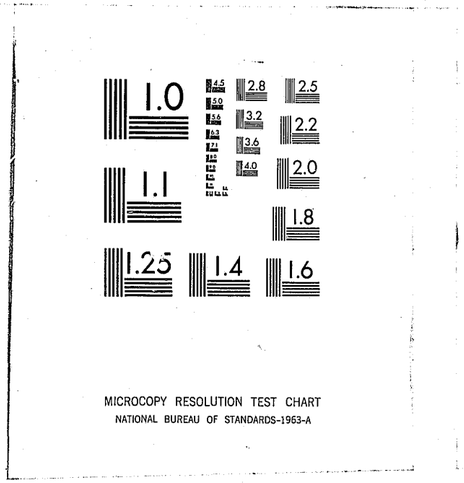

MICROCOPY RESOLUTION TEST CHART
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DJC DECISION SCIENCE CONSORTIUM, INC.

COST-EFFECTIVENESS AND CONSTRUCT EVALUATION: A METHOD FOR PROGRAMMATIC POSTMORTEMS

Kurt J. Snapper
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ABSTRACT

This report describes a methodology developed to evaluate the institutionalization of a program--that is, the degree to which the effects of a program continue after the program itself has ceased. Such institutionalization is a programmatic benefit often overlooked by traditional evaluation approaches and can play a major role in determining the cost-effectiveness of a program. The methodology is based on decision-theoretic techniques utilizing multiattribute utility models to measure effectiveness and subjective probabilities to assess the likelihood of future events that affect institutionalization. The approach was applied to the evaluation of the Metropolitan Atlanta Crime Commission Community Anti-Crime Project. The results showed that a relatively high degree of institutionalization was expected. This suggests that previous estimates of institutionalization were perhaps somewhat low, and, thus, programmatic effectiveness may have been underestimated.

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1.0 INTRODUCTION

Evaluations have many purposes, and different audiences have highly disparate expectations about what information an evaluation should produce (General Accounting Office, 1978). Differences in audiences in regard to intended use -- no less than differences in evaluation philosophy and methodology -- imply that no one evaluation is likely to satisfy all audiences or to meet all potential user requirements. Indeed, the GAO warned that the requirements of all "audiences cannot be met simultaneously" in any particular evaluation.

Chelimsky (1977) suggested that user requirements can be grouped into three categories: knowledge, management, and accountability. Further, many evaluators would argue that evaluation should be ultimately supportive of decision making. Drawing on Schon (1971), Nay (1977), Argyris (1977), and Guttentag (1977), the GAO identified several categories of decision makers. These included the groups directly involved in (or affected by) the program, Congress, OMB, and the Executive Branch, among others. While programs themselves are notoriously prone to change and therefore difficult to evaluate, new issues and decision-making requirements can emerge practically overnight. Unless evaluations are highly flexible -- which they usually are not -- they ultimately end up addressing the "wrong" questions.

A key feature required for effective use in decision making not found in most evaluations is a forecast of the future results of the program. Although the past and present performance of a program may be useful benchmarks for forecasts of future programmatic effectiveness, decisions cannot affect the past and thus should be based on future expectations. Traditional evaluation does not include forecasts, and decision making based on evaluation of the past performance of a program may well ignore the factors that are of critical importance to the future of the program.

1.1 Scope of Report

In this paper, we will review the Community Anti-Crime (CAC) Program evaluation and its original approach and purposes. We will also discuss how some fundamental changes in federal criminal justice initiatives and programs -- namely, the decision to terminate the Law Enforcement Assistance Administration (LEAA) -- raised new programmatic decision-making issues and related topics which were not being addressed. We will also discuss an extension of the decision-theoretic approach, currently being used as part of the CAC Program evaluation (Snapper and Seaver, 1980; Brown, Seaver, and Bromage, 1980), and how this method helps address in a timely manner some of these emerging issues and decisions.

Section 4.0 contains the core of this paper, and describes the basic methodology and its first application. The application was made to the Metropolitan Atlanta Crime Commission CAC Project, which was the first project we visited after announcement of LEAA's impending termination.

Section 5.0 discusses some further implications of this methodology, and procedures for its application.

2.0 BACKGROUND OF THE CAC PROGRAM AND ITS EVALUATION

Section 2.0 is divided into two parts. Section 2.1 describes the CAC Program, focusing on the characteristics of the individual local projects. These, it will be seen, vary considerably in terms of the strategies or tactics they use. Section 2.2 describes briefly the evaluation approaches which have been used in conjunction with the CAC Program.

2.1 Background of the CAC Program

The CAC Program, unlike most within LEAA, provides funding directly to community non-profit organizations. Its purpose is to enable them to conduct anti-crime activities involving community residents.

Major purposes of the CAC Program are to assist citizens and neighborhood community groups in implementing activities aimed at preventing crime, reducing fear of crime, and revitalizing neighborhoods. The Program pursues these purposes by strengthening and expanding existing community organizations, encouraging the establishment of new organizations, integrating anti-crime efforts with community development activities, and improving communication and cooperation among neighborhood residents and criminal justice officials. In order to accomplish this purpose, the intent is that money be directed to neighborhood "grassroots" anti-crime activities.

The local projects undertake multiple activities which fall into many of the traditional categories of crime prevention activities. Among the more common activities are community organizing, Neighborhood Watch, Operation ID, recreation for youth, and escort services for senior citizens. There are also many innovative activities such as a community theatre (including specific productions by neighborhood youth) and provision of child-care training for teenage mothers.

Because a primary purpose of the program is to involve citizens and community organizations in crime prevention, and because activities and objectives vary widely from project-to-project, the CAC Program implied that the community-based project itself was the appropriate unit of analysis. In an innovative approach to funding, the program office (Office of Community Anti-Crime Programs) directly funded local or neighborhood anti-crime projects, bypassing state or metropolitan organizations. Moreover, the program stresses the impor-

tance of community-based decision making, the need to identify the problems in the neighborhood, to determine which anti-crime strategies are likely to be most effective in resolving these problems, to assess project effectiveness, and to enhance attainment of relevant objectives by judicious modifications based on intermediate feedback about results or impacts. Perhaps the major assumption underlying the CAC Program was that "institutionalization of the community anti-crime concept" would occur. This notion of "institutionalization" encompassed a wide range of effects, impacts, or changes. It included structural changes in the CJS or other organizations, as well as changes in approach or attitude on the part of persons in those organizations. Examples would include addition of a property engraving service in the police department, or greater cooperation between police and community residents. Physical changes in the environment, such as locks and lights, also embody the CAC concept. Often the most pervasive form of CAC concept institutionalization will be in the residents themselves, reflected by their changes in attitude, awareness of crime, surveillance of public areas, and willingness to participate in community anti-crime activities, among other things. While the modes of change clearly vary, they have in common the notion that the concept, one instilled via the project, will survive the project and presumably that changes and benefits therefrom will persist after termination of federal funds.

2.2 Background of the CAC Program Evaluation

Two interrelated approaches to evaluation have been undertaken. Both are designed to track project-level occurrences over the period of project funding. The first is AIR's "rationales" approach which is a special type of process or implementation evaluation (AIR, 1979). The approach attempts to build essentially an evidentiary chain between the baseline state of affairs and changes that occur. An advantage of this approach is that, hopefully, it helps attribute change to the programmatic process. It attempts explicity to distinguish "program inputs" from "disposing conditions" and exogenous "other events" that impinge on the change process.

The second approach is an impact assessment using decision-theoretic methods and is being undertaken by DSC. There are two different kinds of models used. The first is project-specific. It begins with a listing of a given project's objectives, and develops multiattribute utility theory (MAUT) models of effectiveness aggregated across objectives (Snapper and Seaver, 1980). The project models were designed to track effectiveness over a three-year period -- assumed to be a reasonable maximum period of federal support.

The other DSC impact model involved a cost-effectiveness assessment for the overall program and OCAP. It considered projected levels

of effectiveness as a function of annual program funding level (Brown, Seaver, and Bromage, 1980). Cost-effectiveness was assessed over a five-year period, the period of reauthorization being contemplated at the time of the analysis. The analysis also assumed implicitly that the program would continue; annual funding levels of $10, $20, and $40 million were considered in the analysis. All three funding levels were shown to be cost-effective.

3.0 CONSTRUCT EVALUATION -- A POST-MORTEM ASSESSMENT OF THE CAC PROGRAM

About half-way through FY 80, the Administration announced that LEAA would be terminated as a cost-reduction measure. While projects were faced with the possibility of Program mandated funding cuts anyway, the prospect of LEAA termination underscored the question of whether the CAC Program had been worthwhile. Many of the projects had been anticipating continuing by obtaining LEAA block grant monies through their states; the elimination of those funds underscored the question of whether projects would persist at all, and whether there would be any residual effects or benefits.

The termination of LEAA also partly obviated the ongoing evaluations, because they were keyed to an implicit assumption that the program would continue and such matters as management feedback and determining the most cost-effective program funding level. They did not address directly the question of whether the concept was viable enough to be embodied in other federal programs or adopted by state and local agencies.

This gap in the evaluation approaches being used, relative to the emerging new issues, is highlighted by Exhibit 1. This exhibit is adapted from Lewis and Greene (1978), and distinguishes among implementation (process), impact, and construct evaluation. Exhibit 1 indicates that present approaches do not adequately consider construct evaluation which, in the case of the CAC Program, refers to institutionalization of the CAC concept, as previously described. This implies that one should distinguish between persistence of activities (a process consideration) and persistence of the concept. Either form of persistence would be reflected by continued evidence of project effectiveness in terms of its stated objectives, resulting from "concept institutionalization" in organizations, physical structures, or in the attitudes and behavior of community groups and individual residents.

The methodological requirements for a construct evaluation -- i.e., assessing whether there has been institutionalization of the CAC concept -- is illustrated by Exhibit 2. The top figure in Exhibit 2 is AIR's representation of their "rationales" approach. It illustrates the process by which various inputs are translated into "ultimate outcomes" (i.e., changes in the baseline state of affairs). The middle

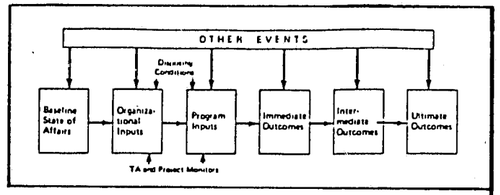
EXHIBIT 1

TYPES OF EVALUATIONS, PURPOSES, AND TIMING

Type of Evaluation	When Done?	Purpose	How Done for CACP?
Implementation	Formative stages, ideally during first phase of funding	Management feedback re projects; "best practices"; description	Air "Rationales" process evaluation (what happened and why/how)
Impact	Last part of project funding, but before termination, when effectiveness is likely to be maximum	Management feedback; some hypothesis testing about what "works"; identify "successful projects"; assessment of how well program "worked"	DSC project and program effectiveness models
Construct	If done, usually done as tests of "will it work" hypothesis as part of implementation/impact assessment; but can also be appropriate on post-mortem basis	Ideally, to modify assumptions and tenents (i.e., construct) on which program is based. Usually only partial assessment of whether it "worked").	Some description of "how worked" being done; no assessment of "institutionalization of CAC concept"

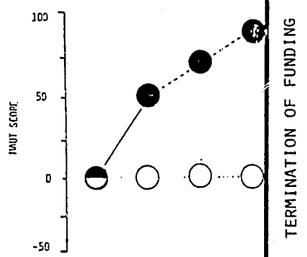
EXHIBIT 2

DIFFERENCE IN CACP EVALUATION METHODOLOGIES



PROCESS EVALUATION

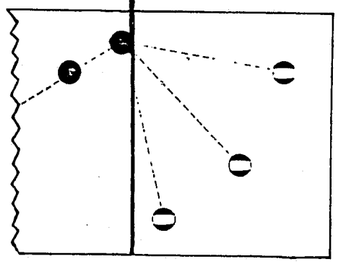
(AIR "RATIONALES" APPROACH)



IMPACT EVALUATION

(DSC PROJECT MODELS)

TERMINATION OF FUNDING



CONSTRUCT EVALUATION:

INSTITUTIONALIZATION OF

COMMUNITY ANTICRIME CONCEPT

figure illustrates the DSC project-level model and how MAUT scores of effectiveness are tracked over time.

Both the AIR process and DSC impact approaches focus on what happens during the life of the project, and end when funding is terminated. The bottom figure represents requirements for a construct evaluation: assessment of effectiveness and rate of attenuation should continue after termination of funding.

This is not simply a follow-up study approach, because estimation of rate of attenuation implies that a common metric of effectiveness be established, enabling quantitative comparisons of effectiveness before and after termination. In addition, the degree of institutionalization and persistence of effectiveness is a very powerful determiner of cost-effectiveness, and has typically been overlooked in evaluations. Indeed, the state of the art in evaluation is deficient in this regard. The topic of cost-effectiveness is considered in some detail in Section 5.0 because of its salience in future decisions.

Other issues that are suggested by a construct evaluation are listed in Exhibit 3. The substantive issues in Exhibit 3 tend to suggest process considerations. The fourth is of particular interest. It suggests identifying ahead of time those "conditioning events" and their likelihood that will determine which activities will continue, or which determine how effective the project will be (irrespective of which activities happen to continue).

The methodological issues are primarily measurement related. The first three pertain in the decision-theoretic approach to developing a MAUT model applicable before and after funding termination. The fourth methodological issue involves integrating process considerations into a model of effectiveness. This will enable projections to be made prior to funding termination, which are predicated on varying assumptions about which events (e.g., generation of funding support) will occur. This topic will be discussed in more detail in Section 4.

The decision making issues regarding the concept of community anticrime approaches are especially interesting. Several political figures felt that the concept may well be worthwhile. There was some feeling that OCAP and the community approach were terminated for convenience along with LEAA, not because a final verdict on the

EXHIBIT 3

CONSTRUCT EVALUATION: ASSESSING

INSTITUTIONALIZATION OF COMMUNITY

ANTICRIME CONCEPT

SUBSTANTIVE ISSUES

- After cessation of LEAA funds, what supports remain? Were these generated by project?
- What activities continue?
- What is attenuation/persistance of effectiveness, apart from activity continuation/discontinuation?
- What are "conditioning events" determining activities, persistance of effectiveness?

METHODOLOGICAL ISSUES

- How assess nonstationary "treatments"?
- How define/monitor effectiveness during post-mortem?
- How compare effectiveness during post-mortem with effectiveness during funded period?
- Continuity and integration of process/effectiveness assessment through termination phase (Study timing)

DECISION MAKING ISSUES

- Concerns of Policy makers
- Should concept of community anticrime survive CACP?
- What is most cost-effective level of federal support for community anticrime initiatives?

concept had been rendered. Indeed, results such as those in Snapper and Seaver (1980) and Brown et al. (1980) were persuasive to some that the concept is worth further consideration. There was also some sense that the concept deserved assessment in its own right, independent of LEAA and the general perception of LEAA.

As mentioned earlier, the degree to which effectiveness persists after termination of funding is a strong determiner of the overall worth of a program. Decision makers need to know both the extent to which the program "works" while it is being funded and how much of its effectiveness and benefits can be expeted to persist after termination. As will be discussed in Section 5, a reasonable level of persistence in effectiveness could easily imply a three-fold or greater increase in a cost-effectiveness sense.

4.0 INITIAL TESTING OF METHODOLOGY

The Metropolitan Atlanta Crime Commission (MACC) was the first CAC project we visited after announcement of the intended termination of LEAA. MACC used a "coalition" approach, and embraced separate organizations with distinct activities and objectives. Exhibit 4 shows the MACC target area and the constituent groups and their activities. Not shown is the Lake Claire project, which had become entirely self-supporting at the time of the site visit. (Although Lake Claire had become "institutionalized" its data are nevertheless included in the discussion that follows. Lake Claire focused on community organization and community/police relations.) The project had been visited by DSC several months earlier, and had stated its objectives. The question was: how should anticipated attainment of objectives be expressed, in light of uncertainty about future funding, activities and project effectiveness?

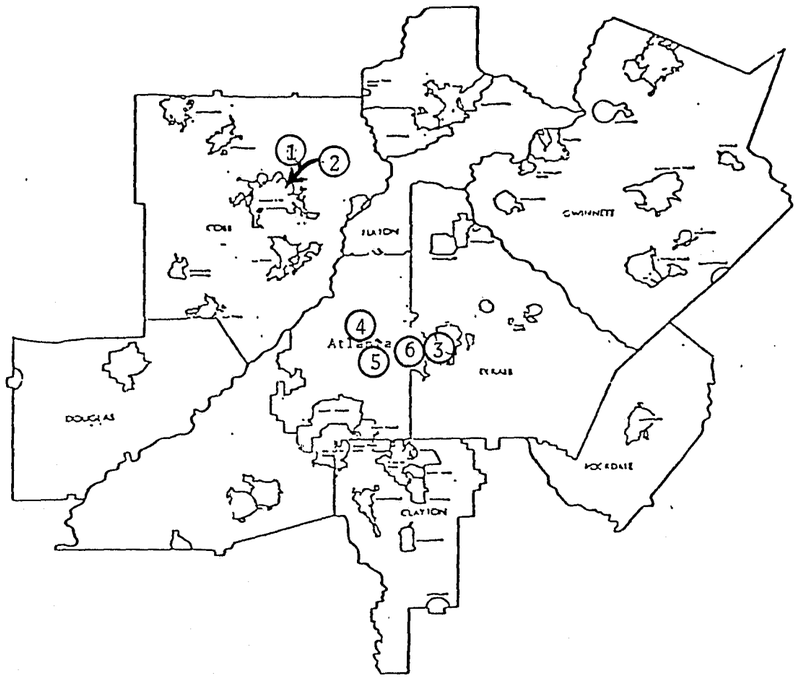
4.1 Development of Methodology

Desiderata for the assessment of MACC -- and other projects or programs in similar circumstances -- reflect the substantive and methodological issues shown in Exhibit 3. Exhibit 5 shows the generic "decision tree" model which was developed, and which comprehensively encompasses both funding and post-funding phases. It provides for an integrated process and effectiveness assessment, in that the model incorporates both process factors ("conditioning events") and effectiveness measures. The left-hand side shows the sequencing during the funding period. After termination of funding, however, there are decisions to be made about whether or not to continue at all and, if so, what strategies to pursue. (Some projects, for example, voluntarily terminated funding after deciding that they did not wish to continue. This was not restricted to projects that had failed to attain objectives. Others modified strategies, in light of LEAA termination possibilities.)

The critical conditioning event shown in this model is "type and level of support". This could include both volunteer and monetary support, ranging from none to full. Other conditioning events would also be documented and included in the model, insofar as they affected

EXHIBIT 4

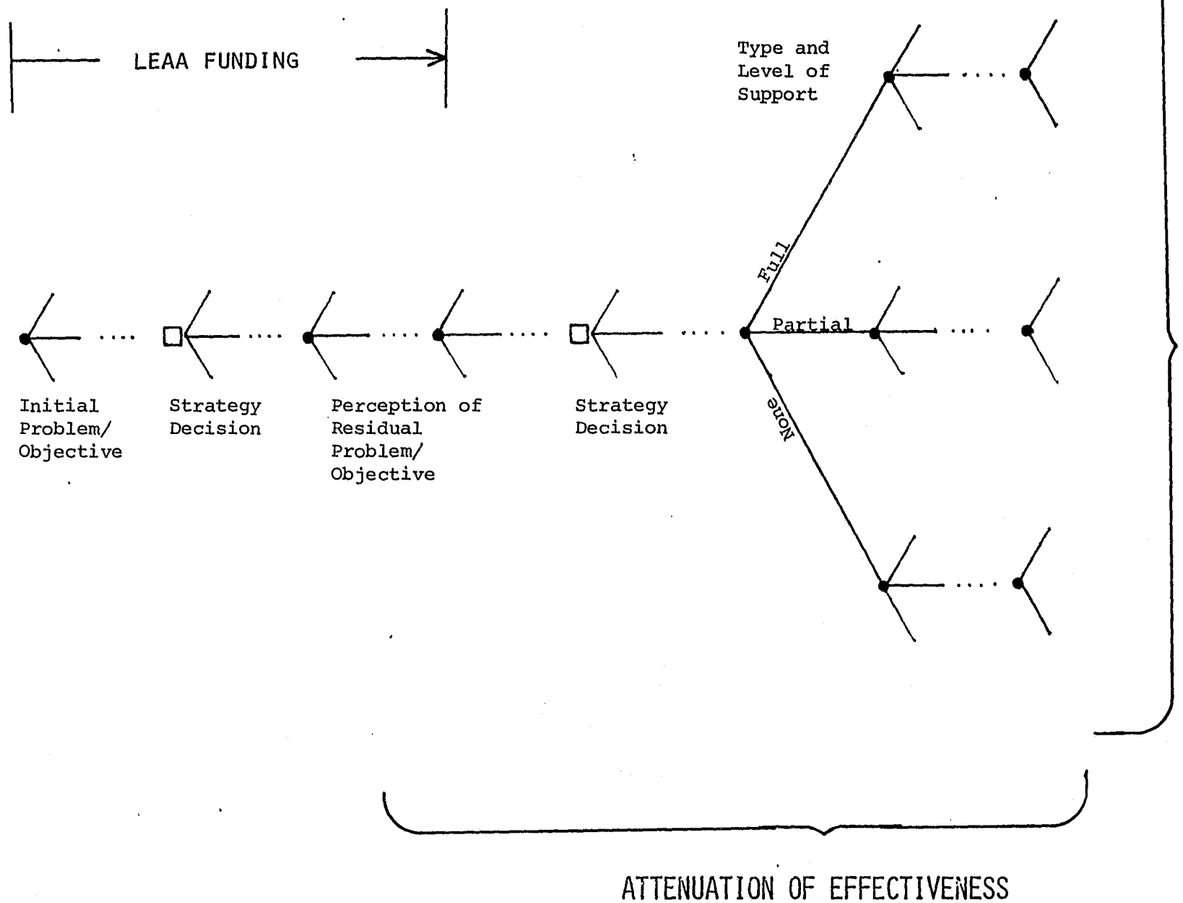
METROPOLITAN ATLANTA CRIME COMMISSION



1. South Cobb Jaycees (Victim-witness assistance)
2. Cobb County YWCA (Battered Women's Shelter)
3. Candler Park N'hood Assoc. (Block watch, special events)
4. Northside Shepherd's Center (Security for elderly)
5. Interfaith, Inc. (Youth counseling, job training)
6. MACC (Administration)

EXHIBIT 5

"DECISION TREE" MODEL OF INSTITUTIONALIZATION PROCESS AND EFFECTIVENESS ANALYSIS



effectiveness. To the extent that Exhibit 5 does not include all these potential conditioning events, it is "notional" and requires elaboration based on particular project experiences over the period preceding and subsequent to termination. Although the scope of the present study does not permit full application of the "decision tree" model, it does permit some elicitation from project personnel of information about conditioning events, especially as they pertain to types and levels of support. It also permits projections about what expected effectiveness will be, contingent upon which conditioning events in fact occur. A simplified version of the decision tree model in Exhibit 5 will be shown later, based on the MACC case study.

4.2 Data for MACC

In this section the results of the MACC project are displayed, using the conventions of Snapper and Seaver (1980). We will not discuss the details of the MAUT approach here; the interested reader is referred to our previous paper. Exhibit 6 lists the objectives of the project, as defined by senior project staff, as well as the importance weight associated with each objective. Exhibit 7 shows the measures used to assess each objective. These measures generally reflected available data, such as police records and crime reports, or data compiled during routine project management. Exhibits 8 through 17 indicate the results of the project in terms of specific measures.

Interpretation of results is perhaps best illustrated by considering Exhibit 8 in some detail. It shows data for the first measure of Objective 1. The right-hand column shows the range over which the measure itself varied, in this case from 5% to 97%. The half-filled circle shows the base rate in Year 0, i.e., at the time the project started. The filled circles represent projections. When actual data are obtained, they are indicated on the display and connected with solid lines. Thus, in Exhibit 8, the actual data for Year 1 are displayed. The dashed line shows the projected results for Years 2 and 3. These prior expectations will be replaced by actual data, when they become available.

The dotted lines and open circles in Exhibit 8 indicated judgments about what would have happened, had there been no project in the area. Clearly, from the point of view of experimental rigor, this type of judgment is not a "control" and it is not intended to be interpreted as such. Instead, it provides a basis for the cognizant project and program staff to compare actual results against what, in their opinion, most likely would have happened. This provides a basis for judgments about the magnitude of effects attributable

EXHIBIT 6

MACC CAC PROJECT OBJECTIVES

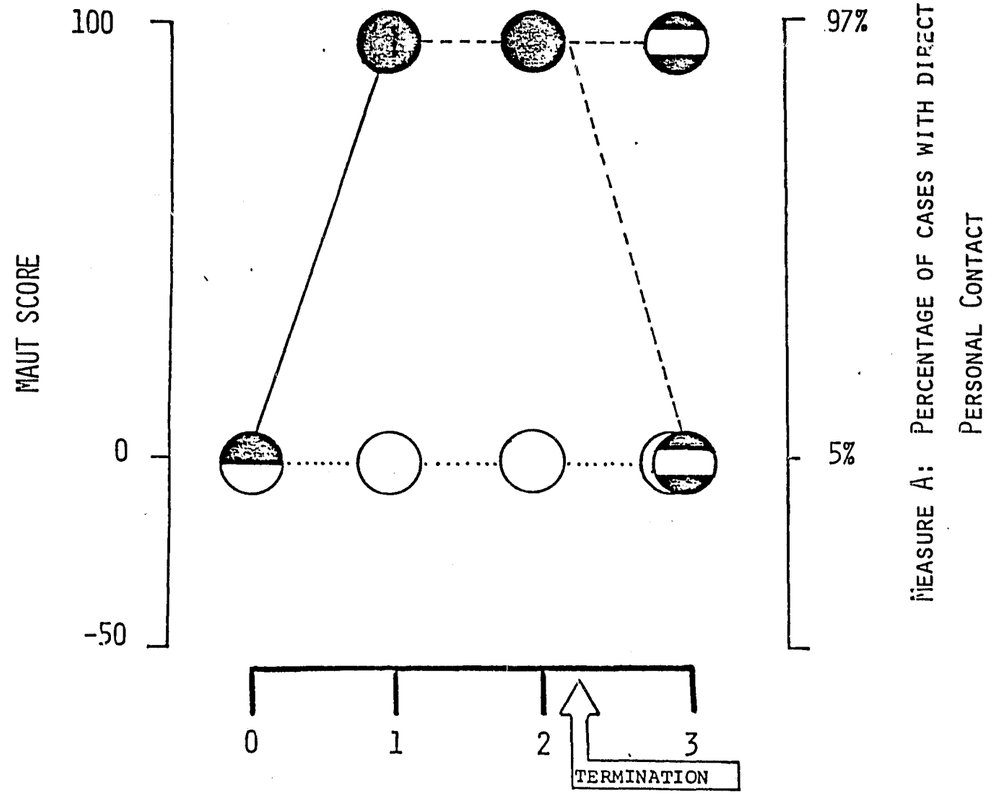
NUMBER	OBJECTIVE	IMPORTANCE WEIGHT
1	Provide Direct Aid to Victims and Witnesses of Crime	.18
2	Provide Material and Emotional Assistance to Battered Women and their Children	.18
3	Prevent and Reduce Crime by Awareness and Cooperation Among Neighbors	.38
4	Reduce Fear and Criminal Victimization Among Elderly	.16
5	Redirect Youth from Criminal Justice System	.10

EXHIBIT 7

MEASURES FOR MACC OBJECTIVES

Objective	Measures/Data
1. Provide Direct Aid to Victims and Witnesses of Crime	Percentage of Cases with Direct Personal Contact
	Percent of Dismissed Cases which are Dismissed Because of Witness Non-Appearance
2. Provide Material and Emotional Assistance to Battered Women and Children	Number of Bed-Nights Provided
3. Prevent and Reduce Crime by Awareness and Cooperation Among Neighbors	Number of Events Sponsored (Lake Claire Target Area)
	Crime Reduction--Change in Part 1 Offenses from 1978 (Lake Claire Target Area)
	Crime Reduction--Change in Part 1 Offenses from 1978 (Candler Park Target Area)
	Number of Operating Block Watches
4. Reduce Fear and Criminal Victimization	Number of Mini-Block Watches
	Locks and Lights Purchased and Installed
5. Redirect Youth from Criminal Justice System	Number of School-Referred Clients Participating

EXHIBIT 8



OBJECTIVE 1: PROVIDE DIRECT AID TO VICTIMS AND WITNESSES OF CRIME

to the project, and, ultimately, for judgments about whether the project or program is worthwhile. In the example shown here, the projections about "no project" results reflect judgments that no victim/witness activity would have been initiated without the CAC project, and that personal contact would have remained at about 5%.

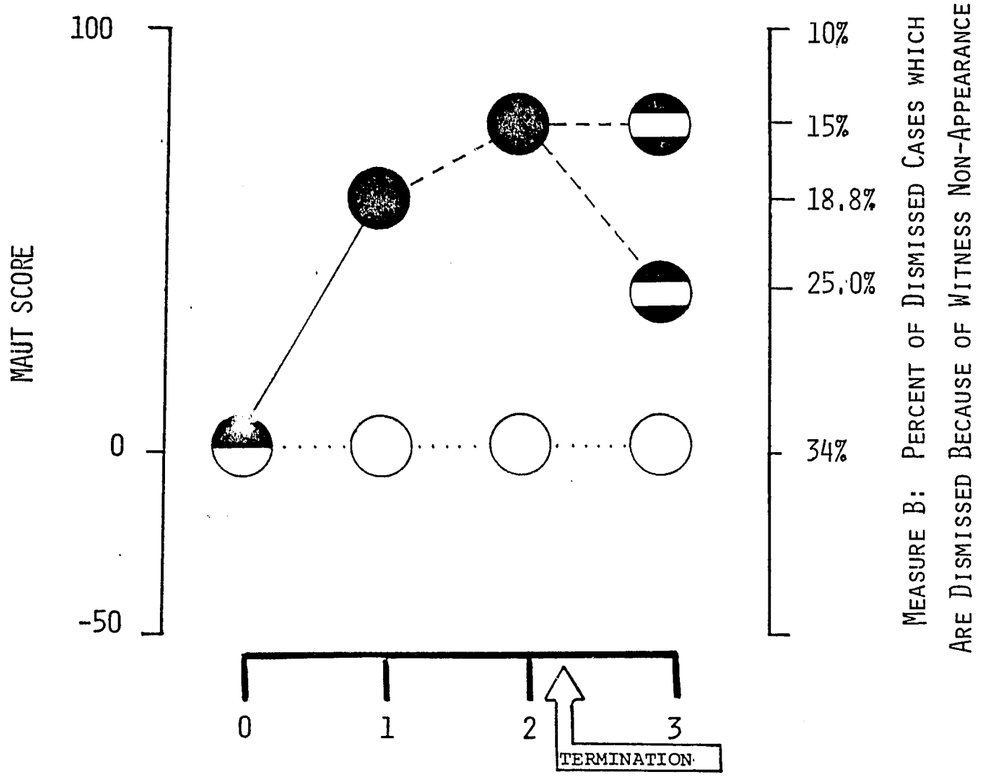
The split in Year 3, subsequent to anticipated termination, reflects projections predicated on alternative assumptions about "conditioning events" regarding level of support. The conditioning event, in the case of Exhibit 8, is whether or not Cobb County will assume support for the activity in the form of a paid staff position. If so, personal contact was projected to remain at the 97% level achieved by the project; if not, it was projected to fall back to pre-project levels of 5%.

A lesser impact of the conditioning event (i.e., Cobb County staff support) is shown in Exhibit 9. The projected drop, under the assumption of no Cobb County support, is less than a return to baseline conditions. Publicity and awareness of the issues, even without continuing support, were judged sufficient to reduce case dismissals about base rates for a significant period of time after termination of all support for the activity itself.

The interpretation of results for remaining figures parallels those for Exhibits 8 and 9. This paper will not, however, discuss each in detail. We will mention only highlights. Exhibit 10 shows a case in which an increase in regard to the measure would have occurred without the project. Nevertheless, residual impact of the project is shown which would persist even without active additional support. In other words, MACC enhanced a result that would have occurred -- an enhancement that is projected to persist after termination.

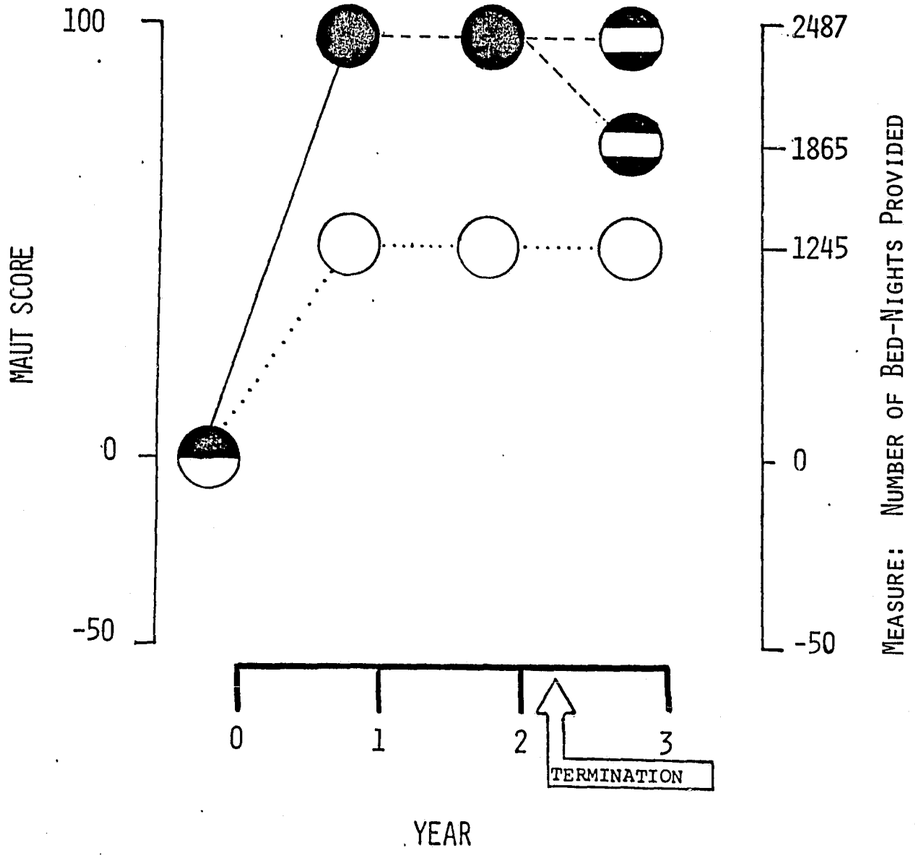
Exhibits 12 through 15 are especially interesting because they reflect crime data in two of the project target areas. In Exhibit 12, the data show that crime was projected to increase (the open circles) because it was increasing rapidly in surrounding areas. Although crime increased in the project area in Year 1, it increased at a slower rate than it did in the surrounding areas. The data on which Year 1 estimates are based are shown in Exhibit 13 to help clarify the results. (Exhibit 13 is a reproduction of a graph appearing in MACC's progress report, as is Exhibit 15.) The projections after Year 1 reflect the opinion that the project area will continue to have slower growth in crime rates, compared to other areas. Exhibit 14 shows the case in which crime was actually reduced in Year 1 (see Exhibit 15), although it increased in surrounding areas. Projections indicate, however, that the subway station opened by the Metropolitan

EXHIBIT 9



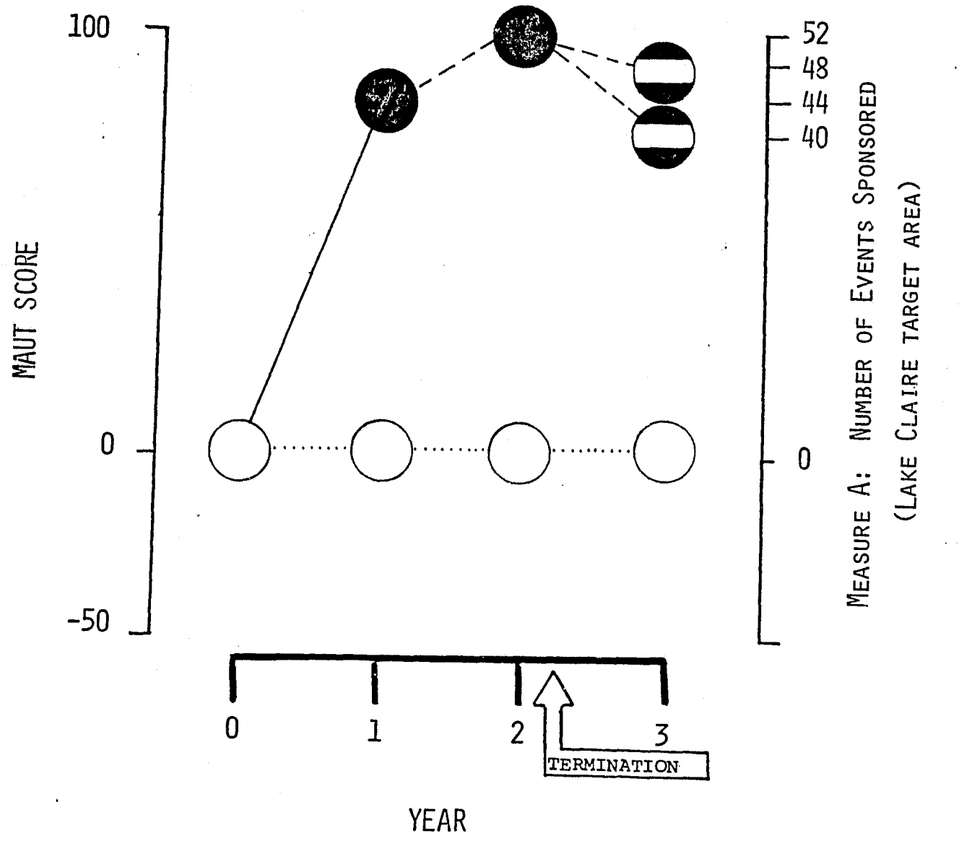
OBJECTIVE 1: PROVIDE DIRECT AID TO VICTIMS AND WITNESSES OF CRIME

EXHIBIT 10



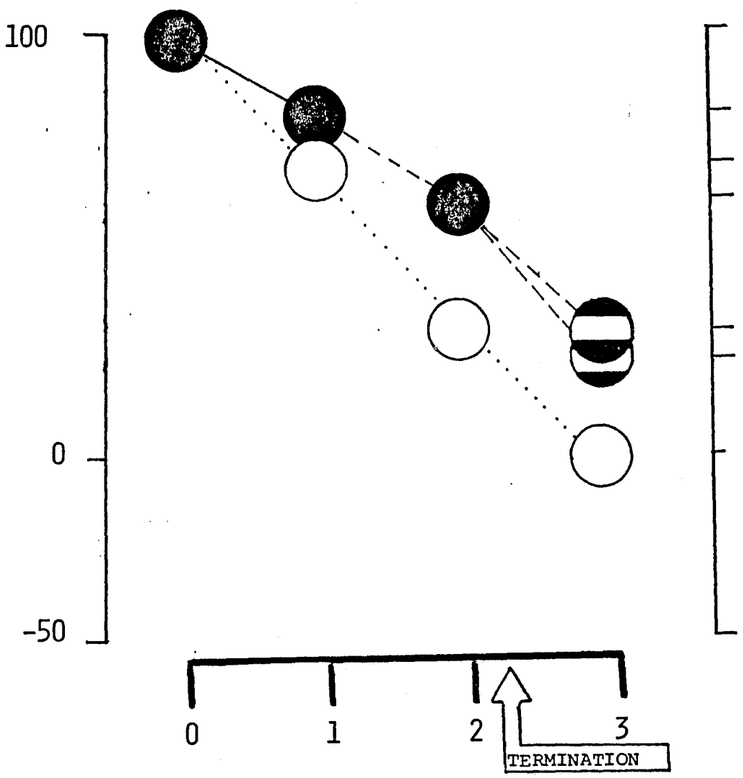
OBJECTIVE 2: PROVIDE MATERIAL AND EMOTIONAL ASSISTANCE TO BATTERED WOMEN AND THEIR CHILDREN

EXHIBIT 11



OBJECTIVE 3: PREVENT AND REDUCE CRIME BY AWARENESS AND COOPERATION AMONG NEIGHBORS

EXHIBIT 12



OBJECTIVE 3: PREVENT AND REDUCE CRIME BY AWARENESS AND COOPERATION AMONG NEIGHBORS

EXHIBIT 13

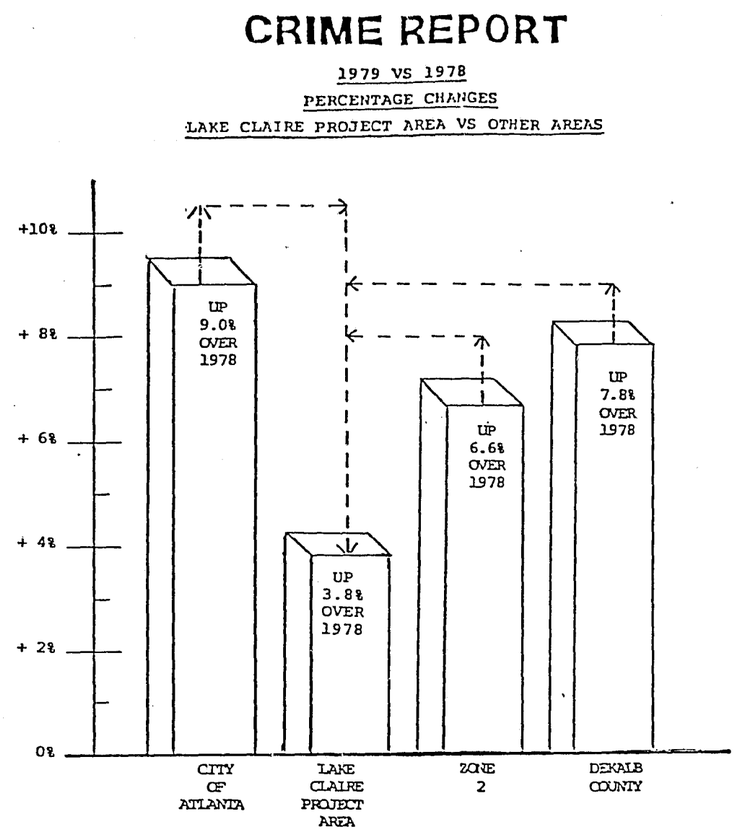
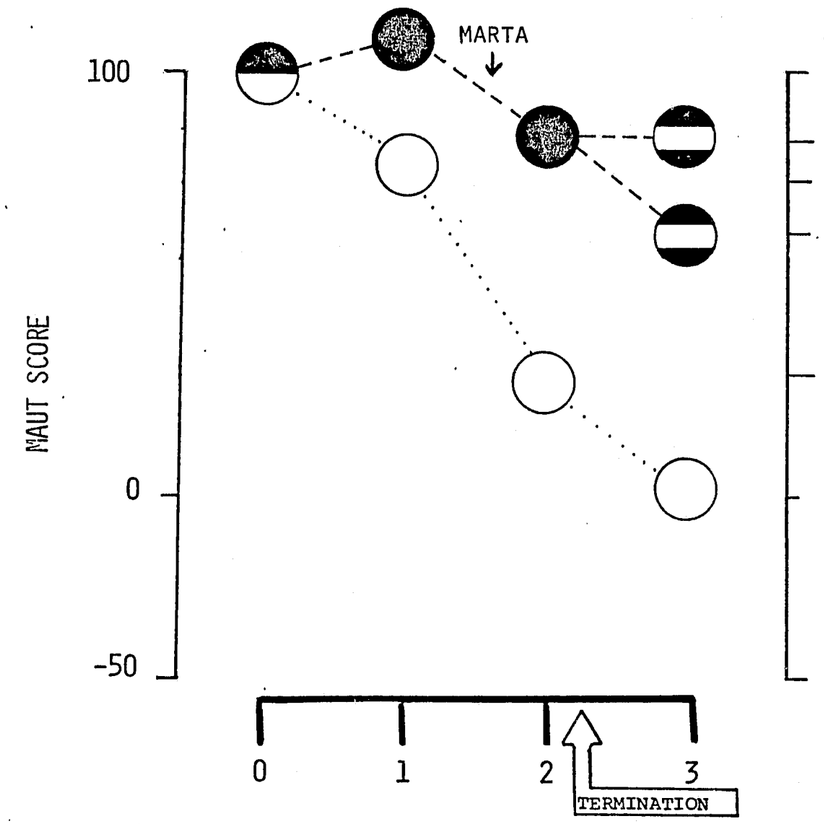


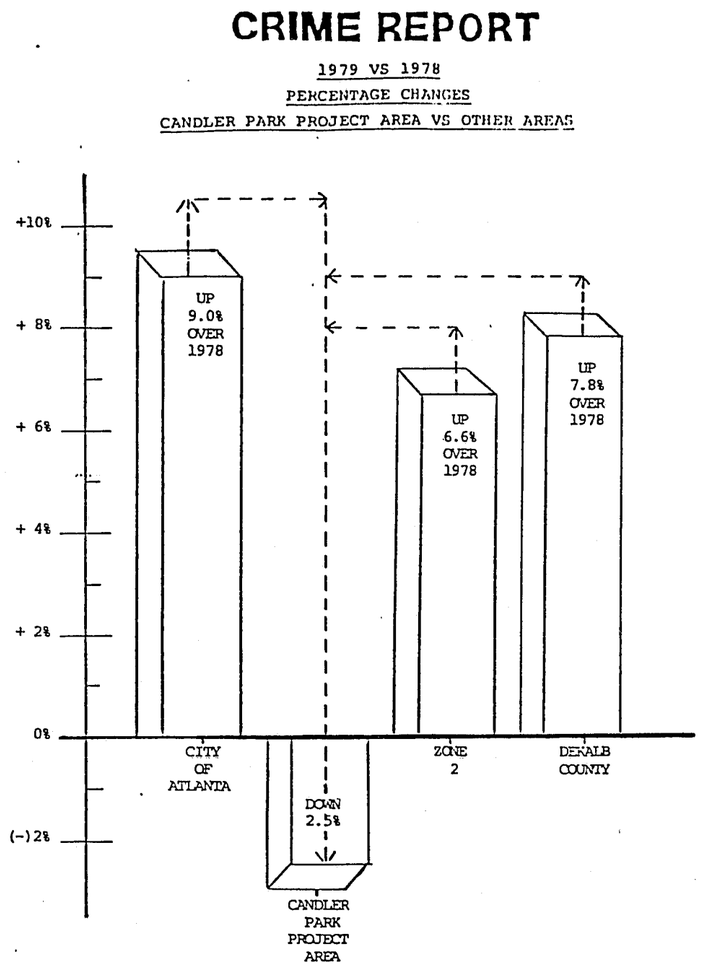
EXHIBIT 14



MEASURE C: CRIME REDUCTION--CHANGE IN PART I OFFENSES FROM 1978 (CANDLER PARK TARGET AREA)

OBJECTIVE 3: PREVENT AND REDUCE CRIME BY AWARENESS AND COOPERATION AMONG NEIGHBORS

EXHIBIT 15



Atlanta Rapid Transit Authority (MARTA) -- which opened after Year 1 -- would be a significant crime generator. The optimistic projection, following project termination, was that crime would level off if appropriate support and initiatives were undertaken; the pessimistic projection was that crime rates would rise at about the same rate as in surrounding areas.

Exhibits 16 through 19 show results for other components of the project. While these are comparatively small scale, they were nevertheless regarded as important objectives. Mini-block watches, for example, involved primarily elderly persons in apartments, whose involvement was projected to continue unconditionally, i.e., regardless of whether there was any outside support. The purchase and installation of locks and lights (Exhibit 18) was accomplished on essentially a demonstration basis. Once installed, they would of course remain in place. Exhibit 19 shows the number of youths participating in diversion activities. The drop from Year 1 reflects a change to a more difficult target population. It was projected that this diversion project would essentially cease if additional support were not available.

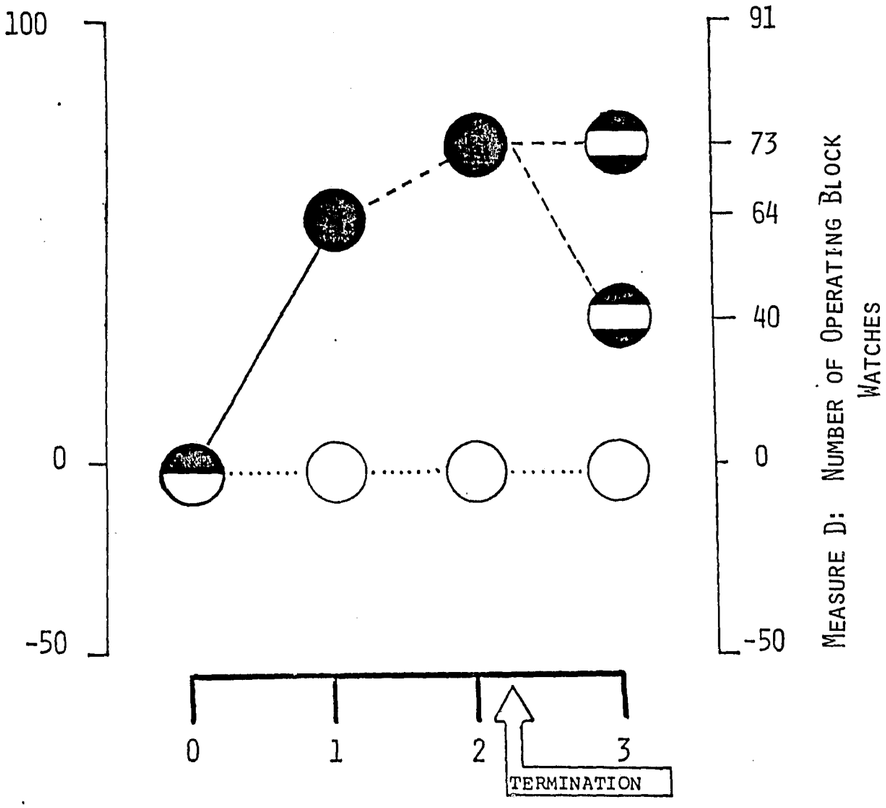
4.3 The MACC "Decision Tree"

As mentioned earlier, Exhibit 5 shows the generic decision tree representation of the proposed method for construct evaluation. The procedure we suggest is to develop such a model prior to termination of a project, based on projections about what will happen. Conditioning events that are identified as strong determiners of results are also included in the model. After termination, the actual occurrence (or nonoccurrence) of conditioning events is determined, along with the actual effectiveness measures and scores. The first half of this approach was possible for MACC during the course of our study, and is shown in Exhibit 20. (For convenience of display, we do not consider the portion of the model pertaining to decisions and activities during the funding period. We consider only the decisions or events that determine effectiveness after termination.)

Objectives (shown earlier in Exhibit 6) are shown on the left-hand side of the figure. Measures of each objective (shown earlier in Exhibit 7) are then shown. Next are shown the decisions (or conditioning events) that were identified as primary determiners of what effectiveness would be one year after termination. (A full post mortem study would of course track actual results for at least a year, and preferably two or more.)

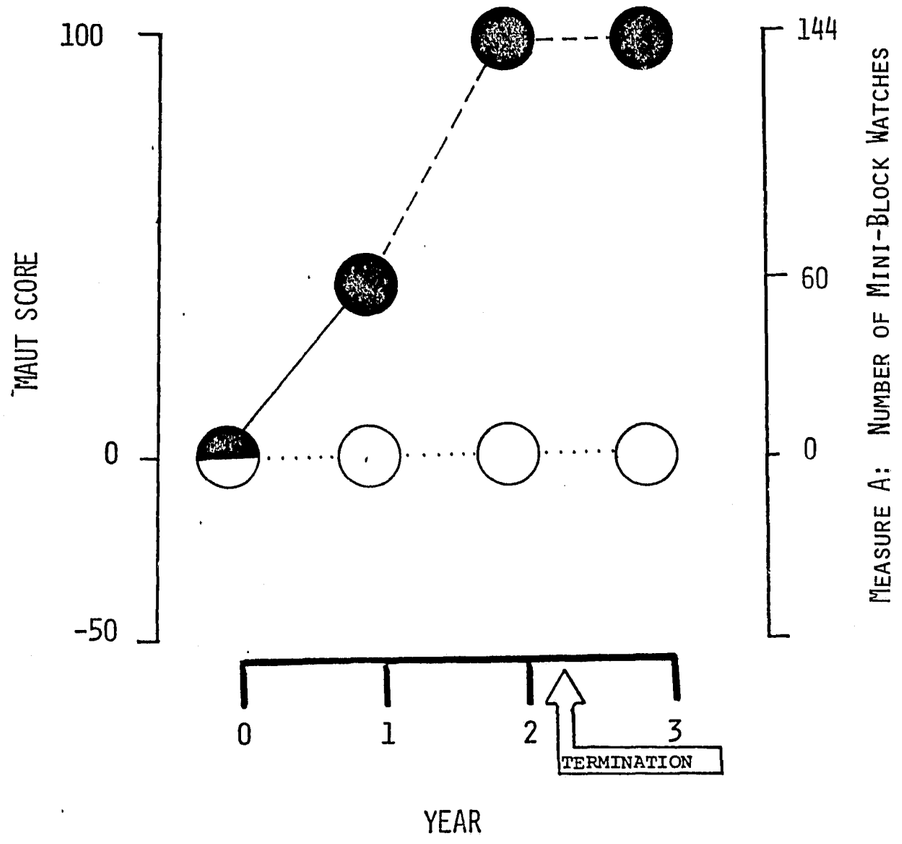
For convenience, binary decisions or conditioning events were used, and seemed quite adequate for the MACC project. Probabilities were then assigned by MACC project personnel regarding whether there

EXHIBIT 16



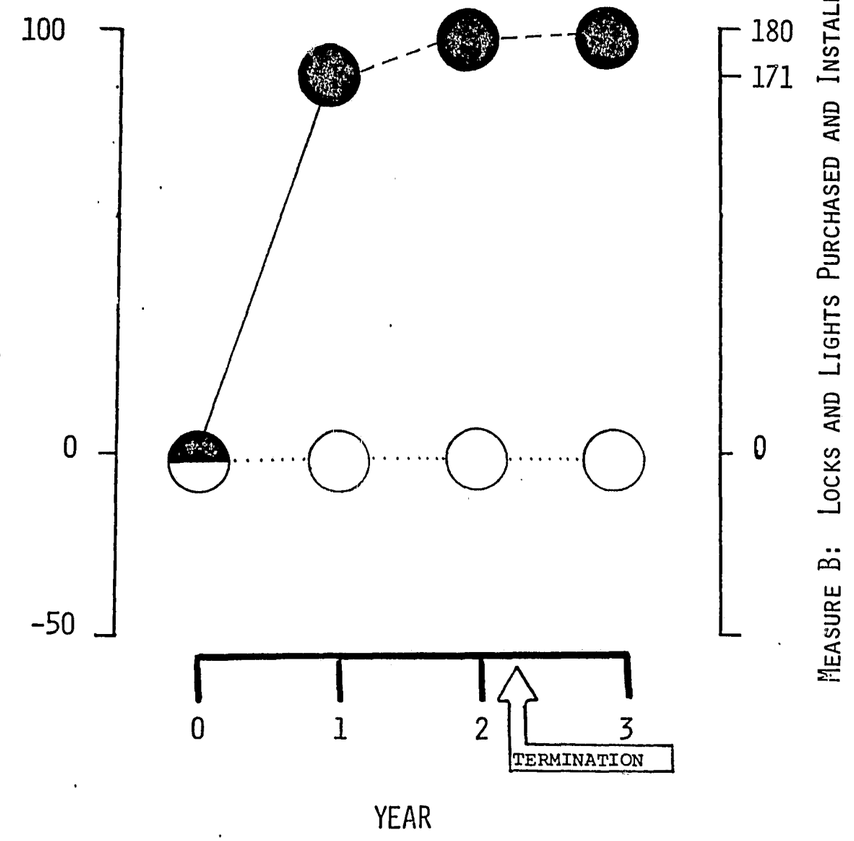
OBJECTIVE 3: PREVENT AND REDUCE CRIME BY AWARENESS AND COOPERATION AMONG NEIGHBORS

EXHIBIT 17



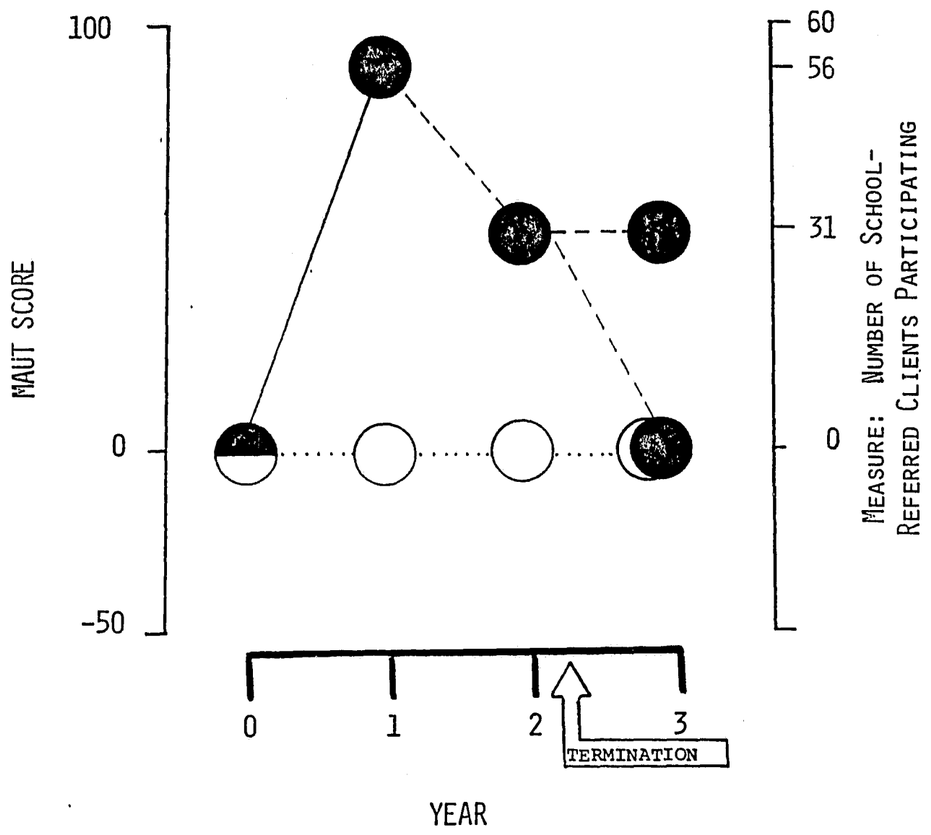
OBJECTIVE 4: REDUCE FEAR AND CRIMINAL VICTIMIZATION

EXHIBIT 18



OBJECTIVE 4: REDUCE FEAR AND CRIMINAL VICTIMIZATION

EXHIBIT 19



OBJECTIVE 5: REDIRECT YOUTH FROM CRIMINAL JUSTICE SYSTEM

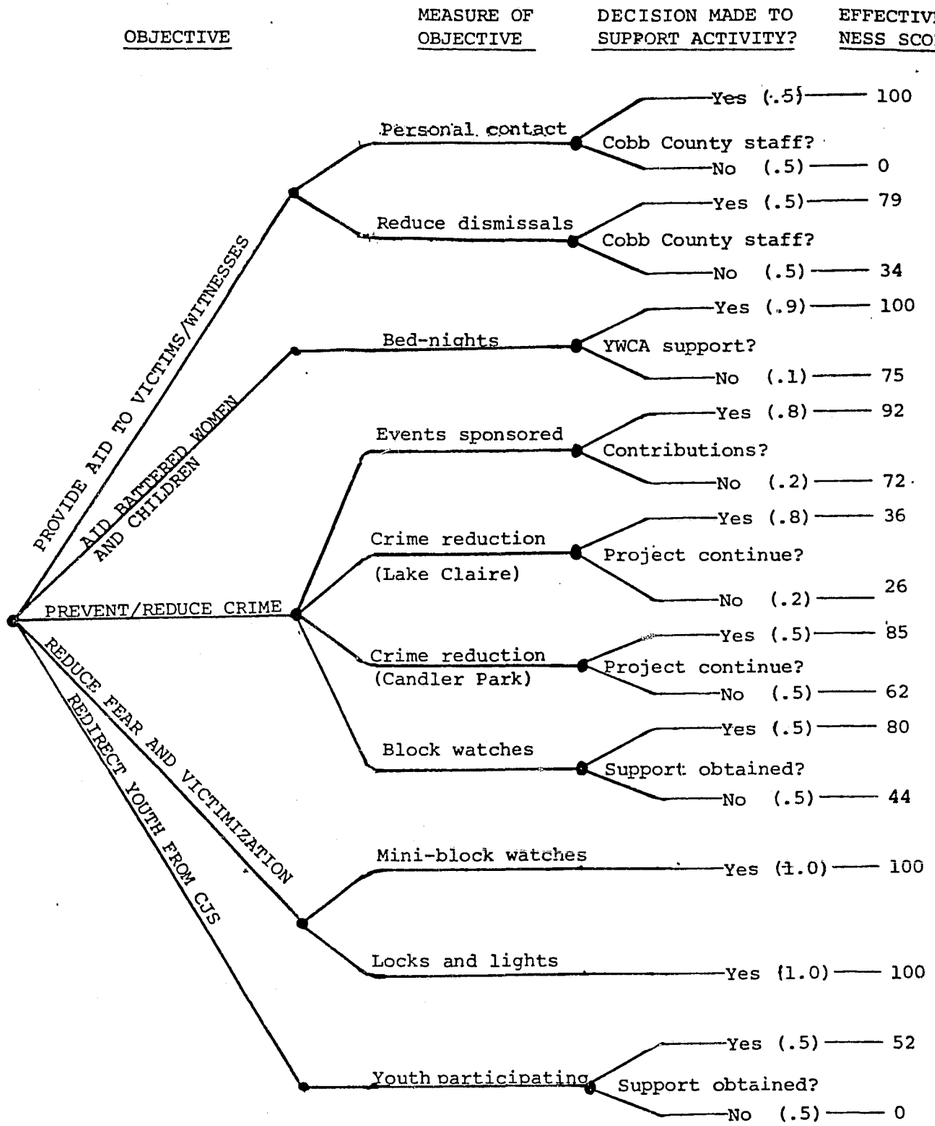
would be a favorable outcome ("yes") or an unfavorable one ("no"). For example, in the case of the victim/witness activity, a probability of .5 was assessed that Cobb County would in fact establish a staff position to continue the activity. The results of that decision -- based on project staff projections -- are clearly shown on the right-hand side of Exhibit 20. We have displayed here the MAUT scores; the corresponding values for the measures can be obtained from Exhibits 8 through 19. For instance, if there is Cobb County staff the MAUT score is projected to be 100 (personal contact: 97% of cases); whereas if there is no Cobb County staff the MAUT score is projected to be 0 (personal contact: 5% of cases).

Although based on judgments, some estimates of degree of institutionalization -- as reflected by MAUT scores of post termination effectiveness -- can be obtained rather easily. Computationally, we multiply the scores by their probability, summing across the measures for a given objective. This sum for a given measure is then divided by the number of measures, to yield an average score. This average score is then multiplied by the importance weight for that objective (see Exhibit 6), and these weighted average scores are then summed to yield the overall expected MAUT score of effectiveness. This score is, in effect, the weighted mean of the actual scores that could result.

To illustrate, the overall expected MAUT score (whose calculation is as described above) is shown in Exhibit 21. The pessimistic estimate is based on the assumption that none of the desired decisions or conditioning events occur (i.e., that all the "no"s in Exhibit 20 in fact occur). The optimistic score is based on the assumption that all the desired decisions or events occur.

One implication of Exhibit 21 (that may prove somewhat surprising) is that there are conditions under which the degree of effectiveness remains rather high. (This result holds true even if those measures that remain at 100 are eliminated from consideration.) It is, therefore, quite possible that significant portions of the MACC project will persist after termination, and that worthwhile benefits will be derived therefrom. Although this analysis is of course preliminary, and is intended primarily to be illustrative of the methodology, there is much anecdotal evidence that supports the notion that there has been substantial institutionalization of the community anti-crime concept and that there will be corresponding persistence of benefits and effectiveness.

EXHIBIT 20



PARTIAL MODEL FOR METROPOLITAN ATLANTA CRIME COMMISSION: CONDITIONING EVENTS AND EFFECTIVENESS

EXHIBIT 21

CALCULATION OF OVERALL, WEIGHTED MAUT SCORES, BASED ON VARYING ASSUMPTIONS

Objective	Assumption Underlying MAUT Computation		
	Optimistic	Expected	Pessimistic
1	100	53.3	17
2	100	97.5	75
3	73.3	64.4	51
4	100	100	100
5	52	26	0
Weighted Score	85.1	70.2	51.9

5.0 INSTITUTIONALIZATION AND ESTIMATES OF COST-EFFECTIVENESS

The question of institutionalization and residual, post-termination effectiveness is extremely salient from the point of view of the decision maker concerned with cost-effectiveness. A moderate degree of institutionalization compared to none means, for example, that derived benefits and cost-effectiveness may increase several fold. Essentially, the reason for this is that benefits will continue to accrue from past projects rather than deriving only from projects currently being funded. The former case means that cost-effectiveness will increase systematically over time; the latter means that cost-effectiveness will asymptote early, at a comparatively low level.

In the remainder of this report we will first briefly review the past work on cost-effectiveness assessments for community anti-crime -- which did not explicitly model degree of institutionalization. We will then consider how estimates of degree of institutionalization affects estimates of cost-effectiveness, and how past work in this regard should be extended.

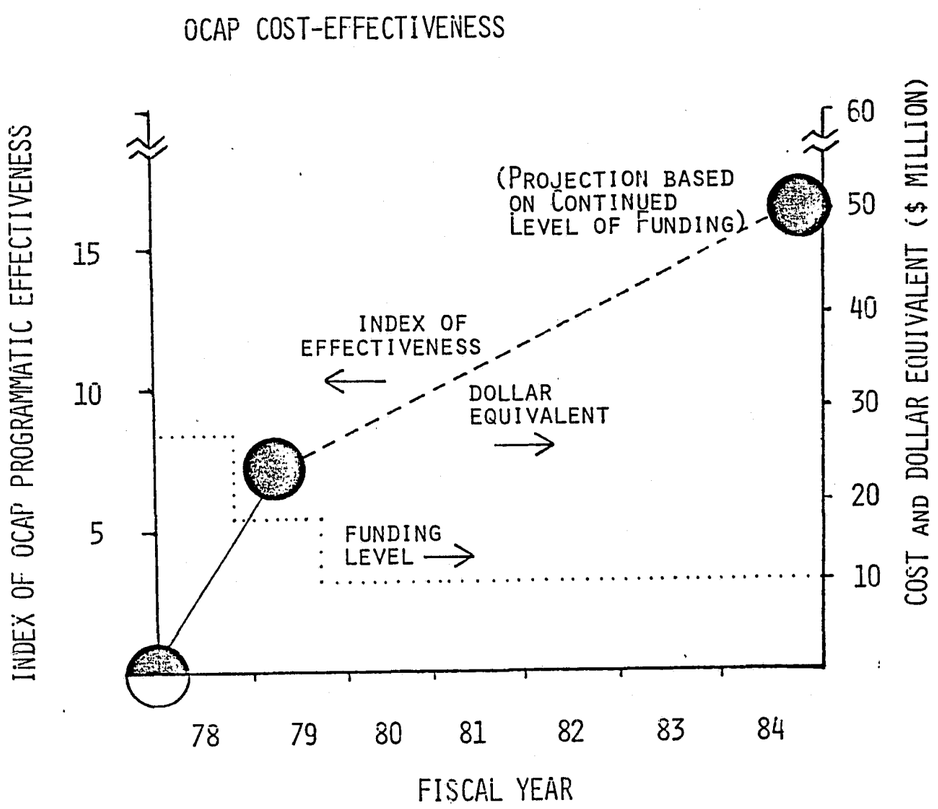
5.1 Past Analysis of Cost-Effectiveness

Exhibit 22 displays the results of the earlier cost-benefit analysis. The MAUT index of effectiveness is shown on the left-hand axis. This particular graph shows the analysis for the $10 million option. The effectiveness score of about 15 may be interpeted as comprising about 15% of the projected asymptotic impact of a $40 million program under the assumption that it would provide to be highly successful.

The right-hand axis is scaled in dollars. The dotted line shows the annual funding level over time (which is $10 million from FY 79 through FY 84). It also shows the estimated dollar worth corresponding to a given level of programmatic effectiveness. (Dollar worth was based in part on direct judgments, and in part on estimates of the leveraging of local resources by federal dollars. The leveraging ratio was estimated at about $8 in local resources for each $1 of federal funds.) The analysis shows that the equivalent dollar value of the program would increase from about $25 million in FY 79 to about $50 million in FY 84 (see Brown et al., 1980).

Exhibit 23 shows a calculation based on Exhibit 22, in which net utility is plotted. This is essentially the difference score between the effectiveness index and the utility score corresponding

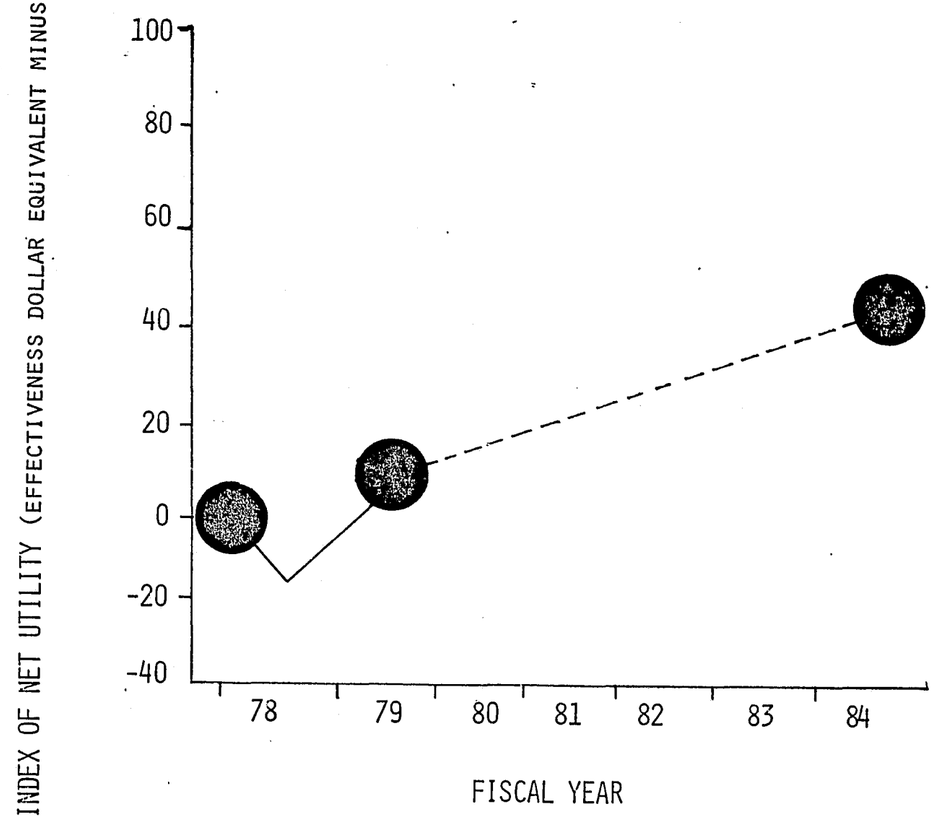
EXHIBIT 22



COST EFFECTIVENESS OF OCAP FUNDING: $10M LEVEL.

*ADAPTED FROM BROWN, SEAVER, AND BROMAGE (1980).

EXHIBIT 23



YEARLY NET UTILITY

to the cost of the program. Utility drops during the first year because the disutility associated with cost outweighs benefits. By mid FY 79, when the analysis was conducted, net utility was greater than zero. To highlight this, the zero net utility level is indicated by the dotted line. The net utility score is shown to rise to about 40 (corresponding to a net dollar value of about $60 million) in FY 84. As Brown et al. discuss, this result argued for funding, though in terms of net utility over a five year period the analysis did not show large differences between funding levels of $10, $20, and $40 million.

5.2 Extensions of the Cost-Effectiveness Analysis

A limitation of the Brown et al. estimate was that it could be seriously biased, if assumptions built into the estimates were erroneous in regard to degree of institutionalization. Were assumptions optimistic or pessimistic?

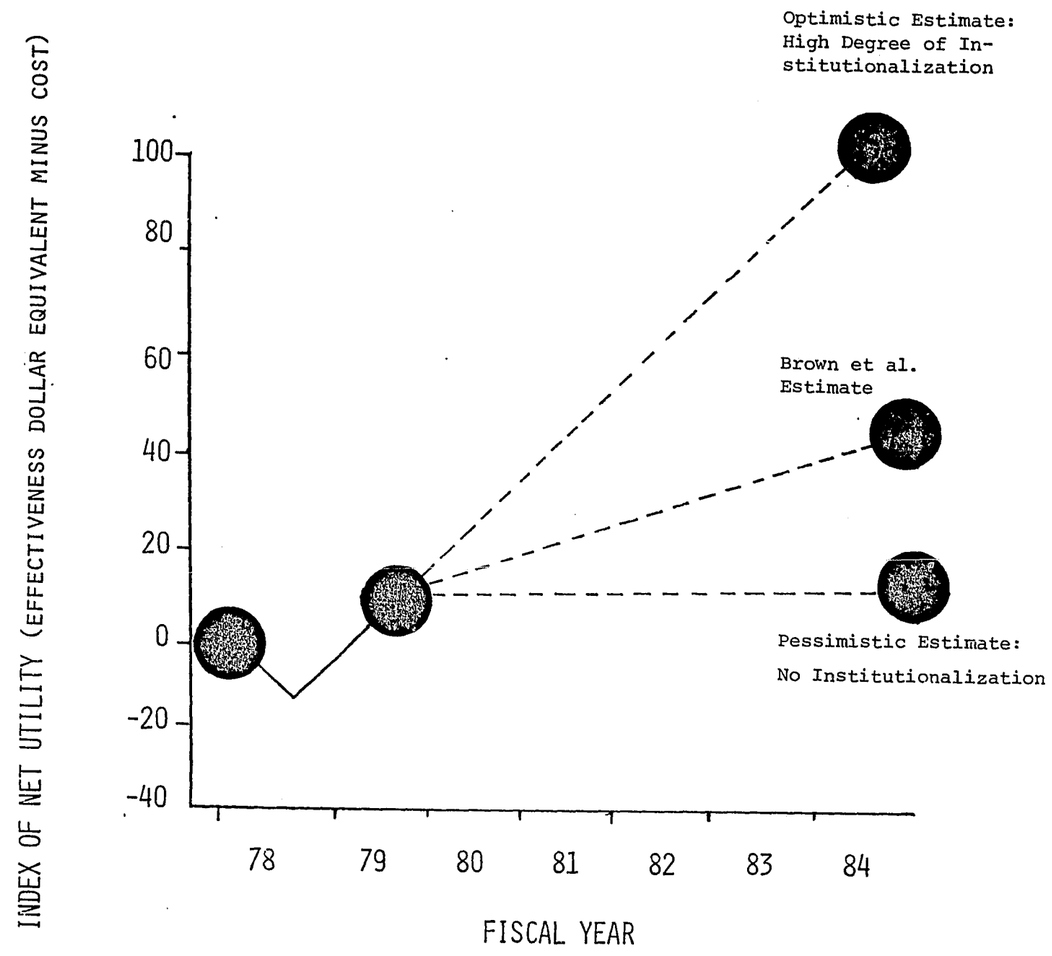
The answer makes a large difference in estimated net utility (i.e., cost-effectiveness). This is illustrated in an approximate way in Exhibit 24. The Brown et al. estimate is shown; optimistic and pessimistic estimates are also shown, based on assumptions of high and low degrees of institutionalization. The pessimistic assessment, for example, is based on the assumption that there are no residual benefits, i.e., that effectiveness drops to zero when funding terminates. If other projects institutionalize effectiveness to a similar degree as our estimates for MACC, the appropriate estimate is about midway between the Brown et al. estimate and the optimistic assessment.

The appropriate estimate of cost-effectiveness in 1984 can be determined from a post-mortem assessment. The approach would be to estimate residual effectiveness from a sample of projects -- much as is shown for MACC in this report -- and to determine which projection is mathematically appropriate.

The foregoing estimation process will be extremely interesting if OCAP and the CAC Program were to continue, despite termination plans. Indeed, if anything, the preliminary analyses we have described in this report offer further indication that the programmatic concept is sound.

The termination of OCAP and the CAC Program notwithstanding, evidence that the programmatic concept is sound is timely. Congressional and Administration figures are in varying degrees open on the final decision about community anti-crime. Moreover, at the state,

EXHIBIT 24



YEARLY NET UTILITY: ESTIMATES
BASED ON ALTERNATIVE HYPOTHESES
ABOUT DEGREE OF INSTITUTIONALIZATION
OF COMMUNITY ANTICRIME CONCEPT

local, and community levels decisions about anti-crime approaches will be -- and are being -- made, as mentioned earlier in this proposal.

Much research and evaluation effort has been devoted to delineating the strategies and processes of community anti-crime. Most decisions, however, will be driven by whatever information or lack thereof there is about whether the efforts are worthwhile.

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