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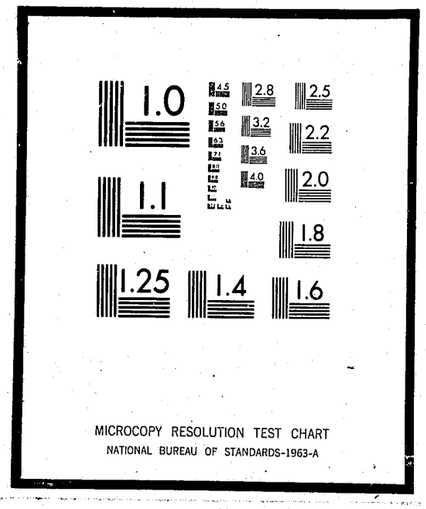

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DIVISION OF CRIMINAL JUSTICE

A BRIEF REVIEW

OF THE

COLORADO CRIME INFORMATION CENTER (CCIC)

A BRIEF REVIEW OF THE COLORADO CRIME INFORMATION CENTER (CCIC)

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I. INTRODUCTION

Purpose of the Study

The Division of Criminal Justice, in cooperation with the federal government (LEAA) under P.L. 90-351* has contracted with subgrantee, Colorado Bureau of Investigation, a multi-jurisdictional agency, for the design and implementation of a Colorado Law Enforcement Information System, a statewide communications and information service. The purpose of the Denver Research Institute (DRI) study was to provide a review of the developing system in terms of its goals as proposed under Grant #70-DI-(4)-P (and its continuation grants) for the four year period from calendar 1970 through 1973, and to report these findings to the Division of Criminal Justice.

The objectives of the study were defined to emphasize the evaluation of the design and development of the Information System, rather than a definitive evaluation of contractor performance. That is, although performance was necessarily implicated in the evaluation of system implementation, the objectives did not include a critical study of contractor management or spending. The system was reviewed in terms of contracted goals and timetables and the necessary associated system development. The deliverable product of the study is this document that reports on the overall functioning of the system. Included in the review was attention to accessibility of data, accuracy and currency of information, compatability with other local and federal crime information systems, security-privacy considerations, production of summary statistics, and capability for system self-evaluation and modification. Excluded from the evaluation was a critical appraisal of the selection of equipment purchased under the subject grants.

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*Omnibus Crime Control and Safe Streets Act of 1968.

One additional objective of this report is to provide a single repository of descriptive information on the present and developing capabilities of the Colorado Crime Information Center (CCIC) as it affects effective law enforcement. While this information is not provided with the necessary detail for system utilization (the function of a User's Manual) it does describe each of the features of the information center.

The evaluation was intended to be comprehensive in scope (comprehensive with regard to all of the system features and requirements); however, it should be noted that the limited financial resources allocated by the Division of Criminal Justice to the study restricted the amount of substantiating data that could be collected and analyzed.

Data Sources

There were seven sources of data used in the evaluation process:

(1) Project goals as specified in Grant Proposals dated from November 1969 to January 1973;

(2) CBI Quarterly Progress Reports from first quarter 1970 through last quarter 1973 and interviews with the CBI Project Director;

(3) Interview with UNIVAC representative;

(4) Attendance at CLETS Board of Director quarterly meeting in March 1974;

(5) Results of approximately 100 returns of a questionnaire survey sent to user agencies throughout the state;

(6) In-depth interviews and site visits to selected Metro-area terminal users; and

(7) Miscellaneous system documentation and pertinent literature.

Information from each of these sources was integrated in the analysis of the system, as reported in Section II of this report. Project goals from

(1) above were used as guidelines for preparing the questionnaire and conducting the interviews, however, in both instances respondents were asked for overall impressions of system progress, system utility, and for any other comments they cared to make regarding present and anticipated features as well as management procedures.

Performance criteria were measured in terms of both service time (hours during which the system is available) and response time from query to reply, as well as content and availability of data.

Organization of Report

Following this Introduction is Section II, the elaboration of system features in terms of contracted goals. Section II presents a tabular summary of each of the system components with planned and actual completion dates and some brief comments on its operation. In the pages that follow, and with parallel numbering, is the full discussion of each element in terms of the data gathered. Also included in this section is a review of the complementary activities necessary to support the attainment of specified goals. The Conclusions and Recommendations Section (III) presents recommendations not only as they apply to system components but also as the system fits into the entire process of law enforcement. Some repetition of findings necessarily exists under different headings in Sections II and III so that each subheading will be substantially complete. Finally, an Appendix is included to provide more specific data on questionnaire responses analyzed by selected parameters of interest: distance from Denver, terminal or radio access, etc.

Summary of Findings

Even a preliminary examination of project goals and accomplishments during the past four years reveals that there have been several delays and postponements

experienced relative to goal projections. Even though this is the case, and although there are several "bugs" in the present system that need revision and correction, the one most general impression received during the course of this investigation was that the system is wanted, is well utilized, and is considered to be a necessary tool in the process of law enforcement. Particularly appreciated is the capability for rapid inter- and intra-state communication.

Another major finding resulting from this study also concerns the user population. Relative to a climate of informed involvement and participation in system development, there appears to be essentially two separate agency populations: the Metro-Denver terminal users and the non-Metro agencies with radio access. Because of the high incidence of terminal users in the metro area, it was not entirely clear which of the two conditions (proximity to Denver or terminal use) accounts for the dichotomy but there appeared to be considerably more appreciation of system components and more patience with system imperfections among those in the metro-terminal group, and occasional expressions of isolation among other state users.

Specific recommendations, found in Section III, have mostly to do with training needs, security and privacy provisions, and the need for detailed plans for new program designs and for implementation of the required programming corrections. A detailed management plan, in addition to aiding in efficient performance, can assist in the avoidance of unrealistic expectations of immediate problem resolution upon the delivery of the new computer equipment, expected during 1974.

An additional aspect of new feature design was probed during this study. When questioned about new developments, it was the unanimous response among those

interviewed that with the inclusion of the Colorado Criminal History file, the major emphasis should be on perfecting the present system, upgrading terminal equipment, reducing downtime, automating interfaces, etc., prior to the development of more sophisticated but less essential new capability, e.g., graphics terminals for photograph and fingerprint transmissions. It was the conclusion of this study, however, that more statistical program capabilities built into the system would permit better and more rapid evaluation of new features and could yield valuable law enforcement instruments. The anticipated uniform crime reporting capability should be developed with these needs in mind.

II. PLANNED OBJECTIVES AND SUPPORTING ACTIVITIES

The data collection procedures were conducted to develop an evaluation of each of the proposed objectives of the Information System as well as to yield an evaluation of user acceptance and system utility for law enforcement personnel. This Section is thus organized into separate discussions of (1) proposal stated goals with data on progress and/or completion dates as well as user and developer comments on performance, and (2) support activities that were not specifically itemized as contracted goals but represent areas of activity required for the attainment of overall project goals.

Proposed Goals

Table II.1 on page 7 lists eleven separate elements that comprise the specific proposed goals of the contract grants for the four year period from 1970 through 1973. These goals are reproduced verbatim from the 1973 grant proposals; however, each of the goals appeared in earlier proposals as reflected in Table II.1. A full discussion of the data gathered in each of the element areas follows. User and developer comments are integrated to explain inconsistencies in proposed and actual completion dates and to present an up to date performance evaluation of system components. Questionnaire responses from throughout the state are analyzed separately and in more detail in the Appendix to this report.

TABLE II. 1

PROGRESS SUMMARY

PROPOSED GOALS	PAGE REFERENCE	PROPOSED 1970	1971	1972	1973	IMPLEMENTED MONTH-YEAR	COMMENTS
1. **Message Switching-CLETS: "Incorporate the Colorado Law Enforcement Teletype System into the computerized CCIC."**		✓		✓	✓	3/72	message switching implemented; need for indication of receipt of message
2. **Message Switching-NLETS: "Implement the interface of the Colorado Crime Information Center computer with the National Law Enforcement Teletype System."**		✓		✓	✓	1972 (TEMP)	automatic interface can be adapted from other states--not highest priority
3. **Information Files-CCIC: "Establish the following computerized files including indexes in the Colorado Crime Information Center:** A. Wanted Persons B. Stolen Vehicles and License Plates C. Stolen Firearms D. Stolen Property		✓		✓ Additions	✓	2/72	implemented and in use; corrections of performance problems postponed until back-up computer is operational unless necessity outweighs system downtime
4. **Automatic Interface-NCIC/CCIC: "Implement the National Crime Information Center Automatic interface to permit all CCIC terminals direct access to NCIC file."**		✓ (non-autom.)		✓	✓		non-automatic interface operational
5. **DOR Interface: "Implement an improved interface with the Department of Revenue computer to permit more rapid access by each CCIC terminal to information relative to motor vehicle registrations and driver licenses."**		✓ license plate inq. only		✓ driver's license	✓	1971-1973	DOR interface first implemented during 1971; additional interface queries operational during 1973

TABLE II.1 (cont.)

PROPOSED GOALS	PAGE REFERENCE	PROPOSED 1970	1971	1972	1973	IMPLEMENTED MONTH-YEAR	COMMENTS
6. Criminal History-CCH: "Implement the computerized Colorado Criminal History file and its interface with the National Criminal History Index maintained by NCIC, thus permitting access by each CCIC terminal. The following data would be available: A. Arrest B. Complete Arrest Record C. Caution Indicators for each Arrestee if Applicable D. Present Status in Criminal Justice System E. States Holding Criminal Record F. Date of Last Up-Date to the Record			✓	✓	✓	1. program substantially implemented 2. histories 7% completed	criminal histories taken incorrectly; being redone in 1974; new security regulations for CCIC users will have to be established
7. Interface DCIC: "Implement an interface between the Colorado Crime Information Center and the Denver Crime Information Center (DCIC), thus permitting access by the DCIC terminals to all CCIC files, eliminating the need for three types of terminals (NCIC, DCIC, CCIC) at the Denver Police Headquarters. Part of this interface will involve entering all qualified Denver Police records into the CCIC files, and the significant reduction in time and effort spent to make queries of both State and National files."		✓		✓	✓		not crucial to DPD; this is a low priority effort

TABLE II. 1 (cont.)

PROPOSED GOALS	PAGE REFERENCE	PROPOSED 1970	1971	1972	1973	IMPLEMENTED MONTH-YEAR	COMMENTS
8. Training: "Presuming a final total of at least 80 terminals on the system, with 24 hour operation at each terminal site, about 420 terminal operators will be trained statewide. The orientation and training of each of these persons will be the shared responsibility of CBI and the local employing agency."					✓	1. CCIC operating manual 2. Training classes for terminal operators	manual is out of date; up-dates are being distributed over terminal system
9. New Program Plans: "Plan for new programs to be designed and implemented in the CCIC system during the years 1973 to 1977."				✓	✓		although no "plan" was evidenced, several new tasks have been defined for future implementation
10. ASR-28 Replacement: "Plan for replacement for ASR-28 teletypewriter terminals with Uniscope 100 type video terminals and begin implementation of that plan."				✓	✓		new terminals are continually being installed but there is no evidence of an overall plan; terminals will be replaced simultaneously once funding is available
11. 5-Year Plan for Additional Terminals: "Complete a five year plan for location of additional terminals on the CCIC system to provide effective statewide coverage and begin implementing that plan. . . Presuming a final total of at least 80 terminals on the system. . ."				✓	✓		currently terminals are located by application to and approval of the CCIC/CLETS adivsory board.

1. CLETS: "Incorporate the Colorado Law Enforcement Teletype System into the computerized CCIC."

This has been a stated objective since the 1970 proposal. Completion was effected first quarter 1972. The CLETS system supports message switching on the terminal network within the state of Colorado.

System response time is highly related to the terminal network hardware. Agencies with video terminals and high speed lines report that they encounter no problems with this application. However, an agency with a teletype on a shared circuit has the problem that its terminal is totally unusable during the time that a message is being sent to other terminals on that circuit. A message must be sent sequentially to each terminal on a circuit and during this time none of the terminals can be used for queries or entries on the CCIC system. Service messages have been eliminated from slow circuits and it is reported that APB's will be intercepted and screened in order to increase response time until the system has been upgraded.

2. NLETS: "Implement the interface of the Colorado Crime Information Center computer with the National Law Enforcement Teletype System."

This has been a continuous effort since the 1970 proposal. Implementation of a temporary interface was reported for the 1972 grant period.

The implementation of an automatic interface is not considered to be a major effort because it is currently under development by the state of Pennsylvania (Pennsylvania has virtually the same hardware configuration as Colorado) and their system can be easily adopted.

The current interface is non-automatic, that is, a message going out-of-state is not automatically switched by the computer. All NLETS messages routed out-of-state are sent to an ASR-28 teletype (TTY) at the Denver office of the

Colorado State Patrol. The TTY operator then tears the message tape, converts the code from 5-level to 8-level code, to make it compatible with NLETS receivers, and feeds the converted tape to the Phoenix NLETS terminal to be relayed to its specified destination. The system is generally slow and until recently was limited to one addressee per message. In the past, some problems existed with this procedure because messages could be censored and discarded by Phoenix without notification. For example, Phoenix will not send a nationwide APB NLETS message. Messages are also limited to 12 lines including line feeds. Currently, however, the Phoenix terminal makes a notification of all discarded messages. An automatic interface is projected to be implemented after the installation of the new UNIVAC 418-III back-up computer. A new message dictionary is currently being coded towards this goal.

3. CCIC Files: "Establish the following computerized files including indexes in the Colorado Crime Information Center.
   A. Wanted Persons
   B. Stolen Vehicles and License Plates
   C. Stolen Firearms
   D. Stolen Property"

The creation of these files has been a continuous effort since 1970. The 1973 grant proposal reports this effort as having been completed during the 1972 grant period. The CCIC wanted persons subsystem was reported operational on a 24 hour a day basis as of February of 1972. During 1973 a separation was made in the Stolen Vehicle-License Plate file and one other file was created, resulting in two additional files.

   E. Wanted Securities
   F. Stolen License Plates

The computerized files described above represent, to date, the total data portion of the State Information System. A Colorado Criminal History

file (soon to be available) and message switching and interfaces provided by CBI, result in additional data access. It is the CCIC file structure, however, providing real time access to lists of wanted persons and property, that comprises at present, the central information base for which the contractor was responsible. System developers provided the program software for defining and maintaining these files; participating agencies are responsible for the accuracy and currency of file entries and deletions. That is, each terminal user makes real time entries onto the files and is responsible for deleting his own entries when appropriate.

There appears to be general consensus about the importance of real time entry and query as established by these files. The system has been reported to have led to an increase in apprehension of wanted persons and in recovery of stolen property. Discussions with users indicate that there has been expanded dependence upon this service since it became operational. This reported dependence has in turn emphasized some performance problems still to be resolved.

Entry/Query Formats, NCIC Compatability

The information required for entering or querying the CCIC files is considered in some cases to be unnecessarily restrictive. The persons and vehicle files are not as much a problem as the wanted articles files which require both serial number and brand name or article type. Information required for entering a wanted item presents more difficulty to users than information required for query. For example, if a bicycle is stolen the owner may have the serial number but not have a record of the brand and the article cannot be entered. Should the bicycle be found, and the system queried a

"no hit" is reported. Occasionally there is a problem about whether an item should be reported on the "article" or "security" file. Entry and query inconsistencies will result again in a "no hit." Also there are differences in CCIC and NCIC format requirements, and unless corrected before completion of the automatic interface could result in a CCIC message being locked out from NCIC.

Another reported problem derives from the structure of the stolen license plate files which are partitioned by state. If a query is made without a specification of the state, a default of the state of Colorado is assumed. Unlike NCIC, there is no way to search the CCIC file by license number alone if the state is not known.

Operators report having had difficulty in keeping up, in general, with the format changes and many of the errors made in entering, querying and cancelling are mainly due to new format requirements. As might be expected, more difficulty is reported from agencies who rely on a single trained operator (who cannot be on duty at all times), than agencies who maintain a multi-shift staff of operators and standby operators. In this same regard, differences in CCIC and NCIC multiformat messages are more of a problem for incidental users than for regular operators. There are established procedures for announcements of changes and updates coming through in the terminal mode and the problem seems more related to becoming accustomed to the changes than not being advised of changes. Advanced notification of change with more exemplars has been requested. In any case it is anticipated that new UNIVAC software (LEAP programming version 5.3) together with the installation of new computer equipment will alleviate problems of both restructuring the data base and making messages compatible with NCIC.

Stolen Vehicle Entries

The problem of separate entries for all items on both CCIC and NCIC files is further compounded by the requirement that the Colorado State Patrol (CSP) receive separate notification on all stolen vehicle entries. There is some automatic referral from CCIC to CSP files but only partial data flows through this automatic notification. When operators have only one terminal to handle all queries (first priority) as well as entries, this requirement for a third entry to CSP presents an additional burden. Again, proposed hardware and software are expected to rectify this situation.

Downtime, Waiting-time Notification

Downtime is the time during which CCIC files are inaccessible but when the UNIVAC 9300 back-up computer supports message switching access to NCIC via NLETS and to the Department of Revenue Motor Vehicle Registration files. Estimates of "downtime" vary throughout the state. Preventive maintenance is performed from 6:00 to 8:00 AM every Monday and the system is scheduled to be down for file saves approximately six minutes every three hours. Some of those interviewed stated that swing shift operators report at least four hours of downtime. Other estimates range from five hours to twelve hours of downtime per day throughout the state. CBI reports that there has been no downtime except for scheduled preventive maintenance and emergency repair since early 1974. Users seem satisfied, in general, with the explanations given (lack of back-up computer) for their downtime, but complain about unexplained waits. A wait of more than a few seconds for uniscope (CRT) terminal users usually indicates computer downtime, but for ASR-28 terminal users who often wait several minutes for reply, a long wait has ambiguous interpretations.

Accuracy and Accidental Deletion and Attachment

Agencies entering data are responsible for the accuracy of the information they enter. In theory only an entering agency can delete file items. In practice, however, override codes have been used by most all agencies who use the overrides to delete items they know have been removed, or persons who have been apprehended. There are a few problems, however, connected with accuracy and accidental delete. Users report that even after an entry has been cancelled it is still reflected on monthly printouts for several months after deletion. Monthly printouts of all files might eliminate this problem. Also reported are instances of accidental delete which are often not discovered at all or months later. Part of the problem is the assignment of non-unique CCIC entry numbers/names leading to either partial query responses or cancellation or incorrect entry. This has been reported to have been corrected, but the correction has not been verified.

Most of the problems articulated in this section have already been brought to the attention of all of the parties concerned and are expected to be corrected in the near future. A discussion of privacy/confidentiality matters related to CCIC file data is given in Section B of Part II.

4. NCIC: "Implement the National Crime Information Center Automatic Interface to permit all CCIC terminals direct access to NCIC file."

A non-automatic NCIC interface supported by the 9500 back-up system and giving access to NCIC files was implemented in February 1972. The automatic interface is not yet implemented. To gain access to the NCIC files, a user has to enter each message twice, first to the CCIC files and then to the NCIC files. CCIC-NCIC message formats are not uniform. The CCIC message

formats are more restrictive than the NCIC formats and if the CCIC requirements are not met, the terminal user is prevented by the interface from gaining access to the NCIC files.

The automatic interface is not scheduled for implementation until after the 418-III back-up computer has been installed. At this time the CCIC data base will be restructured to facilitate NCIC-compatible uniform message formats.

Activities relating to the NCIC interface that took place under the 1973 grant period include: the development of the communications log analysis programs and implementation of new message formats.

In general, users are not happy with having to enter each message twice or with the non-uniformity of message formats, however, they appear to be patient about the situation, and optimistic about the resolution of these problems with the installation of the new equipment.

5. DOR Interface: "Implement an improved interface with the Department of Revenue computer to permit more rapid access by each CCIC terminal to information relative to motor vehicle registrations and driver licenses."

There has been a continuing effort since the 1970 grant proposal for a motor vehicle registration inquiry by license plate number. The Colorado Department of Revenue interface, providing access to driver license and vehicle registration data, was reported implemented during the 1972 grant period. The interface was reported operational on a 24 hour a day basis as of February, 1972. Special operating procedures were implemented in early 1973 to enable CCIC users to differentiate between 1972 and 1973 vehicle registrations. An effort to improve the interface was scheduled to occur together with the Motor Vehicle Department's system upgrade during November, 1973, and was

expected to permit CCIC users to access motor vehicles files much faster than they previously could. At present, the DOR interface allows CCIC terminals to access motor vehicle registration information by vehicle number or by license plate and to query driver's license by license number or by name and exact date of birth. The data files reside in the DOR computer with interface capability provided by CBI. The interface is reported to work dependably and well.

This capability has become one of the most frequently used system features with many localities routinely querying vehicle and drivers license file in all cases of traffic stops. Respondents indicate that this procedure is a valuable tool for them and has led to the increased return of stolen vehicles. As with the CCIC files, the increased use and dependence on this access over the past few years has heightened awareness of inefficiencies in the present system. New entries are put onto the system in batch mode and 1974 license data is only now beginning to appear. Users report long delays in receiving responses to their queries. With routine queries response time is crucial because a police officer can detain traffic violators only a limited amount of time without incurring citizen protest. There were reports of incidents when offenders were released before the response of a "hit" was returned. Users have indicated that the ability to automatically query wanted files simultaneously with DOR queries would also be useful for speeding field responses. Metro-Denver area law enforcement personnel, who seem generally satisfied with their ability to provide input into the developing information system, feel that law enforcement personnel should be working more closely with MIS programmers to influence the development of new programming capabilities within DOR.

6. CCH: "Implement the computerized Colorado Criminal History file and its interface with the National Criminal History Index maintained by NCIC, thus permitting access by each CCIC terminal. The following data would be available:
   - A. Arrest
   - B. Complete Arrest Record
   - C. Caution Indicators for each Arrestee if Applicable
   - D. Present Status in Criminal Justice System
   - E. States Holding Criminal Record
   - F. Date of Last Up-Date to the Record"

This application was originally proposed for completion under a 1971 calendar year grant proposal. This proposal projected the processing and conversion of 15,000 required Project SEARCH records, the only task requiring that the subgrantee be responsible for file data as well as file creation and interface. This application has not been completed.

In a first quarter 1972 report, the criminal history application was reported as still under development with 12,000 criminal histories captured. However, CBI reports that because of the lack of proper supervision for the clerical personnel, conversion and processing of these 12,000 criminal histories were incorrectly done. A new conversion system has been established by CBI and about 1,000 criminal histories have been processed. The programming application is reported to be substantially complete and the CCH system is expected to be implemented after the installation of the UNIVAC 418-III back-up computer at the new CBI facility. At this time, a change of the report format is projected in order to improve readability. Privacy and security considerations for this application require that the computer be housed at a criminal justice agency facility. This is not currently the case, since the state computer is housed within the Department of Administration. Central hardcopy files, also the responsibility of the contractor, reside in the criminal justice building. A set of 3 X 5 card arrest summaries and jacketed files with fingerprints are maintained there.

Before the Criminal Case History application can be activated, privacy and security regulations need to be defined, compatible with Federal standards. This is currently being considered by a subgroup of the working committee within the CLETS/CCIC user organization.

Also, the application cannot be utilized by any terminals without high speed lines. This effectively eliminates the Western slope until a hardware upgrade is implemented.

When asked about the necessity of a criminal history file, interviewees responded that they regarded the file to be an important tool for law enforcement and in spite of present and anticipated federal legislation requiring close control of history file eligibility as well as frequent purges and monitored access, they were anxiously awaiting file completion. In general they seemed satisfied with the explanations given for the delay in establishing this part of the system. There was some evidence that individual localities are considering maintaining local files as well.

7. DCIC: "Implement an interface between the Colorado Crime Information Center and the Denver Crime Information Center (DCIC), thus permitting access by the DCIC terminals to all CCIC files, eliminating the need for three types of terminals (NCIC, DCIC, CCIC) at the Denver Police Headquarters. Part of this interface will involve entering all qualified Denver Police records into the CCIC files, and the significant reduction in time and effort spent to make queries of both State and National files."

The implementation of the DCIC/CCIC interface was originally projected to start under the FY69-70 grant proposal. Preliminary discussions were held at the end of calendar year 1972 regarding the interface. Currently, this interface implementation is considered to be of very low priority by CBI. The reasons stated were that it involves the purchase of additional

hardware and that the highest priority hardware expenditures are the purchase of the back-up UNIVAC 418-III computer and conversion to 100 microwave links.

The Denver Police Department computer system was established in 1968 and DPD has several capabilities (e.g., Incident files) that they believe would no longer be available to them with the implementation of the interface. In addition DPD personnel believe that the DCIC is not subject to the same Federal security guidelines as CCIC/NCIC.

DPD also has a separate terminal with a direct line to the NCIC computer. This serves as a valuable back-up when the CCIC system is down or when queries are rejected by the CCIC system. The CCIC system has more restrictive query requirements than NCIC.

Another consideration relevant to the implementation of the DCIC interface is that currently there are no uniform message formats for the DCIC, CCIC and NCIC systems. Until this is effected the interface cannot be implemented.

Although an automatic interface would be valuable, this interface is not crucial to DPD and they are aware that it is a low priority effort. There is some evidence that agencies without DCIC terminals are more anxious for the proposed interface to be completed than are the DPD personnel.

8. Training: "Presuming a final total of at least 80 terminals on the system, with 24 hour operation at each terminal site, about 420 terminal operators will be trained statewide. The orientation and training of each of these persons will be the shared responsibility of CBI and the local employing agency."

It was reported by the contractor that as of November 1972 a detailed terminal operator's manual had been prepared, in part, and distributed to every terminal statewide. Maintenance and updating of that manual has been

a continuing effort. It was also reported in November 1972 that approximately 300 local and county police recruits had been given basic instruction in the use of the CCIC system.

The following activities in support of training goals were conducted during the past two years according to contractor's progress reports.

1. Operating instructions for the comm-log* system were completed.
2. ADP/CCIC programming staff attended LEAP (Law Enforcement Application Package) and RTOS (Real Time Operating System) classes.
3. Training of new operators for the video terminal upgrade. This included the training of persons to train additional personnel.
4. The CCIC operator's manual was compiled and updated.
5. Revised alpha guides (master reference sheet for message coding) were distributed to all terminal operators.
6. Efforts were made to improve training quality for CCIC operators at the Colorado Law Enforcement Training Academy.
7. A determination of the need for formal criteria to certify CCIC operators, CCIC operator trainees and instructors for CCIC operator trainees was established. This was projected to be accomplished in the last quarter of CY1973.

There are approximately 65 terminals now on the system. Local terminal users report that they have received all of the training they have requested for their operators. When questions or situations arise that require additional help, that help is available from the Arapahoe County Sheriff's Office, from the Denver Police Department, and from special personnel at CBI. This is not the situation, however, reported from elsewhere around the state. Expressly

*See also Privacy-Security considerations (II. B-3).

stated from a majority of out of metro-Denver terminal users was the request for more training classes and more local or regional day to day assistance.

System users without terminals report that training information might be useful to their personnel in order to ensure that the system is being used efficiently and to full advantage.

9. Plans for New Program Designs: "Plan for new programs to be designed and implemented in the CCIC system during the years 1973 to 1977."

Initial planning for new program capabilities was first proposed in the 1972 grant applications. Although no comprehensive "plan" for new programs was evidenced by this review study, several new tasks have been defined for future implementation.

A. Hardware

The Colorado Legislature has approved the funds for acquiring a back-up UNIVAC 418-III computer system. Most major improvements to the information system, as well as the development of new features are being postponed until after the installation of the equipment in order to avoid the lengthy computer downtime required for new programming and debug.

Plans are for conversion to 100 percent use of microwave links outside the Denver-Metro area on the CCIC system. The conversion is expected to result in more reliable service and to greatly reduce telephone line lease costs. Although not specifically contracted as a proposal goal, it is anticipated that the use of high speed microwave links will affect the development of new program designs.

B. Security Plans

Tape logs of all inquiries are now maintained on the system for one year. A terminal user's agreement, requested by NCIC, is expected to provide regulations for more specific detail on the maintenance and use of these logs. Although the proposal for the 1974 grant period refers to the publication of security regulations relating to CCH, no specifics of procedures for establishing and maintaining security are expressly proposed. All of the appropriate personnel interviewed seem to be aware of proposed and pending legislation as it may affect new requirements for privacy and security considerations.

C. Evaluation and Statistics

Requirements for system self-evaluation in terms of use and effectiveness are discussed at some length in the 1974 grant application. Again there is no specific referral to this program as part of new overall program designs. Data requirements for examining transactions by numbers of file entries/modifications, number of queries, and incidences of "hits" have been specified by the subgrantee, and several qualitative measures of user satisfaction have been included in the proposed data gathering instruments.

When specifically asked about their own special interests in new program activities, respondents indicated the need for automated collection of statistics required for scheduling and for analyzing crime trends. The anticipated implementation of a Uniform Crime Reporting program is expected to satisfy these requirements.

In general, users are much more interested in the improvement of the present system features that are used on a day to day basis (e.g., faster access, less downtime, etc.) than they are in the development of special purpose features (e.g., graphics display) that may be proposed in the future.

10. Replacement for ASR-28: "Plan for replacement of ASR-28 teletypewriter terminals with Uniscope 100 type video terminals and begin implementation of that plan."

Initial planning was stated as a goal under the calendar year 1972 grant proposal. Plans were completed for the installation of at least three new CCIC field terminals and replacement of the Metro-Denver area ASR-28 teletypewriters with video terminals and printers. The Metro-Denver upgrade and the installation of additional video terminals at the police department in Broomfield and Wheatridge was completed in the first quarter of 1973.

Though new video terminals are continually added to the system there is no evidence of an overall plan.

A feasibility study was recently completed with regard to replacing ASR-28 teletypewriters on the CCIC system with video terminals together with utilizing the existing State microwave communications system to tie in remote CCIC terminals to the CPU. The conclusion was that such a system could operate more efficiently at a reduced monthly cost after the initial one time cost (not to exceed $125,000) was paid. However, a one to two year delay is anticipated before the telephone company can supply the needed 2400 baud lines required to connect the remote terminals with the microwave transmitter sites.

11. Plan for Additional Terminals: "Complete a five year plan for location of additional terminals on the CCIC system to provide effective statewide coverage and begin implementing that plan. . . Presuming a final total of at least 80 terminals on the system. . ."

This has been a stated objective of both the calendar years 1972 and 1973 proposals, the goal being to ultimately give CCIC radio access to all Colorado law enforcement agencies. Currently there are 65 terminals on the CCIC system covering about 95 percent of the state. There is no evidence of an overall five year plan as stated in the proposal.

Up to the present time terminals have been located as described below. A law enforcement agency would apply for a terminal to the working committee of the CCIC/CLETS advisory board. This application would be accompanied by letters of recommendation from other potential law enforcement users of that site. The working committee would send an investigative body to the site to determine suitability. Criteria for suitability include appropriate security, 24 hour radio dispatch service, communications-related environmental constraints as well as an evaluation of the potential usage of that terminal. If the requirements were met, the committee would usually approve the location of the terminal. In this manner, a relatively effective statewide coverage has been achieved. There was some question about the need for establishing priorities for additional terminals. In some of the busier agencies terminals are being used almost constantly. Queries from the field take precedence over entries into the system, but even these queries can result in stacking. Entries that might be of immediate interest must be left, then, for off-peak hours.

At the present time there is a markedly increasing interest in the CCIC system with many more law enforcement agencies attending CLETS board meetings and anxious to obtain their own terminals. It is felt by some respondents that a more objective method of terminal placement is needed for the future. Two recommendations, concerning terminal placement, were made by the working committee at the CLETS/CCIC board of directors meeting of March 10, 1974:

- To set up a subgroup to determine who is currently lacking good access. Then to determine who in that area has the best facilities for filling the need and start negotiations.
- To conduct at least annual inspections of all terminal sites in order to evaluate service, security, communications, operator qualifications, etc.

Law enforcement agencies have emphasized their satisfaction and interest in the continued participation of the CLETS/CCIC advisory board.

Associated System Development

Three categories of effort, Software Support, Security-Privacy Considerations, and Documentation and Communication Exchange, that did not appear in grant applications as specific goals, were activities that were central to the evolvement of the Information System, and are discussed in the following pages.

1. Software Support

Software support elements include modifications of the UNIVAC supplied software necessary to the CCIC system. This includes the Real Time Operating System (RTOS) and the Law Enforcement Application Package (LEAP programming language). Activities centering around software support included the generation of the latest RTOS systems (RTOS-4 in third quarter 1972 and RTOS-5 in third quarter 1973) and debugging of the LEAP programming language. Problems were also incurred with the 9300 back-up system in the last quarter 1972, when the Metro-Denver upgrade to video terminals was effected. The back-up system was not operational until the second quarter 1973.

It was reported by several user agencies as well as UNIVAC representatives that limitations of the original LEAP language determined the current CCIC data base structure and the incompatibility between CCIC and NCIC message formats. A new LEAP 5.3 package is currently under development and a projected effort through summer and fall 1974 involves restructuring the data base to facilitate uniform CCIC/NCIC message formats. This programming change and other reprogramming efforts depend on the installation of the second UNIVAC 418-III computer.

Another aspect of software support derives from law enforcement agency UNIVAC users in other parts of the country. For example, Pennsylvania, Minnesota, Houston, Nashville and Quebec have approximately the same hardware configurations as Colorado and therefore applications developed on those systems can be easily adapted to the Colorado State system.

2. Privacy and Security Considerations

With the advent of the Criminal Case History application, there is a need for the CCIC system to be defined with respect to Project SEARCH security regulations. A subcommittee of the working committee of the CLETS/CCIC advisory board is currently concerned with these aspects. The 1974 grant proposal "Methods and Timetable" section projects the completion of a regulation and procedure manual for the April to June quarter.

Currently the working committee reviews the security of all terminal sites prior to approval of the terminal location. It has been recommended that each site receive at least annual inspection. Once a terminal is located, the agency agrees to give the working committee 30 days notice to get the approval of planned changes to the terminal site. Criterion and investigation of operator personnel have not been formalized and vary from agency to agency.

In general, information may be obtained from many terminal sites by telephone or radio without verification of the identity of the requestor, although many dispatchers and key operators indicate they "recognize" the caller. Until the CCH files become operational the only information available to field agents is "open records" data and there is no critical need for close monitoring of query originators.

When CCH data become available these procedures will have to be changed drastically to conform to statutes regulating the manner in which confidential data is transmitted.

The CCIC system keeps communications log tapes of all system transactions and is able to trace by terminal site all messages sent and received on the system for a given time period.

3. Documentation and Policy Information Exchange

System documentation. With more and more agencies in Colorado becoming interested in using the system and obtaining their own terminals there has been articulated a need for the distribution of comprehensive system documentation. The existing documentation is in the form of an operator's manual, which if kept up to date is reported to be adequate for operator usage. However, a different sort of documentation and training is needed for the law enforcement officers who use the system. Agencies who do not have terminals, nevertheless, would like to see information on system capabilities, query and entry requirements and message restrictions in order to have effective utilization of the system. Many agencies without terminals have commented on their desire for such training.

CBI Bulletin. This newsletter appears to be an excellent organ with which to distribute system status information. Though several persons interveiwed said they received this newsletter on a monthly basis, others said that they had not received a copy recently or had never heard of it. They expressed an interest in receiving more complete information and felt the quarterly board meetings, though somewhat informative, did not adequately meet their needs.

CLETS/CCIC users group. The users group has played an integral part in the development of this system. In addition to being an instrument of information exchange, it has helped to develop system policies by concensus

of the law enforcement agency system users. Members of the working committee have volunteered hundreds of man-hours devoted to various tasks including review of terminal site locations, training, NLETS requirements review and system security definition.

III. CONCLUSIONS AND RECOMMENDATIONS

The most general impression received from questioning system users was a strong desire to see the system work and an overall recognition of the benefits already provided to law enforcement agencies by CCIC capabilities. A list of recommendations for improving the developing system, based upon observations, interviews, and survey responses follows. Not included in this set of recommendations is the list of system faults well known to both users and developers and simply awaiting completion or the installation of new back-up computer equipment. These requirements are identified within the appropriate sections.

Recommendations

1. Planning. More detailed goals and timetables with explicit specification of the sequential nature of some tasks, and of reliance on hardware delivery, legislative approval or additional personnel or funding are recommended. Alternative plans should also be specified. Some of the management tools of system planning might be utilized beneficially.

Although not specifically addressed as an objective of this study, project management has come under some scrutiny. Grant requirements specify that the Project Director shall spend 100 percent of his time in this capacity. Because the responsibilities of the project are so broad and because the planning should be well integrated, it is recommended that the Project Director devote full time to this activity and that he delegate responsibilities in the area of training, security, planning communication, software development etc., maintaining central authority for the necessary integration of effort.

2. Training. Training of operating and user personnel is an integral part of system success, and training objectives should be carefully defined. Provisions should be made for training at all state agencies, however remotely located, with funds and personnel assigned to these tasks. It is also recommended that funds be explicitly allocated for periodically updating the training manual. These funds should cover printing, producing and distributing costs. Necessary interim changes that are announced via the teletype system should be carefully defined and exemplified.

3. Communication. There appears to be some excellent vehicles established for policy communication. These groups, e.g., CLETS Working Committee, seems to have been an important aspect of local user satisfaction, and it is the recommendation of this study that these modes of contact continue to be used and expanded upon. A monthly newsletter similar to the CBI Bulletin describing services offered by the system with current status, recent changes, and usage exemplification should be distributed in sufficient quantities for personnel at all user agencies throughout the state.

4. Security and privacy provisions. Because of the lack of "sensitive" data presently available through the CCIC System, there has been no impetus for the development and enforcement of strict security regulations. With the anticipated inclusion of a Colorado Criminal History file, it is imperative that security and privacy regulations compatible with Federal standards be defined and enacted. These provisions should include criteria for screening and certifying CCIC System users, for periodic inspection of terminal sites, and for absolute identification of queries originating from the field, either through dispatchers or directly via terminal operators.

5. Documentation. There has been no evidence of either software documentation or system documentation, sufficient for the needs of new programming and administration personnel, or field user personnel. The existing documentation is in the form of a user's manual, which if kept up to date is reported to be adequate for operator use. Both vendor and in-house software require documentation for project continuity as does system capability, and these tasks should be specified for funding and effort as soon as possible.

Statistics and Evaluation

Very little attempt has been made to date to generate comprehensive statistical programming capabilities within the CCIC. A new grant request for production of summary statistics to conform to the FBI uniform crime reporting standards and requirements for system self-evaluation as discussed in the 1974 CCIC grant application appear to be sufficient. Because most of the users interviewed, and presumably their system working committees, do not see statistical evaluation as a high priority item, it is recommended that the need for and importance of these efforts be specifically brought to their attention.

APPENDIX

On March 14 approximately 230 questionnaires were mailed to law enforcement agencies throughout the state. Copies of this questionnaire and the accompanying letter are shown as Figures 1 and 2 of this Appendix.

As of the date of this report (April 15) there have been 99 responses to the survey. Responses to questions concerning training and system downtime are summarized below for terminal and non-terminal site agencies.

Training

The following table is a summary of user evaluation of training. Responses are broken out by terminal access, direct radio access and indirect access sites. Terminal access agencies are further subdivided by metro and non-metro-Denver locations (where metro-Denver is defined by local telephone access from Denver).

	TERMINAL ACCESS			D.R.A.	I.R.A.	
	METRO	NON-METRO	ALL			
Training Adequate	8 (59%)	17 (58%)	25 (62%)	7 (33%)	9 (24%)	41 (42%)
Training or Manual Inadequate	5 (41%)	11 (42%)	16 (38%)	4 (19%)	9 (24%)	29 (29%)
Did Not Respond Because Training Not Available	-	-	-	10 (48%)	19 (52%)	29 (29%)
	13 100%	28 100%	41 100%	21 100%	37 100%	99 100%

Downtime

The following table is a summary based on agencies who included comments in their questionnaire response. (N = 61 commented out of 99 respondents.)

The terminal access agencies are broken out for metro and non-metro-Denver areas.

	TERMINAL ACCESS			D.R.A.	I.R.A.	
	METRO	NON-METRO	ALL			
Included Downtime as a Problem	2 (20%)	5 (26%)	7 (24%)	7 (64%)	8 (38%)	22 (36%)
Did Not Comment on Downtime	8 (80%)	14 (74%)	22 (76%)	4 (36%)	13 (62%)	39 (64%)
	10 100%	19 100%	29 100%	11 100%	21 100%	61 100%

NOTE: The agencies with radio access commented more frequently on the excessive downtime.

Estimates of the average daily operational time varied considerably. Most agencies without direct terminal access did not respond to this question. Below is a summary of the responses.

HOURS OPERATIONAL	METRO	NON-METRO	ALL	D.R.A.	I.R.A.	
20 - 24	9 (70%)	17 (61%)	26 (64%)	10 (48%)	3 (8%)	39 (39%)
16 - 19	2 (15%)	3 (10%)	15 (12%)	1 (4%)	4 (11%)	10 (10%)	
12 - 15	- -	1 (4%)	1 (2%)	- -	4 (11%)	5 (5%)
Under 12*	- -	2 (7%)	2 (5%)	- -	- -	2 (2%)
Did Not Respond	2 (15%)	5 (18%)	7 (17%)	10 (48%)	26 (70%)	43 (44%)
	13	28	41 (100%)	21 (100%)	37 (100%)	99 (100%)

*One of these users indicated excessive failures of his terminal equipment.

NOTE: Several users who indicated the system was up between 20 and 24 hours most of the time also had comments to the effect that the system did go down excessively.

COLORADO SEMINARY
UNIVERSITY OF DENVER
DENVER RESEARCH INSTITUTE

Industrial Economics Division

Dear User:

The Denver Research Institute of the University of Denver has recently received a contract from the Division of Criminal Justice to independently review the development of the Colorado Crime Information Center (CCIC). One of the aspects of the system that will be examined is a performance review of CCIC services for local law enforcement agencies. We are very interested in your evaluation, as a system user, of these services.

Will you please take a few minutes to fill out the enclosed questionnaire? A stamped self-addressed envelope is enclosed. Your promptness is of the utmost importance since the results of this survey are to be evaluated in April.

Thank you for your cooperation.

Very truly yours,

[redacted]
Project Supervisor
303[redacted]

Additional telephone contact: [redacted]
Division of Criminal Justice
303[redacted]

ASW:ed

Enclosure

COLORADO CRIME INFORMATION CENTER

(1) Agency or Department Name (optional) _____

(2) Place a check ( ) on the appropriate line for items (2) through (4).

_____ Direct access to a terminal
_____ Direct radio access
_____ Indirect radio access

(3) If you have direct access to a terminal, what kind?

_____ video terminal
_____ ASR-28 Teletypewriter terminal

(4) Type of agency or department user

_____ County Sheriff's Office
_____ City Police Department
_____ State Patrol Office
_____ Town Sheriff
_____ Other, specify

(5) If you have direct access to a terminal, what is your radius, in miles, of radio access? _____

(6) How often have you used the following applications?

a. CLETS _____
b. NLETS _____
c. CCIC wanted persons/ stolen property subsystems _____
d. NCIC _____
e. Colorado Criminal History _____
f. Motor Vehicle Division registration/ license plate files _____

(7) How many hours a day would you say the system is up and running?

(8) Do you feel the training you have received is sufficient? _____
Is the training manual adequate for your needs? _____
Can you get adequate assistance concerning terminal operations when you need it? _____

Please make any other comments you care to concerning system capability, usefulness, problems, or improvements in performance or capability that you feel are needed.

_____

_____

_____

PLEASE USE REVERSE SIDE FOR ADDITIONAL COMMENTS.

END