TRACIS

STATE OF IOWA

TRAFFIC RECORDS AND CRIMINAL JUSTICE INFORMATION SYSTEM

STATE OF IOWA
TRAFFIC RECORDS AND
CRIMINAL JUSTICE INFORMATION SYSTEM
(TRACIS)

BASIC SYSTEM DESIGN

December 1970

PRC R-1547

Prepared for

The Office for Planning and Programming
State Capitol Building
Des Moines, Iowa

by

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FOREWORD

This report presents the basic system design for the State of Iowa Traffic Records and Criminal Justice Information System (TRACIS). Together with the TRACIS Technical Report (October 27, 1970), it completes Part I of a three-part system design effort, based on the following:

Statement of Function Requirements; Planning Research Corporation, October 1970

State of Iowa Traffic Records and Criminal Justice Information System (TRACIS), Volume I, Technical Report; Planning Research Corporation, October 1970

Recommended TRACIS Alternatives; Planning Research Corporation, October 1970

In this connection, Planning Research Corporation recognizes and acknowledges that portions of the basic system design may require clarification, expansion, modification, or deletion during the detailed system design phase to ensure a responsive TRACIS development within the scope of the existing contractual agreement. Accordingly, approval of this basic system design by the State of Iowa will not preclude design changes during the course of the detailed system design.

This project was conducted pursuant to an agreement for consulting services by and between Planning Research Corporation (PRC) and the Iowa State Office for Planning and Programming, July 6, 1970. PRC acknowledges the valuable contributions of Messrs. Roy E. Hollady and John J. Thomas

of the International Association of Chiefs of Police, and of Mr. Norman C. Roden of Alan M. Voorhees & Associates, Inc. The content and organization of this report, is, however, the sole responsibility of PRC.

Mr. B. L. Parham, the Project Manager and principal author of this report, gratefully acknowledges the cooperation and assistance of all representatives of the State of Iowa and especially of Mr. Leroy H. Petersen, Director, Office for Planning and Programming; Mr. Darrel L. Grice, Senior Planner and initial Project Director; and Mr. T. E. Swanson, present Project Director.

EXECUTIVE SUMMARY

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A. Introduction

This report is a culmination of the basic system design, Part I, of a Traffic Records and Criminal Justice Information System (TRACIS) for the State of Iowa. Still to be accomplished in the TRACIS program are a system conversion plan and implementation schedule, Part II; the detailed system design, Part III; and the implementation phase.

Objectives that the State should realize upon successful implementation of TRACIS are listed in the chart on the following page.

B. Basic Design Feature

The principal features of the basic system design for TRACIS are recapitulated in this summary. Paragraphs 1 through 4 below correspond to the major technical areas to which a complete section has been devoted in this report:

Section III	System Description
Section IV	System Workload
Section V	ADP Equipment Requirements
Section VI	Communications Requirements

1. System Description. TRACIS will consist of a single data base that encompasses both subsystems (one for traffic records and another for criminal justice). Each subsystem comprises data files and records that may be queried or updated by any authorized user in the State. Furthermore, TRACIS will be designed to accommodate the exchange of data with authorized agencies in other jurisdictions.

TRACIS Objectives

Safe, effective, and economical performance of operational personnel

Crime prevention activities programs of citizens and criminal justice personnel

Prompt and efficient investigation of offenses of any nature and in any locale within the State

Prompt identification information to ensure prompt apprehension of law violators

Efficient interagency sharing of data and information concerning traffic records or criminal justice processes

Effective identification and recovery of stolen property

Accurate intelligence concerning sex offenders, narcotics and drug offenders, habitual criminals, and other specific type information

Privacy and security of information*

Maintenance of accurate indices to individual criminal histories

A better understanding of crime and offenders and the development of more effective correctional methods and institutions

The exchange of TRACIS data and information with other jurisdictions and the National Crime Information Center (NCIC)

Legal determinations, findings, and the application of administrative or criminal justice processes with reference to vehicle operators, chauffeurs, and the licensing, registration, and movement of vehicular traffic over the road system and waterways of the State

Improvement of the Iowa road system through its accident surveillance program and the identification of road hazards or deficiencies

Better use of available resources

All peace officer functions, and the total criminal justice area

Maintenance of law and order within the jurisdiction of the State

*Appendix B enunciates privacy and security considerations, the adoption of which will ensure that the privacy rights of citizens are not compromised.

Queries and responses, via telecommunications, are presently estimated at about 26,000 per 24-hour period during the initial implementation phase. This figure should double within 1 year from the installation date of the last input/output terminals.

Less than one-third of the total data base will be maintained on-line, i.e., available for instant retrieval and remaining data will be filed off-line, as no real-time need has been established for this information. Similarly, file maintenance will generally be in the form of "batch" processing, except in real-time situations involving communications transactions where urgency is paramount.

To date a total of 99 output products have been identified in the two subsystems. These are in the form of listings and reports that vary widely in their output frequency, i.e., daily, weekly, monthly, quarterly, semiannual, annual.

2. System Workload. The following list is an indication of the number of records, and the monthly changes thereto, within each file in the two TRACIS subsystems. Numbers are approximate and in thousands.

File	No. of Records (thousands)	Changes per Mo. (thousands)
Traffic Records		
Driver Records	1,750	95
Vehicle Registration	5,020	238
Traffic Accident	250	7
Inspections	6	,5
Accident Surveillance	190	1
	7,216	341.5
Criminal Justice		
Criminal History	256	1.5
Correctional Institutions	20	,3
Wanted Persons	2	,1
Criminal Conspiracy	2	,1
Unsolved Crimes	81	2.3
Stolen Property	14	2.9
	375	7.2

3. ADP Equipment Requirements. Two kinds of automatic data processing equipment will be used for TRACIS. The first--source data automation equipment--will include the card punches and verifiers. Requirements for these equipments are predicted as 35 and 18, respectively, for single-shift operation, or proportionally fewer if second and third shifts are employed. There will also be some provision for direct-keying data entry. The application of optical scanning equipment to TRACIS will also be evaluated during the detailed system design phase.

The second type of ADP equipment for TRACIS support includes fourth-generation electronic data processing equipment. The following configuration will be used on a service support basis to ensure the responsiveness essential to a real-time operation: two central processing units (CPU), IBM 370/155; 12 dual-spindle disks, IBM 3330, eight magnetic tape units, IBM 24015; one card read punch, IBM 2540; and one printer, IBM 1403N1.

4. Communications Requirements. TRACIS communications will entail a network of 102 input/output terminals distributed throughout the State. In addition to the State Capitol Complex, the principal users will be the law enforcement agencies, including the Highway Patrol, Municipal Police, and County Sheriffs. Implementation of the entire network will require about 2 years.

Along with each input/output terminal is required a modulator/demodulator (MODEM) to convert data from a form compatible with ADP equipment to a form compatible with the transmission equipment. A MODEM is also used for each line termination at the transmission control unit (TCU), bringing the total MODEM requirement to a maximum of 117.

A Transmission Control Unit (TCU) is required for buffering, polling, and routing communications traffic over the large number of full-duplex lines required to accommodate the TRACIS terminal network.

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I. INTRODUCTION

I. INTRODUCTION

A. Background

This project, for the design and implementation of a Traffic Records and Criminal Justice Information System (TRACIS), is supported by a National Highway Safety Bureau Grant approved July 1, 1970, under Traffic Records Project Number TR 69-1-002, and by a Law Enforcement Assistance Administration (LEAA) Grant. Both grants are supplemented by State of Iowa funds in equal amounts.

Planning Research Corporation (PRC), 1100 Glendon Avenue, Los Angeles, California 90024, was competitively selected and awarded a contract to assist the State of Iowa in the design and implementation of TRACIS.

All work was performed under auspices of the Iowa Office for Planning and Programming, and in coordination and cooperation with all departments of the State Government.

B. Scope

The project consists of three separate parts or phases, as follows:

1. Part I encompasses a comprehensive survey of current systems, including data collection visits and requirements determination. A survey of other state's comparative systems via a literature search is specified, and completion of a basic system design concludes Part I. In addition to this report, Phase I includes the Technical Report.

2. Part II includes a plan for conversion from current systems methods and procedures to meet TRACIS design requirements and a plan and schedule for implementation. A Phase II report will document Part II.

3. Part III includes the completion of a detailed systems design ready for programming. Specified system documentation will be included in the Detailed Design Phase Final Report.

It is anticipated that the implementation phase will commence prior to completion of the detailed systems design. In this connection, the implementation role of PRC is to be negotiated.

The scope of TRACIS encompasses total interactions of the following:

Traffic Records	Criminal Justice
People	People
Vehicles	Crimes
Roadway	Property

C. Part I Objectives

The principal objective of Part I was identified by the State of Iowa as completion of a recommended basic system design of a Traffic Records and Criminal Justice Information System. Achievement of this objective dictated the earlier achievement of the following subordinate objectives:

- Establish the information requirements necessary to design the total TRACIS data base
- Establish processing procedures and specifications, and define output products
- Identify the specific data elements and associated coding structures
- Estimate the system workload
- Determine system requirements for automatic data processing and communications equipment

Details pertinent to the achievement of these objectives are described in succeeding sections of this report.

D. System Flow

Figures I-1 and I-2 portray in summary flow diagram format the Traffic Records and Criminal Justice Cycles which provide the initiating bases for TRACIS design.

THE TRAFFIC RECORDS CYCLE

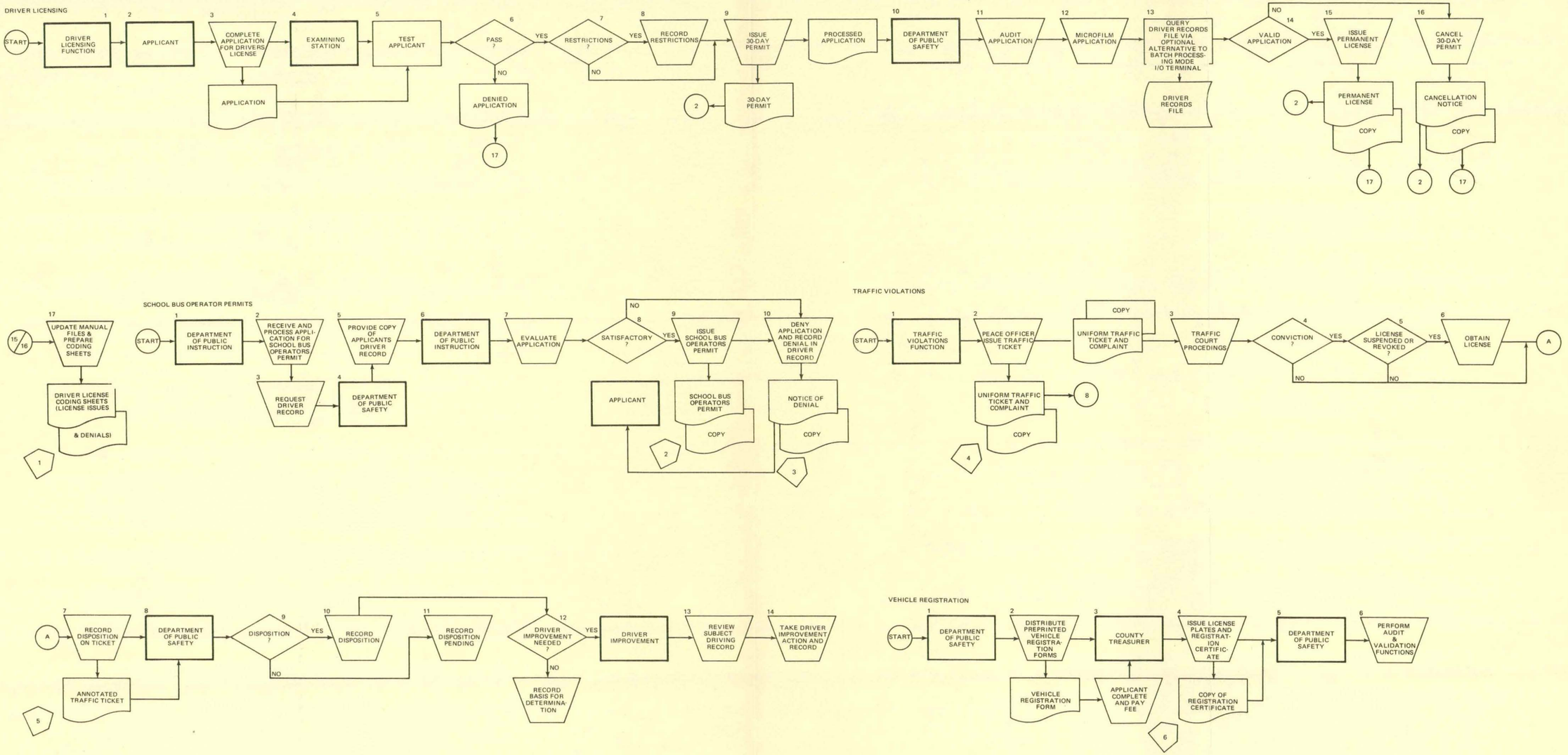
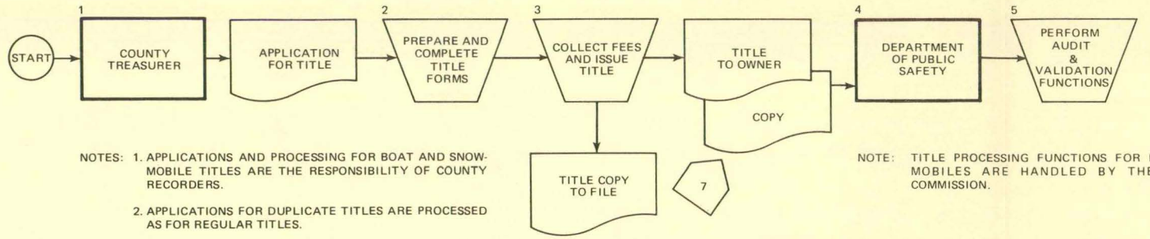


Figure I-1

THE TRAFFIC RECORDS CYCLE

VEHICLE TITLE PROCESS

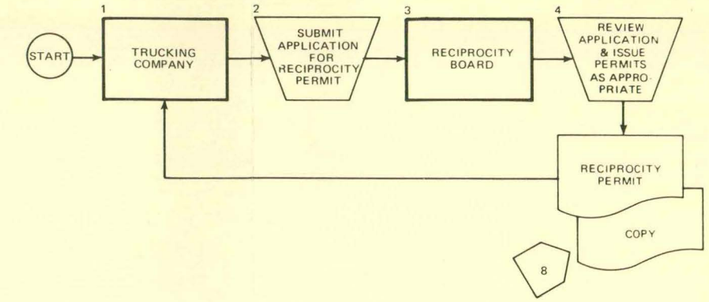


NOTES: 1. APPLICATIONS AND PROCESSING FOR BOAT AND SNOWMOBILE TITLES ARE THE RESPONSIBILITY OF COUNTY RECORDERS.

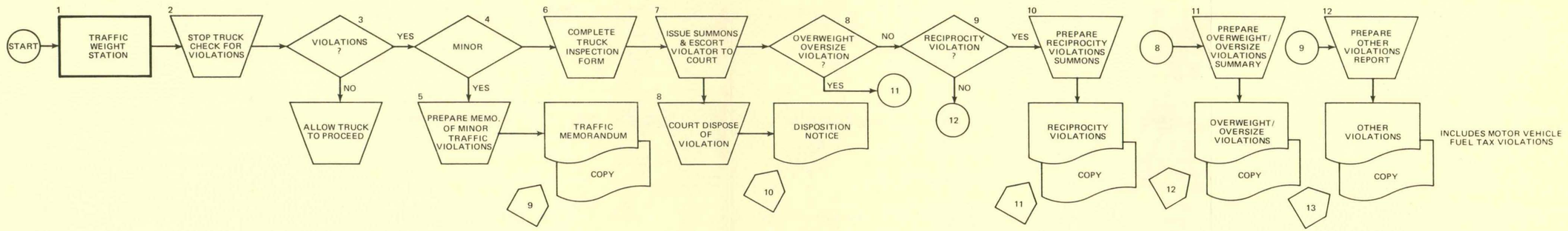
2. APPLICATIONS FOR DUPLICATE TITLES ARE PROCESSED AS FOR REGULAR TITLES.

NOTE: TITLE PROCESSING FUNCTIONS FOR BOATS AND SNOWMOBILES ARE HANDLED BY THE CONSERVATION COMMISSION.

RECIPROCITY PERMITS



TRAFFIC WEIGHT SCALES



TRAFFIC ACCIDENT AND FINANCIAL RESPONSIBILITY DATA

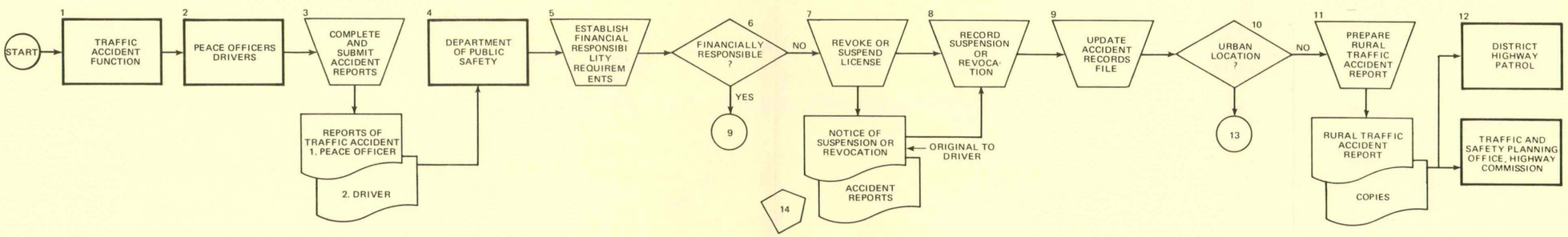
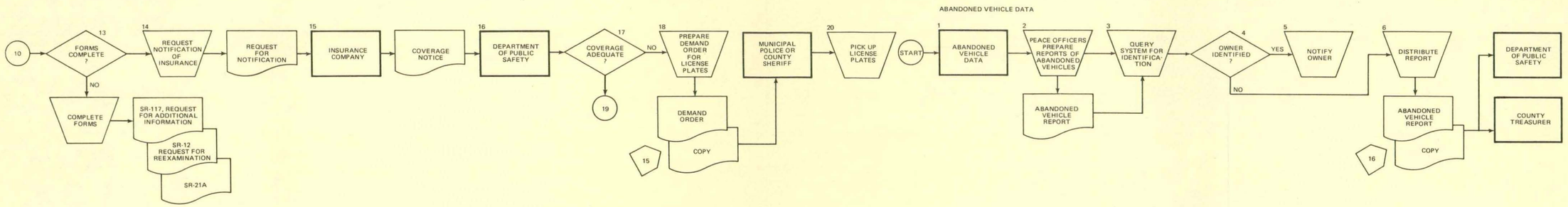
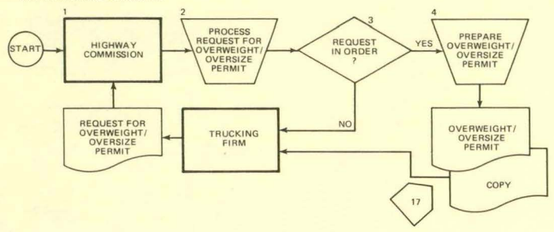
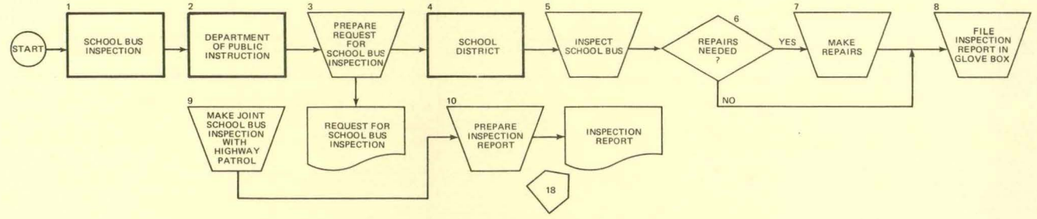


Figure I-1 (Continued)

THE TRAFFIC RECORDS CYCLE







THE TRAFFIC RECORDS CYCLE

Data Processing Support Activity. System functions are portrayed by Appendix B and are supported by functions portrayed by this system flow chart.

II. **Driver Licensing.** Driver licensing functions portrayed represent major operations associated with the cancellation, denial, issuance, revocation or suspension of driver licenses in accordance with TRACIS design.

III. **Traffic Violations.** Traffic violations functions portrayed represent major operations associated with the processing of traffic violations requested by TRACIS design.

IV. **School Bus Operator Permits.** Functions associated with the issuance or denial of school bus operator permits are portrayed in terms of major operations involved.

V. **Vehicle Registration.** Vehicle registration functions portrayed represent major operations associated with vehicle registration processes as required by TRACIS design.

VI. **Vehicle Title Process.** Vehicle title functions portrayed represent major operations associated with vehicle title processes as required by TRACIS design.

VII. **Reciprocity Permits.** Reciprocity permit functions portrayed in this summary description will provide input data required by TRACIS design.

VIII. **Traffic Weight Scales.** Traffic weight operations portrayed in this summary description will provide input data required by TRACIS.

IX. **Traffic Accident and Financial Responsibility Data.** These functions, as portrayed herein, will provide necessary input data to support TRACIS design requirements.

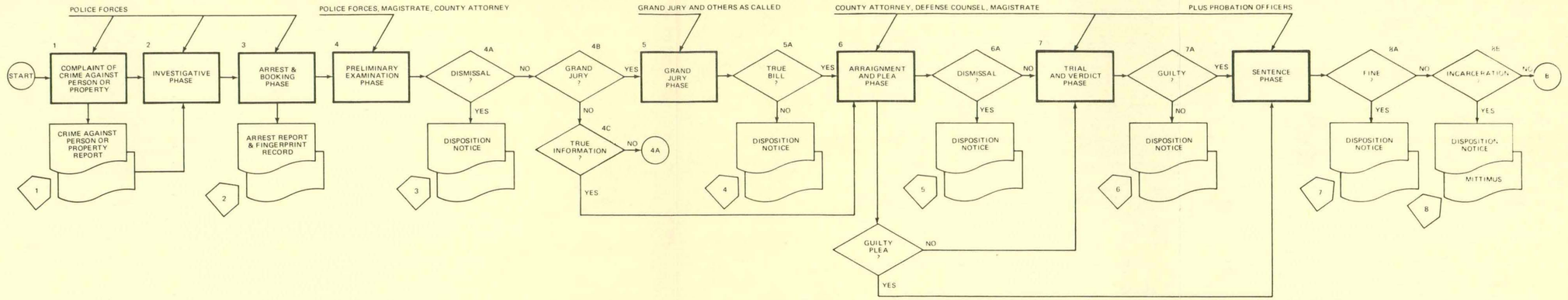
X. **Abandoned Vehicle Data.** These functions, as portrayed herein, will provide necessary input data to support TRACIS design requirements.

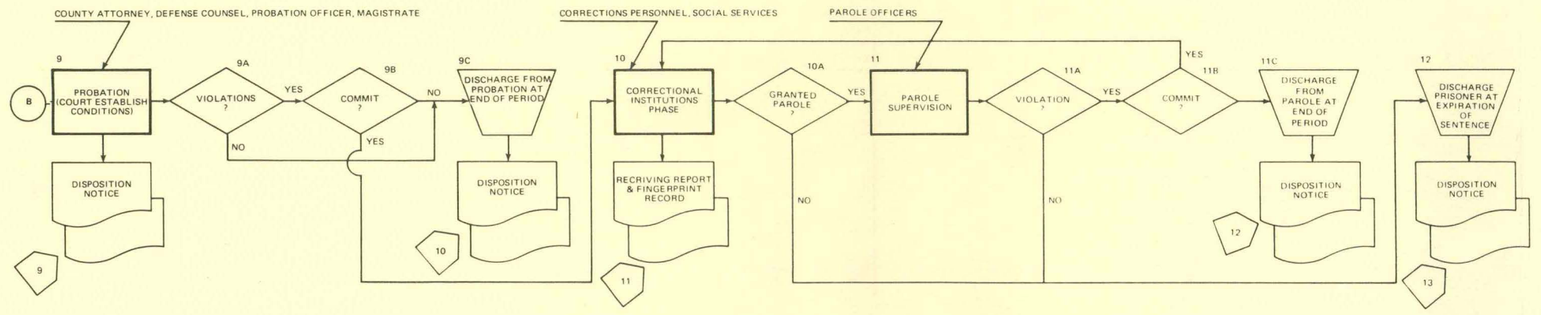
XI. **Traffic Weight Operations.** Traffic weight operations portrayed herein will provide necessary TRACIS input relating to overweight/oversize permits.

XII. **School Bus Inspections.** School bus inspection functions portrayed herein will provide necessary TRACIS input relating to school bus inspections.

Figure I-1 (Continued)

THE CRIMINAL JUSTICE CYCLE





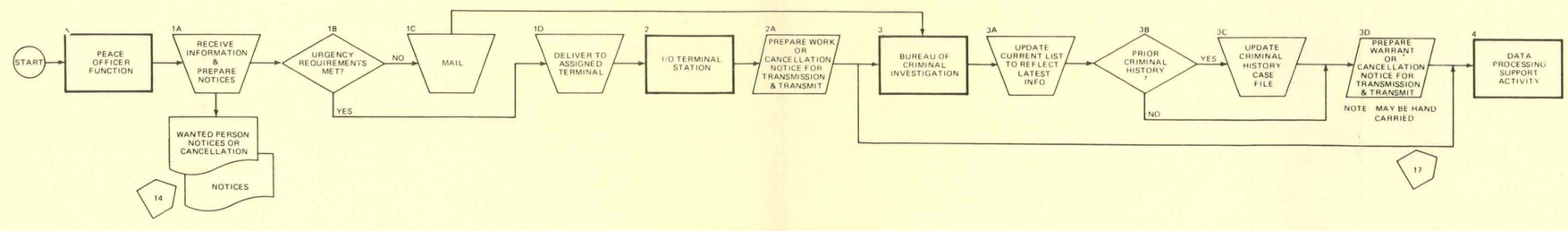
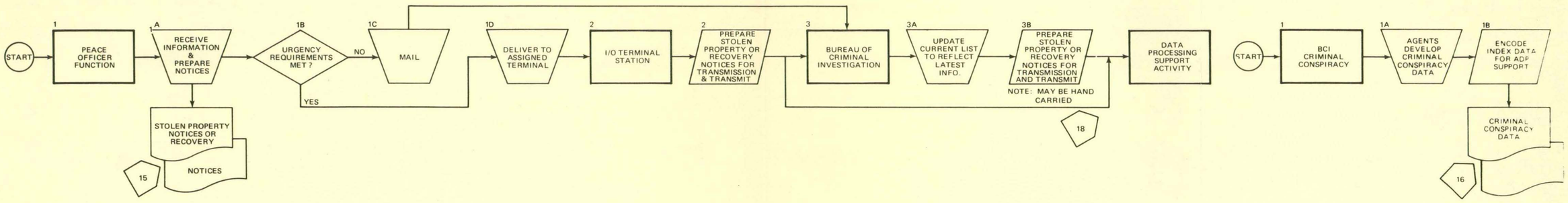


Figure I-2

THE CRIMINAL JUSTICE CYCLE



THE TRAFFIC RECORDS CYCLE

I. **Complaint of Crime Against Person or Property.** A Crime Against Property Report or Crime Against Person Report (1) is prepared and distributed. Investigation phase commences.

II. **Investigative Phase.** Crime is investigated. Evidence is accumulated. Suspects are questioned. Phase continues until cleared by arrest or until statute of limitations prevails.

III. **Arrest and Booking Phase.** Suspect is apprehended, arrested and booked. Arrest Report is completed, together with a Fingerprint Record and mug shots (2), and distributed.

IV. **Preliminary Examination Phase.** Suspect is advised of rights, defense counsel is assigned or obtained by suspect. Preliminary arraignment proceedings are conducted. If hearing is **not** waived, it is held. As a result, case may be dismissed, bound over for the grand jury, or the prosecution may file a true information. If case is dismissed, a Disposition Report is prepared and distributed (3).

V. **Grand Jury Phase.** If the grand jury returns a "true bill," the suspect is indicted and a trial will follow. If "no bill" is returned, the case is dismissed and a Disposition Report is prepared and distributed (4).

VI. **Arraignment and Plea Phase.** Suspect is arraigned and pleads. Case may be dismissed by magistrate at this point. If a guilty plea is entered, the case bypasses the trial and verdict phase and moves directly to sentencing. If dismissed, a Disposition Report is prepared and distributed (5).

VII. **Trial and Verdict Phase.** If suspect is found guilty, the case moves to sentencing. If acquitted, a Disposition Report (6) is prepared and distributed.

VIII. **Sentence Phase.** If the sentence involves a fine only, a Disposition Report (7) is prepared and distributed. If incarceration is the sentence, a Disposition Report (8) is prepared and distributed and the criminal is remanded to the applicable correctional institution by mittimus.

IX. **Probation.** If the sentence includes probation, the terms are established by the court and a Disposition Report (9) is prepared and distributed. The individual continues as a probationer until discharged at which time a Disposition Report (10) is prepared and distributed. If the probationer violates the terms of probation, his/her probation may be revoked in which event he/she will be incarcerated.

X. **Correctional Institutions Phase.** On receipt of the prisoner, he/she is again fingerprinted and Receiving Reports (11) are prepared and distributed. The prisoner may or may not be granted parole, and if parole is not granted, the prisoner is discharged for expiration of his/her sentence and a Disposition Report (13) is prepared and submitted.

XI. **Parole Supervision.** If the parolee performs satisfactorily, he/she will be discharged on the specified date and a Disposition Report (12) is prepared and submitted. If the parole is violated, the parolee may be reincarcerated and this fact will be reported by the correctional institution (11).

XII. **Peace Officer Functions.**

1. In the performance of their duties, peace officers receive information requiring the preparation of:
   a. Wanted Person Notices or Cancellation Notices (14)
   b. Stolen Property Notices or Recovery Notices (15)
2. On receipt of such information, these notices are prepared and distributed.

XIII. **BCI Criminal Conspiracy.** From time-to-time BCI agents will prepare Criminal Conspiracy Data Sheets for processing by the data processing support activity (16).

Figure I-2 (Continued)

II. SYSTEM SUMMARY

II. SYSTEM SUMMARY

A. The TRACIS Concept

TRACIS is unique in that it will provide for the integration of data not present in other systems. This concept is developed in detail below, along with other unusual features of the system.

1. Data Integration

a. Data Base. Based on the following conclusions, TRACIS will be designed so that traffic records and criminal justice data are resident in an integrated data base. A commonality of data and coding structures will ensure unrestricted movement of data within and between TRACIS modules, and complete interface with similar systems of other jurisdictions.

- In a mobile society, the involvement of motor vehicles in the commission of crimes and in the movement of criminal elements within and between jurisdictions for criminal purposes, or to prevent apprehension, poses an increasing threat to all peace officers.
- Criminal histories are not complete without the capability to rapidly retrieve relevant information from traffic records of serious violations and accidents that may be indicative of other indictable misdemeanors or felonies.
- Utilizing the license plate number, the mobile patrol should be able to identify the owner of a suspicious vehicle and simultaneously determine whether the owner has a criminal history and whether he should be considered dangerous.
- The driver's operator permit number, properly indexed, provides the same information when the applicable file is accessed.

- During the pre-trial investigation phase, the prosecution has the capability to access all data concerning the criminal history of the accused, including serious or frequent traffic violations or accidents indicative of patterns or trends.

- During the pre-sentencing investigative phase, the court has a valid requirement for the same capability.

b. Files and Records. Within the integrated data base, files containing records that pertain to traffic and criminal justice matters will be organized and structured so as to ensure minimal redundancy of data and to facilitate accurate and timely access. These files and records will be organized in two subsystems--one for traffic records and one for criminal justice information (see Section III, System Description, Table III-1). The files in each subsystem are accessible by certain indices, some of which are common to both traffic records and criminal justice information (see Figure II-1). A query accessing a file or record within a TRACIS subsystem may automatically access applicable files and records of the other subsystems in the assembly of a query response.

c. Data Sources. TRACIS information sources are described in detail in Section III and in matrix form in Figure II-2.

2. System Integration. TRACIS design is based on the principle of maximum effective integration of data and information within a common data base to minimize redundancy and to ensure the responsive and cost effective support of traffic records and criminal justice functions. Input data for the creation or maintenance of TRACIS files and records will be batch processed except for data of an urgency requiring real-time processing.[1]

3. Processing. TRACIS processing will be performed as follows.

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[1] See paragraph B.2.f(U) and (V) of the Technical Report for restrictions for the use of real-time facilities.

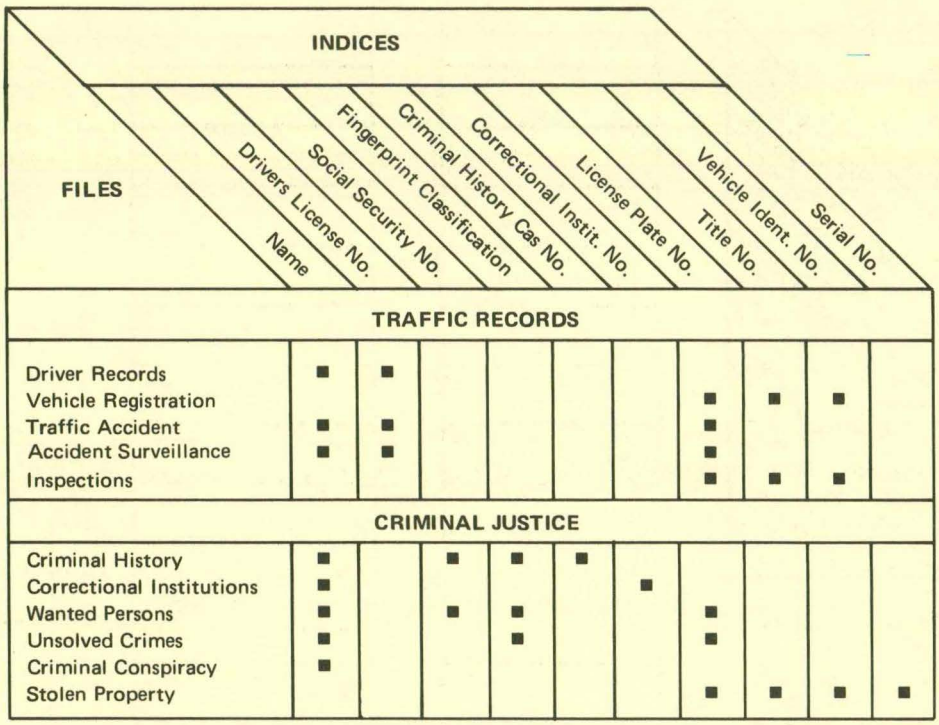

Figure II-1. TRACIS Files and Indices

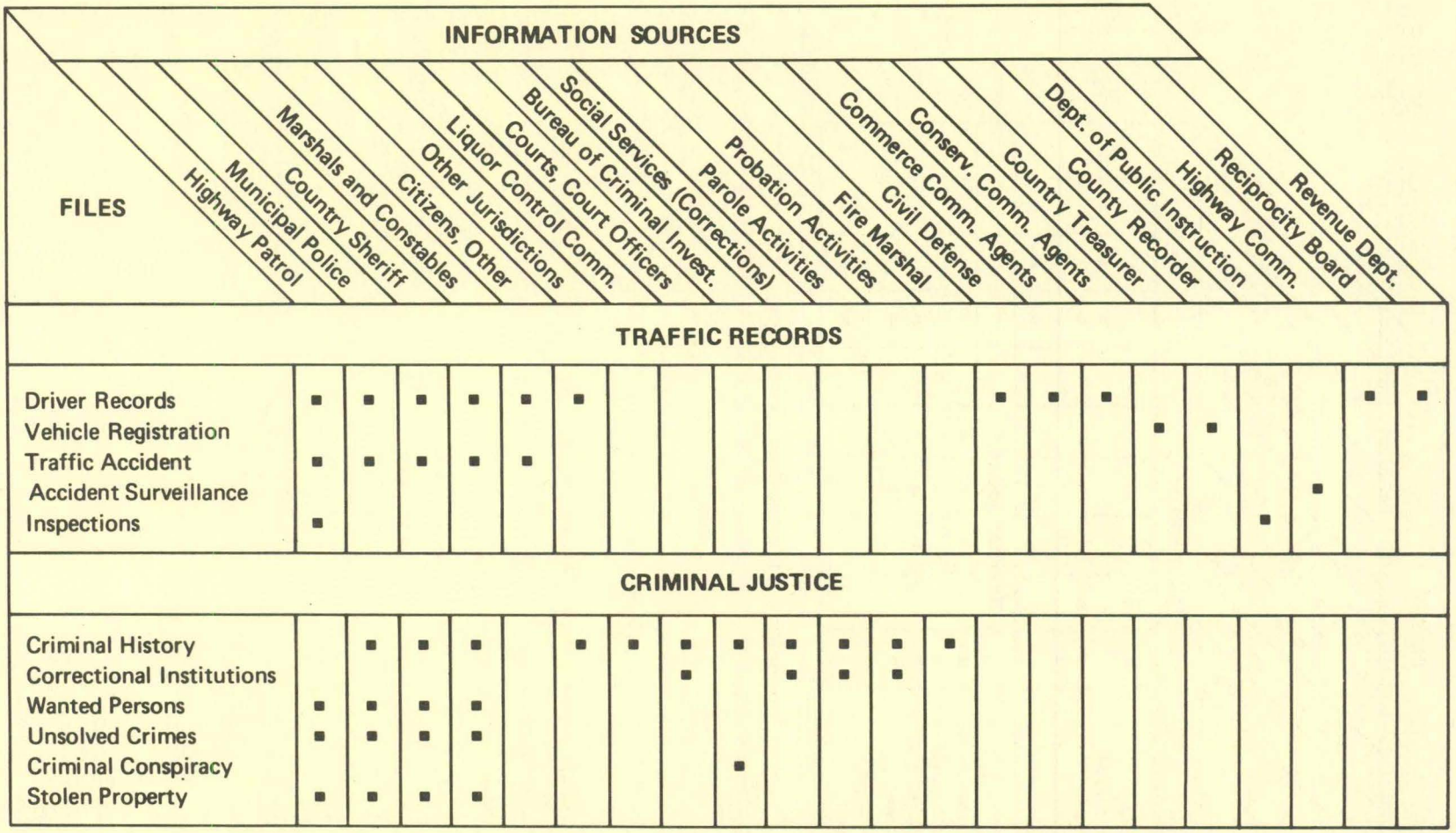

Figure II-2. TRACIS Information Sources

a. File Maintenance. With the exception of urgent inputs, file maintenance processing will be performed on-line in a batch processing mode for files and records maintained on-line. For off-line files and records, file maintenance processing will also be performed in a batch processing mode. Processing frequency will be consistent with an accurate and timely data base.

b. Output. Processing associated with the production of reports will be performed on-line in a batch processing mode where applicable files and records are maintained on-line. For off-line files and records, report production processing will also be performed in a batch processing mode. Processing will be performed on daily, weekly, monthly, quarterly, semiannual, and annual cycles as scheduled.

c. Query. Query processing will be initiated by a query received from an input/output (I/O) terminal by the message processor and will terminate when a response to the query has been transmitted and logged.

d. Equipment. Automatic data processing equipment (ADPE) support will be provided by a third- or fourth-generation configuration with appropriate backup capacity to ensure uninterrupted TRACIS operations and the satisfaction of other approved support requirements (see Section V). Figure II-3 is a graphic representation of the total TRACIS ADPE configuration.

4. Communications Support

TRACIS operations will be supported by the Iowa State Police Radio System, I/O terminals, leased lines, and control units to accommodate projected TRACIS queries and responses (see Section VI). The communications network will comprise terminals located at the State Capitol Complex, Highway Patrol District Offices, Police Radio Stations, Police Departments, and County Sheriff's Offices, as portrayed in Figure II-4.

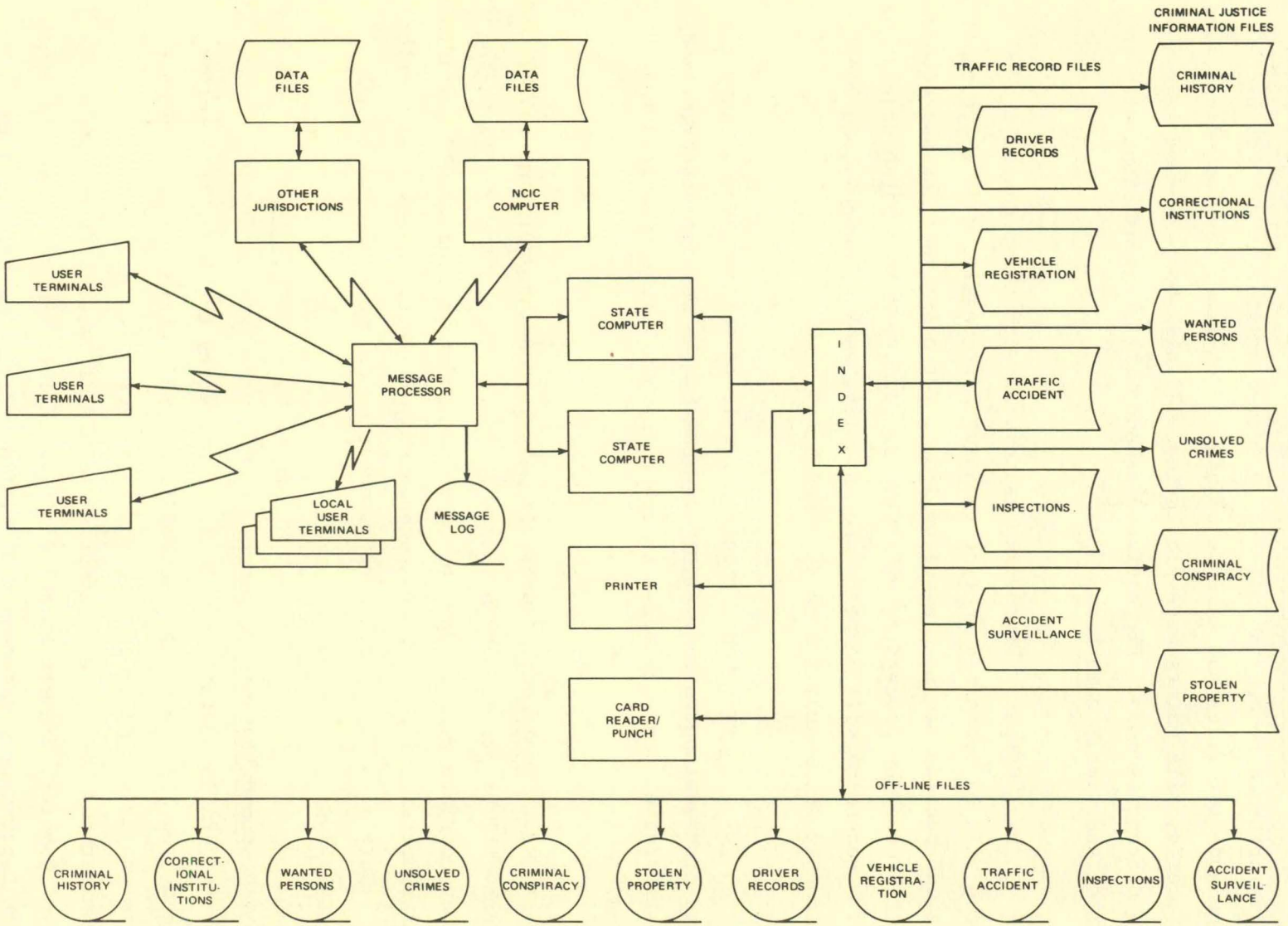

Figure II-3. Total TRACIS ADPE Configuration

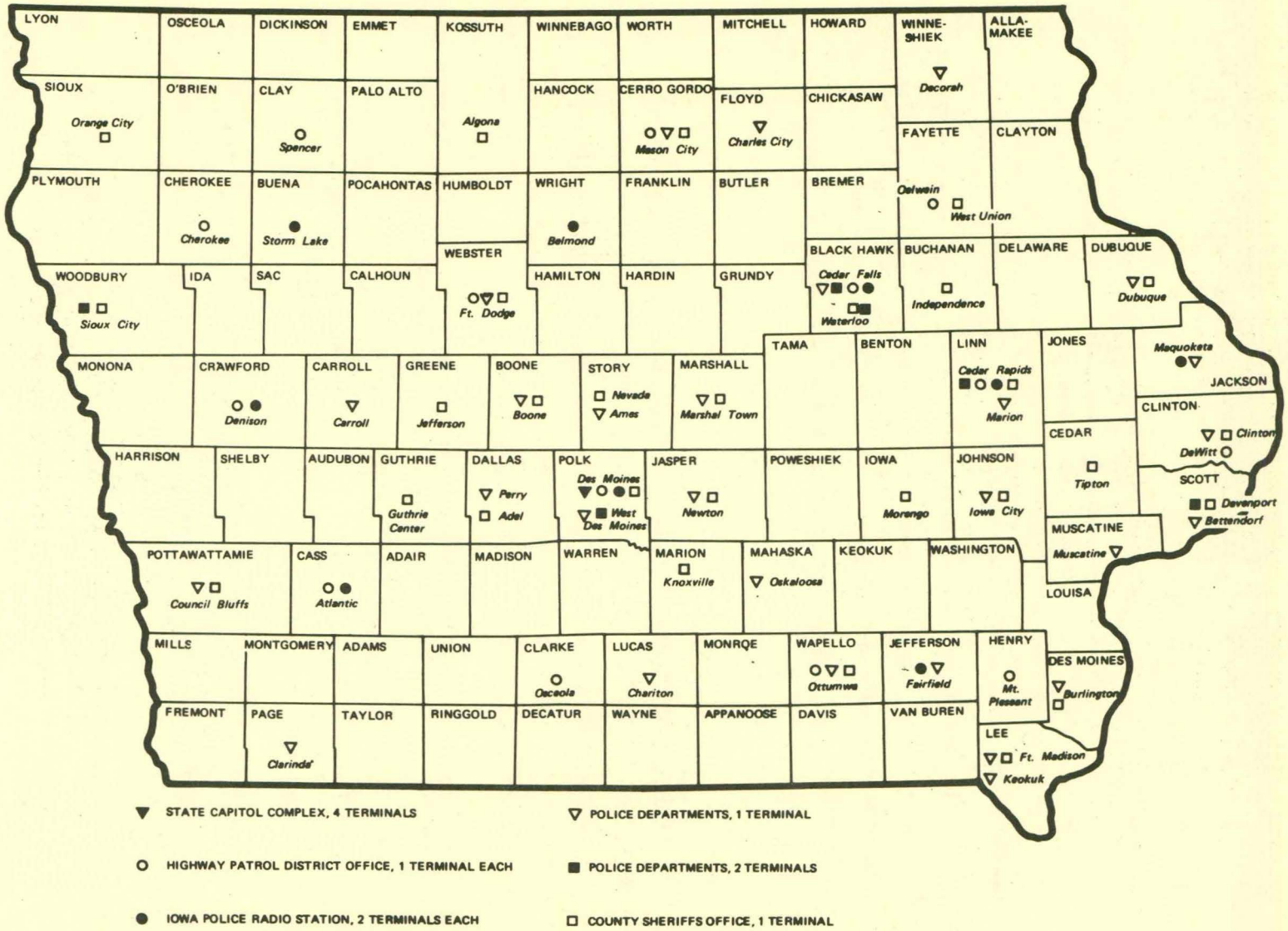

Figure II-4. TRACIS Communications Network

B. Information Requirements

Information requirements are categorized as follows:

- The query/response requirements such as those meeting the test of urgency as defined in Section II, paragraph B.2.f(1) and (2) of the Technical Report, for which real-time processing is required

- Those to be satisfied via batch processing and report production on a daily, weekly, monthly, quarterly, semi-annual, annual, or as-required basis

Table II-1 presents the real-time information requirements, and Figure II-5 the batch processing requirements, for both the traffic records and criminal justice subsystems. In both categories the information requirements are not necessarily limited to those presented, it being recognized that additional needs will be identified during the detailed design phase.

C. Tasks To Be Performed

1. Preparatory Action. Actions specified in Section III of the Technical Report will be completed during Part II of the TRACIS design effort to complement and support the detailed design functions (Part III). It should be noted that these preparatory actions, summarized below, are subject to change during the detailed design phase:

- Functional elements will be further analyzed with reference to source, frequency, volume, use, and essentiality.

- Personnel needs will be identified in terms of skills and numbers required to direct, manage, and operate TRACIS. This will include personnel recruitment and training considerations.

- Facilities requirements will be identified and described in terms of physical facilities required to house and support I/O terminals, ADPE office furniture and supplies, and personnel.

- ADPE requirements will be further identified and described in terms of current or planned availability, including scheduled procurement or the alteration of current ADPE configurations versus projected requirements. See Section V.

Table II-1. TRACIS Real-Time Information Requirements

Report	Purpose or Description
TRAFFIC RECORDS	
Criminal History Summary	Pertains to vehicle owners, operators, or passengers
Operator/Passenger Identification	Depends on Social Security Number Index
Prior Traffic Violation Conviction	Includes data from Driver Records File
Drivers License Validity	Verifies that individual is licensed to operate a vehicle in State of Iowa
Vehicle Identification	Identifies owner if vehicle is titled/registered in State of Iowa
Stolen Vehicle Recovery	Identifies vehicles that are recovered following theft
Apprehension of Wanted Persons	Accessed by Department of Public Safety via remote I/O terminals
Serious Injury or Fatal Accident	Accessed by Department of Public Safety via remote I/O terminals
CRIMINAL JUSTICE	
Criminal History Summary	Provides criminal background of suspects
Suspect Identification	Includes data from Criminal History, Wanted Persons, or Driver Records Files, as appropriate
Wanted Persons	Provides identification of suspects at large, incl. offense for which wanted, whether considered dangerous, etc.
Apprehension	Provides information on captured wanted persons
Stolen Property	Provides identification of property reported stolen
Stolen Property Recovery	Provides identification of property recovered following theft
Escapee	Provides identification on escapees from Iowa correctional institutions
Serious Crimes	Contains information concerning crimes involving death or injury

Title	Output By	Daily	Weekly	Monthly	Quarterly	Semi-Annual	Annual
TRAFFIC RECORDS							
Licenses Suspended or Revoked	Offense/reason	■		□	□		□
Serious Accidents		■					
Traffic Violations	Type and jurisdiction		□	□	□		□
Traffic Violations, Disposition, and Sentence	Type and jurisdiction		□	□	□		□
Financial Responsibility Actions			■	■	□		
Reciprocity Violations	Trucker		■	□	□		□
Motor Vehicle Fuel Tax Violations	Trucker		■	□	□		□
Weights and Measures Violations	Trucker		■	□	□		□
Traffic Accidents	Date, type, and location			□	□		□
Traffic Violations Not Disposed of and Outstanding 30 Days or More	Date and jurisdiction			■	■		■
Vehicle Titles Issued	Type vehicle and issuing office			■	□		□
Vehicle Registrations	Type vehicle and issuing office			■	□		□
Vehicles Disposed of	Type vehicle and disposition			■	□		□
School Bus Driver Permits Issued or Denied					■		
School Bus Driver Permits Revoked					■		
Selected Quarterly Reports for 6-Month Period						■	
School Bus Inspection	School district						■
CRIMINAL JUSTICE							
Additions to Wanted Persons List		■					
Wanted Persons Apprehensions		■		■			
Additions to Stolen Property List		■					
Recovery of Stolen Property		■		■			
Escapees from Correctional Institutions		■					
Serious Crimes Involving Death or Injury	Jurisdiction	■		□	□		□
Arrests and Bookings	Charge jurisdiction		■	□	□		□
Disposition of Criminal Cases	Sentence and jurisdiction		■	□	□		
Accessions to Correctional Institutions	Institution		■	■			
Releases from Correctional Institutions	Type and institution		■	■			
Unsolved Crimes	Jurisdiction		■	□	□		□
Probationers	Jurisdiction			■	■		
Parolees	Jurisdiction			■	■		
Discharge of Probationers	Jurisdiction			■			
Discharge of Parolees	Jurisdiction			■			
Probation Violators Incarcerated	Institution			■			
Parole Violators Incarcerated	Institution			■			
Wanted Persons				■	■		
Stolen Property				■	■		
Criminal Cases Awaiting Disposition	Charge and jurisdiction			□	□		□
Inmates	Institution				■		
Selected Quarterly Report for 6-Month Period							
Status and Dispostion of Criminal Cases	Offense and judicial district						□
Composite Report of Stat. and Dis. of Crim. Cases	Offense						■
Status and Disposition of Crimes Against Persons							□
Status and Disposition of Crimes Against Property							□
Stat. and Dis. of Prohib. Offenses & Off. Against Pub. Morals							□
Paroled Prisoners	Offense, no., & institution						□
Status of Paroled Prisoners	Institution						□
Probationers	Offense and no.						□
Status of Probationers							□
Incarcerated Ages	Offense, inst., spreading age						□
Committments of Judicial Districts	Offense & spreading jud. dist.						□

■ = Detail Reports
□ = Summary Reports

Figure II-5. TRACIS Batch Processing Information Requirements

- Communications equipment requirements will be further identified and described in terms of currently available equipment, locations, adequacy, and capacity; leased lines; and compatibility versus projected communications requirements. The current 5-year communications plan of the State of Iowa will be a vital consideration. See Section VI.

2. Detailed System Development. Detailed system development will be accomplished during Part III of the TRACIS design effort and will be based on Part I documentation (Technical Report and Basic System Design) and on the results of Part II performance. It will include for the integrated TRACIS and for each TRACIS subsystem, module, file, and record, a complete, documented, and definitive description, supported by system and detailed flow charts, of the following items.

a. Source Documents. Will include orginators, distribution, frequency and volume, and input data elements; new or revised requirements will be specified.

b. Data Items and Records. Will be evaluated, specified, and identified with applicable files and sources.

c. Coding Structures. Will be further developed and described in detail, ensuring compatibility with Project SEARCH conventions and with National Crime Information Center (NCIC) specifications.

d. File and Record Organization. Will be specified, including on-line and off-line considerations.

e. Processing Specifications. Will describe all controls, constraints, parameters, processing frequency and processing steps for input data, file maintenance, output, and batch/real-time processing.

3. Evaluation of Equipment Requirements. ADPE and communications equipment requirements will be subjected to further analysis during

Part II performance; necessary changes. additions, or modifications will be documented. During Part III, equipment requirements will again be evaluated.

4. Evaluation of Personnel and Facilities Requirements. Other actions to be taken during the detailed system development include the reevaluation of, and subsequent changes to, personnel needs, recruitment, and training; and facilities to house and support I/O terminals, ADPE, and personnel.

D. Privacy and Security Requirements

The rights of citizens to privacy will not be compromised and the security of TRACIS files and records, ensuring these rights, will be provided. Appendix B describes privacy and security considerations in detail.

III. SYSTEM DESCRIPTION

III. SYSTEM DESCRIPTION

A. System Integration

TRACIS is a laterally integrated[1] system comprising two subsystems--one for traffic records data and another for criminal justice data. Each of these subsystems contains files and associated records (see Table III-1). Data available from a file are accessible for integration with data from other files to satisfy a particular need. This concept is portrayed in the summary system flow chart, Figure III-4, at the end of this section.

B. System Processing

Table III-1 presents the files and records in the Traffic Records Subsystem and Criminal Justice Information Subsystem. A brief discussion of the processing procedures of each of these records is contained in paragraphs 1 and 2 below. Processing generally follows a pattern: The data are obtained from the appropriate agency via standard forms or reports, completed, and forwarded to the receiving agency for approval. From here they go to the data processing support activity for keypunching, verification, and processing. The file is then updated to reflect new data inputs or changes in status.

For a more detailed portrayal of the subsystems showing source documents, input data, files and records, file maintenance processing, output processing (report preparation), and real-time query processing, see the system flow charts, Figures III-5 and III-6, at the end of this section.

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[1] Lateral integration is accomplished by the establishment and maintenance of a common data base, supported by indices to the different files and records, by common programs for query and response processing via the telecommunications network system, and by the use of compatible data elements and data structures. Vertical integration is accomplished by the collection of source data at the lowest feasible level. Where automated municipal systems or regional systems are available, the flow of source documents (reports) will be from originator to the municipal or regional system for automation. Required data will then be transmitted to the TRACIS installation for its use.

Table III-1. TRACIS Subsystem Files and Records

File	Records
TRAFFIC RECORDS SUBSYSTEM	
Driver Records	Drivers License, Temporary Permit Cancellations, Financial and Safety Responsibility, Violations, Suspensions and Revocations.
Vehicle Registration	Registration and Title of Vehicles, incl. boats and snowmobiles
Traffic Accident	Accidents, Injuries, Investigations, Arrests and Charges
Accident Surveillance	Accident Surveillance (statistical extracts from Traffic Accident File)
Inspections	School Buses, Other Vehicles
CRIMINAL JUSTICE INFORMATION SUBSYSTEM	
Criminal History	Identification, Offense/Disposition, Corrections, Probation/Parole, Criminal History Summary
Correctional Institutions	Identification, including offense/disposition and corrections data
Wanted Persons	Iowa Jurisdiction, Other Jurisdictions
Unsolved Crimes	Unsolved Crimes
Criminal Conspiracy	Criminal Conspiracy
Stolen Property	Vehicle/License Plate, Firearms, Currency, Livestock, Other

With reference to Tables III-3 through III-9 and III-11 through III-16, attention is invited to the fact that common data items, such as name, address, social security number, etc., will not be repeated in different file/record segments pertaining to the same person. Such data will be included in a master name index and related to record segments by pointer or other identifier. A significant savings will thus accrue in disk space needed, and additional savings will be achieved by bit packing where feasible.

1. Traffic Records Subsystem

a. Driver Records File

(1) Drivers License Data. Data are obtained from the Application for an Operator's License and forwarded to the Drivers License Division, Department of Public Safety. If a temporary 30-day permit is issued, the application is processed to conclusion. A permament license is then prepared, and the Driver Records File is updated accordingly.

(2) School Bus Drivers Permit. Data are obtained from the Application for a School Bus Drivers Permit and forwarded to the Department of Public Instruction. The driver record of the applicant is then reviewed, and if satisfactory, a 1-year permit is issued. If denied, the application is annotated accordingly.

(3) Violations Data. Data are obtained from a copy of the summons issued by the arresting officer and from an annotated copy of the summons showing the disposition of the case by the court. If driver improvement action is indicated, appropriate data are retrieved from the Driver Records File and furnished to the Drivers License Division. If a license is suspended or revoked, the Violations Record is updated to reflect this action as taken by the Drivers License Division. See Suspense and Revocations Data.

(4) Suspense and Revocations Data. Data are obtained ed from reports of disposition available from the Drivers License Division. See Violations Data, Financial and Safety Responsibility Data, and Vehicle Accident Data.

(5) Temporary Permit Cancellation Data. Data are obtained from the Drivers License Division via a coding sheet annotated to reflect the cancellation and the reason and duration thereof.

(6) Financial and Safety Responsibility Data. Data are obtained from the Drivers License Division. Following their determination of financial responsibility requirements, a coding sheet is prepared to reflect appropriate requirements and compliance or non-compliance by the driver concerned. Noncompliance normally results in suspension or revocation of the Drivers License. See Suspense and Revocations Data and Vehicle Accident Data.

b. Vehicle Registration File

(1) Vehicle Registration Data. Data are obtained from the Vehicle Registration Form. This form is prepared by the data processing support activity for the Motor Vehicle Division, Department of Public Safety, and distributed to County Treasurers for processing and subsequent issuing of license plates and registration certificates. A copy of each certificate, properly authenticated, is then forwarded to the Motor Vehicle Division. Registration forms for boats and snowmobiles are distributed by the Conservation Commission to County Recorders for processing. County Recorders then issue registration certificates; one copy, properly authenticated, is forwarded to the Conservation Commission.

(2) Vehicle Title Data. Data are obtained from a copy of the vehicle title issued by the County Treasurer and received by the Motor Vehicle Division. Title transactions may include the sale or other transfer of ownership, destruction of the vehicle, or other recognized disposition.

c. Traffic Accident File

(1) Vehicle Accident Data. Data are obtained from om traffic accident reports submitted by investigating officers and by the individual(s) involved. If discrepancies are noted, the reports are forwarded to the Drivers License Division for resolution. The Drivers License Division establishes financial responsibility requirements which, if not met, may result in the suspension or revocation of the license of the individual concerned. See Financial and Safety Responsibility Data, Suspense and Revocations Data, and Accident Surveillance Data.

(2) Traffic Accident Injury Data. Data are obtained from traffic accident reports as described above and accident injury data created during the vehicle accident data process.

(3) Accident Investigation Data. Data are obtained from the investigating officer's accident report and from accident investigation data created during the vehicle accident data process.

(4) Arrest and Charge Data. Data are obtained from the investigating officer's accident and arrest reports and from charge data created during the vehicle accident data process.

d. Inspections File

(1) School Bus Inspection Data. Data are obtained from school bus inspection reports submitted annually to the Department of Public Instruction on completion of a joint inspection by representatives of the Department of Public Instruction and the State Highway Patrol.

(2) Other Vehicle Inspection Data. Data are obtained from inspection station reports submitted annually. A copy of this report is forwarded to the Department of Public Safety and annotated by the inspector to reflect each deficiency corrected prior to approval for registration.

e. Accident Surveillance File. Data are obtained from vehicle accident reports and converted for accident surveillance work of the State Highway Commission. See Vehicle Accident Records.

2. Criminal Justice Information Subsystem

a. Criminal History File

(1) Identification Records. Data are obtained from a copy of the Arrest Report or Fingerprint Record, properly completed, and forwarded by the arresting jurisdiction following the booking of a suspect. On receipt of these data by the Bureau of Criminal Investigation (BCI), Department of Public Safety, Criminal History Case Files are updated or established as applicable. The Arrest Report is coded as necessary to ensure commonality with Project SEARCH and NCIC conventions, and the Fingerprint Record is classified for data processing. Both forms are then forwarded to the Data Processing Support Activity (DPSA).

Identification Records are updated to reflect accessions, and applicable records are updated to reflect additional charges during the Criminal History File processing cycle. In addition, identification data are checked against the Unsolved Crimes File to determine whether an unsolved crime has been cleared by the arrest.

Output processing (reports preparation) and query/response processing are performed as specified.

(2) Offense/Disposition Records. Data are obtained from Disposition Reports submitted by the Clerk of the Court when a case is disposed of by:

- Dismissal during the preliminary examination phase
- Dismissal resulting from a Grand Jury "no-bill" action

- Dismissal during the arraignment phase
- Acquittal
- Sentence

On receipt of these data by the Bureau of Criminal Investigation, Criminal History Case Files are updated as applicable. The Disposition Notice is then coded as necessary to ensure commonality with Project SEARCH and NCIC conventions and forwarded to the DPSA.

Output processing (reports preparation) and query/response processing will be performed as specified.

(3) Corrections Records. Data are obtained from correctional institution reports and from Correctional Institutions Identification Records created or updated during Correctional Institutions File processing.

(4) Probation/Parole Records. Data are obtained from disposition reports, from Offense/Disposition Records created or updated during Criminal History File processing, and from Correctional Institution Identification Records created or updated during Correctional Institutions File processing.

(5) Criminal History Summary Records. Data are obtained in summary form from the Criminal History File.

b. Correctional Institutions File--Identification Records. Data are obtained from correctional institions reports, such as the following:

- Receiving Report/Fingerprint Record--Submitted on receipt and processing of prisoners
- Release Report--Submitted when a prisoner is released on parole

- Discharge Report--Submitted when a prisoner is pardoned or his sentence expires.
- Report of Death--Submitted when a prisoner dies while incarcerated
- Report of Escape--Submitted when a prisoner escapes

On receipt of these data by the Department of Social Services, Correctional Institution Case Files are updated as applicable. Reports are then coded as necessary to ensure commonality with Project SEARCH and NCIC conventions and forwarded to the DPSA.

Identification Records are updated during the Correctional Institutions File processing cycle to reflect the status of each prisoner, e.g., deceased, discharged, escaped, pardoned, or paroled.

c. Wanted Persons File and Records. Data are obtained from a copy of a Wanted Person Notice or Cancellation Notice, completed, and forwarded by peace officers of the jurisdiction by which wanted. On receipt by the Bureau of Criminal Investigation, Current Wanted Lists are updated to include a record of accessions to the Wanted Person File. If a Wanted Record already exists, it is updated to reflect the additional data. In the case of cancellations, current Wanted Lists are updated to reflect the cancellation. Forms are then forwarded to the DPSA.

A Wanted Persons Notice or Wanted Persons Cancellation Notice is transmitted to NCIC and other jurisdictions as indicated. The Wanted Person File is then updated to reflect accessions to and deletions from the Wanted List.

Output processing (reports preparation) and query/response processing will be performed as specified.

d. Unsolved Crimes File and Records. Data are obtained from a copy of a Crime Against Person Report or Crime Against Property Report as applicable. These reports are prepared by peace officers of the jurisdiction in which the crime occurrred, and a copy is forwarded to the DPSA. Unsolved crimes cleared by arrest will be purged from the active file and retired. See Criminal History File above.

Output processing (reports preparation) and query/response processing will be performed as specified.

e. Criminal Conspiracy File and Records. Data are received from the Criminal Conspiracy Division, Bureau of Criminal Investigation, for processing. Output processing (reports preparation) and query/response processing will be performed as directed by the Criminal Conspiracy Division.

f. Stolen Property File. This file comprises records for the following stolen property:

- Vehicles/license plates
- Firearms
- Currency
- Livestock
- Other

Data are obtained from Stolen Property Notices or Recovery Notices, completed, and forwarded to the DPSA by peace officers of the jurisdiction in which the property was stolen or recovered. A notice of stolen or recovered property is transmitted to NCIC and other jurisdictions as indicated.

Output processing (reports preparation) and query/response processing will be performed as specified.

C. Information Requirements

TRACIS information requirements were discussed in general in Section II and in terms of individual file records processing in the preceding paragraphs of this section. The remainder of this section describes the detailed processing procedures, for each source document in the TRACIS file subsystems; data items and related coding structures are also listed. The processing specifications and output products associated with each TRACIS file are presented in Appendix A, along with detailed flow charts.

Figure III-1 is a matrix showing the information requirements in relation to the principal users.

1. Traffic Records Subsystem. This subsystem has five major data files:

- Driver Records
- Vehicle Registration
- Inspections
- Traffic Accidents
- Accident Surveillance

Its overall objective is to develop an accurate and timely information system to assist in the administration of the Iowa Traffic Safety Program. In meeting this objective, a number of source documents will be utilized to provide basic data for files, reports, and on-line queries. Table III-2 lists these source documents, along with the estimated annual volume for each. Processing procedures, data items, and coding structures for each record in the traffic files are described below.

a. Driver Records File. This file is a primary part of the Traffic Records Subsystem; its records are as follows:

- Drivers License

- Violations (including reciprocity, fuel tax, and overweight/ oversize violations)
- Financial and Safety Responsibility

The processing specifications and output products for the Drivers Record File, with accompanying flow charts, are presented in Appendix A.

(1) Drivers License. A valid license is required for each operator of a motor vehicle in the State of Iowa. Paragraphs (a) through (h) below describe the source documents that provide input data to the Drivers License Record. Associated data items are presented in Table III-3.

(a) Application for Operators License. An application for an original or renewed operators license is completed by the applicant at a Drivers License Examiniating Station, processed, and sent to the Drivers License Division of the Department of Public Safety. It is then forwarded to the DPSA, after which it is returned to the Drivers License Division for filing. Cards from the DPSA are collected for Driver Records File updating and preparation of operator permits.

(b) Application for an Instruction Permit. An instruction permit is issued at a Drivers License Examining Station to individuals learning to drive. Procedures for processing and distributing the application are identical to those described for the operators license.

(c) Application for a Chauffeurs Permit. An application for a Chauffeurs Permit is completed by the applicant at a Drivers License Examining Station. Procedures for processing and distributing the application are identical to those described for the operators license.

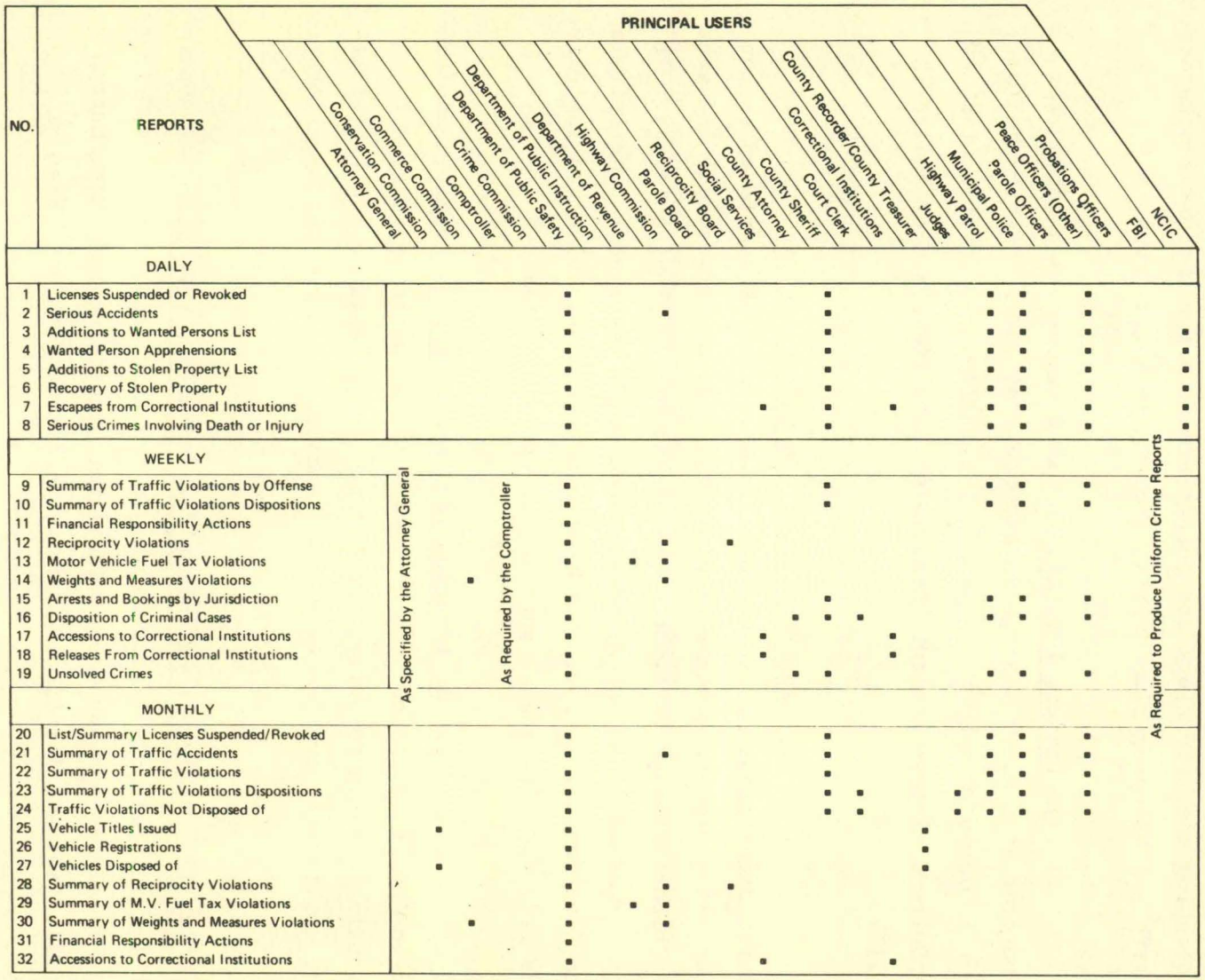


Figure III-1. TRACIS Information Requirements and Principal Users

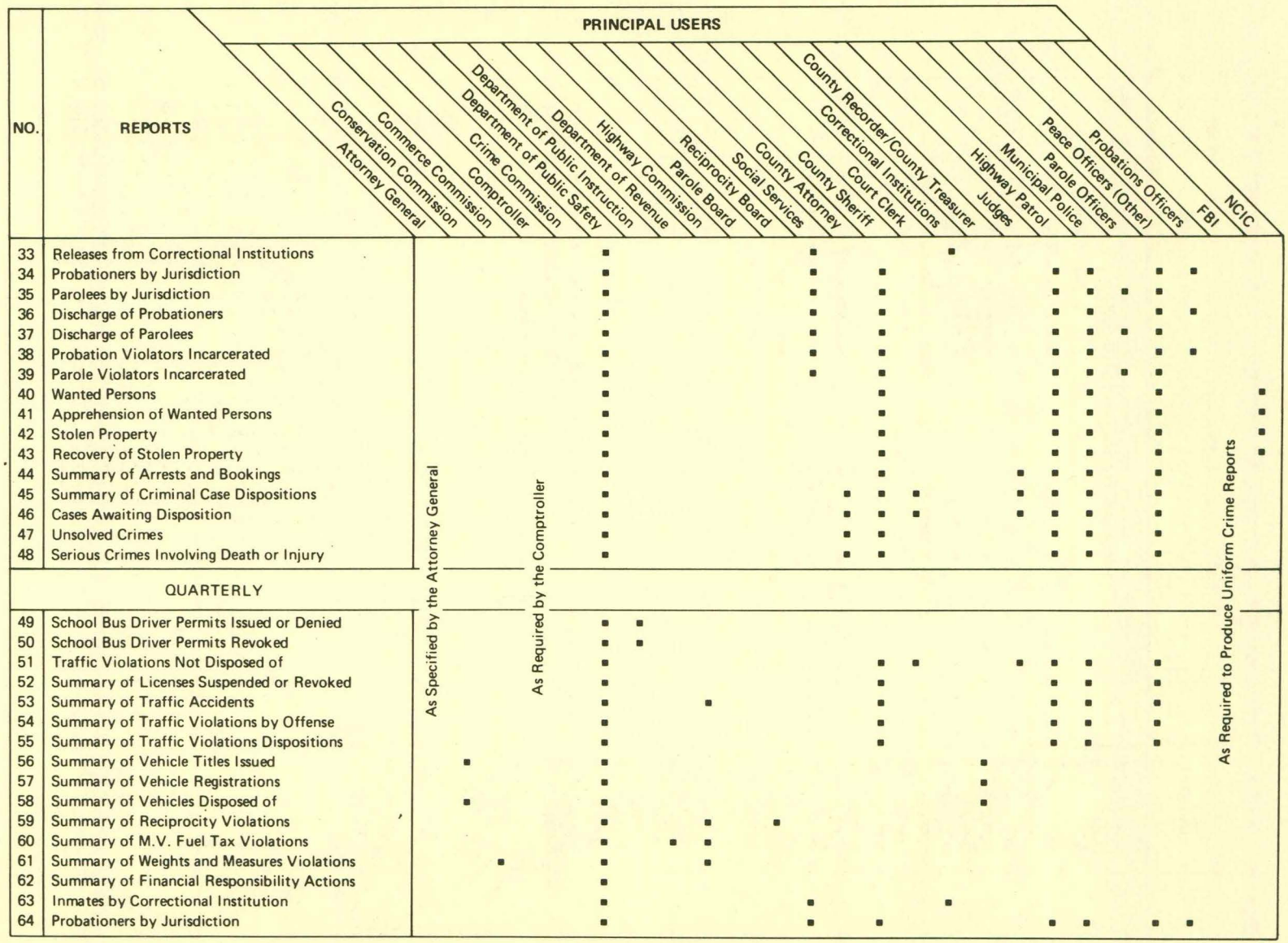


Figure III-1 (Continued)

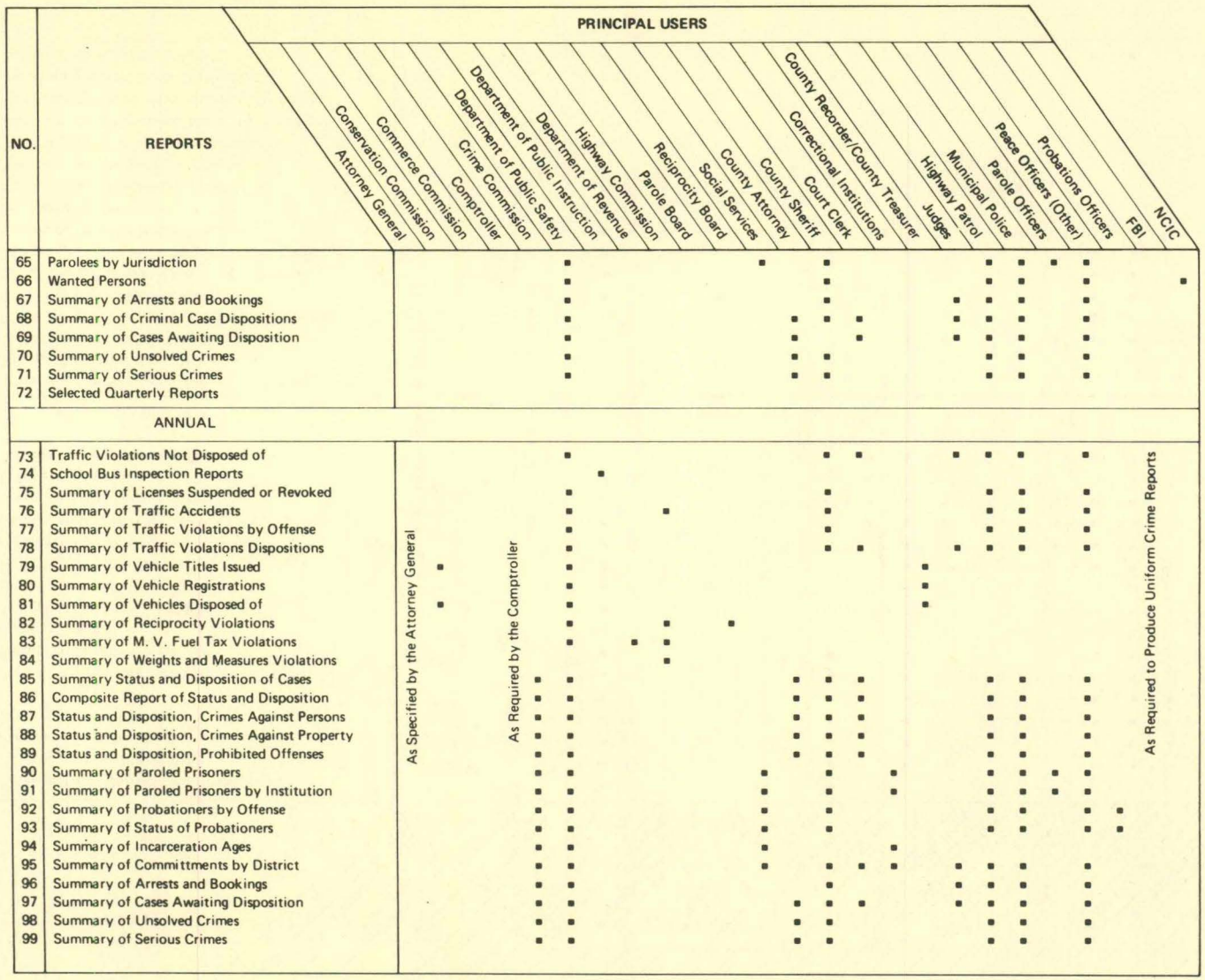


Figure III-1 (Continued)

Table III-2. Estimated Annual Volume of Traffic Records Source Documents

No.	Source Documents	Annual Volume
1.	Application for Operators Permit	707,799
2.	Application for An Instruction Permit	64,614
3.	Application for a Chauffeurs Permit	95,306
4.	Application for a School Bus Drivers Permit	758
5.	Application for a Duplicate Permit	32,029
6.	Application for a Temporary Extension of Operators or Chauffeurs Permit	Undet.
7.	Application for Renewal of Iowa License	500
8.	Uniform Traffic Ticket and Complaint	186,000
9.	Abstract of Court Record for State Licensing Authority	186,000
10.	Drivers Report of Motor Vehicle Traffic Accident	98,000
11.	Investigating Officers Report of Motor Vehicle Accident	98,000
12.	Fatality Report Card	800
13.	SR-21 Form	98,000
14.	Notice of Financial and Safety Responsibility Action	43,000
15.	Other Financial Coverage Notices	Undet.
16.	Application for Certificate of Title	816,326
17.	Application for Duplicate of Iowa Certificate of Title to a Motor Vehicle	Undet.
18.	Receipt for Notation of Security Interest	265,685
19.	Order to County Treasurer to Cancel Security Interest	275,250
20.	Notice of Change of Identity	Undet.
21.	Claim for Refund (vehicles destroyed, dismantled, sold out of state, etc.)	34,736
22.	Application for Vehicle Registration	1,980,000
23.	Application for Iowa Duplicate Plate	Undet.
24.	Registration Stop Notice	Undet.
25.	Fuel Tax Permit Notice	8,000
26.	Reciprocity Permit Notice	28,000
27.	Overweight/Oversize Permit Notice	Undet.
28.	School Bus Inspection Report	Undet.

Table III-3. Data Items, Drivers License Record

(1) Name. In the order last/first/middle/suffix, separated by commas.
(2) Sex
(3) Race. NCIC standards.
(4) Date of Birth. MMDDYY
(5) Height. In feet and inches.
(6) Weight. In pounds.
(7) Hair. NCIC.
(8) Eyes. NCIC.
(9) Social Security Account Number. In standard form without spaces or dashes; serves as a control number in the system.
(10) Street Address or Rural Route Number
(11) City and State. NCIC.
(12) ZIP Code
(13) County
(14) Application Issue Date. MMDDYY.
(15) Occupation. Coded as follows:[1]
11—Arts (performer, artist, writer, radio & TV, etc.)
12—Business (accountant, banker, office manager, store owner or operator)
13—Clergy (minister, priest, rabbi, nun)
14—Clerical (typist, stenographer, file clerk, receptionist, etc.)
15—Commercial driver
16—Domestic servant (maid, janitor, etc.)
17—Farmer and farm laborer
18—Medical (doctor, dentist, dental hygienist, nurse, pharmacist, veterinarian, osteopath, undertaker, medical technician, chiropractor, etc.)
19—Housewife
20—Laborer
21—Military
22—Police (peace officers, fireman)
23—Professional (engineer, lawyer, scientist, etc.)
24—Public official (Federal, State, county, local, except peace officers)
25—Retired
26—Salesman
27—Skilled and semiskilled (carpenter, bricklayer, electrician, machine operator, factory worker, store clerk, bartender, waitress, etc.)
28—Student
29—Teacher
30—Unemployed
(16) License Number
(17) License Type. Coded as follows:
1—Operators License
2—Chauffeurs License
3—School Bus Drivers Permit
(18) Driver Restrictions. Coded as follows:
0—License denied
1—Corrective lenses
2—Left outside mirror
3—Daylight driving only
4—Not valid for operating a truck-tractor, semi-trailer combination

[1] The six-digit code from the *Dictionary of Occupational Titles* may be used instead if subsequent investigation reveals the need.

Table III-3 (Continued)

5—Automatic transmission
6—Valid as operator; also, as chauffeur for vehicles not to exceed 5 tons gross weight
7—Valid for school bus
8—Valid for motorcycle
9—Other

(19) Expiration Date. MMDDYY.
(20) Application Date. MMDDYY.
(21) Chauffeurs License Number
(22) School District Code. Identifies the district in which an individual operates a school bus.
(23) Chauffeurs License Expiration Date. MMDDYY.
(24) School Address
(25) School Bus Experience. In years.

(d) Application for a School Bus Drivers Permit. The School Bus Drivers Permit authorizes an individual to drive a school bus in Iowa for a period of 1 year. The completed application is submitted to the applicable school district, from which it is forwarded to the Department of Public Instruction together with medical reports and related information as required. If it is approved, a permit is issued and notification thereof forwarded to the DPSA.

(e) Application for a Duplicate Permit. Duplicate permits may be issued for a variety of reasons, e.g., loss or theft of license, changes in driver restrictions, etc. The originator is the applicant for a duplicate permit. When properly completed, the application is sent to the Drivers License Division for processing and issuance of the duplicate permit. It is then forwarded to the DPSA.

(f) Application for a Temporary Extension of Operators or Chauffeurs Permit. This application is typically used by individuals unable to report to an examining station to renew their license by the expiration date. The application is mailed to the Drivers License Division, from which it is forwarded to the DPSA.

(g) Application for Renewal of Iowa License. This application is used by Iowa residents who are out of state and unable to return to renew their license. The application is mailed to the Drivers License Division, where it is processed and forwarded to the DPSA.

(h) Other Input Data. Actions taken in the administration of traffic safety other than those described above and which may affect the status of a drivers license include the following:

- Notice of a drivers license revocation or suspension may result from a court action or from administration of the financial and safety responsibility regulations by the Drivers License Division.

- Reports of court actions are transmitted to the Drivers License Division, where they are grouped with notices of action stemming from the administration of financial and safety responsibility regulations and forwarded to the DPSA.

(2) Violations. Violation data comprise those offenses in violation of: the State Motor Vehicle Code, for which a citation is issued; the State Code for Reciprocity Agreements, Fuel Tax Permits, and Overweight/Oversize Permits. Court disposition data will also be included in the file.

Paragraphs (a) through (c) describe the source documents that provide input data to the Violations Record. Associated data items are presented in Table III-4 .

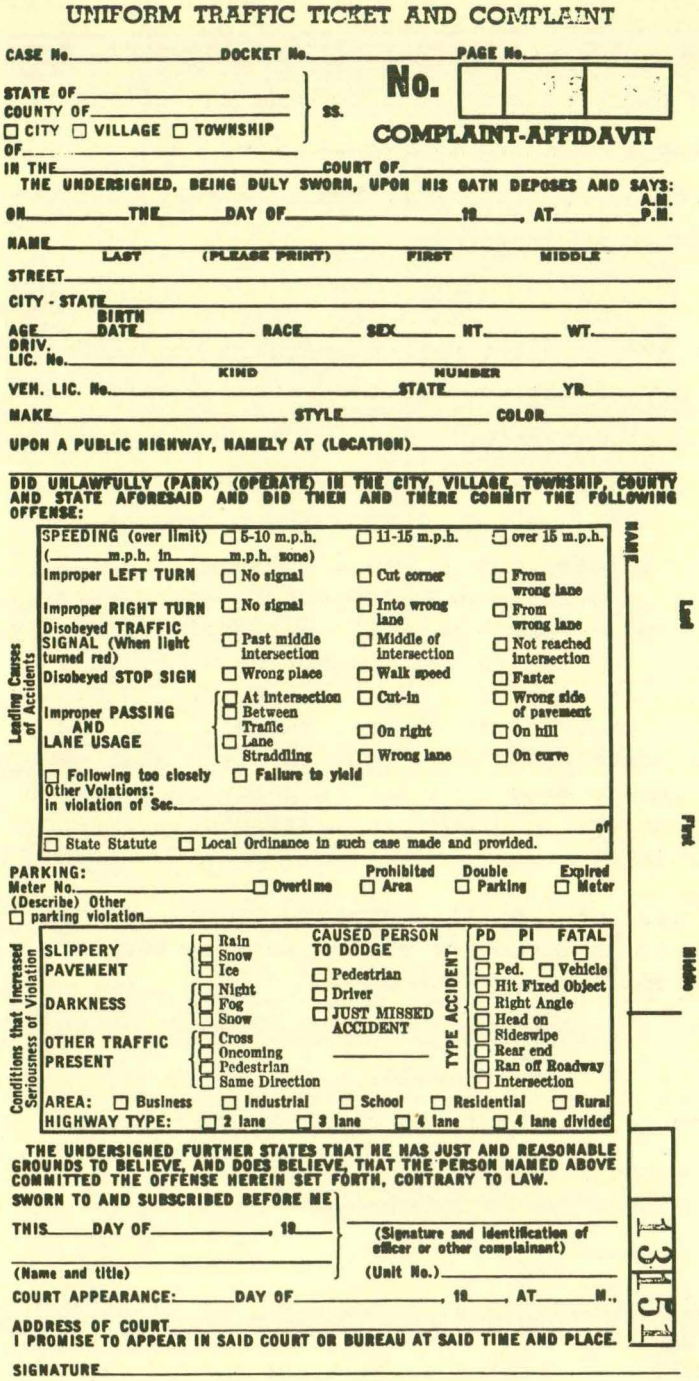
(a) Uniform Traffic Ticket and Complaint. A traffic ticket (see Figure III-2) is issued to violators of the Iowa State Motor Vehicle Code by the peace officer observing the offense. He retains a copy of the ticket and distributes others to the court of jurisdiction and Department of Public Safety. The copy sent to the Department of Public Safety is forwarded to the DPSA.

(b) Reciprocity, Fuel Tax, and Overweight/Oversize Violation Tickets. Violations of the Iowa State Code and administrative regulations concerning reciprocity, fuel tax, and overweight/oversize permits are recorded in the Driver Records File. The peace officer observing an offense originates the ticket, which may be in the form of a summons or memorandum of traffic violation. Copies of the ticket are sent to the appropriate regulatory agencies for action, and one is forwarded to the DPSA.

(c) Abstract of Court Record for State Licensing Authority. When a traffic violation is presented to a court, the case is tried and, where a verdict of guilty is found, the magistrate imposes

Table III-4. Data Items, Violations Record

(1) Case Number
(2) Court Docket Number
(3) Docket Page Number
(4) County of Violation
(5) City of Violation
(6) Court of Jurisdiction
(7) Court Appearance Date. MMDDYY.
(8) Name of Defendant. In the order last/first/middle/suffix, separated by commas.
(9) Street Address or Rural Route Number.
(10) City and State. NCIC.
(11) Date of Birth. MMDDYY.
(12) Race. NCIC.
(13) Sex
(14) Weight. In pounds.
(15) Height. In feet and inches.
(16) Operators License Number
(17) Vehicle License Number
(18) State of Vehicle Registration. NCIC.
(19) Vehicle Year
(20) Vehicle Make. NCIC.
(21) Vehicle Body Style. NCIC.
(22) Vehicle Color. NCIC.
(23) Violation Date. MMDDYY.
(24) Violation Type. Coded according to current Drivers License Division standards.
(25) Disposition. Coded as follows:
  1—Not guilty
  2—Bail forfeited
  3—Warrant issued
  4—Violator jailed
  5—Violator placed on probation
  6—Case continued
(26) Bail Amount. In dollars.
(27) Jail Sentence. In days.
(28) License Status. Coded as follows:
  1—No change
  2—Suspended
  3—Revoked



UNIFORM TRAFFIC TICKET AND COMPLAINT

CASE No. DOCKET No. PAGE No.

STATE OF
COUNTY OF
☐ CITY ☐ VILLAGE ☐ TOWNSHIP
OF
SS.

No.

COMPLAINT-AFFIDAVIT

IN THE COURT OF

THE UNDERSIGNED, BEING DULY SWORN, UPON HIS OATH DEPOSES AND SAYS:

ON THE DAY OF 19 , AT A.M. P.M.

NAME (LAST) (PLEASE PRINT) (FIRST) (MIDDLE)

STREET

CITY - STATE

AGE BIRTH DATE RACE SEX HT. WT.

DRIV. LIC. No. (KIND) (NUMBER)

VEH. LIC. No. STATE YR.

MAKE STYLE COLOR

UPON A PUBLIC HIGHWAY, NAMELY AT (LOCATION)

DID UNLAWFULLY (PARK) (OPERATE) IN THE CITY, VILLAGE, TOWNSHIP, COUNTY AND STATE AFORESAID AND DID THEN AND THERE COMMIT THE FOLLOWING OFFENSE:

Leading Causes of Accidents

SPEEDING (over limit) (____m.p.h. in ____m.p.h. zone)	☐ 5-10 m.p.h.	☐ 11-15 m.p.h.	☐ over 15 m.p.h.
Improper LEFT TURN	☐ No signal	☐ Cut corner	☐ From wrong lane
Improper RIGHT TURN	☐ No signal	☐ Into wrong lane	☐ From wrong lane
Disobeyed TRAFFIC SIGNAL (When light turned red)	☐ Past middle intersection	☐ Middle of intersection	☐ Not reached intersection
Disobeyed STOP SIGN	☐ Wrong place	☐ Walk speed	☐ Faster
Improper PASSING AND LANE USAGE	☐ At intersection ☐ Between Traffic ☐ Lane Straddling	☐ Cut-in ☐ On right ☐ Wrong lane	☐ Wrong side of pavement ☐ On hill ☐ On curve

☐ Following too closely ☐ Failure to yield

Other Violations:
in violation of Sec. of

☐ State Statute ☐ Local Ordinance in such case made and provided.

PARKING:
Meter No. ☐ Overtime ☐ Prohibited Area ☐ Double Parking ☐ Expired Meter
(Describe) Other
☐ parking violation

Conditions that Increased Seriousness of Violation

SLIPPERY PAVEMENT	☐ Rain ☐ Snow ☐ Ice	CAUSED PERSON TO DODGE ☐ Pedestrian ☐ Driver ☐ JUST MISSED ACCIDENT	TYPE ACCIDENT: PD ☐ PI ☐ FATAL ☐ ☐ ☐ Ped. ☐ Vehicle ☐ Hit Fixed Object ☐ Right Angle ☐ Head on ☐ Sideswipe ☐ Rear end ☐ Ran off Roadway ☐ Intersection
DARKNESS	☐ Night ☐ Fog ☐ Snow		
OTHER TRAFFIC PRESENT	☐ Cross ☐ Oncoming ☐ Pedestrian ☐ Same Direction		

AREA: ☐ Business ☐ Industrial ☐ School ☐ Residential ☐ Rural
HIGHWAY TYPE: ☐ 2 lane ☐ 3 lane ☐ 4 lane ☐ 4 lane divided

THE UNDERSIGNED FURTHER STATES THAT HE HAS JUST AND REASONABLE GROUNDS TO BELIEVE, AND DOES BELIEVE, THAT THE PERSON NAMED ABOVE COMMITTED THE OFFENSE HEREIN SET FORTH, CONTRARY TO LAW.

SWORN TO AND SUBSCRIBED BEFORE ME

THIS DAY OF , 19

(Name and title)

(Signature and identification of officer or other complainant)

(Unit No.)

COURT APPEARANCE: DAY OF , 19 , AT M.,

ADDRESS OF COURT

I PROMISE TO APPEAR IN SAID COURT OR BUREAU AT SAID TIME AND PLACE.

SIGNATURE

NAME Last First Middle

Figure III-2. Uniform Traffic Ticket and Complaint

a sentence. Forfeiture of bail may also close cases for which such procedure is authorized. Other actions may occur that will result in continuance of the case. For each violation, however, some disposition is required. The Clerk of the Court records the disposition of the traffic violation on the form shown in Figure III-3, and the disposition notice is forwarded to the Department of Public Safety, where it is recorded and transmitted to the DPSA.

(3) Traffic Accidents/Accident Surveillance. Traffic accident data may be included in the Driver Records File or in a separate Traffic Accident File.[1] The fundamental importance of the data to the Iowa Traffic Safety Program is emphasized by the following:

> Uniform, complete, and accurate accident reports, stored in one center in every State, subject to rapid retrieval and analysis, and compatible with a national records system at the Federal level, can tell us not only how many accidents we have, but what kind of accidents they are, where and when they occur, their physical circumstances and the people, injuries, death and damage they involve, what emergency services and enforcement agencies responded and how, and what judicial actions resulted, to mention only the most obvious possibilities.[2]
>
> No other part of the State program is as basic to ultimate success, nor as demanding of complete cooperation at every jurisdictional level.[3]

Paragraphs (a) through (c) describe the source documents that provide input data to the Accidents Record. Associated data items are presented in Table III-5.

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[1] Although included here as an element of the Driver Records File, it is noted that the volume and complexity of accident reporting appears to be of such scope as to justify establishment of a separate file for the maintenance of both accident and accident surveillance data.

[2] House Report 1700, 89th Congress, 2d Session, p. 10.

[3] Ibid., P. 11.

"ABSTRACT of COURT RECORD for STATE LICENSING AUTHORITY"

CASE No._____ DOCKET No._____ PAGE No._____

Date	COURT ACTION AND OTHER ORDERS
	The within complaint has been examined and there is probable cause for filing the same. Leave is hereby granted to file the complaint. Complaint filed.
	Bail fixed at $_____ or cash deposit of $_____ _____ Signature of person giving bail _____ Signature of person taking bail
	Fine in the amount of $_____ received as required by court schedule. _____ Signature of Clerk
	Continuance to_____ Reason_____
	Continuance to_____ Reason_____
	Warrant issued_____
	Warrant served_____
	Trial by Court (Jury) Plea_____ Defendant Arraigned_____ Waives Trial by Jury_____ Finding by Court_____ Finding by Jury_____ The Court therefore, enters following order: Fined $_____ Costs $_____ Jailed_____ days in_____ Traffic School Probation Defendant Notified of His Rights Driver's License ☐ Suspended for_____ days ☐ Recommended for Suspension_____ days
	Testimony—Judges Notes: (or other Court Orders):
	As provided by Law, I hereby certify that the information on this ticket is a true abstract of the record of this court or bureau in this case. _____ Signature of Judge or Clerk
	Appeal Bond of $_____ Filed for_____ Appeal to_____ Court

MAIL TO: STATE LICENSING AUTHORITY

Figure III-3. Abstract of Court Record for State Licensing Authority

Table III-5. Data Items, Accident Record

(1) Rural/Urban. Coded R or U.
(2) Public Safety Accident Number. Assigned by the Department of Public Safety to identify an accident.
(3) Accident Location:
  (a) County
  (b) Town
  (c) Section
  (d) Township
  (e) Range
  (f) East/West Indicator
  (g) Control Section
  (h) Route Number
  (i) Milepost Marker Number (Rural Accidents) or Street and Number (Accidents in Town)
(4) Highway Type. Coded as follows:
  1 —Interstate
  2 —Federal aid primary
  3 —Other primary
  4 —Federal aid secondary
  5 —Other secondary
  6 —City street
  7 —Other
(5) Time:
  (a) Month
  (b) Day
  (c) Year
  (d) Day of Week
  (e) Hour
(6) Driver Data:
  (a) Name. In the order last/first/middle/suffix, separated by commas.
  (b) Address
  (c) License Number
  (d) Occupation Code. From the *Dictionary of Occupational Titles*
  (e) Date of Birth. MMDDYY.
  (f) County of Residence
  (g) Sex
  (h) Physical Condition. Coded as follows:
    0 —Normal
    1 —Fatigued
    2 —Asleep
    3 —Ill
    4 —Physical defect
    5 —Unknown

Table III-5 (Continued)

(i) Vision. Coded as follows:
- 0 –Not obscured
- 1 –Trees, crops
- 2 –Buildings
- 3 –Embankments
- 4 –Signboard
- 5 –Hillcrest
- 6 –Parked cars
- 7 –Blinded by headlights
- 8 –Blinded by sunlight
- 9 –Windshield/Windows obscured
- 10 –Smoke or dust

(j) Violations. Coded as follows:
- 0 –No violation
- 1 –Speed too fast
- 2 –Failed to yield right of way
- 3 –Drove left of center
- 4 –Improper passing
- 5 –Ran stop sign
- 6 –Ran traffic signal
- 7 –Followed too closely
- 8 –Made improper turn
- 9 –Improper start
- 10 –Improper backing
- 11 –Not under control
- 12 –Illegal parking
- 13 –Had been drinking
- 14 –Hit and run
- 15 –Other violations

(k) Alcohol Condition. Coded as follows:
- 1 –Obviously drunk
- 2 –Ability impaired
- 3 –Ability not impaired
- 4 –Not known if drinking
- 5 –Had not been drinking

(7) Owner:
- (a) Name. In the order last/first/middle/suffix, separated by commas.
- (b) Address

(8) Vehicle Data:
- (a) Make of vehicle. NCIC.
- (b) Model
- (c) Year. For the model year.
- (d) Registration Number
- (e) Vehicle Identification Number
- (f) State of Registration. NCIC.
- (g) Vehicle defect. Coded as follows:

Table III-5 (Continued)

1 —Defective brakes
2 —Defective lights
3 —Tire failure
4 —Trailer hitch failure
5 —Power failure
6 —Accelerator stuck
7 —Load projecting
8 —Towed or pushed
9 —Other defects

(h) Seat Belts Installed. Coded as follows:
1 —Installed
2 —Not installed

(i) Seat Belt Use. Coded as follows:
1 —In use
2 —Not in use

(j) Direction of Travel. Coded as follows:
0 —Not Stated
1 —North
2 —Northeast
3 —East
4 —Southeast
5 —South
6 —Southeast
7 —West
8 —Northwest

(k) Vehicle Number. Assigned to each vehicle involved in an accident.

(l) Vehicle Action. Coded as follows:
0 —Moving vehicle with driver
1 —Hit and run vehicle
2 —Improperly parked vehicle
3 —Rolling vehicle, no driver
4 —Stolen vehicle
5 —Stopped vehicle
6 —No information
7 —Parked vehicle
8 —Driverless vehicle
9 —Stalled vehicle

(m) Directional Analysis
Two Motor Vehicle Intersection Accidents
1 —Both straight—from same direction
2 —Both straight—from opposite direction
3 —Both straight—at angle
4 —One right, one straight—from same direction
5 —One right, one straight—from opposite direction
6 —One right, one straight—at angle
7 —One left, one straight—from same direction
8 —One left, one straight—from opposite direction
9 —One left, one straight—at angle

Table III-5 (Continued)

10 –One stopped–other from same direction
11 –One stopped–other from opposite direction
12 –One stopped–other at angle
13 –All others–from same direction
14 –All others–from opposite direction
15 –All others–at angle
16 –NOT STATED
17 –One parked proper location
18 –One parked improper location
19 –One stalled

Two Motor Vehicle Non-Intersection Accidents

21 –Going opposite direction–head on collision
22 –Going opposite direction–angle or sideswipe collision
23 –Going same direction–rear end collision
24 –Going same direction–angle or sideswipe collision
25 –One parked–proper location
26 –One parked–improper location
27 –One stopped in traffic
28 –One forward from parked position
29 –One backward from parked position
30 –One entering alley
31 –One leaving alley
32 –One entering driveway
33 –One leaving driveway
34 –All others
35 –NOT STATED
36 –One stalled

All Other Accidents

41 –Collision with non-motor vehicle, train, street car, bicycle, etc., at intersection
42 –Collision with non-motor vehicle, train, street car, bicycle, etc., not at intersection
43 –Collision with fixed object in roadway at intersection
44 –Collision with fixed object in roadway not at intersection
45 –Overturned in roadway at intersection
46 –Overturned in roadway not at intersection
47 –Left roadway at intersection
48 –Left roadway at curve
49 –Left roadway on straight road
50 –Occupant fell from vehicle
51 –Injured within vehicle (no other event)
52 –Mechanical failure (no other event)
53 –Fire (no other event)
54 –Animal
55 –All others

Table III-5 (Continued)

56 –NOT STATED
57 –Jack-knife

Vehicle Direction in Pedestrian Accidents

61 –Going straight
62 –Turning right
63 –Turning left
64 –Car backing
65 –All others
66 –NOT STATED

(9) Pedestrian Actions:

A –Crossing at intersection with signal
B –Crossing at intersection against signal
C –Crossing at intersection–no signal
D –Crossing at intersection diagonally
E –Crossing not at intersection
F –Coming from behind parked car
G –Walking in roadway with traffic
H –Walking in roadway against traffic
I –Getting on or off street car or bus
J –Getting on or off other vehicle
K –Pushing or working on vehicle in roadway
L –Other working in roadway
M –Playing in roadway
N –Lying in roadway
O –Standing in roadway
P –Other in roadway
Q –Not in roadway
R –NOT STATED
S –Pedestrian not involved

(10) Accident Characteristics:

(a) Accident Severity Indicator

(b) Type Accident Indicator. Coded as follows:

1 –Ran off road
2 –Overturned in road
3 –Pedestrian
4 –Motor vehicle in traffic
5 –Parked motor vehicle
6 –Railroad train
7 –Bicyclist
8 –Animal
9 –Fixed object
10 –Other object
11 –Other noncollision
12 –Motorcycle

Table III-5 (Continued)

(c) Roadway Surface Condition. Coded as follows:
- 4 –Dry
- 5 –Wet
- 6 –Snowy
- 7 –Icy
- 8 –Muddy

(d) Weather Indicator. Coded as follows:
- 0 –Clear
- 1 –Cloudy
- 2 –Foggy
- 3 –Raining
- 4 –Snowing
- 5 –Sleeting
- 6 –Misting

(e) Roadway Surface. Coded as follows:
- 1 –Portland cement concrete
- 2 –Asphalt concrete
- 3 –Bituminous
- 4 –Brick
- 5 –Gravel
- 6 –Steel bridge floor
- 7 –Wooden bridge floor
- 8 –Dirt

(f) Locality. Coded as follows:
- 1 –Manufacturing/industrial district
- 2 –Business district
- 3 –Residential district
- 4 –School and playground district
- 5 –Open country
- 6 –Other

(g) Road Conditions. Coded as follows:
- 2 –Holes, deep ruts, bumps
- 3 –Loose material on surface
- 4 –Road under construction
- 5 –Overhead clearing limited
- 6 –Unsignaled obstruction or previous accident
- 7 –Gravel or blacktop windrow
- 8 –Flood, landslide, or water standing on road
- 9 –Snowdrifts, or one lane snowplowed
- 0 –Other conditions or not stated
- 11 –No unusual conditions

(h) Road Gradient. Coded as follows:
- 3 –Level
- 4 –Upgrade
- 5 –Hillcrest
- 6 –Downgrade

(i) Character of Road
- 1 –Straight road
- D –Business
- M –Residential or farm

Table III-5 (Continued)

5 —Alley intersection
6 —Curve
7 —Railroad crossing
8 —In alley
9 —Bridge, overpass
11 —Underpass

Street Intersection
B —Primary with primary
K —Primary with street
S —Street with street

Highway Intersection
C —Primary with primary
L —Primary with secondary
T —Secondary with secondary

(j) Traffic Control Devices. Coded as follows:
1 —Police officer
2 —Stop and go light
3 —Stop sign
4 —Warning sign
5 —Railroad watchman
6 —Railroad crossing gate
7 —Railroad automatic signal
8 —No control
9 —Other
11 —Special school signals
12 —Stop sign on school bus
A —Yield

(k) Light Condition. Coded as follows:
0 —Daylight
1 —Dusk
2 —Dawn
3 —Darkness, street lighted
4 —Darkness, street not lighted

(11) Investigation Data:
(a) Date Notified. MMDDYY.
(b) Hour Code
(c) Investigation at Scene. Coded as follows:
Y —Investigated at scene
N —Not investigated at scene
(d) Investigation Complete. Coded as follows:
Y —Investigation complete
N —Investigation not complete

(12) Arrest and Charge Data:
(a) Name of First Person Charged. In the order last/first/middle/suffix, separated by commas.
(b) Charge Code

Table III-5 (Continued)

(c) Name of Second Person Charged. In the order last/first/middle/suffix, separated by commas.
(d) Charge Code
(e) Name of Investigator. In the order last/first/middle/suffix, separated by commas.
(f) Badge Number

(13) Fatality Data:
(a) Name. In the order last/first/middle/suffix, separated by commas.
(b) Address
(c) Sex
(d) Vehicle Number
(e) Driver/Passenger/Pedestrian Indicator
(f) Date of Death. MMDDYY.
(g) Fatality Report Originator. Coded as follows:
1 —Coroner
2 —Driver
3 —Investigating officer
4 —Other
(h) Age

(14) Injured Data:
(a) Name. In the order last/first/middle/suffix, separated by commas.
(b) Address
(c) Sex
(d) Injured in Vehicle Number. Assigned to vehicle in which injured was present.
(e) Injury Severity Code
(f) Driver/Passenger/Pedestrian Indicator. Coded as follows:
1 —Driver
2 —Passenger
3 —Pedestrian
4 —School bus passenger
5 —Bicyclist
6 —Other
0 —NOT STATED

(15) Injured Taken to:
(a) Name of Hospital or Other Place
(b) Address
(c) City and State. NCIC.

With reference to accident locations, PRC rationale and recommendations concerning the referencing of accident locations will be provided under separate cover. Recommendations will be based on experiences of other jurisdictions and will include consideration of the presently used milepost marker system, other linear methods, and of coordinate methods of referencing accident locations.

(a) Drivers Report of Motor Vehicle Traffic Accident. A driver is required to report any vehicle accident in which he is involved where damages exceed one hundred dollars to the Department of Public Safety within 24 hours. It is processed by the Drivers License Division and forwarded to the DPSA. The Vehicle Registration File is cross-referenced to record the vehicle(s) involved in the accident. The report is then returned to the Drivers License Division for filing.

(b) Investigating Officers Report of Motor Vehicle Accident. When an accident is investigated by a peace officer, he must file a report with the local jurisdiction, after which it is sent to the Drivers License Division. After recording, it is forwarded to the DPSA. It is then returned to the Drivers License Division for filing.

(c) Fatality Report Card. Fatalities resulting from traffic accidents are reported to the Department of Public Safety, where the data are used as an indicator of the effectiveness of the Traffic Safety Program and as a guide to highway planning and safety programs. A coroner, driver, or investigating peace officer may file a fatality report, which is transmitted to the Department of Public Safety for processing and routed to the DPSA.

(4) Financial and Safety Responsibility. The Financial and Safety Responsibility Section of the Drivers License Division maintains files containing data on the financial responsibility or insurance status of drivers/owners of vehicles involved in reportable accidents.

Paragraphs (a) through (c) describe the source documents that provide input to the Financial and Safety Responsibility Record. Associated data items are presented in Table III-6.

(a) SR-21 Form. Financial responsibility status information is recorded on the SR-21 form attached to the Drivers Report of Motor Vehicle Traffic Accident. If it is not entered when the SR-21 form is originally submitted, a request for the data is forwarded to the driver.[1] The form is mailed to the Department of Public Safety for processing. It is then forwarded to the insurance company of the driver/owner of the vehicle involved in the accident. The insurance company completes the form and returns it to the Financial and Safety Responsibility Section. It is then forwarded to the DPSA.

(b) Other Financial Coverage Data. If the driver does not have insurance coverage, his license is suspended within 60 days unless one of the following actions occurs:

- Driver found not liable as a result of a damage suit in a civil court.
- Driver secures release of liability from all persons claiming damage as a result of the accident.
- Driver deposits cash or surety bond with the Department of Public Safety to be used for payment of judgment.

The driver submits a notice to the Financial and Safety Responsibility Section providing proof of one of the above actions. The notice is then forwarded to the DPSA.

(c) Driver License Actions. The Financial and Safety Responsibility Section takes administrative action (revocation, suspension, probation, etc.) based on the traffic conviction record of Iowa drivers.

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[1] Uninsured drivers may elect to supply other indicators of financial responsibility, as described in paragraph (b).

Table III-6. Data Items, Financial and Safety Responsibility Record

(1) Insurance Company Name
(2) Policy Number
(3) Policy Period Dates
(4) Accident Date. MMDDYY.
(5) Accident Location
(6) Vehicle Make. NCIC.
(7) Vehicle Model
(8) Vehicle Year. For the model year.
(9) Vehicle Identification Number
(10) Vehicle Driver. In the order last/first/middle/suffix, separated by commas.
(11) Vehicle Owner. In the order last/first/middle/suffix, separated by commas.
(12) Drivers Address
(13) Owners Address
(14) Name of Policyholder. In the order last/first/middle/suffix, separated by commas.
(15) Insurance Company Statement of Coverage. Specifies extent of liability; coded as follows:
1—Policy applies to owner of vehicles involved in accident, but not to operator who was driving without permission.
2—Policy does not apply to accident because of violation of purposes of use specified in policy.
3—Policy does not apply to accident because vehicle was being used beyond agreed geographical boundaries.
4—No automobile liability policy in effect on date of accident.
5—Policy affords limits of liability less than $10,000/$20,000/$50,000.
6—Policy affords coverage to operator only.
7—Policy affords coverage to owner only.
8—Fraud.
9—Other reasons for rejection of SR-21.
10—Liability insurance in effect.
(16) Other Financial Coverage. Data to be recorded for financial coverage other than that provided by an insurance company are as follows:
(a) Driver Name. In order last/first/middle/suffix separated by commas.
(b) Accident Date. MMDDYY.
(c) Accident Location
(d) Financial Coverage. Coded as follows:
11—Found not liable as a result of a damage suit in a civil court.
12—Liability release secured from all persons claiming damage as a result of the accident.
13—Deposit made in cash or surety bond.
(17) Amounts (Insurance, Cash, or Surety Bond

Each such action is recorded in the Driver Records File as a Notice of Financial and Safety Responsibility Action. This notice is then forwarded to the DPSA.

b. Vehicle Registration File. This file is a primary part of the Traffic Records Subsystem; its records are as follows:

- Vehicle Titles
- Vehicle Registration
- Reciprocity and Other Permit Notice Records

The processing specifications and output products for the Drivers Record File, with accompanying flow charts, are presented in Appendix A.

(1) Vehicle Titles. Vehicles to be operated on public roadways are titled by the county treasurer; boats and snowmobiles are titled by the County Recorder in coordination with the Conservation Commission. Paragraphs (a) through (e) below describe the source documents that provide input data to the Vehicle Title Record. Associated data items are presented in Table III-7.

(a) Application for Certificate of Title. The Application for Certificate of Title provides proof of ownership of a vehicle. The application form is completed by the vehicle owner and presented at the County Treasurers office (County Recorders office for boats and snowmobiles) for processing with the associated lien documents described below, proof of ownership, and a statement of origin. A copy is sent to the Motor Vehicle Division of the Department of Public Safety (Conversation Commission for boats and snowmobiles) and then forwarded to the DPSA. The application form is returned to the Motor Vehicle Division for filing.

(b) Application for Duplicate of Iowa Certificate of Title to a Motor Vehicle. This application is processed in much the

Table III-7. Data Items, Vehicle Titles Record

(1) Name of Vehicle Owner. In the order last/first/middle/suffix, separated by commas.
(2) Street Address or Rural Route Number
(3) City and State
(4) Zip Code
(5) County
(6) Title Number
(7) Vehicle Make. NCIC.
(8) Vehicle Body Style. NCIC.
(9) Vehicle Model. NCIC.
(10) Vehicle Year
(11) Vehicle Color. NCIC.
(12) Vehicle Weight or Gross Tons
(13) Vehicle List Price
(14) Vehicle Fuel Type
(15) Duplicate Title Indicator
(16) Purchased New or Used Indicator
(17) Purchased From (Name). In the order last/first/middle/suffix, separated by commas.
(18) Vehicle Identification Number
(19) Vehicle License Number
(20) Lien Status. Coded as follows:
  1—Clear title
  2—Security interest held
(21) Name of Lienholder
(22) Address of Lienholder
(23) Date of Lien. MMDDYY
(24) Amount of Lien
(25) Vehicle Change of Identity. Coded as follows:
  1—Reconstructed
  2—Converted
  3—Sold out of state
  4—Removed out of state
  5—Sold for junk
  6—Dismantled; identity of vehicle eliminated
  7—Stored during military service
(26) Vehicle Change of Identity Date. MMDDYY.

same way as the Application for Certificate of Title described above. When a duplicate title is issued for a particular motor vehicle, this information is extracted and recorded in the Vehicle Registration File. Either an owner or lienholder can request a duplicate Certificate of Title by submitting an application to the County Treasurer. The application is then routed to the Motor Vehicle Division and then forwarded to the DPSA.

(c) Receipt for Notation of Security Interest. This form is completed where there is a lien against a motor vehicle and is the principal document for recording lien status in TRACIS. The form is prepared by the County Treasurer at the time the Notation of Security Interest and title application are completed. One copy is sent to the lien-holder, one copy is filed by the County Treasurer, and the original is routed to the Motor Vehicle Division and then forwarded to the DPSA.

(d) Order to County Treasurer To Cancel Security Interest. Lien removal is initiated by submission of a Certificate of Title and proof of lien satisfaction. The County Treasurer then clears the title on his copy and returns the cleared title to the vehicle owner. The lienholder originates the order and sends it to the County Treasurer. A copy is sent to the Motor Vehicle Division by the County Treasurer and then forwarded to the DPSA.

(e) Notice of Change of Identity and Claim for Refund. Removal or change of Title and Vehicle Registration Records in the Vehicle Registration File is initiated by the submission of a Notice of Change of Identity and a Claim for Refund form. These forms are submitted to the County Treasurer by the vehicle owner and then sent to the Motor Vehicle Division, where they are recorded and forwarded to the DPSA. They are finally returned to the Motor Vehicle Division for filing.

(2) Vehicle Registration. Vehicle registration is an annual procedure. New and out-of-state vehicles must be registered

within a specified period, with license plates being issued at the time of registration at the County Treasurers office. Paragraphs (a) through (c) below describe the source documents that provide input data to the Vehicle Registration Record. Associated data items are presented in Table III-8.

(a) Application for Vehicle Registration. Under the recommended alternative of issuing vehicle registrations, the application form is centrally controlled but locally issued. The applications are centrally prepared in the Department of Public Safety and distributed to the County Treasurer, who completes the form when a license plate is issued. The original of the application is issued to the vehicle owner as a registration receipt. A copy is filed at the County Treasurers office for local reference, and another copy is returned to the Motor Vehicle Division of the Department of Public Safety. Data from the forms are then read optically or keypunched as appropriate.[1]

(b) Application for Iowa Duplicate Plate. Duplicate plates may be issued if original plates are lost, stolen, mutilated, etc. The form is filed by the applicant and completed by the County Treasurer. It is sent to the Motor Vehicle Registration Division for recording and then forwarded to the DPSA.

(c) Registration Stop Notice. There are occasions when transfer of registration will be prohibited, e.g., when a vehicle is stolen, dismantled, junked, etc. In such cases, registration is not acceptable without additional data from the vehicle owner. Where registration is prohibited, a Stop Notice will be prepared by the Motor Vehicle Registration Division and forwarded to the DPSA.

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[1] The application form may be designed for reading by an optical character reader.

Table III-8. Data Items, Vehicle Registration Record

(1) Name. In the order last/first/middle/suffix, separated by commas.
(2) Street Address or Rural Route Number
(3) City and State
(4) ZIP Code
(5) Registration Date. MMDDYY.
(6) Registration Number
(7) County
(8) Vehicle Make. NCIC.
(9) Vehicle Body Style. NCIC.
(10) Vehicle Model. NCIC.
(11) Vehicle Model Year
(12) Vehicle Weight or Gross Tons
(13) Vehicle Identification Number
(14) Registration Fee
(15) Registration Penalty
(16) Reflective Plate Fee
(17) Stop Issue Notice Indicator
(18) Date of Stop Notice. MMDDYY.
(19) Reason for Stop Notice

(3) Reciprocity and Other Permits. Reciprocity, fuel tax, and overweight/oversize permit data are recorded in the Vehicle Registration File, and violations in the Driver Records File; cross-referencing is provided for purposes of correlation. Paragraphs (a) through (d) below describe the source documents that provide input data to the Reciprocity/Other Record.

(a) Fuel Tax Permit Notice. The Fuel Tax Administrator completes a notification of the issuance of fuel tax permits. A copy is then forwarded to the DPSA.

(b) Reciprocity Permit Notice. Reciprocity Permits may be issued to an individual through such forms as the Nonresidents Application for Visitors Reciprocity Permit. The permit may be issued to trucking forms operating across Iowa State lines. Notification of permits is made by the Reciprocity Board and forwarded to the DPSA.

(c) Fuel Tax Permit Notice. Fuel Tax Permits are issued to truckers bringing more than 30 gallons of fuel into the State. The notice of issuance of a Fuel Tax Permit is completed by the Motor Vehicle Fuel Tax Division of the Department of Revenue and forwarded to the DPSA.

(d) Overweight/Oversize Permit Notice. Equipment exceeding legal weight or dimensions requires a permit from the Iowa Highway Commission that may be issued for one-time use or on an annually renewable basis. The Traffic Weight Operations Division of the Iowa Highway Commission completes a notification of the issuance of an Overweight/Oversize Permit and forwards it to the DPSA.

c. Inspections File. This file consists of school bus inspection records. Source documents that provide input data to the Inspections File are described in the following paragraph. Associated data items are presented in Table III-9. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

Table III-9. Data Items, Inspections File

(1) Vehicle Owner. School district that operates bus.
(2) Make of Vehicle. NCIC.
(3) Model. NCIC.
(4) Model Year
(5) Vehicle Identification Number
(6) Vehicle Body Style. NCIC.
(7) Passenger Capacity
(8) Registration Plate Number
(9) Vehicle Condition
(10) Inspection Number
(11) Inspector Identification
(12) Inspection Date. MMDDYY.
(13) Repairs Required Indicator. Coded as follows:
R—Repairs required
N—No repairs required
(14) Type Repairs Required Code
(15) Repairs Made Indicator. Coded as follows:
M—Repairs made
N—Repairs not made

(1) School Bus. School bus inspections are performed under the direction of the Department of Public Instruction. School bus chassis inspections are performed by a school or commercial mechanic in each school district. Joint inspections are performed annually by the Department of Public Instruction and the Iowa Highway Patrol. Results of these inspections are recorded in the Inspection File. A School Bus Inspection Form is completed both by the joint inspection team and the mechanic making a chassis inspection. The form is sent to the Department of Public Instruction for recording, and a copy is forwarded to the DPSA.

(2) Other Vehicles. There is no mandatory inspection system for private passenger vehicles. However, should an inspection system be established at a future date, data could be collected for each vehicle, indicating a pass or fail status, and defects could be noted for mandatory correction. TRACIS design will accommodate the inclusion of necessary data within the framework of its inspection file.

2. Criminal Justice Information Subsystem. This subsystem has six major data files:

- Criminal History
- Correctional Institutions
- Wanted Persons
- Stolen Property
- Criminal Conspiracy
- Unsolved Crimes

Processing procedures, data items, and coding structures for each record in the criminal justice files are described below.

a. Criminal History File. The Criminal History File comprises public records about persons who have entered the criminal justice

system. Criminal history information is limited to indictable misdemeanors or felonies and is restricted to "active" criminals.[1]

Paragraphs (1) through (5) below describe the source documents that provide input data to the Criminal History File. Table III-10 lists the originator, distribution, and volume for each of these documents. Data items are presented in Table III-11. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

(1) The Uniform Arrest Report. The recommended arrest report is contained in the International Association of Chiefs of Police (IACP) Recommended Reporting Guide, which also provides instructions for completion of the form. Its use will ensure uniform reporting throughout the State.

(2) BCI Fingerprint Card. This is the fingerprint and identification summary card currently used by the Bureau of Criminal Investigation (BCI).

(3) Clerk of Court Case Disposition Notification. This form is not currently used by the State; however, its use is mandatory for proper operation of the Criminal Justice Information Subsystem. It will be similar to the JS-3 card as used by U.S. District Court Clerks. It will contain identifying information concerning the person(s) involved, jurisdiction, court docket number, charge, and disposition. Specifically, notification of disposition is needed at the following times:

- Preliminary examination

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[1] "Active" Criminals are defined as those who have committed a crime within a recent time period, e.g., 10 years. Actual time limits will be set after sufficient data have been gathered to provide a realistic basis for determination.

Table III-10. Originator, Distribution, and Volume of Criminal History Source Documents

Source Document	Originator	Distribution	Volume (per mo.)
Crime Against Person Report	Police jurisdiction	Local file, Dept. of Public Safety	1,250
Crime Against Property Report	Police jurisdiction	Local file, Dept. of Public Safety	3,750
Uniform Arrest Report	Arresting jurisdiction	Local file, Dept. of Public Safety	440
BCI Fingerprint Card	Arresting jurisdiction, correctional institution	Local file, FBI BCI	440
Clerk of Court Case Disposition Notification	Clerk of Court	Local file, Dept. of Public Safety	440
Correctional Institution Admission Card	Anamosa, Ft. Madison, Rockwell City	Local file, Dept. of Social Services, Dept. of Public Safety	75
Correctional Institution Separation Card	Anamosa, Ft. Madison, Rockwell City	Local file, Dept. of Social Services, Dept. of Public Safety	75

Table III-11. Data Items, Criminal History File

(1) Name. In the order last/first/middle/suffix, separated by commas.
(2) Sex
(3) Race. NCIC.
(4) Place of Birth. Standard state abbreviations.
(5) Date of Birth. MMDDYY.
(6) Height. In feet and inches.
(7) Weight. In pounds.
(8) Hair Color. NCIC.
(9) Eye Color. NCIC.
(10) Skin Tone. Coded to represent the skin tone of the individual compared to other persons of the same ethnic features:
L—Light
M—Medium
D—Dark
(11) FBI Number. Standard form.
(12) Iowa BCI Number. Standard form.
(13) Social Security Account Number. Standard form without spaces or dashes.
(14) Fingerprint Classification. As coded in Project SEARCH, Technical Report No. 1, Appendix D.
(15) Visible Scars, Birthmarks, Tattoos. As coded in Project SEARCH, Technical Report No. 1, Appendix C (may be repeated up to three times).
(16) Marital Status
(17) Occupation Code. Coded according to the *Federal Government Dictionary of Occupational Titles* (DOT).
(18) Street Address or Rural Route Number
(19) City and State
(20) ZIP Code
(21) Name of Next of Kin
(22) Address of Next of Kin. City and state.
(23) Alias or Nickname
(24) Arresting Agency Identifier. NCIC.
(25) Arresting Agency Case Number
(26) Date of Arrest. MMDDYY.
(27) Date of Offense. MMDDYY.
(28) Charges. NCIC (may be repeated up to three times)
(29) Court Docket Number
(30) Date of Disposition. MMDDYY.
(31) Trial or Pretrial Disposition. As coded in Project SEARCH, Technical Report No. 1, Appendix F.
(32) Sentence Type. As coded in Project SEARCH, Technical Report No. 1, Appendix F.
(33) Length of Sentence. YYMMDDD.
(34) Amount of Fine. In dollars, if applicable.
(35) Institution Code. Indicates the institution to which the person was committed.
(36) Institution Entry Date. MMDDYY.
(37) Institution Disposition Date. MMDDYY.
(38) Institution Disposition Code. As coded in Project SEARCH, Technical Report No. 1.
(39) Probation/Parole Start Date. MMDDYY.
(40) Probation/Parole Disposition Code. As coded in Project SEARCH, Technical Report No. 1.
(41) Probation/Parole Disposition Date. MMDDYY.

- True Bill or Information
- Arraignment
- Trial
- Sentencing
- Release from prison, parole, probation

(4) Correctional Institution Admission Card. This form is used by the Department of Social Services for recording admissions data. Information from the card is currently keypunched and thus is in a machine-readable format.

(5) Correctional Institution Separation Card. This form is similar to the admissions card in that it is used to capture release information from correctional institutions. It is currently keypunched and thus is in a machine-readable format.

b. Correctional Institutions File. The Correctional Institutions File for the Criminal Justice Information Subsystem is a statistical and basic information file and is not intended to supplant functions performed by the Department of Social Services. It is designed to produce reports on the number and movement of persons in the institutional system and to provide law enforcement agencies with rapid-response information concerning incarcerated persons.

The primary source documents that provide input data to the Correctional Institutions File are admission/separation data cards. See Criminal History File, paragraphs (4) and (5) and Table III-10, for a discussion of the originators, distribution, and volume. Associated data items are presented in Table III-12. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

Table III-12. Data Items, Correctional Institutions File

(1) Name. In the order last/first/middle/suffix, separated by commas.
(2) Sex
(3) Race. NCIC.
(4) Place of Birth. Standard state abbreviation.
(5) Date of Birth. MMDDYY.
(6) Height. In feet and inches.
(7) Weight. In pounds.
(8) Hair Color. NCIC.
(9) Eye Color. NCIC.
(10) Skin Tone. With the relative complexion given in relation to others of similar ethnic background:
L—Light
M—Medium
D—Dark
(11) Institution Serial Number. The Department of Social Services controlled inmate number.
(12) Institution Code. The code for the institution to which the person has been committed.
(13) Institution Entry Date. MMDDYY.
(I4) Length of Sentence. YYMMDDD.
(15) Institution Disposition Date. MMDDYY.
(16) Institution Disposition Code. As coded in the Project SEARCH, Technical Report No. 1.
(17) Offense Code. NCIC (may be repeated up to three times)

c. Wanted Persons File. The Wanted Persons File is intended primarily for use in a real-time mode for both input and output. In addition to satisfying requests for information on wanted persons, the file will be used to provide periodic reports of additions and apprehensions of persons.

The source document for the Wanted Persons File is the formatted message via the terminal network. The originator of the data is any jurisdiction that issues or cancels a warrant for an extradictable offense; distributees are the local jurisdiction and the Department of Public Safety; volume is estimated at 100 transactions per month. Data items for the Wanted Persons File are presented in Table III-13. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

d. Stolen Property File. The Stolen Property File contains information regarding serialized or readily identifiable property that has been reported stolen or subsequently recovered. It is updated by formatted messages through the terminal network. It is also used to produce periodic reports, as well as individual printouts on specific request.

The source document for the Stolen Property File is the formatted message via the terminal network. The originator of stolen property data may be any jurisdiction with a terminal or any user via radio to a terminal; distributees include the terminal location and jurisdiction, if they are different, and the Department of Public Safety; volume averages about 2,800 transactions per month.

Data items for the Stolen Property File are presented in Table III-14. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

e. Criminal Conspiracy File. The Criminal Conspiracy File is an association file containing identification data. It enables the

Table III-13. Data Items, Wanted Persons File

(1) Identification. Same as in Table III-11, items (1) through (23).

(2) Issue Date of Warrant. MMDDYY.

(3) Issuing Agency Identifier. NCIC.

(4) Expiration Date of Warrant. MMDDYY.

(5) Caution Indicator. Used to indicate that caution should be used when the person is approached.

(6) Charges. NCIC.

Table III-14. Data Items, Stolen Property File

(1) Owner's Name. In the order last/first/middle/suffix, separated with commas.
(2) Owner's Social Security Account Number. Standard form without spaces or dashes.
(3) License Plate Number. The combination numeric or alphabetic license number.
(4) State. Standard state abbreviation.
(5) Vehicle Identification Number. Standard.
(6) Vehicle Year
(7) Vehicle Make. NCIC.
(8) Vehicle Model. NCIC.
(9) Vehicle Body Style. NCIC.
(10) Vehicle Color. NCIC.
(11) Date Theft. MMDDYY.
(12) Gun Serial Number
(13) Gun Make. NCIC.
(14) Gun Caliber. NCIC.
(15) Gun Type. NCIC.
(16) Gun Brand Name. NCIC.
(17) Gun Model. NCIC.
(18) Type of Livestock
(19) Special Breed
(20) Predominant Color of Livestock. NCIC.
(21) Livestock Brand Location
(22) Livestock Description. The brand description.
(23) Quantity Stolen. The number of articles stolen.

user to associate names of people to provide an indication of further information holdings. Additional data on persons in this file will be kept in manual copy form only and will not be available to the terminal system.

The source document for this file will be a form containing identifying data similar to that of the Criminal History File. This form will be prepared and controlled by BCI; there will be no other distribution. Volume is approximately 100 transactions per month.

Data items for the Criminal Conspiracy File are presented in Table III-15. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

f. Unsolved Crimes File. The Unsolved Crimes File contains crime report data submitted by various Iowa law enforcement agencies. This file will contain information regarding the reported occurrence of a crime and is used primarily to gather statistics for uniform crime reporting.

Paragraphs (1) and (2) below describe the source documents that provide input data to the Unsolved Crimes File. Associated data items are presented in Table III-16. Processing specifications and output products, with accompanying flow charts, are presented in Appendix A.

(1) Crime Against Person Report. This report is described in detail in the IACP Recommended Reporting Guide, which also provides instructions for completion of the form. Its use will ensure uniform reporting throughout the State. Any law enforcement agency can originate the report; distributees include local file and the Department of Public Safety; volume is 1,250 transactions per month.

(2) Crime Against Property Report. This report is also described in the IACP Recommended Reporting Guide and is similar to the Crime Against Person Report in all respects except volume, which is 3,750 transactions per month.

Table III-15. Data Items, Criminal Conspiracy File

(1) Name. In the order last/first/middle & suffix, separated with commas.
(2) Sex
(3) Race. NCIC.
(4) Address. City and state.
(5) Occupation. Coded according to the *Federal Dictionary of Occupational Titles* (DOT).
(6) Social Security Account Number. In standard form without spaces or dashes.
(7) Criminal History Indicator
(8) FBI Number. Standard.
(9) Iowa BCI Number. Standard.

NOTE: Items (1) through (9) may be repeated as necessary to list co-conspirators.

Table III-16. Data Items, Unsolved Crimes File

(1) Victim or Complainant's Name. In the order last/first/middle/suffix, separated with commas.
(2) Address. City and state.
(3) Agency Identifier. NCIC.
(4) Offense. NCIC.
(5) Date of Occurrence. MMDDYY.

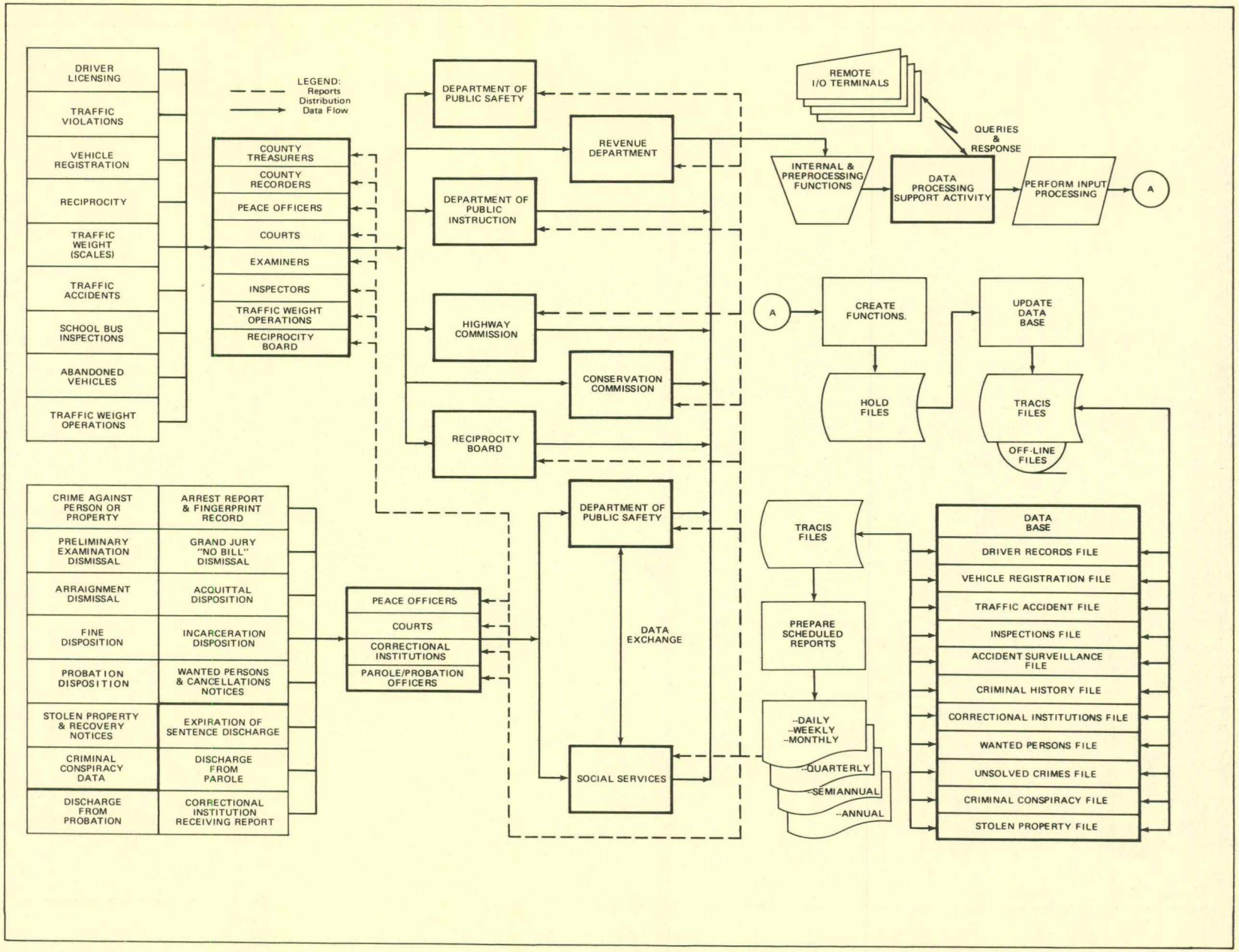

Figure III-4. TRACIS Summary System Flow Chart

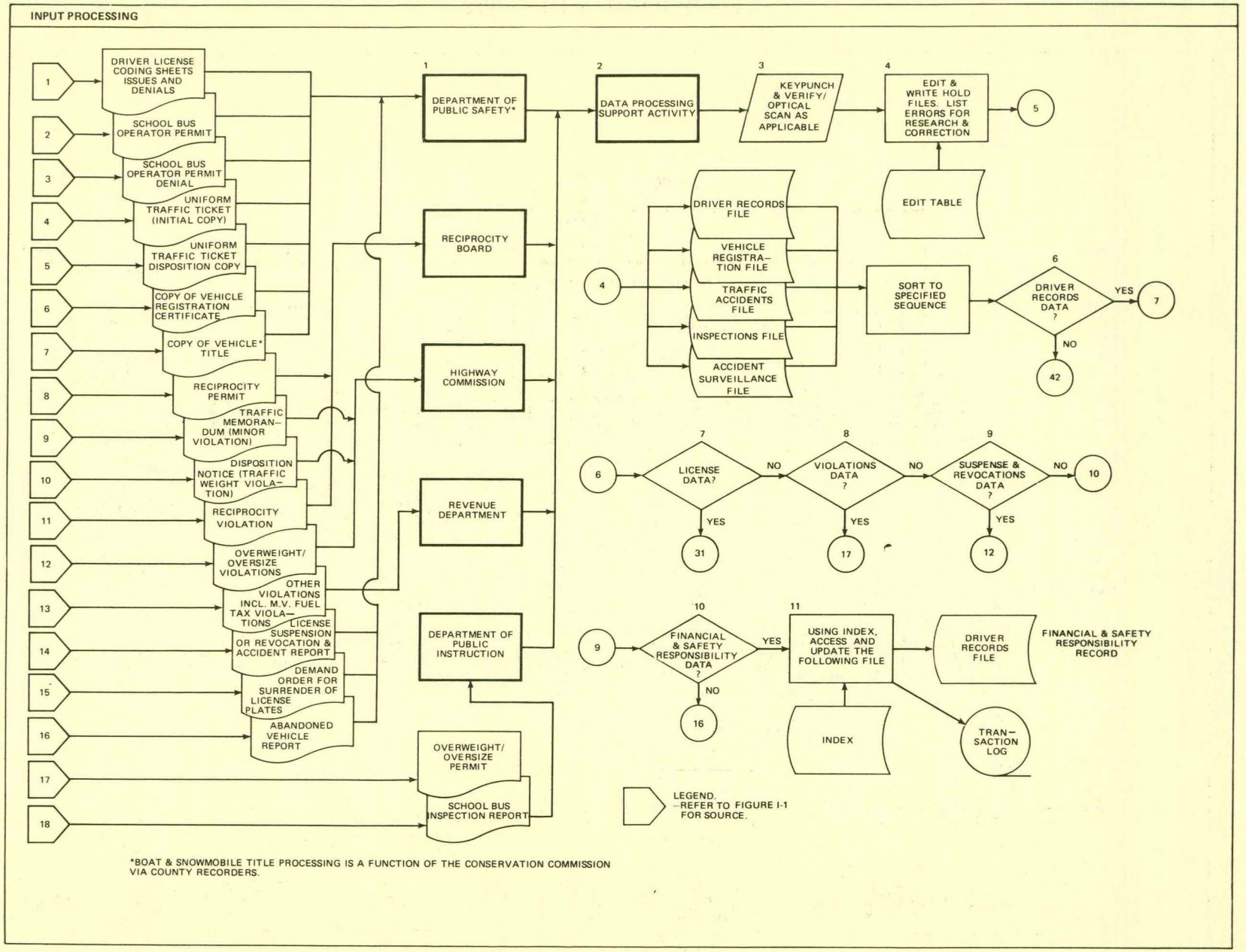

Figure III-5. Traffic Records Subsystem Flow Chart

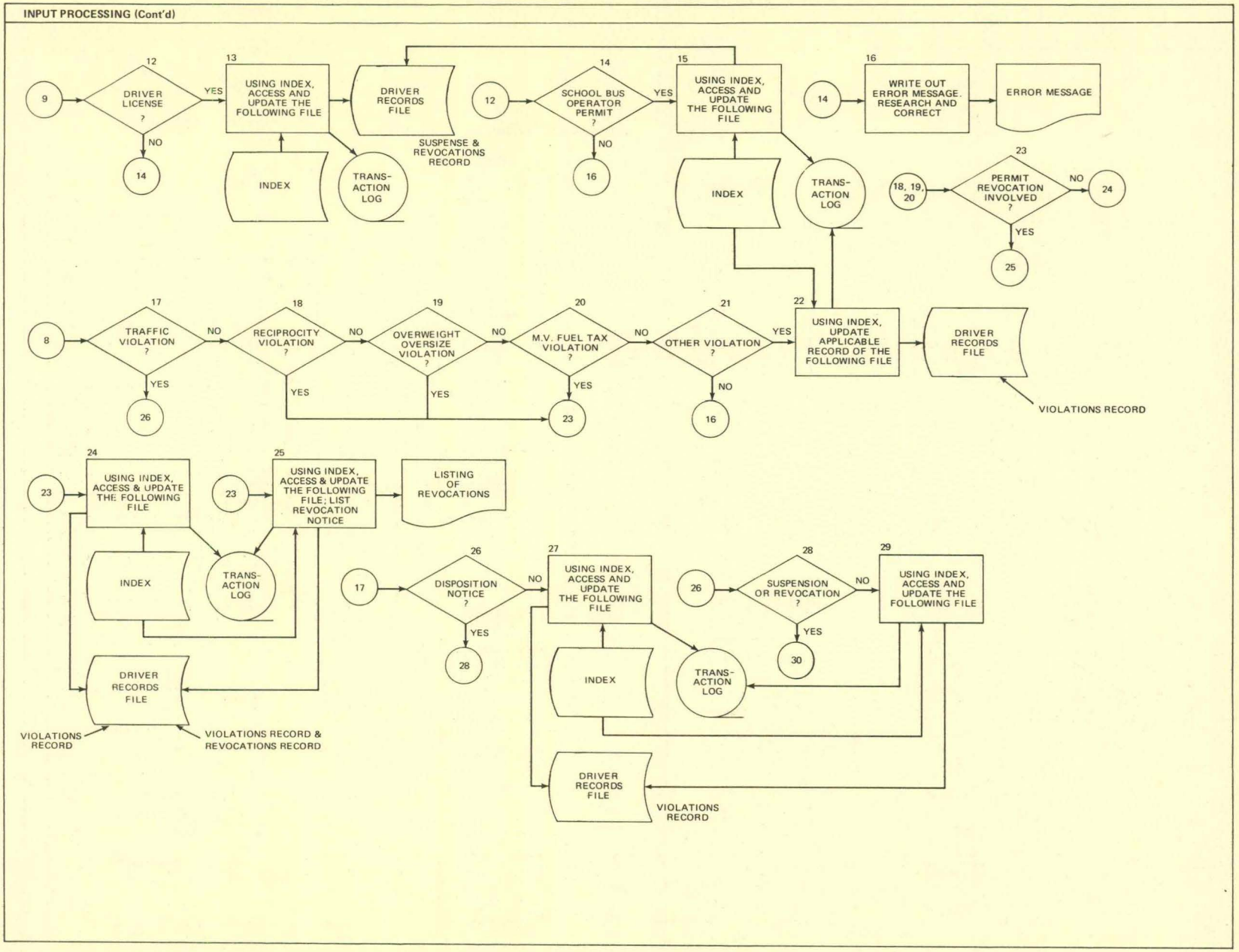

Figure III-5 (Continued)

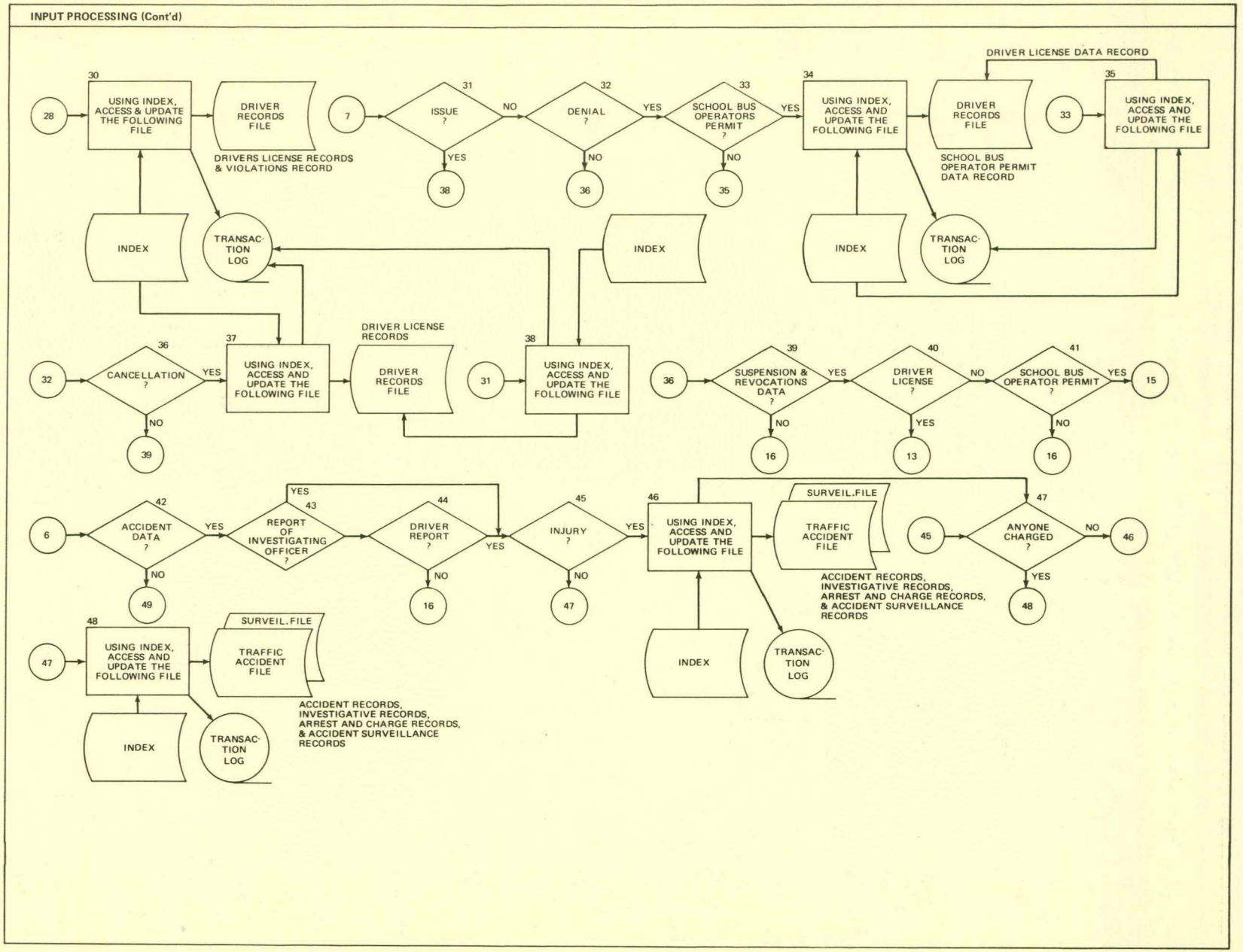

Figure III-5 (Continued)

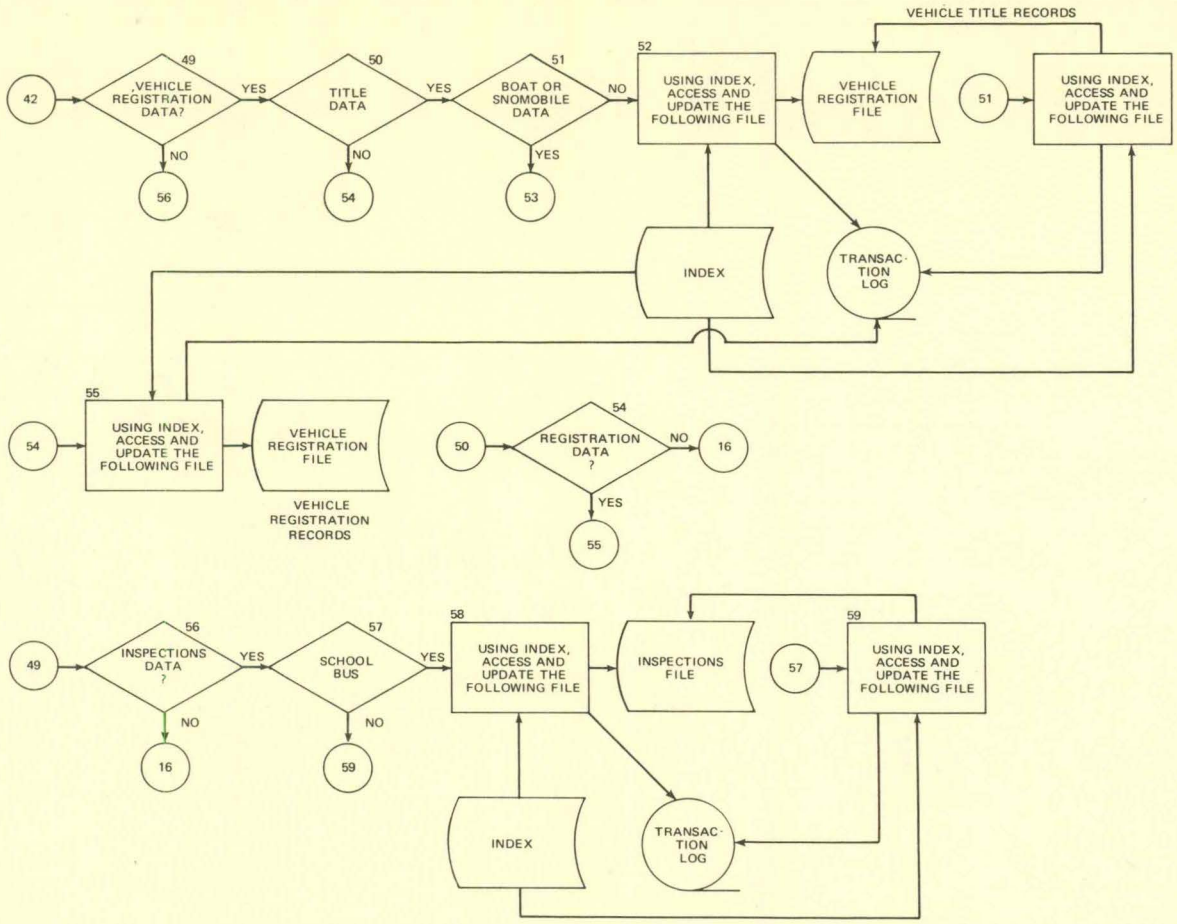

Figure III-5 (Continued)

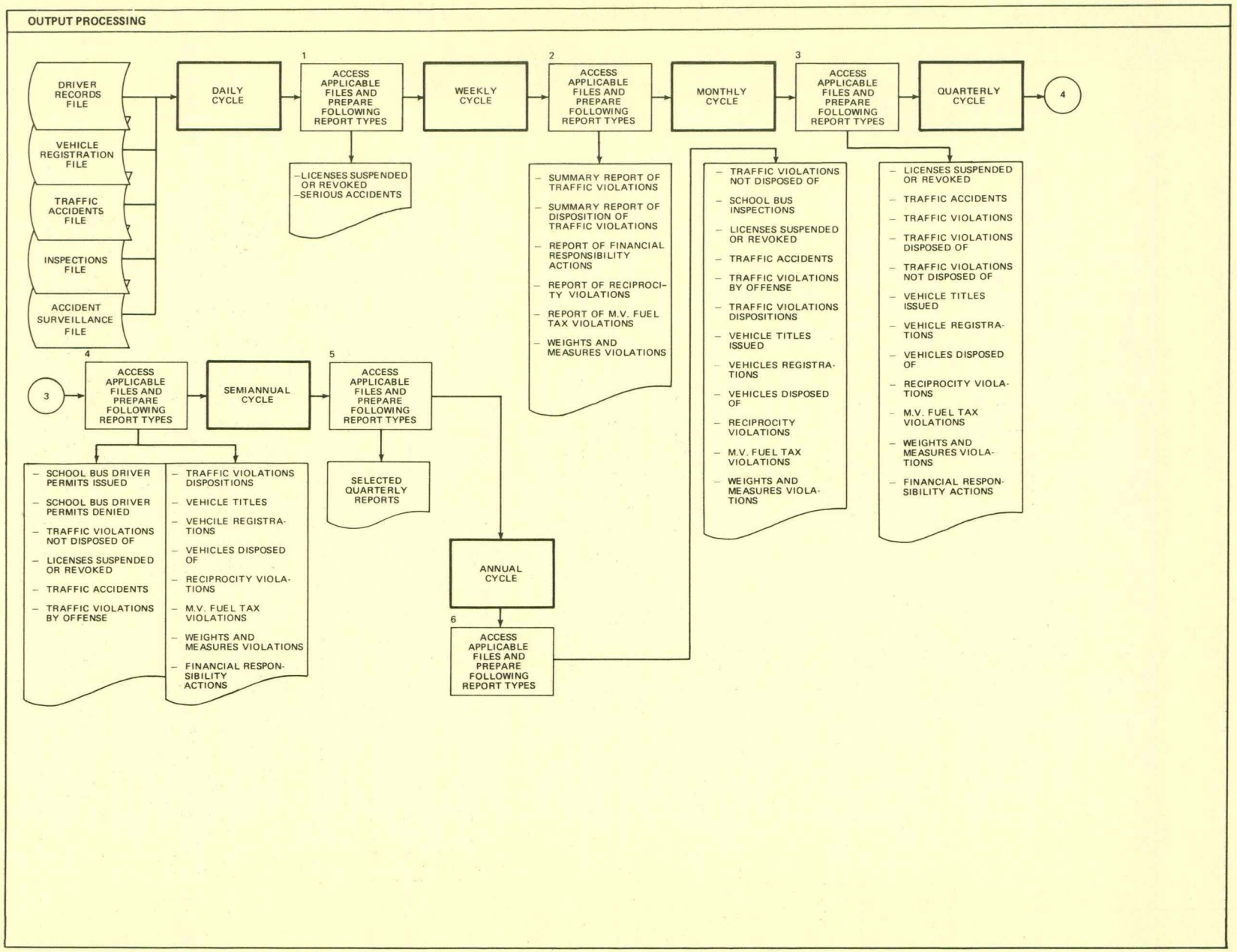

Figure III-5 (Continued)

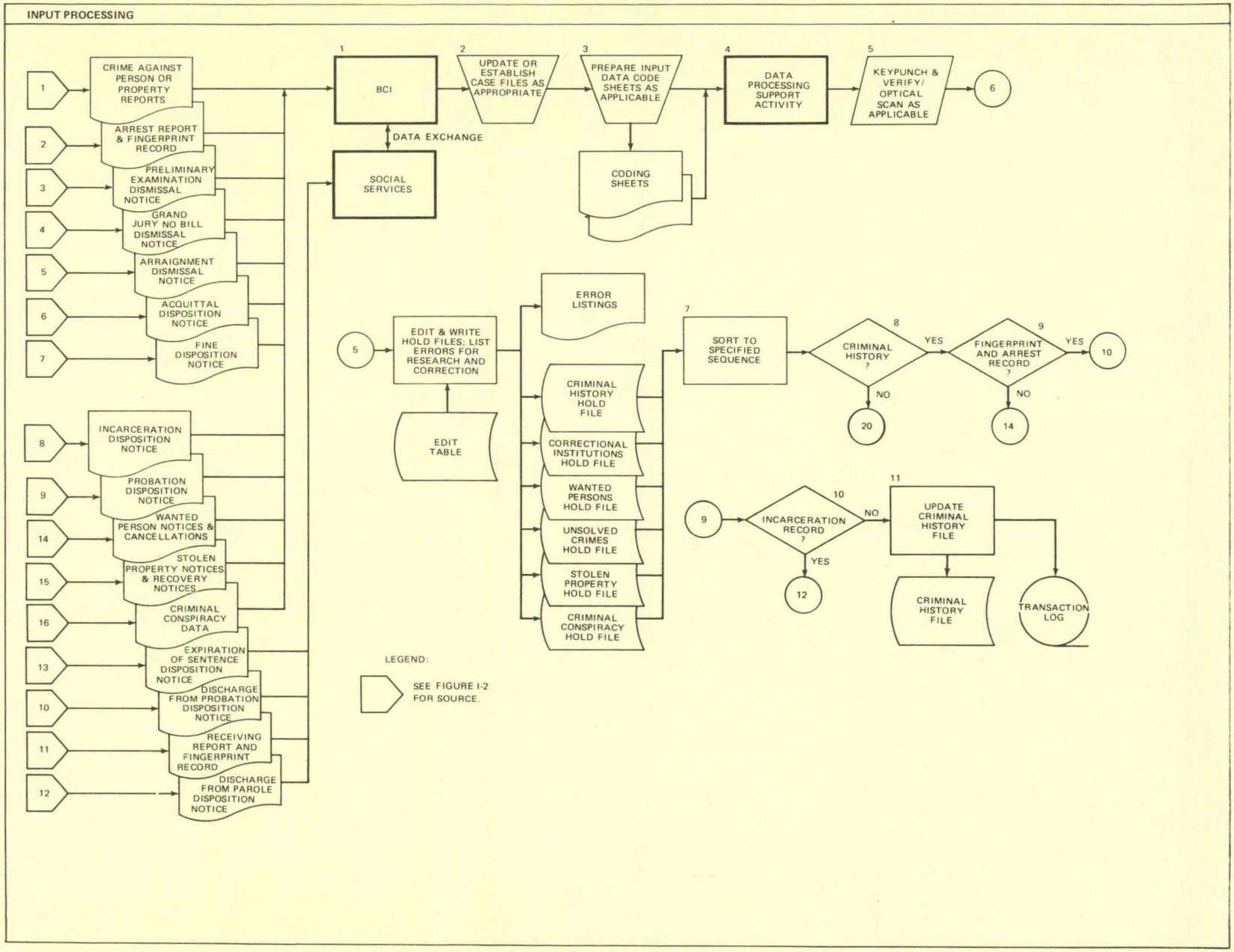

Figure III-6. Criminal Justice Subsystem Flow Chart

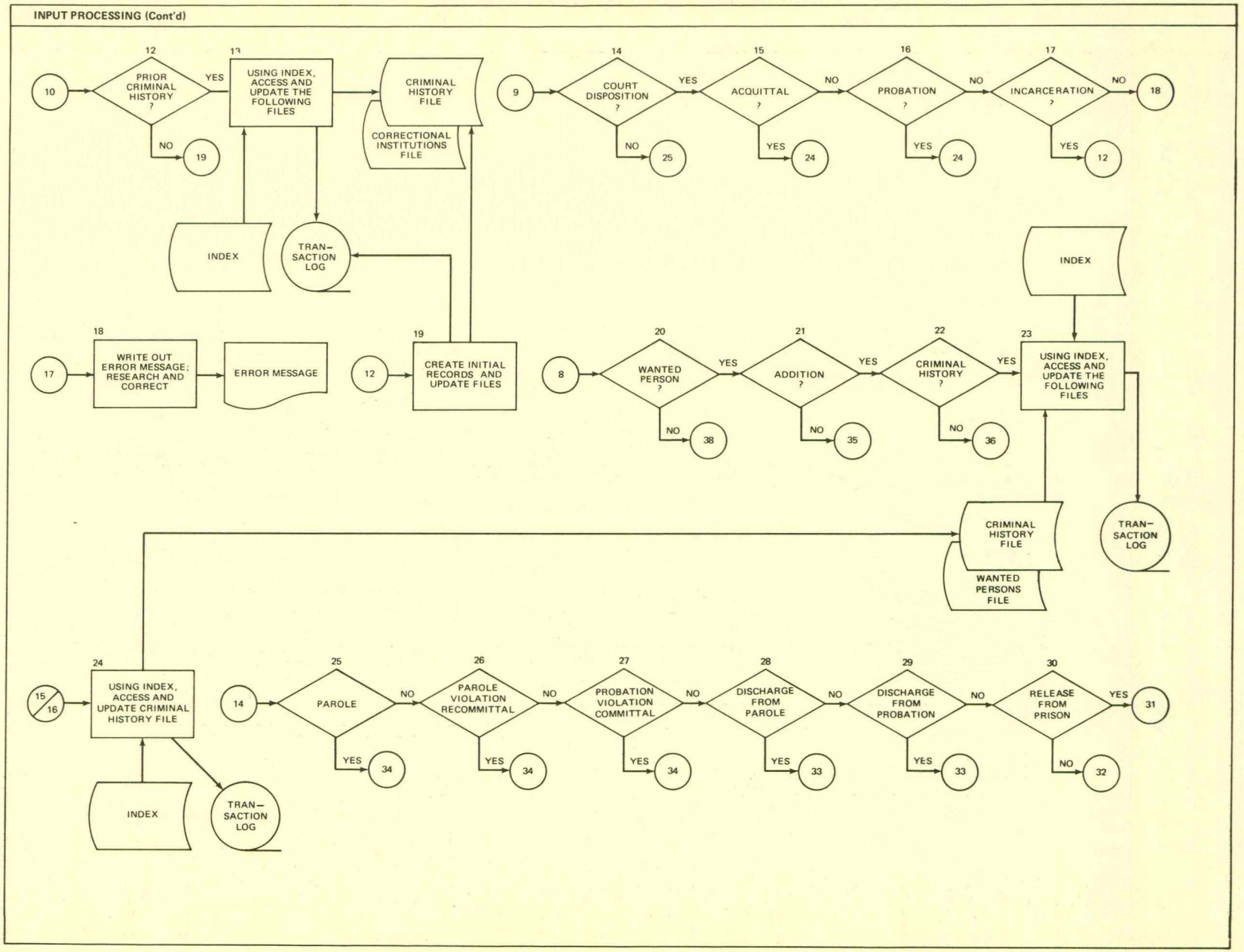

Figure III-6 (Continued)

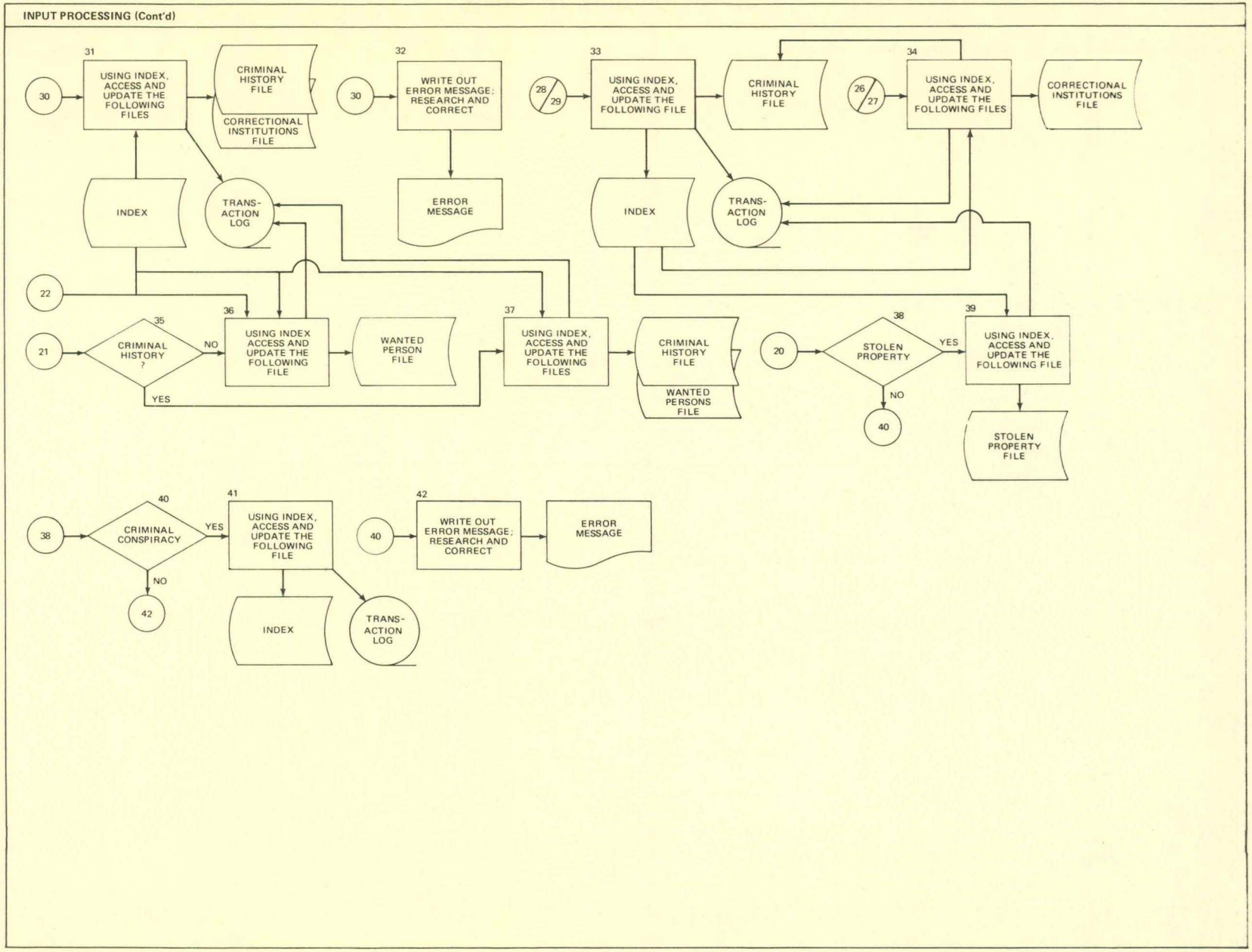

Figure III-6 (Continued)

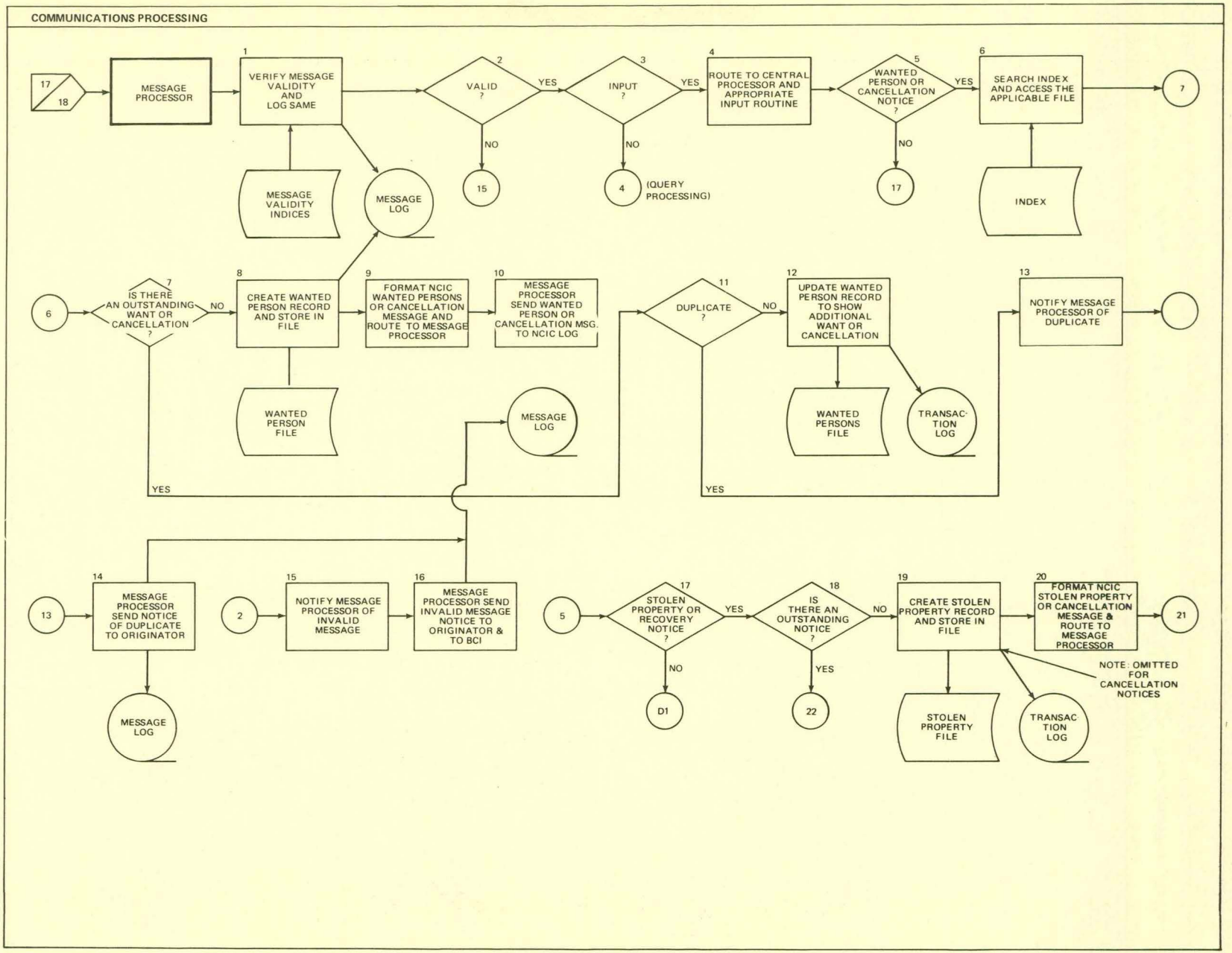

Figure III-6 (Continued)

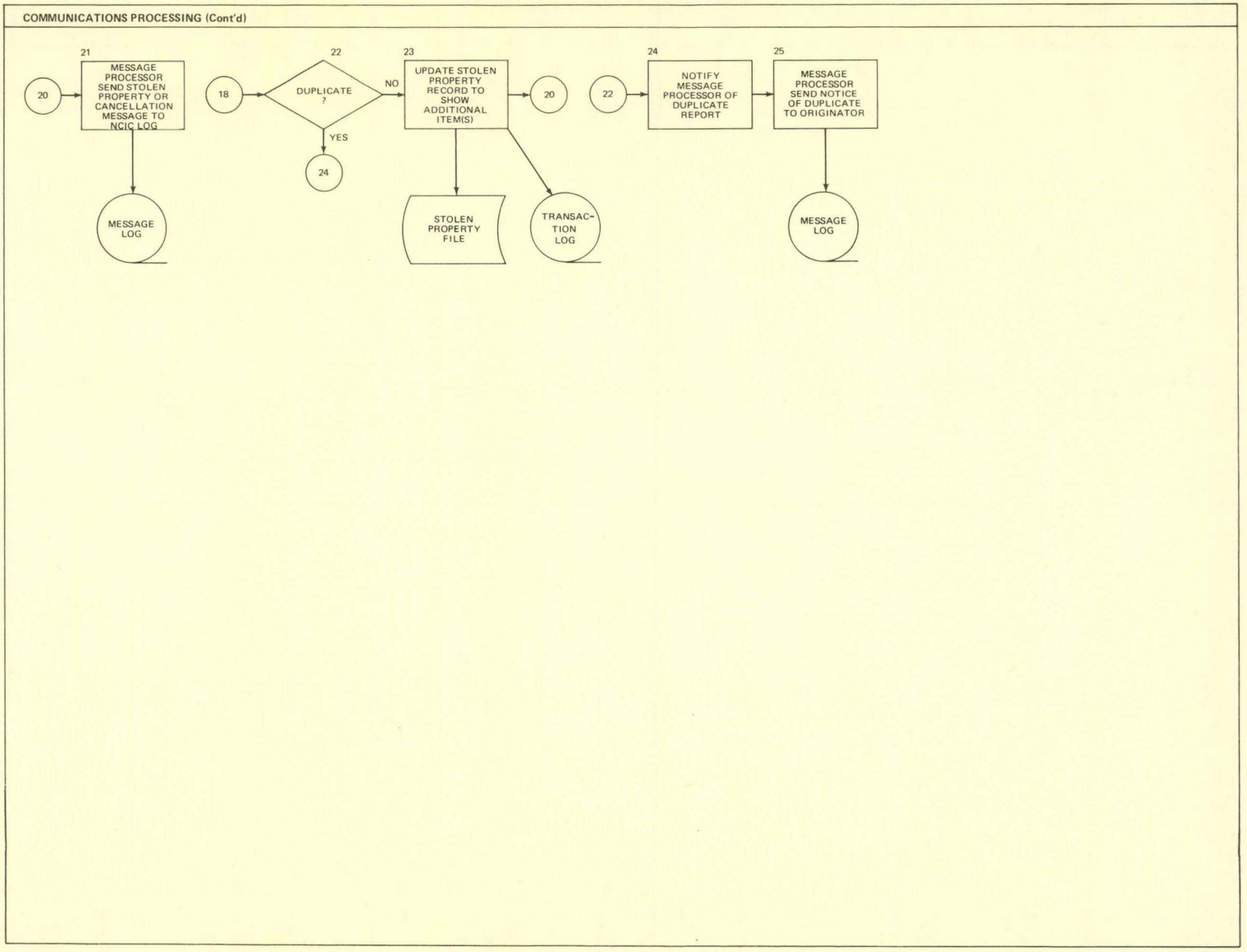

Figure III-6 (Continued)

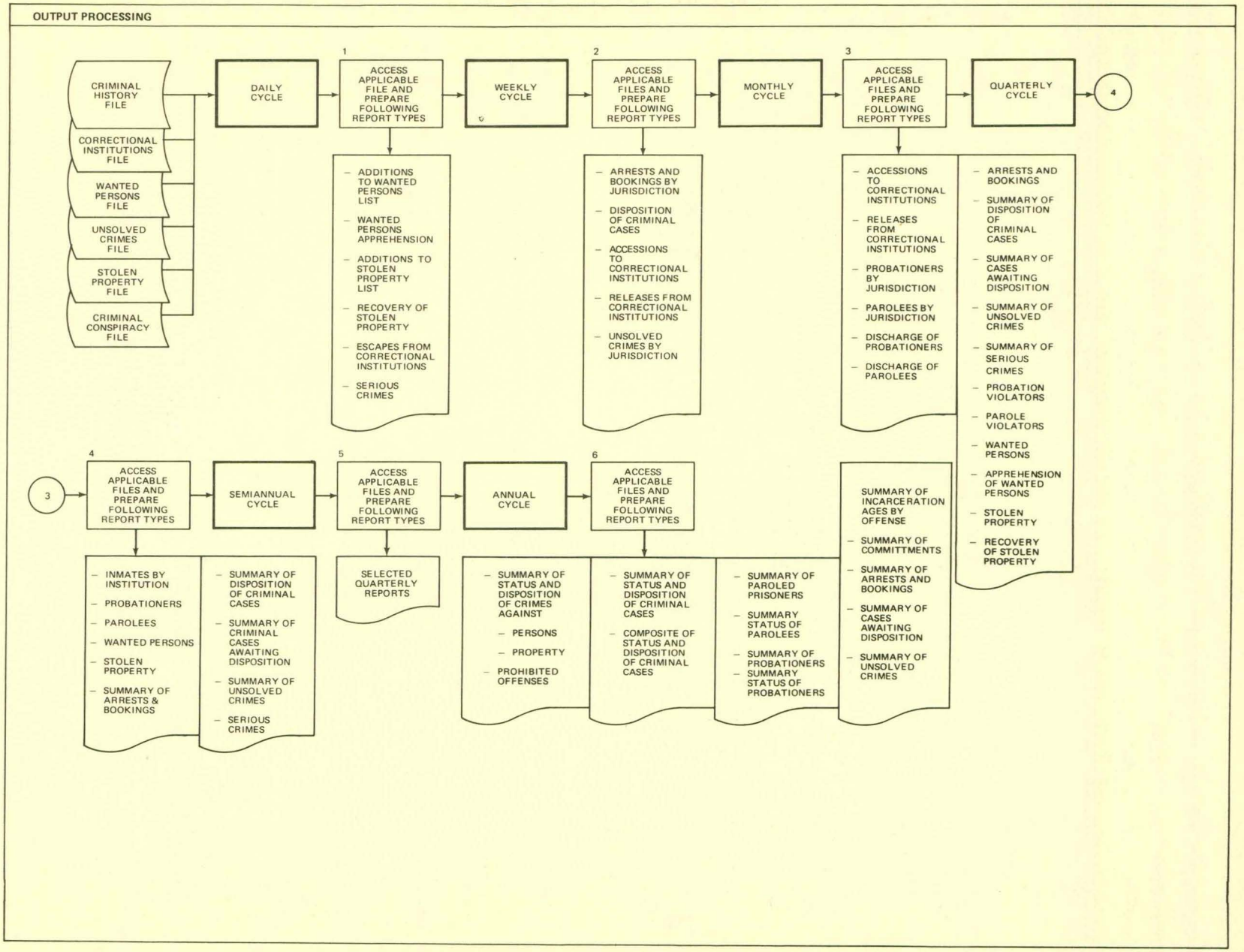

Figure III-6 (Continued)

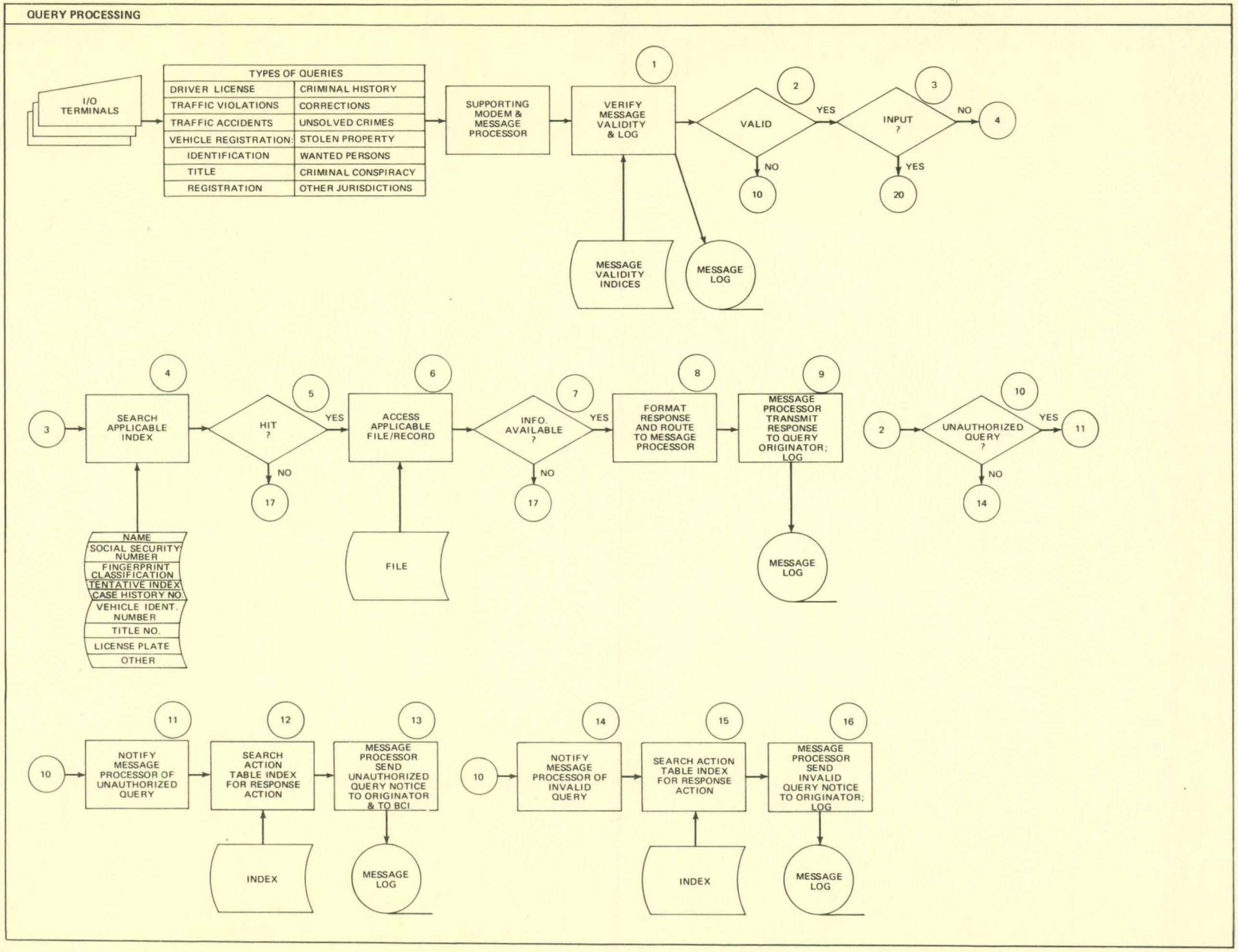

Figure III-6 (Continued)

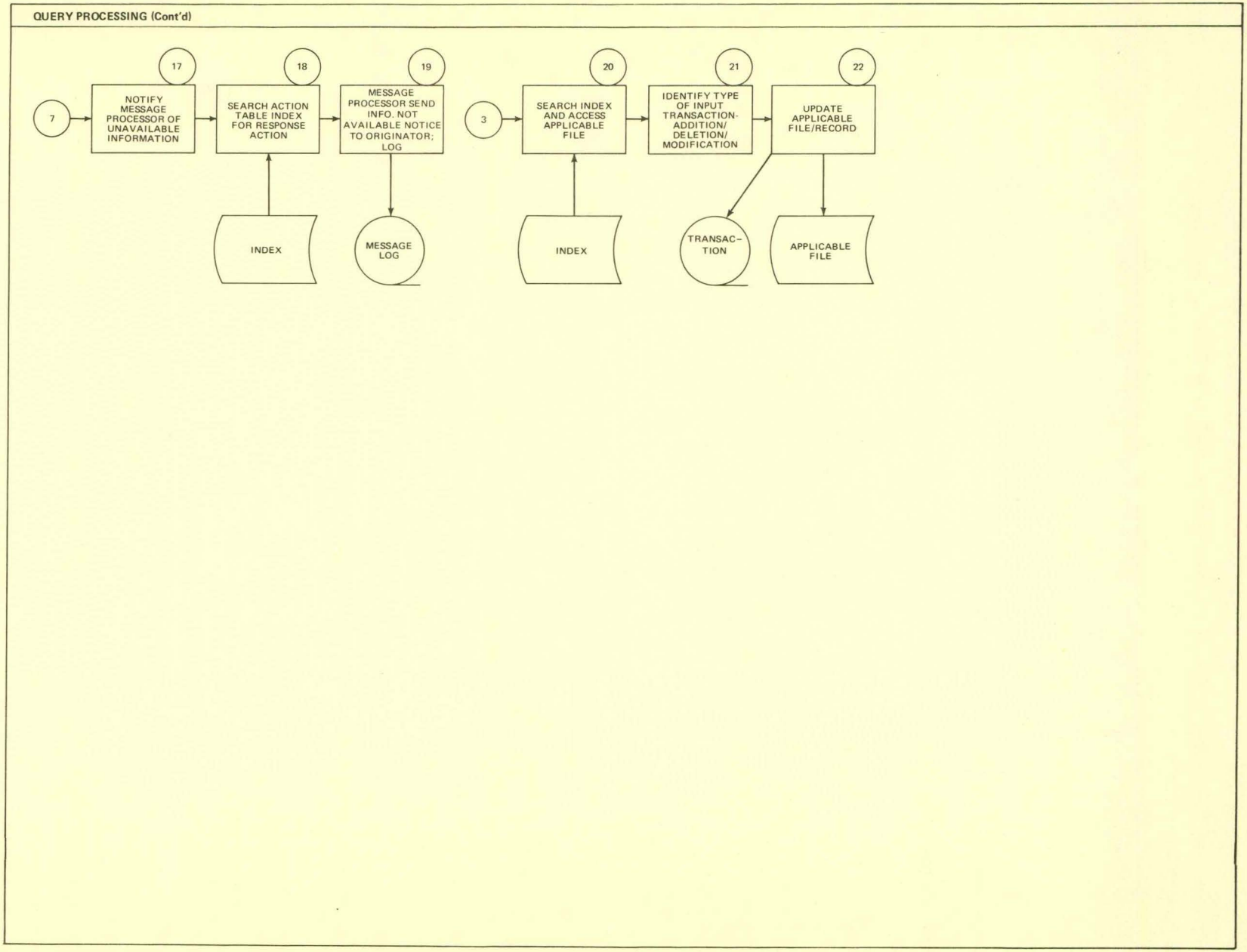

Figure III-5 (Continued)

IV. SYSTEM WORKLOAD

IV. SYSTEM WORKLOAD

A. General TRACIS Workload

Selection of automatic data processing equipment (ADPE) to support TRACIS operations is contingent on the mission of the data processing support activity assigned support responsiblity. For purposes of workload determination, however, the IBM System 360 Model 50, disk and tape-oriented, was selected to provide the basis for estimating processing time (total time). These estimates, presented in Tables IV-1 and IV-2, are based on an analysis of functions described in run diagrams and in consideration of anticipated volumes of transactions. Estimates are organized by processing frequency, i.e., weekly, monthly, quarterly, and annually. Times are shown in minutes and seconds unless otherwise stated.

The TRACIS data base, shown in Tables IV-3 and IV-4, provides the immediate basis per workload estimates. Attention is invited to the fact that these estimates are subject to revision during the detailed system design phase.

B. Communications Workload

TRACIS communications will be accomplished by the configuration of leased lines, I/O terminals, MODEMs, and controllers, as described in Section VI. Table IV-5 presents workload estimates in minutes and seconds. Table IV-6 portrays estimated query and response requirements, which provide the basis for Section VI determinations and for estimating the workload requirements shown in Table IV-5.

Transmission times do not include setup and connection time. This time will increase total elapsed time (not transmission time) by an approximate ratio of 2.5 to 1.

Message preparation time will require an estimated 1 minute for each query. Available transmission time will thus be reduced by 1 minute for each query and will require 215 hours 33 minutes per 24-hour period, or the equivalent of 28 man-days.

Experience has revealed that the number of queries will increase in direct proportion to an increasing capability. Accordingly, it is estimated that total queries and responses will double within 1 year from the date of system implementation.

In view of the foregoing, query and response time requirements are estimated as follows:

Number of queries plus responses	
per hour	2,168
per day	52,032
Number of characters	
per hour	206,100
per day	4,946,400
Preparation time[1]	1'00"
Average transmission time[2]	0'12"
Computer time[2]	0'02"
Total elapsed time per message	1'14"

[1] Query only.

[2] Query plus response.

Table IV-1. Estimated Workload Time, Traffic Records Subsystem

Processing	Weekly	Monthly	Quarterly	Annual
DRIVER RECORDS FILE				
Card Punching and Verification (hr)	601.50	2,406	7,218	28,872
Input	86'22"	345'28"	1,036'24"	4,145'36"
File Maintenance	86'22"	345'28"	1,036'24"	4,145'36"
Output	65'17"	261'08"	783'24"	3,133'36"
Total	238'01"	952'04"	2,856'12"	11,424'48"
VEHICLE REGISTRATION FILE				
Card Punching and Verification (hr)	2,193.25	8,773	26,319	105,276
Input	442'51"	1,770'05"	5,310'15"	21,241'00"
File Maintenance	442'51"	1,770'05"	5,310'15"	21,241'00"
Output	332'01"	1,328'03"	3,984'09"	15,936'36"
Total	1,217'03"	4,868'13"	14,604'39"	58,418'36"
TRAFFIC ACCIDENTS FILE				
Card Punching and Verification (hr)	130.00	520	1,560	6,240
Input	6'37"	26'28"	79'24"	317'36"
File Maintenance	6'37"	26'28"	79'24"	317'36"
Output	4'57"	19'51"	59'33"	238'12"
Total	18'11"	72'47"	218'21"	873'24"
INSPECTIONS FILE				
Card Punching and Verification (hr)	4.25	17	51	204
Input	0'27"	1'48"	5'24"	21'36"
File Maintenance	0'27"	1'48"	5'24"	21'36"
Output	0'21"	1'21"	4'03"	12'09"
,Total	1'15"	4'51"	14'51"	55'21"
ACCIDENT SURVEILLANCE FILE				
Card Punching and Verification (hr)	2.25	9	27	108
Input	0'51"	3'27"	10'21"	41'24"
File Maintenance	0'51"	3'27"	10'21"	41'24"
Output	0'38"	2'35"	7'46"	31'04"
Total	2'20"	9'29"	28'28"	113'52"
TOTAL MONTHLY PROCESSING TIME FOR TRAFFIC RECORDS: 98.5 HR.*				

*Exclusive of telecommunications and peripheral processing.

Table IV-2. Estimated Workload Time, Criminal Justice Subsystem

Processing	Weekly	Monthly	Quarterly	Annual
CRIMINAL HISTORY FILE				
Card Punching and Verification (hr)	7.00	28	84	336
Input	1'21"	5'24"	16'12"	64'48"
File Maintenance	1'21"	5'24"	16'12"	64'48"
Output	1'01"	3'53"	12'09"	48'36"
Total	3'43"	14'41"	44'33"	178'12"
CORRECTIONAL INSTITUTIONS FILE				
Card Punching and Verification (hr)	4.25	17	51	204
Input	0'54"	1'12"	3'36"	14'24"
File Maintenance	0'54"	1'12"	3'36"	14'24"
Output	0'41"	0'54"	2'42"	10'48"
Total	2'29"	3'18"	9'54"	39'36"
WANTED PERSONS FILE				
Card Punching and Verification (hr)	1.50	6	18	72
Input	0'06"	0'22"	1'06"	4'24"
File Maintenance	0'06"	0'22"	1'06"	4'24"
Output	0'04"	0'18"	0'50"	3'16"
Total	0'16"	1'02"	3'02"	12'04"
UNSOLVED CRIMES FILE				
Card Punching and Verification (hr)	11.25	45	135	540
Input	2'02"	8'09"	24'27"	97'46"
File Maintenance	2'02"	8'09"	24'27"	97'46"
Output	1'31"	6'07"	18'07"	73'11"
Total	5'35"	22'25"	67'01"	268'03"
CRIMINAL CONSPIRACY FILE				
Card Punching and Verification (hr)	1.50	6	18	72
Input	0'06"	0'22"	1'06"	4'24"
File Maintenance	0'06"	0'22"	1'06"	4'24"
Output	0'04"	0'18"	0'50"	3'16"
Total	0'16"	1'02"	3'02"	12'04"
STOLEN PROPERTY FILE				
Card Punching and Verification (hr)	43.50	174	522	2,088
Input	6'28"	25'53"	77'39"	310'6"
Output	4'51"	19'15"	58'14"	232'42"
File Maintenance	6'28"	25'53"	77'39"	310'6"
Total	17'07"	71'01"	213'32"	853'14"
TOTAL MONTHLY PROCESSING TIME FOR CRIMINAL JUSTICE INFORMATION: 1.9 HR*				

*Exclusive of telecommunications and peripheral processing.

Table IV-3. Data Base Update Workload, Traffic Records Subsystem

Records/Data	No. Records per File (thousands)	Max. Char. per Record	Max. Char. per File (thousands)	Total Changes per Mo. (thousands)	Max. Char. per Change	Max. Char. per Mo. All Changes (thousands)
1. Driver Records File Records/Data						
a. License	1,750	698	1,396,000	70.0	698	48,860
b. Violations	600	330	198,000	15.5	141	2,186
c. Suspense and Revocations	4	30	108	2.1	116	242
d. Temporary Permit Cancellation	4	38	133	0.6	124	74
e. Financial & Safety Responsibility	250	24	6,000	7.1	110	781
Total	1,750*	1,120	1,600241	95.3	1,189	52,145
2. Vehicle Registration File Records/Data						
a. Registration	2,000	169	338,000	166.6	169	28,155
(1) Reg. Stop Notice Data	10	9	90	0.8	86	73
(2) Correction Data	10	39	390	0.9	116	99
b. Title	3,000	295	885,000	70.0	295	20,650
Total	5,020	512	1,223,480	238.3	666	48,977
3. Inspections File Records/Data						
a. School Bus	6	159	954	0.5	159	80
b. Other	undet.	undet.	undet.	undet.	undet.	undet.
Total	6	159	954	0.5	159	80
4. Accident Surveillance File Data						
Surveillance	190	50	9,500	1.0	50	48
5. Traffic Accidents File Records/Data						
a. Vehicle Accident	250	1,515	378,750	7.1	1,515	10,757
b. Traffic Accident Injury c. Accident Investigation d. Arrest and Charge	incl. above	incl. above	incl. above	incl. above	incl. above	incl. above
Total	250	1,515	378,750	7.1	1,515	10,757
Grand Total	**7,215**	**3,356**	**3,212,925**	**342.2**	**2,570**	**112,002**

*1.b through 1.e included in 1.a.

Table IV-4. Data Base Update Workload, Criminal Justice Subsystem

Records/Data	No. Records per File (thousands)	Max. Char. per Record	Max. Char. per File (thousands)	Total Changes per No. (thousands)	Max. Char. per Change	Max. Char. per Mo. All Changes (thousands)
1. Criminal History File Records/Data						
a. Identification	256.0	248	63,488	440[3]	248	109
b. Offense/Disposition	incl. above	152	39,812	440[3]	152	67
c. Corrections	60.0[1]	37	2,220	333[4]	33	11
d. Probation/Parole	39.0[2]	35	1,365	110[5]	35	4
e. Criminal History Summary	102.4[2]	648	66,355	167[6]	216	36
Total	256.0	1,120	173,240	1,490	684	227
2. Correctional Institutions File Record/Data						
Identification Record	20.0[4]	180	3,600	333[4]	240[7]	80
(1) Offense/Disposition Data	incl. above	82	1,640	incl. above	incl. above	-
(2) Corrections Data	incl. above	37	740	incl. above	incl. above	-
Total	20.0	0.299	5,980	333	240	80
3. Wanted Persons File & Record/Data						
a. Identification Data	2.0	248	496	100[8]	285[9]	29
b. Offense/Disposition Data	incl. above	36	72	incl. above	incl. above	-
c. Wanted Data	incl. above	39	78	incl. above	incl. above	-
Total	2.0	323	646	100	285	29
4. Criminal Conspiracy File & Record/Data						
a. Identification Data	2.0	220	440	100[8]	532[10]	53
b. Offense/Disposition Data	incl. above	12	24	incl. above	incl. above	-
c. Criminal History Summary Data	incl. above	648	1,296	incl. above	incl. above	-
d. Criminal Conspiracy Data	incl. above	252	504	incl. above	incl. above	-
Total	2.0	1,132	2,264	100	532	53
5. Unsolved Crimes File & Record/Data[11]	81.0	100	8,100	2,250	100	225
6. Stolen Property File						
a. Identification Data	14.2	0.077	1,093	2,865[13]	-	-
b. Stolen Property Data Records						
(1) Vehicle/License Plate	12.0	0.051	612	2,400	128	307
(2) Firearms	0.5	0.024	12	125	101	13
(3) Other Stolen Property	1.5	0.038	57	300	115	35
(4) Currency	0.1[12]	0.029	3	20	106	2
(5) Livestock	0.1[12]	0.049	5	20	126	3
Subtotal	14.2	0.191	689	2,865	576	360
Total	14.2	0.268	1,782	2,865	576	360
GRAND TOTAL	**375.2**	**3.242**	**192,012**	**7,138**	**2,417**	**974**

NOTES:

(1) 2,000 incarcerations per year for a 30-year period.
(2) 600 paroled and 700 placed on probation per year for 30 years; projected from FY 1968.
(3) 5,280 offenses/dispositions per annum.
(4) Population of 2,000 total for all adult correctional institutions with 2,000 incarcerations and 2,000 releases per annum and 10-year file retention.
(5) Estimated recidivism rate of 40 percent.
(6) Estimated recidivism rate of 40 percent of the 2,000 incarcerations per annum.
(7) 299 characters for additions and 180 for deletions and other changes; average 240 characters.
(8) Estimated 5-percent change rate per mont.
(9) 323 characters for additions and 248 for deletions and other changes; average 285 characters.
(10) 33 percent of Items 4.c and 4.d plus 4.a and 4.b.
(11) 27,000 unsolved crimes per annum and 3-year file retention
(12) Estimate only; no data to support.
(13) Estimated change rate of 20 percent per month for each separate category.

Table IV-5. Estimated Communications Workload Time

Type Query or Response	Hourly	Daily	Weekly	Monthly
Vehicle identification	1'34"	37'36"	263'12"	1,128'00"
Vehicle registration	1'40"	40'00"	280'00"	1,200'00"
Stolen/wanted vehicles	1'40"	40'00"	280'00"	1,200'00"
Driver's license	0'34"	13'36"	95'12"	408'00"
Identification of person	2'50"	68'00"	476'00"	2,040'00"
Traffic violations	0'35"	14'00"	98'00"	420'00"
Criminal justice queries	0'04"	1'36"	11'12"	48'00"
Total Query *or* Response	8'57"	214'48"	1,503'36"	6,444'00"
	x2	x2	x2	x2
Total Query *and* Response	17'54"	429'36"	3,007'12"	12,888'00"
(In Hours)	0.30	7.16	50.12	213.47

Table IV-6. Estimated Query and Response Requirements

Type Query or Response	No. Queries/ Responses per Hr.	No. Queries/ Responses per Day	No. Char. per Query/Response		No. Char. per Hr.		No. Char. per Day		Xmission per Hr.		Xmission per Day	
					Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.
Vehicle Identification	94	2,256	75	75	7,050	7,050	179,200	179,200	7'50"	7'50"	188'00"	188'00"
Vehicle Registration	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Stolen/Wanted Vehicle	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Driver's License	34	816	75	75	2,550	2,550	61,200	61,200	2'50"	2'50"	68'00"	68'00"
Identification of Person	170	4,080	75	200	12,750	34,000	306,000	816,000	14'10"	37'47"	340'00"	906'40"
Traffic Violations (all types) (State Highway Patrol)	40	942	75	75	3,000	3,000	72,000	72,000	3'20"	3'20"	80'00"	80'00"
Criminal Justice Queries (all types from all sources)	4	96	75	200	300	800	7,200	19,200	0'20"	0'53"	8'00"	21'20"
Subtotal	542	13,008										
	x2	x2										
Total[2]	1,084	26,016	Avg. 95		103,080		2,473,200		114'30"		274'00"	

[1] Transmission time based on 15 characters per second
[2] Multiply by 2 to obtain totals of queries plus responses.

V. ADP REQUIREMENTS

V. ADP EQUIPMENT REQUIREMENTS

This section contains estimates of, first, the source data automation equipment to be used for TRACIS input processing, and second, the electronic data processing (EDP) and peripheral equipment required for TRACIS data storage. The source data automation equipment cannot be determined with any degree of certainty until the detailed design phase, during which time the following information will be revealed:

- Specific input formats
- Specific record content and the degree of satisfaction of user requirements; hence, individual data elements and the number of characters per source document
- Feasibility of using optical scanning equipment

Similarly, selection of EDP and peripheral equipment depends on certain information that will be available only after the detailed design phase:

- Number and types of programs; procedural instructions; software support; multiprocessing requirements; and requirements of other systems, e.g., telecommunications
- Specific data base size and structure, i.e., file and record organization, format, and data items
- Size and processing requirements of counterparts of on- and off-line files; hence, total TRACIS processing times

Thus, the equipment estimates presented in Tables V-1 and V-2 must be considered tentative until the completion of the detailed system design. Table V-1, based on the transaction volumes contained in

Tables IV-3 and IV-4 and the average number of characters per change contained in Tables V-3 and V-4, presents the alphabetic card punch and verifier equipment requirements. Table V-2, based on the workload estimates contained in Tables IV-1 and IV-2, presents ADPE requirements that can be satisfied by fourth-generation equipment currently on order.

Requirements for communications terminals, controllers, MODEMs, and leased lines are contained in Section VI.

Table V-1. Source Data Automation Equipment Requirements

Equipment	Single-Shift Operation	Two-Shift Operation	Three-Shift Operation
Card Punches, Alphabetic	35	18	12
Verifiers	18	9	6

Table V-2. ADPE Requirements

Item	Model	Specifications	Quantity
Central processing unit	IBM 370/155	1 megabyte internal storage 6 channels	2
Dual-spindle disk	IBM 3330	100,018,000 bytes ea. (2.4 billion characters)	12*
Magnetic tape unit	IBM 2401-5		2†
Card read punch	IBM 2540		1
Printer	IBM 1403-N1		1

* Based on the estimate that the maximum of 1.8 billion characters of on-line storage specified in the Technical Report will, by optimization of file and record structures, be reduced to 1.0 billion characters.

† Required full time for communications and transactions logging; additional units, not to exceed six, will be required for processing off-line files.

Table V-3. Keypunch/Verification Time Requirements, Traffic Records Data

Traffic Records Data	Total Changes per Mo. (thousands)	Max. Char. per Change	Avg. Char. per Change	Avg. Char. per Mo. (thousands)	Keypunch Hrs. Rqd.(1)
1. Driver Records File					
a. License	70.0	698	125(2)	8,750	1,167
b. Violations	15.5	141	141	2,186	291
c. Suspense and Revocations	2.1	116	116	24	32
d. Temporary Permit Cancellation	0.6	124	124	74	10
e. Financial and Safety Responsibility	7.1	110	110	781	104
2. Vehicle Registration File					
a. Registration	166.6	169	169	28,155	3,754(3)
b. Registration Stop Notice	0.9	86	86	73	10
c. Correction	0.9	116	116	99	13
d. Title	70.0	295	222(4)	15,540	2,072
3. Inspection File					
School Bus	0.5	159	159	80	11
4. Accident Surveillance File					
Surveillance	1.0	50	50	48	6
5. Traffic Accidents File					
Vehicle Accident Records	7.1	1,515	367(5)	2,606	347
Subtotal					7,817
					-1,877(3)
Total					5,940

NOTES:

(1) Total based on 60,000 keystrokes per 8-hour day. The nearest full hour is recorded.

(2) Maximum of 10 percent of drivers have a 9's type restriction, and not more than one such restriction.

(3) It is estimated that automation of the vehicle registration process will reduce keypunch/verification workload by at least 50 percent.

(4) Maximum of 25 percent of owners are sole owners with no outstanding lien on the vehicle described.

(5) It is estimated that 90 percent of accidents will involve no more than two vehicles, 5 percent will involve four vehicles, and 5 percent will involve only one vehicle; further 10 percent of accidents will result in the injury or death of one individual, and an additional 10 percent will result in the death or injury of two individuals.

Table V-4. Keypunch/Verification Time Requirements, Criminal Justice Data

Criminal Justice Data	Total Changes per Mo.	Max. Char. per Change	Avg. Char. per Change	Avg. Char. per Mo. (thousands)	Keypunch Hrs. Rqd.(1)
1. Criminal History File					
a. Identification	440	248	248	101	13
b. Offense/Disposition	440	52	77(2)	34	5
c. Corrections	333	33	12(3)	40	1
d. Probation Parole	110	35	10(4)	1	0
e. Criminal History Summary	167	216	Summarized from other files		
2. Correction Institutions					
a. Identification	333	240	240	80	11
b. Offense/Disposition	incl. above	-	-	-	-
c. Corrections					
3. Wanted Persons File					
a. Identification	100	285	285	29	4
b. Offense/Disposition	incl. above	-	-	-	-
c. Wanted					
4. Criminal Conspiracy File					
a. Identification	100	532	304(7)	30	4
b. Offense/Disposition					
c. Criminal History Summary	incl. above	-	-	-	-
d. Criminal Conspiracy					
5. Unsolved Crimes File					
Unsolved Crimes Data	2,250	100	100	225	30
6. Stolen Property File					
a. Vehicle	2,400	128	128	307	41
b. Firearms	125	101	101	13	2
c. Other Stolen Property	300	115	115	35	5
d. Currency	20	106	106	2	0
e. Livestock	20	126	126	3	0
Total					116

NOTES:

(1) Total based on 60,000 keystrokes per 8-hour day. The nearest full hour is recorded.

(2) Based on the adoption of Tables for 75 characters of SEARCH-oriented descriptive data, thus eliminating a keypunch requirement.

(3) Based on the adoption of a Table for 25 characters of SEARCH-oriented descriptive data, thus eliminating a keypunch requirement.

(4) Based on the summarization of other data (228 characters) from the Criminal History File.

VI. COMMUNICATIONS REQUIREMENTS

VI. COMMUNICATIONS REQUIREMENTS

A. Transmission

The projected send/receive transmission volume and time requirements are portrayed and described in Table IV-6. It is noted that an estimated 52,032 messages,[1] averaging 95 characters each, will be transmitted during each 24-hour period within 1 year following complete implementation. It is further noted that, including preparation, setup time, and average transmission time (6.3 seconds per message), a total of about 548 hours per day will be required. This workload will be distributed across 102 input/output (I/O) terminals statewide (see Figure II-4).

Processing time required to accommodate the projected communications traffic workload is presented in Section IV by type or query/response. The following list is a recapitulation of time required exclusive of send or receive transmissions:

Frequency		Time (hr.)
Hourly	-	0.30
Daily	-	7.30
Weekly	-	50.12
Monthly	-	213.47

B. I/O Terminals

In selecting I/O terminals to satisfy user needs throughout the State of Iowa a variety of terminals were evaluated based on the following important considerations:

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[1] A single query is a message. The response to the query is also a message.

- Availability of continuing and responsive service to ensure uninterrupted operation
- Standardization of MODEMs to enable the State of Iowa to fix responsibility for communications service maintenance from I/O terminal to the communication controller and vice versa
- Cost effectiveness, i.e., I/O terminals that will be responsive to user needs and that are economically feasible
- Requirements for hardcopy output for temporary or permanent record
- Relative high cost of cathode ray tube (CRT) terminals and the added expense of a hardcopy printer to parallel the CRT terminal
- Different line speeds and costs[1]
- Currently installed CRT terminals in the State Capitol complex.

The I/O terminal requirements are presented in Table VI-1. Their selection and distribution was based on the following considerations:

- The cost per mile of a full-duplex, 2400-baud line is $5.00, whereas the cost for a 150-baud line is $2.50. Additionally, 2400-baud lines are not available throughout the State.
- A 2400-baud line is required for the efficient operation of CRT terminals.
- A CRT terminal with capability equivalent to the Model 37 ASR, will cost a minimum of $350 per month, as opposed to $210 for a Model 37 ASR or equivalent terminal. In addition, MODEMs for CRT terminals will cost 50 to 100 percent more than MODEMs for non-CRT terminals.
- Single-point responsibility for communications system maintenance from I/O terminals to the communications controller will best ensure responsiveness to Iowa needs for a reliable system.
- A CRT terminal is useless when unattended, unless it includes a hardcopy print capability.

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[1] For example, it has been determined that a 15-character-per-second transmission rate will satisfy needs. This can be obtained from a 150-baud line as opposed to more expensive 1200- to 2400-baud lines required for efficient CRT terminal operation.

Table VI-1. TRACIS I/O Terminal Requirements

Location	Quantity
State Capitol Complex	3
Iowa Police Radio Stations (9)	18
State Highway Patrol District Offices (14)	14
Municipal Police Departments:	
Cedar Rapids	2
Davenport	2
Des Moines	3
Sioux City	2
Waterloo	2
Ames	1
Bettendorf	1
Boone	1
Burlington	1
Carroll	1
Cedar Falls	1
Chariton	1
Charles City	1
Clarinda	1
Clinton	1
Council Bluffs	1
Decorah	1
Dubuque	1
Fairfield	1
Fort Dodge	1
Fort Madison	1
Iowa City	1
Keokuk	1
Marion	1
Maquoketa	1
Marshalltown	1
Mason City	1
Muscatine	1
Newton	1
Oskaloosa	1
Ottumwa	1
Perry	1
West Des Moines	1
County Sheriffs:	
Blackhawk	1
Boone	1
Buchanan	1

Location	Quantity
Cedar	1
Cerro Gordo	1
Clinton	1
Dallas	1
Des Moines	1
Dubuque	1
Fayette	1
Iowa	1
Greene	1
Guthrie	1
Jasper	1
Johnson	1
Kossuth	1
Lee	1
Linn	1
Marion	1
Marshall	1
Polk	1
Pottowattomie	1
Scott	1
Sioux	1
Story	1
Wapello	1
Webster	1
Woodbury	1
	102

Notes: 1. The total number of I/O terminals specified herein represents only the operational requirements associated with TRACIS queries and responses. It is recognized that additional terminals may be specified for use for other purposes. These are not, however, a part of the TRACIS telecommunications network and are not, therefore, included in TRACIS calculations.

2. It must be reiterated that 102 terminals is the operational level of TRACIS, i.e., TRACIS will be considered an operational system at this level. Other terminals will be planned as additions to TRACIS as needed and as TRACIS MIS functions increase.

- The Model 37 ASR or equivalent terminal will be under computer software control and thus permit priority preemption, format control, and maximum utilization of circuits.

- The Model 37 ASR or equivalent will provide required service with minimal leased lines. To provide service with a less capable terminal would require point-to-point transmission. This would increase line miles from about 1,800 full-duplex to about 10,000 half-duplex, and monthly costs from $4,500 to $20,000.

Communication system implementation will, as currently envisioned, be executed over a 2-year period, as follows: Twenty-five I/O terminals will be placed on line during each of three successive 6-month periods of operation, and the remaining terminals during the fourth 6-month period.

A comprehensive test of CRT terminals should be performed at a future date to ensure that advances in the state of the art are recognized, that valid needs are met, and that responsive cost effectiveness is maintained.

C. Modulator/Demodulator Devices

MODEMs vary greatly in cost, capability, and reliability. As pointed out in the previous paragraph, a MODEM required to accommodate a CRT I/O terminal is considerably more complex and expensive than one required for a teletype terminal. While many of the numerous MODEMs on the market would satisfy Iowa needs, the planned acquisition of Model 37 ASR or equivalent terminals limits the choice to that offered by the Model 37 manufacturer.

Single-point responsibility for maintenance from I/O terminal to the communications controller will be ensured with the MODEM provided by the Model 37 manufacturer. Without single-point maintenance responsibility, continuous and reliable system operation cannot be ensured and maintenance costs will definitely be increased. The cost of the MODEM to be used with the Model 37 ASR is $25 per month, but a reduction in price is anticipated.

MODEM requirements are estimated as follows: one each for the 102 terminals, and one each for the 10 to 15 leased-line terminations (actual number still undetermined). Implementation will follow the same schedule as used for I/O terminals (see paragraph B).

D. Transmission Control/Message Processor Unit

A transmission control/message processor unit is essential for buffering, polling, routing communications traffic over a large number of leased lines, and for other message processing functions. Accordingly, procurement of a transmission control unit capable of expansion to service a minimum of 200 full-duplex lines with speeds ranging from 150 to 2400 baud will be specified. The specific number of low-speed and high-speed lines will be subject to later determination and will depend on the number of CRT terminals to be accommodated. It is estimated, however, that not more than 25 percent of total lines will be high speed. The following manufacturers are among those to be considered in the procurement:

- Collins Radio
- Comcet
- Teleswitcher Corporation
- Computer Communications, Inc.

Installation of the transmission control unit should be completed a minimum of 30 days prior to installation and test of the first increment of I/O terminals/MODEMs.

E. Leased Lines

Four-wire, full-duplex transmission lines offer the greatest potential for economical and effective support of the needs of all agencies utilizing the 102 projected I/O terminals. It having been determined that a transmission speed of 15 characters per second will satisfy user requirements, 150-baud lines are needed. It is currently estimated that the number of line terminations at the computer will not exceed 15.

Figure VI-1 portrays the principal advantages of full-duplex transmission lines. Each of the eight schematics in the figure portrays a simple five-user terminal network, a computer, and a full-duplex transmission line. Schematics 1 through 3 are classified as simple modes, while 4 through 8 are complex modes.

Schematic 1 represents the basic configuration in an idle mode. In schematic 2, the computer is receiving a message from terminal 3; in schematic 3, the computer is sending a message to terminal 3.

Schematic 4 shows the computer broadcasting a message to all terminals on the line. Schematic 5 demonstrates simultaneous transmission and receipt of messages by different terminals on the same full-duplex line. Schematic 6 shows terminal 3 being received and terminal 4 being polled. In schematic 7, a high-priority message is being received from terminal 4, while reading from terminal 3 is temporarily suspended; and in schematic 8, normal transmission is being resumed from terminal 3, and a high-priority message is being received by terminal 4.

The advantages of a full-duplex capability far exceed the minimal savings that would be achieved by using half-duplex lines. In fact, any savings would be offset by the requirement for a greater number of half-duplex lines, reduced line availability, and greater contention for available lines. Responsiveness would be reduced. In addition, full-duplex lines have a potential capacity twice that of half-duplex lines at an added cost of only 25 percent.

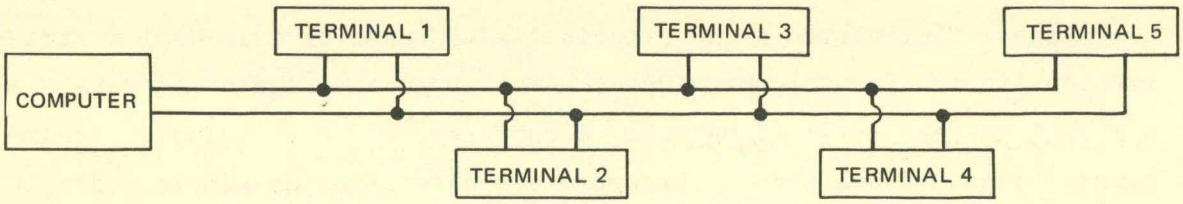
Implementation will be phased to coincide with the installation of I/O terminals and MODEMs.

F. Communication System Design

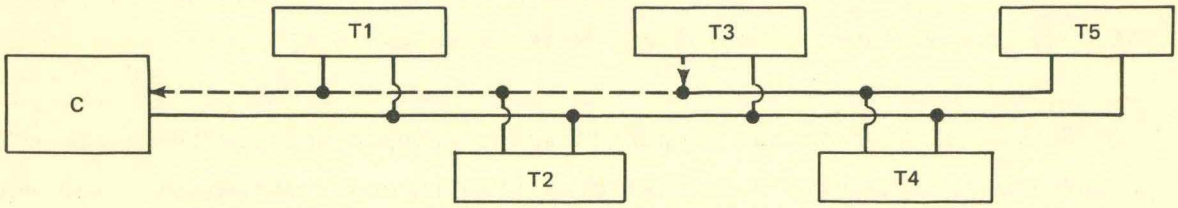
Detailed system design of TRACIS will include the parallel development of message processing procedures, codes, conventions, formats, and operating instructions to ensure that lines and terminals are properly moni-

FULL DUPLEX LINE MODES

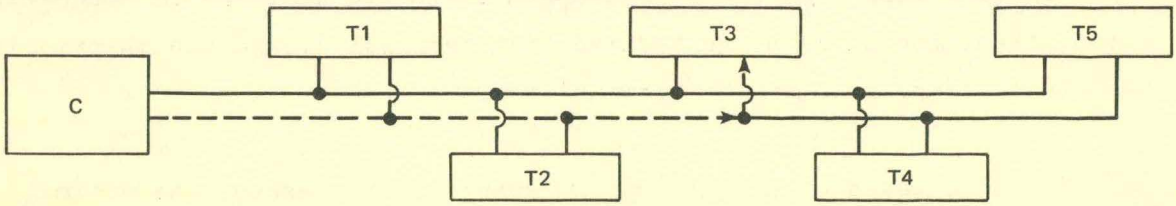
SIMPLE MODES



IDLE
SCHEMATIC 1

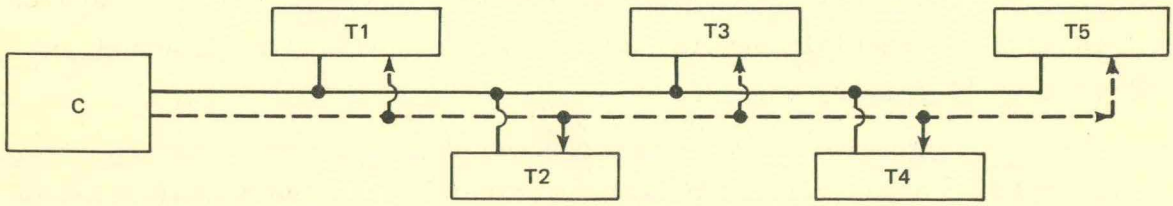


RECEIVE (READING)
SCHEMATIC 2



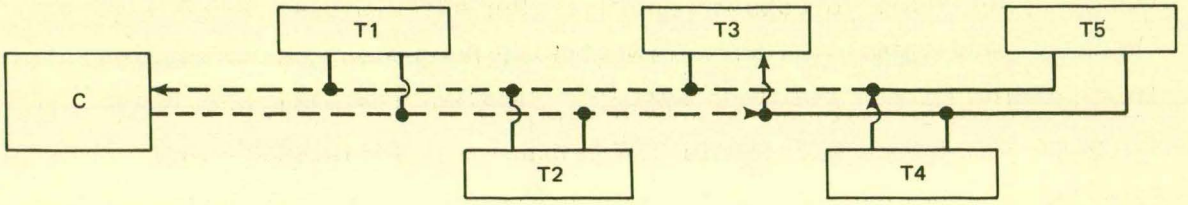
SENDING (WRITING)
SCHEMATIC 3

COMPLEX MODES

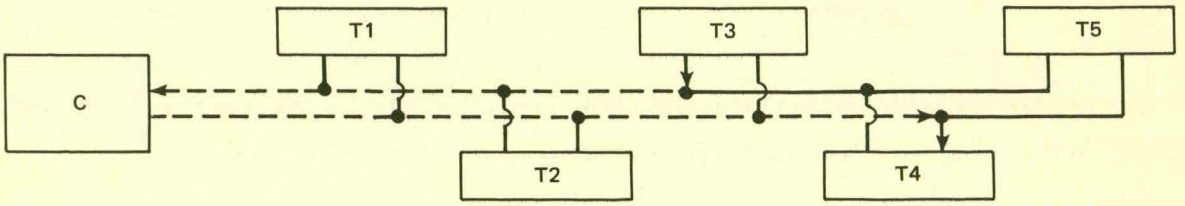


BROADCAST (WRITE SIMULTANEOUSLY)
SCHEMATIC 4

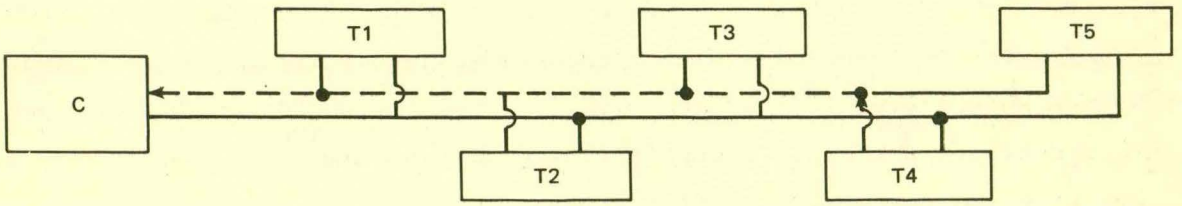
Figure VI-1. Principal Advantages of Full-Duplex Transmission Lines



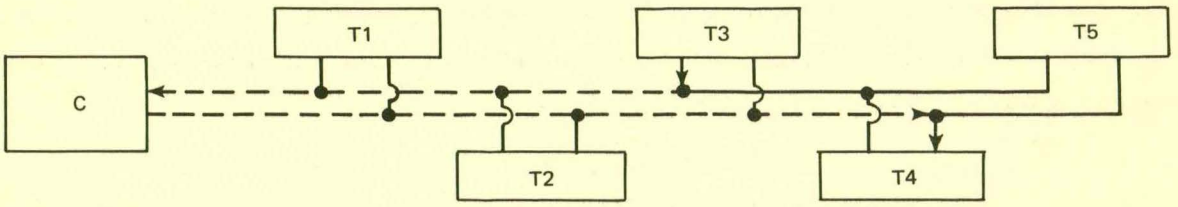
SENDING AND RECEIVING ASYNCHRONOUSLY
SCHEMATIC 5



RECEIVING AND REQUESTING (POLLING) ASYNCHRONOUSY
SCHEMATIC 6



HIGH PRIORITY RECEIVE(NO. 4)AND TEMPORARILY SUSPEND(NO. 3)
SCHEMATIC 7



HIGH PRIORITY SEND (NO. 4) AND RESUME NORMAL RECEIVE (NO. 3)
SCHEMATIC 8

Figure VI-1 (Continued)

tored, controlled, and polled; that line discipline and priorities are observed; and that messages are transmitted or received as appropriate. This portion of the detailed system design will include all system functions of the message processor, transmission control unit, and I/O terminals.

Total TRACIS software organization is portrayed in Figure VI-2. The differences between communications processing and applications processing are clearly delineated.

Principal hardware/software interfaces in the input and output processing of TRACIS messages are portrayed in Figure VI-3.

1. Basic Communications Software Design. Communication software is one of the most important design areas, and much emphasis must be placed on the proper logic and design of communications system control blocks. Good design will allow additional and higher speed lines, multiplexers, or new terminals, with minimal additional programming. Communications software will interface with terminals, transmission lines, and other software systems. These interfaces may be expected to pose numerous challenges to the software designer.

a. Organization and Compatibility. Communications software must be highly organized with respect to programming modules. The absence of strict control may result in a programming change, causing an unwanted effect in another module. Good design will lead to efficient software and ensured compatibility with other systems.

b. Transmission Control Unit (TCU). The TCU can be shared by many groups of users. Each line of the TCU will run independently of other lines. The TCU will, however, be under software control from the communications processor. Since a central communications routine will be more efficient and reliable than multiple and independent routines, all telecommunication routines should be adapted to the use of a single

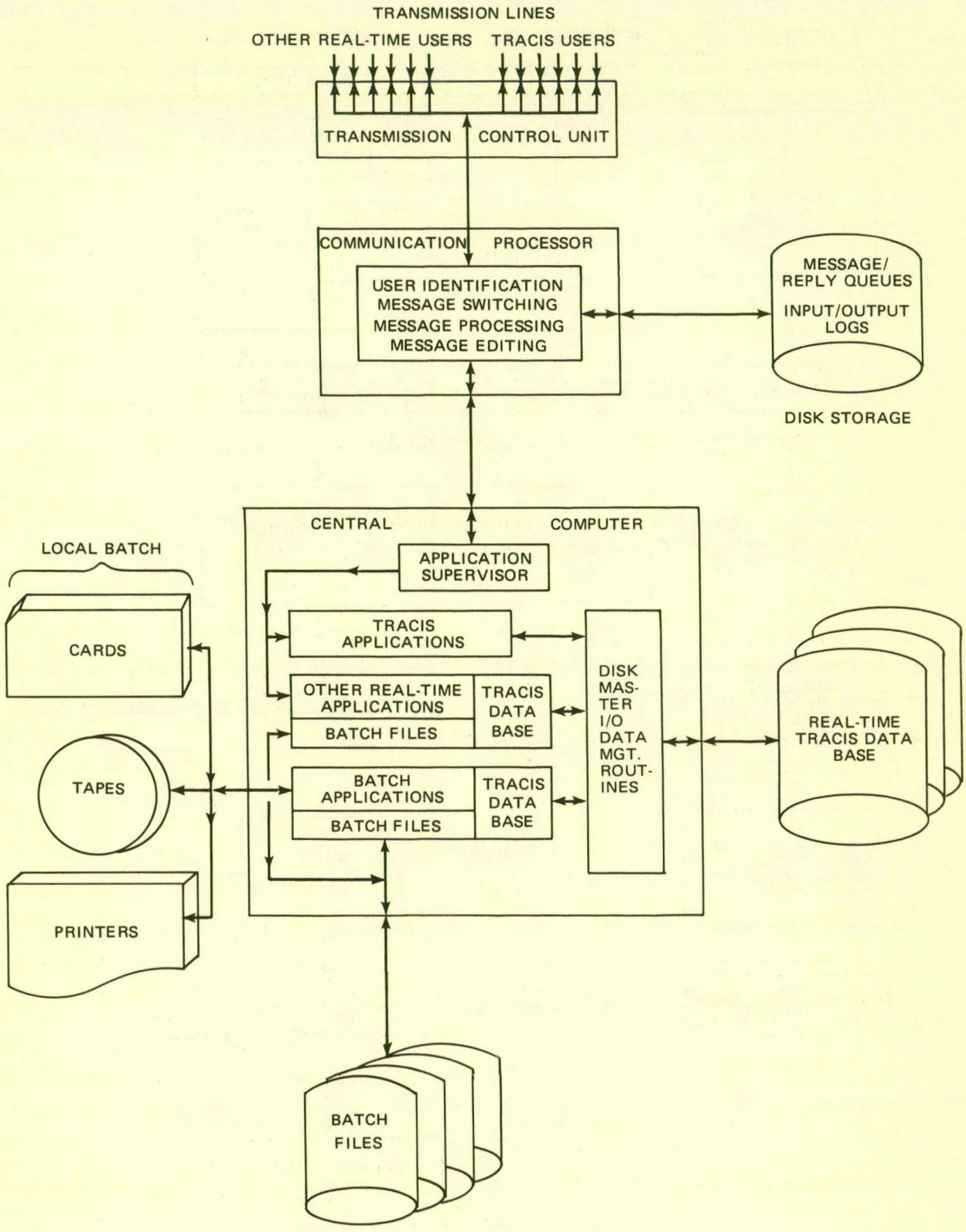


Figure VI-2. Total TRACIS Communications Software Organization

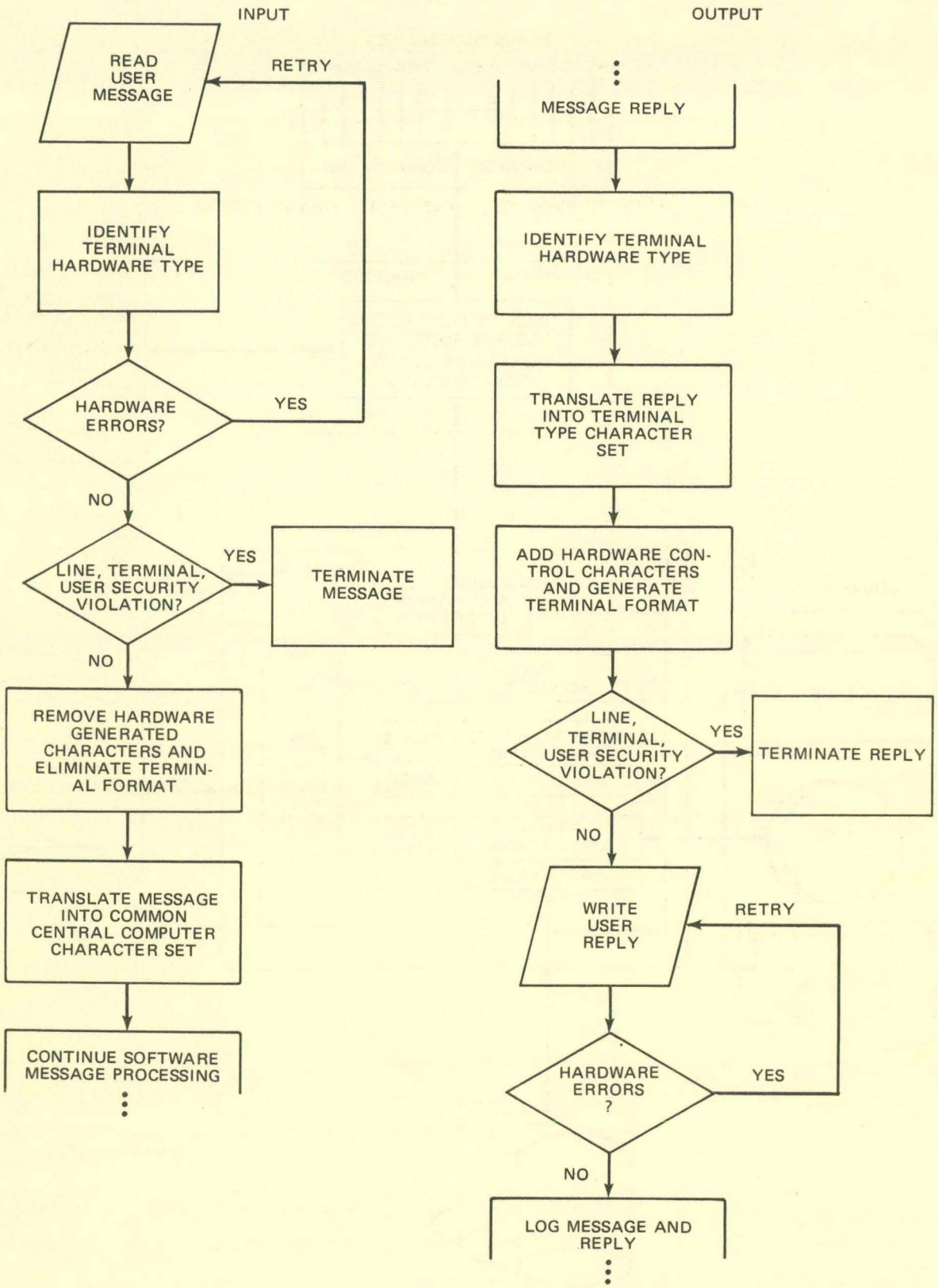


Figure VI-3. TRACIS Communications Hardware/Software Interfaces

routine. It is recognized that some reprogramming will be required to make the other communications programs compatible with the proposed system. The alternatives--multiple TCU's, multiple communications languages, or multiple communications programs--would be difficult to manage effectively. The maintenance of different systems would cause much time to be lost in calculating possible effects on other communications systems. Finally, it is believed that the initial change efforts will be considerably less expensive than the additional maintenance required by separate communications systems.

c. Hardware/Software Interfaces. The most important part of communications programming will be the hardware/software interface requirements. Two important differences make this design more difficult than that of the central data center. First, the environment that the MODEMs, transmission lines, and terminals operate in will cause hardware errors to occur. Second, each unique terminal type will have different hardware interfaces, and each group must be individually programmed as hardware-dependent devices. The TCU MODEM(s), terminal MODEM(s), and transmission line(s) can generate errors, and each can fail in several unique ways. Therefore, system software should try the message several times and record results. Continued failure should be handled by the software, isolating the faulting equipment while continuing to process other users. Many steps are required to strip hardware-generated characters and eliminate terminal formats. A communications language with many instructions that can be used efficiently, such as IBM's Basic Telecommunication Access Method (BTAM), will be used.

d. MODEMs. The number of MODEMs required in a large communications system is such that the total data set cost per month can be significant. Current plans specify a digital, leased, telephone-grade, full-duplex line. Since teletype MODEMs do not have to handle voice analog signals and only transmission speeds, an economical MODEM can be utilized. It will, however, have fast-response characteristics to efficiently handle priority interrupts.

e. Transmission Lines. Low-speed transmission lines can be limiting factors with reference to transmission performance. Going to higher speed lines may, however, increase total costs significantly. For TRACIS support, the most efficient line and best price performer is a conditioned, telegraph-grade, full-duplex line that can be shared by low-volume users, the dual paths allowing polling of other users on the line while receiving messages from a particular terminal.

f. I/O Terminals. To make cost-effective and efficient use of full-duplex lines, I/O terminals should support a programmable interrupt. This feature allows multiple-line users to obtain the essential response to priority messages regardless of current line volume. Hard-copy will be necessary for users updating the central files. Finally, a buffered terminal, whether on-line or off-line, will minimize the time that the shared transmission line is dedicated to a given user.

Since terminals are so critical to the communications study, a search was made to find at least one terminal that was satisfactory relative to design criteria. The Model 37 ASR is a capable terminal designed for computer usage. At 150 words per minute, it is considerably faster than older teletypes. The Model 37 meets the ASCII code of 94 standard characters, including upper and lower case. Further, it is a paper-tape unit that does not require operator intervention to send tape from the punch station to the read station. The paper tape can also be rewound on an output spool and kept as a permanent record with all records in chronological sequence. Control keys allow signaling of priority messages. The Model 37 is responsive and can be fully controlled by computer software.

g. Teleprinters. At present mobile requests are made via radio to the nearest terminal station. In the future requests may be received from a terminal in a mobile status. System design will accommodate this extension.

h. Multiplexers/multidrops/concentrators. Multiplexers concentrate transmission data to reduce line costs. They are generally expensive and become cost-effective only when many users or large volumes can be concentrated. At present, there do not appear to be any major savings available through the use of multiplexers. Multidrops and concentrators effectively perform the same function as multiplexers.

2. Basic Communications Hardware Design. The system design of the communications hardware is important for several reasons. Most important is the fact that without careful planning, hardware costs spiral out of control. Additionally, poor design limits future expansion or makes it economically prohibitive. And finally, a good design is essential to make a straightforward system that is easy to understand and operate.

A logical example will help explain two of the major parts of a telecommunications network. First is the polling[1] of the terminals by the central message processor. Second is the logical path over which the data travel after they arrive at the data center and enter the central computer to be processed against the data base. In this example the TCU will service six lines and 30 terminals, whereas a large TCU can service hundreds of lines and terminals. At time zero, the message processor loads the TCU with instructions to poll transmission line 1. At this point the TCU is released from the message processor and independently executes its own computer program to poll line 1. The subsequent instructions are to poll 2, poll 3, etc. The TCU will continue to poll, including starting over again with 1 after polling 6. This is usually interrupted only when a particular user has data to send and so signals the TCU. Then, a data receive instruction group is loaded into the TCU to help it accept data. In this example, after the message processor started line 1 requesting data, the message processor independently started line 2, then line 3, continuing through line 6. (The computer can start, stop, receive, or send to any of the TCU sections, independent of the actions taking place

[1]Polling is a process whereby the computer scans the lines to see if any terminal is ready to transmit a message.

in the other sections. This is the mechanism by which all lines can be servicing asynchronously all terminal users.)

Each terminal sends data on the line to the similar TCU section. Data are delivered a few characters at a time to the transmission buffer of the message processor. The buffer takes groups of characters and moves them to a core storage location, where the complete message is assembled. The completed message is then moved to the disk buffer and stored awaiting execution. When all higher priority messages have been dispatched, the message is read from disk to disk buffer. It is then moved to the computer buffer, where it is sent to the central processor to be executed. From this point the message is handled as if it had arrived from a card reader or tape unit. When the message is fully processed, a reply is sent to the computer buffer. From the buffer it is moved to the disk buffer, where it is dispatched to the disk queue. When the applicable line becomes available, the reply is again moved to the disk buffer. It is then moved to the transmission buffer, and instructions are loaded into the correct TCU section to send the message. Finally, the reply is transmitted to the terminal from which the query originated.

G. Related Requirements

1. Teleprinters. The feasibility of a teleprinter communications system, in both mobile and remote locations, should be studied and determinations made with reference to the use of the teleprinter to bridge the gap between the TRACIS I/O terminal and the remote or mobile unit. The following are pertinent considerations:

- The radio transmitter should be keyed by a buffered input device using paper-tape output from a TRACIS I/O terminal.
- Teleprinters should be tested in varied locations under all probable operational considerations.
- The testing period should be a minimum of 1 year and should be conducted under the supervision of the Iowa State Director of Communications.

- The feasibility study and test should be performed in coordination with the TRACIS project to ensure system compatibility and uniform conventions and procedures.

2. Radio Propagation Study. The radio propagation study recommended by the Iowa State Director of Communications should be conducted at the earliest practicable date. This recommendation is made in consideration of the preceding discussion of mobile teleprinters and the expected increased loads on existing base stations when TRACIS is fully operational. The selection and testing of teleprinters require a propagation study to ensure valid results and conclusions. The results of this study and its impact on base stations should be fully coordinated with development of the TRACIS terminal network.

Appendix A

PROCESSING SPECIFICATIONS AND OUTPUT PRODUCTS

Table IV-3. Data Base Update Workload, Traffic Records Subsystem

Records/Data	No. Records per File (thousands)	Max. Char. per Record	Max. Char. per File (thousands)	Total Changes per Mo. (thousands)	Max. Char. per Change	Max. Char. per Mo. All Changes (thousands)
1. Driver Records File Records/Data						
a. License	1,750	698	1,396,000	70.0	698	48,860
b. Violations	600	330	198,000	15.5	141	2,186
c. Suspense and Revocations	4	30	108	2.1	116	242
d. Temporary Permit Cancellation	4	38	133	0.6	124	74
e. Financial & Safety Responsibility	250	24	6,000	7.1	110	781
Total	1,750*	1,120	1,600241	95.3	1,189	52,145
2. Vehicle Registration File Records/Data						
a. Registration	2,000	169	338,000	166.6	169	28,155
(1) Reg. Stop Notice Data	10	9	90	0.8	86	73
(2) Correction Data	10	39	390	0.9	116	99
b. Title	3,000	295	885,000	70.0	295	20,650
Total	5,020	512	1,223,480	238.3	666	48,977
3. Inspections File Records/Data						
a. School Bus	6	159	954	0.5	159	80
b. Other	undet.	undet.	undet.	undet.	undet.	undet.
Total	6	159	954	0.5	159	80
4. Accident Surveillance File Data						
Surveillance	190	50	9,500	1.0	50	48
5. Traffic Accidents File Records/Data						
a. Vehicle Accident	250	1,515	378,750	7.1	1,515	10,757
b. Traffic Accident Injury c. Accident Investigation d. Arrest and Charge	incl. above	incl. above	incl. above	incl. above	incl. above	incl. above
Total	250	1,515	378,750	7.1	1,515	10,757
Grand Total	**7,215**	**3,356**	**3,212,925**	**342.2**	**2,570**	**112,002**

*1.b through 1.e included in 1.a.

Table IV-4. Data Base Update Workload, Criminal Justice Subsystem

Records/Data	No. Records per File (thousands)	Max. Char. per Record	Max. Char. per File (thousands)	Total Changes per No. (thousands)	Max. Char. per Change	Max. Char. per Mo. All Changes (thousands)
1. Criminal History File Records/Data						
a. Identification	256.0	248	63,488	440[3]	248	109
b. Offense/Disposition	incl. above	152	39,812	440[3]	152	67
c. Corrections	60.0[1]	37	2,220	333[4]	33	11
d. Probation/Parole	39.0[2]	35	1,365	110[5]	35	4
e. Criminal History Summary	102.4[2]	648	66,355	167[6]	216	36
Total	256.0	1,120	173,240	1,490	684	227
2. Correctional Institutions File Record/Data						
Identification Record	20.0[4]	180	3,600	333[4]	240[7]	80
(1) Offense/Disposition Data	incl. above	82	1,640	incl. above	incl. above	-
(2) Corrections Data	incl. above	37	740	incl. above	incl. above	-
Total	20.0	0.299	5,980	333	240	80
3. Wanted Persons File & Record/Data						
a. Identification Data	2.0	248	496	100[8]	285[9]	29
b. Offense/Disposition Data	incl. above	36	72	incl. above	incl. above	-
c. Wanted Data	incl. above	39	78	incl. above	incl. above	-
Total	2.0	323	646	100	285	29
4. Criminal Conspiracy File & Record/Data						
a. Identification Data	2.0	220	440	100[8]	532[10]	53
b. Offense/Disposition Data	incl. above	12	24	incl. above	incl. above	-
c. Criminal History Summary Data	incl. above	648	1,296	incl. above	incl. above	-
d. Criminal Conspiracy Data	incl. above	252	504	incl. above	incl. above	-
Total	2.0	1,132	2,264	100	532	53
5. Unsolved Crimes File & Record/Data[11]	81.0	100	8,100	2,250	100	225
6. Stolen Property File						
a. Identification Data	14.2	0.077	1,093	2,865[13]	-	-
b. Stolen Property Data Records						
(1) Vehicle/License Plate	12.0	0.051	612	2,400	128	307
(2) Firearms	0.5	0.024	12	125	101	13
(3) Other Stolen Property	1.5	0.038	57	300	115	35
(4) Currency	0.1[12]	0.029	3	20	106	2
(5) Livestock	0.1[12]	0.049	5	20	126	3
Subtotal	14.2	0.191	689	2,865	576	360
Total	14.2	0.268	1,782	2,865	576	360
GRAND TOTAL	**375.2**	**3.242**	**192,012**	**7,138**	**2,417**	**974**

NOTES:

(1) 2,000 incarcerations per year for a 30-year period.
(2) 600 paroled and 700 placed on probation per year for 30 years; projected from FY 1968.
(3) 5,280 offenses/dispositions per annum.
(4) Population of 2,000 total for all adult correctional institutions with 2,000 incarcerations and 2,000 releases per annum and 10-year file retention.
(5) Estimated recidivism rate of 40 percent.
(6) Estimated recidivism rate of 40 percent of the 2,000 incarcerations per annum.
(7) 299 characters for additions and 180 for deletions and other changes; average 240 characters.
(8) Estimated 5-percent change rate per mont.
(9) 323 characters for additions and 248 for deletions and other changes; average 285 characters.
(10) 33 percent of Items 4.c and 4.d plus 4.a and 4.b.
(11) 27,000 unsolved crimes per annum and 3-year file retention
(12) Estimate only; no data to support.
(13) Estimated change rate of 20 percent per month for each separate category.

Table IV-5. Estimated Communications Workload Time

Type Query or Response	Hourly	Daily	Weekly	Monthly
Vehicle identification	1'34"	37'36"	263'12"	1,128'00"
Vehicle registration	1'40"	40'00"	280'00"	1,200'00"
Stolen/wanted vehicles	1'40"	40'00"	280'00"	1,200'00"
Driver's license	0'34"	13'36"	95'12"	408'00"
Identification of person	2'50"	68'00"	476'00"	2,040'00"
Traffic violations	0'35"	14'00"	98'00"	420'00"
Criminal justice queries	0'04"	1'36"	11'12"	48'00"
Total Query *or* Response	8'57"	214'48"	1,503'36"	6,444'00"
	x2	x2	x2	x2
Total Query *and* Response	17'54"	429'36"	3,007'12"	12,888'00"
(In Hours)	0.30	7.16	50.12	213.47

Table IV-6. Estimated Query and Response Requirements

Type Query or Response	No. Queries/ Responses per Hr.	No. Queries/ Responses per Day	No. Char. per Query/Response		No. Char. per Hr.		No. Char. per Day		Xmission per Hr.		Xmission per Day	
					Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.
Vehicle Identification	94	2,256	75	75	7,050	7,050	179,200	179,200	7'50"	7'50"	188'00"	188'00"
Vehicle Registration	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Stolen/Wanted Vehicle	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Driver's License	34	816	75	75	2,550	2,550	61,200	61,200	2'50"	2'50"	68'00"	68'00"
Identification of Person	170	4,080	75	200	12,750	34,000	306,000	816,000	14'10"	37'47"	340'00"	906'40"
Traffic Violations (all types) (State Highway Patrol)	40	942	75	75	3,000	3,000	72,000	72,000	3'20"	3'20"	80'00"	80'00"
Criminal Justice Queries (all types from all sources)	4	96	75	200	300	800	7,200	19,200	0'20"	0'53"	8'00"	21'20"
Subtotal	542	13,008										
	x2	x2										
Total[2]	1,084	26,016	Avg. 95		103,080		2,473,200		114'30"		274'00"	

[1] Transmission time based on 15 characters per second
[2] Multiply by 2 to obtain totals of queries plus responses.

Table IV-5. Estimated Communications Workload Time

Type Query or Response	Hourly	Daily	Weekly	Monthly
Vehicle identification	1'34"	37'36"	263'12"	1,128'00"
Vehicle registration	1'40"	40'00"	280'00"	1,200'00"
Stolen/wanted vehicles	1'40"	40'00"	280'00"	1,200'00"
Driver's license	0'34"	13'36"	95'12"	408'00"
Identification of person	2'50"	68'00"	476'00"	2,040'00"
Traffic violations	0'35"	14'00"	98'00"	420'00"
Criminal justice queries	0'04"	1'36"	11'12"	48'00"
Total Query *or* Response	8'57"	214'48"	1,503'36"	6,444'00"
	x2	x2	x2	x2
Total Query *and* Response	17'54"	429'36"	3,007'12"	12,888'00"
(In Hours)	0.30	7.16	50.12	213.47

Table IV-6. Estimated Query and Response Requirements

Type Query or Response	No. Queries/ Responses per Hr.	No. Queries/ Responses per Day	No. Char. per Query/Response		No. Char. per Hr.		No. Char. per Day		Xmission per Hr.		Xmission per Day	
					Qu.	Res.	Qu.	Res.	Qu.	Res.	Qu.	Res.
Vehicle Identification	94	2,256	75	75	7,050	7,050	179,200	179,200	7'50"	7'50"	188'00"	188'00"
Vehicle Registration	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Stolen/Wanted Vehicle	100	2,400	75	75	7,500	7,500	180,000	180,000	8'20"	8'20"	200'00"	200'00"
Driver's License	34	816	75	75	2,550	2,550	61,200	61,200	2'50"	2'50"	68'00"	68'00"
Identification of Person	170	4,080	75	200	12,750	34,000	306,000	816,000	14'10"	37'47"	340'00"	906'40"
Traffic Violations (all types) (State Highway Patrol)	40	942	75	75	3,000	3,000	72,000	72,000	3'20"	3'20"	80'00"	80'00"
Criminal Justice Queries (all types from all sources)	4	96	75	200	300	800	7,200	19,200	0'20"	0'53"	8'00"	21'20"
Subtotal	542 x2	13,008 x2										
Total[2]	1,084	26,016	Avg. 95		103,080		2,473,200		114'30"		274'00"	

[1] Transmission time based on 15 characters per second
[2] Multiply by 2 to obtain totals of queries plus responses.

V. ADP REQUIREMENTS

V. ADP EQUIPMENT REQUIREMENTS

This section contains estimates of, first, the source data automation equipment to be used for TRACIS input processing, and second, the electronic data processing (EDP) and peripheral equipment required for TRACIS data storage. The source data automation equipment cannot be determined with any degree of certainty until the detailed design phase, during which time the following information will be revealed:

- Specific input formats
- Specific record content and the degree of satisfaction of user requirements; hence, individual data elements and the number of characters per source document
- Feasibility of using optical scanning equipment

Similarly, selection of EDP and peripheral equipment depends on certain information that will be available only after the detailed design phase:

- Number and types of programs; procedural instructions; software support; multiprocessing requirements; and requirements of other systems, e.g., telecommunications
- Specific data base size and structure, i.e., file and record organization, format, and data items
- Size and processing requirements of counterparts of on- and off-line files; hence, total TRACIS processing times

Thus, the equipment estimates presented in Tables V-1 and V-2 must be considered tentative until the completion of the detailed system design. Table V-1, based on the transaction volumes contained in

Tables IV-3 and IV-4 and the average number of characters per change contained in Tables V-3 and V-4, presents the alphabetic card punch and verifier equipment requirements. Table V-2, based on the workload estimates contained in Tables IV-1 and IV-2, presents ADPE requirements that can be satisfied by fourth-generation equipment currently on order.

Requirements for communications terminals, controllers, MODEMs, and leased lines are contained in Section VI.

Table V-1. Source Data Automation Equipment Requirements

Equipment	Single-Shift Operation	Two-Shift Operation	Three-Shift Operation
Card Punches, Alphabetic	35	18	12
Verifiers	18	9	6

Table V-2. ADPE Requirements

Item	Model	Specifications	Quantity
Central processing unit	IBM 370/155	1 megabyte internal storage 6 channels	2
Dual-spindle disk	IBM 3330	100,018,000 bytes ea. (2.4 billion characters)	12*
Magnetic tape unit	IBM 2401-5		2†
Card read punch	IBM 2540		1
Printer	IBM 1403-N1		1

* Based on the estimate that the maximum of 1.8 billion characters of on-line storage specified in the Technical Report will, by optimization of file and record structures, be reduced to 1.0 billion characters.

† Required full time for communications and transactions logging; additional units, not to exceed six, will be required for processing off-line files.

Table V-3. Keypunch/Verification Time Requirements, Traffic Records Data

Traffic Records Data	Total Changes per Mo. (thousands)	Max. Char. per Change	Avg. Char. per Change	Avg. Char. per Mo. (thousands)	Keypunch Hrs. Rqd.(1)
1. Driver Records File					
a. License	70.0	698	125(2)	8,750	1,167
b. Violations	15.5	141	141	2,186	291
c. Suspense and Revocations	2.1	116	116	24	32
d. Temporary Permit Cancellation	0.6	124	124	74	10
e. Financial and Safety Responsibility	7.1	110	110	781	104
2. Vehicle Registration File					
a. Registration	166.6	169	169	28,155	3,754(3)
b. Registration Stop Notice	0.9	86	86	73	10
c. Correction	0.9	116	116	99	13
d. Title	70.0	295	222(4)	15,540	2,072
3. Inspection File					
School Bus	0.5	159	159	80	11
4. Accident Surveillance File					
Surveillance	1.0	50	50	48	6
5. Traffic Accidents File					
Vehicle Accident Records	7.1	1,515	367(5)	2,606	347
Subtotal					7,817
					1,877(3)
Total					5,940

NOTES:

(1) Total based on 60,000 keystrokes per 8-hour day. The nearest full hour is recorded.

(2) Maximum of 10 percent of drivers have a 9's type restriction, and not more than one such restriction.

(3) It is estimated that automation of the vehicle registration process will reduce keypunch/verification workload by at least 50 percent.

(4) Maximum of 25 percent of owners are sole owners with no outstanding lien on the vehicle described.

(5) It is estimated that 90 percent of accidents will involve no more than two vehicles, 5 percent will involve four vehicles, and 5 percent will involve only one vehicle; further 10 percent of accidents will result in the injury or death of one individual, and an additional 10 percent will result in the death or injury of two individuals.

Table V-4. Keypunch/Verification Time Requirements, Criminal Justice Data

Criminal Justice Data	Total Changes per Mo.	Max. Char. per Change	Avg. Char. per Change	Avg. Char. per Mo. (thousands)	Keypunch Hrs. Rqd.(1)
1. Criminal History File					
a. Identification	440	248	248	101	13
b. Offense/Disposition	440	52	77(2)	34	5
c. Corrections	333	33	12(3)	40	1
d. Probation Parole	110	35	10(4)	1	0
e. Criminal History Summary	167	216	Summarized from other files		
2. Correction Institutions					
a. Identification	333	240	240	80	11
b. Offense/Disposition	incl. above	-	-	-	-
c. Corrections					
3. Wanted Persons File					
a. Identification	100	285	285	29	4
b. Offense/Disposition	incl. above	-	-	-	-
c. Wanted					
4. Criminal Conspiracy File					
a. Identification	100	532	304(7)	30	4
b. Offense/Disposition					
c. Criminal History Summary	incl. above	-	-	-	-
d. Criminal Conspiracy					
5. Unsolved Crimes File					
Unsolved Crimes Data	2,250	100	100	225	30
6. Stolen Property File					
a. Vehicle	2,400	128	128	307	41
b. Firearms	125	101	101	13	2
c. Other Stolen Property	300	115	115	35	5
d. Currency	20	106	106	2	0
e. Livestock	20	126	126	3	0
Total					116

NOTES:

(1) Total based on 60,000 keystrokes per 8-hour day. The nearest full hour is recorded.

(2) Based on the adoption of Tables for 75 characters of SEARCH-oriented descriptive data, thus eliminating a keypunch requirement.

(3) Based on the adoption of a Table for 25 characters of SEARCH-oriented descriptive data, thus eliminating a keypunch requirement.

(4) Based on the summarization of other data (228 characters) from the Criminal History File.

VI. COMMUNICATIONS REQUIREMENTS

VI. COMMUNICATIONS REQUIREMENTS

A. Transmission

The projected send/receive transmission volume and time requirements are portrayed and described in Table IV-6. It is noted that an estimated 52,032 messages,[1] averaging 95 characters each, will be transmitted during each 24-hour period within 1 year following complete implementation. It is further noted that, including preparation, setup time, and average transmission time (6.3 seconds per message), a total of about 548 hours per day will be required. This workload will be distributed across 102 input/output (I/O) terminals statewide (see Figure II-4).

Processing time required to accommodate the projected communications traffic workload is presented in Section IV by type or query/response. The following list is a recapitulation of time required exclusive of send or receive transmissions:

Frequency		Time (hr.)
Hourly	-	0.30
Daily	-	7.30
Weekly	-	50.12
Monthly	-	213.47

B. I/O Terminals

In selecting I/O terminals to satisfy user needs throughout the State of Iowa a variety of terminals were evaluated based on the following important considerations:

---

[1] A single query is a message. The response to the query is also a message.

- Availability of continuing and responsive service to ensure uninterrupted operation
- Standardization of MODEMs to enable the State of Iowa to fix responsibility for communications service maintenance from I/O terminal to the communication controller and vice versa
- Cost effectiveness, i.e., I/O terminals that will be responsive to user needs and that are economically feasible
- Requirements for hardcopy output for temporary or permanent record
- Relative high cost of cathode ray tube (CRT) terminals and the added expense of a hardcopy printer to parallel the CRT terminal
- Different line speeds and costs[1]
- Currently installed CRT terminals in the State Capitol complex.

The I/O terminal requirements are presented in Table VI-1. Their selection and distribution was based on the following considerations:

- The cost per mile of a full-duplex, 2400-baud line is $5.00, whereas the cost for a 150-baud line is $2.50. Additionally, 2400-baud lines are not available throughout the State.
- A 2400-baud line is required for the efficient operation of CRT terminals.
- A CRT terminal with capability equivalent to the Model 37 ASR, will cost a minimum of $350 per month, as opposed to $210 for a Model 37 ASR or equivalent terminal. In addition, MODEMs for CRT terminals will cost 50 to 100 percent more than MODEMs for non-CRT terminals.
- Single-point responsibility for communications system maintenance from I/O terminals to the communications controller will best ensure responsiveness to Iowa needs for a reliable system.
- A CRT terminal is useless when unattended, unless it includes a hardcopy print capability.

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[1]For example, it has been determined that a 15-character-per-second transmission rate will satisfy needs. This can be obtained from a 150-baud line as opposed to more expensive 1200- to 2400-baud lines required for efficient CRT terminal operation.

Table VI-1. TRACIS I/O Terminal Requirements

Location	Quantity
State Capitol Complex	3
Iowa Police Radio Stations (9)	18
State Highway Patrol District Offices (14)	14
Municipal Police Departments:	
Cedar Rapids	2
Davenport	2
Des Moines	3
Sioux City	2
Waterloo	2
Ames	1
Bettendorf	1
Boone	1
Burlington	1
Carroll	1
Cedar Falls	1
Chariton	1
Charles City	1
Clarinda	1
Clinton	1
Council Bluffs	1
Decorah	1
Dubuque	1
Fairfield	1
Fort Dodge	1
Fort Madison	1
Iowa City	1
Keokuk	1
Marion	1
Maquoketa	1
Marshalltown	1
Mason City	1
Muscatine	1
Newton	1
Oskaloosa	1
Ottumwa	1
Perry	1
West Des Moines	1
County Sheriffs:	
Blackhawk	1
Boone	1
Buchanan	1

Location	Quantity
Cedar	1
Cerro Gordo	1
Clinton	1
Dallas	1
Des Moines	1
Dubuque	1
Fayette	1
Iowa	1
Greene	1
Guthrie	1
Jasper	1
Johnson	1
Kossuth	1
Lee	1
Linn	1
Marion	1
Marshall	1
Polk	1
Pottowattomie	1
Scott	1
Sioux	1
Story	1
Wapello	1
Webster	1
Woodbury	1
	102

Notes: 1. The total number of I/O terminals specified herein represents only the operational requirements associated with TRACIS queries and responses. It is recognized that additional terminals may be specified for use for other purposes. These are not, however, a part of the TRACIS telecommunications network and are not, therefore, included in TRACIS calculations.

2. It must be reiterated that 102 terminals is the operational level of TRACIS, i.e., TRACIS will be considered an operational system at this level. Other terminals will be planned as additions to TRACIS as needed and as TRACIS MIS functions increase.

- The Model 37 ASR or equivalent terminal will be under computer software control and thus permit priority preemption, format control, and maximum utilization of circuits.

- The Model 37 ASR or equivalent will provide required service with minimal leased lines. To provide service with a less capable terminal would require point-to-point transmission. This would increase line miles from about 1,800 full-duplex to about 10,000 half-duplex, and monthly costs from $4,500 to $20,000.

Communication system implementation will, as currently envisioned, be executed over a 2-year period, as follows: Twenty-five I/O terminals will be placed on line during each of three successive 6-month periods of operation, and the remaining terminals during the fourth 6-month period.

A comprehensive test of CRT terminals should be performed at a future date to ensure that advances in the state of the art are recognized, that valid needs are met, and that responsive cost effectiveness is maintained.

C. Modulator/Demodulator Devices

MODEMs vary greatly in cost, capability, and reliability. As pointed out in the previous paragraph, a MODEM required to accommodate a CRT I/O terminal is considerably more complex and expensive than one required for a teletype terminal. While many of the numerous MODEMs on the market would satisfy Iowa needs, the planned acquisition of Model 37 ASR or equivalent terminals limits the choice to that offered by the Model 37 manufacturer.

Single-point responsibility for maintenance from I/O terminal to the communications controller will be ensured with the MODEM provided by the Model 37 manufacturer. Without single-point maintenance responsibility, continuous and reliable system operation cannot be ensured and maintenance costs will definitely be increased. The cost of the MODEM to be used with the Model 37 ASR is $25 per month, but a reduction in price is anticipated.

MODEM requirements are estimated as follows: one each for the 102 terminals, and one each for the 10 to 15 leased-line terminations (actual number still undetermined). Implementation will follow the same schedule as used for I/O terminals (see paragraph B).

D. Transmission Control/Message Processor Unit

A transmission control/message processor unit is essential for buffering, polling, routing communications traffic over a large number of leased lines, and for other message processing functions. Accordingly, procurement of a transmission control unit capable of expansion to service a minimum of 200 full-duplex lines with speeds ranging from 150 to 2400 baud will be specified. The specific number of low-speed and high-speed lines will be subject to later determination and will depend on the number of CRT terminals to be accommodated. It is estimated, however, that not more than 25 percent of total lines will be high speed. The following manufacturers are among those to be considered in the procurement:

- Collins Radio
- Comcet
- Teleswitcher Corporation
- Computer Communications, Inc.

Installation of the transmission control unit should be completed a minimum of 30 days prior to installation and test of the first increment of I/O terminals/MODEMs.

E. Leased Lines

Four-wire, full-duplex transmission lines offer the greatest potential for economical and effective support of the needs of all agencies utilizing the 102 projected I/O terminals. It having been determined that a transmission speed of 15 characters per second will satisfy user requirements, 150-baud lines are needed. It is currently estimated that the number of line terminations at the computer will not exceed 15.

Figure VI-1 portrays the principal advantages of full-duplex transmission lines. Each of the eight schematics in the figure portrays a simple five-user terminal network, a computer, and a full-duplex transmission line. Schematics 1 through 3 are classified as simple modes, while 4 through 8 are complex modes.

Schematic 1 represents the basic configuration in an idle mode. In schematic 2, the computer is receiving a message from terminal 3; in schematic 3, the computer is sending a message to terminal 3.

Schematic 4 shows the computer broadcasting a message to all terminals on the line. Schematic 5 demonstrates simultaneous transmission and receipt of messages by different terminals on the same full-duplex line. Schematic 6 shows terminal 3 being received and terminal 4 being polled. In schematic 7, a high-priority message is being received from terminal 4, while reading from terminal 3 is temporarily suspended; and in schematic 8, normal transmission is being resumed from terminal 3, and a high-priority message is being received by terminal 4.

The advantages of a full-duplex capability far exceed the minimal savings that would be achieved by using half-duplex lines. In fact, any savings would be offset by the requirement for a greater number of half-duplex lines, reduced line availability, and greater contention for available lines. Responsiveness would be reduced. In addition, full-duplex lines have a potential capacity twice that of half-duplex lines at an added cost of only 25 percent.

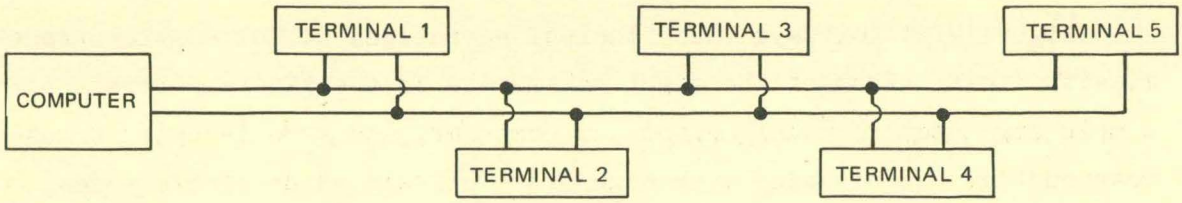
Implementation will be phased to coincide with the installation of I/O terminals and MODEMs.

F. Communication System Design

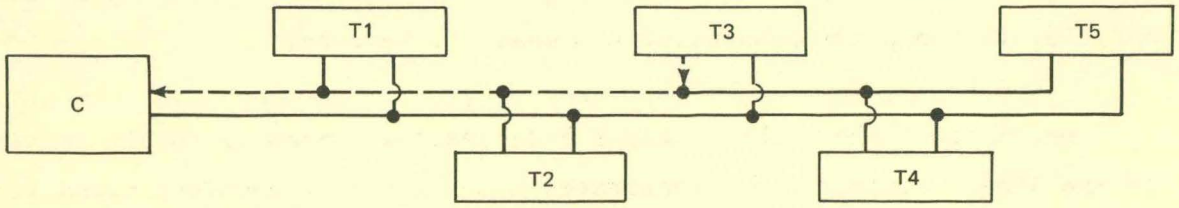
Detailed system design of TRACIS will include the parallel development of message processing procedures, codes, conventions, formats, and operating instructions to ensure that lines and terminals are properly moni-

FULL DUPLEX LINE MODES

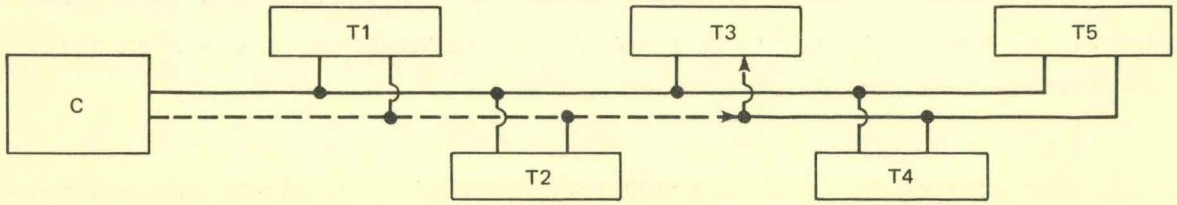
SIMPLE MODES



IDLE
SCHEMATIC 1

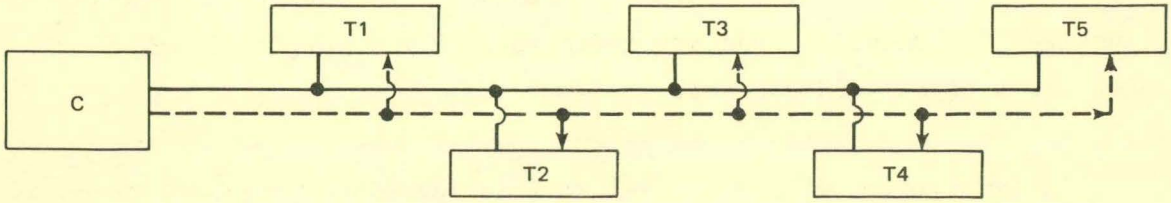


RECEIVE (READING)
SCHEMATIC 2



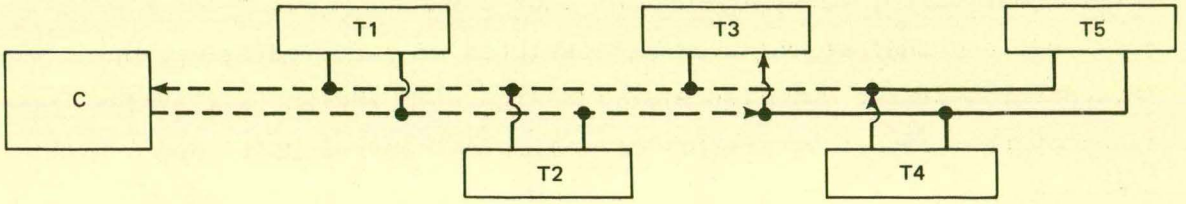
SENDING (WRITING)
SCHEMATIC 3

COMPLEX MODES

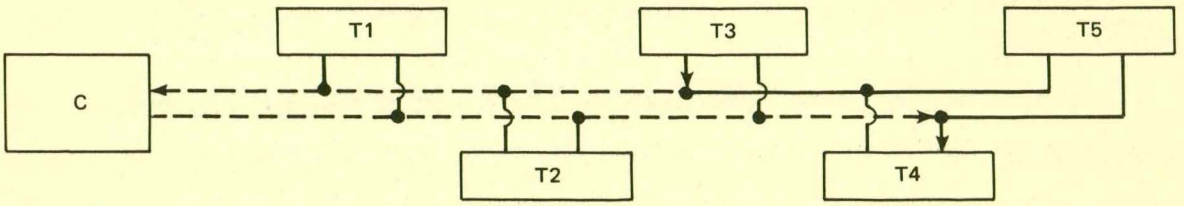


BROADCAST (WRITE SIMULTANEOUSLY)
SCHEMATIC 4

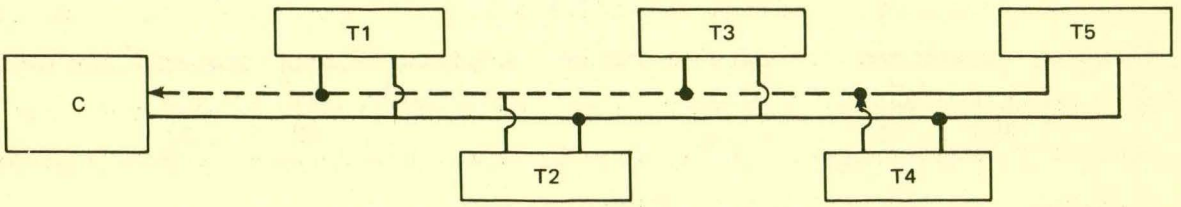
Figure VI-1. Principal Advantages of Full-Duplex Transmission Lines



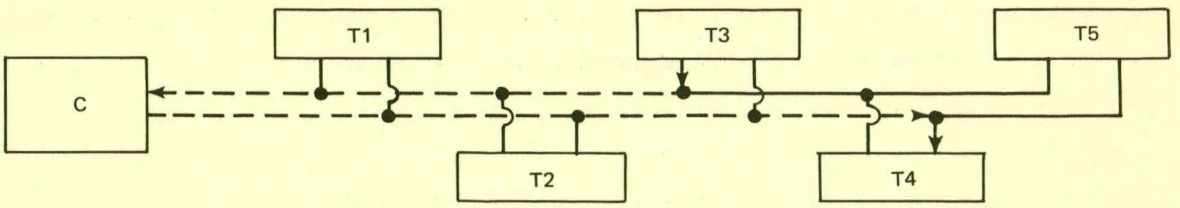
SENDING AND RECEIVING ASYNCHRONOUSLY
SCHEMATIC 5



RECEIVING AND REQUESTING (POLLING) ASYNCHRONOUSY
SCHEMATIC 6



HIGH PRIORITY RECEIVE(NO. 4)AND TEMPORARILY SUSPEND(NO. 3)
SCHEMATIC 7



HIGH PRIORITY SEND (NO. 4) AND RESUME NORMAL RECEIVE (NO. 3)
SCHEMATIC 8

Figure VI-1 (Continued)

tored, controlled, and polled; that line discipline and priorities are observed; and that messages are transmitted or received as appropriate. This portion of the detailed system design will include all system functions of the message processor, transmission control unit, and I/O terminals.

Total TRACIS software organization is portrayed in Figure VI-2. The differences between communications processing and applications processing are clearly delineated.

Principal hardware/software interfaces in the input and output processing of TRACIS messages are portrayed in Figure VI-3.

1. Basic Communications Software Design. Communication software is one of the most important design areas, and much emphasis must be placed on the proper logic and design of communications system control blocks. Good design will allow additional and higher speed lines, multiplexers, or new terminals, with minimal additional programming. Communications software will interface with terminals, transmission lines, and other software systems. These interfaces may be expected to pose numerous challenges to the software designer.

a. Organization and Compatibility. Communications software must be highly organized with respect to programming modules. The absence of strict control may result in a programming change, causing an unwanted effect in another module. Good design will lead to efficient software and ensured compatibility with other systems.

b. Transmission Control Unit (TCU). The TCU can be shared by many groups of users. Each line of the TCU will run independently of other lines. The TCU will, however, be under software control from the communications processor. Since a central communications routine will be more efficient and reliable than multiple and independent routines, all telecommunication routines should be adapted to the use of a single

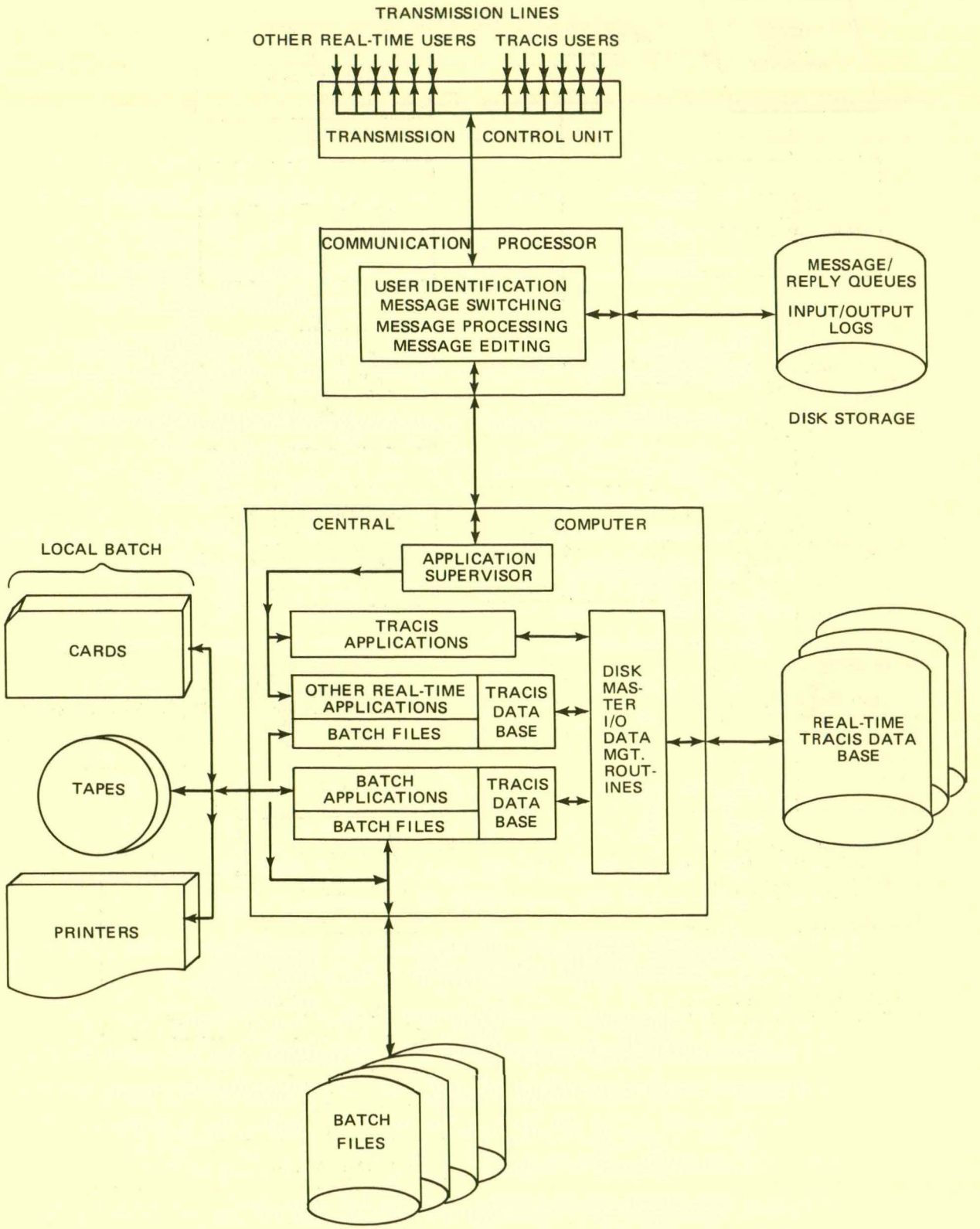


Figure VI-2. Total TRACIS Communications Software Organization

in the other sections. This is the mechanism by which all lines can be servicing asynchronously all terminal users.)

Each terminal sends data on the line to the similar TCU section. Data are delivered a few characters at a time to the transmission buffer of the message processor. The buffer takes groups of characters and moves them to a core storage location, where the complete message is assembled. The completed message is then moved to the disk buffer and stored awaiting execution. When all higher priority messages have been dispatched, the message is read from disk to disk buffer. It is then moved to the computer buffer, where it is sent to the central processor to be executed. From this point the message is handled as if it had arrived from a card reader or tape unit. When the message is fully processed, a reply is sent to the computer buffer. From the buffer it is moved to the disk buffer, where it is dispatched to the disk queue. When the applicable line becomes available, the reply is again moved to the disk buffer. It is then moved to the transmission buffer, and instructions are loaded into the correct TCU section to send the message. Finally, the reply is transmitted to the terminal from which the query originated.

G. Related Requirements

1. Teleprinters. The feasibility of a teleprinter communications system, in both mobile and remote locations, should be studied and determinations made with reference to the use of the teleprinter to bridge the gap between the TRACIS I/O terminal and the remote or mobile unit. The following are pertinent considerations:

- The radio transmitter should be keyed by a buffered input device using paper-tape output from a TRACIS I/O terminal.
- Teleprinters should be tested in varied locations under all probable operational considerations.
- The testing period should be a minimum of 1 year and should be conducted under the supervision of the Iowa State Director of Communications.

- The feasibility study and test should be performed in coordination with the TRACIS project to ensure system compatibility and uniform conventions and procedures.

2. Radio Propagation Study. The radio propagation study recommended by the Iowa State Director of Communications should be conducted at the earliest practicable date. This recommendation is made in consideration of the preceding discussion of mobile teleprinters and the expected increased loads on existing base stations when TRACIS is fully operational. The selection and testing of teleprinters require a propagation study to ensure valid results and conclusions. The results of this study and its impact on base stations should be fully coordinated with development of the TRACIS terminal network.

Appendix A

PROCESSING SPECIFICATIONS AND OUTPUT PRODUCTS

DRIVER RECORDS FILE

A. Processing Specifications. Figure III-5 is a system flow chart of the Traffic Records Subsystem. Descriptions of input, file maintenance, and output processing for the Driver Records File are presented in the following paragraphs; run diagrams are provided for each unique computer process.

1. Input Processing. Includes the automated and semiautomated functions and preparatory actions required to obtain necessary data items from source documents to establish and maintain the Driver Records File and the Traffic Accident File. The run diagrams that illustrate this process are described below with explanatory notes.

a. Drivers License Record. Produced daily from the input processing procedure depicted in Figure A-1. This file is passed to the file maintenance procedures described under File Maintenance Processing.

b. Traffic Violations Record. Includes both charges and court dispositions. Input processing documents are depicted in Figure A-2.

c. Financial and Safety Responsibility Record. Includes actions of the Drivers License Division in administering the financial and safety responsibility regulations. Input processing is depicted in Figure A-3.

d. Traffic Accident File. A Traffic Accident Record will be maintained for each driver of a motor vehicle involved in an accident in which there is more than one hundred dollars' damage. Cross-reference to the Vehicle Registration File and the Driver Records File of all individuals involved in an accident maintains the concept of an accident case file. Input processing is depicted in Figure A-4.

2. File Maintenance Processing. Includes the automated and semi-automated functions and preparatory actions required to bring files to a current condition by using data obtained from input processing and by identification and correction of errors detected during the input processing phase. File maintenance processing for the Driver Records File is depicted in Figure A-5.

3. Output Processing. Includes the automated and semiautomated functions and preparatory actions required to produce scheduled and unscheduled reports or responses to queries and real-time information requests. Specific output products currently identified can be divided into the following categories.

a. Transaction Reports. Include statistical summaries and other reports developed from input transactions used in file updating. These reports reflect conditions of change in file data as opposed to total file statistics. The processing is shown by the run diagram in Figure A-6. It should be noted that the Driver Records Transaction Output File is multireel and contains data for daily, weekly, monthly, quarterly, semiannual, and annual periods. Reports shown as output products in Figure A-6 are produced for the specified period as required.

b. Other Driver Record Reports. Produced directly from the Driver Records File where total file statistics are required. For each such report, the Driver Records File is passed and the appropriate data extracted and formatted for output. Figure A-7 depicts the basic logic flow. Reports are distributed to appropriate users.

4. Real-Time Processing

a. Real-Time Queries. Includes one-line questions for which a one-line answer will serve as a response. The queries primarily originate with peace officers who require data concerning a specific individual. Data requested may concern the driver's right to operate a motor vehicle, or some related piece of information contained in the Driver Records File or in the Criminal History File.

b. Real-Time Information Requests. Made through the use of hard wired terminals in the State Capitol Complex in Des Moines and not limited to one-line questions; responses not limited to one-line answers. The logic flow of real-time processing is shown in Figure III-6. The process does not represent a specific run to obtain information but rather a resident program that responds to the continuous input queries. Responses to real-time information queries flow back to the hard wired terminal as opposed to terminals routed through the front-end message processor.

B. Output Products. Reports and responses to queries for data from the Driver Records File and Driver Records Transaction Output File pertinent to the administration of traffic safety in Iowa are described in the following subparagraphs. Real-time queries for information from the Driver Records File are processed on an as-required basis. The format of queries and responses will be developed in detail during the detailed system design phase.

1. Daily Reports

a. Report of Licenses Suspended or Revoked. Lists daily file accessions of suspended and revoked licenses. Pertinent identifying data such as name, license number, address, offense, date disposed of, etc., are provided.

b. Report of Serious Accidents. Lists serious accidents and names those involved or insured.

2. Weekly Reports

a. Summary Report of Traffic Violations by Offense and Jurisdiction. Includes a summary of traffic violations for the preceding week by offense and jurisdiction.

b. Summary Report of Traffic Violations, Dispositions, and Sentences. Provides, by offense and jurisdiction, a summary of traffic violation charges with the associated dispositions and sentences.

c. Report of Financial Responsibility Actions. Summarizes actions taken by the Financial and Safety Responsibility Section of the Drivers License Division.

d. Report of Reciprocity Violations. Contains a recapitulation of reciprocity violations by trucking firms. It is forwarded to the Reciprocity Board and to the Highway Commission for coordination with the traffic weight scales operation.

e. Report of Motor Vehicle Fuel Tax Violations. Includes a recapitulation of fuel tax violations sorted according to violation. Copies of the report are forwarded to the Fuel Tax Administrator and to the Traffic Weight Operations Section of the Highway Commission for use in the administration of the traffic weight scales operation.

f. Report of Weights and Measures Violations by Trucker. Assists in the identification of frequent violators, and includes a recapitulation of overweight and oversize violations by firm and violator. It is transmitted to the Traffic Weight Operations Section of the Highway Commission.

3. Monthly Reports

a. Summary Report of Traffic Accidents. Presents a summary of accidents occurring within the previous month in sequence by date, accident type, and location.

b. Report of Traffic Violations Pending Disposition. Contains a list of traffic violations, by court of jurisdiction and date of violation, for which dispositions are outstanding 30 days or more.

The purpose of the report is to identify those courts which should be queried regarding traffic violation dispositions.

c. Summary Reports. The following monthly summaries of specified daily and weekly reports are prepared:

- Summary Report of Traffic Violations
- Summary Report of Traffic Violations, Dispositions, and Sentences
- Summary Report of Licenses Suspended or Revoked
- Summary Report of Reciprocity Violations
- Summary Report of Motor Vehicle Fuel Tax Violations
- Summary Report of Weights and Measures Violations
- Summary Report of Financial Responsibility Actions

4. Quarterly Reports

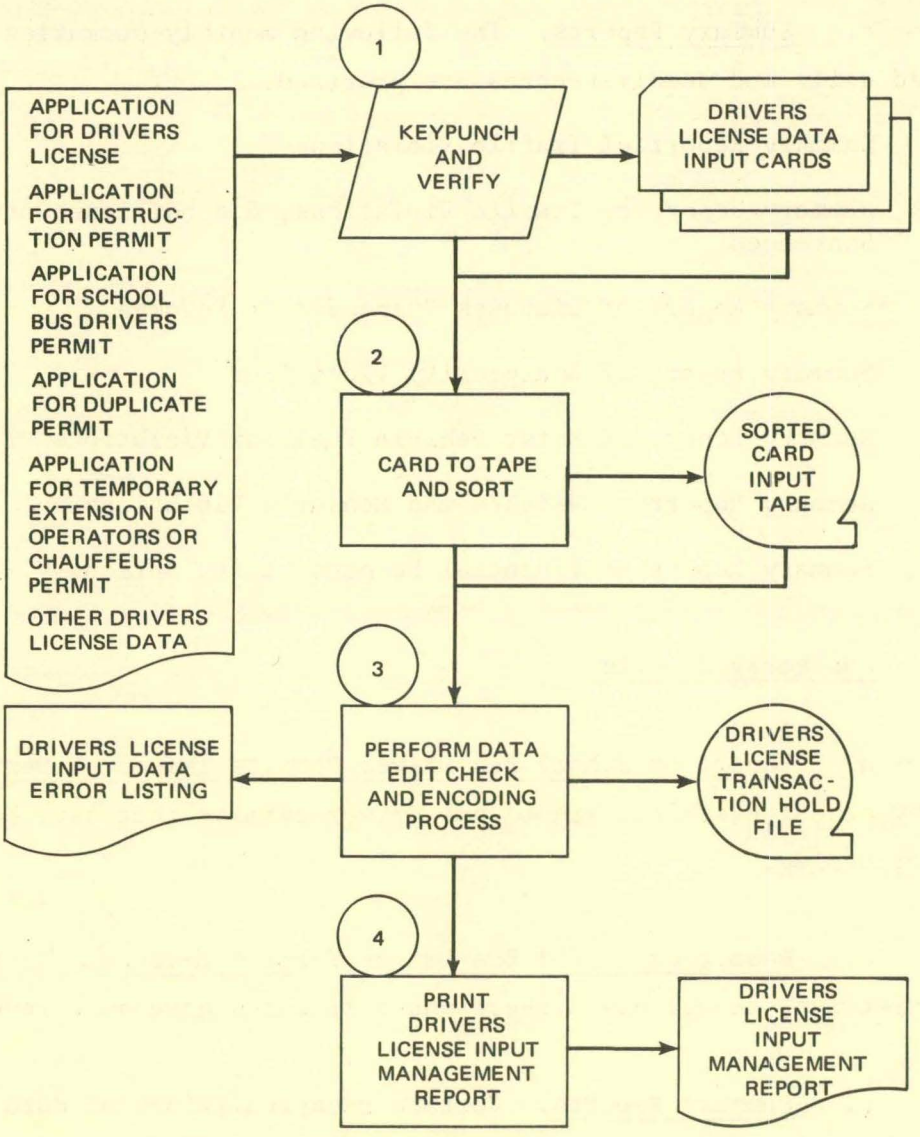
a. Report of School Bus Driver Permits Issued or Denied. Lists, by school district, school bus driver permits that have been issued or denied.

b. Report of School Bus Driver Permits Revoked. Lists, by school district, school bus drivers whose licenses have been revoked.

c. Summary Reports. Contain recapitulations of data furnished in daily, weekly, and monthly reports and are identical to them except that data will represent quarterly values.

5. Semiannual and Annual Reports. Include selected semiannual and annual reports from the reports described above.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: DRIVER RECORDS FILE, DRIVERS LICENSE RECORD		1 of 2



1. Source documents for the Drivers License Record are keypunched and verified. The use of transcription sheet for data collection will be minimized to reduce clerical errors.

2. Card images are written on tape and sorted producing a sorted card input tape.

Figure A-1

Application INPUT PROCESSING: DRIVER RECORDS FILE, DRIVERS LICENSE RECORD	Run No. 1	Sheet No. 2 of 2

3. The sorted card input tape provides the primary input to the data edit and encoding routine. The products of this routine are as follows:

a. Drivers License Transaction Hold File. This file consists of edited and encoded data records ready for processing by file maintenance routines and inclusion in the Driver Records file.

b. Drivers License Input Data Error Listing. This listing includes data errors and encoding errors. The listing is processed by the appropriate section where nonkeypunch errors are corrected, and is then returned to keypunch operations for processing.

4. During the data edit and encoding routine, statistical data are accumulated for a management report. The data consist of a summary of input data errors and valid transactions by input card type. The report is used in administering the input and file maintenance processes.

5. The sorted card input tape is scratched at the conclusion of the run.

Figure A-1 (Continued)

Application	Run No. 2	Sheet No.
INPUT PROCESSING: DRIVER RECORDS FILE, TRAFFIC VIOLATIONS RECORD		1 of 2

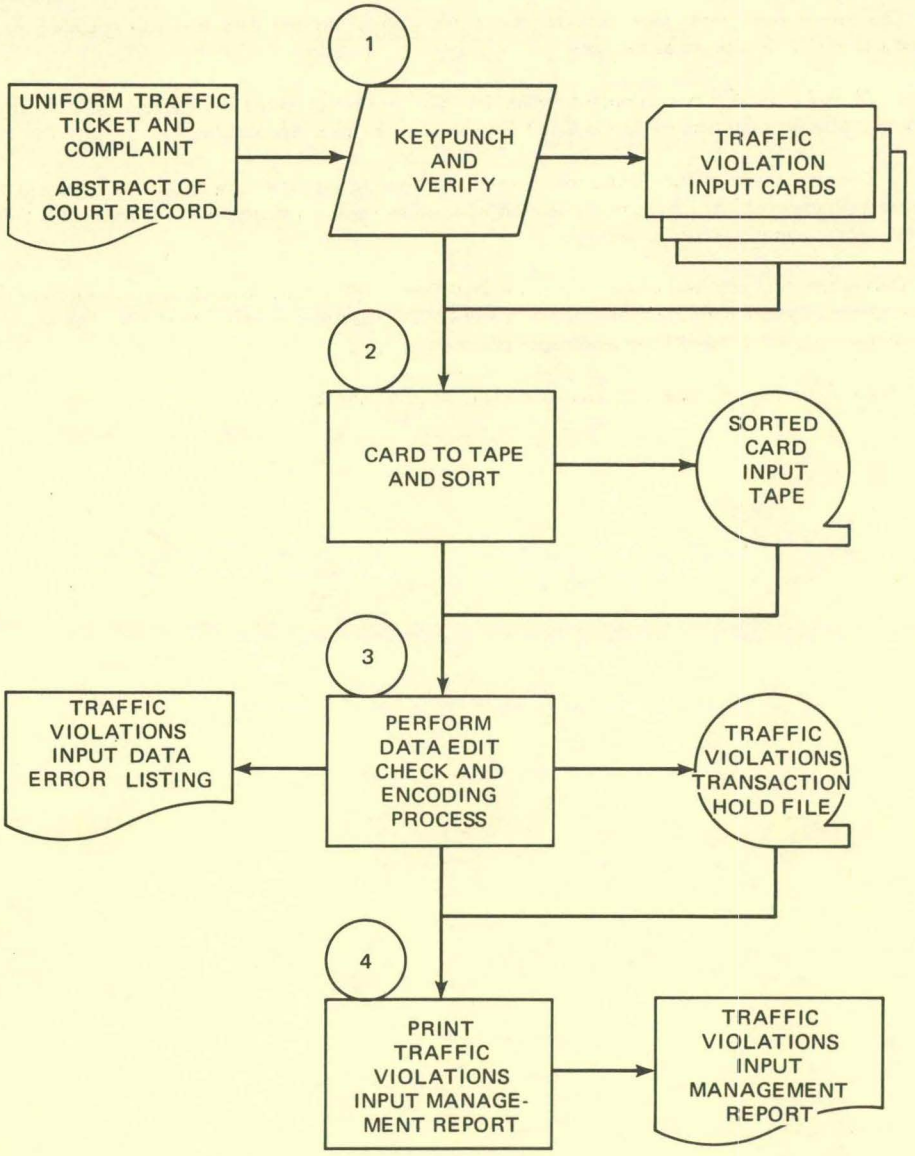


Figure A-2

Application	Run No. 2	Sheet No.
INPUT PROCESSING: DRIVER RECORDS FILE, TRAFFIC VIOLATIONS RECORD		2 of 2

1. Source documents for the Traffic Violations Record are keypunched and verified.

2. Card images are written on tape and sorted producing a sorted card input tape.

3. The sorted card input tape is the prime input to the data edit and encoding routine. Products are as follows:

   a. Traffic Violations Transaction Hold File. This file consists of edited and encoded data which will be placed in the Driver Records file by the file maintenance process.

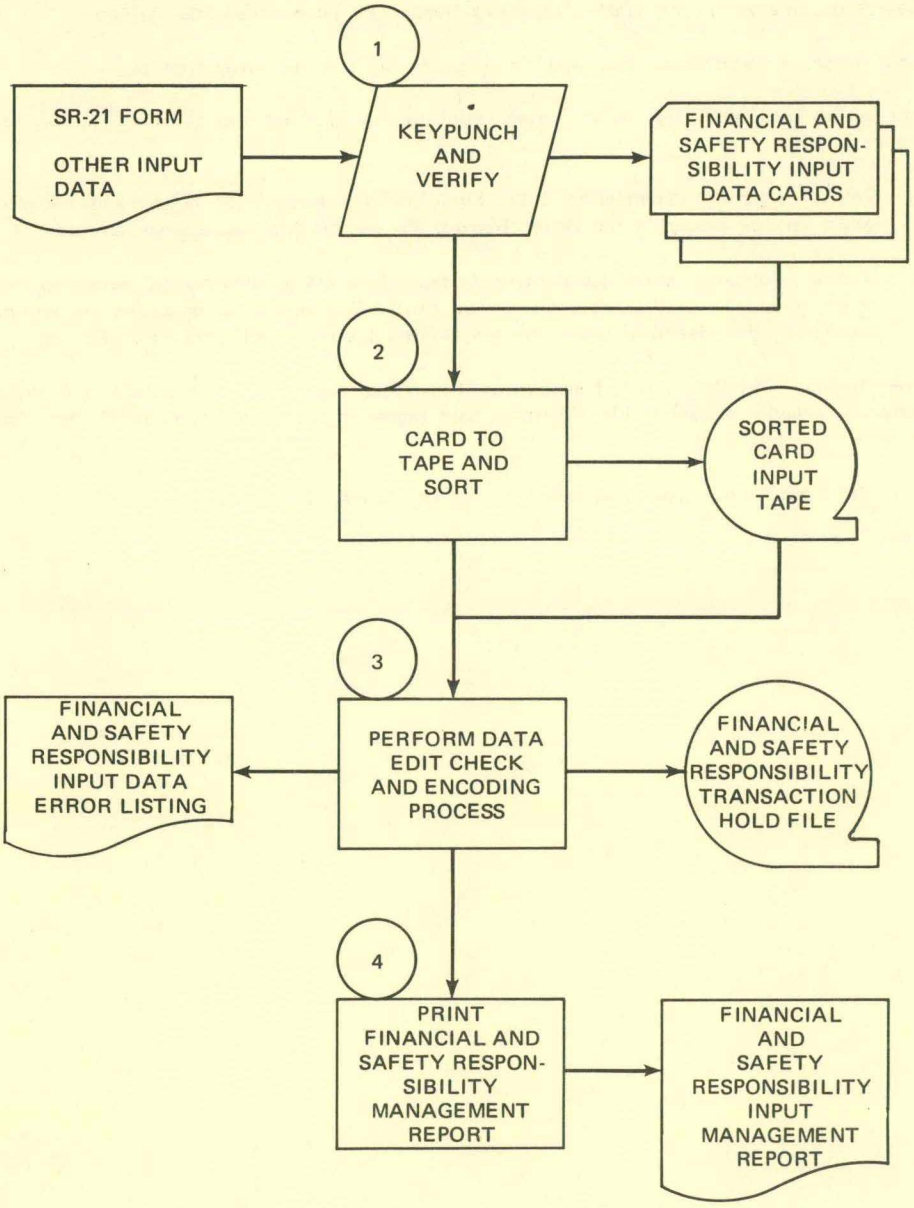
   b. Traffic Violations Input Data Error Listing. This listing includes all data and encoding errors found in traffic violations input cards. The listing is processed in an identical manner to that described above for the Driver's License Input Data Error Listing.

4. The Traffic Violations Input Management Report is produced at step four and presents a summary analysis of the traffic violations data presented for inclusion in the Traffic Violations Record.

5. The sorted card input tape is scratched at the conclusion of the run.

Figure A-2 (Continued)

Application	Run No. 3	Sheet No.
INPUT PROCESSING: DRIVER RECORDS FILE, FINANCIAL AND SAFETY RESPONSIBILITY RECORD		1 of 2



1. Financial and Safety Responsibility source documents are forwarded to the DPSA where they are key-punched and verified.

2. Punched card images are sorted and written on tape.

Figure A-3

Application INPUT PROCESSING: DRIVER RECORDS FILE, FINANCIAL AND SAFETY RESPONSIBILITY RECORD	Run No. 4	Sheet No. 2 of 2

3. The sorted card input tape from step two is processed by the data edit and encoding routine. Products are as follows:

a. Financial and Safety Responsibility Transaction Hold File. This file consists of edited and encoded data that will be placed in Financial and Safety Responsibility Records of the Driver Records File by the file maintenance process.

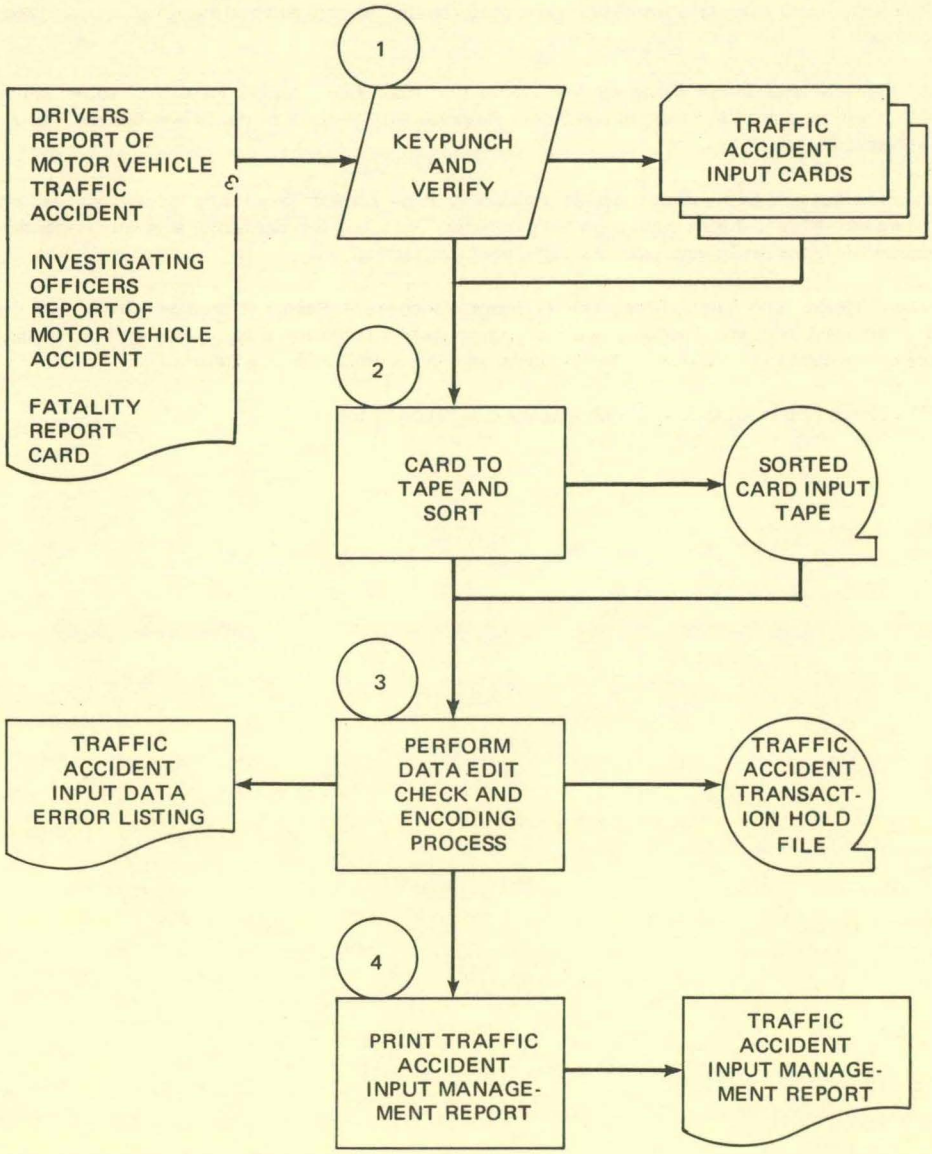
b. Financial and Safety Responsibility Input Data Error Listing. This listing includes all data errors and encoding errors found during input processing routines. The listing is processed in an identical manner to that described above for the Drivers License Input Data Error Listing.

4. The Financial and Safety Responsibility Input Management Report is produced from data developed during the data edit and encoding routine and presents a summary analysis of the financial and safety responsibility data to be included in the Financial and Safety Responsibility Record.

5. The sorted card input tape is scratched at the conclusion of the run.

Figure A-3 (Continued)

Application	Run No. 4	Sheet No.
INPUT PROCESSING: TRAFFIC ACCIDENT FILE, TRAFFIC ACCIDENT RECORD		1 of 2



1. Traffic accident source documents are forwarded to the DPSA where they are keypunched and verified.

2. Punched card images are sorted and written on tape.

Figure A-4

Application INPUT PROCESSING: TRAFFIC ACCIDENT FILE, TRAFFIC ACCIDENT RECORD	Run No. 4	Sheet No. 2 of 2

3. The sorted card input tape is processed by the data edit and encoding routine. Products are as follows:

a. Traffic Accident Transaction Hold File. This file consists of edited and encoded data that will be placed in Traffic Accident Records of the Driver Records file by the file maintenance process.

b. Traffic Accident Input Data Error Listing. This listing includes data errors and encoding errors detected during the execution of input processing routines. The listing is processed in an identical manner to that described above for the Drivers License Input Data Error Listing.

4. The Traffic Accident Input Management Report is produced from data developed during the data edit and encoding routine and presents a summary analysis of traffic accidents data that has been prepared for inclusion in the Traffic Accident Record.

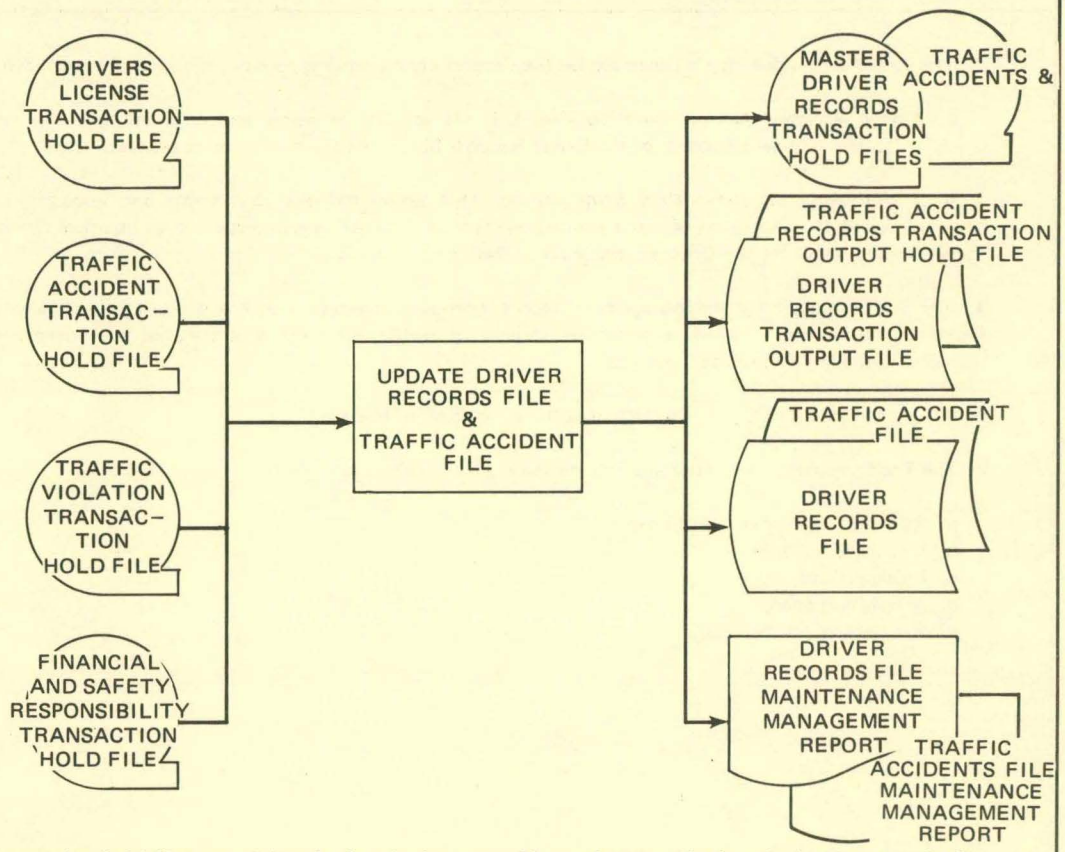
5. The sorted card input tape is scratched at the conclusion of the run.

6. The Traffic Accident File contains data pertaining to:

a. Operator, passenger, vehicle data
b. Injuries and deaths
c. Investigations
d. Arrests and charges
e. Accident characteristics

Figure A-4 (Continued)

Application	Run No. 1	Sheet No.
FILE MAINTENANCE: DRIVER RECORDS FILE AND TRAFFIC ACCIDENTS FILE		1 of 1



1. Transaction hold files containing the four basic types of input data provide the principal input to the file maintenance process.

2. File maintenance routines provide for the three standard types of updating. These are additions, changes, and deletions to the Driver Records File and the Traffic Accidents File.

3. Input transaction files are combined and added to the Master Driver Records Transaction Hold File or Traffic Accident Records Transaction Hold File. This hold file will include all transactions from the input processing phase and will be used to recreate a Driver Records File or Traffic Accidents File in the event current files are destroyed.

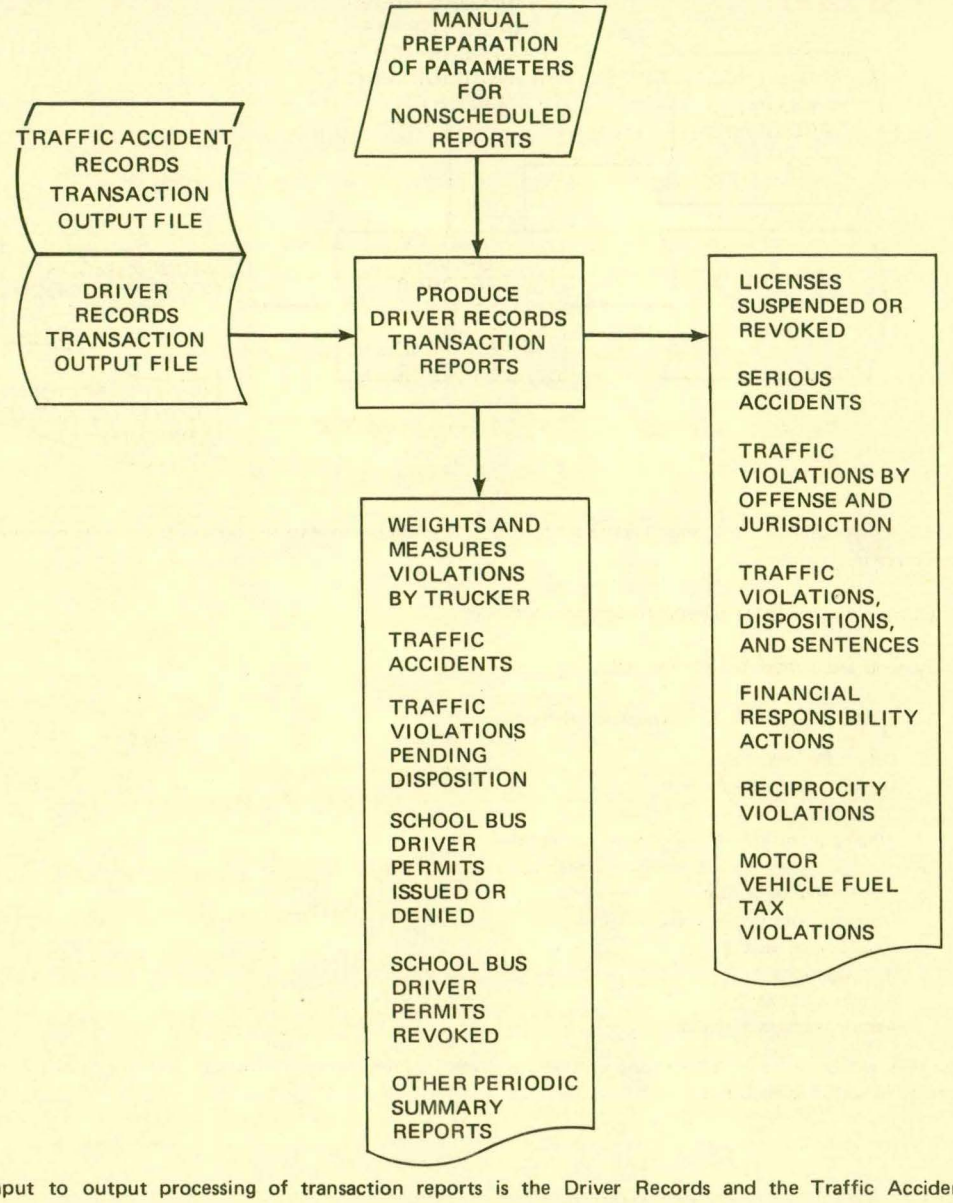
4. Transaction Output Files are created from input transaction hold files and the Driver Records File or Traffic Records File as applicable. They contain formatted records required for output processing of transaction-oriented reports.

5. Files are updated on-line with transactions from the four transaction hold files.

6. A Driver Records File and Traffic Accident File Maintenance Management Reports provide a summary of file maintenance processing. Problem areas in input data will be noted for correction. As an example, if a traffic violation disposition is submitted with no associated record of a charge, the event will be listed for administrative action.

Figure A-5

Application	Run No. 1	Sheet No.
OUTPUT PROCESSING: DRIVER RECORDS FILE AND TRAFFIC ACCIDENTS FILE TRANSACTION REPORTS		1 of 1



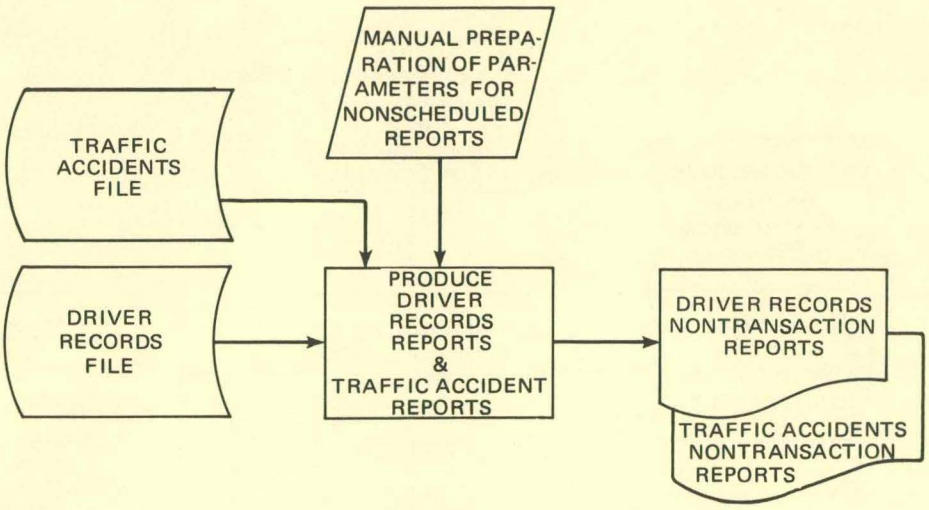
1. Input to output processing of transaction reports is the Driver Records and the Traffic Accidents Transactions Output Files. These files are created and updated during file maintenance processing.

2. Outputs may be either scheduled or nonscheduled. Scheduled transaction reports are those that contain data from the source documents input to Traffic Records Information Subsystem. Nonscheduled transaction reports will be produced on an as-required basis with input parameters determining the timeframe of the reports.

3. Reports will be distributed as required.

Figure A-6

Application	Run No. 2	Sheet No.
OUTPUT PROCESSING: DRIVER RECORDS FILE AND TRAFFIC ACCIDENTS FILE NONTRANSACTION REPORTS		1 of 1



1. The Driver Records File and Traffic Accidents File provide input to the output processing of nontransaction reports.

2. Output may be either scheduled or nonscheduled.

3. Reports are distributed as required.

4. These files contain the following record types:

   a. *Driver Records File*
      Driver License Records
      Violation records
      Financial and safety responsibility records

   b. *Traffic Accident File*
      Operator, passenger, vehicle data
      Injuries and deaths
      Investigations
      Arrests and charges
      Accident characteristics

mantled, will be listed with appropriate vehicle and vehicle identifying information and will be distributed for corrective action as required.

Figure A-7

VEHICLE REGISTRATION FILE

A. Processing Specifications. Figure III-5 is a system flow chart of the Traffic Records Subsystem. Descriptions of input, file maintenance, and output processing for the Vehicle Registration File are presented in the following paragraphs; run diagrams are presented for each unique computer process.

1. Input Processing. Includes the automated and semiautomated functions and preparatory actions required to obtain necessary data items from source documents to establish and maintain the Vehicle Registration File. The file contains the following record types.

a. Vehicle Title Record. Includes identifying data for passenger vehicles, trucks, boats, snowmobiles, etc. Data from these documents are entered into the record through input processing logic shown in Figure A-8 and file maintenance processing.

b. Vehicle Registration Record. Includes identifying data concerning the vehicle and its owner. Data from these documents are entered into the record through the input processing logic shown in Figure A-9 and file maintenance processing.

c. Permit Notice Record. Includes data on the issue of a reciprocity, fuel tax, or overweight/oversize permit to an individual or firm. Data from these documents are entered into the record through the input processing logic shown in Figure A-10 and file maintenance processing.

2. File Maintenance Processing. Includes the automated and semiautomated functions and preparatory actions required to bring files to a current condition by using data obtained from input processing and by

identification and correction of errors detected during the input processing phase. File maintenance processing of the Vehicle Registration File is depicted in Figure A-11.

3. Output Processing. Includes the automated and semiautomated functions and preparatory actions required to produce scheduled and unscheduled reports or responses to queries. The list of reports from the Vehicle Registration File, which have been identified to date, will be further clarified and expanded during the detailed design phase. Output products can be separated into the following categories.

a. Transaction Reports. Include statistical summaries and other reports that are developed primarily from input transactions used for file updating. These reports reflect conditions of change in file data as opposed to total file statistics. Processing is shown by the run diagram of Figure A-12. It should be noted that the Vehicle Registration Transaction Output File is multireel and contains data for daily, weekly, monthly, quarterly, semiannual, and annual periods. Reports shown as output products in Figure A-12 are produced for the appropriate period.

b. Other Vehicle Registration Reports. Include nontransaction reports that are produced directly from the Vehicle Registration File. These reports are produced where total file statistics are required. For each such report, the Vehicle Registration File will be passed and appropriate data extracted and formatted for output. The run diagram of Figure A-13 shows the basic logic flow. Reports will be distributed to appropriate users.

4. Real-Time Processing.

a. Real-Time Queries. Include one-line questions for which a one-line answer will serve as a response. Queries originate principally with peace officers requiring data concerning specific individuals. Data requested may concern the status of a motor vehicle or a related item of information contained in the Vehicle Registration File.

b. Real-Time Information Requests. Made through the use of hard wired terminals in the State Capitol Complex in Des Moines; not limited to one-line questions. Responses are not limited to one-line answers but are of a more limited nature than scheduled reports. The logic flow of real-time processing is shown in Figure III-6. The process does not represent a specific job run to obtain the information, but rather, a resident program that responds to the continuous input queries. Responses to real-time information requests will flow back to the hard wired terminals as opposed to the terminals that are routed through the front end message switching computer.

B. Output Products. Reports and queries for data from the Vehicle Registration File pertinent to the administration of traffic safety in Iowa are described in the following paragraphs. As the detailed system design is completed, additional reports and queries will be identified. Queries for information from the Vehicle Registration File will be developed during detailed system design.

1. Monthly Reports.

a. Report of Vehicle Titles Issued. Presents by issuing office and type vehicle a list of titles issued and associated identifying data.

b. Report of Vehicle Registration. Presents by issuing office a list of vehicles registered during the previous month. Owner and vehicle identifying data are given.

c. Report of Vehicles Disposed of. Presents by disposition type a record of each vehicle disposed of during the previous month. Vehicle identification data and the method of disposition are presented.

2. Other Periodic Reports. Include quarterly, semiannual, and annual summaries of the monthly reports from the Vehicle Registration File. Data presented are in the same format and are distributed the same as monthly reports.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: VEHICLE REGISTRATION FILE, VEHICLE TITLE RECORD		1 of 2

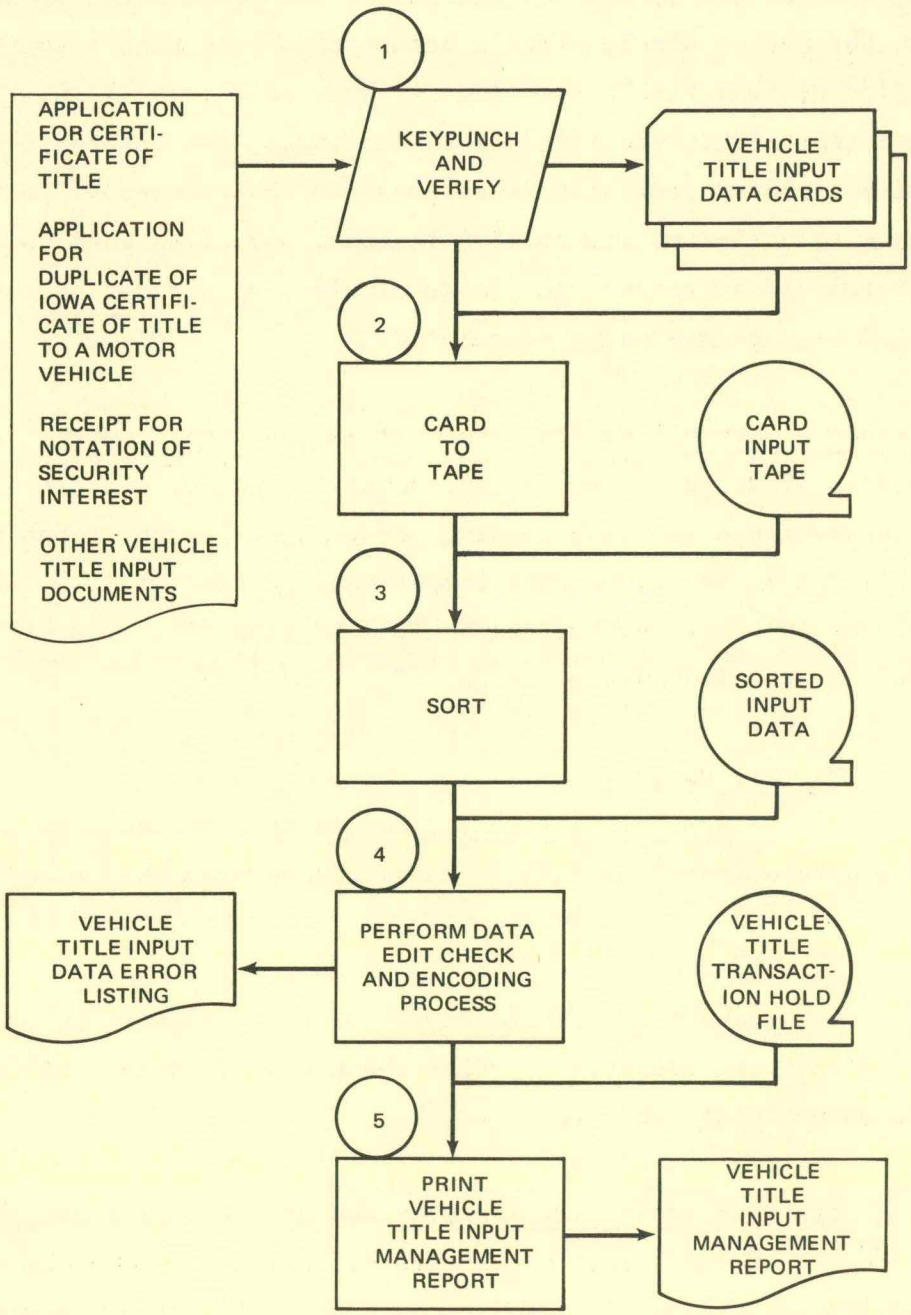


Figure A-8

Application INPUT PROCESSING: VEHICLE REGISTRATION FILE, VEHICLE TITLE RECORD	Run No. 1	Sheet No. 2 of 2

1. Source documents for the Vehicle Title Record will be punched and verified. The use of transcription sheets for data collection will be minimized to reduce clerical errors.

2. Card images are written on tape.

3. The input tape will be sorted as a separate step for high volume inputs.

4. The sorted input tape will provide principal input to the data edit and encoding routine and products from this routine will be as follows:

a. Vehicle Title Transaction Hold File. This file will consist of edited and encoded data records ready for processing by the file maintenance routine and inclusion in the Vehicle Registration File.

b. Vehicle Title Input Data Error Listing. This listing will include all data errors and encoding errors found in the input data. The listing will be processed and nonkeypunch errors will be corrected. It will then be forwarded to the keypunch operation for punching corrected data.

5. A Vehicle Title Input Management Report will be produced. Data for this report, accumulated during the data edit and encoding routine, consist of a summary of input data errors and valid transactions by input type.

6. The input tape and sorted card input tape will be scratched at the conclusion of the run.

Figure A-8 (Continued)

Application	Run No. 2	Sheet No.
INPUT PROCESSING: VEHICLE REGISTRATION FILE, VEHICLE REGISTRATION RECORD		1 of 2

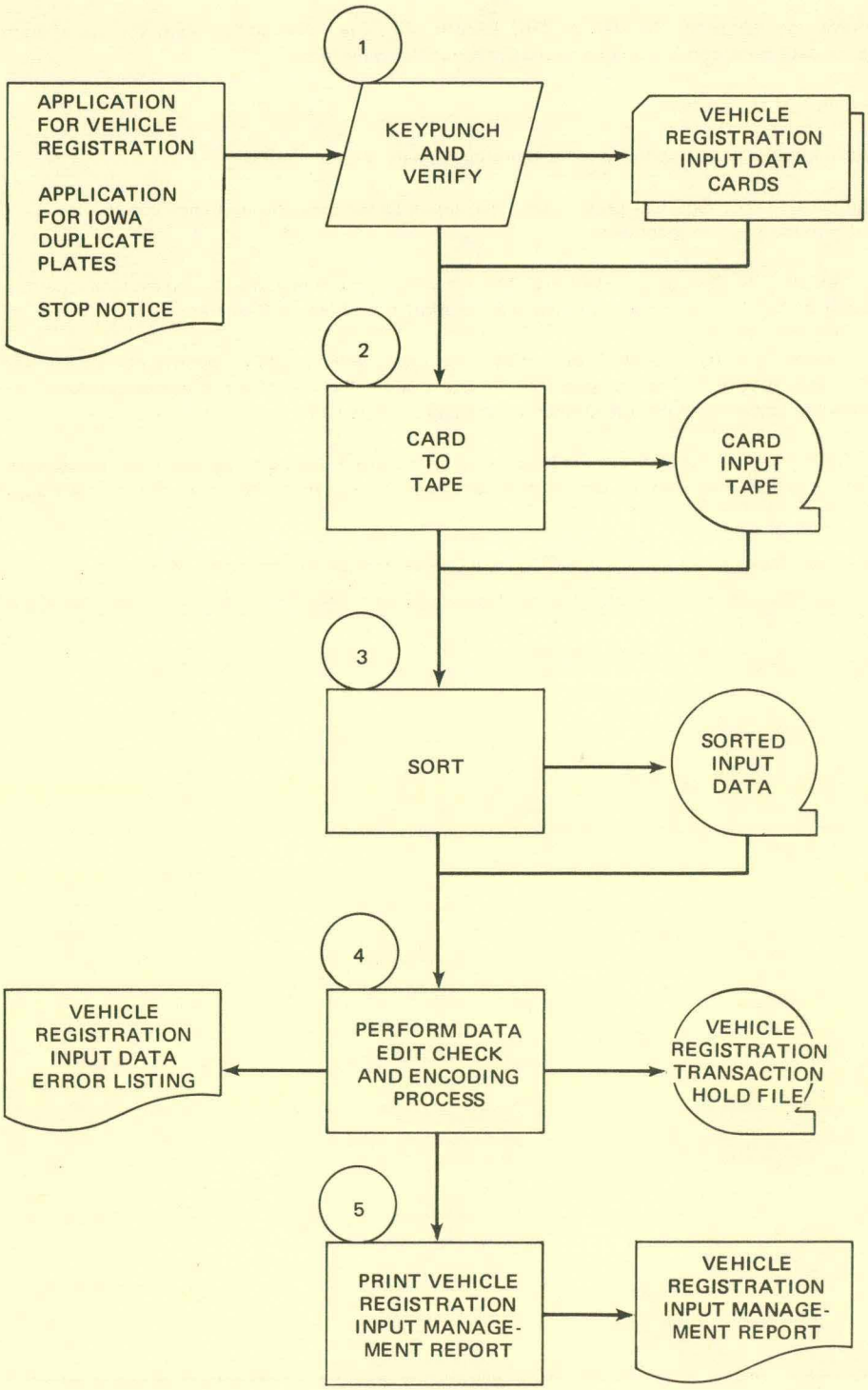


Figure A-9

Application	Run No. 2	Sheet No.
INPUT PROCESSING: VEHICLE REGISTRATION FILE, VEHICLE REGISTRATION RECORD		2 of 2

1. Source documents for the Vehicle Registration Record will be keypunched and verified.

2. Card images of input data will be written on tape.

3. The input tape will be sorted as a separate step for high volume inputs.

4. The input tape will provide the principal input to the data edit and encoding routine. Products will be as follows:

a. Vehicle Registration Transaction Hold File. This file will consist of edited and encoded data records ready for processing by the file maintenance routines and inclusion in the Vehicle Registration File.

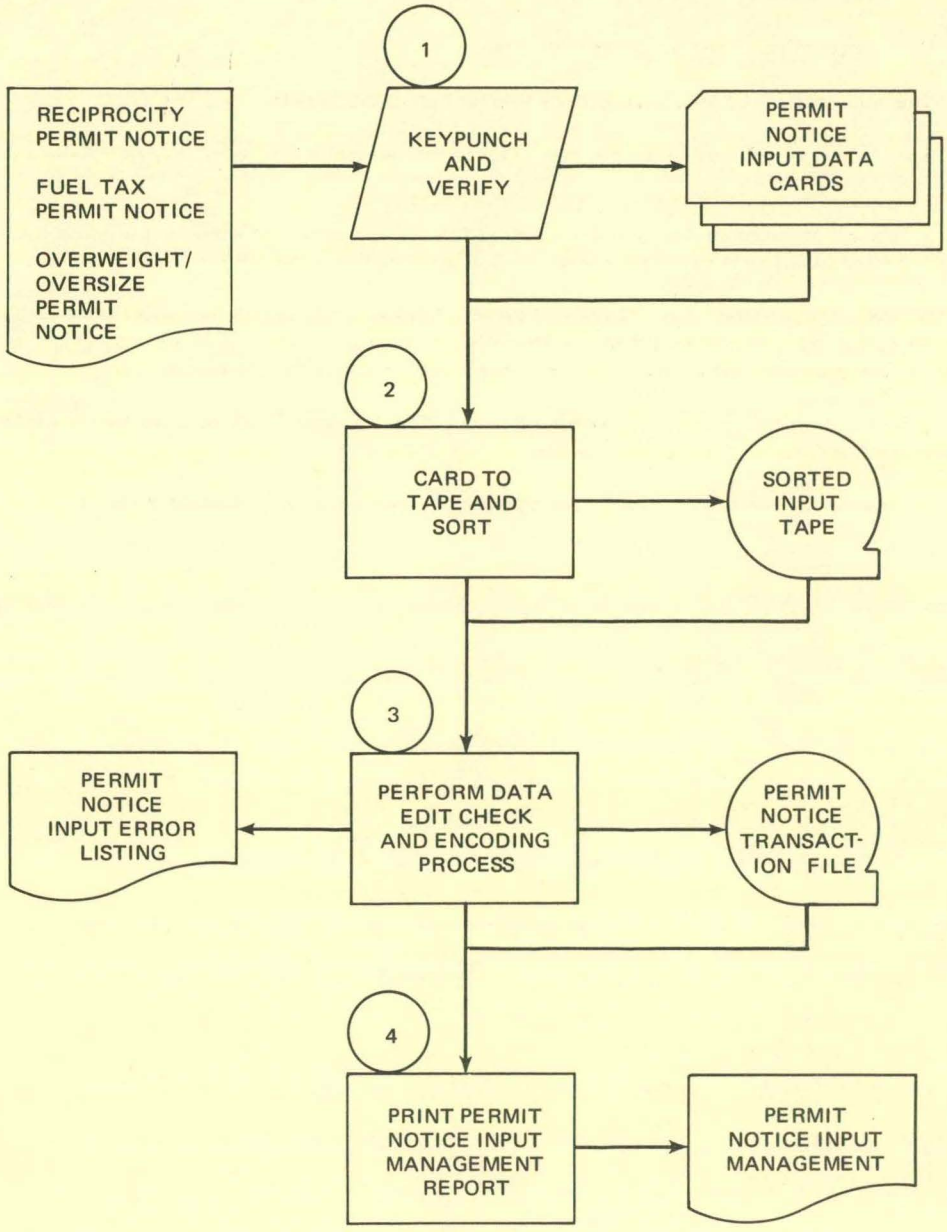
b. Vehicle Registration Input Data Error Listing. This listing will include data errors and encoding errors found during input processing and will be forwarded to the appropriate section for research and corrective action. The corrected report will be returned to the keypunch section for processing.

5. A Vehicle Registration Input Management Report will be produced. This report will present a summary of input transactions.

6. The card input tape and the sorted input tape will be scratched at the conclusion of the run.

Figure A-9 (Continued)

Application	Run No. 3	Sheet No.
INPUT PROCESSING: VEHICLE REGISTRATION FILE, PERMIT NOTICE RECORD		1 of 2



1. Source documents for the Permit Notice Record will be keypunched and verified.

2. Input card images will be written on tape.

Figure A-10

Application INPUT PROCESSING: VEHICLE REGISTRATION FILE, PERMIT NOTICE RECORD	Run No. 3	Sheet No. 2 of 2

3. The sorted input tape will provide the input to the data edit and encoding routine and products from the routine will be as follows:

a. Permit Notice Transaction Hold File. This file will consist of edited and encoded data records ready for processing by file maintenance routines and inclusion in the Vehicle Registration File.

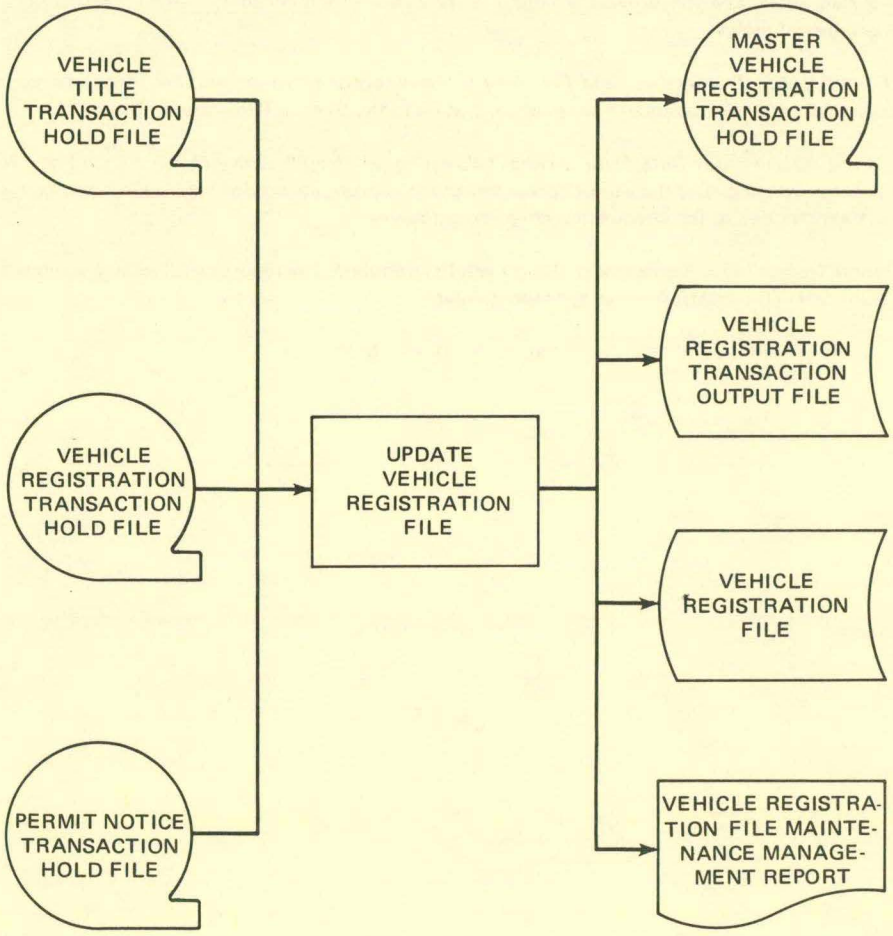
b. Permit Notice Input Data Error Listing. This listing will include data errors and encoding errors found during input processing. The list will be forwarded to the appropriate section for research and correction and will then be forwarded to the keypunch section for processing.

4. A Permit Notice Input Management Report will be produced. The report will display a summary of input transactions and will be distributed to appropriate users.

5. The sorted input tape will be scratched at the conclusion of the run.

Figure A-10 (Continued)

Application	Run No. 1	Sheet No.
FILE MAINTENANCE PROCESSING: VEHICLE REGISTRATION FILE		1 of 2



1. The transaction hold files containing three basic types of input transactions will provide input to the file maintenance process.

2. The file maintenance routine will include additions, changes, and deletions to the Vehicle Registration File; an updated Vehicle Registration File is the principal output of the file maintenance process.

3. The three input transaction hold files will be combined and added to the Master Vehicle Registration Transaction Hold File. This hold file contains a complete list of transactions from the input processing phase and will be used to recreate a Vehicle Registration File in the event the current Vehicle Registration File is inadvertently scratched.

4. The Vehicle Registration Transaction Output File is a composite of input transactions used in updating the Vehicle Registration File and will contain daily, weekly, monthly, quarterly, semiannual, and annual summaries based on input transaction hold files.

Figure A-11

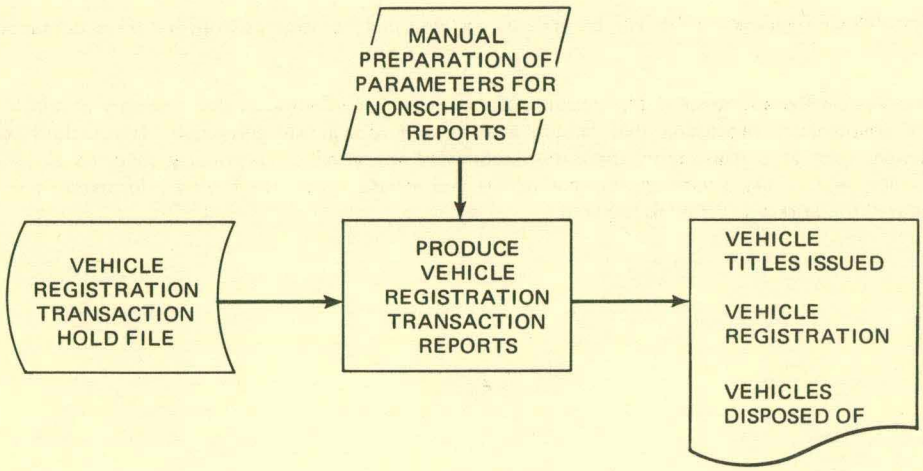
Application FILE MAINTENANCE PROCESSING: VEHICLE REGISTRATION FILE	Run No. 1	Sheet No. 2 of 2

5. The Vehicle Registration File will be updated on-line using transactions from the three transaction hold files.

6. The Vehicle Registration File Maintenance Management Report will provide a summary of problem areas in file maintenance processing that require analysis and appropriate correction. Transactions requiring correction, such as a registration application submitted for a vehicle previously reported as junked or dismantled, will be listed with appropriate vehicle and vehicle owner identifying information and will be distributed for corrective action as required.

Figure A-11 (Continued)

Application	Run No. 1	Sheet No.
OUTPUT PROCESSING: VEHICLE REGISTRATION FILE, TRANSACTION REPORTS		1 of 1



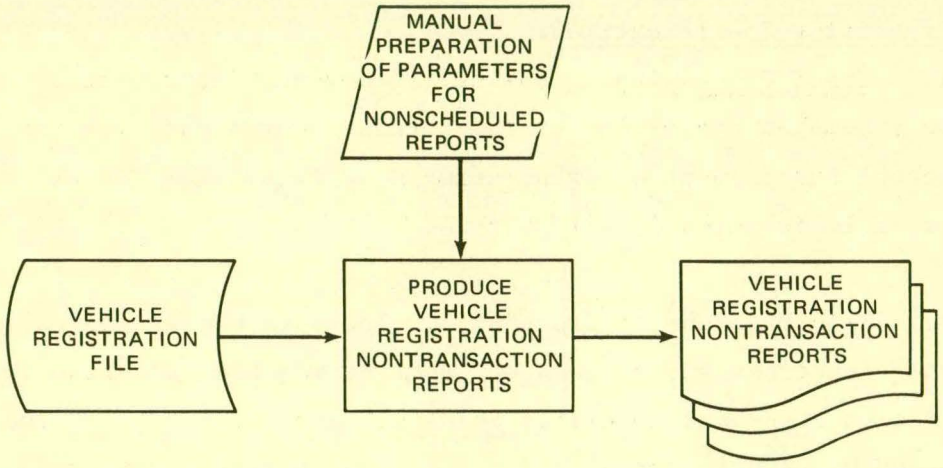
1. The Vehicle Registration Transaction Hold File will provide input to the output processing of transaction reports.

2. Outputs may be either scheduled or nonscheduled and report formats will be identical for scheduled and unscheduled reports with report periods being different.

3. The reports will be distributed as required.

Figure A-12

Application	Run No. 2	Sheet No.
OUTPUT PROCESSING: VEHICLE REGISTRATION FILE, NONTRANSACTION REPORTS		1 of 1



1. The Motor Vehicle Registration File will provide input to the output processing of nontransaction reports and this file will be updated during the file maintenance processing phase.

2. Outputs may be either scheduled or nonscheduled. The format will be identical for both, the applicable report period being different.

3. The reports will be distributed as required.

Figure A-13

INSPECTION FILE

A. Processing Specifications.

1. Input Processing. Consists of keypunching source documents and the automated processing of the punched source data for the creation of a School Bus Inspection Transaction Hold File. The logic flow of input processing is depicted in Figure A-14.

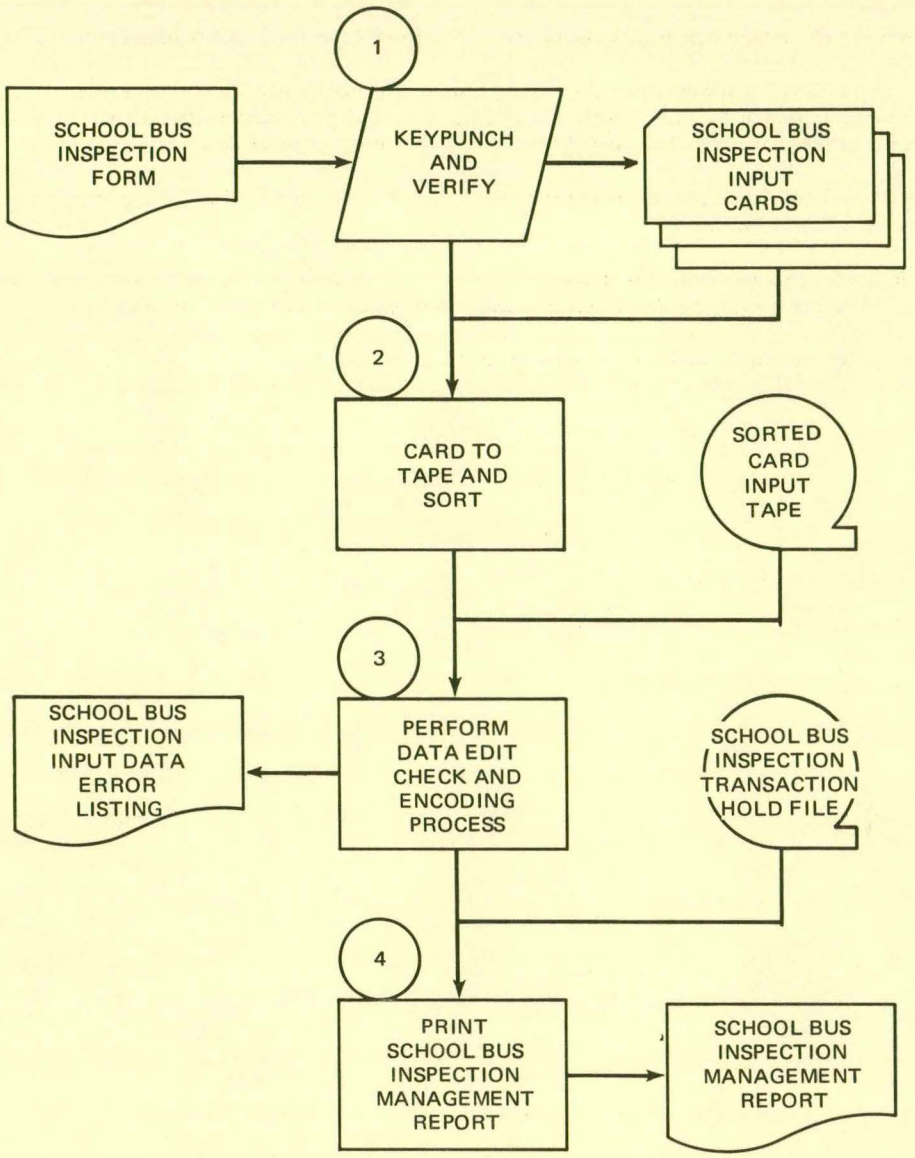
2. File Maintenance Processing. Includes the automated and semi-automated functions and preparatory actions required to bring the Inspection File to a current condition by using data obtained from input processing and by identification and correction of errors detected during the input processing phase. File maintenance processing for the Inspection File is depicted in Figure A-15.

3. Output Processing. Includes the automated and semiautomated functions and preparatory actions required to produce the School Bus Inspection Report. The report presents, by school district, a detailed listing of inspections performed, defects found, and repairs made. The logic flow is shown in Figure A-16.

4. Real-Time Processing. No real-time processing of data from the Inspection File is foreseen.

B. Output Products. Includes the Annual School Bus Inspection Report, which presents, by school district, a summary of school bus inspections, detailing defects and repairs.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: INSPECTIONS FILE		1 of 2



1. The School Bus Inspection Form will be keypunched and verified as the first step in input processing.

2. Input card images will be written on an input tape and sorted.

Figure A-14

Application INPUT PROCESSING: INSPECTIONS FILE	Run No. 1	Sheet No. 2 of 2

3. Data edit checks and encoding will be performed; output products will be produced as follows:

a. School Bus Inspection Input Data Error Listing. This listing will include data errors and encoding errors detected during the edit process and will be forwarded to the appropriate agency for research and corrective action. It will then be returned to the DPSA for correction processing.

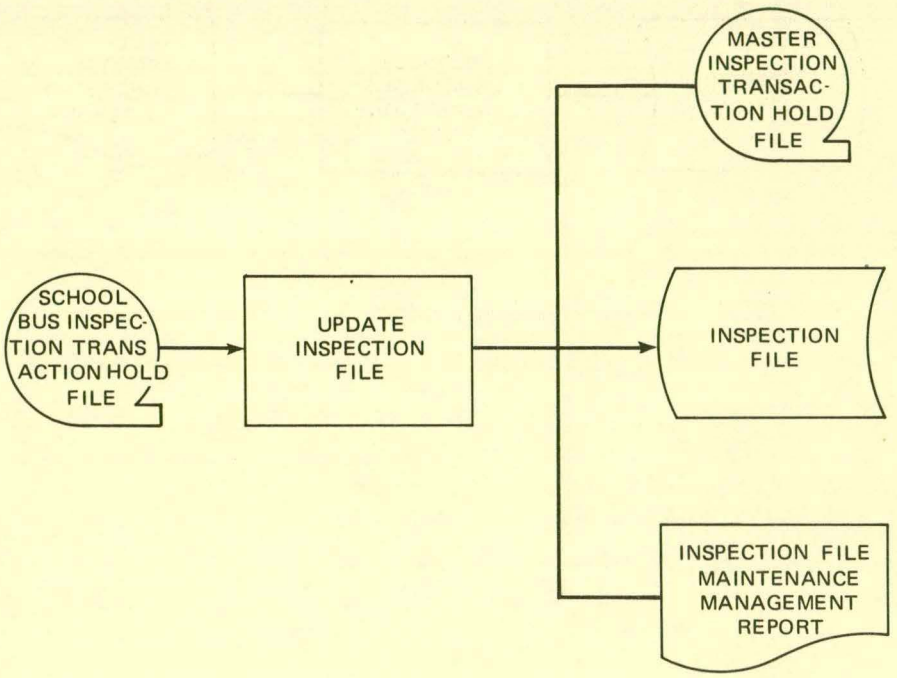
b. The School Bus Inspection Transaction Hold File. This will consist of edited and encloded data ready for file maintenance processing.

4. The School Bus Inspection Management Report will be produced during step 4 from data accumulated during the data edit and encoding routine, and will include a summary of input transactions.

5. The sorted input tape will be scratched at the conclusion of the run.

Figure A-14 (Continued)

Application	Run No. 1	Sheet No. 1 of 1
FILE MAINTENANCE PROCESSING: INSPECTION FILE		



1. The Transaction Hold File created during input processing will provide the principal input for file maintenance processing.

2. File maintenance routines include additions, changes, and deletions of records and data items in the Inspection File. An updated Inspection File will be the major output of the file maintenance processing.

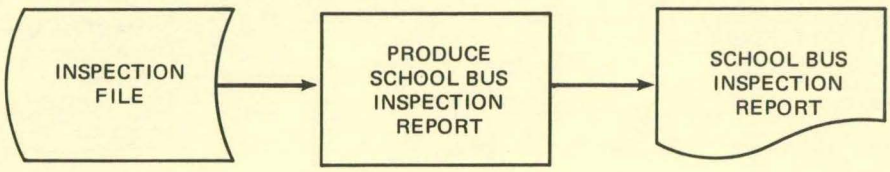
3. Records from the Transaction Hold File used as input will be added to the Master Inspection Transaction Hold File. This hold file will contain transactions from the input processing phase and will be used for recreation of the Inspection File in the event it is damaged and to develop multiyear statistics.

4. The Inspection File will be updated on-line with transactions from the School Bus Inspection Transaction Hold File.

5. An Inspection File Maintenance Management Report will provide a summary of file maintenance processing. Problem areas in input data will be noted for correction. For example, when a school bus is unfit for service and is not reparable, a notation of nonusability will be made in the file. If a later report is made indicating further inspection and repairs made, the discrepancy will be listed for administrative action.

Figure A-15

Application	Run No. 1	Sheet No.
OUTPUT PROCESSING: INSPECTIONS FILE		1 of 1



1. The Inspection File is input to the output processing routine.
2. The report produced from the Inspection File is distributed as required.

Figure A-16

A. Processing Specifications. The processing specifications described below are divided into the categories of input, file maintenance, output, and real-time processing. Each processing category is illustrated with run diagrams showing basic logical steps necessary for successful completion.

1. Input Processing. Consists of both manual and automated tasks necessary to produce an error-free ordered transaction file for subsequent master file maintenance. Processing for the five inputs is shown graphically in Figures A-17 through A-20.

a. Arrest Report. Mailed from peace officers throughout the State to the Department of Public Safety. As reports arrive, they are batched and keypunched/verified. Subsequently, punch cards are input to the computer, sorted, edited, field encoded, and written out as a finished transaction tape ready for master file maintenance. The edit process includes appropriately annotated error outputs to enable ready correction and rekeypunching at the next cycle. Also included is an input processing management report providing statistics concerning the number of errors, records processed, etc.

b. BCI Fingerprint Card. Contains typical identifying information on the individual in addition to fingerprints. When cards are received by BCI, fingerprints are classified and positive identification made. Subsequently, information from the BCI fingerprint card is keypunched/verified and batched for editing, sorting, and field encoding. The edit and encoding process results in an error list for subsequent correction plus an input management report with statistics on run results.

c. Case Disposition Notification. Similar to the Federal JS-3 form, used to report the disposition of a case at any point in the

proceedings. These are completed by the appropriate clerk of the court and mailed to the Department of Public Safety for processing. Cards are keypunched/verified, sorted, edited, and data encoded. Errors resulting from this process are annotated on a listing to aid correction and resubmission. An input processing management report is also produced to assist in management of the file.

d. Admission/Separation Cards. Currently submitted by the various correctional institutions when a prisoner is admitted or released. Cards are forwarded to the Department of Social Services and keypunched for their internal use. Subsequently, these cards are read, sorted and edited. As previously described, this process produces error listings for correctional purposes and a management report to assist in file administration.

2. File Maintenance. File maintenance for the Criminal History File involves two processes: the actual update of the file from one of the five types of transactions, and the generation of a hold file for the various transactions. This hold file serves a two-fold purpose: a backup in conjunction with a master file copy, and, with appropriate hold periods, a convenient source of summary data for various periodic reports. The basic update logic for any of the transaction types is the same, the only difference being the handling of data items. A graphic presentation is given in Figure A-21.

3. Output Processing. Includes primarily the production of periodic reports. Real-time outputs will be discussed separately. Special outputs will be available through the use of a generalized report generator capability but will require lead time to prepare necessary control cards and instructions. Subsequent discussion will group the various output reports by actual source, i.e., which hold file they come from. The hold files contain accumulations of transactions over the specified period--daily, weekly, monthly, quarterly, semiannually, and annually--and represent activity for the specified time period. Thus, they are

the source of statistics for the various reports. Output processing is depicted graphically in Figures A-22 through A-25.

a. Arrest Reports. Arrest reports accumulated in the hold file are sorted by offense type within jurisdiction and are then utilized to produce the following periodic reports:

- Serious Crimes Resulting in Death or Injury
- Arrests and Bookings

b. Disposition Notification. Sorted by offense and disposition within jurisdiction to produce the following reports:

- Disposition of Criminal Cases
- Probationers
- Parolees
- Probationers Discharged
- Parolees Discharged
- Probation Violators
- Parole Violators
- Criminal Cases Awaiting Disposition
- Status and Disposition of Criminal Cases
- Composite Status and Disposition
- Crimes Against Persons
- Crimes Against Property
- Prohibited Offenses and Offenses Against the Public Morals

c. Admissions Card. Accumulated during the specified period and sorted by age at admission and jurisdiction. Reports subsequently produced are:

- Probation Violators
- Parole Violators
- Age at Incarceration
- Commitments of Judicial Districts

d. Separation Card. Accumulated and sorted by offense category and institution to produce the Paroled Prisoners Report.

4. Real-Time Processing. Consists of the receipt of requests regarding a Criminal History Summary or Suspect Identification and the subsequent printout of data transmitted to the requester. Both of these types of requests will utilize the Master Criminal History File. Format editing, security, etc., will be handled in the Message Processing computer. When the request is passed on, it will result in the appropriate report being generated and passed back to the Message Processing computer for subsequent transmission to the requester. These processes are graphically described in Figure III-6.

B. Output Products. Output products from the Criminal History File area are primarily cyclical reports produced on a daily, weekly, monthly, semiannual, and annual basis. In addition, certain special reports may be produced as required. Also available is a summary criminal history to be used in response to real-time queries.

1. Daily Report of Serious Crimes Resulting in Death or Injury. Consists of a summary report showing, by offense category, the count of serious crimes resulting in death or injury.

2. Weekly

a. Arrests and Bookings. Consists of a summary report giving a count of arrests and bookings, by charge, within each jurisdiction.

b. Disposition of Criminal Cases. Consists of a summary report giving, by jurisdiction, a count of:

- Dismissals during preliminary examination
- Dismissals resulting from no bill by the Grand Jury or County Attorney
- Dismissals during arraignment
- Acquittals
- Convictions

3. Monthly

a. Arrests and Bookings. Identical to the weekly report but summarized for the monthly period.

b. Disposition of Criminal Cases. Identical to the weekly report but summarized for the monthly period.

c. Probations. Lists the number of probationers in each jurisdiction.

d. Parolees. Lists the number of parolees in each jurisdiction.

e. Probationers Discharged. Lists the number of persons discharged from probation by jurisdiction.

f. Parolees Discharged. Lists the number of persons discharged from parole by jurisdiction.

g. Probation Violators. Lists, by jurisdiction, the number of persons violating probation and subsequently confined in an institution.

h. Parole Violators. Identical to g above except that it lists parole violations.

i. Serious Crimes Resulting in Death or Injury. Similar to the daily report but summarized for the monthly period.

j. Criminal Cases Awaiting Disposition. Lists, by charge and jurisdiction, the number of cases awaiting disposition.

4. Quarterly and Semiannual. The following reports are identical to those previously described except that totals are given for a quarterly or semiannual basis, as applicable:

- Arrests and Bookings
- Disposition of Criminal Cases
- Probationers
- Parolees
- Criminal Cases Awaiting Disposition

5. Annual

a. Status and Disposition of Criminal Cases. Shows the status and disposition of criminal cases by type offense for each judicial district.

b. Composite Status and Disposition. Similar to a above except that the grouping is by type offense with status and disposition furnished for all jurisdictions.

c. Crimes Against Persons. Lists crimes against persons with status and disposition for all jurisdictions.

d. Crimes Against Property. Similar to c above but for crimes against property.

e. Prohibited Offenses and Offenses Against the Public Morals. Shows the status and disposition, for all jurisdictions, of those cases

involving prohibited offenses and crimes against the public morals (i.e., those crimes not covered by the two preceding reports).

f. Paroled Prisoners. Counts the number of prisoners paroled by offense category and institution.

g. Probationers. Shows the number of probationers by offense category.

h. Age at Incarceration. Shows, by age group, the number of persons incarcerated for each offense category at each institution.

i. Commitments of Judicial Districts. Shows, for each judicial district, the commitments to institutions by offense category.

j. Others. The following reports are identical to those previously described except that totals are given for an annual basis:

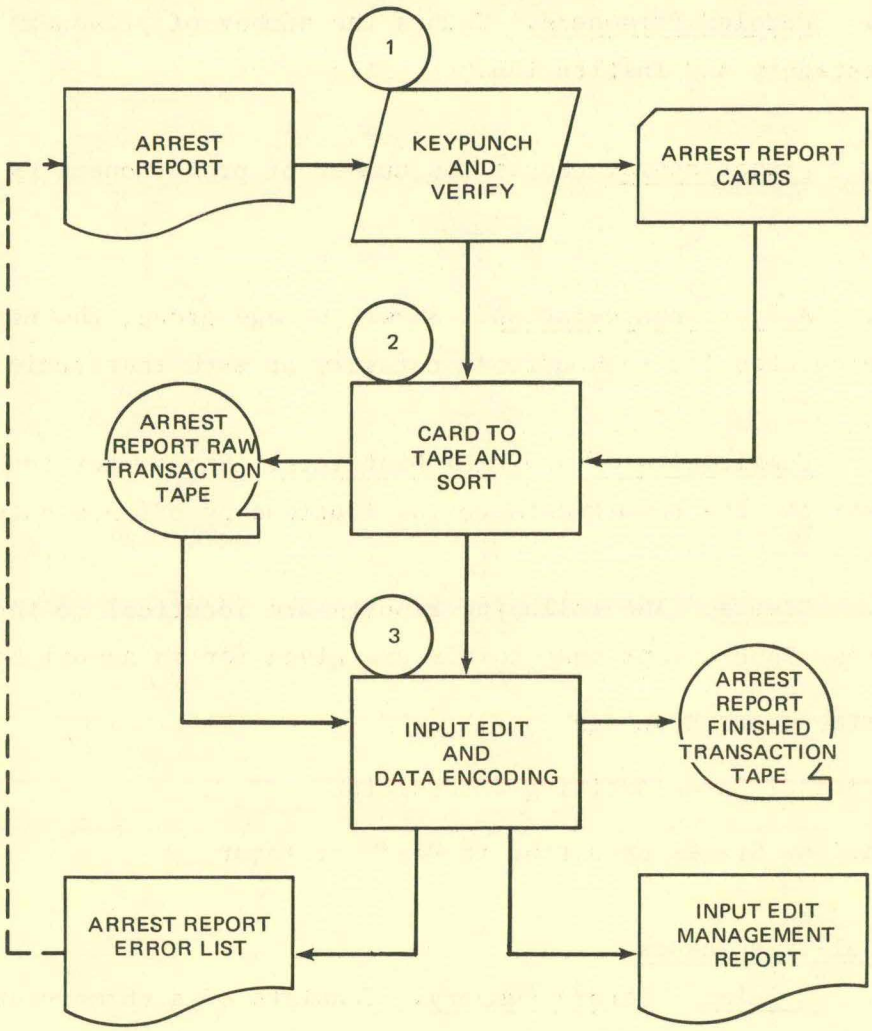
- Arrests and Bookings
- Criminal Cases Awaiting Disposition
- Serious Crimes Resulting in Death or Injury

6. Real-Time Request

a. Criminal History Summary. Consists of a summary printout of the criminal history as held in the on-line data base (see preceding item descriptions). This report will be used for such things as bail determination and pre-sentence investigations.

b. Suspect Identification. Similar to the above but is restricted to identifying data. Its primary use is in assisting positive identification of suspects.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: CRIMINAL HISTORY FILE, ARREST REPORT		1 of 1



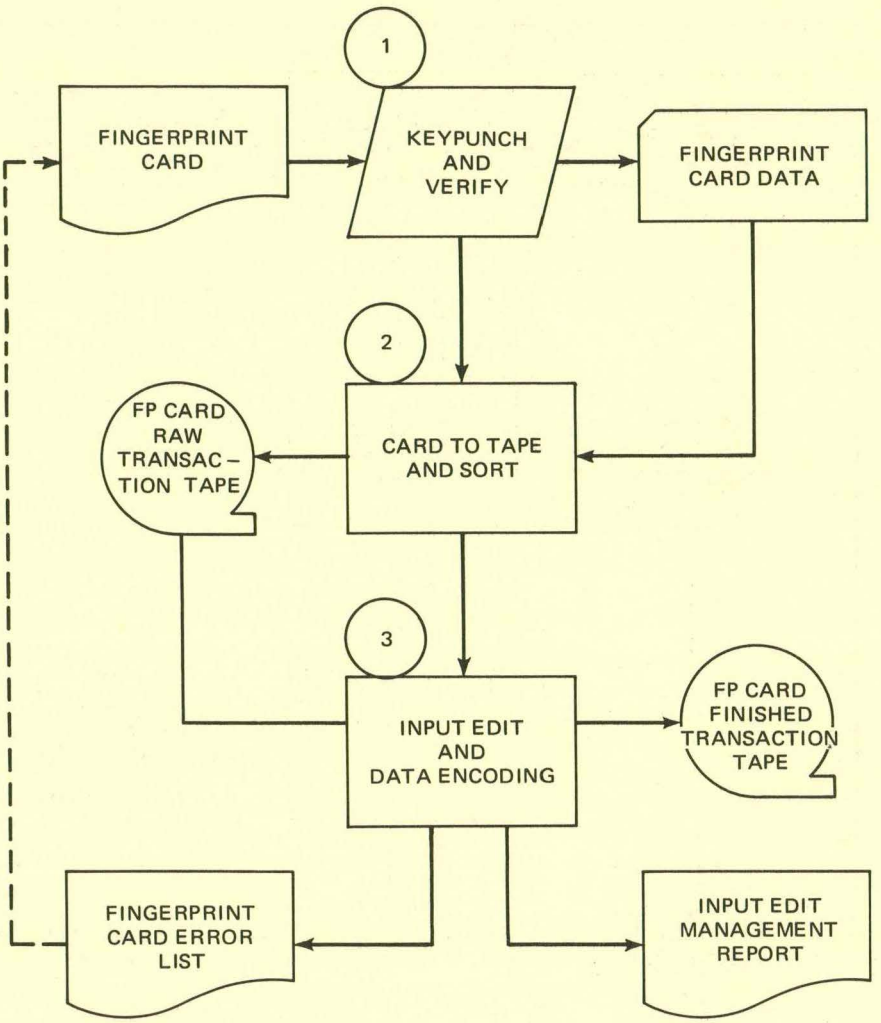
1. Arrest reports are keypunched and verified. This process could include keytape operations if equipment is available.

2. Verified cards are input to the sort program and ordered for subsequent batch update of the Criminal History Master File.

3. The input edit validates data fields and encodes appropriate items according to specifications. The output is a finished transaction tape ready for updating. An error report list is produced showing those cards that have errors and is used to correct and resubmit for keypunching. The input edit management report provides statistics for the number of records, number of errors, duplicates, etc., to assist in file management.

Figure A-17

Application	Run No. 2	Sheet No.
INPUT PROCESSING: CRIMINAL HISTORY FILE, FINGERPRINT CARD		1 of 1



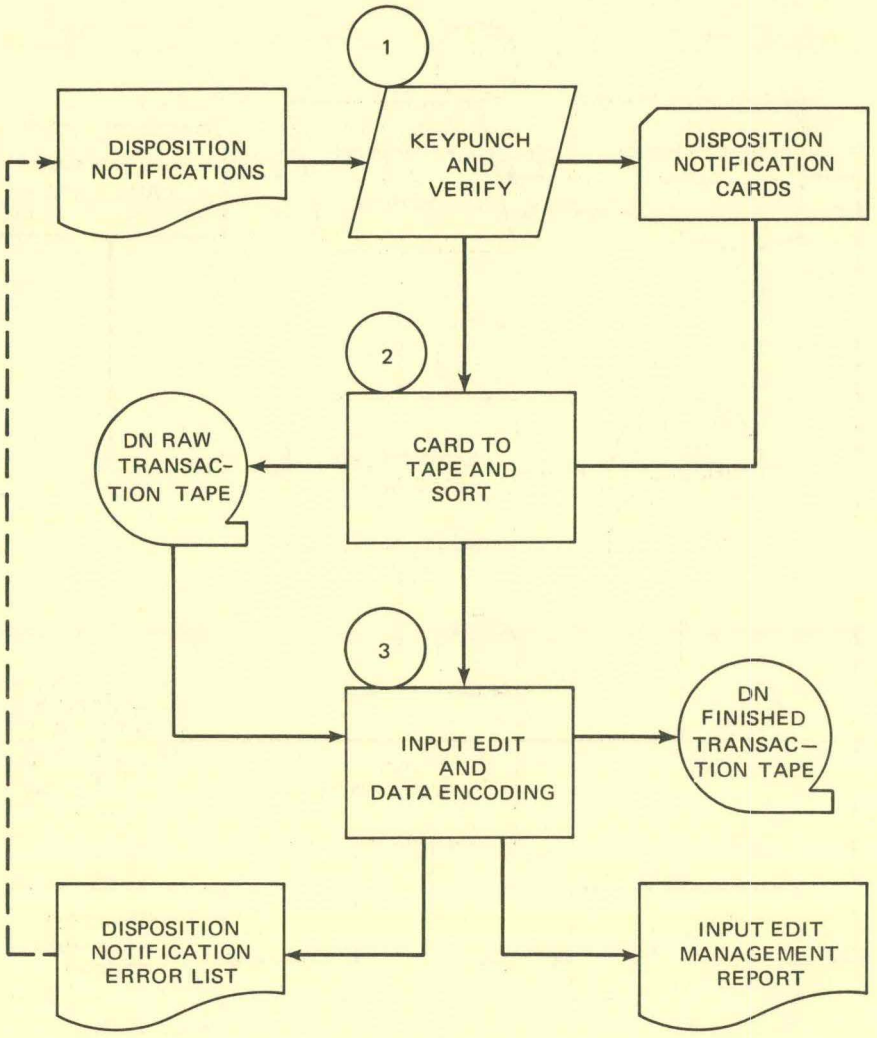
1. Information from fingerprint cards is keypunched and verified for subsequent processing. A keytape method could be used instead.

2. Verified cards are used as input to the sort program, to be sorted for input to the Criminal History Master File.

3. The input edit program checks items for validity and encodes those items with table lookups. Invalid input is written out on an error list to be used for correction and resubmission. The output tape is a finished transaction tape ready for file update. The input edit management report provides statistics on record counts, errors, etc., for file management purposes.

Figure A-18

Application	Run No. 3	Sheet No.
INPUT PROCESSING: CRIMINAL HISTORY FILE, CASE DISPOSITION NOTIFICATION		1 of 1



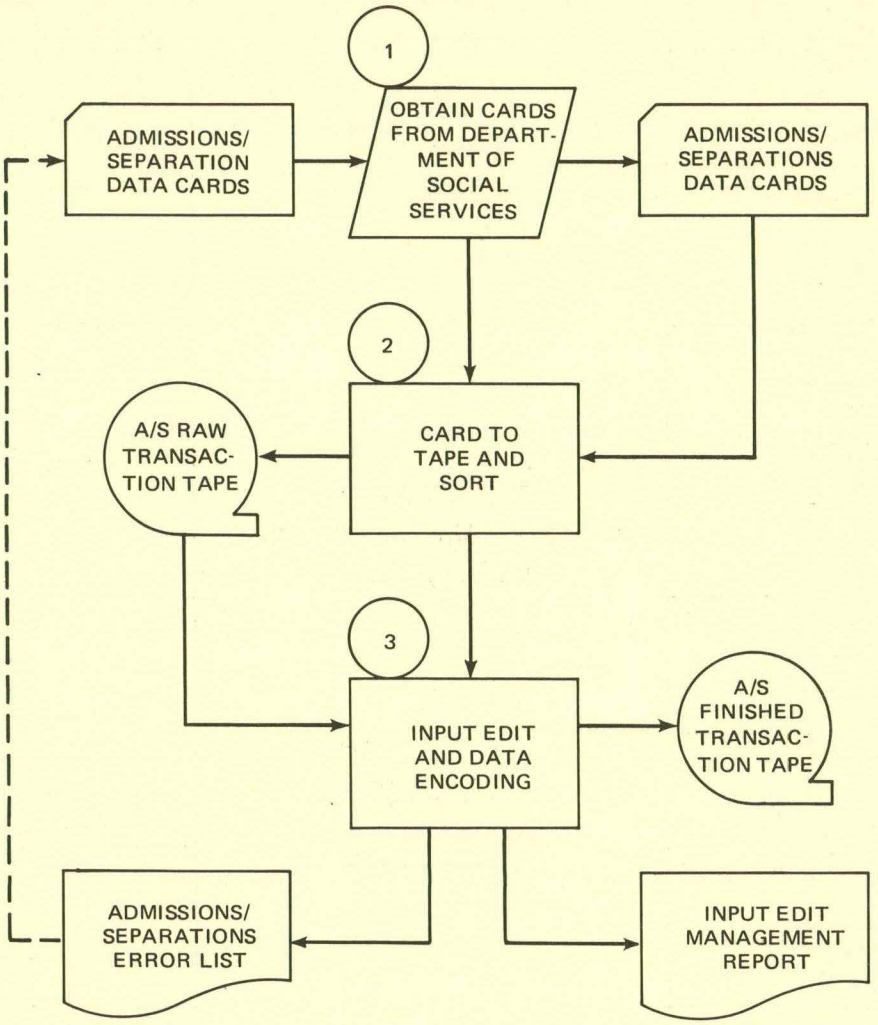
1. Dispositions from the clerk of the court are keypunched and verified for subsequent entry to the Criminal History File. Keytape or similar source data automation equipment may be used if available.

2. Verified cards are input to the sort program to be ordered for subsequent Criminal History File update.

3. The input edit function validates data items and encodes those with applicable tables. Errors are annotated on a special error list to facilitate subsequent correction and processing. The input edit management report provides statistics on record counts and other factors for file management.

Figure A-19

Application	Run No. 4	Sheet No.
INPUT PROCESSING: CRIMINAL HISTORY FILE, ADMISSIONS/SEPARATION CARD		1 of 1



1. Admissions/Separation Cards are currently keypunched for use of Department of Social Services. These cards or copies thereof will be used for input to the Criminal History File.

2. The above cards are sorted for editing and file update use.

3. The input edit will verify field validity and encode data where necessary. An annotated error list will be prepared to facilitate error correction and resubmission. The finished transaction tape will be used to update the Criminal History File. The input edit management report is a statistical summary used to enhance file management.

Figure A-20

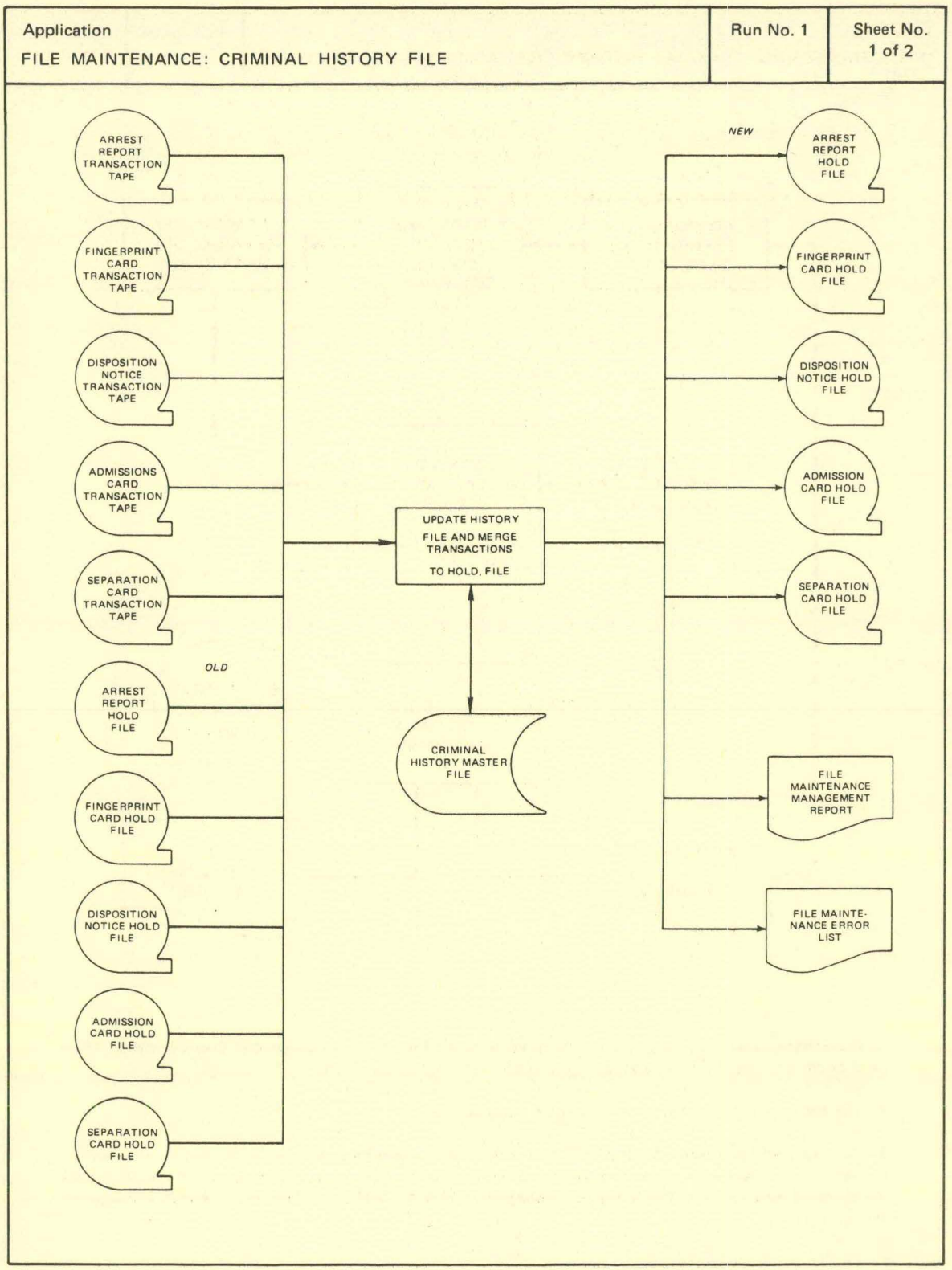

Application
FILE MAINTENANCE: CRIMINAL HISTORY FILE
Run No. 1
Sheet No. 1 of 2
ARREST REPORT TRANSACTION TAPE
FINGERPRINT CARD TRANSACTION TAPE
DISPOSITION NOTICE TRANSACTION TAPE
ADMISSIONS CARD TRANSACTION TAPE
SEPARATION CARD TRANSACTION TAPE
OLD
ARREST REPORT HOLD FILE
FINGERPRINT CARD HOLD FILE
DISPOSITION NOTICE HOLD FILE
ADMISSION CARD HOLD FILE
SEPARATION CARD HOLD FILE
UPDATE HISTORY FILE AND MERGE TRANSACTIONS TO HOLD, FILE
CRIMINAL HISTORY MASTER FILE
NEW
ARREST REPORT HOLD FILE
FINGERPRINT CARD HOLD FILE
DISPOSITION NOTICE HOLD FILE
ADMISSION CARD HOLD FILE
SEPARATION CARD HOLD FILE
FILE MAINTENANCE MANAGEMENT REPORT
FILE MAINTE-NANCE ERROR LIST

Figure A-21

Application	Run No. 1	Sheet No.
FILE MAINTENANCE: CRIMINAL HISTORY FILE		2 of 2

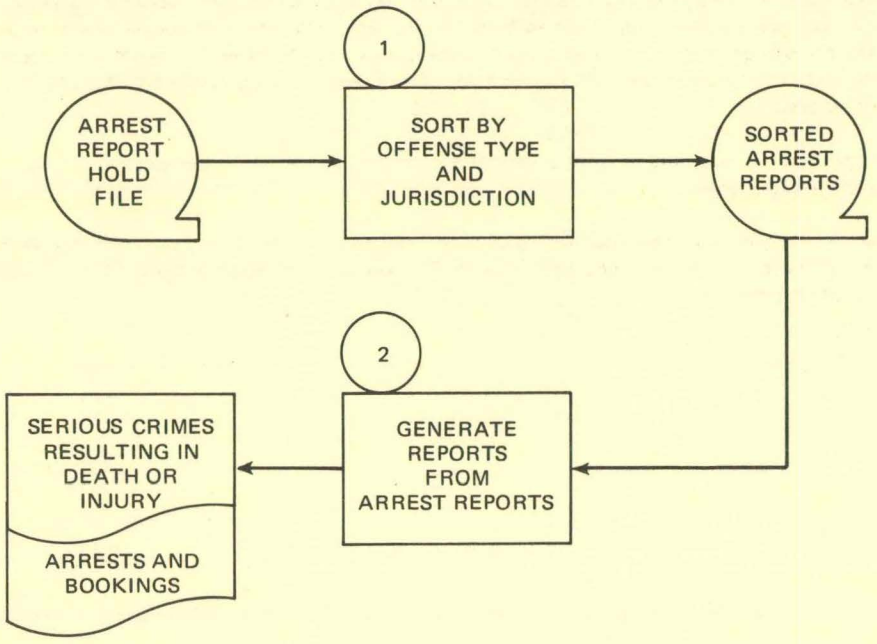
1. The file update logic for this area works in the following manner: Transaction tapes available from each of the five types of input are mounted in addition to hold files for each type. When the update begins, records are read from the transaction files in turn and applied to the history file. If successful updates are made, the transaction is merged to the appropriate hold file both for backup and to provide summary data for various Criminal History reports.

2. The file maintenance management report is a statistical summary of additions, changes, and deletions to the file for proper file management.

3. The file maintenance error list is an error listing of both unacceptable records and such occurrences as a BCI Fingerprint Card with no corresponding arrest report. The management report provides file statistics to aid in management of the file.

Figure A-21 (Continued)

Application	Run No. 1	Sheet No.
OUTPUT PROCESSING: CRIMINAL HISTORY FILE, ARREST REPORT HOLD FILE		1 of 1



1. The Arrest Report Hold File for the specified period is sorted by offense type within jurisdiction. The sorted tape is then passed to the report generation program.

2. The two reports shown are produced as required with the period depending on the hold period of the input file. The sorted tape is not retained. The actual output process will be executed through spooling with disc used as interim storage.

Figure A-22

Application	Run No. 2	Sheet No.
OUTPUT PROCESSING: CRIMINAL HISTORY FILE, DISPOSITION NOTIFICATION HOLD FILE		1 of 2

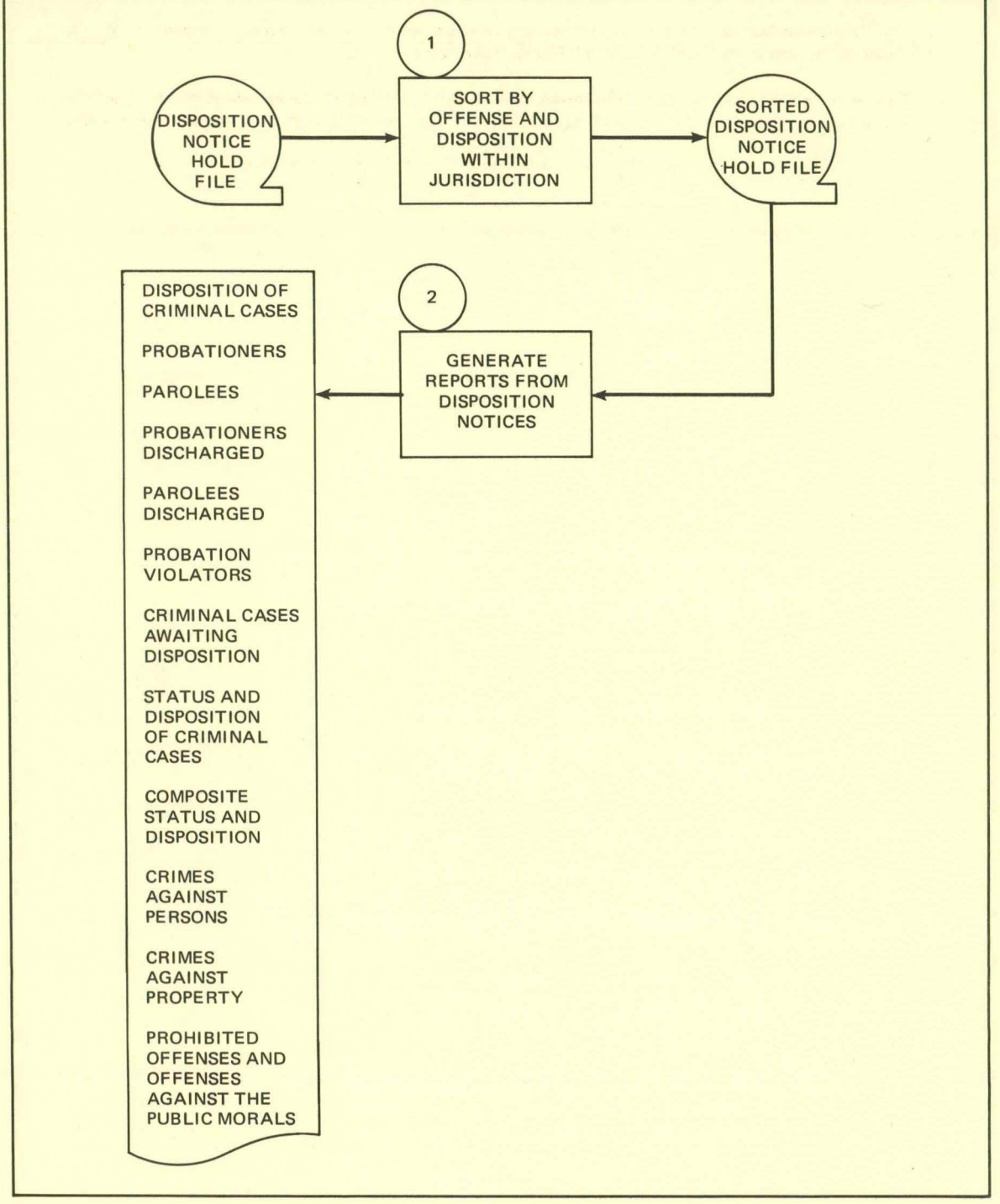


Figure A-23

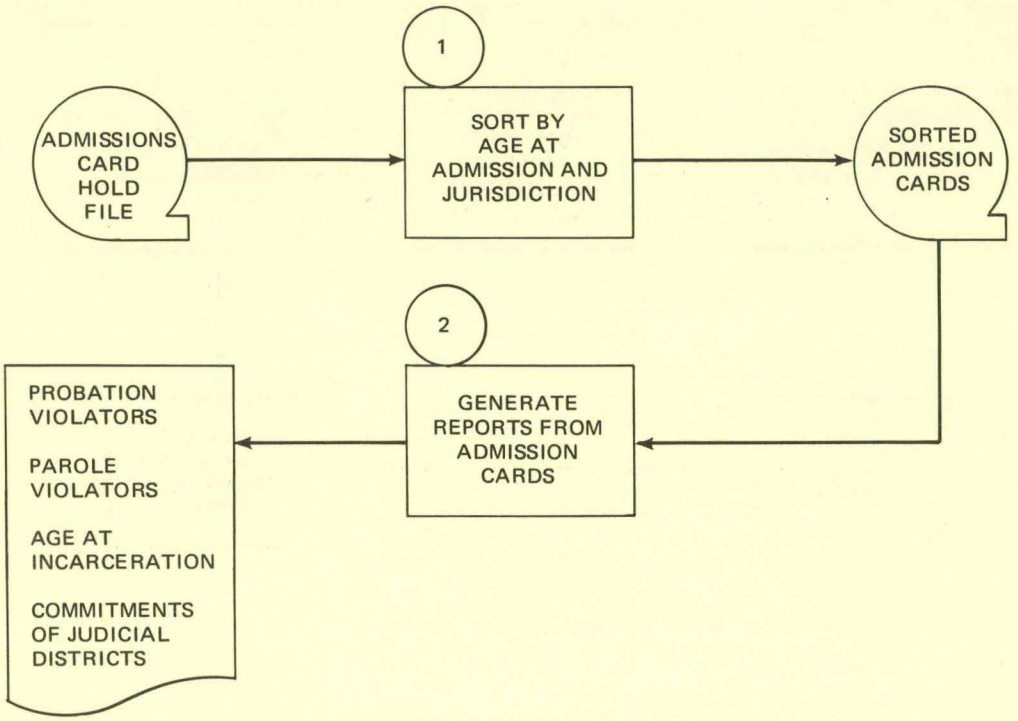
Application	Run No. 2	Sheet No. 2 of 2
OUTPUT PROCESSING: CRIMINAL HISTORY FILE, DISPOSITION NOTIFICATION HOLD FILE		

1. The Disposition Notice Hold File for the specified period is sorted by offense type and disposition within jurisdiction. The tape is then used as input to the report generator.

2. The report generation program will then output to each report through disc as an intermediate storage for subsequent printing via a SPOOL process. The sorted tape is not retained after the report generation process.

Figure A-23 (Continued)

Application	Run No. 3	Sheet No.
OUTPUT PROCESSING: CRIMINAL HISTORY FILE, ADMISSIONS CARD HOLD FILE		1 of 1

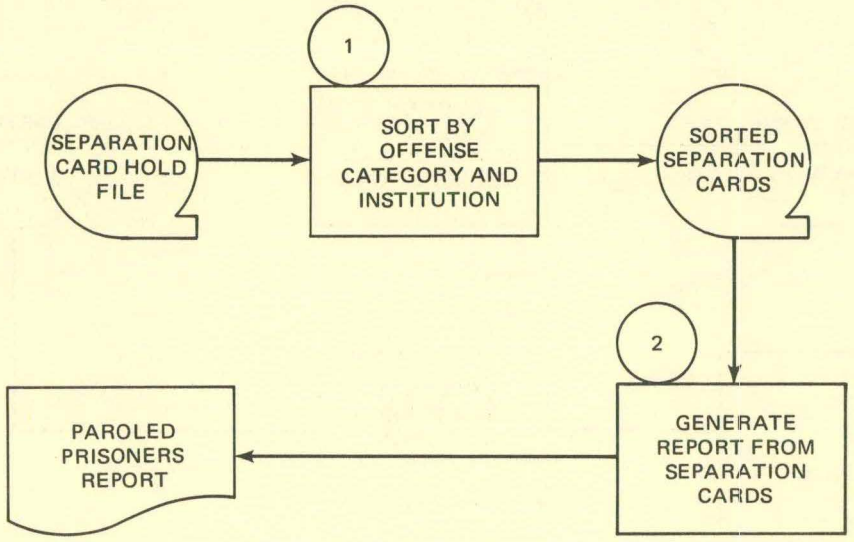


1. The Admissions Card Hold File for weekly, monthly, etc., periods is sorted by age of inmate at admission and committing jurisdiction for subsequent input to the report generator.

2. The report generation program utilizes the sorted tape to output the four reports required. The actual output will be through a SPOOL process using disc as an interim storage media.

Figure A-24

Application	Run No. 4	Sheet No.
OUTPUT PROCESSING: CRIMINAL HISTORY FILE, SEPARATION CARD HOLD FILE		1 of 1



1. Accumulations of Separation Cards over the specified period provide input from the hold file to the sort program and are sorted by offense category and institution.

2. Sorted input is utilized by the report program to produce the Paroled Prisoners Report. This output operation will normally be a SPOOL process using disc for intermediate storage. The sorted tape is not retained after report generation.

Figure A-25

CORRECTIONAL INSTITUTIONS FILE

A. Processing Specifications. These specifications include the four categories of input processing, file maintenance, output processing, and real-time processing. Run diagrams are provided for each area to illustrate the basic processing logic.

1. Input Processing. Involves only two source documents, both currently keypunched for the Department of Social Services and used to extract data necessary for the Correctional Institutions File (see Figure A-20):

- Admission/Separation Data Cards
- Finished Transaction Tape

2. File Maintenance. The Correctional Institutions File is not large, will not experience a high volume of updates, and thus will permit a relatively simple file maintenance process. Hold files necessary to prepare specified periodic reports are not produced as a result of file maintenance of the Correctional Institutions File because they are produced during the criminal history update. Both admissions and separation data can be handled at the same time, and the maintenance process produces both an updated file and error management reports. A graphic presentation is included in Figure A-26.

3. Output Processing. Results in the production of periodic reports from the hold files and responses to real-time requests for information about authorized individuals. These real-time requests are discussed separately below. Output processing is divided between admissions and separation data. Figures A-27 and A-28 show the basic logic detail of this process.

a. Admission Data. Used to produce statistical summaries by offense and institution for the Accessions to Correctional Institutions Report.

b. Separation Data. Used for the production of both the Releases From Correctional Institutions Report and the Annual Status of Prisoners Report.

4. Real-Time Processing. Consists of the receipt of requests for specific data on an inmate and the data transmitted to the requester. Requests are initially handled through the message processor, which will make all format, validity, and security checks. When passed to the main processor, the request results in retrieval and formatting of the output, which is passed back to the message processor for subsequent transmission to the requester. A graphic presentation is shown in Figure III-6.

B. Output Products. Output products from the Correctional Institutions File are scheduled periodic reports on a weekly, monthly, quarterly, semiannual, or annual basis. Special reports are provided as required in addition to printouts concerning a specific individual or individuals.

1. Weekly

a. Accessions to Correctional Institutions. Consists of a summary type report showing admissions to the various institutions.

b. Releases from Correctional Institutions. Similar to a above but showing releases from institutions by type of release.

2. Monthly

a. Accessions to Correctional Institutions. Identical to the weekly report but with accumulations over a monthly period.

b. Releases from Correctional Institutions. Similar to a above except that it is a monthly accumulation of releases by type release from each institution.

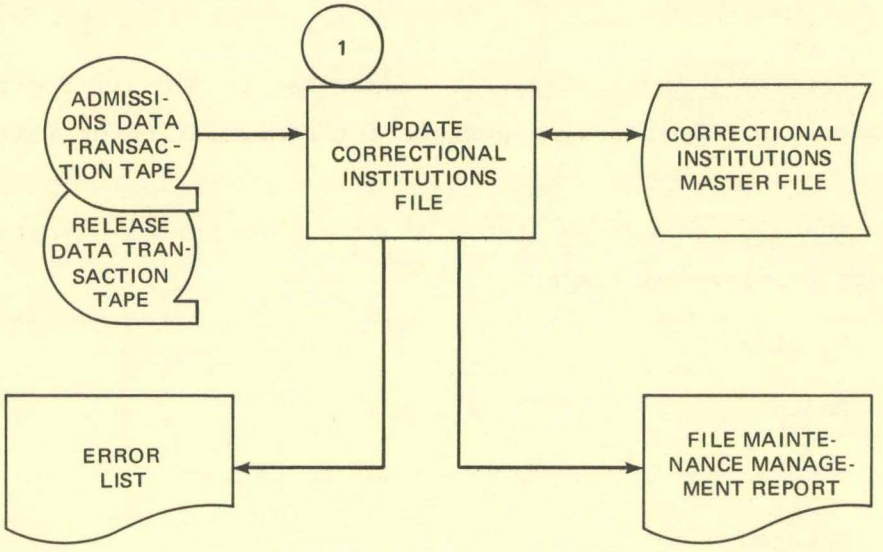
3. Quarterly and Semiannual. Identical to monthly reports but with appropriately longer time periods for accumulation of statistics.

4. Annual. Gives the status of prisoners for each institution. This report provides counts of:

- Parolees
- Deaths
- Revocations of Parole (returned to prison)
- Escapes
- Discharges
- On Parole at End of Period

5. Real-Time Request. This request results in a printout of identification and sentence data of an individual to assist law enforcement or court officers as required.

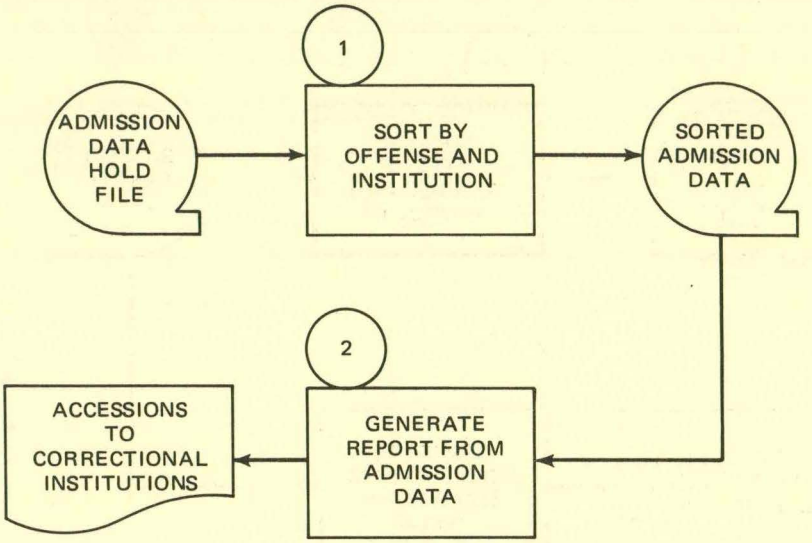
Application	Run No. 1	Sheet No.
FILE MAINTENANCE: CORRECTIONAL INSTITUTIONS FILE		1 of 1



1. The Correctional Institutions File is updated from the finished transaction tapes for both admissions data and separation data produced for maintenance of the Criminal History File. An annotated error list is produced for error correction and reinput, and a management report of file activity is produced to assist in file management.

Figure A-26

Application	Run No. 1	Sheet No.
OUTPUT PROCESSING: CORRECTIONAL INSTITUTIONS FILE, ADMISSION DATA		1 of 1

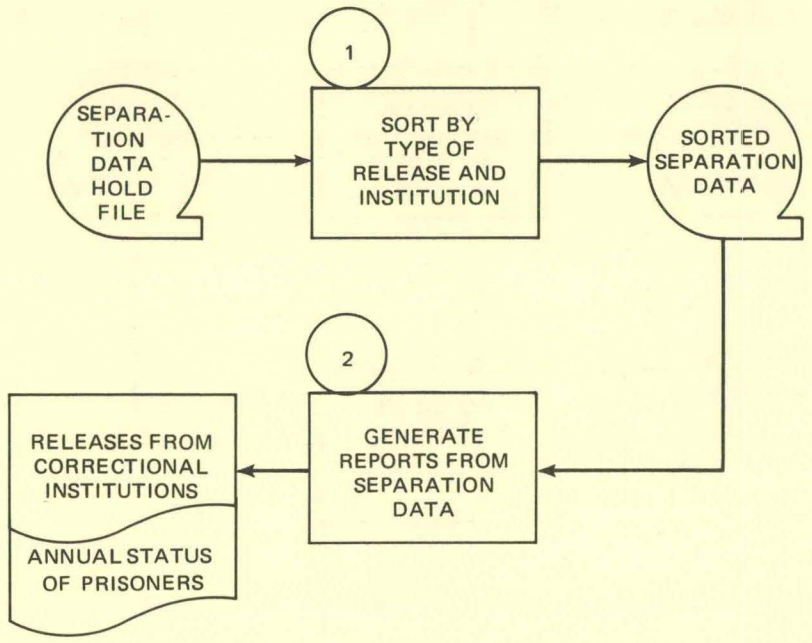


1. Admission Data from the hold file provide input to the sort program and are sorted by offense category and institution. The sorted tape is then used as input to the report generation program.

2. The report generation program produces a periodic Accessions to Correctional Institutions Report based on the hold file period. The output will be produced through a SPOOL process utilizing disc for interim storage.

Figure A-27

Application	Run No. 2	Sheet No.
OUTPUT PROCESSING: CORRECTIONAL INSTITUTIONS FILE, SEPARATION DATA		1 of 1



1. The Separation Data Hold File is used for input to the sort program and the data are sorted by type of release and jurisdiction.

2. The sorted tape is input to the report generation program and the two required reports are produced utilizing a SPOOL process for the actual printing.

Figure A-28

A. Processing Specifications.

1. Real-Time Input and File Maintenance Processing. Occurs whenever a person is added to the list or reported apprehended. The process involves receipt of a formatted message via the terminal network, error checking, update of the file, and recording of the transaction for edit report processing (see Figure A-29).

2. Real-Time Output Processing. Occurs when checks are made against the file as a result of a message from the terminal network. A reply is formatted and transmitted to the originating terminal via the Message Processor (see Figure A-30).

3. Periodic Output Processing. Utilizes the hold file produced at file maintenance time for input data. This hold file contains transactions for both additions to the file and reports of wanted persons apprehended. Since the updates are on an as-received basis, daily transactions must be merged to a hold file for the desired time period to produce the desired reports.

a. Additions to Wanted Persons List. Produced from a hold tape sorted on transaction type and offense category. The hold period of the input tape governs the output report period (see Figure A-31).

b. Apprehensions of Wanted Persons. Similar to the above; produced from the same hold tape that is sorted on transaction type and offense category (see Figure A-31).

B. Output Products. Output products from the Wanted Persons File are responses to queries and summary reports of wanted persons and apprehended persons. These outputs are as follows:

1. Daily

a. Additions to Wanted Persons List. Consists of a daily report of new warrants issued.

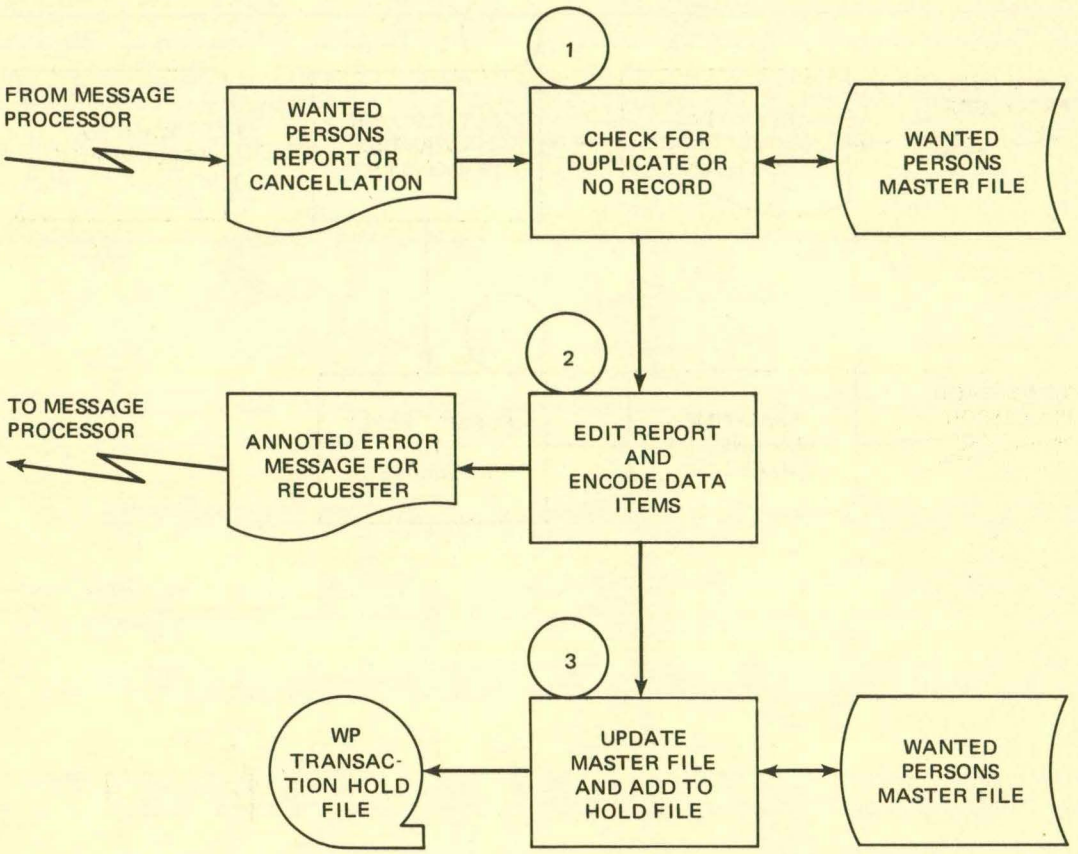
b. Wanted Person Apprehensions. Similar to a above but reports apprehensions.

2. Monthly. Consists of monthly accumulations of data from the daily reports.

3. Quarterly. Consists of quarterly accumulations of data from the daily reports.

4. Real-Time Requests. Result in checks against the file and messages returned, providing identifying data and charge data.

Application	Run No. 1	Sheet No.
REAL-TIME INPUT AND FILE MAINTENANCE PROCESSING: WANTED PERSONS FILE		1 of 1



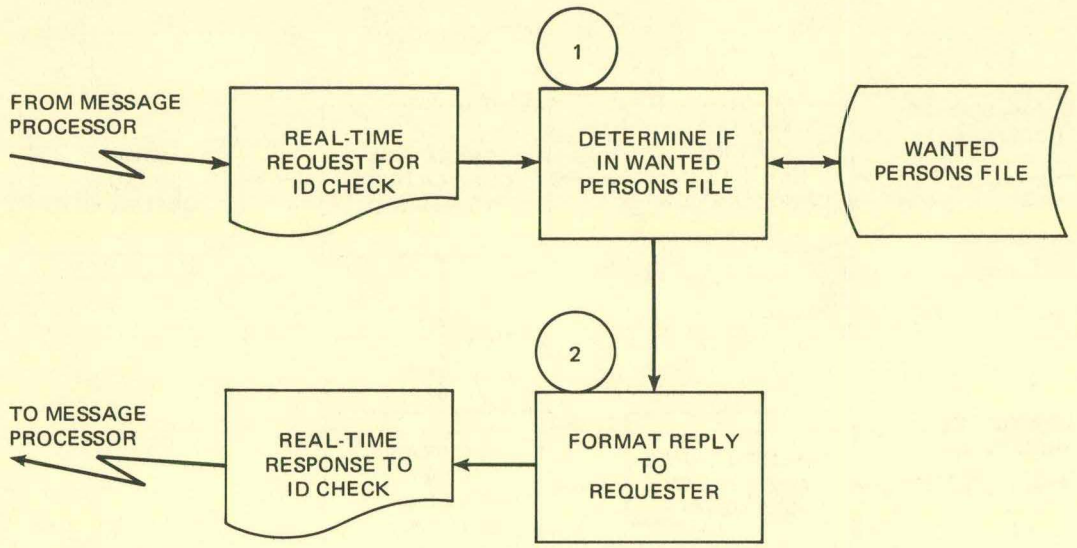
1. Real-time messages are handled first by the Message Processor computer and are then passed to the main processor. These messages are either additions to the wanted persons list or cancellations to the list. The checking process examines the file for duplications of wants or cancellations of nonexistent records.

2. Valid reports are edited for complete content and items are encoded as necessary. Errors encountered are formatted in appropriate messages and passed back to the Message Processor computer for transmission to the originator.

3. Finished transactions are processed against the Wanted Persons File and added to a hold file for subsequent report processing as additions to or deletions from the file.

Figure A-29

Application	Run No. 1	Sheet No.
REAL-TIME OUTPUT PROCESSING: WANTED PERSONS FILE		1 of 1

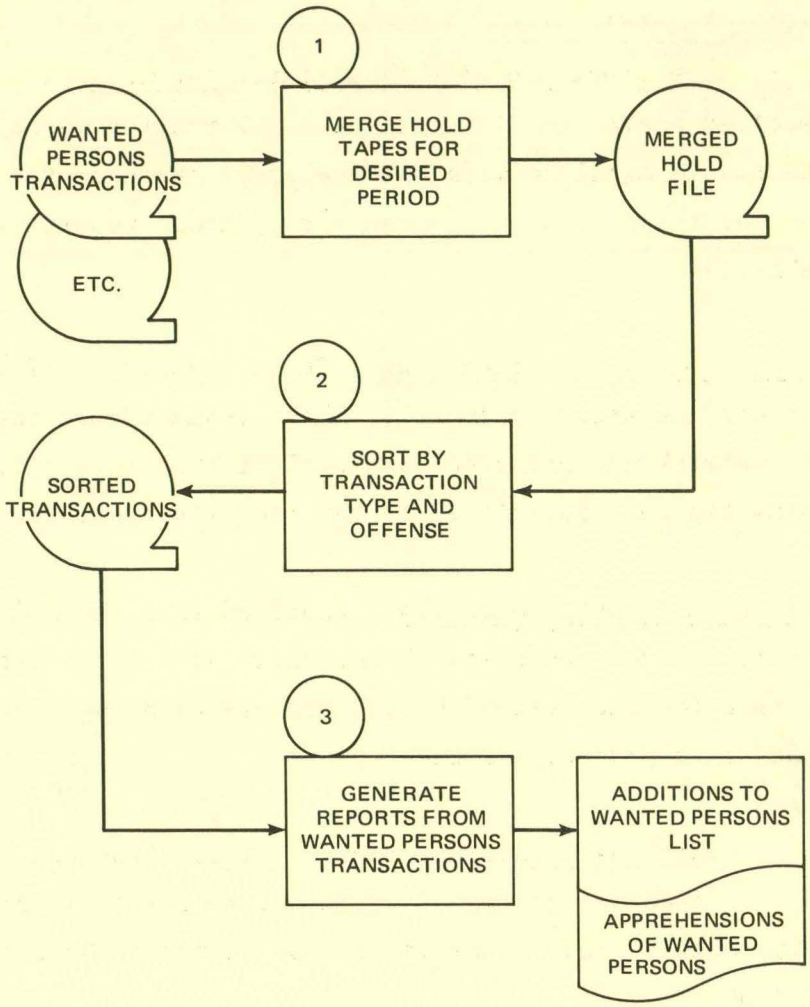


1. Requests for identification checks are passed to the main computer from the Message Processing computer and initiate a search of the Wanted Persons File.

2. Depending on whether a "hit" was made or not, an appropriate response message is formatted and returned to the Message Processor for subsequent transmittal to the requester.

Figure A-30

Application	Run No. 1	Sheet No. 1 of 1
OUTPUT PROCESSING: WANTED PERSONS FILE, WANTED PERSONS TRANSACTIONS		



1. Daily hold tapes are merged to form weekly, monthly, etc., hold tapes and are then used as input to the sort. For daily reports this merge process will not be required.

2. The hold file is sorted by transaction type and offense category and used as input to the report generator.

3. The report generation program utilizes the sorted tape to produce the required periodic reports. Output will utilize the SPOOL capability of the processor to speed overall processing.

Figure A-31

STOLEN PROPERTY FILE

A. Processing Specifications

1. Real-Time Input and File Maintenance Processing. Performed on an as-received basis from I/O terminals. Formatted messages are received via the terminal network and are error checked; the file is updated; and the transaction is logged for periodic report processing (see Figure A-32).

2. Real-Time Output Processing. Occurs whenever information is requested concerning stolen property. These requests are received via the terminal network and are processed against the file, after which a reply is formatted and transmitted to the requester (see Figure A-33).

3. Periodic Output Processing. Produced from the hold file created at file maintenance time. These daily hold files are merged to form a hold file for the desired period and are then used during subsequent processing to produce desired reports.

a. Additions to Stolen Property List. Produced by sorting the hold tape on transaction type (additions, recoveries) and type of property. The hold period of the input tape dictates the report period (see Figure A-34).

b. Recovery of Stolen Property. Similar to a above but lists recovered property; produced from the same run (see Figure A-34).

B. Output Products. Output products from the Stolen Property File are primarily responses to queries regarding the identification of stolen property.

1. Daily

a. Additions to Stolen Property List. Consists of a daily listing of the property reported stolen.

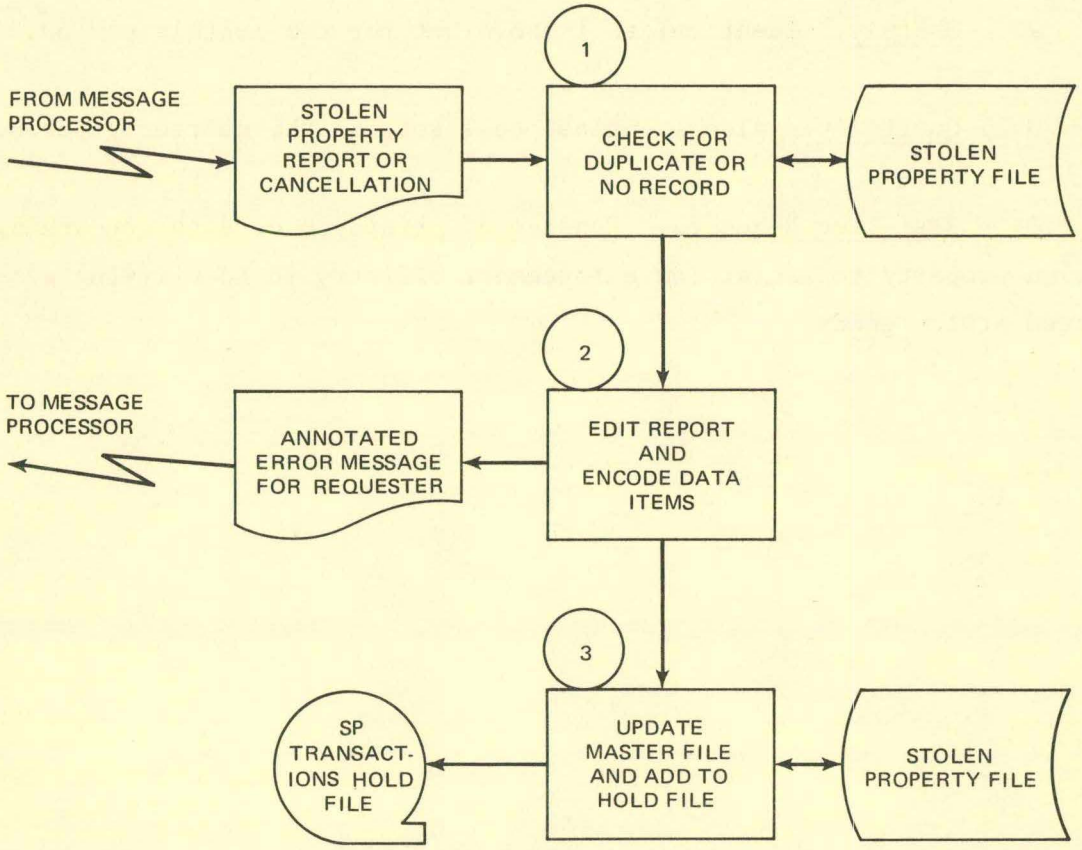
b. Recovery of Stolen Property. Similar to a above but lists recovered property.

2. Monthly. Identical to 1 above but for the monthly period.

3. Quarterly. Also identical to 1 but for the quarterly period.

4. Real-Time Requests. Consist of printouts of data concerning stolen property to assist law enforcement officers in identifying suspected stolen goods.

Application	Run No. 1	Sheet No.
REAL-TIME INPUT AND FILE MAINTENANCE PROCESSING: STOLEN PROPERTY FILE		1 of 1



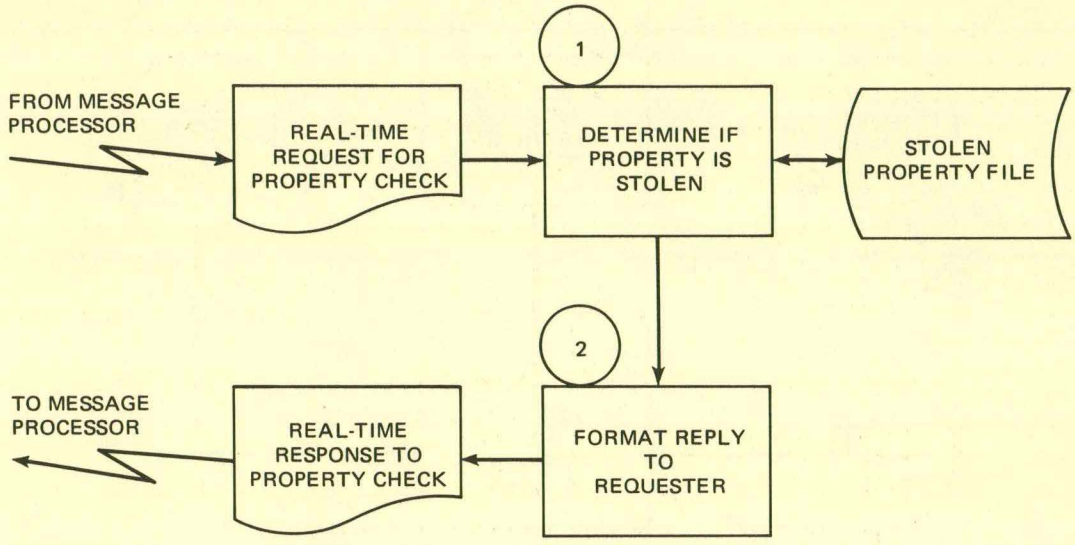
1. Messages are first handled by the Message Processor and are then passed to the main computer. Messages consist of stolen property reports or cancellations (recovered property). A check of the file is made to ensure against duplication and incorrect cancellations.

2. Valid reports are edited for content and items are encoded according to convention. Errors in formatting or data content are noted and an advisory message is sent to the requester through the Message Processor.

3. Finished transactions are updated into the file and are added to the daily hold file which will be used for periodic report generation of file activity.

Figure A-32

Application	Run No. 1	Sheet No.
REAL-TIME OUTPUT PROCESSING: STOLEN PROPERTY FILE		1 of 1

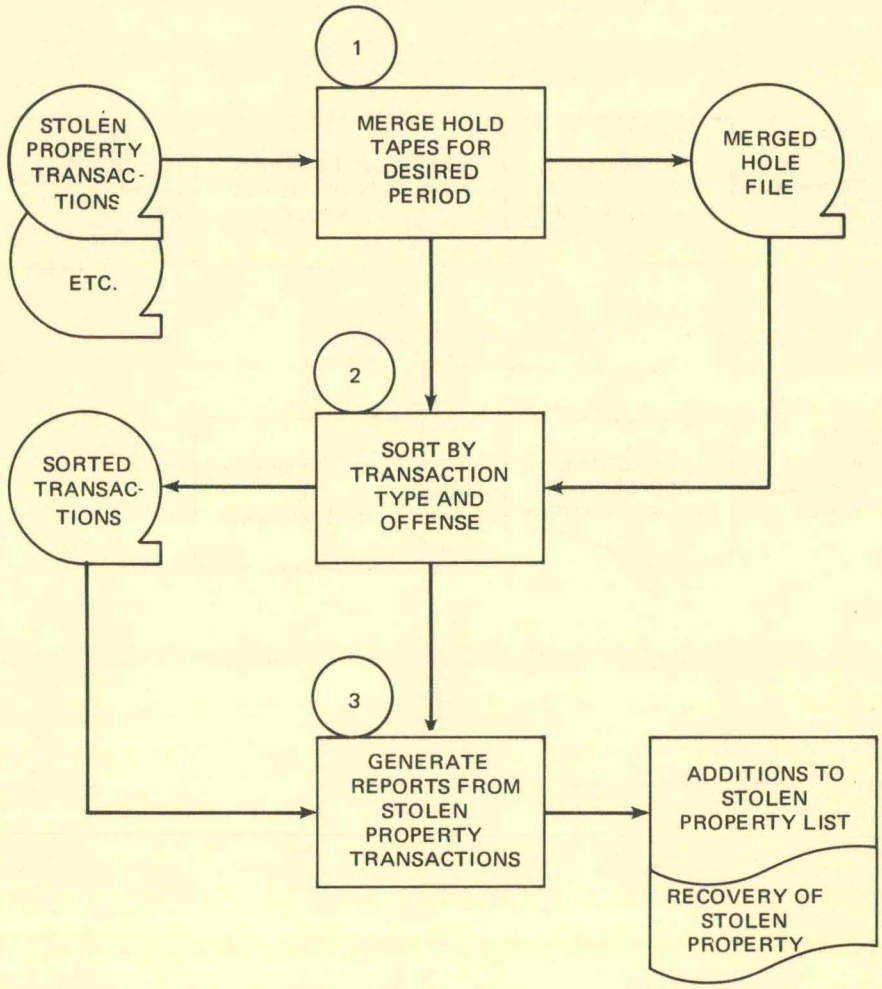


1. Stolen property information will come in as messages through the Message Processor computer and will then be passed to the main computer. A check will be made to determine if property described is in the file.

2. Results of the file search are formatted into an appropriate reply and passed to the Message Processor for transmittal to the requesting originator.

Figure A-33

Application	Run No.1	Sheet No.
OUTPUT PROCESSING: STOLEN PROPERTY PROPERTY FILE, STOLEN PROPERTY TRANSACTIONS		1 of 1



1. Daily hold tapes from the real-time input process are merged into weekly, monthly, etc., hold tapes as required to produce desired periodic reports. For daily reports, no merge is required.

2. Tapes are sorted by type of transaction and type of property for use as input to the report generation program.

3. Input from the sort is used to produce periodic reports as required. The actual output process will be done in a SPOOL environment to optimize processing.

Figure A-34

CRIMINAL CONSPIRACY FILE

A. Processing Specifications

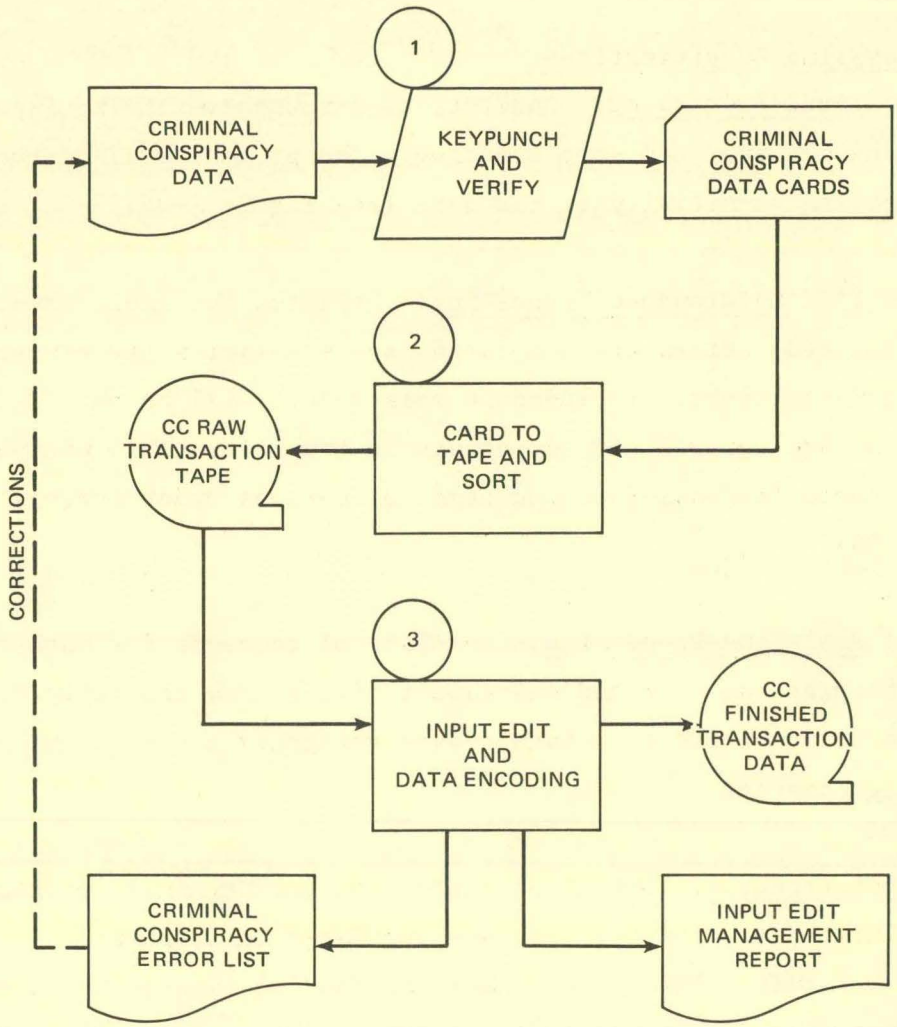
1. Input Processing. Consists of keypunch/verifying input forms, sorting and editing, and data encoding. The process will be controlled to protect the sensitivity of the data (see Figure A-35).

2. File Maintenance Processing. Utilizes the input tape. The file is updated, errors are annotated, and statistics are produced for the management report. Included in this report will be an indicator wherever a name entered already exists in the file. This will be furnished for assistance in cross-indexing names of persons under surveillance (see Figure A-36).

3. Real-Time Processing. Consists of requests for data incoming via the terminal network and subsequent file search and reply formatting. Actual security checks to maintain data integrity are made in the Message Processing Computer.

B. Output Products. Output products from the Criminal Conspiracy File will be limited to printouts of data furnished in response to queries from the BCI only. This process will be handled through the terminal network but will not be available at other than specifically authorized terminals.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: CRIMINAL CONSPIRACY FILE, CRIMINAL CONSPIRACY DATA		1 of 1



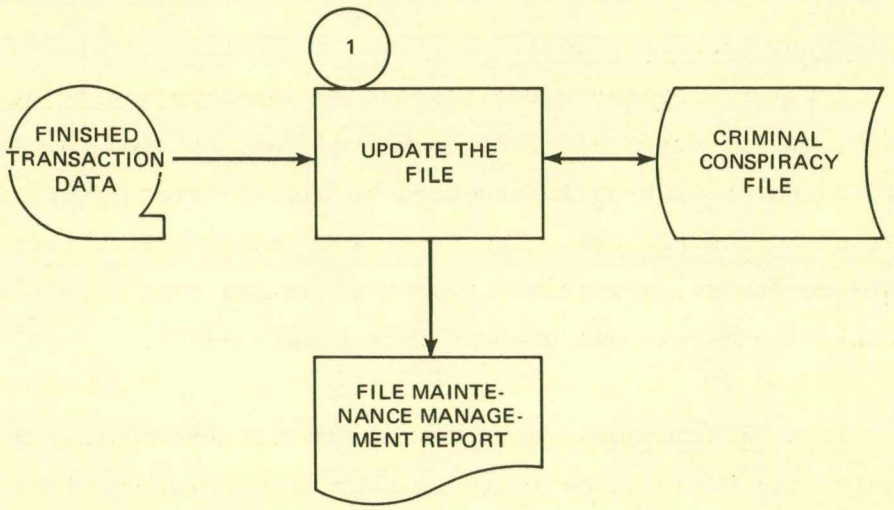
1. Data sheets concerning conspirators are keypunched/verified.

2. Cards are then input to the sort program and ordered for subsequent file updating.

3. The input edit validates data fields and encodes certain items according to code tables. Errors encountered are reported on an annotated error list designed to facilitate correction and reentry. The output tape is a finished transaction tape ready for file updating. The input edit management report provides data concerning the number of records entered, etc., to facilitate file management.

Figure A-35

Application	Run No. 1	Sheet No.
FILE MAINTENANCE PROCESSING: CRIMINAL CONSPIRACY FILE		1 of 1



1. Finished transaction data from input processing are used to update the file. The updating process adds new data to the file and also checks to see if equal names already exist in the file. The management report gives an indication of existing names and provides general statistics about the number of file entries, etc., to ensure proper management.

Figure A-36

UNSOLVED CRIMES FILE

A. Processing Specifications.

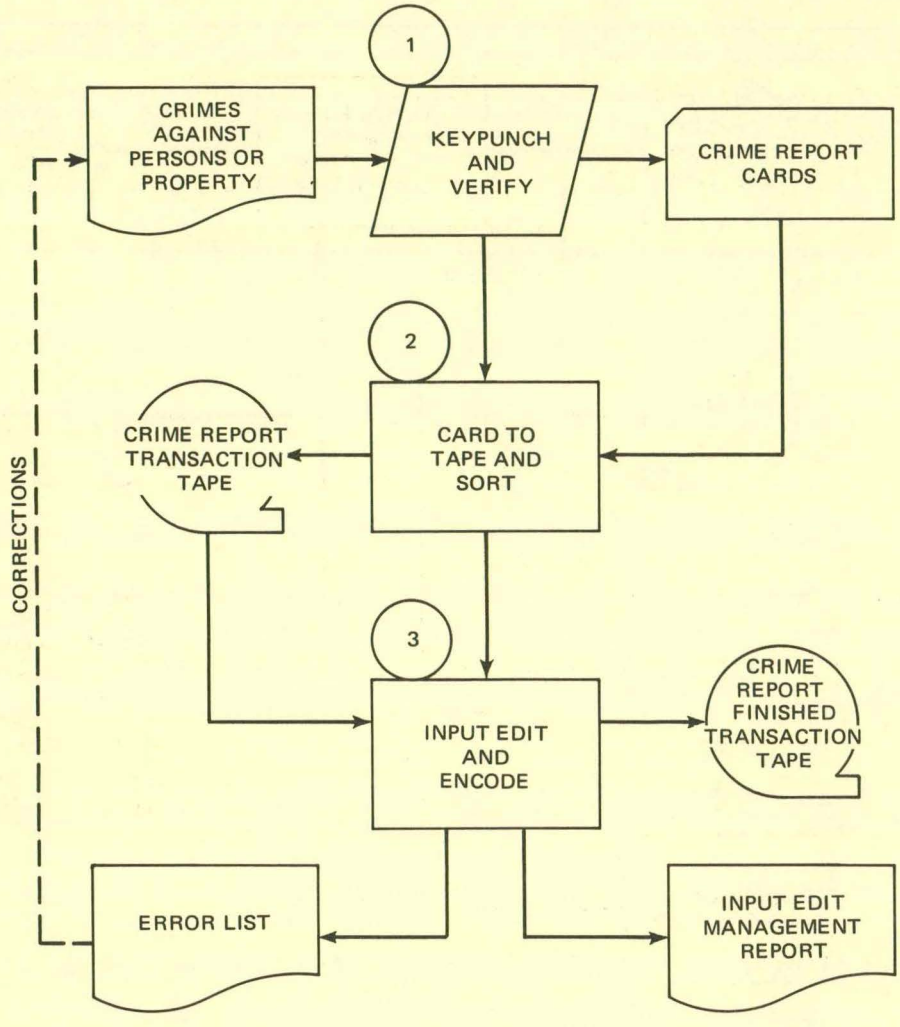
1. Input Processing. Consists of keypunching/verifying reports received by mail. Cards are sorted, edited, and encoded as necessary. An annotated error listing is produced to assist error correction and resubmission to the process. The input edit management report provides statistics on errors, number of records processed, etc., to assist in the overall file management process (see Figure A-37).

2. File Maintenance. Requires access to the Criminal History File. This enables the maintenance logic to eliminate those previously reported crimes that have been cleared as the result of an arrest. The hold file is also maintained in this manner to ensure proper reporting (see Figure A-38).

3. Output Processing. Results in the production of the Unsolved Crimes Report. The report is produced from the hold file for the appropriate period and is organized by offense type and jurisdiction (see Figure A-39).

B. Output Products. The output product from the Unsolved Crimes File is a periodic report of unsolved crimes that is produced on a weekly, monthly, quarterly, and annual basis. It is organized by offense type and jurisdiction.

Application	Run No. 1	Sheet No.
INPUT PROCESSING: UNSOLVED CRIMES FILE, CRIME REPORTS		1 of 1



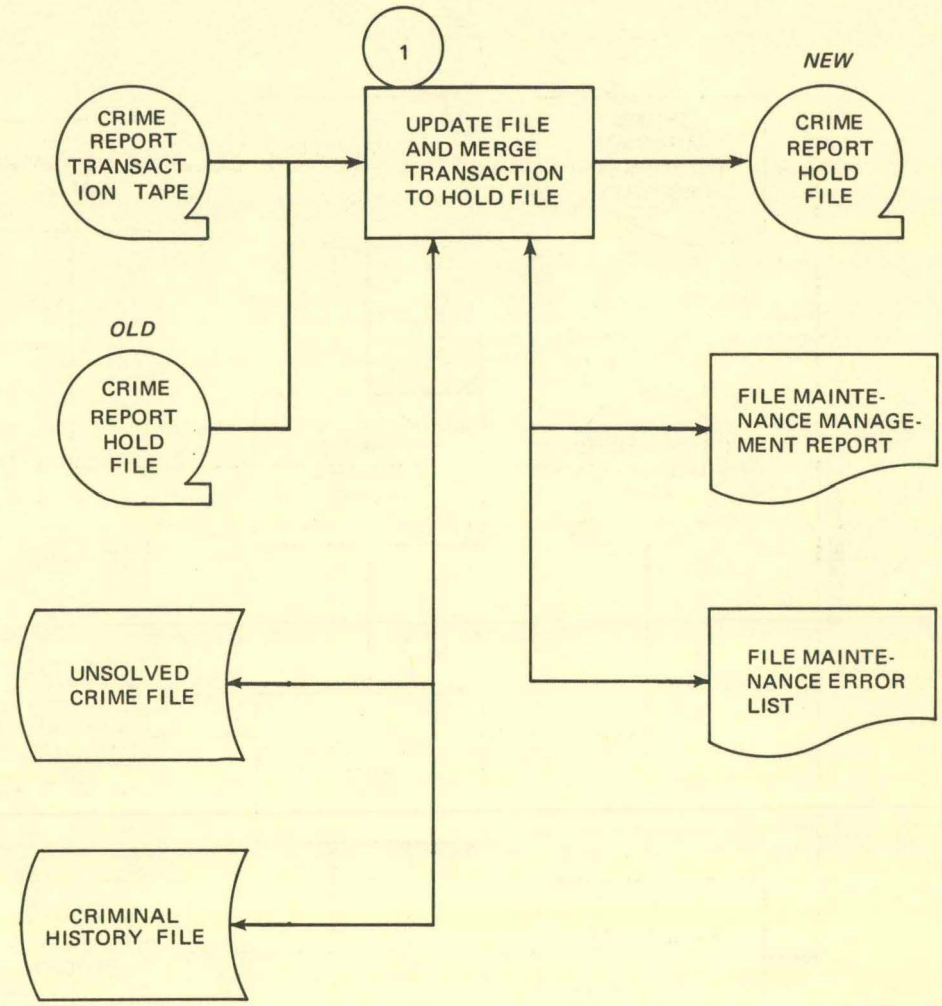
1. Crime reports are mailed in and batched for keypunching and verifying.

2. Verified cards are input to the sort program and are sorted for subsequent file updating.

3. The input edit program validates data fields and encodes applicable items. Errors discovered in this process are annotated and used for later correction and reentry. The management report is used to assist file management by providing record counts and related information.

Figure A-37

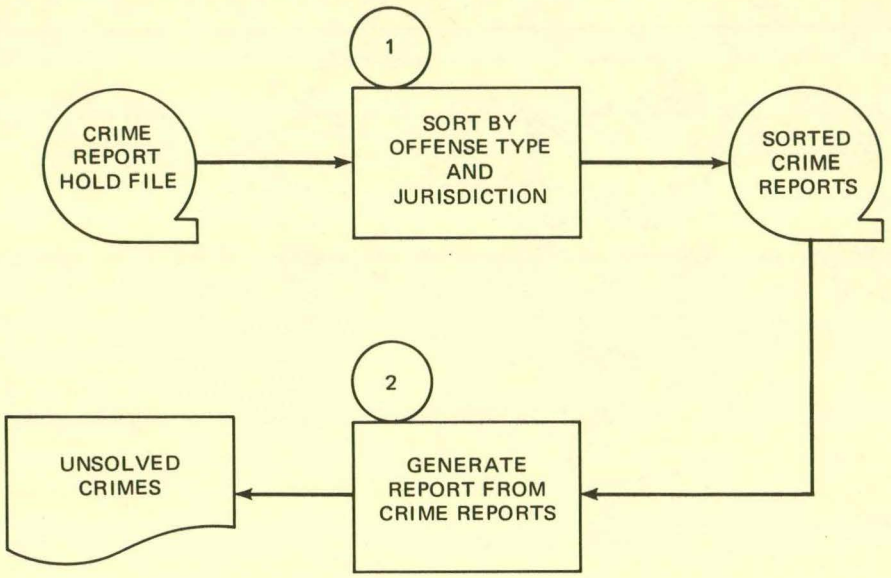
Application	Run No. 1	Sheet No.
FILE MAINTENANCE PROCESSING: UNSOLVED CRIMES FILE		1 of 1



1. File update logic accepts the input tape, updates the master file, and merges transactions into the hold file. The hold file will then be used for producing periodic output reports as well as file backup. Errors encountered during the update process will be recorded on the error list for subsequent correction and the file maintenance management report provides file statistics to ensure proper file management. Reports in the file are also matched to the Criminal History File to eliminate those that have been cleared by arrest and trial.

Figure A-38

Application	Run No. 1	Sheet No.
OUTPUT REPORT PROCESSING: UNSOLVED CRIMES FILE		1 of 1



1. Crimes Against Persons and Crimes Against Property Reports are sorted by type offense and jurisdiction.

2. The sorted tape is then used to prepare the periodic Unsolved Crime Report. The report period is determined by the accumulation period for the hold file.

Figure A-39

Appendix B

PRIVACY AND SECURITY CONSIDERATIONS

The following statement of recommended Iowa policy represents a well-researched project covering the subject under the title, *Recommended System Policies Related to Security and Privacy.** The following policy statement of the SEARCH data processing program has been modified to fit the State of Iowa's TRACIS program for policy guidance purposes:

Data Content

With controlled exceptions, data included in the system will be limited to that with the characteristics of public record, i.e.,

1. Recorded by officers of public agencies directly and principally concerned with safety, crime prevention, apprehension, adjudication, or rehabilitation of offenders.

2. Recording must have been made in satisfaction of public duty.

3. The public duty must have been directly relevant to criminal justice responsibilities of the agency.

Data Verification

Participants shall adopt a comprehensive and continuing program of data verification:

1. Systematic audits shall be conducted to ensure that files are regularly and accurately updated.

2. Where errors or points of incompleteness are detected, the agency of record shall notify the central index (if necessary) and any participant to which the inaccurate or incomplete records have previously been transmitted.

3. The agency of record shall maintain current records of all participants.

4. A record shall be kept of all agencies to which the system's data has been released.

5. All known copies of records with erroneous or incomplete information shall be corrected.

Purging

Each participating agency shall follow the law or practice with respect to purging records of the State of Iowa.

**Security and Privacy Considerations in Criminal History Information Systems,* System for Electronic Analysis and Retrieval of Criminal Histories (SEARCH), Technical Report No. 2, July, 1970, Published by Project SEARCH Staff, California Technological Research Foundation, Sacramento, California, pp. 11-13.

Rules of Access and Data Use

1. Direct access to the system shall be restricted to public agencies having a documented "need-to-know" and which perform, as their principal function,

a. For Traffic Records, the performance of duties directly associated with roadway and traffic safety, driver licensing, law enforcement, accident surveillance, vehicle registration, financial and safety responsibility processes, reciprocity violation processes, or other subsequently defined functions in the areas of

- Driver Records
- Traffic Accidents
- Vehicle Registrations
- Accident Surveillance
- Inspections

b. For Criminal Justice, the performance of duties directly associated with crime and investigations thereof, preliminary examinations, grand jury functions, arraignments, trials and verdicts, sentencing, probation, parole, or corrections, or other subsequently defined functions in the area of

- Criminal Histories
- Correctional Institutions
- Criminal Conspiracy
- Stolen Property
- Wanted Persons

2. Definitional questions as to authorized users shall be presented for resolution to authorized representatives of the participating activities.

3. In order to properly control access, the following restrictions are applicable:

a. The State of Iowa will limit the number of input/output terminals within its jurisdiction to those they can effectively supervise.

b. Each participating activity will structure its data input to State specifications for acceptance by the State's data base.

c. The rights of participating agencies to direct access are specifically limited to requests associated with their traffic records or criminal justice responsibilities.

External Requests

Requests from outside the traffic records or criminal justice community to examine data obtained through the system shall be honored only if the requesting agency is authorized access by local law, State statute, or valid administrative directive.

Research

The use of data for research shall involve the following restrictions:

1. Proponents of research programs will acknowledge a fundamental commitment to respect individual privacy interests.

2. TRACIS management shall fully investigate each request for the use of system data and shall deny the request if its validity cannot be verified.

3. Identification of subjects shall be divorced from the data furnished.

4. Codes or keys identifying subjects with data shall be given special protection.

5. Security and data protection requirements shall be included in any research contract or agreement.

6. Nondisclosure forms shall be required and system management shall retain rights to monitor and, if necessary, terminate the release of data from TRACIS files.

Data Dissemination

1. Data released by TRACIS shall be marked and readily identifiable as such.

2. Heads of agencies receiving TRACIS information shall be required to sign a nondisclosure agreement when appropriate.

3. Users shall be informed that reliance upon unverified data is hazardous and that positive verification of identify should be obtained as quickly as possible.

4. Users shall be informed that careless use of data represents unprofessional conduct, subject to disciplinary action.

Computer Screening

The central computer through which on-line queries shall pass will be programmed to screen all queries and to deny access where queries are inconsistent with system rules or to unauthorized persons.

Rights of Challenge and Redress

The citizen's right to access and challenge the contents of records pertaining to him are acknowledged consistent with State law.

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