

# A COUNTY CRIMINAL JUSTICE INFORMATION SYSTEM

## A CASE STUDY

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As we survey the nature of the criminal justice system as it exists on the county and municipal levels of government in New Jersey today, and as we observe, in particular, the volume and complexity of the responsibilities and duties of the judicial system, three mandates surface by which our actions in the administration of these systems must be guided.

As a criminal case is moved from arrest through final disposition by the courts, many agencies and departments are involved. The participation of each, historically, has been related to a limited portion of the activity of the criminal case process. The several levels of government and agencies responsible to each are often in a state of undeclared internecine warfare. Symposia such as this and efforts to discuss common problems and common solutions are rapidly obliterating dysfunctional activities. We must look forward to an integrated and harmoniously tuned network for the exchange of information and ideas. Continued failure to interact can only result in continued handicapping of necessary societal functions.

A second imperative inherent in the system deals with the necessity of developing and maintaining streamlined and efficient networks of communication. Agencies and departments must, at some schedule. Duplication of function, which is a form of delay, can be minimized by the intelligent planning of communications requirements. Communications systems require not only a means by which communications are accomplished but an evaluation of those data elements which ought to be captured, retained, studied, evaluated, and ultimately communicated. As more data is accumulated, attempts to synthesize and analyze become increasingly difficult. It is at this point that automation of the information becomes a reasonable step.

The last of these inherent necessities to which I make reference is the employment of human skills in such a fashion as to maximize the returns from energy expended and to maintain simultaneously the dignity and develop the talents of the human being within the bureaucratic process.

To fulfill these mandates is to permit and promote the development of creativity and innovation which are integral to the planning process.

From the perspective of the courts, it has become increasingly obvious that more and more personnel are needed to perform mechanical tasks. Tasks requiring the human critical faculties of analysis and evaluation are often neglected. The human use of human beings will permit further planning and innovative procedures, for example, projective calendaring and personnel allocation. Using electronic data processing devices as our tools, evaluations of rapidly updated facts and information may be made. Planning will be based on verifiable information rather than surmise and guesswork.

The only manner through which these several mandates might be simultaneously accommodated is through the introduction of automated court management systems.

In the development of a pre-automated, minimal information system and the implementation of the computerized system, major changes are to be expected. Whatever changes do occur should however appear to be gradual. This technique is not a sleight of hand. It is, rather, an attempt to gain the acceptance and confidence of the users. As an example, computer generated reports and listings should, insofar as is possible, be formulated as were previous listings. In essence, the outward manifestations of the system need not disclose the extent of underlying change.

The natural inertia existent in most human institutions must also be overcome in the court environment. The system is often permeated with traditions and reliance on precedents. Reluctance to change has been summarized in the quotation: "if you stand well - stand still" which I have seen inscribed on a nearby courthouse, albeit of another day. To work within a framework of a traditional system, a change oriented administrator must set practical resource guides keyed to that environment.

As an Administrator in Passaic County and again in Hudson County, I have had the opportunity for designing, developing and maintaining such systems. Within the first of these settings, we were able, through use of funds obtained from the State Law Enforcement Planning Agency of New Jersey, to complete a study of the court environment. The management study produced in this effort analyzed the systems used to record, communicate, store and retrieve information necessary to process criminal cases through the court system of Passaic County.

Again, through the assistance of federal funds and using as a basis the noted study, the Automated Criminal Court Management Information System of Passaic County was developed. The system employed in Passaic operates in a batch mode requiring the use of a computer center, which center is physically remote from the data collection source, with no teleprocessing hookup. With this system, key punch cards are hand carried to the computer center once week<sup>ly</sup>.

The advantages of this manner of processing are as follows:

1. This system affords greater control of cases
2. reduces clerical effort
3. facilitates scheduling of cases
4. helps control jail population through speedier trials and dispositions.
5. A requisite Court Information Center was perforce developed (which center has led to an overall increase in efficiency).

Some of the disadvantages considered to be present in the operation of the Passaic program are:

1. Long start-up time due to the limited experience of county personnel with data processing.
2. Limited ability to make modifications in the system due to insufficient funding and difficulty in hiring key system personnel.
3. Since this was the first Automated Court Information System in the state, certain conceptual problems related to data collection proved difficult of solution.
4. Lack of standardization in state-wide coding necessitates reorganization in certain areas as standards are developed.

The automated criminal case processing system which is being developed in the County of Hudson has been described as a mini-computer. This system is a real-time system with 10,000,000 characters of storage on a disk, instantaneously accessible. While I will defer to Mr. Robert A. Weber, President of Ultimacc Systems, Inc., Maywood, New Jersey, to present all the technical aspects as to both the Hudson and Passaic County systems, I would like to outline some advantages, from an administrator's perspective, of the use of such a system in the Hudson County environment.

The computer size and minimal environmental control requirements of a mini-system are among

its greatest benefits. The system to be installed in the County of Hudson will be operated in a space of approximately 150 square feet with virtually no special environmental controls.

As a by-product of the size and configuration, we will be able to locate the system within the court house in an area easily accessible to judicial and administrative personnel.

An analysis of the monthly operating cost of a mini-computer and a comparison to a large-scale computer system, comparable in terms of court processing requirements, is illuminating. My experience has shown that similar tasks can be accomplished on a mini-computer at approximately one-half the monthly operating cost.

The savings realized by the use of the mini-computer have enabled the County of Hudson to develop the initial environment as an on-line, interactive system.

The obvious benefits of the real-time system have enabled us to spread more rapidly the communication network to the early inclusion of the police and prosecutor information sources and requirements.

Having learned several lessons from the development in the County of Passaic, the system design and programming in the County of Hudson will, as we believe best, proceed in a modular fashion. The experience of Passaic County also taught us that the retention of a systems analyst/programmer on our own staff was not, and is not, a luxury but should be considered a prerequisite in the earliest stages of analysis.

The definition of requirements in the computerized effort is probably the largest single task to be confronted. With a systems analyst/programmer as a staff member, an investment is made into the future. The individual brings with him the discipline of his previous work and gradually becomes familiar with the language and requirements of the courts, as well as an "insider" in the particular court community. Few consultants can provide this type of total service.

In the development of the Passaic County system, it was recognizable that periodic meetings of what was called an "information systems" committee, consisting of all significant actors in the criminal justice system, were to be beneficial for the exchange of ideas and the construction of the system. This approach has been adopted in the County of Hudson with significant results.

During the feasibility stage of the project, the experience gained in Passaic County in the establishment of a Court Information Center was drawn

upon. This center, once established in the County of Hudson became the focus of calendaring responsibility. Without this perspective, efforts to have developed such a function within the county, perhaps, would have been long delayed and less well-conceived.

The system being developed in the County of Hudson is oriented toward the future. It is flexible and expandable. We anticipate in the near future the extension of operations in an automated environment to budget control, personnel files, resource allocation, and simulations. The availability of a staff systems analyst/programmer will in these projects minimize our reliance on outside resources.

In summary, I would wish to present the following suggestions regarding the design and initiation of court-dedicated automated systems:

- Number One: Conceive the system *in toto* (insofar as is possible) and not as a patchwork job on an existing system.
- Number Two: Develop a design schedule which will permit modular implementation.
- Number Three: Gradually automate the system as it becomes economically feasible.
- Number Four: Structure the system so as to permit its control by information center personnel.

This paper describes two information system implementations for two County-level Courts in the State of New Jersey. We will discuss some of the benefits achieved and the problems encountered in the hope that our experience will benefit other Courts.

Both Passaic and Hudson Counties, being large and highly urban, have a proportional number of cases and a growing backlog. The workload required for scheduling, calendaring, printing of tickets and warrants, administrative monitoring and recording, and record keeping for statistical and historical purposes has increased in an even greater proportion.

New Jersey, showing concern and insight into this monitoring and control problem, planned for a model system development effort in Passaic County beginning in 1970 to be operational in 1971. From this basic system has evolved additional innovative concepts designed to stop the increase in backlog of cases and to reverse eventually the trend or finally erase the backlog altogether.

## SYSTEM CONCEPT

The judicial process is viewed as a series of milestones or events, leading from arrest to sentencing and post-conviction processing. These events are displayed in a highly simplified manner in Figure 1. The complexity is largely a result of plea changes,

related cases, motions, and downgrade activities. The steps considered in the automated system are:

- Arrest
- Magistrate preliminary hearing
- Jail-bail action
- Probable cause hearing
- Grand Jury
- Warrants
- Arraignments
- Motions
- Trial
- Sentence
- Post-Sentence

These events in the processing of a case can be further reduced to the diagram in Figure 2. Reports of the results of a particular event, e.g. plea results at arraignment, are combined with all cases at this processing point to produce a worksheet for the next milestone. This worksheet is used by the Court staff to schedule specific cases at specific times. For example, Grand Jury "results" (i.e. indictments, dismissals, downgrades) are published. This information, combined with all other cases awaiting arraignment, is consolidated on the "awaiting arraignment worksheet". The schedule developed by the computer is verified by the Court administrative staff to produce an arraignment list. The results of arraignment (i.e. pleas) are posted to either the trial worksheet or the awaiting sentence worksheet.

There are a number of supplementary reports drawn from this primary information flow. These include jail lists organized by the time awaiting a particular milestone, or the time between milestones. Historical information is consolidated for a case and for all cases associated with an individual.

## THE PASSAIC SYSTEM (LARGE SCALE COMPUTER)

This project was directed towards a batch-oriented, COBOL (Common Business Oriented Language) implementation on a large scale computer for the following reasons:

- a. Budgetary limitations.
- b. The desire to introduce data processing in an evolutionary manner.
- c. The requirement that the programming language be compatible with any computer that the County might acquire in the future.
- d. The "state-of-the-art" of minicomputers at that time, that is, the technology was still considered to be "shaky".

It was recognized by all involved that there was a requirement for inquiry-response and fast turnaround of reports, suggesting an on-line capability. The size of the file (and associated storage costs) precluded the use of time-sharing. A stand-alone on-site computer facility was not in the budget.

Hence a batch operation appeared to be the necessary alternative.

The system is currently implemented on a System/360 Model 40 operating under Disk Operating System. The programming language used is COBOL.

The computer configuration requires 128K bytes of core storage, 3 Type 2311 disc drives, and 6 tape drives. This configuration could be reduced to a 64K byte core memory and to four tape drives with minor changes.

One of the primary goals of the software design was to keep the programming logic as simple as possible. This recognized that the system would undoubtedly require many changes as experience was gained in its use. Surprisingly, the changes have been largely cosmetic, that is, in the form and content of the reports. More recently, the Court Administrator has directed additions to the logic to obtain new information.

Since input is by keypunched cards and there is a stringent requirement for accuracy of data, an elaborate editing program processes the data before it is added to the file. Further, certain "worksheet" type reports are designed so that minimum data need be added to use the report as a data entry form.

The reports available from the current system are tabulated in Table 1. A list of the data elements in a defendant-case record (Table 2) provides insights into the level of detail of the system and the types of information which can be extracted.

## FILE STRUCTURE

It is necessary to relate a defendant to all cases in which he is currently (and perhaps historically) involved. The problem of identifying a particular defendant is not a trivial one; this is the major processing function in many law enforcement information systems. After several attempts to use combinations of name, date of birth and physical characteristics, it was decided to "render unto Caesar," that is to place the problem of identification in the agency best suited for this problem, namely, the County Identification Bureau. The automated system would then use the County "I.D." number.

Unfortunately this identification is not available immediately and a number of events may occur and be recorded before a specific reference to the defendant can be obtained. Hence the system allows use of a "temporary" I.D. number which, when changed, links all of the data to the "permanent" number. This method has proven effective

and assured unique identification of defendants.

Each case associated with the defendant is linked to his "header" information. This linking represented a difficult information handling problem, given that the logic and file structure had to be simple and easily changed. At the time of arrest there may be a variety of charges organized on several forms. As the case proceeds through the judicial system, these charges may change, multiply, be dismissed, or be combined. There may be several counts on the same charge. Further, the prosecutor may assign a docket number to several charges and often several co-defendants. Several indictment numbers may arise out of one charge or at the other extreme, one indictment number may refer to several defendants with several charges each. An "audit trail" must be maintained to trace the origin of a particular defendant-charge combination.

The Passaic System has been operational for more than a year. It is still undergoing change and significant effort is being expended to design supporting manual procedures and standards.

By highlighting exceptions, the system provides the Assignment Judge and his staff with information to identify cases being delayed and unusual bail actions. By organizing and categorizing cases, cases can be handled more efficiently. By alerting and scheduling ancillary functions, e.g. pre-sentence investigation needs, cases are not delayed for this information.

## COORDINATION OF PROJECT GOALS

The relationships between the judicial and administrative functions of the Court, its ancillary agencies (Sheriff, Prosecutor, Public Defender, Warden, Probation, Grand Jury) and the municipalities served are sensitive ones, particularly in the area of information transfer. At the outset of the project, a meeting was called by the Court Administrator to explain and coordinate the goals of the automation project. In addition to the above mentioned agencies, the Chiefs of municipal police departments were invited to attend. The results were well worth the effort. The meetings became a weekly institution.

The sense of participation by these agencies in a pioneering effort was crucial to the success of the project. At a procedural level the meetings highlighted problems in current information flow. "A always thought B did it." "A needed a particular piece of information before he could produce information required by C."

Further, this participation resulted in a depth of understanding of the actual process and constraints by the vendor's systems staff which could not have been achieved through typical systems "interviews." During the meetings, the Court personnel came to understand the capabilities and constraints of automation; the net result was cooperation.

We wish to emphasize the importance of early coordination with all agencies that will be involved in an automation effort.

### INFORMATION CONTROLS – THE COURT INFORMATION CENTER

Information on cases, defendants' histories and personal data must of course be carefully controlled and privacy considerations maintained. There is always a tradeoff between file security and ease of use. On one hand the information must be readily accessible to those who require it; on the other hand, access must be limited. The solution in this system was the organization of an Information Systems Officer who served as the single point of contact to the automated files. All reports and requests for data flow through this office.

Although this approach has been successful in the "batch" operation currently in use, it will not be possible in the new on-line interactive system. In this latter system access devices are available to several functions. Here, advanced hardware and software privacy techniques must be employed to maintain control and privacy. Specific terminals will be limited to specific data elements. Use of passwords and access authorizations will be necessary.

Since the planned file structure will maintain an integrated record on an individual or on a case, control will be exercised at the data element level. That is, a particular function (e.g. Prosecutor) will have an *INFORMATION PROFILE* that defines the specific data elements that the function is allowed to access automatically. Requests for data outside of this profile will flow through the Court Administrator.

This concept of an information profile will be particularly important as remote terminal use becomes widespread.

### FILE CONVERSION

This activity was one of the primary causes of delay in the systems implementation. During the systems analysis and programming phases of the project, samples of data were taken from the files as "live" test data. But it was not recognized at the time that many cases were (1) not fully described

in the records and (2) that considerable research would be required to obtain this information. Since the value of the system depended to a large extent on the availability of a comprehensive data base, a major conversion effort was undertaken by the Court personnel.

Several observations are made which may be of interest to future automation efforts.

a. The conversion of data was excellent training for the operations personnel as it represented a bridge between the familiar and the new system.

b. Conversion was a useful introduction to the discipline required in an automated system, and to the meaning of each field.

c. The necessary "purification" of data for entry into the automated data base highlighted certain missing information and inconsistencies. The initial machine listings proved useful to various Court activities independent of the actual processing.

d. The extent of time and dollars required for conversion and associated research was not foreseen. The resulting delay impacted on the credibility of the system in its early stages.

e. In hindsight, it would have been valuable to convert files based on Court processing phases. That is, first convert all files associated with cases awaiting sentence. Then convert files for cases in and awaiting trial, and so forth, moving "backward" toward arrest records. Using this technique, useful results would be obtained from the system immediately.

f. A careful analysis of the form and content of existing data must be accomplished as part of the initial system design. System processing cannot be based on information that is not (and probably will not be) available. A detailed conversion plan should be developed, identifying the specific activities to be performed by Court personnel and by the vendor. A budget for additional personnel during this period should be considered.

g. An on-line data editing capability would have been very effective. The need to process punched cards and control records was a difficult administrative burden and increased the response time and control on error correction.

### HUDSON MINICOMPUTER-BASED SYSTEM

This integrated system for the Hudson County Court is based on the proven hardware components used in ULTIMACC installations as well as in other applications.

Specifically, the system configuration proposed is:

NOVA 1200 with 16K words (32K bytes of core storage)  
Automatic program load; power monitor and auto restart  
2 CRT display and keyboard terminals  
Disc controller and 2 drives, with 10 million characters (one fixed and one removable platter per drive)  
300 line per minute, 132 column chain printer  
Magnetic Tape Unit, 9 track, 800 bpi industry compatible  
Card Reader, 200 cards per minute, 80 column.

This configuration is expandable to accommodate a variety of other peripherals and additional storage. Core memory is expandable to 65K bytes and disc storage is expandable to 20 million characters.

Low or high speed telecommunication lines can be accessed.

We have chosen a disc unit with removable platters so that files can be readily copied for safe-keeping.

The primary advantage of this system is the availability of interactive displays and instantaneous access to files. The magnetic tape is used to store historical records, whereas the discs provide on-line storage. To the operator, the system is similar to working with a time-sharing terminal. However, the economies of on-site storage media and printing facilities enable large files to be maintained.

There are numerous ancillary agencies to be served by a Court System — Probation, Sheriff, Municipalities, etc. Consideration should be given to future installation of terminals at these locations. The minicomputer configuration herein proposed by Ultimacc Systems can be augmented with

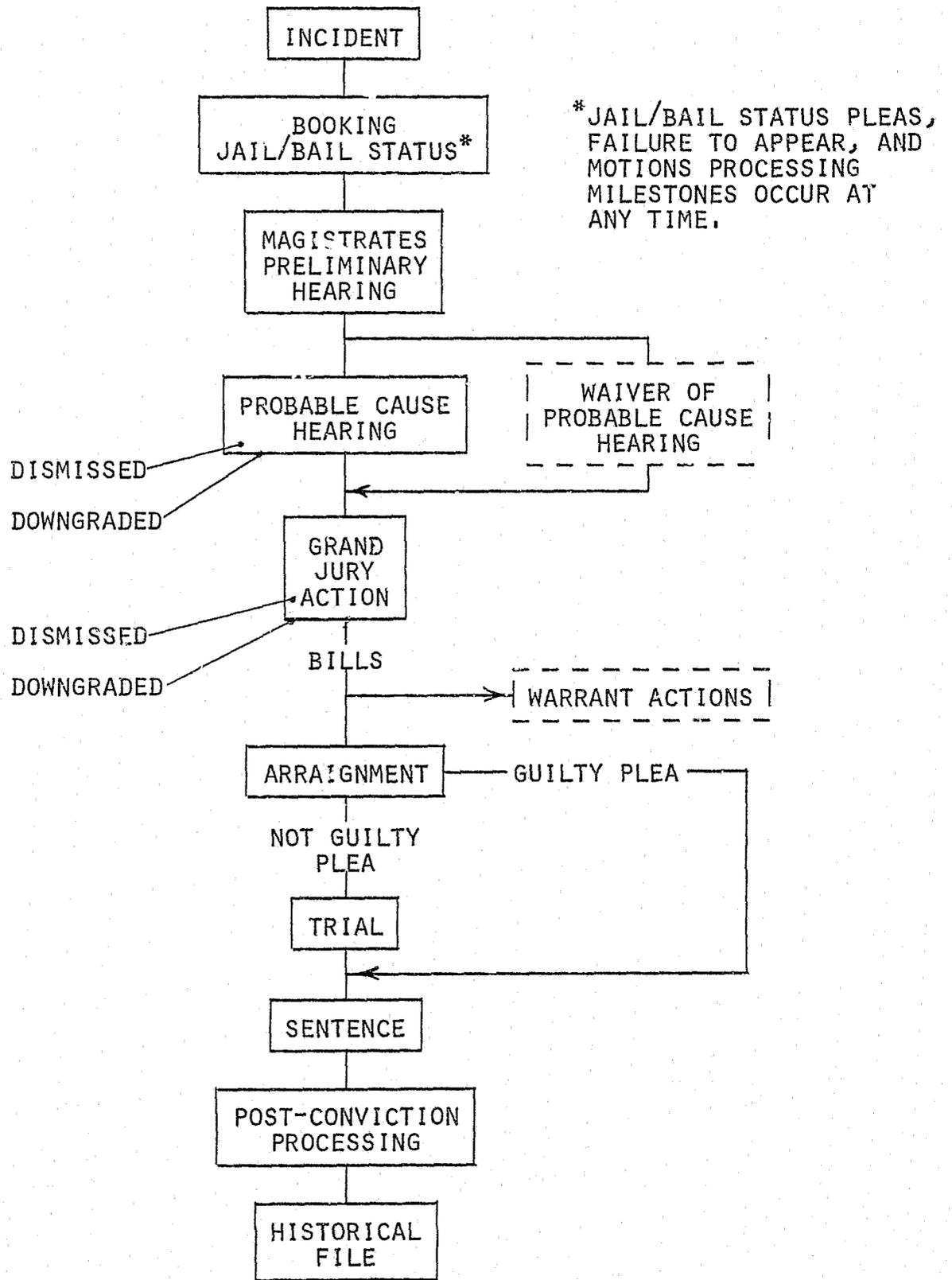
communications interfaces and software to work with a relatively large number of terminals. These terminals could be CRTs, Teletypes, Magnetic Card Selections or any of a wide range of low speed asynchronous terminals.

The technical constraints are several. It must be determined whether these remote terminals are to be (1) connected "full-time" to the computer or (2) can dial up a connection or (3) can wait for a few minutes to be "polled".

The minicomputer proposed can accept up to 31 terminals; however, if these were simultaneously operating there would be delays up to several seconds. Further, each terminal requires an interface or a portion of an interface, which becomes expensive.

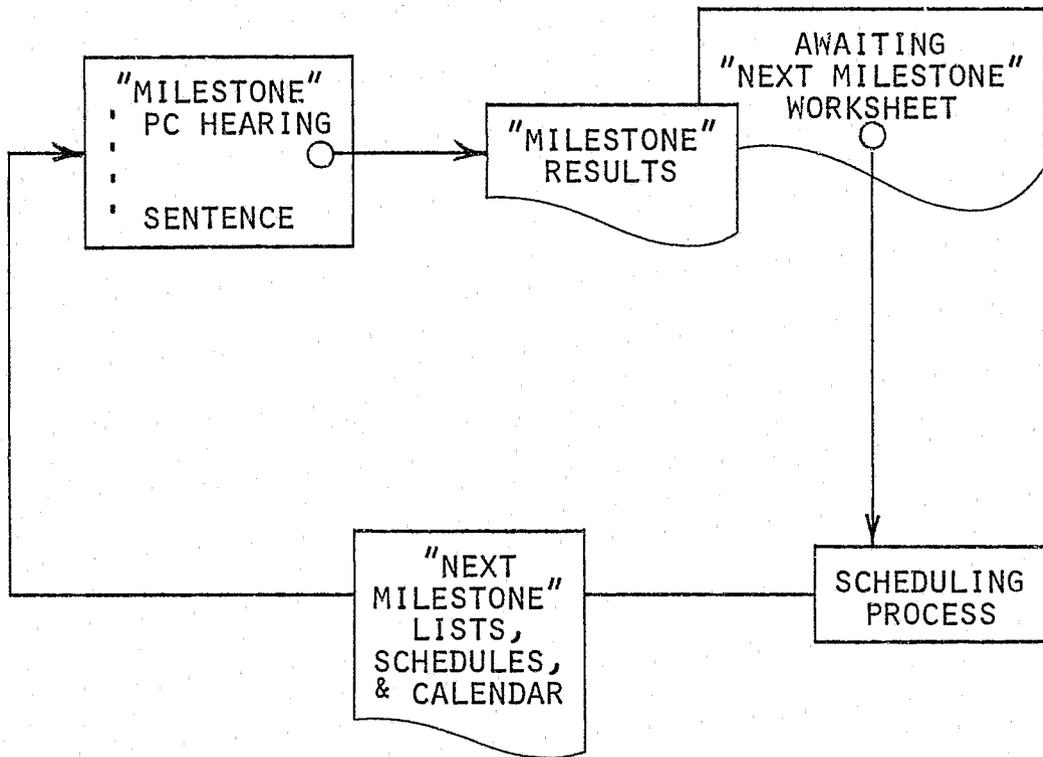
A more economic approach is to consider "ports" to the computer dialed by telephone line. Eight ports might adequately serve some 20 users with a low probability of blocking. In this type of operation, a user would dial the computer over the County telephone system and would then occupy a port for the duration of his inquiry-response or data entry. If more than eight users then requested service, the last users would be blocked until one of the eight released a port.

Use of certain existing or planned County terminals such as the Magnetic Card Selectric Typewriter are also economic when the total spectrum of applications is considered. Excellent hard copy for reports can be produced on these terminals. When not connected to the computer, these can be used for normal or power typing functions.



SIMPLIFIED MILESTONE CHART OF CRIMINAL CASE PROCESSING

FIGURE 1



CYCLE OF MILESTONE SCHEDULING AND REPORTING

FIGURE 2

TABLE 1  
REPORTS AVAILABLE FROM SYSTEM

PROBABLE CAUSE WORKSHEET  
PROBABLE CAUSE RESULTS  
GRAND JURY WORKSHEET  
GRAND JURY REPORT - BILLS  
GRAND JURY REPORT - NO BILLS & D  
GRAND JURY REPORT - ACTIVE  
GRAND JURY REPORT - INACTIVE  
ARRAIGNMENT WORKSHEET  
ARRAIGNMENT LIST - PLEAS  
ARRAIGNMENT LIST - DEFERRED  
TRIAL SCHEDULE WORKSHEET  
TRIAL LIST - JUDGE AND SEQ NO  
TRIAL LIST - COURT RESULTS  
MOTIONS - JUDGE AND SEQ  
SENTENCE WORKSHEET  
SENTENCE LIST - BY JUDGE  
JAIL/BAIL STATUS LIST  
RELATED DP CHARGES  
MUNICIPAL JAIL LIST  
TIME ELAPSED REPORT  
INDICTMENT LABELS  
DEFENDENTS IN FILE - ALPHA ORDER  
DEFENDENTS IN FILE - CTY-ID ORDER  
N.J. STATISTICS  
RETRIEVAL FUNCTION  
DEFENDENTS HISTORY REPORT

DEFENDANT'S INFORMATION

TABLE 2

DEFENDANT'S NAME	JAIL/BAIL STATUS
PERMANENT COUNTY-ID	BAIL AMOUNT
AKA (MULTIPLE)	PROBABLE CAUSE DATE
ADDRESS	PROBABLE CAUSE RESULTS CODE
SPOUSE	PROSECUTOR DOCKET NUMBER
EMPLOYER	ASSOC. INDICTMENTS & COMPLAINTS
FATHER	DETECTIVE/INVESTIGATOR
MOTHER	GRAND JURY RESULTS CODE
DATE OF BIRTH	INDICTMENT CHARGE
BIRTHPLACE	WARRANT/SUMMONS FLAG
RACE	INDICT DATE SUMMONS/WARRANT SERVED
SEX	INDICTMENT SERVICE CODE
SOCIAL SECURITY NUMBER	ARRAIGNMENT DATE
MARITAL STATUS	PLEA CODE
STATE BUREAU ID NUMBER	RETRACTION INFORMATION
FBI NUMBER	MOTION INFORMATION
ATTORNEY	COURT PERSONNEL FOR EACH MILESTONE
ATTORNEY'S ADDRESS	TRIAL RESULT CODE
SURETY COMPANY	TRIAL DATE (BEGAN)
SURETY ADDRESS	TRIAL DATE (TERMINATED)
CHARGES (MULTIPLE)	SENTENCE DATE
ARREST DATE	SENTENCE TERM
MUNICIPALITY ARRESTED	INSTITUTION
MUNICIPAL DOCKET NUMBER	SENTENCE FINE
COURT DISPOSITION REPORT NUMBER	SENTENCE PROBATION
COUNSEL TYPE (PUBLIC DEFENDER, PRO SE)	POST SENTENCING INFORMATION



**END**