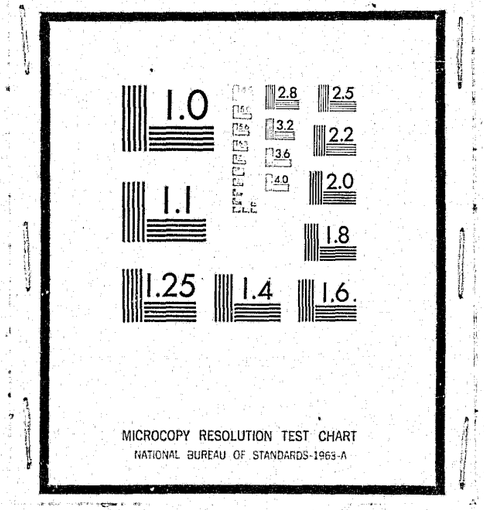

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REVIEW OF COMPUTERIZED INFORMATION SYSTEM PLANNING IN THE MONTGOMERY COUNTY, PENNSYLVANIA COURT OF COMMON PLEAS

THE AMERICAN UNIVERSITY
CRIMINAL COURTS TECHNICAL ASSISTANCE PROJECT
Institute for Advanced Studies in Justice
The American University Law School
Washington, D.C.

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REVIEW OF COMPUTERIZED INFORMATION SYSTEM PLANNING IN THE MONTGOMERY COUNTY, PENNSYLVANIA COURT OF COMMON PLEAS

October 1974

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NOTICE TO THE READER

There is a September 30, 1974 contract deadline for completion of all technical assistance assignments conducted under the auspices of The American University Criminal Courts Technical Assistance Project. Consequently, assignment reports received after August 20, 1974, cannot be edited by the project staff prior to their transmittal to the client agencies, as is our usual procedure. The present report is one of those for which our time schedule did not permit editing. We apologize for any inconvenience this may cause.

Joseph A. Trotter, Jr.
Director
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TABLE OF CONTENTS

I. INTRODUCTION

This is a report on a consultation undertaken to provide guidance to the Montgomery County (Pennsylvania) Court of Common Pleas. This court has been active in urging the development of a state-wide automated data-processing system for courts. Unfortunately, although some state-wide standards have been approved, a state-wide system is not practical at this time. Montgomery County authorities have accordingly moved ahead on three fronts: development of state-wide standards, exploration of the feasibility of a regional approach, and coordination of County efforts under authority of the Court. The Court has appointed Raymond M. Seidel as Coordinator of the Montgomery County Judicial Recordkeeping and Information System. Mr. Seidel is also chairman of a three man state-wide committee for EDP.

The consultant met with Mr. Seidel on September 9-10, 1974 and reviewed plans and procedures for computerization. The procedure followed in the consultation was to review available documentation, observe clerical procedures, meet with county officials, and discuss plans, procedures, and alternatives with Mr. Seidel. All on-site work was done in concert with Mr. Seidel.

The need for consultation, as expressed to the consultant, was threefold:

1. Make recommendations relative to the approach the County is taking,
2. Make recommendations so as to ensure state-wide efficiencies, and

3. Make recommendations concerning a regional approach.

Obviously, each of these recommendations has bearing on the others and, thus, they cannot be considered in isolation. Although it is beyond the scope of a short consultation to produce a definitive plan for the county, much less the region or state, there is a need for general guidance to satisfy the requirement of these three needs. It is the object of this report to provide such guidance.

Notes were taken on-site indicating where emphasis was needed, and this is reflected in this report.

II. ANALYSIS OF THE EXISTING SITUATION

A. The Court and Its Approach

Montgomery County is one of several counties near Philadelphia (Bucks, Berks, Chester, and Delaware are some others). The population of the County is about 700,000 and there are 12 judges on the Court of Common Pleas. (The court of general jurisdiction in Pennsylvania is the Court of Common Pleas. Outside of Philadelphia, Justice of the Peace Courts have limited civil and criminal jurisdiction and hear felony and misdemeanor preliminaries. There are other courts of limited jurisdiction in Philadelphia and Pittsburgh.)

Allegheny, Beaver, Bucks, Delaware, and Philadelphia counties have developed automated data processing systems or have them under development. (Allegheny and Beaver counties are in the western part of the Commonwealth, the rest are in the east. One of these systems (Philadelphia's), utilizes CRT terminals and produces a great variety of reports through automated means, and is commonly regarded as among the more advanced in the country. However, if this trend of independent development on a county-by-county basis continues, the Commonwealth will "incur substantial unnecessary duplicate development costs" (in the words of the Judicial Council) and many operational efficiencies would be overlooked.

Accordingly, the Judicial Council has established a policy "to develop and maintain conformity and compatability in the design, planning, function and operation of computerized systems of recordkeeping." Furthermore, the Montgomery County Court of Common Pleas has appointed Mr. Seidel as

Coordinator with cognizance over recordkeeping systems in the following county offices:

1. Prothonotary
2. Clerk of Courts
3. District Justices
4. Probation and Parole
5. Juvenile Probation
6. Desertion and Non Support
7. Public Defenders' Office
8. Court Administration
9. District Attorney
10. Register of Wills
11. Clerk of Orphans' Court
12. Jury Selection
13. Corrections Department
14. Sheriff
15. Coroner

Executive Services, a Pennsylvania firm, has prepared proposals for automated systems in the Justice Courts and in the Court of Common Pleas. Very wisely, Executive Services expressed disagreement with the approach of simply automating the existing docket (although its report is too strong when it states that most automated court systems transfer the traditional docketing procedure to the computer largely intact). The firm correctly points out that simply automating the docket is not the same as improving it (it may or may not be). Costs and benefits need to be examined before automation is accepted. Several related systems are under development or consideration: one for the Justice Courts; one for the Court of Common Pleas; one in Beaver County; one in Bucks County; a jury system; and a system to prepare juvenile statistical reports. The Court is thus faced with the necessity of coordinating several existing efforts into an overall plan.

The Court is interested in computerization for several reasons. The new rules (180 day rule and 2 year rule) require monitoring cases, and the volume of cases is high. The state is requiring new statistical reports. With

computerization, data for attorneys, the title company, and the public could be available automatically as required. Terminals could be provided for those who routinely access the court's files--the sheriff, registrar of wills, and the title company--thereby avoiding congestion at the files and the problems that result from that congestion.

B. Critique

The good points of the Court's approach far out weigh the bad. In pointing out problems it should be noted that the Court has specifically asked for criticism and it is given in that spirit; given time the Court would undoubtedly have reached the same conclusions.

There is a great deal to commend in the approach the Court is taking. It is proceeding deliberately rather than hastily, it is trying to coordinate the efforts of several counties rather than pursue a course that would require integration of disparate procedures and designs in later years. It is taking pains to make their plans carefully.

The Court is taking a coordinated approach and is avoiding the temptation to simply computerize the manual system. It is hiring someone to develop a system for the county rather than fully depend on outside help.

It has drawn up a list of data elements that is mandatory for those who will automate. It is considering the concept of a central state-owned computer for several counties, with each county having its own mini-computer to process data locally. Mr. Seidel has developed and implemented improved recordkeeping systems for the Prothonotary and for the Clerk of the Court.

However, there are also several tendencies the Court may wish to examine and possibly correct. Apparently, the work to date is not sufficiently documented. Although sufficient for those familiar with the recent history

of the Court's interests, it is not enough for newcomers or outsiders who may need to acquire knowledge of the project in a reasonable period of time. Furthermore, it is easy to forget justifications that were once apparent. A documented plan that starts with today's situation and leads to a fully operational system should be established. Documentation may reasonably be expected to automatically uncover other problems the Court can be expected to face. Because a documented plan is so needed, a major part of this report is devoted to the considerations that are important in such a plan. This approach will help ensure several things:

- o Justifying data needs, rather than simply asking users what they need.
- o Establishing objectives before deciding on computerization.
- o Evaluating alternative configurations for a regionalized system.
- o Establishing a recommended data base on a documented foundation.
- o Ensuring that the Court has control of the processes for which it is responsible.

These are important points, and there is a tendency in any court to overlook them. The last point is particularly important and is discussed more fully below.

III. RECOMMENDED SYSTEM DEVELOPMENT PROCEDURE

This report presents here, and in the apperdices, a systematic approach to computerization for any court. This approach is also tailored in certain respects to the situation today in Montgomery County. In studying this procedure, the Court may wish to tailor it further to its special needs.

The need for a documented plan of action was discussed above. Prior to design or implementation of any application, a court should establish an overall procedure that would evaluate all potential applications as far as can be forseen, the order in which they are to be implemented, and the criteria leading to these choices and by which alternatives will be evaluated.

The following section discusses the essential qualities of such a procedure. It should be emphasized that the procedure that a court uses to bring ADP systems intc being is crucial. It is the most important determinant of system effectiveness and cost. It should be a scientific method of proceeding from conception to improved operations, i.e., objective, systematic, and analytic.

A. Essentials of a Sound Procedure

There are certain parts of a system development plan that are essential to its success. These will be discussed here. The order in which various tasks must be carried out is discussed later. Thus, although the order of some tasks will be apparent in the discussion here, the emphasis here will be on what must be included.

One essential often overlooked is a pervasive, but not too deep, survey of all court organizations and operations, including discovery of problems and their nature (why a study is being considered). Even if one computerizes a part, he should look at the whole before proceeding. The purpose is to avoid an ad hoc approach, where some groups first design a calendaring system, and others a system for conciliation without careful justification. In the long run a court is much better off with an initial study of the whole court, followed by an in-depth study for each application. Prior to conducting in-depth studies in any specific area, a pervasive study of the entire court is important, because without a complete survey important factors might be overlooked, integration of similar operations neglected, and sub-optimization result. The survey need not be deep, but it should cover all parts of a court. The best way to indicate how embrasive a study should be at the outset is to state that it is better to have it too embrasive then to overlook some apparently unlikely but nonetheless important element.

A second essential is for the mission, purposes, or goals of the court to be analyzed so that needs can be defined and proposed systems realistically evaluated. In defining the mission, it must be kept in mind that the current way of operating may be limited by the technology in use. Thus, the question to be asked is: what should the court be doing? It is not: what is the court doing? One looks to new technology. Mission analysis includes defining objectives and choosing criteria for evaluating alternative designs.

A sound procedure also involves study and description of the current operations that are relevant to the objectives of the procedure. This essential is seldom overlooked and sometimes even overdone. It needs to be

emphasized that the object of analyzing the current system is to understand why operations are performed and how they are carried out. In any event, analysis of current operations involves several things. The points at which data are acquired, generated, or acted upon are identified. The flow between them is charted. What action is taken at each point, who takes it, and the data needed are also identified. High volume operations and points where fast delivery of data is needed are indicated, together with measures of volume and allowable response time. Note that the methods needed for analysis of the current system may be different from those used to analyze proposed alternative systems. For example, the technique of interviewing is important in the analysis of an organization's current operations, while simulation may be more useful in analyzing contemplated alternative systems. In general, three methods are available for analysis of existing organizations: study of documents, observation, and conversation.

Another essential is conception, design, and documentation of several alternative methods of operation that can respond to changing needs. Do not focus on the computer prematurely. Look first to the needs and various alternatives that will satisfy those needs. A computer may only then be legitimately selected on the basis of best cost and benefits. In principle one has to examine as many alternatives as can be perceived. Usually many can be eliminated without devoting much time to the task and thus only a few alternatives need to be fully analyzed. Note that this procedure does not tell us how to conceive of alternative approaches; rather it provides a way of choosing among them.

Design of a system that just meets today's needs is insufficient. Such inflexibility means trouble and needless expense. For example, flexible

computer programs should be specified. Otherwise, if a large program is designed and subsequently needs to be changed, the programmer assigned to the task may have difficulty because the program was designed as if it would never go out of fashion and because everyone thought that the original programmer would stay with the organization for the lifetime of the program. It is better to design a programming system as a group of small units so that, if a change is desired, the whole system need not be changed. But any operation can be only so flexible. Therefore, in the words of Peter Drucker (The Effective Executive) "the effective decision-maker. . . asks himself every time, 'If I had to live with this for a long time, would I be willing to?' And if the answer is 'No,' he keeps on working to find a more general, a more conceptual, a more comprehensive solution. . ."

These new designs are analyzed so that they and the current method of operation can be compared. Then one of the methods is chosen (perhaps the current one) according to the criteria established previously, which includes cost considerations. Cost analysis is often neglected. But it is essential in comparing current and proposed systems. There are two basic approaches: either select the lowest cost system that satisfies requirements or select the best system under a given budget. Competent systems analysis will be able to properly carry out such an analysis. A court must insist that it be done. Then the chosen system is developed; it is "built" or created. Equipment is ordered, programs are written, and testing occurs in parallel with current operations. The new operation is put into final form, moved to its final location, and accepted as the old operation is eliminated.

Operation of the new system may mean new personnel, new budgets and new operational problems. The new system will evolve. One should not seek to revolutionize operations, to go into the future in one giant step. This is no excuse for not trying to anticipate future developments, but no one can say with certainty what the system should look like five years from now. One should move into the future in small steps--again plan for change. Fortunately such an approach does not require a sudden, large investment.

In summary, do not plunge into a specialized application without taking a broad perspective embracing overall court objectives. Think through these objectives carefully and establish criteria for judging new ways of operating. Make an overall survey. Compare a variety of alternatives, including simple, low cost techniques. Give some thought to testing and the problems of changing over to the new systems. Plan for change.

As a procedure is followed, commitment to it should gradually increase. Management should not commit itself to completing all steps of a development process at the outset. Frequent opportunities should be provided for the Court to modify the procedure--even to abandon it altogether and revert to the old way of doing things. The Court must be heavily involved in the development procedure. It is, after all, responsible for the operation of whatever system is chosen, and it should therefore have the responsibility to determine what it is to be.

The amount of detail considered should also increase gradually; otherwise investment in the procedure may be too great, too soon. In other words, the technicians should not get too technical too soon. When users can learn about the system as it develops, the transition to operation of a

new system is facilitated. Courts should develop their own understanding of computer systems and their development--at least enough to be confident that they are getting what they want.

The preceding discussion dealt with the essential tasks of a sound procedure. The order of these tasks (i.e., the actual phases, steps, or sequence) may be different, since a procedure is not carried out precisely in the order discussed above. In practice some processes are repeated several times at an increasing level of detail. Such an approach permits the user to make frequent checks on progress before substantial commitment and investment is made. Each repetition may be part of a separate step of the procedure.

There is no one procedure that must be used to achieve success, but a procedure should include the essentials given above. The procedure should be established in advance, with sufficient detail to provide guidance, and be as self-documenting as possible.

An excellent approach is described in Managing Computer System Projects by Shaw and Atkins (McGraw-Hill 1970). The procedure given here differs in some particulars from that described in this report since this discussion has been tailored to the needs of the courts. However, it is based on the work of Shaw and Atkins, as well as that of others.

The results of any procedure must satisfy eight essential qualities of an efficient data processing system: accuracy, timeliness, completeness of output, proper routing, proper use of data, ease of comprehension of output, privacy, and economy. These are the criteria for assessing the performance of a system or evaluating alternative systems. There is some overlap among these

qualities. For example, some hold that accurate records are one answer to misuse or invasion of privacy, or that proper routing implies proper use and protection of privacy.

B. The Nature of a Plan

A project is comprised of all the efforts that lead to the time when the system is fully operational. A project is divided into activities, each with a specific purpose. As noted above, the success of a project depends on obeying certain principles:

1. The initial activities are comprehensive; their coverage of the organization's activities is complete although they will not be detailed or deep. For example, all activities of the court will be studied initially (usually in a gross way) even if it is fairly clear that they will not be part of the final project.

2. Later, activities are conducted in increasing depth, specifying the desired system in greater detail. For example, initially one might state that the defendant's identity must be recorded. Later, this will be further specified in greater detail by listing specific data elements (such as name, address, birthdate). Then, in a later part of the project, the actual format and coding of these data elements will be specified.

3. The results of all activities will be formally documented in increasing detail as the project continues. This provides a vehicle for communication to all members of the project team, to management, and to future personnel who may appear on the scene. The documentation must be complete at any state of the process. Key ideas are: comprehensiveness, gradual commitment, building blocks, document as you go.

4. The amount of detail to be considered and documented, as well as the extent of the project effort depends on the nature of the project. A simple conversion (e.g., from well-documented procedures that are effective except for overload) will not justify the detail that would be required in a new management information system.

5. Ideally the working sheets for recording information during the course of the project would be preprinted, clearly indicating the information to be recorded. Proper design for such forms will result in a minimum of editing before final typing. Similarly the level of detail at any stage of the project is a matter of professional judgment. Indeed a principal skill of systems analysis is their ability to include only the amount of detail at any stage of the process that is needed and that makes economic sense.

A detailed outline for a plan to be used by trial courts in conducting those activities necessary before most technical people can take over the project is presented in the appendix. It consists of three activities, each culminating in a separate report:

I. A Feasibility Study

II. A Proposed System Description and Evaluation

III. A Systems Requirements Activity

C. Regionalization

Regionalization can take many forms. For example, it could consist of separate computers in the larger counties with other computers serving groups of the smaller counties and organized on a multi-county (regional) basis for coordination and reporting. But it could also consist of one (or just a few) computers serving all counties and organized on a state-wide

or regional basis for both automated interchange of data and other procedures. In other words, a particular regional configuration consists of specific answers to the following questions:

(1) What equipment will be in each level of the regional hierarchy (county, region, state)?

(2) Which processes and data will be processed at each level and which shall be shared or passed among them?

(3) How shall authority for administration (including administration of standardization, modification of the system as necessary, and reporting of data) be allotted among personnel at each level?

In short, specifying a regional configuration means specifying a configuration of hardware, software, and administrative authority. Such specifications can and should be the result of a scientific study of the alternatives. Among the factors to be considered are the following:

(1) What are the costs and benefits of different kinds and configurations of message handling hardware?

(2) How will unauthorized access be affected?

(3) How will misuse by persons with authorized access be affected?

(4) How will audit and error correction be affected?

(5) What are the costs of hardware that interconnect the various computers of the system?

(6) What are the costs of lines connecting the various computers of the system?

(7) What are the costs and benefits of different kinds and configurations of computers?

(8) What backup facilities will be provided in the event of failure of one or more components of the system (machine error, machine malfunction, human error, illness)?

(9) Will a given configuration degrade the ability to be flexible that is needed to meet unforeseen needs in the future?

(10) Will sharing knowledge on a regular basis be facilitated?

(11) How will given methods of transmitting data in and among regions affect error rates?

(12) What will be the effect of the organization required for a given configuration?

(13) What will be the political effects?

(14) What new services will be offered counties by virtue of sharing a computer system?

Regionalization has many things to recommend it: sharing valuable experience, facilitating the interchange of data, and technical efficiency. To decide on a regional configuration requires answers to questions of economics, data processing efficiency, and organizational effectiveness.

D. Organizing for Computer System Development and Operation

This section is concerned with organizing to achieve effective use of ADP. Three points seem especially important for any court. These are: First, the court must have appropriate authority and involvement in its ADP activities. Second, the court staff must understand the function carried out by ADP. Third, a court should avoid acquiring permanent personnel for a short run project.

That a court should have the necessary authority and involvement would seem to be beyond dispute. Not only does a court belong to a separate branch of government, but any organization must have authority commensurate with its responsibility. Not only must it have the needed authority as a matter of law, but it must have the staffing to exercise that authority and must be willing to do so. The courts that relegate major portions of computer system development and operation to other agencies or outside experts may

thus acquire systems they think they want but do not need, or pay too much for the results obtained (missing an obvious feature that could have been obtained for less effort or engaging in development efforts that duplicate work already done or that take too long).

County and city administrators naturally subscribe to what Ira Sharkansky has called the spending-service cliche (see his book The Routines of Politics). However, no matter how cooperative a programmer may be, if he works for someone else the programs he writes will be under someone else's control. A court would not permit its secretaries to work for another department. Its data processing activities, too, should be its own. This is perhaps the most commonly overlooked problem in the computerization of the trial courts, and a problem that can yield to consequences that are very grave even though very subtle.

Courts that have depended on other government agencies for operation of their systems have discovered that these agencies commonly award priorities to other jobs such as tax runs or election runs even though the court requires, and was promised, results at a certain time. The courts in this country that have their own computer system staff are those that have made the significant advances in computer use: those in Chicago, Philadelphia, Phoenix, and Washington, D.C. are notable examples. Furthermore, if a court is to exercise its responsibility for its systems it must understand their nature, their utility and problem areas, and how to develop and operate such systems. Some courts that have depended on other agencies to a great extent have not felt it necessary to acquire such knowledge. The result has been that work has been done for them that has remained an unnecessary mystery.

Centralization of computers does not necessarily imply centralization of computer system staffs. A court that has a staff of persons with the requisite knowledge may find it economical to use an outside computer--even using one belonging to another government agency (if it can be depended upon to deliver data on time), or, better yet, by renting time on a computer provided by a commercial service(a very common and successful arrangement).

A court may have its own computer staff and still depend on outside personnel for temporarily needed additions in manpower--as when developing new systems or making major modifications in current systems. In such a case, it may issue requests for proposals from vendors, evaluate the resulting proposals, and choose one vendor to carry out development efforts. A court that pursues such a course should have someone on its staff that can write requests for proposals, be able to evaluate proposals, and direct the efforts of vendors to a successful conclusion.

IV. SUMMARY AND RECOMMENDATIONS

This court is taking a very careful and deliberate approach in its consideration of computerization. It seeks to coordinate efforts with other counties but, at the same time, is seeking the best way rather than slavishly copying other efforts. However, certain needs remain, as described in this report. In summary, the Court needs to do the following:

1. Establish and document a detailed plan that embraces system development from the beginning to the time when the computer system is fully operational. Document the work to date according to the format of the plan developed. This recommendation applies to any system development--county, region, or state.
2. The Court should analyze various regional configurations, focusing on those that give the greatest benefit at allowable budget levels. The Court should seek the precise regional configuration that is optimum using criteria such as those given earlier in this report).
3. The court should give special attention to the organizational placement of the programming staff and the equipment itself. It should make every effort to have these placed under the direct day-to-day authority of the Court itself. The Court should direct its own data processing activities, including programming and computer operation.

APPENDICES

Appendix A

II. ESTABLISHING THE NEEDS

The most common method of determining data needs is to simply ask as many people as possible what they need. The strong probability that with such an approach much unneeded data will be supplied at great cost simply never occurs to many system planners. Need should not be established simply by asking what data is needed. To establish a need requires justification. The purpose of a report should be examined.

One should arrive at the needed data elements by first establishing the decisions that need to be made and the reports needed in order to make those decisions. In some cases, changes in procedures may eliminate both a problem and the need for data to solve that problem. For example, where data is needed to assess a backlog problem, procedural changes may reduce both the backlog and the need for data to attack the backlog problem.

Appendix A

III. MISCELLANEOUS WARNINGS

1. The new system should be used in parallel with the old system until all "bugs" are satisfactorily worked out.

2. Errors will always be made. Therefore an audit and correction procedure must be part of any new system.

3. Change is inevitable. Therefore the new system must be planned to change. Allow for increase in data base size. Flexibility is very important.

4. Economics is not the only criterion for system design. Nor is mandated data the only other criterion. Justice may require certain data, the need to evaluate what the court is doing may require data, and the needs of researchers who are concerned with improving the Court's operations may also require certain data.

5. Standardization has its hazards. While required for coordination of even an effort confined to one court, standardization also may inhibit experimentation that is needed. The degree of standardization and the precise elements to be standardized are matters to carefully considered.

6. A court that converts completely to computerized processing may be very embarrassed when the computer does not work. Backup procedures must be part of the plan.

7. The Court will need to give privacy and security (not necessarily the same thing) careful consideration.

Appendix B

OUTLINE FOR FEASIBILITY STUDY

A. Introduction

Project Description
Reasons for Project (to solve problems, to exploit opportunities)
Benefits or Expected Results
Evaluation of Feasibility--recommendation to continue or not

B. Nature of the Organization

Mission and Objectives of Court
  Jurisdiction, number of judges, workload, and budget (in summary form)
  Mission and objectives of court as a whole
  Mission and objectives of the court--unit by unit
  Locations
Organization Charts
Personnel List--names, titles, functions

C. Needs and Plan

Problems and Unsatisfied Needs
Information Needs
Factors That Would Enhance or Inhibit Satisfaction of Needs
Work Plan for Next Activity

D. Appendix--the following information for each position surveyed

Function
Objectives--criteria for knowing a good job is being done
Problems and Unsatisfied Needs
Information Needs
Uses of Documents and ADP
General Observations and Suggestions
  Factors that would enhance or inhibit satisfaction of needs

Appendix C

OUTLINE FOR PROPOSED SYSTEM DESCRIPTION AND EVALUATION

Analysis of Current System

Additional Interviews, as needed
Job Descriptions
Documents (I/O) Analysis
Functions
Constraints and Controls
Data Elements Lists
Flow Charts

Synthesis of Proposed System

Functions
I/O
Data Elements Lists
Constraints and Controls
Flow
Jobs

Personnel

Position Requirements
Functions
Costs

Computer System Design

I/O
Files
Flow
Runs and Volumes

Costing

Development
Operational
Dollar Benefits
Cost-Benefit Summary

Plan

Project Activities--
  Objectives and Scope
Schedule

Appendix

Interview Results

SYSTEMS REQUIREMENTS

Current System

Jobs
I/O
Files
Flow
  Manual
  EDP
Functions
Data elements to be carried over
Data sets
Definitions of terms as required

New System

Output format
Output description
Input description
Data element definition
Design contraints
Controls
Flow
Manual functions
Summary description

Cost Benefit Analysis

Benefits
Update of previous costing

END