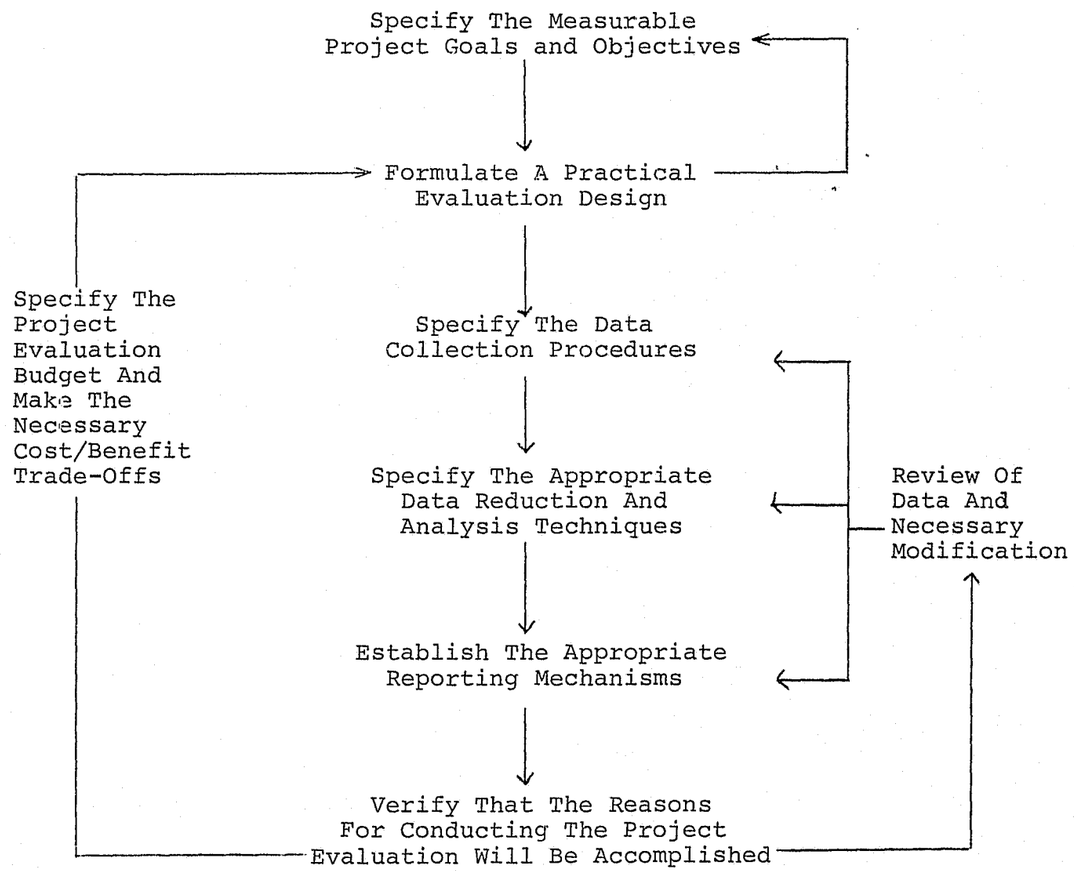
   B. Successive iterations to determine whether or not the reasons for conducting project evaluations are being realized and whether or not the reasons are practical and cost-effective.

   C. Continual review of the project evaluation plan and necessary modifications as a result of implementation of the plan. It is essential to stay flexible and opportunistic, subject to assuring that a proper evaluation is being conducted.

With Figure 2.1 as an overview, the project evaluation process is now described in detail and illustrated by application to an actual project.

FIGURE 2.1

A SCHEMATIC FLOW MODEL OF THE PROJECT EVALUATION PROCESS



2.4 Brief Description of the Example Project

Title: POLICE OVERTIME PATROL

Summary: This is a project to increase preventive patrol manpower in two high crime areas of Atlanta during high crime hours on high crime days. Present Atlanta Police Department personnel will be allocated to the prevertive patrol units on an overtime basis. The patrol units will use detective vehicles since there is always an adequate number of unused detective during high crime hours. No new employees or equipment will be required. Personnel in presently deployed units of the Police Department will not be decreased since preventive patrol personnel will work overtime hours. Overtime patrol units will be utilized for prevention, interception, and apprehension only and will not be responsible for answering routine calls for service. Personnel will work two to a car in order to increase safety and apprehension capability. No man will work more than twelve total hours in one day nor more than sixteen overtime hours in one week. The project will concentrate on the reduction of the incidence of robbery and non-residential burglaries.

Status: Implemented August 11, 1972. Presently in the fourth month of a six-month project period.

2.5 Step 1: Specify the Measurable Project Goals and Objectives

The words "goal" and "objective" as used at this step refer to the specific accomplishments expected to result from the project activity. Formulation of these includes identifying any important limits or conditions under which the results are to occur (Refer to 1.2, page 2).

The primary results expected are designated as goals and these are typically related to the overall LEAA specified program goals. The secondary results are designated as objectives and are typically relevant, but not necessarily related to the overall LEAA specified program goals. The objectives typically support the project goals and are important for monitoring considerations with respect to interim performance. Thus, each project is expected to have specified goals

(primary results) and objectives (secondary results) and will be evaluated according to accomplishment with respect to both goals and objectives.

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

1. Convert the goals and objectives to specific criteria which state the expected levels of accomplishments in numerical terms (number, percentage, index) at specific points in time. This may not be required if the goals and objectives are initially stated in quantitative terms. Levels of accomplishment are required for both final and interim evaluation at select points in time as project content and logic dictate.

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

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

The goals and objectives must be measurable in order for evaluation to be conducted. Thus, the process is an iterative one which terminates only when all of the above have been accomplished and are internally consistent. If it is 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 must iterate. At the next iteration the following kinds of questions must be 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 is essential. The process at this step requires that all elements be finalized in such a way that both interested parties are convinced that the output is satisfactory.

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

The CAT personnel perform a crucial role in all aspects of the first step of the evaluation process. In particular, the responsibility for assuring the feasibility of the project goals and objectives rests with the appropriate program planner and the agency personnel. The basic question is whether or not the expected results are realistic, a priori.

The assessment of the cost-effectiveness of the project requires an evaluation at the program level. This assessment is treated in detail in Section 3.0. It is sufficient at this point to indicate that such considerations must be reviewed as:

1. Are the goals (primary results) directly related to the LEAA specified goals? Does the level of contribution to the LEAA specified goal 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 be 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?

Clearly, these and other similar considerations are essential with respect to project selection and program development. As stated, these aspects are treated in detail in Section 3.0. The summary is presented here to stress that the above considerations should be reviewed as part of Step 1 in the evaluation process and to reinforce that the plan must remain flexible and subject to change as required by project activities.

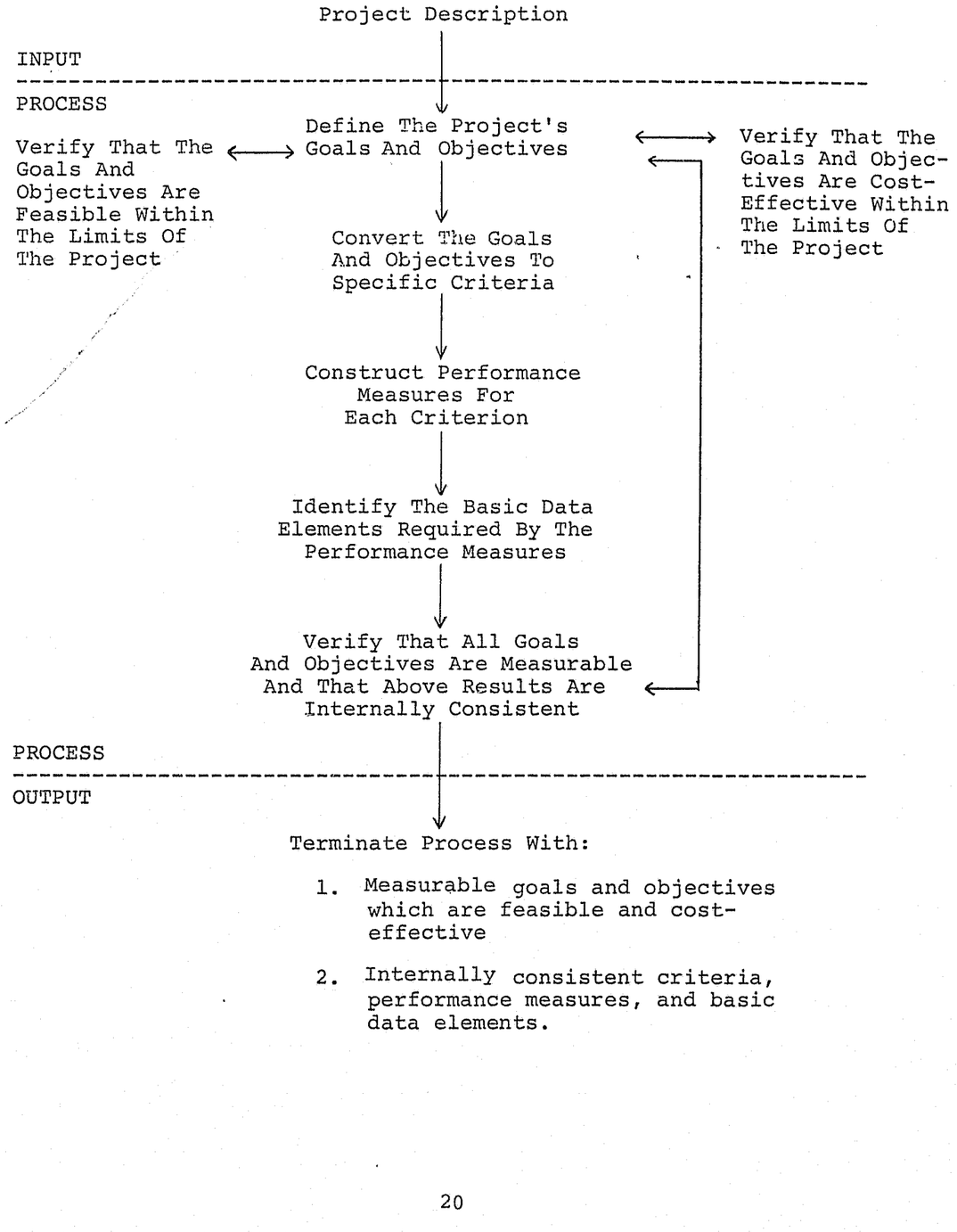
Figure 2.2 is a schematic model of Step 1, Specify The Measurable Project Goals and Objectives. As indicated on the figure, Step 1 provides as output:

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

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

FIGURE 2.2

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



2.5.2 Illustration of Step 1

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.

   B. Decrease non-residential burglaries in each of the two overtime areas.

   Objectives:*

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

   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%.

   B. Decrease non-residential burglaries by 5% in each of the overtime areas.

   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

*In succeeding grants objectives typically are more directly related to the project goal.

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." If

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

then criterion 4 (objective 4) will be realized.

Each performance measure will be 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) are reasonable and can be expected, a priori, to be feasible results. A review at the program level verifies that the goals and objectives are cost-feasible. All goals and objectives are measurable and the goals and objectives, criteria, and basic data elements are internally consistent.

2.6 Step 2: Formulate a Practical Evaluation Design

2.6.1 Discussion of the Process

The key words at this step are "practical" and "design." Consider first the word "design." In order for the

conclusions drawn from the evaluation to be valid, it is 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 an evaluation design is to assure that it will be possible to isolate the changes caused by the project.

There are basically two types of designs which are appropriate for project evaluations - "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 most of the projects, the "control group" will be either geographical area, e.g., a change in

police operations will be implemented in one geographical area and not in another, or population, e.g., a new approach to counseling will be implemented with some juvenile offenders and not with others. In order to test whether or not the control group is satisfactory, such questions as the following should be 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 exogneous factors which are not under CAT control likely tc occur with respect to one group and not the other?

Clearly, it may be excessively difficult (at times), especially with respect to city-wide projects, to find an acceptable control group.

It is highly unlikely that sufficient data will exist to perform the statistical methods, such as multiple regression, which are appropriate to isolate the impacts occurring from several factors. Thus, for the majority of the projects for which a "before-after" approach is used, it will be necessary to assume that no exogenous factors change, that socio-economic conditions do not change, and that boundary conditions do not change. These assumptions must be carefully checked. Every attempt will be made to generate sufficient prior data for trends to be accurately forecasted. Further, project personnel and appropriate CAT personnel will provide their best subjective estimates regarding what changes can be attributed to non-project related causes. In addition, a listing of all projects subject to A-95 review which have goals and objectives which might affect Impact projects and programs will be maintained by the CAT. Specifically, the basic data elements will be generated for four cases whenever possible:

1. Before the project is implemented.

2. After (and at appropriate interim points) the project is completed.

3. Statistical estimates of what the data elements would have been at the terminal (and interim) point if the project had not been implemented.

4. Consideration by project and CAT personnel to obtain their best subjective judgments.

Thus, this approach will provide for considerable flexibility at the data analysis step.

Recall that the other key word is "practical" - the design must be practical. It must 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. Given the basic data elements generated by Step 1 and by specification of the design, is it possible and/or cost feasible to obtain these data? Typical questions to be considered at this point are:

1. Are the desired data currently being collected for some other reasons, i.e., are they available?

2. Can the desired data be collected by a minor modification of existing data collection systems?

3. Is it necessary to develop a new data collection system?

4. How much will it cost to obtain the data?

5. Are the data (a) required for evaluation of a goal; (b) required for evaluation of an objective; (c) helpful, but not essential?

6. Are the data available but restricted due to confidentiality?

7. Will the resulting data be reliable? Valid?

8. Can the data be properly managed?

Clearly, several iterations within Step 2 and between Steps 1 and 2 may be required before a practical design has been formulated.

Figure 2.3 is a schematic flow model of Step 2. The outputs from this step in the process are:

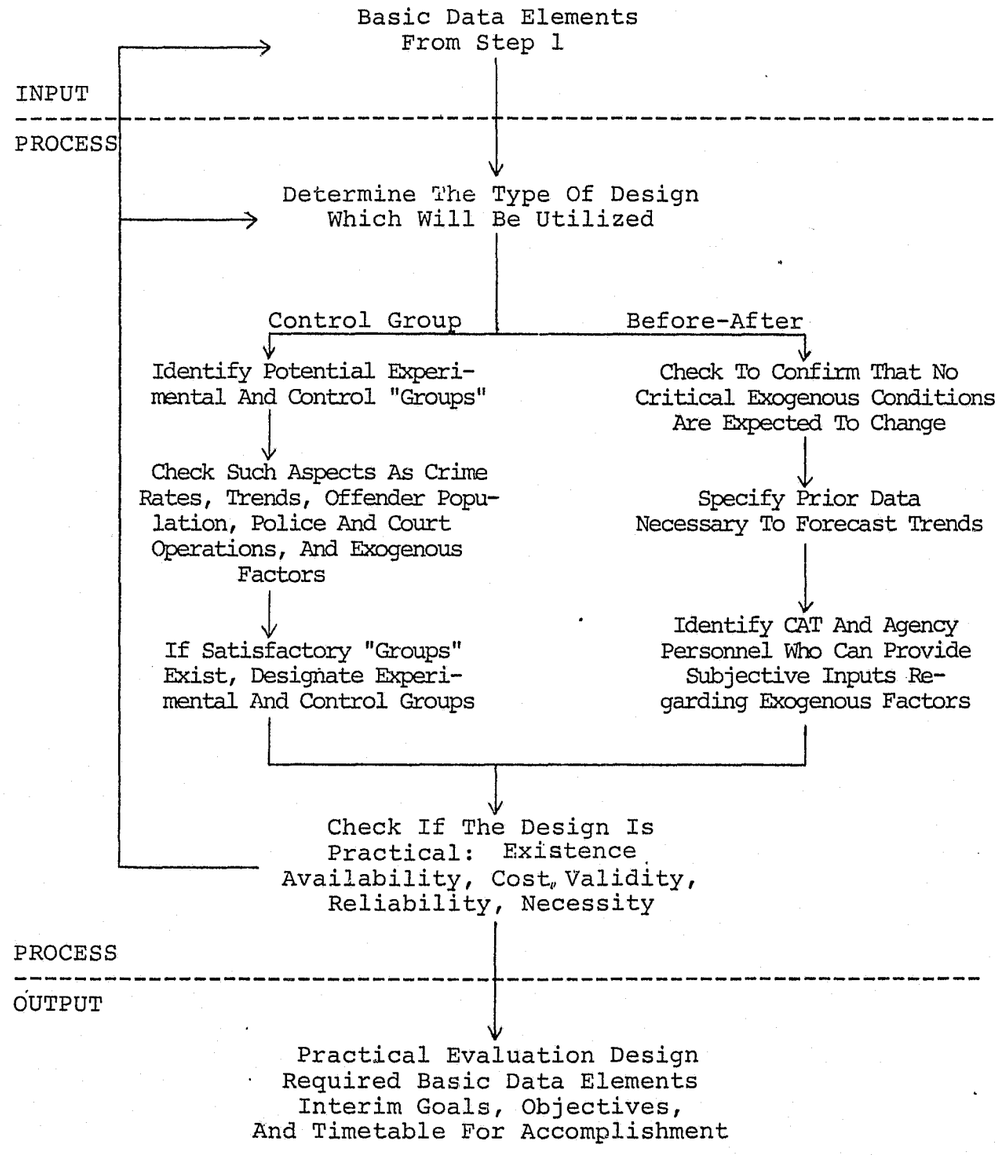
1. A practical evaluation design.

2. Identification of required basic data elements.

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

FIGURE 2.3

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



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

2.6.2 Illustration of Step 2

The Overtime Police Patrol Project is used in order to illustrate Step 2.

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

Aspects of both designs will be utilized. Before-after data will be 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 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 overtime (experimental) areas along all the above

dimensions. The purpose of the control group is 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. (Refer to discussion in 2.8.1 regarding significance of results.)

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. (refer to list in 2.6.1)

2. Check If Design Is Practical:

The data on number of robberies and burglaries committed in a geographical area are readily available to the Police Department personnel and can 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) are not routinely collected, are less valid and reliable, and will require 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, will be generated for the control area. The other performance data will be collected only for the overtime areas.
>
> The potential control area will be judged as satisfactory if the monthly robbery and burglary rates are 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 should

be modified to remove the "for each area" considerations. All else in Step 1 would remain unchanged. This updating is not done here, but is presented in the illustration of Step 4. (2.8.2).

Given the above decisions, the design was judged to be practical. Interim accomplishment will be 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.

2.7 Step 3: Specify Data Collection Procedures

2.7.1 Discussion of the Process

The purposes of this step are:

1. To determine how the data will be collected.
2. To specify by whom it will be collected.
3. To decide upon the frequency with which it will be collected.
4. To design the forms to be used for data collection.

The above must be 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 should be examined in considerable detail, and care should be taken to fully utilize existing data and data systems. It is common to find some of the required data being collected as input to existing data systems, but not being reported for output purposes. For example, data may exist by area in a city but only city-wide data are being reported as output, or data may exist by hour of the day but only weekly or monthly data are being reported as output. Thus, the first consideration in determining how the data will be collected is to identify whether or not the data is currently available from the existing data systems. If it is not currently available and it is essential, then the necessary steps must be taken to collect the data.

1. Source of the data, e.g., police offense records, courts, etc., and the individual responsible for providing the data to the Crime Analysis Team.

2. Form of the data, e.g., coded, number on a form, narrative report, etc.

3. Frequency with which the data will be collected.

To the extent possible, agency personnel will be responsible for collecting the data and reporting it to the CAT evaluation personnel. CAT personnel will restrict 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 require validation, the following will be considered:

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

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

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

The actual validation procedure is an integral part of evaluation management and will be discussed in that section.

Data will be collected with a frequency that is consistent with the time phasing of the expected levels of accomplishments as specified in the criteria which were developed in Step 1. It may also be collected if any unexpected, significant events occur.

Data and report forms will be 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 and analysis methodologies.

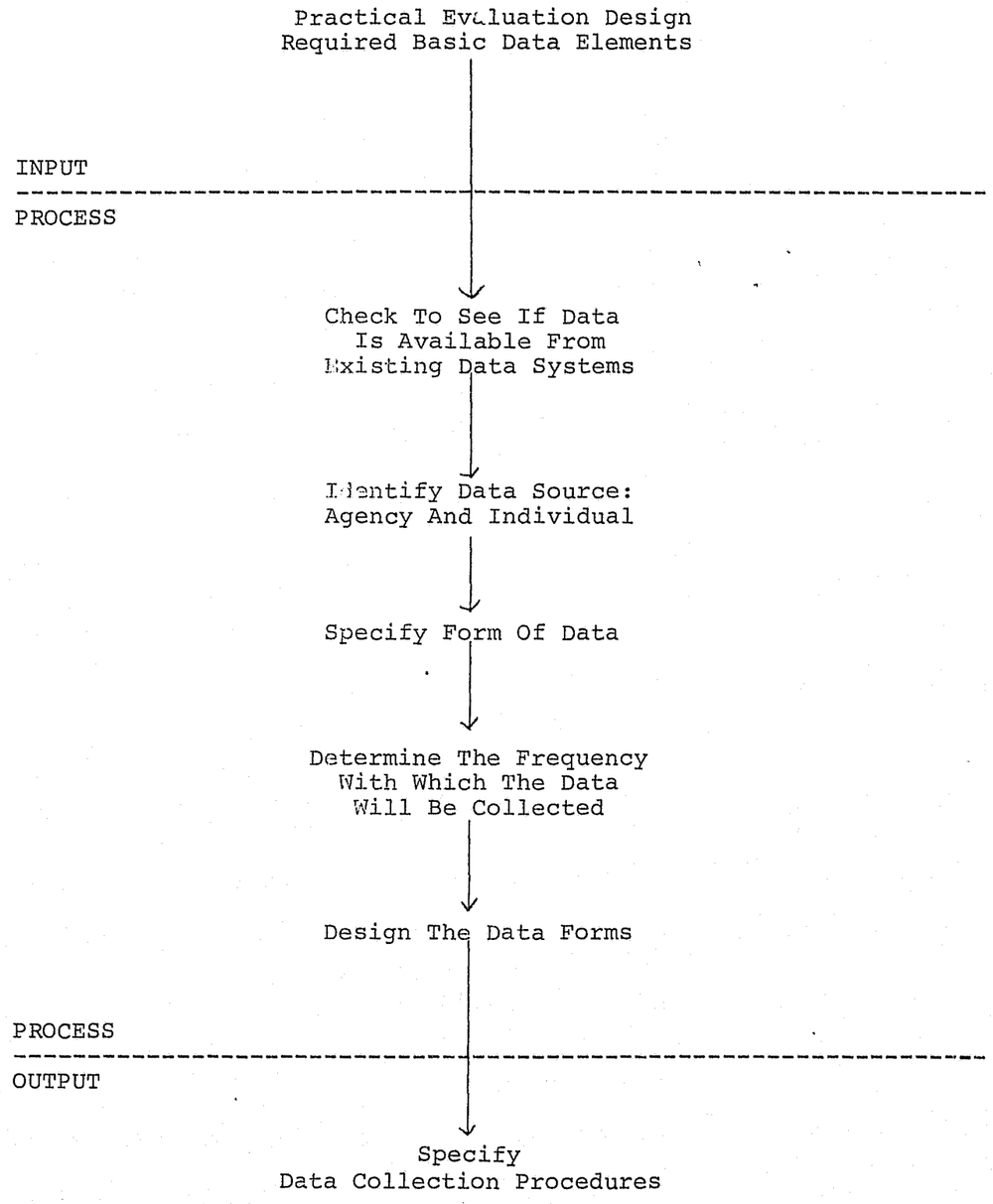
In some instances the data forms will be structured interview instructions or questionnaires. After grant

approval and before project implementation, it is the agency's responsibility to identify all data forms and provide an example of each to the CAT for approval.

Figure 2.4 is a schematic flow model for Step 3. The output is a specification of the data collection procedures.

FIGURE 2.4

A SCHEMATIC MODEL OF STEP 2: SPECIFY DATA COLLECTION PROCEDURES



2.7.2 Illustration of Step 3

The Overtime Police Patrol Project is used for purposes of illustration.

1. Check if data is available from existing data systems:

   The data regarding numbers of robberies and burglaries is readily available from existing data systems. All other data will be 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 will be collected by the agency personnel.

3. Specify form of the data:

   The form of the data is determined by the data forms which are included in the illustration. (Exhibits 2-1, 2-2, 2-3, 2-4).

4. Specify frequency of data collection and reporting:

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

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

   In addition, the progress reports required by the monitoring activity (see Section 4.0) will be submitted as required and when the agency believes that critical events have occurred which should be reported. They will include the agency's data summaries, observations, and explanations. This is important subjective (qualitative) input to the evaluation.

5. Design the data forms:

See the following:

Exhibit 2-1: Overtime Data Summary Form

Exhibit 2-2: Security Feelings Questionnaire

Exhibit 2-3: Overtime Evaluation Sheet

Exhibit 2-4: Overtime Evaluation Sheet By Other Officers in Patrol Areas

(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											

EXHIBIT 2-1

EXHIBIT 2-2

SECURITY FEELING QUESTIONNAIRE

Person Interviewed_____

Name of Business_____

Address_____

Interviewer_____

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 — Very Unsafe

10 9 8 7 6 5 4 3 2 1 0

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 — I feel sure that I will have a heavy loss

10 9 8 7 6 5 4 3 2 1 0

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 and 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?

EXHIBIT 2-3

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

_____

_____

_____

_____

_____

_____

_____

_____

EXHIBIT 2-4

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,_____

CONTINUED

1 OF 3

2.8 Step 4: Specify Data Reduction and Analysis Methods

2.8.1 Discussion of the Process

The output from the previous steps in the evaluation process includes 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 is on determining the data reduction and analysis methods that will be applied to the data.

Data reduction and analysis methods are 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 will be useful in future planning and project activity.

Measures of success in achieving project goals and objectives are 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 are 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 are several considerations in the decision as to what methodologies should be utilized, including the type of information or insight which is sought.

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

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

2. Determine if the level of accomplishment is statistically significant or if significance can be supported by some other argument.

The quantified performance measures of Step 1 and the baseline data specified in Step 2 provide the input for determining the degree to which the goals and objectives were attained. Note that this will be accomplished for both the interim and final criteria (quantified goals and objectives). Quite frequently this entails determining if a specified percentage reduction (or increase) has been attained, determining if a specified rate has been realized or in the case of an objective, if a specified number of participants has been enrolled.

While the above determines if the interim and/or final goals and objectives were realized, it is also important to examine if a valid argument exists for whether or not the project activity had a cause-effect impact. That is, given that the project goal or objective is attained, can evidence be presented to support the hypothesis that the project activity caused the shift? It is precisely this question which motivates 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 are:

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

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

The first approach entails use of the concept of hypothesis testing as developed in mathematical statistics. The particular test selected will be determined by the underlying goa'ls and objectives, the performance measures, and the data constraints and availability. Examples of both approaches are presented in 2.8.2.

With respect to descriptive and explicative purposes, they key word is "opportunistic." The individual(s) responsible for evaluation must be alert for any insights and knowledge that can be gleaned from the available data. It appears that the kinds of data reduction and analysis methodologies used by behaviorial scientists are particularly important here, e.g., correlation analysis, questionnaire content analysis, and non-parametric statistics. An example of such an application is presented in 2.8.2. These analyses can also be useful in identifying displacement. Obviously, subjective (or qualitative) input from knowledgeable agency and CAT personnel is important for both purposes, but especially for the descriptive and evaluative purpose.

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

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

2. Determine, based on interim goals and objectives and other monitoring consideration, the points in time at which evaluations should be performed.

3. Detail how the results of the evaluation will 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 question of program contribution is treated in detail in Section 3.0. Figure 2.5 is a schematic flow model for Step 4.

The output from Step 4 completes the specification of the evaluation component at the project level. It now becomes the responsibility of the designated individuals to perform the evaluation. The manner by which this will be accomplished is described in Section 4.0.

2.8.2 Illustration of Step 4

Step 4 is illustrated using the Overtime Police Patrol Project. In addition, for the purpose of complete illustration, data on yearly total burglaries will also be discussed. The illustration begins with the Overtime Police Patrol Project.

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:

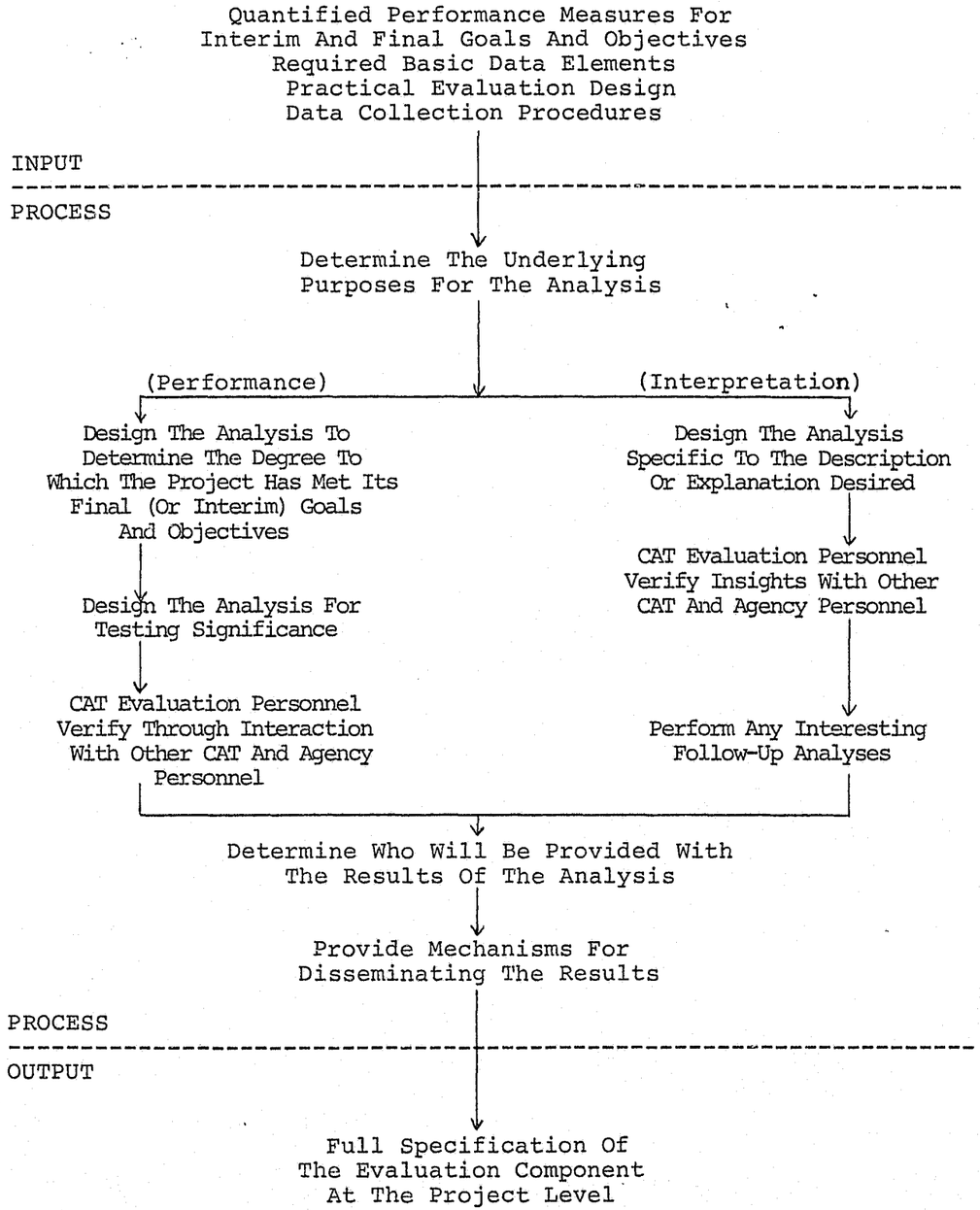
$$\frac{R_1 - R_2}{R_1}$$

Final (6-month) project performance:

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

FIGURE 2.5

A SCHEMATIC MODEL OF STEP 4: SPECIFY DATA REDUCTION AND ANALYSIS METHODS



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.

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.

In addition to the above quantitative data, the subjective (qualitative) data available from the questionnaires and from the progress reports should be thoroughly considered. Further, any available inputs from the CAT monitoring system (Section 4.0) should also be considered.

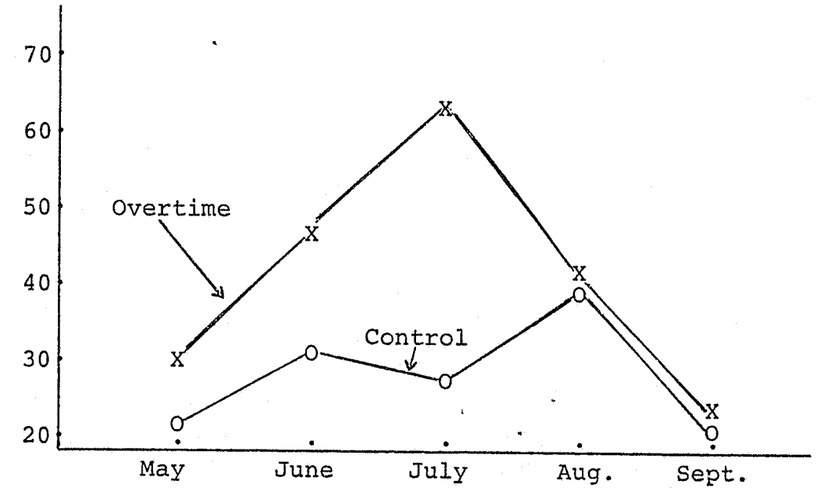
Design the analysis for testing significance of project achievement. Data are available on the number of robberies and the number of burglaries for the overtime (experimental) and for the control areas for the months of May-September. Exhibit 2-5 summarizes these data in both frequency and trend-plot form. The August data represent the data for the first month after implementation of the project. The control area data are 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 are observed in both areas. The only point at which there is considerable discrepancy is for July, Non-Residential Burglaries. Since August and September data are in line for both areas, this is not a serious discrepancy. If (1)the trend in the overtime area decreases and the trend in the control area increases or stays constant, or (2)the trend in the overtime area stays constant and the trend in the control area increases, then the reduction will be judged as significant.

Now consider objectives 3 and 4 and questions 5, 6, and 9 on the Security Feelings Questionnaire (Exhibit 2-2). Responses to questions 5 and 6 provide the basic data for objective 3 and question 9 for objective 4. Based on the data from the questionnaire administered prior to the initiation of the project, it is possible to compute a confidence interval for the sample

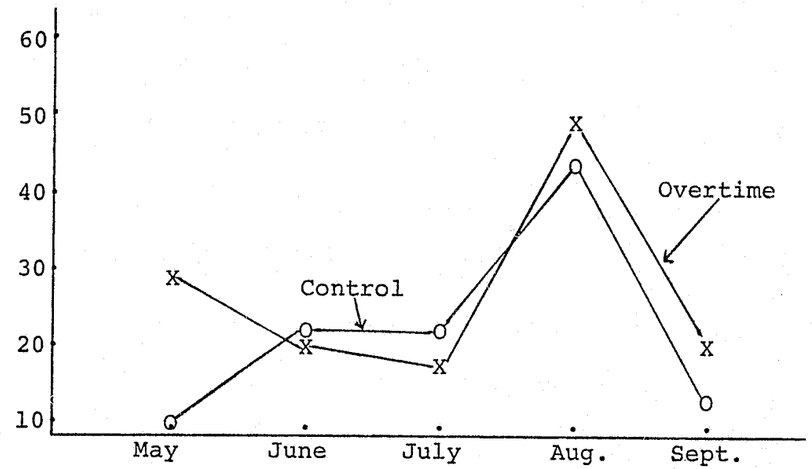
EXHIBIT 2-5

NON-RESIDENTIAL BURGLARIES:

TOTAL FOR MONTH



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



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

average for each question. Let $\bar{X}_5$, $\bar{X}_6$, and $\bar{X}_9$ be the averages for questions 5, 6, and 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 are met, the change will be sufficiently large to conclude that the change is statistically significant. Exhibit 2-6 summarizes the data and calculations for computing the confidence interval estimates.

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

EXHIBIT 2-6

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

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

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 is a displacement of crime - displacement to different times of the day, 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 Exhibit 2-7, this insight is 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 must be 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 cannot be concluded that the project activity is responsible for the reduction. Hence, what appeared to be displacement in month two of operation apparently is 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 6 months already was greatly exceeded in 3 months. However, when one again looks at the data for the control group, it becomes apparent

EXHIBIT 2-7

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

that factors other than the project activity are responsible for the changes since similar changes are occurring in the control group. Consequently, at this point the evaluation indicates that the project is not having an impact in terms of reduction of goals. The attitudes of businessmen (Objectives 3 and 4) have shown 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." Additional analyses will be performed as more data become available.

2. Determine who could use the results of the analysis:

The results will be 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 at a later time.

3. Provide mechanisms for disseminating the results:

(See Section 4.0)

As indicated at the beginning of this illustration, an analysis regarding significance is also presented for data on yearly total burglaries. The previous illustration has indicated:

1. Use of a control group (goals 1 and 2).

2. Use of a test on sample mean (objectives 3 and 4).

3. Use of a contingency table (χ^2) to examine the displacement effect.

The following illustrates the use of regression analysis:

1. Basic Data

Year	x	Total Burglaries y	x^2	xy	y^2
1967	1	5646	1	5646	31,877,316
1968	2	7149	4	14298	51,108,201
1969	3	8740	9	26220	76,387,600
1970	4	11529	16	46116	132,917,841
1971	5	13726	25	68630	188,403,076
	15	46790	55	160,910	480,684,034

2. Basic Calculations

Want to estimate y by a + bx, i.e., $y = a + bx$

The best estimates of a and b are found by solving:

$$y = an + b\,x$$

$$xy = a\,x + b\,x^2$$

Substituting and solving, we get

$$46{,}790 = 5a + 15b$$

$$160{,}910 = 15a + 55b$$

$$a = 3198 \qquad b = 2054$$

Thus, the best linear estimate is

$$y = 3198 + 2054\,x$$

$x = 6$ (1972) $\quad y = 15{,}519$

$x = 7$ (1973) $\quad y = 17{,}673$

3. Confidence interval estimate calculations:

A confidence interval for y at year x_o is given by:

$$a + bx_o \pm t_{/2} \quad (S_e) \left[1 + \frac{1}{n} + \frac{n(x_o - \bar{x})^2}{S_{xx}}\right]^{1/2}$$

with n-2 degrees of freedom where:

$$S_{xx} = n\Sigma x^2 - (\Sigma x)^2 = 5(55) - 15(15) = 50$$

$$S_{yy} = n\Sigma y^2 - (\Sigma y)^2 = 5(480,684,034) - (2,190,204,100) = 213,116,700$$

$$S_{xy} = n\Sigma xy - (\Sigma x)(\Sigma y) = 5(160,910) - 15(46790) = 102,700$$

$$S_e^2 = \frac{S_{xx}S_{yy} - (S_{xy})^2}{n(n-2)S_{xx}} = \frac{50(213,116,070) - (102,700)^2}{5(3)(50)}$$

$$= 144,685$$

$$S_e = 380 \text{ (approximately)}$$

Substituting,

a) when x_o=6 (1972), we are 95% confident y will be between 13,865 and 17,173 and the best estimate is 15,519.

b) when x_o=7 (1973), we are 95% confident y will be between 15,677 and 19,669 and the best estimate is 17,673.

4. Based on the above, in the worst possible situation a reduction of

1972		1973		
17,173	-	15,677	=	1,496

1,496 burglaries in required in order for the reduction to be significant. Thus, if a 10% reduction is attained, then this reduction will be statistically significant.

3.0 PROGRAM EVALUATION

3.1 Purpose of this Section

The purposes of this section are to explain and illustrate the approach to evaluation which will be utilized at the program evaluation level. These purposes will be accomplished by detailing the methodology in a step-by-step fashion. The program evaluation will be updated as feasible and desirable. Despite the emphasis upon quantitative evaluation in this section, it is stressed that qualitative input will be collected at each step and used to supplement and interpret the quantitative evaluation.

3.2 Review of Problem Structure and Planning--Evaluation Interaction

For the planning purposes of identification of needs and selection of projects, the crime problem was structured as a four-level hierarchy. This structure is summarized in Exhibit 3-1. At the highest level is the crime problem itself, i.e., the LEAA specified goals: to reduce stranger-to-stranger crime and burglary by 5% in two years and by 20% in five years.

At the lowest level are potential agency projects which are intended to reduce the incidence of crime. The two levels in between, sub-goals and objectives, are designed to link the problem to possible actions in a way that guides selection of projects to those with the highest expected impact.

As discussed in the Master Plan (p. II-B-1), the sub-goals were established by the Mayor's Task Force as:

1. Reduce the number of high crime areas (census tracts) by 20%.

2. Reduce the number of persons becoming victims of impact target crimes by 10%.

3. Increase the apprehension rate by 5%.

4. Decrease court processing time by 25%.

5. Reduce number of arrested offenders by 20%.

Note that sub-goals 1 and 2 are in the prevention area, that goal 3 is related to apprehension, that goal 4 is related to adjudication, and that goal 5 is related to corrections. Similarly, the objectives were established by the Sub-Task Force Groups (p. II-C-1, Master Plan). The projects will be determined by the local criminal justice agencies and will be designed to achieve the sub-goals and objectives as set by the Task Force and Sub-Task Force Groups (p. II-D-1, Master Plan). Some potential agency projects are summarized in the Master Plan (pp. II-B-1 to II-B-17).

3.2.2 Planning Output to Evaluation

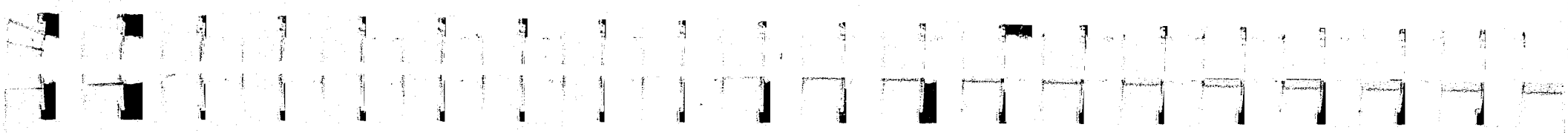
In order to obtain the goal of the Impact Program it is necessary for the collective project outcomes to realize the goal. Thus, whether or not realization of the program objectives will (1) follow from accomplishment of the project goals and objectives and (2) lead to realization of the program goals becomes an important consideration in planning and an important input to evaluation.

The mechanism for tracing these relationships involves the sub-goal level. The Problem Structure Chart (Exhibit 3-1) and the following problem structure narrative (Exhibit 3-2) verify that (1) if the objectives are realized by project outcomes, then the sub-goals will be realized; and (2) if the sub-goals are realized, then the program goal will be realized. It logically follows that if the objectives are realized, then the program goal will be obtained. This problem structure and the associated problem structure narrative are important to both planning and evaluation as follows:

1. From the planning viewpoint it provides a logical structure for verifying that collective agency project activity is sufficient to attain the program goal.

2. From the evaluation viewpoint it means (a) that project progress and impact evaluation can be related directly with program objectives, sub-goals, and goal; and (b) that progress and impact evaluation can be summarized in terms consistent with the plan and in a form useful for updating the Master Plan.

Since the problem structure narrative is such an important input to program evaluation it is included in its entirety as Exhibit 3-2 (revised edition; November 20, 1972).



PROBLEM STRUCTURE

A. GOAL

REDUCE STRANGER-TO-STRANGER CRIME AND BURGLARY BY 5%

B. SUB-GOAL

- REDUCE NUMBER OF HIGH CRIME CENSUS TRACTS BY 20%
- REDUCE NUMBER OF PERSONS BECOMING VICTIMS OF CRIMES BY 10%
- INCREASE APPREHENSION RATE BY 5%
- DECREASE COURT PROCESSING TIME BY 25%
- REDUCE NUMBER OF ARRESTED OFFENDERS BY 20%

C. OBJECTIVE

- REDUCE NUMBER OF BURGLARIES IN HIGH CRIME CENSUS TRACTS BY 15%
- REDUCE NUMBER OF OPEN SPACE ROBBERIES BY 20%
- REDUCE NUMBER OF VISITORS AS VICTIMS OF OPEN SPACE ROBBERY BY 25%
- RESPOND TO ALL TARGET CRIMES WITHIN FOUR MINUTES
- INCREASE ON-SIGHT APPREHENSION BY 10%
- INCREASE FOLLOWUP APPREHENSION BY 20%
- SPEED UP BAIL CASES BY 25%
- DECREASE AVERAGE TRANSCRIPT TIME BY 50%
- REDUCE JUROR AND WITNESS WAITING TIME BY 20%
- REDUCE NUMBER OF JUVENILE OFFENDERS IN SCHOOL BY 20%
- REDUCE RECIDIVISM RATE OF ADULT OFFENDERS BY 30%
- REDUCE NUMBER OF JUVENILE OFFENDERS IN HIGH CRIME AREA BY 15%
- REDUCE NUMBER OF JUVENILE OFFENDERS DECLARED DELINQUENT BY 20%
- REDUCE NUMBER OF DRUG OFFENDERS ARRESTED FOR TARGET CRIMES BY 10%

ESTIMATED COST ($MILLIONS)

.8	2.6	1.2	3.6	7.8	1.5	.9	.4	.9	1.7	3.8	.3	1.7	.8	TOTAL (28)

D. POSSIBLE PROJECTS

- SPECIAL SECURITY UNITS (.5)
- LOCKS (.2)
- PROPERTY I.D. (.1)
- TEAM POLICE (1)
- STREET LIGHTS (1)
- EDUCATION (.1)
- OVERTIME POLICE (.4)
- HELICOPTERS (.1)
- STREET LIGHTS (1)
- EDUCATION PROGRAM (.1)
- HELICOPTERS (.1)
- INTERAGENCY COMMUNICATION (.1)
- TEAM POLICE (2)
- COMMAND & CONTROL (1)
- OVERTIME POLICE (.4)
- HELICOPTERS (.1)
- STREET LIGHTS (2)
- TEAM POLICE (2)
- HELICOPTERS (.1)
- COMMAND & CONTROL (.7)
- CLOSED CIRCUIT TV (1)
- STAKE OUT (2)
- TEAM POLICE (1)
- MGT. INFO. SYSTEM (.4)
- INCREASE DET. ABILITY (.1)
- SPECIAL FELONY SQUAD (.4)
- PROMIS (.3)
- JUDGES-PUBLIC DEFENDERS (.2)
- VIDEO TAPE (.2)
- COURT REPORTER (.1)
- AUTOMATED TRANSCRIPTS (.1)
- PROMIS (.9)
- SCHOOL BOARD (1.5)
- PAL (.2)
- OVERTIME PROBATION (.3)
- SPECIAL PAROLE TREATMENT (3.5)
- PAL (.3)
- OUTREACH (.2)
- ALTERNATIVES TO TREATMENT (1.5)
- T.A.S.C. (.2)
- POLICE NARC. UNIT (.6)

*CRIMES REFER TO IMPACT TARGET CRIMES

EXHIBIT 3-1

EXHIBIT 3-2

PROBLEM STRUCTURE NARRATIVE

The percentages reflected on the Problem Structure Chart in the Master Plan are based upon projections from the sample survey conducted by the Crime Analysis Team. It should be noted, however, that some of the "hard" numbers set forth below will require readjustment upon the implementation of the new police field reporting system. It should also be noted that the percentages reflected on the Problem Structure Chart may likewise require some adjustment. These adjustments may be necessary in order to establish a valid base line for measuring program and project achievement.

In order to demonstrate how the projections were made, robbery in the City will be utilized as an example. The sample conducted by the Crime Analysis Team was based on a fifty percent sample and covered the first six months of 1972. This sample revealed 602 robberies during the six-month period. Assuming that the sample was valid and representative of the robbery picture in Atlanta during the six-month period, it may be projected that the universe of the robberies during the period was 1,204 robberies. All other things being equal, a robbery universe of 2,408 robberies for 1972 may be projected. The same procedure was utilized in projecting the burglary picture. Thus, it can be seen that the burglaries in Atlanta during 1972 would number 14,388. Applying these figures to the overall goal of reducing stranger-to-stranger crime and burglary by 5%, it can be seen that a reduction of 120 robberies and a reduction of 719 burglaries would be necessary. The reduction necessary to achieve the goal may be summarized as follows:

	FROM*	TO	DIFFERENCE
Robbery	2,408	2,288	120
Burglary	14,388	13,669	719
	16,796	15,957	839

*Recent data suggest that projections of 3,200 robberies and 15,500 burglaries is more realistic. The difference occurs because the sampling approach assumed that the number of crimes in the last six months is equal to the number of crimes in the first six months; however, the new data shows that the last six months has a higher crime rate.

Sub-Goal I - Reduce the number of high crime census tracts by 20%. Under the definition of a high crime census tract set forth in the Master Plan, a high crime census tract is defined as any census tract which has 24 or more robberies or 110 or more burglaries per six months or a combination of 130 or more robberies and burglaries per six-month time period. (See page I-2 of the Master Plan.) Utilizing this definition, 21 high crime census tracts have been identified. (See page APDX, U2-B-8 of the Master Plan.) In order to achieve this sub-goal, a reduction of 4 high crime census tracts would be necessary.

The objective under Sub-goal I is to reduce the number of burglaries in high crime census tracts by 15%. The projected burglary figure for high crime census tracts is 4,908 burglaries. To achieve the objective, a reduction of 736 burglaries would be necessary, thus reducing the number of burglaries to 4,172 in high crime census tracts. Utilizing these figures it may be seen that current average number of burglaries per high crime census tract is 233 burglaries. Under the definition of a high crime census tract, the number of burglaries alone necessary to cause a census tract to be designated a high crime census tract would be 220 burglaries per year. If this objective is met, then the average number of burglaries per census tract would be 198. Thus, if this objective were achieved, it might be sufficient alone to assure meeting of the Sub-goal since it is likely that if the average number of burglaries per high crime census tract were reduced from the defined 220 to 198, then at least 4 census tracts would drop under 220 burglaries per year. To support this conclusion, consider the fact that there are 12 census tracts which are classified as high crime census tracts because of the number of burglaries, i.e., there are not sufficient robberies for the tract to qualify on that basis. A 15% reduction in burglaries in each of those 12 census tracts would result in 5 tracts dropping out of the high crime group.

The second Sub-goal is to reduce the number of persons becoming victims of target crimes by 10%. The sample revealed a projection of 2,408 persons becoming victims of target crimes. A 10% reduction would mean that the number of victimes would have to be reduced by 240 thus leaving a resulting figure of 2,168 persons becoming victims of target crimes.

The first objective under Sub-goal II is to reduce open space robberies by 20%. Open space robberies are defined by the Master Plan as those occurring upon the streets, alleys, parking areas or any area outside any building or structure. (See page I-4 of the Master Plan). The sample projected

1,035 open space robberies and a 20% decrease would result in a reduction of 207 open space robberies leaving a net figure of 828.

The second objective under Sub-Goal II is to reduce the number of visitors who are victims of open space robbery by 25%. While this objective might be classified as being included within the objective alluded to above, it was singled out for special consideration in view of the high percentage of the open space robberies that are perpetrated on visitors to the City. The sample revealed that nearly 25% of all the open space robberies were perpetrated on visitors. Consequently, it was felt that this problem deserved special consideration. The sample revealed that a projection of 248 visitors to the City would be victims of open space robberies. A 25% reduction would reduce this number by 62 leaving a net figure of 186.

The third Sub-Goal is to increase the apprehension rate by 5%. The sample revealed a projected robbery clearance number by arrest of 1,155. This figure represents 48% of the total 2,408 robberies projected. An increase by 5% would result in an apprehension rate of 53% which would increase the number of arrests for robbery to 1,276. The sample revealed a projected burglary clearance number by arrest of 3,165. This figure represents 22% of the total 14,388 burglaries projected. An increase of 5% would result in an apprehension rate of 27% which would increase the number of arrests for burglary to 3,885.

The first objective under Sub-Goal III is to decrease the response time to within 4 minutes. No meaningful data could be established to determine the present response time. However, some indication of this problem can be gathered from the fact that the sample revealed that of the robbery and burglary cases which went to trial, 60% of the robbery defendants and 45% of the burglary defendants were arrested on the same day the offense was committed. The analysis also revealed that of the robbery defendants who were tried, 73% were arrested within 5 days after the offense was committed. As the time from offense to arrest increases, the percentage of defendants actually tried for those offenses drops markedly. Utilizing these figures, it is possible to project the number of offenders arrested on-site and thus to reduce the second objective under Sub-Goall III, which is to increase on-site apprehension by 10%, to hard numbers. Thus utilizing the percentage of robbery defendants who are apprehended on the same day as the offense and applying it against the total number arrested, this number of on-site robbery apprehensions is projected to be 693. A 10% increase

would be 69, thus reflecting a total of 762. Using the same procedure for burglary, the number of on-site apprehensions is projected to 1,424. A 10% increase would be 142, thus reflecting a total of 1,566.

The third objective under Sub-Goal III is to increase follow-up apprehension by 20%. Again by utilizing the percentages of defendants who actually go to trial within specified days it is possible to project follow-up apprehensions which actually result in trials. For a detailed breakout of the various time frames involved, see pages V-1-A-13 and V-1-A-14 of the Master Plan. Since 60% of the robbers were arrested on the same day as the offense, 40% of the robbers were arrested after a follow-up investigation. Applying this percentage to the total number of robbers arrested it can be projected that 462 robbers were arrested as a result of follow-up apprehensions. A 20% increase would be 92, thus resulting in a total of 554. Applying the same procedure to burglary cases, a projection of 1,740 burglary arrests as a result of follow-up apprehension can be made. A 20% increase would be 348, thus reflecting a total of 2,008.

The fourth Sub-Goal is to decrease the court processing time from indictment to filing of appeal by 25%. The sample in the Fulton County Superior Court covered the period from offense to disposition at the trial level with a focus on three time frames within that period - from offense to arrest, arrest to indictment, and indictment to disposition. In view of the very small number of appeals filed, no meaningful data could be gathered regarding the time frame to appeal; however, the time necessary to prepare trial transcripts was examined. Since an appeal cannot be filed until after the trial transcript has been prepared it was felt that by combining the average time from indictment to disposition with the average time necessary to prepare trial transcripts, a close approximation of the time frame from indictment to filing of appeal could be made. It should again be noted that only robbery and burglary cases were examined. When homicide, rape, and aggravated assault are examined one can expect the time frames and the number of appeals to increase. Homicide and rape cases are ordinarily capital crimes; thus the seriousness and complexity of these cases generally dictate longer trial times. It should also be noted that the avenue of the guilty plea is all but removed. In addition, in view of the sentences ordinarily given in these cases, appeals become almost automatic. The average number of days from indictment to disposition in robbery cases was 111 days, for a total of 170 days. The average number of days from indictment to disposition in burglary cases was

94 and the average transcript time was 92 days, for a total of 186 days. Thus the average time from indictment to filing of appeal in robbery and burglary cases is in excess of 178 days. It should be noted that this time frame does not include whatever additional time might be necessary beyond the completion of the trial transcript for the attorneys to prepare the appeals; thus the figure is quoted as in excess of 178 days. A reduction in this time by 25% would result in an average reduction of 44 days with a net average time frame of 134 days remaining.

The first objective under Sub-Goal IV is to speed up bail cases by 25%. For a discussion of the identification of this objective see page V-1-B-1 of the Master Plan. The average time from indictment to disposition in robbery cases is 121 days and in burglary cases is 151 days. A 25% reduction would result in an average reduction of 30 days in robbery cases and 37 days in burglary cases. Again, it should be noted that these average figures can be expected to increase significantly with the addition of homicide and rape cases.

The second objective under Sub-Goal IV is to decrease the average transcript time by 50%. The analysis revealed that the average transcript time in burglary cases was 92 days and in robbery 111 days. A 50% reduction would result in an average decrease of 55 days in robbery cases and 46 days in burglary cases, and an average reduction of 51 days in both robbery and burglary cases. It should be noted that some caution must always be exercised in averaging two different offenses. The very nature of the offenses may dictate certain problems in attempting to combine statistics about them.

The fifth Sub-Goal is to reduce the number of offenders arrested by 20%. The projected total of adult and juvenile robbers and burglars is 4,942. A 20% reduction would be 988, thus leaving a resulting total of 3,954.

The first objective of Sub-Goal V is to reduce the number of juvenile offenders in school by 20%. The projected number of juvenile offenders in school is 158 and a 20% reduction would be 32, leaving a total of 126.

The second objective in Sub-Goal V is to reduce the recidivism rate of adult offenders by 30%. The statistics furnished by the State Department of Offender Rehabilitation reveal that the recidivism rate for offenders of target crimes from Fulton County is 64%. A 30% reduction would be 19% leaving a resulting recidivism rate of 45%.

The third objective under Sub-Goal V is to reduce the number of juvenile offenders in high crime census tracts by 15%. A juvenile high crime census tract is one that has two or more robberies or five or more burglaries, or a combination of five or more robberies and burglaries committed by juveniles. Nineteen high crime juvenile census tracts were identified. The projected number of juveniles committing robberies and burglaries in these census tracts was 248. Thus 40% of all juveniles committing robberies and burglaries were in these tracts. A 15% reduction would be 6%, leaving a resulting figure of 34%.

The fourth objective under Sub-Goal V is to reduce the projected number of juvenile offenders declared delinquent for target crimes by 20%. The project number of juveniles declared delinquent is 622. A 20% reduction would be 124, leaving a resulting total of 498.

The fifth objective under Sub-Goal V is to reduce the number of drug offenders arrested for target crimes by 10%. The projected number of drug offenders arrested for target crimes is 413. A 10% reduction would be 41, leaving a resulting total of 372.

In all cases, the projects will be designed to achieve or contribute to the achievement of an objective. Achieving the objectives will necessarily insure achievement of the Sub-Goals, and likewise achievement of the Sub-Goals will necessarily insure achievement of the Impact Goal.

3.2.3 Update of the Master Plan

The information obtained from analysis of the program evaluation data and from project evaluations may suggest necessary and/or desirable modifications to the Master Plan, especially at the objectives and sub-goal levels. Quarterly reviews will take place beginning March, 1973, in which the sub-goals and objectives will be reviewed in light of existing information and increased understanding of the crime problem and the means available to deal with it. The CAT personnel will prepare the appropriate results from the continuing crime analysis and project evaluations for presentation to the Task Force, including:

1. Who is participating: projects, agencies, and data contribution.

2. Degree of accuracy: on list of Impact projects only, spotty data, etc.

3. Expected or desired changes in the information collection: methods and the respective participants.

4. Implication of the information for:

   A. Sub-goals and objectives.

   B. Policies and procedures for the Impact Program.

Following this presentation and discussion, the Task Force will have nine working days to seek additional information and to discuss and analyze the presentation. On the tenth day, the Task Force will reconvene to:

1. Support existing sub-goals and objectives.

2. Alter existing sub-goals and objectives.

3. Formulate new sub-goals and objectives.

3.3 Overview of Program Evaluation

Program evaluation will include evaluation at the following levels:

1. Program Goal: The overall evaluation will assess whether the incidence of Impact crime in Atlanta was reduced by 5% in two years and by 20% in five years.

2. Sub-Goals: The sub-goal level of evaluation will assess the level of achievement in meeting the specified sub-goals as well as in the areas of offender, victim, and environment.

3. Objectives: The objective evaluation will assess the level of achievement in meeting the objectives at the action level.

There are four activities associated with program evaluation:

1. Conducting continuous evaluation for assessing degree of achievement of goal, updating sub-goals and objectives, and improving project selection and feedback for effective allocation of resources and program management.

2. Conducting semi-annual comprehensive program evaluations.

3. Conducting yearly evaluation of the Evaluation.

4. Conducting post-evaluation two and five years after initiation of the Program.

The continuous assessment of indicators will be performed monthly, while the comprehensive evaluation will take place semi-annually. The yearly evaluation of the Evaluation will be conducted by the end of August, 1974. The post-evaluation will be conducted two and five years after initiation of the Program.

3.3.1 Continuous Evaluation

Continuous Evaluation of Degree of Attainment of Program Goal

The degree of attainment of the overall goal of the Impact Program will be evaluated by changes in the Program indicators. Changes in the indicators will be analyzed by comparison of changes through time. The most feasible approach for Impact to accomplish this in Atlanta will be to compare conditions before and after Impact. In Atlanta this approach is dependent upon the development of a valid and reliable data base to avoid an invalid baseline.

Continuous Evaluation of Individual Program Areas

Individual program area evaluation will be based primarily upon analyzing the effect of complementarity and/or duplication of individual projects on the target sub-goals. Provision for separating the effects of the project from other Impact projects directed at the same objective will be made at the CAT level. Where possible, target and control groups will be used to isolate the projects from external effects. In addition, to the extent which is practical, projects directed at the same objective will be isolated either in time or space since the same indicator will be used to measure effectiveness.

Evaluation of groups of projects is also needed to assess the relative effectiveness of the various action strategies in achieving the goal or sub-goal. For example, are projects to change the offense environment more effective in preventing Impact crimes than projects to change victims' behavior? There may be a need for grouping projects, such as by geographic areas of concentration, target population, or type of commercial establishment. The indicators and the problem structure defined for the crime analysis provide the tools for evaluating these groups of projects. The relative effectiveness of strategies at the sub-goal level can be assessed because the quantitative sub-goals are connected directly to the goal. At the objective level, the relative effectiveness of projects in different action areas in terms of achieving the sub-goal, as in the example above, may require additional analysis to assess because the link between objectives and sub-goals is not direct. Evaluation of the relative effectiveness of several projects aimed at the same objective, such as residential versus commercial target hardening, will require separating the projects either in time or in space (i.e., different areas of the City) because the same indicator is used to measure impact.

In cases where the data defining the indicators are inadequate for determining impact, a special study will be conducted to acquire the information.

3.2.2 Semi-Annual Comprehensive Program Review

A comprehensive review of the program will be conducted semi-annually, beginning April 15, 1973. A written

report will be prepared discussing the level of program achievement relative to: information system, program and project management, formulation of sub-goals and objectives, status of grant applications, and interim conclusions.

Following this review, the CAT will report its findings and judgments to the Task Force. Findings and judgments will consist of:

1. Extent to which the Impact Program is meeting its goal, sub-goals, objectives and sub-objectives. This shall be a quantitative as well as qualitative statement.

2. Extent to which the project groupings are meeting the associated objectives and sub-goals. Measures will be both quantitative and qualitative in nature.

Summaries of these meetings will be available to all concerned agencies.

3.3.3 Yearly Evaluation of the Evaluation

Consultants who are experienced in the process of evaluation will review and make recommendations regarding the operational evaluation of the Atlanta Impact Program.

3.3.4 Post-Evaluations

Post-evaluations of the effectiveness and efficiency of all phases of the Atlanta Impact Program will be conducted two and five years after the beginning of the program. An outside agency or consultants will conduct both evaluations.

3.4 The Program Evaluation Process

The Atlanta Impact Program, viewed as an entity or "project", must be evaluated with respect to its goals and objectives. The approach taken is to apply the procedure developed in Section 2.0 for Project Evaluation. The application is done in the same step-by-step manner as for the Police Overtime Patrol Project. It is stressed that this evaluation is with respect to indicators at the objectives, sub-goals, and goal levels and is in addition to and supportive of project evaluations. Both program and project evaluations will be performed.

3.4.1 Step 1: Specify the Measurable Program Goals and Objectives

The output desired from Step 1 is summarized on Figure 2-2 as:

1. Measurable goals and objectives which are feasible and cost-effective.

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

The goals and objectives in criterion form were provided by the planning activity and are summarized in Exhibit 3-3. The performance measures are specified in Exhibit 3-4. The basic data elements required in support of these quantified goals and objectives are listed in Exhibit 3-5.

EXHIBIT 3-3

SUMMARY OF GOAL, SUB-GOALS, AND OBJECTIVES

		FROM	TO	DIFFERENCE	
Goal - Reduce stranger-to-stranger crime and burglary by 5% in 2 years and by 20% in 5 years.	(Robbery)	2,408	2,288	120	(2%)
	(Burglary)	14,388	13,669	719	(2%)
	(Total)	16,796	15,957	839	(2%)
Sub-Goal I - Reduce number of high crime census tracts by 20%.		21	17	4	
Objective 1. Reduce number of burglaries in high crime census tracts by 15%.		4,908	4,172	736	
Sub-Goal II - Reduce number of persons becoming victims of target crimes by 10%.		2,408	2,168	240	
Objective 1. Reduce open space robberies by 20%.		1,035	828	207	
Objective 2. Reduce number of visitors as victims of open space robbery by 25%.		248	186	62	
Sub-Goal III - Decrease court processing time from indictment to filing.	(Average Days)	178	134	44	
Objective 1. Speed up bail cases by 25%.	(Robbery)	121	91	30	
	(Burglary)	151	114	37	
	(Total)	272	205	67	
Objective 2. Decrease average transcript time by 50%.	(Robbery)	111	56	55	
	(Burglary)	92	46	46	
	(Total)	203	102	101	

EXHIBIT 3-3 (Cont'd.)

		FROM	TO	DIFFERENCE
Objective 3. Reduce juror and witness waiting time by 20%		UN-KNOWN	UNKNOWN	UNKNOWN
Sub-Goal IV - Increase apprehension rate by 5%.	(Robbery)	48%	53%	5%
		1,155	1,276	121
	(Burglary)	22%	27%	5%
		3,165	3,885	720
	(Total)	25%	30%	5%
		4,320	5,161	841
Objective 1. Respond to all target crimes within 4 minutes.		UN-KNOWN	4 MIN.	UNKNOWN
Objective 2. Increase on-site apprehension by 10%.	(Robbery)	693	762	69
	(Burglary)	1,424	1,566	142
	(Total)	2,177	2,328	211
Objective 3. Increase follow-up apprehension by 20%.	(Robbery)	462	554	92
	(Burglary)	1,740	2,088	348
	(Total)	2,202	2,642	440
Sub-Goal V - Reduce the number of offenders arrested by 20%.	Total (Adult	4,942	3,954	988
	Robbers Adult	1,155		
	Burglars Juvenile	3,165		
	Robbers Juvenile	88		
	Burglars	534		
Objective 1. Reduce the number of juvenile offenders in school by 20%.		158	126	32
Objective 2. Reduce recidivism rate of adult offenders by 30%.		64%	45%	19%
Objective 3. Reduce number of juvenile offenders in high crime tracts by 15%.		40%	34%	6%
	(Robbery)	50	43	7
	(Burglary)	198	169	29

EXHIBIT 3-3 (Cont'd.)

	FROM	TO	DIFFERENCE
Objective 4. Reduce number of juvenile offenders declared delinquent by 20%.	622	498	124
Objective 5. Reduce number of drug offenders arrested for target crimes by 10%.	413	372	41

EXHIBIT 3-4

PERFORMANCE MEASURES

1. Goal

Let b_{0i} = Number of impact crimes of type i committed during the base year, i.e., the year prior to implementation of the Impact Program where i = 1 (burglary), 2 (robbery), 3 (aggravated assault), 4 (rape), 5 (homicide)

b_{2i} = Number of impact crimes of type i committed during the second year of the Impact Program with i as previously defined.

b_{5i} = Number of impact crimes of type i committed during the fifth year after initiation of the Impact Program with i as previously defined.

Then, the performance measures for the Goal are:

1) For two years: $\frac{b_{0i} - b_{2i}}{b_{0i}}$ for each impact crime i and

$$\frac{(b_{01} + b_{02} + b_{03} + b_{04} + b_{05}) - (b_{21} + b_{22} + b_{23} + b_{24} + b_{25})}{(b_{01} + b_{02} + b_{03} + b_{04} + b_{05})}$$

2) For five years: $\frac{b_{0i} - b_{5i}}{b_{0i}}$ for each impact crime i and

$$\frac{(b_{01} + b_{02} + b_{03} + b_{04} + b_{05}) - (b_{51} + b_{52} + b_{53} + b_{54} + b_{55})}{(b_{01} + b_{02} + b_{03} + b_{04} + b_{05})}$$

2. Sub-Goals

A. Sub-Goal I

Let n_0 = Number of high crime census tracts (defined as in Exhibit 2-3) in base year.

n_2 = Number of high crime census tracts at end of second year.

Then, the performance measure for Sub-Goal I is:

$$\frac{n_0 - n_2}{n_0}$$

B. Sub-Goal II

Let P_0 = Number of persons becoming victims of target crimes during the base year.

P_2 = Number of persons becoming victims of target crimes during the second year.

Then, the performance measure for Sub-Goal II is:

$$\frac{P_0 - P_2}{P_0}$$

C. Sub-Goal III

Let t_0 = Average court processing time from indictment to filing of appeal during base year.

t_2 = Average court processing time from indictment to filing of appeal during year two.

Then, the performance measure for Sub-Goal III is:

$$\frac{t_0 - t_2}{t_0}$$

D. Sub-Goal IV

Let r_{0i} = Apprehension rate for impact crime where i = 1, 2, 3, 4, 5 during the base year.

r_{2i} = Apprehension rate for impact crime where i = 1, 2, 3, 4, 5 during the second year.

Then, the performance measures for Sub-Goal IV are:

1) $\frac{r_{0i} - r_{2i}}{r_{0i}}$ for each impact crime i.

2) $\dfrac{(r_{01} + r_{02} + r_{03} + r_{04} + r_{05}) - (r_{21} + r_{22} + r_{23} + r_{24} + r_{25})}{(r_{01} + r_{02} + r_{03} + r_{04} + r_{05})}$

E. Sub-Goal V

Let m_{0ji} = Number of offenders of type j = 1 (adult), 2 (juvenile) arrested for impact crime i during base year.

m_{2ij} = Number of offenders of type j = 1, 2, arrested for impact crime i during second year.

Then, performance measures for Sub-Goal V are:

1) $m_{0ij} - m_{2ij}$ for each impact crime i and offender type j.

2) $$\frac{\sum_{i=1}^{5}\sum_{j=1}^{2} m_{0ij} - \sum_{i=1}^{5}\sum_{j=1}^{2} m_{2ij}}{\sum_{i=1}^{5}\sum_{j=1}^{2} m_{0ij}}$$

3. Objectives

A. Objective I-1

Let h_0 = Number of burglaries in high crime census tracts during base year.

h_2 = Number of burglaries in high crime census tracts during second year.

Then, the performance measure for Objective I-1:

$$\frac{h_0 - h_2}{h_0}$$

B. Objective II-1

Let S_0 = Number of open space robberies during base year.

S_2 = Number of open space robberies during second year.

Then, the performance measure for Objective II-1 is:

$$\frac{S_0 - S_2}{S_0}$$

C. Objective II-2

Let V_0 = Number of visitors as victims of open space robbery during base year.

V_2 = Number of visitors as victims of open space robbery during second year.

Then, the performance measure for Objective II-2 is:

$$\frac{V_0 - V_2}{V_0}$$

D. Objective III-1

Let W_{0i} = Average court processing time for bail cases of impact crime type i during base year.

W_{2i} = Average court processing time for bail cases of impact crime type i during second year.

Then, the performance measure for Objective III-1 are:

1) $\frac{W_{0i} - W_{2i}}{W_{0i}}$ for each impact crime type i.

2) $$\frac{\sum_{i=1}^{5} W_{0i} - \sum_{i=1}^{5} W_{2i}}{\sum_{i=1}^{5} W_{0i}}$$

E. Objective III-2

Let d_0 = Average transcript time during base year.

d_2 = Average transcript time during second year.

Then, the performance measure for Objective III-2 is:

$$\frac{d_0 - d_2}{d_0}$$

F. Objective III-3

Let f_0 = Average juror and witness waiting time during base year.

f_2 = Average juror and witness waiting time during second year.

Then, the performance measure for Objective III-3 is:

$$\frac{f_0 - f_2}{f_0}$$

G. Objective IV-1

Let m = Maximum time to respond to a target crime during the second year.

Then the performance measure for Objective IV-4 is:

$$m \leq 4$$

H. Objective IV-2

Let a_{0i} = Number of on-site apprehensions for impact crime type i during base year.

a_{2i} = Number of on-site apprehensions for impact crime type i during second year.

Then, the performance measures for Objective IV-2 are:

1) $\frac{a_{0i} - a_{2i}}{a_{0i}}$ for each impact crime i.

2) $$\frac{\sum_{i=1}^{5} a_{0i} \quad \sum_{i=1}^{5} a_{2i}}{\sum_{i=1}^{5} a_{0i}}$$

I. Objective IV-3

Let f_{0i} = Number of follow-up apprehensions for impact crime type i during base year.

f_{2i} = Number of follow-up apprehensions for impact crime type i during second year.

Then, performance measures for Objective IV-3 are:

1) $\frac{f_{0i} - f_{2i}}{f_{oi}}$ for each impact crime i.

2) $\frac{\sum_{i=1}^{5} f_{0i} - \sum_{i=1}^{5} f_{0i}}{\sum_{i=1}^{5} f_{0i}}$

J. Objective V-1

Let c_0 = Number of juvenile offenders in school during base year.

c_2 = Number of juvenile offenders in school during second year.

Then, the performance measure for Objective V-1 is:

$$\frac{c_0 - c_2}{c_0}$$

K. Objective V-2

Let d_0 = Recidivism rate of adult offenders during base year.

d_2 = Recidivism rate of adult offenders during second year.

Then, the performance measure for Objective V-2 is:

$$\frac{d_0 - d_2}{d_0}$$

L. Objective V-3

Let g_0 = Number of juvenile offenders in high crime tracts during base year.

g_2 = Number of juvenile offenders in high crime tracts during second year.

Then, the performance measure for Objective V-3 is:

$$\frac{g_0 - g_2}{g_0}$$

M. Objective V-4

Let k_0 = Number of juvenile offenders declared delinquent during base year.

k_2 = Number of juvenile offenders declared delinquent during second year.

Then, the performance measure for Objective V-4 is:

$$\frac{k_0 - k_2}{k_0}$$

N. Objective V-5

Let q_0 = Number of drug offenders arrested for target crimes during base year.

q_2 = Number of drug offenders arrested for target crimes during second year.

Then, the performance measure for Objective V-5 is:

$$\frac{q_0 - q_2}{q_0}$$

EXHIBIT 3-5

BASIC DATA ELEMENTS

1. Number of Impact crimes for each Impact crime category and for base year, second year, and fifth year.

2. Number of high crime census tracts in base year and second year.

   A. Number of robberies by census tract for base year and second year.

   B. Number of burglaries by census tract for base year and second year.

3. Number of persons becoming victims of target crimes in base year and second year.

4. Average court processing time from indictment to filing of appeal for base year and second year.

   A. Court processing times from indictment to filing of appeal for base year and second year.

5. Apprehension rate for Impact crime i for base year and second year.

   A. Number of apprehensions by Impact crime type for base and second year.

   B. Number of crimes given by 1.

6. Number of juvenile and number of adult offenders arrested for Impact crime i during base and second year.

7. Number of burglaries in high crime census tracts for base year and second year.

8. Number of open space robberies during base year and second year.

9. Number of visitors as victims of open space robbery during base year and second year.

10. Average court processing time for bail cases of Impact crime type i during base year and second year.

    A. Court processing times for bail cases of Impact crime type i during base year and second year.

11. Average transcript time during base year and second year.

    A. Transcript times for base year and second year.

12. Average juror and witness waiting time during base year and second year.

    A. Juror waiting times for base year and second year.

    B. Witness waiting times for base year and second year.

13. Maximum time to respond to a target crime during second year.

    A. Times to respond to each target crime during second year.

14. Number of on-site apprehensions for Impact crime type i for base year and second year.

15. Number of follow-up apprehensions for Impact crime type i for base year and second year.

16. Number of juvenile offenders in school during base year and second year.

17. Recidivism rate of adult offenders during base year and second year.

18. Number of juvenile offenders in high crime tracts during base year and second year.

19. Number of juvenile offenders declared delinquent during base year and second year.

20. Number of drug offenders arrested for target crimes during base year and second year.

3.4.2 Step 2: Formulate a Practical Evaluation Design

The output desired from Step 2 is summarized on Figure 2-3 as:

1. Practical evaluation design.

2. Required basic data elements.

Since the goals, sub-goals and objectives are all based on city-wide data, it is not deemed possible to identify a control group. Therefore, a "before-after" design is selected. The summary presented in Exhibit 3-3 indicates the "before" and "desired after" for each goal, sub-goal, and objective for which data is available. It is stressed that the data in Exhibit 3-3 is the best data available at the time this plan was prepared (November, 1972). The figures will be updated as better data become available. Thus, a "before-after" design is sufficient for performance measurement and is practical.

Each performance measure will be computed semi-annually for the semi-annual comprehensive program review. Since interim accomplishment of objectives, sub-goals, and goal is a function of the time phasing of the individual projects and since this time phasing is not known, specific interim levels of accomplishment are not specified in advance of the semi-annual reviews consistent with the time phasing of projects.

Other than requiring that the basic data elements be available semi-annually, there is no modification required to the data elements specified in Exhibit 3-5.

3.4.3 Step 3: Specify Data Collection Procedures

The output desired from Step 3 is summarized on Figure 2-4 as:

Specification of data collection procedures which includes:

1. Basic data elements.

2. Data source (by agency for program evaluation).

3. Form of the data.

4. Frequency at which data will be reported.

5. Design of the data forms.

The data collection procedures and associated information systems are summarized in two forms:

1. Discussion of information system (Exhibit 3-6).

2. Summary identifying problem component, timing, and agency source of the data (Exhibit 3-7).

Taken together, these summaries specify the output required from Step 3. Note that the specific data elements include those data elements required for performance measurement (evaluation) and additional data elements from which insights can be generated which will assist in future planning and evaluation.

3.4.4 Step 4: Specify Data Reduction and Analysis Methods

The desired output from Step 4 is summarized on Figure 2-5 as:

1. Determine if the program attained its specified goals, sub-goals, and objectives.

2. Determine if the levels of accomplishment are significant - since there is no control group, the determination must be based on statistical tests of a "before-after" nature.

3. Identify individual(s) responsible for program evaluation.

4. Determine points in time at which evaluation should be performed.

5. Determine who could use the results of the analysis.

6. Provide the mechanisms for reporting the results.

Exhibit 3-8 presents the decision criteria which will be used to determine if the program attained its specified goal, sub-goals, and objectives. Statistical significance will be examined only at the goal level because the data is not available for a time series (regression) analysis at the other levels. It was deemed not to be cost-effective to collect the required data.

EXHIBIT 3-6

INFORMATION SYSTEMS: DATA COLLECTION AND ANALYSIS

Summary

The Impact Team will implement, on an incremental basis, a data collection and analysis system in the following agencies:

Police:	Atlanta Police Department
Prosecution:	Fulton County District Attorney's Office
Courts:	Atlanta Municipal Court and Fulton County Superior Court
Corrections:	Georgia Department of Offender Rehabilitation

Related social agencies, such as HEW, LABOR, OEO, etc., will also become directly involved in the total program effort by providing relevant data and technical assistance to the Impact Team, and program assistance to identified Impact offenders.

The incremental data analysis effort will consist of an initial, a refined, and an on-going operational analysis program in each of the above mentioned agencies. These steps are defined below.

In the Police Department, the reference is to offense reports that generate the street information and arrest reports that generate the arrest and identification segment of an offender based tracking system (OBTS). In the Prosecutor's Office and the courts, the concern is with the judicial segment of OBTS; and in corrections, the interest is with the custodial segment.

In the initial and refined phases of data analysis in the above agencies, the Impact Team has and will manually conduct random sampling of data and an examination of the internal data mechanisms producing the data. The operational analysis phase is the automated police records program of the City and the OBTS program of the State. The last phase, operational analysis, is the result of perfecting and improving upon the data collection vehicle and the integrity of the data developed in the first two phases. Each phase gives the Impact Team and the agencies involved more timely, accurate, and detailed data on crimes, criminals, and criminal activity, from which crime reducing programs can be identified, developed, revised, improved, modified, or phased out.

The end product is an automated data generating system built into the operational agencies from which continuous data can be received and subjected to analysis by the Impact Team and the operational agencies involved.

Police Records

Initial Analysis: In order to immediately and effectively determine exactly where the crime specific problems are in Atlanta, the Impact Team, assisted by student help, manaully reviewed the first six months' crime reports of the Atlanta Police Department and designated the location of the four types of Impact crimes by census tracts. A census tract overlay was developed for the existing beat structure. This initial data collection operation was completed for the existing beat structure. This initial data collection operation was completed for the Master Plan.

Identifying the location of Impact crimes, coupled with the Uniform Crime Report data elements for each crime, provided an immediate knowledge of the crime problem in Atlanta regarding who, what, when, where, why and how, from which meaningful decisions about the allocation of resources can be made and justified until the long-range records system is operational.

Refined Analysis: From January through December, 1972, a modified random sampling collection effort with upgraded data elements will continue. During this period of time, the data capturing vehicle and the data itself will be refined so as to articulate better the basis from which decisions are made concerning the designation and monitoring of Impact programs. It will be compatible with the police modified field report format.

Operational Analysis: Manual manipulation of police records of the volume and size of the Atlanta Police Department is not feasible over a long period of time. Therefore, utilizing the new Atlanta Police Department report writing system (which has the necessary data elements the Crime Analysis Team needs for analysis) and the demographic information the Atlanta Regional Commission has available, a computer program will be written by March/April, 1973, which will provide, on at least a monthly basis, a meaningful and interpretable printout for the Crime Analysis Team and the Atlanta Police Department's Research and Development staff. It will be retroactive for data from January, February, and March of 1973.

EXHIBIT 3-6 (cont'd.)

The computer programs above will either be written by the City Electronic Data Processing Center, or a request for proposal (RFP) will be disseminated if the City does not have the programming personnel available for this task. If the program is written by a consultant, he will be selected on the basis of his responsiveness to the RFP and an evaluation of his capabilities to perform the work. The estimated cost of writing the program is $50,000.

The police records crime analysis module will allow for the graphical and tabular display of information concerning:

1. Distribution of offenses by type and value.
2. Distribution of offenses by census block.
3. Distrubtion of offenses by time of day and day of week.
4. Characteristics of crime victims and premises associated with crimes.
5. Level of force and violence, and types of weapons used.
6. Degree of drug or alcohol involvement in the crime.
7. Other relationships as found to be appropriate.

The socio-economic data available from the Atlanta Regional Commission for programming are:

1. 1970 U.S. Census data (education, quality of housing, employment, income, etc.).
2. Number of housing units by structure, type, and race of occupant.
3. Land use identification and quantification by residential and commercial structures.
4. Employment data by number employed and type of establishment.

Prosecution/Courts

Initial Analysis: In order to immediately obtain summary statistics on Atlanta Impact offenders moving through the City, County, and State criminal justice agencies handling them, the Court Specialist for the Impact Team, accompanied by some student help, utilized a modification of Project

CONTINUED

2 OF 3

SEARCH Technical Report No. 3 (Designing Statewide Criminal Justice Statistics Systems) to manually track a representative number of Impact offenders through the existing system in order to have, at the present time, some meaningful data on the administration of the system. This was completed between August 15 and August 22, 1972. As mentioned in the Summary, the internal data gathering mechanisms as well as data availability were examined at this step.

Refined Analysis: Although the initial sampling effort will develop some meaningful data, a random sampling program will continue until the long-range, fully implemented OBTS system is operational by the Georgia Crime Information Center (GCIC) under the State Division of Investigation (DOI). The refined analysis program at this step will again improve the integrity of the data and the capability to collect it, in furtherance of the implementation of the State OBTS program and the development or monitoring of Crime Impact programs.

The data elements for the interim and refined system are basically the same whether tracking adults or juveniles. Although the Fulton County Juvenile Court has a semi-automated OBTS system, it still will require some manual manipulation of the data available in order to produce meaningful outputs for analysis. Although the Juvenile Court will not be a part of the State's OBTS program, any future upgrading of the juvenile system should be compatible with the State and National system being developed.

Operational Analysis: The Crime Commission of the State of Georgia recently adopted a Master Plan for the design, development, and implementation of a State criminal justice informational system. The Division of Investigation's GCIC has already been in touch with the Atlanta Police Department concerning its submission of the arrest and identification segments of OBTS. These two agencies are awaiting FBI-NCIC-Identification approval for the Atlanta Police Department to begin submitting a single fingerprint card to FBI-Identification via GCIC. Approval was forthcoming on August 9, 1972.

The Fulton County Superior Court has received a FY 1972 block action grant award totaling $317,000 federal dollars for the automation of the court administration system, which includes the collection and processing of the data elements under the judicial segment of OBTS.

The tracking of juveniles being arrested for Impact offenses through the Fulton County Juvenile Court has previously

been discussed. The existing automated system is sophisticated enought that, with little effort, a permanent manual format can be developed which would provide continued data for analysis. The permanent manual tracking format will be developed by the Impact Team from their experiences learned under the initial and refined analysis efforts in the Juvenile Court. The operational analysis system for the Juvenile Court will be in effect by April, 1973.

The groundwork is therefore being laid i[illegible]he Atlanta metro area with the police, prosecution, and c[illegible] for assisting the State in developing its system. The [illegible]ct Team will take this opportunity to coordinate its ac[illegible]ties with GCIC in developing the OBTS capability in the Atlanta metro area and within the State Department of Offender Rehabilitation for fulfilling the requirements under the custodial segment.

The State will be forwarding its first NCIC Computerized Criminal History tape to the FBI on January 1, 1973. The Impact Team will utilize its position to build upon the integrity and completeness of this tape by coordinating its activities with the above mentioned criminal justice agencies, especially during the next six months in its development of the analysis phases. This tape and its expanded data capability under LEAA's OBTS will provide the Impact Team with on-going data for analysis sometime in early 1973. The Division of Investigation has not yet finalized this date.

The Impact Team does not plan to build its own informational system. It also feels that sophisticated modeling and forecasting are not necessary tools for carrying out the objectives of the initial and refined stages of analysis. It is intended that the data analysis program development be such that the outputs-printouts will be in the format that suggests ease of interpretation and analysis by the Impact staff.

EXHIBIT 3-6 (cont'd.)

TASK TIME TABLE: DATA COLLECTION AND ANALYSIS			
Agencies and Tasks	INITIAL ANALYSIS	REFINED ANALYSIS	OPERATIONAL ANALYSIS (On-Going)
	Random Sampling	Random Sampling	All Offenses & Offenders
	Manual	Manual	Automated
	Dates	Dates	Dates
POLICE			
Records: Offenses	14-25 Aug.'72	Jan.- Mar.'73	Mar.'73 - On-Going
OBTS: Arrest			
Identification	14 Aug.- 1 Sept.'72	1 Sept.'72 - Mar.'73	Mar.'73 - On-Going
PROSECUTION			
OBTS: Judicial	15 Aug.- 1 Sept.'72	Same as above.	Same as above.
COURTS			
Juvenile			
OBTS: Arrest			
Judicial	16 Aug.- 1 Sept.'72	Jan.- Feb.'73	Jan.'73 - On-Going Semi-Automated
Adult			
OBTS: Judicial	16 Aug.- 1 Sept.'72	Jan.- Aug.'73	Mar.'73 - On-Going
CORRECTIONS			
OBTS: Custodial	17 Aug.- 1 Sept.'72	Same as above.	Same as above.

DATA COLLECTION AND ANALYSIS
INFORMATION CHAIN

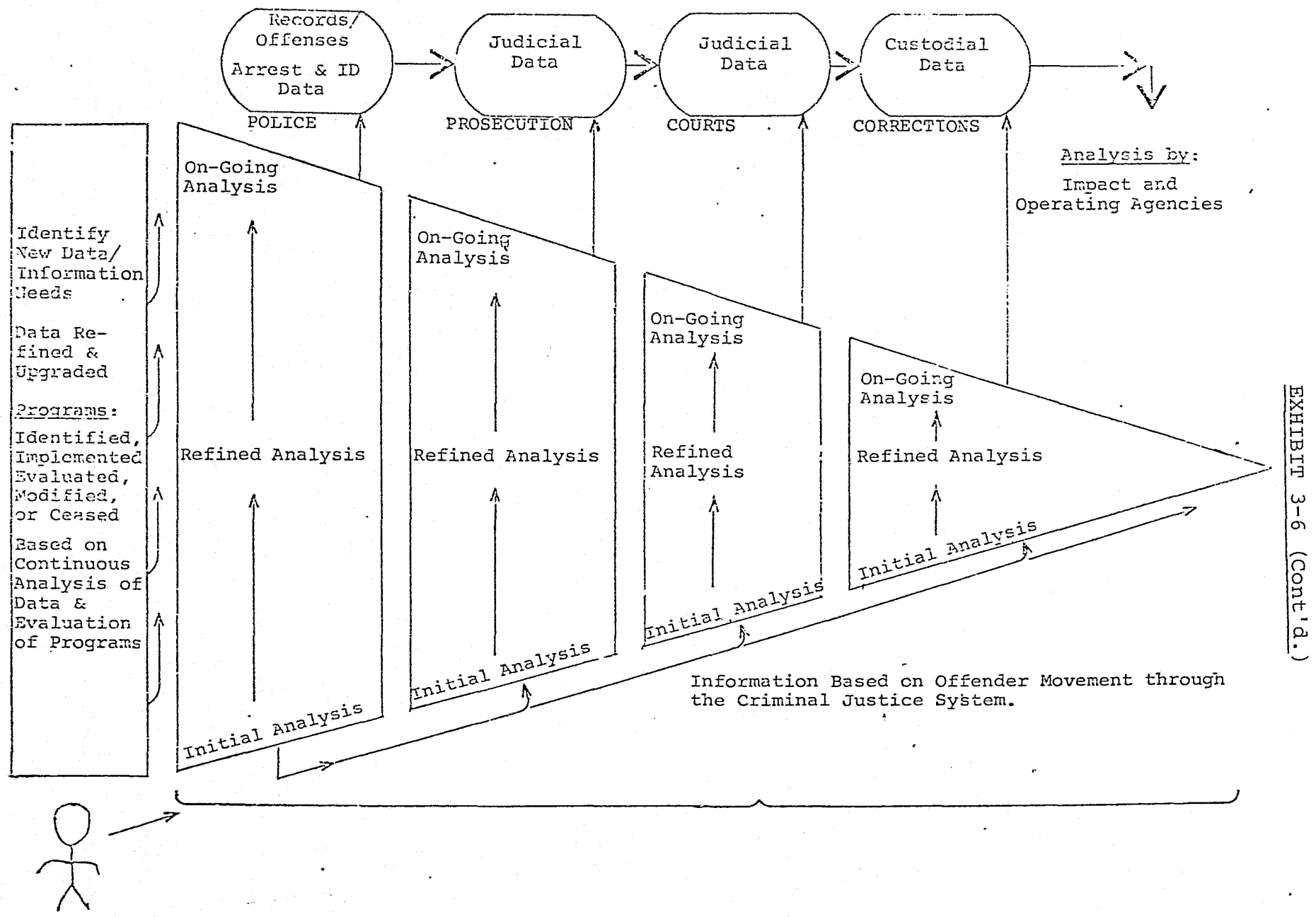


EXHIBIT 3-6 (Cont'd.)

NOTE: All data will be collected at a frequency consistent with the Semi-Annual Program Reviews.

EXHIBIT 3-7

SUMMARY REGARDING DATA ELEMENTS

PROBLEM COMPONENTS	INDICATORS	DATA ELEMENTS	SOURCE
Crime Problem	Number of reported incidents/1,000 population	Individual category totals	Field Reports
Prevention	Location	Census Block	Field Reports
	Residential	House Apartment Project House Hotel/Motel Other	Field Reports
	Commercial	Banks Gas Stations Liquor Stores Food Markets Prepared Food Stores Merchandise Stores Other	Field Reports
	Open Space	Street Alley Park Parking Lot Other	Field Reports
	Security Devices	Silent Alarm Audible Security Guard Other None	Field Reports
	Time	Day of week Hour (8-4, 4-8, 8-12, 12-8)	Field Reports

EXHIBIT 3-7 (Cont'd.)

PROBLEM COMPONENT	INDICATORS	DATA ELEMENTS	SOURCE
	Victim	Age Sex Race Residence (Census Block) Residence/ Visitor	Field Reports
	Level of Force	Injury Against Person hospital non-hospital none Force Against Building yes-no Point of entry (window; door)	Field Reports
	Stolen Property	Currency Small Appliances Negotiable Papers Jewelry and Precious Metals Office Equipment Home Entertainment Other	Field Reports
Detection and Apprehension	Response Time	Time of Call Time of Dispatch Time of Arrival Time of In-Service	Communication Dispatch Card
	Arrest Rate	Immediate Follow-up	Arrest Report
	Conviction Rate	Number Arrested Number Convicted	Arrest Report
	Offender	Race Age Sex	Offender Tracking

EXHIBIT 3-7 (Cont'd.)

PROBLEM COMPONENT	INDICATORS	DATA ELEMENTS	SOURCE
		Residence Drug Use	State Drug Program
		Previous Convictions	D.A. Files
		Target Crimes Other Felony Other Employment/Education Status	
		On bond, probation or parole	
		Time since last arrest	
Adjudication Adults	Pre-Trial	Bail or incarcerated	Offender Tracking
		Re-arrested other charge (target-felony-other)	
		Indicted (original charge-lesser included offense)	
	Trial	Dismissed-Preliminary hearing	Offender Tracking
		Time from Arrest	
		Plea (Guilty-Not Guilty)	
		Counsel (Court-appointed Public Defender, Self)	
		By Jury	
		By Judge	

EXHIBIT 3-7 (Cont'd.)

PROBLEM COMPONENT	INDICATORS	DATA ELEMENTS	SOURCE
	Trial Disposition	Not Guilty Probation Prison Jail Fine Suspended Civil Commitment	Offender Tracking
	Review Time	Disposition to Filing	Offender Tracking
		Filing to Appellate Opinion	
Adjudication Juvenile	Pre-Trial	Released or Incarcerated	Juvenile Court
		Re-Arrested other charge	
		Dismissed-Prel. Hearing	
		Bound over Superior Court	
		Remanded-Juvenile Court	
	Formal Hearing	Adjudged not delinquent	Juvenile Court
		Adjudged delinquent	
	Disposition	Time from Arrest	Juvenile Court
		Bound over to Superior Court	
		Probation	
		Commitment-State Juvenile Institution	
Post-Adjudication Adults	Sentence	Prison (years) Suspended Probation (years) Fine	Offender Tracking

EXHIBIT 3-7 (Cont'd.)

PROBLEM COMPONENT	INDICATORS	DATA ELEMENTS	SOURCE
	Probation	Re-arrest with conviction	County Probation
		Crime convicted for (target-felony-other)	
		Time to re-arrest	County Probation
		Employment Status	
		Income	
		Education	
		Caseload per probation officer	
	Parole	Re-arrest with conviction	State Corrections
		Crime convicted for	
		Time to re-arrest	
		Employment Status	
		Income	
		Education	
		Caseload per parole officer	
Post Adjudication Juveniles	Sentence	Probation (time) State Inst. (time) By crime category	Juvenile Court
	Probation	Re-arrest with judgment of guilt	Juvenile Court
		Crime re-arrest for	

EXHIBIT 3-7 (Cont'd.)

PROBLEM COMPONENTS	INDICATORS	DATA ELEMENTS	SOURCE
		Time till re-arrest	
		Employment/ Education Status	
		Caseload/pro-bation officer	
Demographic Profile	Census Tracts	Age Distribu-tion Sex Distribu-tion Race Distribu-tion Education Dis-tribution Housing Employment Average Income Transient Population Density	ARC

EXHIBIT 3-8

DECISION CRITERIA FOR PERFORMANCE MEASURES

1. Goal

A. Two years:

$$\frac{b_{0i} - b_{2i}}{b_{0i}} \geq .05 \quad \text{for each Impact crime } i.$$

$$\frac{\sum_{i=1}^{5} b_{0i} - \sum_{i=1}^{5} b_{2i}}{\sum_{i=1}^{5} b_{0i}} \geq .05$$

B. Five years:

$$\frac{b_{0i} - b_{5i}}{b_{0i}} \geq .20$$

$$\frac{\sum_{i=1}^{5} b_{0i} - \sum_{i=1}^{5} b_{5i}}{b_{5i}} \geq .20$$

2. Sub-Goal I

$$\frac{n_0 - n_2}{n_0} \geq .20$$

3. Sub-Goal II

$$\frac{P_0 - P_2}{P_0} \geq .10$$

EXHIBIT 3-8 (Cont'd.)

4. Sub-Goal III

$$\frac{t_0 - t_2}{t_0} \geq .25$$

5. Sub-Goal IV

$$\frac{r_{0i} - r_{2i}}{r_{0i}} \geq .05 \text{ for each Impact crime i.}$$

$$\frac{\sum_{i=1}^{5} r_{0i} - \sum_{i=1}^{5} r_{2i}}{\sum_{i=1}^{5} r_{0i}} \geq .05$$

6. Sub-Goal V

$$\frac{m_{0ij} - m_{2ij}}{m_{0ij}} \geq .20 \text{ for each Impact Crime i, and each offender type j.}$$

$$\frac{\sum_{i=1}^{5}\sum_{j=1}^{2} m_{0ij} - \sum_{i=1}^{5}\sum_{j=1}^{2} m_{2ij}}{\sum_{i=1}^{5}\sum_{j=1}^{2} m_{0ij}} \geq .20$$

7. Objective I-1

$$\frac{h_0 - h_2}{h_0} \geq .15$$

8. Objective II-1

$$\frac{S_0 - S_2}{S_0} \geq .20$$

EXHIBIT 3-8 (Cont'd.)

9. Objective II-2

$$\frac{V_0 - V_2}{V_0} \geq .25$$

10. Objective III-1

$$\frac{W_{0i} - W_{2i}}{W_{0i}} \geq .25 \text{ for each Impact crime } i.$$

$$\frac{\sum_{i=1}^{5} W_{0i} - \sum_{i=1}^{5} W_{2i}}{\sum_{i=1}^{5} W_{0i}} \geq .25$$

11. Objective III-2

$$\frac{d_0 - d_2}{d_0} \geq .50$$

12. Objective III-3

$$\frac{f_0 - f_2}{f_0} \geq .20$$

13. Objective IV-1

$$m \geq 4$$

14. Objective IV-2

$$\frac{a_{0i} - a_{2i}}{a_{0i}} \geq .10 \text{ for each Impact crime } i.$$

$$\frac{\sum_{i=1}^{5} a_{0i} - \sum_{i=1}^{5} a_{2i}}{\sum_{i=1}^{5} a_{0i}} \geq .10$$

15. Objective IV-3

$$\frac{f_{0i} - f_{2i}}{f_{0i}} \geq .20 \text{ for each Impact crime i.}$$

$$\frac{\sum_{i=1}^{5} f_{0i} - \sum_{i=1}^{5} f_{2i}}{\sum_{i=1}^{5} f_{0i}} \geq .20$$

16. Objective V-1

$$\frac{c_0 - c_2}{c_0} \geq .20$$

17. Objective V-2

$$\frac{d_0 - d_2}{d_0} \geq .30$$

18. Objective V-3

$$\frac{g_0 - g_2}{g_0} \geq .15$$

19. Objective V-4

$$\frac{k_0 - k_2}{k_0} \geq .20$$

20. Objective V-5

$$\frac{q_0 - q_2}{q_0} \geq .10$$

The statistical analyses associated with the impact crimes of burglary, robbery, aggravated assault, homicide, and rape are presented in Exhibit 3-9. The results of the statistical analyses give the following conclusions:

1. Any reduction to the 1972 best estimate of total burglaries (15,519) will be statistically significant for 1973 and 1974 with a confidence level of 95%.

2. With a confidence level of 90%, a 32% or greater reduction to the 1972 best estimate of total robberies (3,380) will be statistically significant for 1973, and a 16% or greater reduction to the 1972 best estimate of total robberies (3,380) will be statistically significant for 1974.

3. There is no observable trend in the data for aggravated assault, for rape, or for homicide. However, there is a linear trend apparent in the sum of these data. The sum (aggravated assault + rape + homicide) is referred to as "violent crimes."

   A. With a confidence level of 95%, a 20% reduction to the 1972 best estimate of total violent crimes (2,831) will be statistically significant for both 1973 and 1974.

   B. With a confidence level of 90%, an 8% or greater reduction to the 1972 best estimate of total violent crimes (2,831) will be statistically significant for 1973 and a 3% or greater reduction to the 1972 best estimate of total violent crimes (2,831) will be statistically significant for 1974.

The considerations of personnel responsible for program evaluation, who will receive the results of the program evaluation, and mechanisms for reporting results are discussed in depth in the "Management of Evaluation" section. Program evaluation will be timed consistent with the Semi-Annual Comprehensive Program Evaluations.

EXHIBIT 3-9

SUMMARY OF STATISTICAL ANALYSES

1. BASIC DATA

Year	(1) Burglaries	(2) Robberies	(3) Aggravated Assaults	(4) Homicides	(5) Rapes	(6) (3)+(4)+(5)
1965	4,820	513	954	110	159	1,223
1966	5,291	573	997	127	164	1,288
1967	5,646	742	916	159	171	1,246
1968	7,149	926	991	195	131	1,316
1969	8,740	1,229	1,260	186	193	1,639
1970	11,529	2,184	1,362	259	218	1,839
1971	13,726	2,323	1,996	249	325	2,570

NOTE: The data and subsequent analyses will be updated as soon as 1972 data is available.

2. CALCULATION OF REGRESSION EQUATIONS

A. Burglaries: Linear Regression for 1967-1971 Data

$$y_B = a_B + b_B x$$

	x	x^2	y	xy	y^2
1967	1	1	5,646	5,646	31,877,316
1968	2	4	7,149	14,298	51,108,201
1969	3	9	8,740	26,220	76,387,600
1970	4	16	11,529	46,116	132,917,841
1971	5	25	13,726	68,630	188,403,076
	15	55	46,790	160,910	480,684,034

$$\Sigma y = a_B n + b_B \Sigma x \qquad 46{,}790 = 5a_B + 15b_B$$

or

$$\Sigma xy = a_B \Sigma x + b_B \Sigma x^2 \qquad 160{,}910 = 15a_B + 55b_B$$

Thus, $a_B = 3{,}198$ and $b_B = 2{,}054$, yielding $y_B = 3{,}198 + 2{,}054x$.

EXHIBIT 3-9 (Cont'd.)

B. Robberies: Logarithmic Regression for 1966-1971 Data

$$\log y_R = \log a_R + (\log b_R)x$$

	x	x^2	$\log y$	$x(\log y)$	$(\log y)^2$
1966	1	1	2.7582	2.7582	7.6176
1967	2	4	2.8704	5.7408	8.2369
1968	3	9	2.9666	8.8998	8.8209
1969	4	16	3.0899	12.3596	9.5481
1970	5	25	3.3393	16.6965	11.1556
1971	6	36	3.3761	20.2566	11.4244
	21	91	18.4005	66.7115	56.8035

$$\Sigma \log y = n(\log a_R) + (\Sigma x)\log b_R$$

$$\Sigma x(\log y) = (\Sigma x)(\log a_R) + (\Sigma x^2)(\log b_R)$$

or

$$18.4005 = 42(\log a_R) + 21(\log b_R)$$

$$66.7115 = 21(\log a_R) + 91(\log b_R)$$

Thus, $\log a_R = 2.6048$ and $\log b_R = .1320$, yielding $\log y_R = 2.6048 + .1320x$.

C. Violent Crimes: Linear Regression for 1968-1971 Data (Aggravated Assault + Rape + Homicide)

There is no observable trend in the data for aggravated assault, rape, or homicide. However, there is a linear trend apparent in the sum of these data. Since the sum represents the "violent," as contrasted with "property," crimes, it was decided to work with the sum for the purpose of statistical significance. Performance measures are defined for each crime type, however.

EXHIBIT 3-9 (Cont'd.)

$$y_v = a_v + b_v x$$

	x	x^2	y	xy	y^2
1968	1	1	1,317	1,317	1,734,489
1969	2	4	1,639	3,278	2,686,321
1970	3	9	1,839	5,517	3,381,921
1971	4	16	2,570	10,280	6,604,900
	10	30	7,365	20,392	14,407,631

$\Sigma y = a_v n + b_v \Sigma x$ or $7365 = 4a_v + 10b_v$

$\Sigma xy = a_v \Sigma x + b_v \Sigma x^2$ $\quad 20{,}392 = 10a_v + 30b_v$

Thus, $a_v = 851.5$ and $b_v = 395.9$ yielding

$$y_v = 851.5 + 395.9x.$$

3. CALCULATION OF BEST POINT ESTIMATES

A. Burglaries:

$y_B(1972) = 3{,}198 + 2{,}054(6) = 15{,}519$

$y_B(1973) = 3{,}198 + 2{,}054(7) = 17{,}673$

$y_B(1974) = 3{,}198 + 2{,}054(8) = 19{,}727$

B. Robberies:

$\log y_R(1972) = 2.6048 + .1320(7) = 3.5288$

$y_R(1972) = 3{,}380$

$\log y_R(1973) = 2.6048 + .1320(8) = 3.6608$

$y_R(1973) = 4{,}580$

$\log y_R(1974) = 2.6048 + .1320(9) = 3.7928$

$y_R(1974) = 6{,}205$

EXHIBIT 3-9 (Cont'd.)

C. Violent Crimes:

$y_v(1972) = 851.5 + 395.9(5) = 2,831$

$y_v(1973) = 851.5 + 395.9(6) = 3,227$

$y_v(1974) = 851.5 + 395.9(7) = 3,623$

4. CALCULATION OF % REDUCTION TO 1972 BEST ESTIMATE WHICH WOULD BE STATISTICALLY SIGNIFICANT WHEN COMPARED WITH 1973 AND 1974 ESTIMATES:

Let $\hat{y}(1973)$ = (best estimate for 1972 - reduction)

$\hat{y}(1974)$ = (best estimate for 1972 - reduction)

NOTE: When the data are available, the "best estimate for 1972" will be replaced by "1972 actual" for burglary, robbery, and violent crimes.

For each crime type (burglary, robbery, violent crimes), the percentage reduction is sought which would be sufficiently large to reject H_0 and accept H_1 where:

H_0: $\hat{y}(1973) = y(1973)$ and H_0: $\hat{y}(1974) = y(1974)$

H_1: $\hat{y}(1973) < y(1973)$ and H_1: $\hat{y}(1974) < y(1974)$

with some specified level of confidence.

Since it is always somewhat risky to use regression analysis for extrapolation (extimating future values), the five-year analysis is not done. Further, the percentage reduction calculated here must be viewed as preliminary estimates which will be updated when 1972 data is available. The method is valid and is illustrative of the procedure to be used on the 1972 data.

For the prediction year x_0 (1973 or 1974), let

$$y_{\alpha e} = a + bx_0 - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0 - \bar{x})^2}{S_{xx}}\right]^{1/2}$$

where t_α is the t-statistic with level of confidence α and n-2 degrees of freedom, $\bar{x}$ is the average of the x's, and S_e and S_{xx}

are defined in the calculations. Then, H_0 can be rejected if

$$\hat{y}(1973) < y_{\alpha\ell}(1973) \quad \text{or} \quad \hat{y}(1974) < y_{\alpha\ell}(1974).$$

Thus, for each type of crime and for each future year, the minimal percentage reduction is sought which will give the above results.

A. Burglaries:

$$S_{xx} = n\Sigma x^2 - (\Sigma x)^2 = 5(55) - 15(15) = \underline{50}$$

$$S_{yy} = n\Sigma y^2 - (\Sigma y)^2 = 5(480,684,034) - 2,190,204,100 = \underline{213,116,070}$$

$$S_{xy} = n\Sigma xy - (\Sigma x)(\Sigma y) = 5(160,910) - 15(46,790) = \underline{102,700}$$

$$S_e^2 = \frac{S_{xx}S_{yy} - (S_{xy})^2}{n(n-2)(S_{xx})} = \frac{(50)(213,116,070) - (102,700)^2}{5(3)(50)} = \underline{144,685}$$

$$S_e \approx \underline{380}$$

Thus, for $\alpha = .05$,

$$y_{\alpha\ell B}(1973) = y_B(1973) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0-\bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 17,673 - (2.353)(380)\left[1 + \frac{1}{5} + \frac{5(6-2.5)^2}{50}\right]^{1/2}$$

$$= 17,673 - 893.14(1.55) = 17,673 - 1,385$$

$$= \underline{16,288}.$$

$$y_{\alpha\ell B}(1974) = y_B(1974) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0-\bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 19,727 - (2.353)(380)\left[1 + \frac{1}{5} + \frac{5(7-2.5)^2}{50}\right]^{1/2}$$

$$= 19,727 - 893.14(1.8) = 19,727 - 1,708$$

$$= \underline{18,019}.$$

EXHIBIT 3-9 (Cont'd.)

Since

$$y_B(1972) = 15{,}519 < y_{\alpha_l B}(1973) = 16{,}288$$

and

$$y_B(1972) = 15{,}519 < y_{\alpha_l B}(1974) = 18{,}019,$$

any percentage reduction to the 1972 best estimate will be statistically significant with a confidence level of 95%.

B. Robberies:

$$S_{xx} = n\Sigma x^2 - (\Sigma x)^2 = 6(91) - (21)^2 = \underline{105}$$

$$S_{\log y \cdot \log y} = n\left[\Sigma(\log y)^2\right] - (\Sigma \log y)^2 = 6(56.8035) - 338.66$$

$$= \underline{2.1610}$$

$$S_{x \cdot \log y} = n\Sigma(x \cdot \log y) - (\Sigma x)(\Sigma \log y) = 6(66.7115) - (21)(18.4005)$$

$$= \underline{13.8690}$$

$$S_e = \frac{S_{xx} S_{\log y \cdot \log y} - (S_{x \cdot \log y})^2}{n(n-2)(S_{xx})} = \frac{105(2.1610) - (13.8690)^2}{6(4)(105)}$$

$$= \underline{.0177}$$

$$S_e \approx \underline{.1330}$$

Thus, for $\alpha = .10$,

$$\log y_{\alpha_l R}(1973) = \log y_R(1973) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0 - \bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 3.6608 - (1.533)(.1330)\left[1 + \frac{1}{6} + \frac{6(7-3)^2}{105}\right]^{1/2}$$

$$= 3.6608 - .204(1.45) = 3.6608 - .2958$$

$$= \underline{3.3650}$$

$$y_{\alpha_l R}(1973) = \underline{2{,}333}.$$

EXHIBIT 3-9 (Cont'd.)

$$\log Y_{\alpha,R}(1974) = \log y_R(1974) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0-\bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 3.7928 - .204\left[1 + \frac{1}{6} + \frac{6(8-3)^2}{105}\right]^{1/2}$$

$$= 3.7928 - .204(1.65) = 3.7928 - .3366$$

$$= \underline{3.4562}$$

$$Y_{\alpha,R}(1974) = \underline{2,869}.$$

Since

$$\frac{3,380 - 2,333}{3,380} = \frac{1,050}{3,380} \simeq \underline{32\%}$$

and

$$\frac{3,380 - 2,869}{3,380} = \frac{511}{3,380} \simeq \underline{16\%},$$

then it can be concluded with a confidence level of 90% that a 32% or greater reduction to the 1972 best estimate will be statistically significant for 1973 and a 16% or greater reduction to the 1972 best estimate will be statistically significant for 1974.

C. Violent Crimes:

$$S_{xx} = n\Sigma x^2 - (\Sigma x)^2 = 4(30) - (10)^2 = \underline{20}$$

$$S_{yy} = n\Sigma y^2 - (\Sigma y)^2 = 4(14,407,631) - (7,365)^2 = \underline{3,397,299}$$

$$S_{xy} = n\Sigma xy - (\Sigma x)(\Sigma y) = 4(20,392) - 10(7,365) = \underline{7,918}$$

$$S_e^2 = \frac{S_{xx}S_{yy} - (S_{xy})^2}{n(n-2)S_{xx}} = \frac{20(3,397,299) - (7,918)^2}{4(2)(20)}$$

$$= \underline{33,445}$$

$$S_e \approx \underline{183}$$

EXHIBIT 3-9 (Cont'd.)

Thus, for $\alpha = .05$,

$$y_{\alpha,v}(1973) = y_v(1973) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0-\bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 3{,}227 - (2.920)(183)\left[1 + \frac{1}{4} + \frac{4(5-2)^2}{20}\right]^{1/2}$$

$$= 3{,}227 - (2.920)(183)(1.74)$$

$$= 3{,}227 - (1.74)(534) = 3{,}227 - 929$$

$$= \underline{2{,}298}.$$

$$y_{\alpha,v}(1974) = y_v(1974) - t_\alpha(S_e)\left[1 + \frac{1}{n} + \frac{n(x_0-\bar{x})^2}{S_{xx}}\right]^{1/2}$$

$$= 3{,}623 - (534)\left[1 + \frac{1}{4} + \frac{4(6-2)^2}{20}\right]^{1/2}$$

$$= 3{,}623 - (534)(2.5) = 3{,}623 - 1{,}335$$

$$= \underline{2{,}288}.$$

At $\alpha = .10$, the comparable figures would be

$$y_{\alpha,v}(1973) = \underline{2{,}627}$$

$$y_{\alpha,v}(1974) = \underline{2{,}750}.$$

Since

$$\frac{2{,}831 - 2{,}298}{2{,}831} = \frac{533}{2{,}831} \simeq \underline{19\%}$$

$$\frac{2{,}831 - 2{,}288}{2{,}831} = \frac{543}{2{,}831} \simeq \underline{20\%}$$

and

$$\frac{2{,}831 - 2{,}627}{2{,}831} = \frac{204}{2{,}831} \simeq \underline{8\%}$$

$$\frac{2{,}831 - 2{,}750}{2{,}831} = \frac{81}{2{,}831} \simeq \underline{3\%},$$

then we can conclude with a confidence level of 95% that a 20% or greater reduction to the 1972 best estimate will be statistically significant for either 1973 or 1974,

or

with a confidence level of 90% that an 8% or greater reduction to the 1972 best estimate will be statistically significant for 1973 and a 3% or greater reduction to the 1972 best estimate will be statistically significant for 1974.

4.0 MANAGEMENT OF THE EVALUATION

4.1 Purpose of this Section

The purpose of this section is to describe the activities of evaluation management and to specify how the activities will be accomplished.

4.2 Reasons for Specifying Management of the Evaluation

The primary reasons for specifying evaluation management are:

1. To organize the activities into an overall approach for effective functioning in order to accomplish a common goal, i.e., project and program evaluation.

2. To clarify the roles and responsibilities in evaluation.

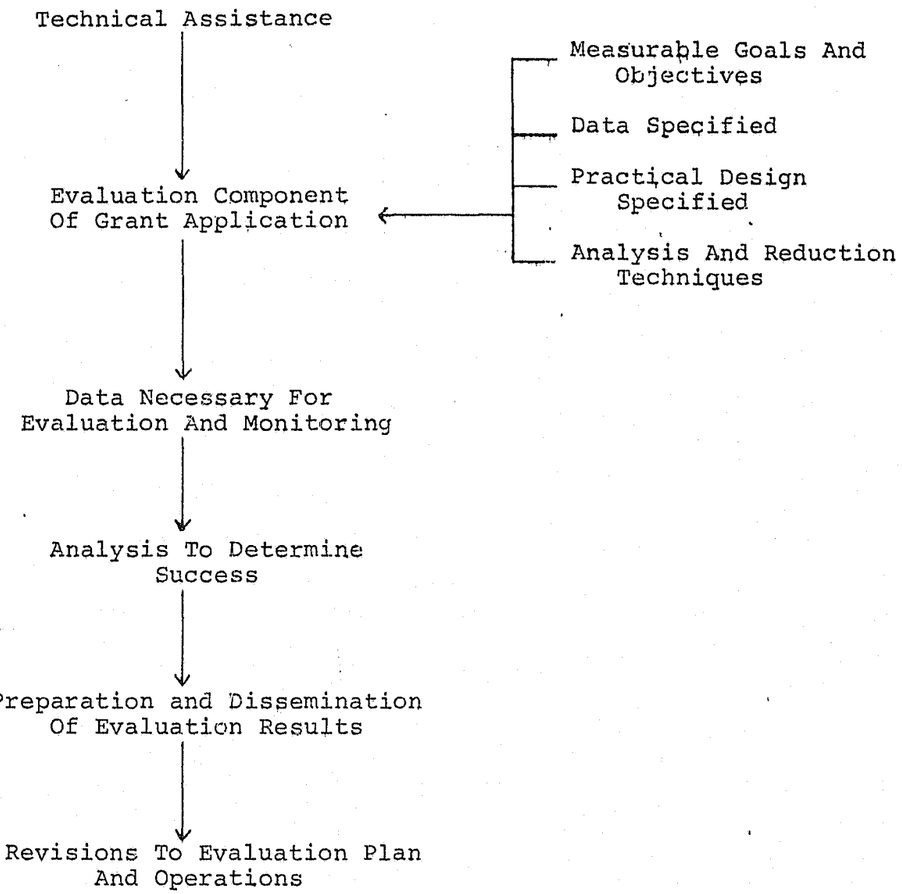
3. To determine the amount of financial resources required to accomplish the evaluation.

4.3 Overview of the Evaluation Management

The evaluation management function includes planning and design of the overall evaluation approach, administration of the activities required to perform the evaluation, and assuring that the reasons for specifying the management of the evaluation are accomplished. This document is the most recent output from the planning and design function. The administration of activities required for the evaluation is discussed in Section 4.4. The methods for accomplishing the reasons for specifying the evaluation management are discussed in Sections 4.5 and 5.0. The flow of activities is summarized in Exhibit 4-1.

EXHIBIT 4-1

SUMMARY FLOW OF MANAGEMENT ACTIVITIES



4.4 Administration of Activities Required for the Evaluation

The administration of activities required for the evaluation involves coordinating and overseeing the following broad activities:

1. Technical assistance in evaluation to project personnel and operating agencies.

2. Development of evaluation component of grant applications.

3. Designation of responsibilities.

4. Collection and management of evaluation data.

5. Performance of the evaluation and progress of the project activities.

6. Preparation and dissemination of evaluation results, i.e., to Task Force, designated agencies, etc.

7. Revisions to evaluation plan and operating system as implementation experiences suggest.

8. Yearly evaluation of the Evaluation.

9. Post-evaluations.

The administrative function for evaluation will be accomplished with the following staff pattern. One member of the Crime Analysis Team will be responsible for the administration of the evaluation activities within the constraints imposed by the Chief of the Crime Analysis Team.

The specific activities will be accomplished as described in this document through the administrative function of the Crime Analysis Team.

4.5 Methods for Accomplishing the Reasons for Specifying Evaluation Management

4.5.1 Methods for Organizing the Evaluation Activities into an Overall Approach

This document represents methods for organizing the activities into an overall approach for effective

functioning in order to accomplish the goals of program and project evaluation.

Since data is the foundation of the evaluation effort it seems appropriate to discuss the collection, management, and validity of the evaluation data in further detail.

The types of information needed for evaluation are defined in this document, the Evaluation Plan. The CAT is responsible for continued definitions as additional needs develop. Data will be collected for three primary purposes:

1. To determine performance.

2. To determine significance of the performance.

3. For "control" - monitoring - during the project.

4. For explanatory and descriptive statistics.

Data will be collected routinely at the project level for #1 and when possible #2 as specified in the grant application. At the program level data for #1 and #2 will be collected for the program indicators as a function of the information system. Manual data collections will be necessary for data prior to April, 1973, until that data becomes an integral part of the automated information system described in Exhibit 3-6 and a computer program can be developed which will provide, upon demand, a meaningful and interpretable printout for evaluation purposes. This should be accomplished by May, 1973.

Data for #3 "control" purposes will be collected from quarterly monitoring reports, on-site visits, discussions with project personnel, and experts' monitoring visits. Quarterly monitoring reports will be completed by project personnel under the responsibility of the project director. CAT program and evaluation personnel will visit all projects to determine the progress and status of the projects. Interviews will be conducted with personnel responsible for managing the project, those actually involved in conducting the project, and project participants. In addition, the CAT will organize a visiting team to visit randomly selected projects to assist in determining the effectiveness of the projects. The CAT visiting team will have at least

one person who is knowledgeable in the technical area with which the project is concerned, but is not associated with the project or agency conducting the project, and one other person selected by the CAT. Inclusion of a non-associated technically knowledgeable person will help offset any criticism of bias that might arise if only Impact-related evaluators were involved. It will also be a source of community involvement and provide a base for improved judgment. An additional advantage will be the increased objectivity of the evaluation results. Examples of monitoring forms and a more complete discussion of monitoring activities are included in the Master Plan and the Plan of Operation. The quarterly evaluation forms are included in the appendix as "Project Monitoring/ Evaluation Forms."

Data for #4 will be collected through special studies, demographic information from ARC, and from A-95 listings. Special studies of selected areas will be of short term interest and will make extensive use of data outside the scope of the program information system. These analyses will also be used to explore relations between the program action areas and the problem components. In addition, certain projects may require detailed evaluations or special data collections that are also types of special studies. These studies will be conducted as needed on subjects identified by the CAT.

A-95 listings will identify non-impact projects which have similar goals and objectives or are affecting the same populations as an Impact project. This will help in identifying exogeneous factors which might explain a change.

It is the responsibility of the implementing agency to assure validity of the data collected and reported to the CAT. CAT program and evaluation personnel will periodically provide for checks of project records for accuracy.

At the completion of two years (June, 1974), a special study will be conducted to determine the validity of the indicators as predictors of impact.

4.5.2 Method of Clarifying Evaluation Roles and Responsibilities

For effective operation it is necessary to clarify roles and responsibilities. The subsequent delineation accomplishes this. There are two primary groups with evaluation responsibilities - the CAT and the agencies operating the projects.

The CAT is responsible for:

1. Technical assistance in evaluation to the agencies.
2. Preparation of the evaluation components of the grant applications.
3. Collection and management of evaluation data.
4. Monitoring project and program performance.
5. Performance program and project evaluation.
6. Preparation and dissemination of evaluation results.
7. Revisions to the evaluation plan and operations.

The agencies are responsible for establishing the project goals and objectives:

1. Specifying the levels of performance.
2. Generating data for evaluation on a timely basis.
3. Completing quarterly evaluation forms.
4. Helping to explain any unexpected changes or results.

4.5.3 Determination of Financial Resources Required to Accomplish the Evaluation

This is discussed in detail in Section 5.0 of this document.

5.0 BUDGET NARRATIVE

The November 8, 1972, revision to the Atlanta Impact budget eliminated all monies for evaluation. Therefore, differentiating between evaluation tasks and activities performed with portions of the original $500,000 and this budget becomes a moot issue.

To perform the evaluation, additional financial resources are required to provide:

1. Special assistance.
2. Special studies, including surveys and special data collections.
3. Computer time-sharing services.
4. Yearly evaluation of the Evaluation.
5. Two-year post-evaluation.
6. Visiting "experts" for evaluation of on-going projects/programs.

The cost of computer programs for evaluation is being included in the tasks for the police segment of the information system.

Special Assistance

To perform the evaluation analysis, the need exists for assistance in statistical and quantitative methods to augment the efforts of the CAT in the following areas:

1. Reviewing evaluation components of grant applications to specify data reduction and analysis methods.
2. Assuring that the necessary prerequisites to allow performance of the evaluation have been considered.
3. Performing the evaluation analysis of projects and programs.

Obtaining such assistance will provide the Atlanta CAT an understanding of various mathematical and statistical evaluation techniques and will permit the Atlanta

CAT to properly assess the application of these methods to a particular program or project.

The statistical expertise desired requires sophistication in both mathematical statistics and social science statistics and research methods. It is necessary to understand the mathematical assumptions behind the statistics in order to assess the logic of applying a particular method and to justify its use. It is equally important to have a working knowledge of social science methods since the problems and data with which Impact is dealing do not have the controls found in mathematical relationships. In the application of statistical measures to social data, the mathematical functions most familiar to social scientists would often be different from those of mathematical statisticians. This expertise must be supported by practical experience in applying these methods to program/project evaluations.

The alternatives for acquiring this expertise are:

1. RFP for consultant.
2. Additional staff position.
3. Personal services contract.

DECISION CRITERIA CHART

Alternative	Contributes To Objectives	Cost	Time to Be Operational	Feasibility
1	H	H	H	H
2	H	M	H	H
3	H	L	L	H

H-High M-Medium L-Low

Desired combination: (horizontally) H, L, L, H

The third alternative, personal services contract, is the least expensive ($1695/year) and requires the least time to become operational. In addition, since these services will not be required on a constant basis but rather at irregular time intervals, the third alternative is the most practical for the Atlanta Impact Program. For the preceding reasons the alternative of a personal services contract is the recommended choice for the Atlanta Impact Program.

Special Studies

In preparing this cost estimate it was necessary to make assumptions regarding the various types of projects that may be undertaken and their data demands. Certain projects will require surveys to be conducted in order to determine such things as community awareness and attitude toward the project, changes in attitudes or behaviors which can be attributed to the project(s), etc. It is anticipated that approximately 15 projects will require data of this or a similar nature to be collected and analyzed. The collection of such data will require the design of suitable questionnaires and the use of appropriate sampling techniques.

It is also expected that the need for finer delineations for some projects, such as geographical units smaller than census tracts, will require a detailed analysis of crime reports. This will necessitate a manual search of the crime records.

Computer Time-Sharing Services

During interim and final project evaluations the need exists for the application of various statistical techniques. These include such methods as t-tests, chi-square tests, regression analyses, and analyses of variance. These methods will be used in project management activities, in verifying success levels of projects, in assessing the contribution of a project and the Atlanta program to the National Impact Program goal, and in diagnostic analysis. To facilitate the use of these techniques and the timely availability of such analyses, the Atlanta Impact Program has included provisions for obtaining time-sharing computer services. This will provide access to a comprehensive package of statistical analysis programs and will permit their use on a timely basis.

Yearly Evaluation of the Evaluation and Post-Evaluation

The need exists for a yearly evaluation of the Evaluation in order to increase objectivity and strengthen the evaluation. The post-evaluations are necessary to determine success of the total program effort. Refer to Sections 3.3.3 and 3.3.4 for descriptions. Funding for the five-year post-evaluation referred to in Section 3.3.4 is not included in this budget since the extent of such a need cannot be determined at this time.

Visiting "Experts" for Evaluation of On-Going Projects/ Programs

This interjection of visiting "experts" will offset criticisms of bias in some cases, provide for community involvement, and an evaluation which includes a high level of technical expertise in the project area. It will also provide a basis for improved judgment.

EVALUATION BUDGET

JUNE, 1972 - JUNE, 1974

PERSONAL SERVICES CONTRACT		
6 days per month @ $135 x 19 months		$15,390.00
SURVEYS (SPECIAL STUDIES)		
A. Data Collection 3 surveys per project x 15 @ $250 each	$11,250.00	
B. Data Summary 45 surveys @ $40	1,800.00	
Detailed Police Report Analysis:		
A. Data Collection 3 months data x 15 projects @ $60 each	2,700.00	
B. Data Summary 45 surveys @ $40	1,800.00	$17,550.00
COMPUTER TIME-SHARING		
A. Data Storage 10 blocks x 10 projects average = 100 blocks @ $1.50 each x 18 months	$ 2,700.00	
B. CPU + Connect Time 2 hours per project x 10 = 20 hours @ $17 each = $340 per month x 18 months	6,120.00	
C. Terminal Rental 1 terminal with selector typewriter and tape cassette deck @ $150 per month x 18 months	2,700.00	$11,520.00
POST-EVALUATIONS		
A. 1 Two-year post-evaluation	$50,000.00	
B. 1 One-year evaluation of the evaluation	4,000.00	$54,000.00
ASSISTANCE BY EXPERTS		
A. Subsistence for four experts @ $25 per day x 4 days	$ 400.00	
B. Travel for four experts @ $250 each (based on round-trip from California)	1,000.00	$ 1,400.00
TOTAL EVALUATION BUDGET		$99,860.00

BACK-UP DATA FOR SPECIAL SURVEYS AND ANALYSES COST ESTIMATE

PROJECT SURVEYS - (SPECIAL STUDIES)

Data Collection

Assume the area surveyed is two census tracts with a population of 5,000 per tract. Based on a 5% sample size, the total number sampled would be 5,000 x 2 x (.05) = 500 samples per survey.

Based on prior CAT experience, one person can have 40 questionnaires completed per day.

500 ÷ 40 = 12.5 days x $20 per day = $250
(based on 8-hour day @ $2.50 per hour)

Data Summary

2 days @ $20 each = $ 40

Detailed Analysis of Crime Reports

One month's data will consist of approximately 1,500 reports, of which 100-200 may be applicable to the project. Based on previous CAT experience, a search of such a file will require one day; thus, a cost of $20.00 to search one month's records. Normally, the analysis would be over a three-month period; thus, 3 x $20.00 = $60.00 per collection.

COMPUTER TIME-SHARING - CPU AND CONNECT TIME

Cost was determined by taking an average of costs that were quoted by three time-sharing companies for estimated rental time.

POST-EVALUATION COSTS

The costs for the two-year post-evaluation of the evaluation were derived from consultants who had performed work of a similar type and scope.

APPENDICES

Broad Steps in Evaluation Process	A-1
Project Monitoring/Evaluation Forms	A-2
Atlanta Police Department Overtime Project	A-11
Grant Applications	A-18

1) Anti-Robbery/Burglary Division
   Atlanta Police Department
2) Detention and Intensified Outreach Probation
   Fulton County Juvenile Court
3) Special Prosecutor Squad
   Fulton County District Attorney's Office
   (Atlanta Judicial Circuit)
4) Streetlighting
   City of Atlanta

BROAD STEPS IN EVALUATION PROCESS

Step 1: Specify the Measurable Project Goals and Objectives

Step 2: Formulate a Practical Evaluation Design

Step 3: Specify Data Collection Procedures

Step 4: Specify Reduction and Analysis Methods

PROJECT MONITORING/EVALUATION FORMS

INSTRUCTIONS

1. Descriptive title of the project. This should be the same project title that appears on the grant application.

2. The number of the census tract(s) in which the project will be operating.

3. Self-explanatory.

4. The date the project began. Give month, day and year.

5. This is the objective stated on the grant application.

   EXAMPLE - A Street-Lighting Project
   a) Reduce robbery by replacing x number of x type street lights in pilot area with y number of y type street lights.
   b) The project will be judged successful if robberies in the pilot area are reduced by 10% in 6 months.

6. EXAMPLE: Objective - Reduction of number of juvenile recidivists for target crime by 10%.
   Juvenile must be defined:
   Ex.: person between ages of 13-17
   Recidivist must be defined:
   Ex.: any person re-convicted for a felony within one year of release

MONITORING FORM

1. Project Title _____

2. Census Tract _____

3. Individual Responsible for Evaluation

Agency	Name	Phone No.

4. Date of Implementation _____

5. Objective:

   a) What is the project to do?

   b) How will the project be judged for success?

6. Definition of Terms:

PAGE 1 - To Be Completed 1st Quarter ONLY

INSTRUCTIONS

1. Descriptive title of the project. This should be the same project title that appears on the grant application.

2. A) Time Span Since Last Report
   Ex.: September - December
   B) Date This Report Completed

3. Self Explanatory

4.

Time Period	Expected	Actual
Ex. 1st 3 months	5%	6%

5. EXAMPLE: Police Project to Reduce Robberies.

Measurement Record	Data	
Number of robberies in target area	4	8pm - 12pm Sept. 1 - Sept. 8
Number of robberies in control area	7	8pm - 12pm Sept. 1 - Sept. 8

MONITORING FORM

1. Project Title _____

2. Report Period and Date
   A) _____
   B) _____

3. Amount of Grant Award Spent to Date by Budget Category.

   _____

4. Degree to which project is meeting is objectives.

Time Period	Expected	Actual

5. Complete or attach form which answers each column

Measurement Record	Data	Time Period

PAGE 2 - To Be Completed Each Quarter

INSTRUCTIONS

5. Give Opinion.

6. EXAMPLES: Street-Lighting Project - 10 poles installed

Methadone Project - 15 addicts treated

MONITORING FORM

5. A. External Factors Influencing Results

B. Project Conclusions

6. Products Since Last Report:

INSTRUCTIONS

7. Self-explanatory

8. If you have other work responsibilities you could easily not have adequate time available to conduct the project in the manner you would like. If this is your situation write no in the answer space.

9. Do not include problems. They will be listed later.

MONITORING FORM

7: Is your project currently: CHECK ONE

a. On schedule _____

b. Behind schedule _____

c. Ahead of schedule _____

d. Special circumstances _____

Explain:

_____

_____

_____

_____

_____

8. Have you had as much time as you needed to conduct this project?

YES NO

_____

9. A. Were there results, achievements, or developments from or in your project you did not expect?

YES NO

_____

B. If yes, describe.

INSTRUCTIONS

10. A. Major problems are:

1) A problem which substantially interferes with or delays reaching the project objectives for three or more months.

2) Total re-direction or change in the scope of the project.

3) Evaluation records inaccurate or non-existent for three months.

B. Minor problems: Any problems that would not fit into the Major problems categories.

MONITORING FORM

10. Have any problems developed during the past 3 months in operation of this project?

YES NO

A. Major problems:

B. Minor problems:

INSTRUCTIONS	MONITORING FORM
11. Self-explanatory	11. Indicate achievements not covered, or other comments you consider significant in an evaluation of your project.
12. Authorization Your signature indicates you are assuming responsibility that the content of the report is accurate and complete.	12. AUTHORIZATION OF REPORT CONTENT Signature _____ _____ Local Project Director Date

EVALUATION FORM TO BE COMPLETED BY CAT
AFTER ON-SITE VISITS

RECORDS ACCURACY

INSTRUCTIONS	MONITORING FORM
1. Self-explanatory	1. Verification of the accuracy of this quarter's written records. YES NO
2. Self-explanatory	2. Method: YES NO a. Spot check and comparison with known facts. b Interview of persons actively involved in the project. c. Observation of records. d. Other.
3. Records are to be considered inaccurate if <u>any</u> error exists. a. Major and minor errors are to be described here. b. Estimate the per cent of the total volume of evaluation records that are inaccurate. c. Give your opinion.	3. Records inaccuracy: a. In what way inaccurate: b. Degree they are inaccurate: c. Why they are inaccurate:

ATLANTA POLICE DEPARTMENT
OVERTIME PROJECT

EXAMPLE OF SPECIFIC DATA PROBLEM

CONTINUED

3 OF 4

ATLANTA, NEW INTERNATIONAL CITY

J. F. INMAN
Chief

CITY OF ATLANTA
DEPARTMENT OF POLICE
ATLANTA, GEORGIA 30303

RECEIVED
DEC 11 1972
A. R. C.

December 8, 1972

Miss Terry Sprott
Atlanta Regional Commission
Suite 1047
100 Peachtree Street
Atlanta, Georgia 30303

Dear Terry:

At the meeting held on December 7, two questions were asked of this department.

1) Can we determine the response time of the police units dispatched?

2) Can we ascertain the on-site apprehension rate on target crimes?

Question number one must be answered no. We have no way at this time to determine the response time after the call is dispatched. However, under the new reporting system to be implemented in January this information will be recorded on the report form. With this additional information we will be able to trace a request for service from the telephoned request to arrival on the scene.

Question number two is a qualified yes. We can, by statistical sample, come up with a realistic apprehension rate. The figures shown in ARC's "Problem Structure Narrative" on page three should provide the necessary information. The data sampled is the first six months of 1972. A later sample can be taken in specific areas, or the city at large, and compared to the previous figures thereby determining the changes in on-site apprehension rates. This would take more man hours than my staff can reasonably supply at this time but could conceivably be done by interns from your office.

If you need further information regarding these two problem areas, please let me know.

Sincerely,

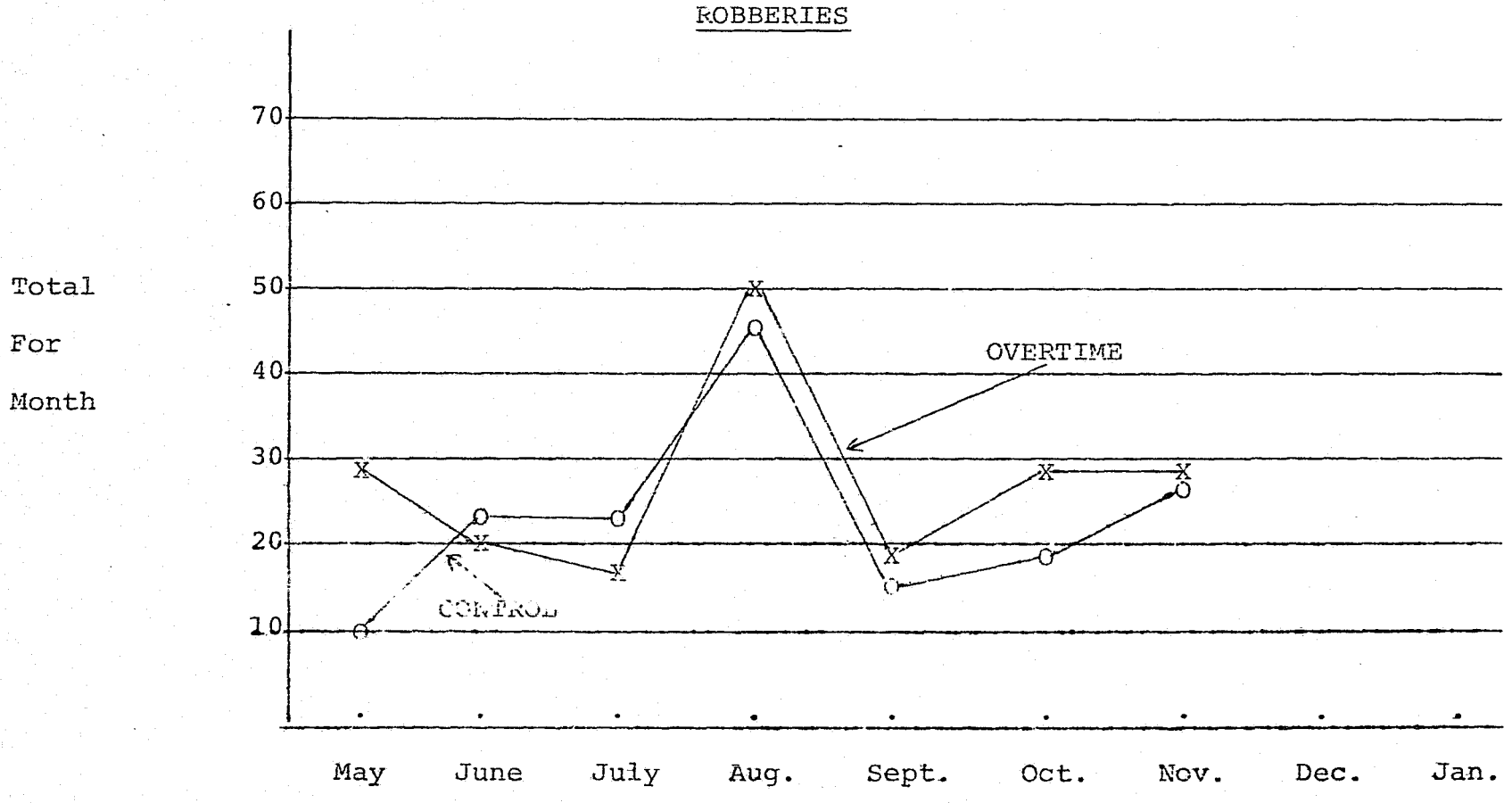
D. M. Edwards

Major D. M. Edwards
Planning and Research

DME:djb

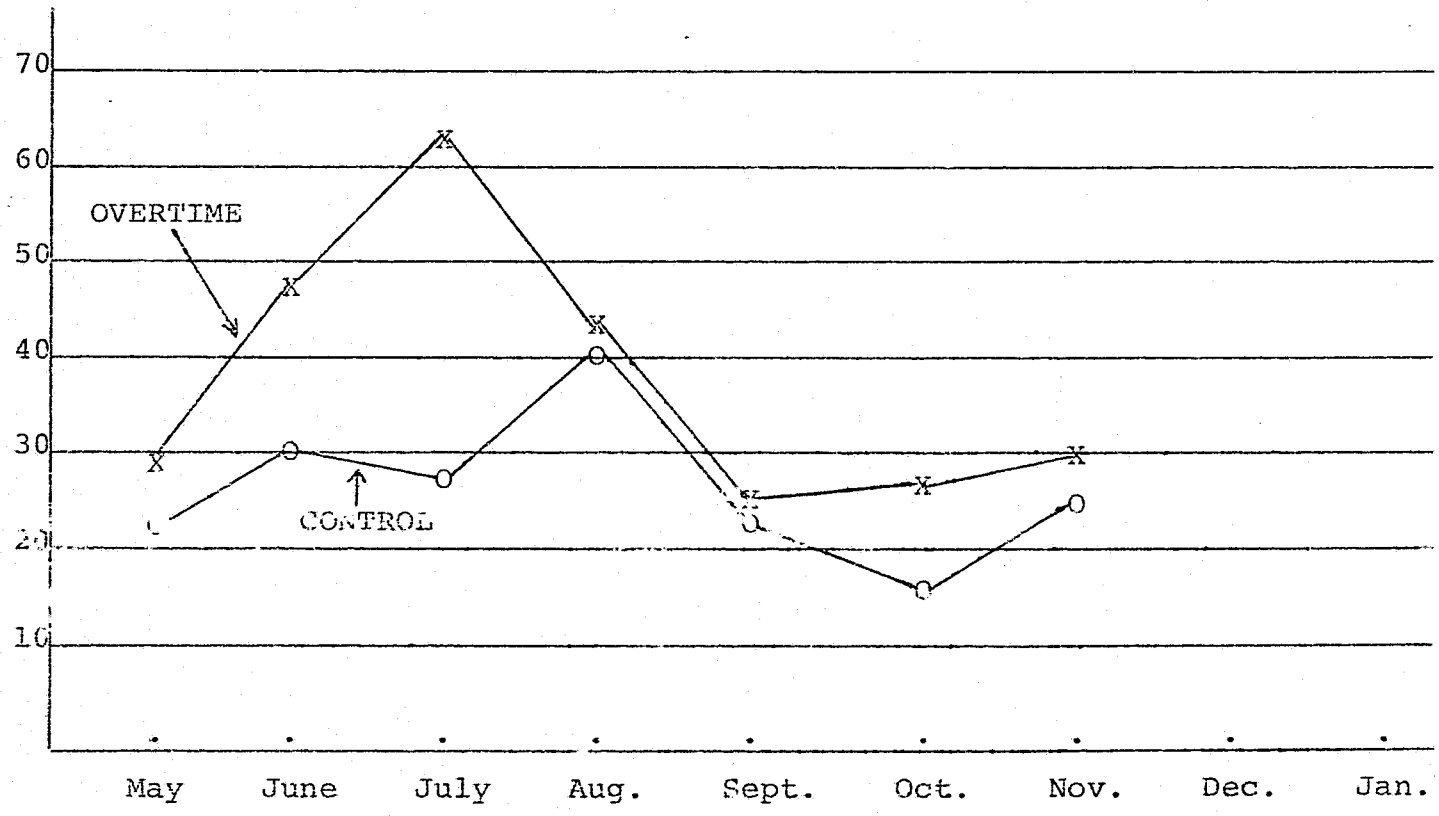
[redacted]

ROBBERIES



	May	June	July	Aug.	Sept.	Oct.	Nov.
X-Overtime Area	29	20	17	50	19	29	29
O-Control Area	10	22	22	45	15	19	26

NON-RESIDENTIAL BURGLARIES



	May	June	July	Aug.	Sept.	Oct.	Nov.
X-Overtime Area	29	47	62	44	24	25	30
O-Control Area	22	30	27	40	22	15	25

OVERTIME AREA

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	TOTAL
ACTUAL NO. OF BURGLARIES										
Overtime Hours	32	36	52	49	11	22	37			239
Non-Overtime Hours	25	43	57	73	57	53	76			384
	57	79	109	122	68	75	113			623
EXPECTED NO. IF NO DISPLACEMENT										
Overtime Hours	21.9	30.4	41.8	46.8	26.1	28.8	43.3			
Non-Overtime Hours	35.1	48.7	67.2	75.2	41.9	46.2	69.7			

$$\chi^2 = \sum \left[\frac{(\text{Actual-Exp.})^2}{\text{Exp.}} \right] = 31.79$$

$$\chi^2_{6,.01} = 16.812$$

∴ Can conclude there has been a significant change in the proportion of total burglaries committed during Overtime Hours--based on observation one can say there has been a decrease in crime during the Overtime Hours.

CONTROL AREA

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	TOTAL
ACTUAL NO. OF BURGLARIES										
Overtime Hours	37	28	31	37	22	11	23			189
Non-Overtime Hours	26	42	33	52	40	67	52			312
	63	70	64	89	62	78	75			501
EXPECTED NO. IF NO DISPLACEMENT (Expected = Row Total x Column Total ÷ Total)										
Overtime Hours	23.8	26.4	24.2	33.6	23.4	29.4	28.3			
Non-Overtime Hours	39.2	43.6	39.9	55.4	38.6	48.6	46.7			

$$\chi^2 = \sum \left[\frac{(\text{Actual-Exp.})^2}{\text{Exp.}} \right] = 35.83$$

$$\chi^2_{6,.01} = 16.812$$

Same conclusion holds for Control Area as for Overtime Area.

∴ The change still cannot be attributed to the project activity.

END

7 [illegible]