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FOREWORD

**PROGRESS REPORT  
PHASE I  
HUMAN FACTORS ANALYSIS  
OF SMALL CITY POLICE DEPARTMENT  
DATA REQUIREMENTS**

31 MAY 1968

PREPARED UNDER CONTRACT TO THE  
CITY OF REDONDO BEACH, CALIFORNIA  
FUNDED BY GRANT NO. 182  
OFFICE OF LAW ENFORCEMENT  
ASSISTANCE U. S. DEPARTMENT OF JUSTICE

This report summarizes the activities and accomplishments of Phase I of the Redondo Beach Human Factors Analysis of Small-City Police Department Data Requirements Project during the period from June 1, 1967 through May 31, 1968.

The purpose of the project is to significantly advance the data and information system practices of the Police Departments of moderate size who do not have access to computers. Therefore, the system design has been predicated on the need to establish a concept which is compatible with processing methods which may be manual, mechanical, or in the future adaptable to highspeed electronic computers.

The project activity was carried out by the North American Rockwell Corporation, Autonetics Division, under contract to the City of Redondo Beach, California. Funding assistance was provided by the Office of Law Enforcement Assistance, U. S. Department of Justice through Grant Number 182.

During this first year of the project, much appreciated cooperation and assistance has been provided to the contractor by members of the Redondo Beach Police Department, City Government, and by the Project Consultants: Dr. C. Robert Guthrie and Dr. Paul M. Whisenand, Department of Criminology, California State College at Long Beach.

Additional invaluable assistance was provided by law enforcement officials and officers throughout the country. Their enthusiastic cooperation is indicative of their recognition of the fundamental need for this project.

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**Autonetics Division of North American Rockwell Corporation**

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PHASE I - PROGRESS AND ACCOMPLISHMENT

The progress and accomplishments of the first year of the project may best be described in the order in which they were achieved. Phase I was designed to include three basic tasks. These are:

- Task 1 - Ascertain the State-of-the-Art of Selected Police Department Data Systems and Select Candidate Evaluation Sites.
- Task 2 - Analyze the Redondo Beach Police Department Data Requirements and Existing Data System.
- Task 3 - Design and Develop an Advanced Data System for the Redondo Beach Police Department.

The activities and accomplishments related to each of these tasks are summarized below.

Task 1 Ascertain The State-of-the-Art of Selected Police Department Data Systems and Select Candidate Evaluation Sites

The requirement for determining current records and data system practices among small to moderate sized police agencies was accomplished through a survey which was national in scope. A representative sample of 46 cities employing between 40 and 100 people in their police departments was selected. These cities represented three basic geographical groups; i.e., those cities immediately adjacent to Redondo Beach, California, other cities in Southern California, and cities outside of California. The latter group of cities was located in areas defined as the Northeast, Southeast, Central and Western United States. A further criteria for the selection of these Police Departments was a requirement that they not be using computers to support their records and information system. The contractor visited these 46 cities for the purpose of reviewing their data system practices during the months of September and October of 1967.

The purpose of this review was two-fold. First, the contractor wished to identify any innovative practices which would be of benefit to Redondo Beach. Second, the project mission includes the development of a system concept which will benefit all police agencies of moderate size. To accomplish this second task it was necessary to define the data system problems of these agencies in detail.

The results of this survey of current police data system practices have been documented in a report titled Police Information Management Systems in Moderate Sized Cities. A summary of the major findings of the survey would include:

1. Organization and Operations

The police departments surveyed are very similar in organization and operational methods. The information management systems used to support these operations provide minimum support to internal departmental needs. It is apparent that this lack of management information seriously constrains the development, implementation, and evaluation of significant operational improvements.

A typical departmental organization consists of Uniform, Investigative, and Services Divisions reporting to a Chief. Horizontal flow of information between these Divisions is limited. This is particularly true between the Uniform and Investigative Divisions.

2. Operational Information

The typical police information system is designed to accomplish two major things. The first is to retrieve documents or information related to a single specific incident, person, or property item. This response is usually related to an inquiry from an Officer, another law enforcement or criminal justice agency, a citizen, or an insurance company. The second primary function of the system is to produce summary statistical reports prescribed in format by federal and state agencies. These summary reports reflect gross crime data on a monthly and annual basis and are of little value in local law enforcement problem analysis.

Internally oriented information takes the form of stacks of reports provided to the Chief and his Division Commanders on a daily basis. A slightly more summarized version of these reports is the Daily Log. Use of this raw data forces the recipient to establish his own interpretations or relationships of the information on a day to day basis. Analytical applications are based almost solely on memory.

The Field Officer gets little information that he does not specifically request. Typically the Daily Log is given a cursory review at roll call. Sometimes, copies of all reports are displayed in the squad room for anyone having time or desire to read them.

The Field Officer rarely, if ever, receives any information on the outcome of a case in which he has participated. If the outcome of a case was good, he might have derived some satisfaction from this knowledge. More important, if the outcome of the case had been bad, he might have benefited from knowledge which could make his future performance better. Because of this problem the Field Officer often views himself as a report collector for the Detectives. This contributes to low quality initial field reports resulting from poor preliminary investigation.

3. Management Reports

The average Chief or Division Commander is served inadequately by the data system which is common to most departments. As stated, they receive little information useful in the definition of local problems and the planning of preventive programs. They are rarely able to determine what the total departmental activity is either by the type of activity or amount of time involved. Formal field reports relating to crimes or incidents, which are essentially all they get in the way of information, generally reflect approximately 20% of the total departmental activity. Thus, the Chief and his division commanders are in no position to set complete performance standards, measure performance, or provide more effective direction to Field Officers and Investigators. Without a total picture of his operation, the Chief is unable to allocate current resources in the most effective manner or prepare and justify a meaningful budget to support the often critically needed additional personnel and equipment.

4. Policies and Procedures

Written policies and procedures are rarely made available to members of the police department in a systematic manner. The Chief generally

issues orders through interdepartmental memorandums. These usually are written to deal with a particular problem of the moment and are rarely updated or cancelled to reflect changing conditions.

5. Performance Standards

If most members of the department lack operational performance standards, it is largely because police management lacks the data upon which to base rational standards. Few departments have any accurate definition of what all the elements are that make up the workload of a Patrolman or Detective, much less the amount of time devoted to each basic task. No data reflecting the quality of performance was observed.

6. Training

There is considerable variation in the scope, level, and quality of training programs among police departments having very similar needs. The use of outside agencies for training is appropriate insofar as general coverage of basic training is concerned, but it does not always satisfy specific training needs of the local department. There are good records covering attendance at training sessions, but few which define the specific training needs of individual officers or those of the department as a whole. This relates directly to a lack of definitive performance measurements.

7. Records Retention

In general, police records are never destroyed, and rarely put in truly dead storage. Confusion exists as to what must be kept from a legal standpoint. Many of the file entries are of an extremely minor nature and are rarely looked at after filing. Many other records have been retained either to satisfy insurance claim requirements or to insure the ability of the police department to prove that it has responded to minor citizen complaints of various types.

8. Records Function

The status accorded records and reporting work within police organizations is out of balance with the importance of good police information. Police

Officers feel they may suffer promotionally if they spend too much time in Records work. The job is often looked at as an assignment to be tolerated until rotation occurs. The operational efficiency of the Records systems observed often reflected this lack of interest.

9. System Improvements

There is some lack of understanding and anxiety on the part of Police Administrators regarding federal, state and regional law enforcement information systems. Some do not believe that these systems are sources of information of potential value to their departments. Others are not sure what records activity will be left for the local police department when these larger systems are fully operational. Still others feel that these non-local systems will provide all of their informational needs. This confusion results in part from the fact that, as stated earlier in this report, most local data systems now respond only to specific inquiries regarding persons, incidents, and property and collect and report summary statistics for use by some other agency. These are essentially the same tasks that can and will be performed effectively by the regional, state and national systems. There will always be a requirement to collect and produce data which provides information useful in local problem definition, planning, and management control. Where this practice does not exist today, the problem remains a major challenge.

A major conclusion drawn from the survey is that the problems reflected above are practically universal. Of the 46 cities, picked essentially at random, only one was deviating significantly from a pattern of records and information practices which was surprisingly consistent in all departments visited.

A list of potential sites for field checking the transferability of the Redondo Beach system design concept has been established from the 46 cities visited. Three cities shall be selected from this list and contact will be made to solicit their cooperation early in Phase II of the project.

Task 2 Analyze the Redondo Beach Police Department Data Requirements and Existing Data System

Contractor personnel conducted an in-depth survey of the Redondo Beach Police Department early in 1968. The purpose of this survey was to determine the specific functions, tasks, and decisions and related informational needs of all members of the department. The capability of the existing data system to support those needs was then determined. The techniques used were interview and observation of functions at all levels within the operational environment. This included on-the-scene observations of field activities and the tracing of subsequent related events such as reporting, booking, and the processing and use of associated data. The conclusions resulting from this survey were that, although the Redondo Beach data system was efficiently operated, its inherent design was no different than those observed during the nation-wide survey, and as such, was inadequate to support the departmental needs.

Closely associated with the on-site Redondo Beach survey was a study of the reporting requirements associated with other city government functions and county, state, and federal government agencies. The requirement, legal or voluntary, for this reporting was established and any potential duplications or changes in requirements were investigated.

Based on the knowledge gained during the internal and external Task 2 surveys, a definitive list of functions and related informational requirements was developed. From this listing of needs a design concept was established and documented in the form of a Design Requirements Plan. This plan served as the guidance for technical personnel who engaged in the detailed system design effort.

Task 3 Design and Develop an Advanced Data System for the Redondo Beach Police Department

One of the major criteria for the design of the Redondo Beach police information system was the development of a non-computer based system. The system concept had to be compatible with fully manual operation. Further, the design was also to be adaptable to ultimate mechanical (ADP) processing techniques and potential time shared computer applications.

The basic system concept has been developed to be compatible with this full vertical spectrum of processing capabilities. The specific adaptation of the system concept established as the Redondo Beach Police Information Management System has been designed to take advantage of Redondo Beach capabilities in the form of existing city operated punch card (EAM) equipment.

This detailed design is documented in the Model System Specification, Redondo Beach Police Information Management System. A summary of the major system design features is provided below:

1. Performance

The system has been designed to deal with the critical information needs of all levels of the Redondo Beach Police organization with specific emphasis on local requirements. The many external relationships and information exchanges in which the Redondo Beach Police Department participates have been considered in detail. A thorough study of the emerging regional, state, and national criminal information systems has been conducted. The system which has been designed for Redondo Beach is compatible with and complimentary to these larger systems. It is not duplicative.

Local police information requirements are defined as those which support the operation and management of the department through presentation of detailed information on crime and general police activity in a comparative manner which supports problem definition, analysis, and planning for crime prevention, suppression, and solution.

Uniform and investigative personnel will benefit from this system by being regularly informed of local problems and by having access to detailed data on their specific problems. Further, they will be guided by much more definitive direction, training, and performance standards.

The middle management of the department will have more effective tools for the supervision and evaluation of their personnel. They

will also be brought into the planning cycle, so that overall departmental actions will have more direct meaning to them.

Division Commanders and the Chief will be provided with the information required for problem definition, strategic and tactical planning, allocation of manpower and equipment, and preparation of budget requests which are based on fact. Further, all members of the department and City Government will be in a position to provide authoritative answers to public inquiry regarding crime, traffic, and general police activity including the question "how can we help?" The Crime Prevention Program will benefit from the ability to provide information of substance to the community at a level of detail to which they can personally relate. The police department will be able to tell individual neighborhood or special interest groups what their specific problems are, and recommend specific programs for the community action. Also, the department will be able to measure Crime Prevention Program results and inform the community of its contribution to law enforcement.

The probability of crime prediction and the more effective use of existing police resources for prevention, suppression, and apprehension will increase as the data file builds up. Patterns will emerge on a geographic and/or time related basis. Analysis of these patterns will further enhance the effectivity of the Redondo Beach Police.

## 2. Processing Methods

The amount and types of data collected, extracted, and stored in a readily retrievable manner will be significantly expanded over current system practices. This data is collected within two categories of law enforcement activity. These are Events and Miscellaneous Activities.

Events include all crime, accident, or incident related facts which, in present practice, would result in a formal report by an officer. Facts related to these events are being captured and stored on a what, who, when, where, how, and why basis. All events are initially recorded by the dispatcher--radio operator on an Event Card. The exact time of the complaint or observation, the name of the victim or person

reporting, the nature of the event, where it occurred, including exact address and reporting district (one of 70 small sub-divisions of the city), the investigating officer, and the exact times associated with receipt, response, and unit clearance will be noted on the Event Card.

Field Officers must account for all events to which they are assigned. This may be done by completing the back of the Event Card as appropriate for minor incidents, in which case, the Event Card serves as the formal report. If the event, such as a crime or accident, requires more formal documentation a report number is assigned, noted on the Event Card, and applied to the related formal field report. The Event Cards and formal field reports are reviewed by Records Bureau personnel and all of the pertinent information is extracted and entered on Fact Sheets.

A Fact Sheet is a document which was designed for use in extracting, classifying, and recording data contained in original reports in a manner suitable for keypunching. The Fact Sheet contains a series of preprinted facts identified by three digit numbers. These facts are grouped into the what, who, where, when, how, and why categories. The Records personnel will go through a report and merely check off the appropriate number on the Fact Sheet.

For example, a three-digit number, "101," checked off on a Crime Fact Sheet would identify the offense as a Class 1 Commercial Burglary. Subsequent numbers checked would identify time, place, property stolen, etc. A three-digit number can record any one of a thousand facts. The data extracted from reports includes suspect descriptions, characteristics of the event (MO), and property descriptions and values. The three digit numbers representing facts are then keypunched into unit record cards. The data is then retrievable by any one of the many defined facts punched into the cards. This processing method will make it unnecessary to change current field reporting practice or to train sworn police personnel to memorize numbers or codes.

Another significant feature of the data collection portion of the system is the multiple use of the Event Card as a data collection device, minor reporting document, and Master Name Index Card. In its use as a Master Name Index Card, the event card will be keypunched so that the file may be alphabetically sorted to insure its accuracy and machine sorting can be used for file search relating to records purging.

The second basic category of data which will be collected and stored is Miscellaneous Officer Activity. This is all activity by an officer which does not get recorded on an Event Card, and includes such actions as issuing citations, field interviews, vacation house checks, training, and court time. The miscellaneous activity shall be captured through the use of a Miscellaneous Field Activity Card which will be filled out each day by the officer. These cards will also be processed into unit record card form for ready data retrieval.

### 3. Reports and Displays

The reporting philosophy adopted is one of exception. Reports and information displays have been designed to highlight deviations from pre-established index points. When such a deviation occurs it is the signal for Redondo Beach personnel to analyze the highlighted problem to a greater degree of detail. This can be done through review of regularly produced statistical summaries, detail tabular printouts, or requests for special file search and reports.

For example, Figure A reflects the planned burglary display for one of the six existing Patrol districts. This display is a part of the monthly Offense Analysis Set. The numbers presented are for purposes of illustration and do not represent actual activity. The right side of the chart shows the number of commercial, auto, and residential burglaries by month. The left side of the chart is a cumulative plot of the same burglary data. An index (the broken line) will be established by the Chief and the Division Commanders as the number of burglaries which might be expected in a given month and year.

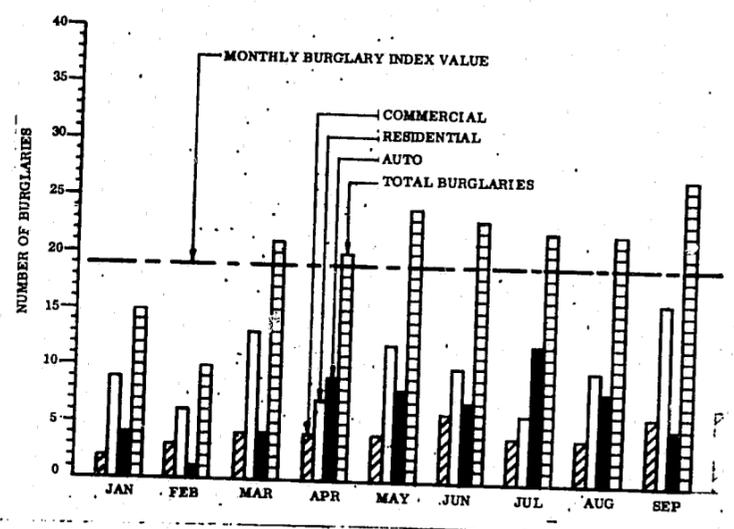
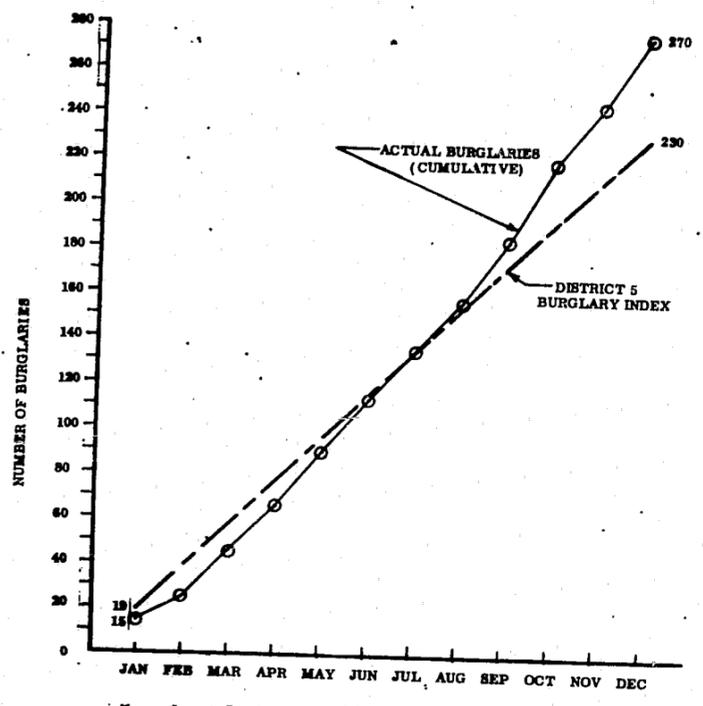


FIGURE A.

This index will reflect expected reductions in crime. Plotting of history will not provide the incentive required for improved performance.

As can be seen from the cumulative plot of actual burglaries, the index was exceeded during the month of July. This would not really be the case. Look again at the monthly bar charts.

Notice the horizontal broken line. This line reflects the same index as plotted on the cumulative chart. It has merely been expressed as a monthly target. Note that the burglary problem actually became acute in the month of March.

Having once been signaled by the system that there is an exception or problem, the selected problems may be analyzed in a great deal more depth.

The next step would be a review of the statistical summary report from which the graphs were prepared. This Crime Profile Report will identify the location, day of the week, and the time of day during which these crimes were committed. A special detailed tabular report on burglary in district 5 may also be run. This report would give the location within any one of the 10 reporting sub-districts of Patrol district 5, the day, date, time, property involved, characteristics of the methods used, and any available physical characteristics of suspects. Analysis of this data will allow the planning of appropriate preventive action. This kind of exception reporting and the capability for problem analysis in depth can be made available on all offenses.

The above example is descriptive of the type of reporting techniques and data retrieval capability designed into the system. Similar reporting methods shall be used for presenting data on all crimes, accidents, incidents, and miscellaneous departmental activity. A listing of planned reports and displays is provided in table 1.

PLANNED REPORTS AND DISPLAYS

Report or Display	Frequency
Crime Profile	Monthly
Individual Officer Activity Profile	Monthly
Departmental Activity Profile	Monthly
Watch Performance Index	Monthly
Traffic Analysis Report	Monthly
Major Offense Analysis Set	Monthly
Case Characteristic Report	Monthly
Field Interview Report	Monthly
Case Result Report	Monthly
Warrant Report	Quarterly
Watch Report	Daily
Patrol & Watch Commander's Plans	Quarterly
Investigative Commander's Plans	Quarterly
Federal Statistical Report	Monthly
State Statistical Report	Monthly

TABLE 1

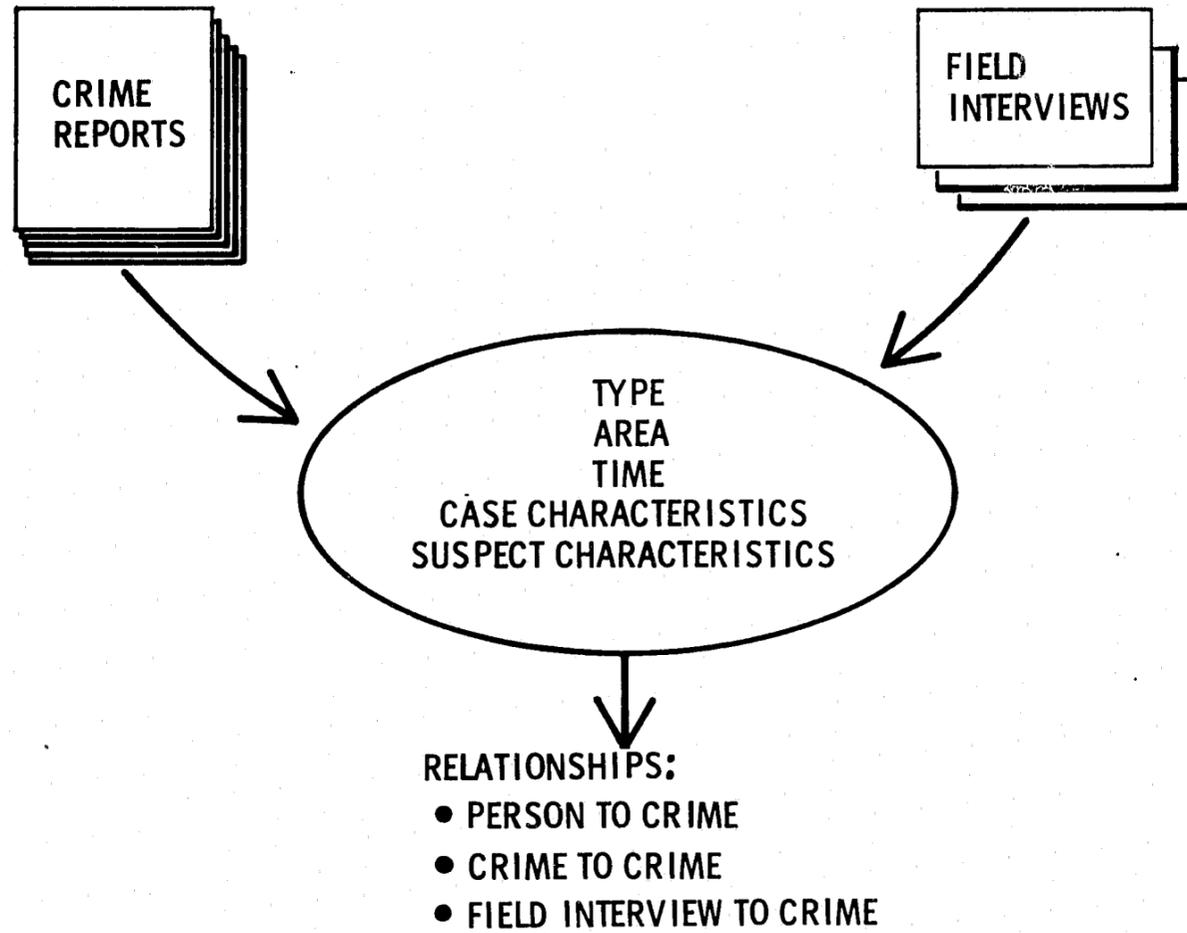
This listing is particularly significant when compared with the summary reports produced by the current system. These are:

1. Monthly and Annual Federal DOJ Crime Statistics
2. Monthly and Annual State Crime Statistics
3. Monthly and Annual Local Statistical Report (similar to 1 and 2 above)
4. Daily Log

An important feature of the system design is the ability to relate sets of facts associated with crimes and persons. Figure B reflects this concept. The Case Characteristic Report and the Field Interview Report provide a listing of offenses, locations, times, methods, and personal descriptions associated either with reported crimes or field interviews. In addition, special file searches for the purpose of finding specific relationships are possible.

Case investigative history and results shall be tracked by type of crime. Regular reports of this tracking will be available for review by both Investigative and Uniform personnel. This type of information will be valuable in defining requirements and possible improvements in both preliminary and follow-up investigation practices.

A feature to stimulate the use of the information produced by the system has been established. This is a requirement for Watch Commanders and Division Commanders to prepare a Quarterly Plan. This plan shall include a definition of major problems and training requirements accompanied by the planned programs for dealing with them. These plans will be reviewed by the Chief and updated each quarter.



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FIGURE B.

PHASE II PLAN

The activity planned for Phase II of the project includes the implementation, test, and final documentation of the Redondo Beach system. Also included is the testing of the system concept in three other cities. The detailed plan for these activities is documented in the Implementation and Test Plan, Redondo Beach Police Information Management System.

Briefly, the approach used shall consist of a three step test and implementation. An increasing expansion of the scope of the testing and a continuing refinement of the design will be achieved so that the third and final test will result in a fully operational system requiring a minimum of adjustment.

The first test will be an operational simulation of the system conducted by contractor personnel. The second trial shall include the training of Redondo Beach personnel to operate the system on a one-watch basis. The final check will be a full system test on all watches. This final test will result in a fully operational system and is scheduled to commence on January 1, 1969.

The test of the transferability of the system concept to other Police Departments of similar size shall be conducted during the period between January and March of 1969. Three cities will be visited, one in Southern California and two in other states, for a review of the adaptability of the system to their specific needs. Each city will be provided with a report which outlines the system concept and how it might be modified and adapted for use by their department.

Based on the experience gained from this three city check, the Transfer Handbook shall be prepared. This Transfer Handbook will define the system concepts and outline the steps necessary for detailed needs analysis, system adaptation, and implementation by any police agency.

Formal evaluation of the Redondo Beach Police Information Management System is essentially the responsibility of the Project Consultants, Dr. Guthrie and Dr. Whisenand. However, as the contractor, North American Rockwell Corporation will also evaluate the success of the system to establish a measurement

of its own capability. Therefore, the Preliminary Evaluation Plan, Redondo Beach Police Information Management System has been developed. It is proposed that this plan be reviewed and mutually refined by Redondo Beach personnel, the consultants, and contractor over the next twelve months.

The foregoing description of activities and accomplishments of the Redondo Beach "Human Factors Analysis of Small City Police Data Requirements" was intended to provide a summary description of the status of the project. Detailed documentation of the items covered is contained in the publications noted in appropriate sections of this report. If review of these documents does not provide the necessary description of any project activity, the contractor will be pleased to further discuss the questions in detail.

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**PHASE II PROGRESS**

**PROGRESS REPORT  
PHASE II  
HUMAN FACTORS ANALYSIS  
OF SMALL CITY POLICE DEPARTMENT  
DATA REQUIREMENTS**

MAY 31, 1969

Prepared Under Contract to the  
City of Redondo Beach, California  
Funded by Grant No. 182  
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U. S. Department of Justice

Approved By:



S. L. Hasin

Vice President

Information Systems Division



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## FOREWORD

This report summarizes the activities and accomplishments of Phase II of the Redondo Beach Human Factors Analysis of Small City Police Department Data Requirements project during the period from June 1, 1968 through May 31, 1969.

The purpose of the project is to significantly advance the data and information system practices of Police Departments of moderate size that do not have access to computers. Therefore, the system design has been predicated on the need to establish a concept which is compatible with processing methods which may be manual, mechanical, or adaptable to high speed electronic computers.

The project activity was carried out by the North American Rockwell Corporation, Autonetics Division, under contract to the City of Redondo Beach, California. Funding assistance was provided by the Law Enforcement Assistance Administration, U. S. Department of Justice, through Grant No. 182.

During this second year of the project much appreciated cooperation and assistance has been provided to the contractor by members of the Redondo Beach Police Department and City Government, and by the Police Departments of Covina, California, Lancaster, Pennsylvania, and Edina, Minnesota. The Police Departments in these last three cities were used as test laboratories in which to verify the transferability of the system design to that of other departments in widely separated geographical locations. The enthusiastic cooperation provided by those named and by other law enforcement officials and officers throughout the country is indicative of their recognition of the fundamental need for this project.

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## PHASE II - PROGRESS AND ACCOMPLISHMENT

The progress and accomplishments of the second year of the project are documented herein. While Phase I included tasks associated with a state-of-the-art survey, analysis of user requirements, and the design of an advanced data system, Phase II was concerned with the two basic tasks shown below.

Task 4 - Evaluate Effectiveness of the Improved Data System

Task 5 - Evaluate Applicability of the Improved Data System to Other Small City Police Departments

The activities and accomplishments related to each of these tasks are summarized below.

Task 4 Evaluate Effectiveness of the Improved Data System

Design of the advanced data system was conducted as Task 3 of this project. This design was submitted on May 31, 1968 and was documented in the Model System Specification, Redondo Beach Police Information Management System. Proving this design, including test, evaluation, and refinement of forms and procedures was accomplished during Task 4.

As stated in the Foreword of the Model System Specification, "The very nature of a development program such as this project dictates constant improvement through testing in the operational environment". The testing, evaluation, and implementation activity conducted during Task 4 did result in changes. These changes were necessitated because of the following reasons:

- a. Testing, evaluation, and subsequent design modifications were required to make a feature, form, or procedure more efficient or workable, and
- b. Redondo Beach elected not to incorporate certain model system features, primarily those designed for the Investigative Division.

To provide Redondo Beach with a final document which represents the system as implemented, the System Specification, Redondo Beach Police Information Management System was written.

## Major Accomplishments of Task 4

A tabulation of the major accomplishments of Task 4 is provided below:

1. Approval of Design Approach
2. Contract for Independent Evaluation
3. Appoint Liaison Officer
4. First Operational Simulation
5. Ordering and Installing Equipment
6. First Training Sessions - Day Watch Personnel
7. Second Operational Simulation
8. Order System Forms
9. Second Training Sessions - All Personnel
10. Third Operational Simulation
11. Dispatcher Area Redesign
12. Full System Implementation
13. System Evaluation Summary

These accomplishments are described in detail below and appear approximately in chronological order.

### 1. Approval of Design Approach

The design outlined in the Model System Specification and the approach detailed in the Implementation and Test Plan were reviewed in a meeting attended by Redondo Beach and contractor personnel. An agreement was reached on the approach to be followed during the remainder of the contract. Related responsibility for actions was agreed upon. Redondo Beach concurred that:

- a. They would assign a Liaison Officer to work with the contractor and coordinate all program activities where Redondo Beach is affected.
- b. They would employ a full-time Information Analyst who would be assigned to operate and maintain the system.
- c. The unit record tabulating equipment under the direction of the City Clerk was available on a part-time basis for use on the Police Information Management System project.
- d. Related equipment deemed to be necessary would be procured by Redondo Beach.
- e. The Implementation and Test Plan was adopted as written.

2. Contract for Independent Evaluation

Redondo Beach let a contract with consultants from the Division of Criminology of California State College at Long Beach to provide an independent evaluation of the project. Using the Preliminary Evaluation Plan written by the Contractor as a starting point, the consultants were to conduct the evaluation and refine the evaluation plan during its application.

3. Appoint Liaison Officer

In June of 1968, the Services Division Commander of the Redondo Beach Police Department was appointed as Liaison Officer to work with the Contractor in all subsequent phases of the program. The Liaison Officer participated in all redesign and test activity and took the lead in all actions which were designated as Redondo Beach's responsibility. The purpose of involving the Liaison Officer in the Contractor's activity at this early stage was to leave Redondo Beach with a person who is completely indoctrinated in the system so that he may direct the operation and maintenance of the system following implementation.

4. First Operational Simulation

Using the forms developed in the design phase of the program, contractor personnel simulated system procedures and evaluated and tested the documents necessary for collecting and processing the selected data elements. This simulation required access to operational situations through radio monitors and on-site observations of field and station activities. The test data so collected was analyzed and evaluated for completeness, thoroughness, and applicability to the requirements of the system. The forms were modified and another brief operational simulation was conducted. After subsequent review and analysis, the forms were pronounced fit for a trial run and larger quantities of test forms were ordered for use during training and the subsequent day watch system test. The forms were considered to be test forms so minimum quantities using inexpensive reproduction methods were specified.

5. Ordering and Installing Equipment

During this time Redondo Beach ordered miscellaneous equipment that would be required for subsequent operation of the system. In addition, they installed a time clock in the Dispatch office to be used with the Event Cards and arranged for the installation of a Key punch machine in the Police Department Records Bureau.

6. First Training Sessions - Day Watch Personnel

The Contractor, with the concurrence of the Redondo Beach Liaison Officer, prepared and submitted a detailed training plan to support the day watch system test which was scheduled to be conducted during the month of September, 1968. The training plan detailed the involvement of all personnel who would be trained. It included Event Card and Officer Activity Report training for all personnel who would function as Dispatchers during September. All Patrol Officers were scheduled for a brief orientation in Event Cards and a more detailed orientation in the use of the Officer's Miscellaneous Activity Report. All Watch Commanders were to be trained in the use and procedures of the Event Cards, the Officer's Activity Report, and the Daily Watch Report, which would be prepared by the Watch Commander. Records Clerks would be given Event Card and Fact Sheet training and would be taught how to operate a keypunch machine.

The Contractor and the Liaison Officer assigned responsibility for the preparation of training aids to be used in this training. The Liaison Officer prepared two verbal scripts of actual complaint calls and situations to be used in the Dispatcher training. The first script consisted of twenty complete cases based on requests for assistance from citizens, on silent alarms received on the alarm board, and from Officer's radioing in to the Dispatcher to advise of on-view situations. The first script was read aloud slowly so that persons undergoing Event Card training could use the described situations for completing Event Cards. Each situation was completed before proceeding to the next.

The second script was taped on magnetic tape and played to the Dispatchers by tape recorder. It simulated realism through the use of ringing telephones, walkie-talkies to simulate radio calls from the patrol car to the Dispatcher, and a buzzer to signify the signalling of a silent alarm on the alarm board. The twenty calls included in the taped script were intermingled with the second or third contact on previous calls. This technique made the taped situations more true to life. It also introduced the use of the Unit Status Rack for filing the Event Cards in their proper locations for quick and easy retrieval for subsequent time-stamping or posting of further information.

While the Liaison Officer prepared the scripts, the Contractor prepared lesson plans, training aids, and procedures for use in the various classes.

Initial training was conducted in August. First an orientation session was held for all trainees. Subsequently, four two-hour sessions were devoted to Event Card Training. An additional session involved the Dispatchers in further practice in the manipulation of the Event Cards and the use of the Unit Status Rack. Two two-hour sessions were devoted to training the concerned Officers and Watch Commanders in the use of the Officer's Miscellaneous Activity Report. The Records Clerks were trained in the use of the Fact Sheets during four two-hour sessions. In addition, two two-hour sessions were devoted to training Records Clerks to operate the keypunch machine. All classes involving Patrol Officers were conducted during their off-duty hours. Many classes (all of which were instructed by Contractor personnel) were conducted twice each day to allow maximum flexibility in conducting the department's normal business while also accommodating the training sessions.

7. Second Operational Simulation

A four-week system test commenced on Wednesday, September 4, and continued through Tuesday, October 1, 1968. This test was conducted

only on the day watch and involved all day watch personnel assigned during this time period. Certain of the previous system procedures had to be continued during this time while the validity of the designed system was tested. These duplications of effort resulted in the Dispatcher not only preparing the Event Cards but also maintaining the Daily Log. Records Clerks not only prepared Fact Sheets for capturing the pertinent data, but also had to post the Crime, Arrest, and Accident ledgers. The day watch Patrol Officers, however, used only the newly designed Officer's Miscellaneous Activity Report. At the end of the test, the Contractor tabulated the data collected using this Activity Report and transformed it to correspond with the count of responses, citations, etc., employed on the previous system to maintain a consistent set of records. After completing this test, the Contractor wired plug boards for use with the electro-mechanical accounting machines in the Tab Room of the City Hall to use in preparing the reports from the data keypunched into the cards. Data from the September test was then analyzed and used as a basis for improving and changing the forms as necessary.

8. Order System Forms

The final forms to be used in the implemented system were designed and ordered in quantity. These forms included Event Cards, Officer's Miscellaneous Activity Report forms, Daily Watch Report forms, Fact Sheets, Booking and Arrest Report forms, and quantities of two separate tabular printout forms to be used for Events and Officer Activity. A third tabular printout form was subsequently ordered to be used for Arrest information.

9. Second Training Sessions - All Personnel

A final training schedule was established for training all personnel prior to complete implementation of the system. Changes from the previous training schedule were:

- a. Use of the Unit Status Rack was included in the Event Card sessions rather than in an additional class.

- b. The Officer Activity Report training was condensed to one two-and-one-half hour session rather than two two-hour sessions. This was made feasible by issuing a complete written procedure to each Officer for him to study prior to class.
- c. A general system orientation class was planned and scheduled for all departmental personnel, including the Chief and his Secretary, who were not being given similar or overlapping information in another class. In this manner every person in the Department was oriented in one or more classes.

Since the Information Analyst had not yet been hired, Contractor personnel and the Liaison Officer instructed all classes. Each class was scheduled two or three times on the day of instruction so that personnel could attend during off-duty hours and not disrupt normal operations. Twenty-three separate training classes were given.

10. Third Operational Simulation

To allow all personnel to practice the procedures drilled into them during the training sessions, a special four-day system test was added to the schedule to be conducted on all watches during the latter part of December. While the data from these four days was not extensively analyzed, the information placed on the forms by departmental personnel was analyzed in great detail to verify that the personnel were complying with procedures and preparing forms correctly. This four-day test was subsequently proven to have contributed greatly to the smooth transition when the system was made fully operational.

11. Dispatcher Area Redesign

During the time period when the training plans were formalized, the dispatcher area was redesigned and subsequently changed. The design was accomplished with the aid of a knowledgeable Patrolman who was very familiar with the inefficiencies of the existing system. All Dispatchers were also polled for their suggestions.

The purpose was to make the area more functional and the persons working there more efficient. A major constraint on the design was that modification expenditures had to be kept to a minimum since this entire function will be moved to an underground location within two years.

Major features involved were:

- a. The design and fabrication of a Unit Status Rack for housing Event Cards.
- b. The installation of a second working position in the office to be used as a recording (or complaint) desk during peak hours.
- c. The centralization of widely scattered telephones to make them easily accessible to the Dispatcher's normal working position. A parallel set of the two telephones on which incoming calls are received was added to the recorder desk.
- d. The installation of a time clock in the recorder desk.
- e. The installation of a pass-through between the Records Bureau and the Dispatch office so that Booking Sheets, the assignment board for report numbers, and the Jail Register are accessible to both groups.
- f. The installation of a large city map above the dispatch desk so the Dispatcher could refer to areas or streets in the city without having to grope for a small map stored in a bottom drawer. The map was provided with back lighting to make it more readable.
- g. The relocation of four radio speakers so they can be more easily monitored by the Dispatcher and Recorder.
- h. The relocation of radio controls and microphones to be more accessible to the Dispatcher.
- i. The installation of drawer files for business cards which are easily accessible to the Dispatcher and Recorder.
- j. The installation of a buffer wall between the Dispatcher and the City Switchboard Operator to allow both of them more privacy, and to muffle the noise generated by one and reflected to the other.

The net result of all the above changes is that the Dispatcher, instead of "spinning like a top" in trying to reach all controls,

telephones, and the like, may now sit facing one direction and efficiently perform her duties.

12. Full System Implementation

The system was implemented on schedule at midnight on the first watch of January 1, 1969. While the normal range of entries on the Dispatcher's Log during the month of December was from seven to thirteen calls, the Dispatcher handled fifty-nine calls which required Event Cards to be prepared on the first eight hours of this New Year's Day. In addition, there were an extraordinary number of information type calls and other calls which did not qualify as Events. Although the Dispatcher was extremely busy most of the night, she was so well prepared and familiar with the new concepts and operations involved that she was able to efficiently perform under the mandates of the new system. Her problems on that night were more concerned with the availability of personnel, ambulances, etc., than with the techniques involved in a changed system.

A summary of the principal features of the new System is provided below.

a. Event Card. Rather than making a note of incoming complaints which require Police action or knowledge, as was previously done on a scratch pad, this information is recorded on a structured machine-processable card. Space is provided on the card for all pertinent information concerning a call including how received, who reported including address and phone number, location of event, nature of event, time call received, time unit dispatched, time unit arrived, time unit cleared scene, time tow truck or ambulance or fire department or other party notified, what unit and back-up unit(s) were dispatched, what area and district of city in which the event occurred, whether the call is of an urgent or emergency nature as opposed to routine, what Recorder and Dispatcher were involved with the call, names of other persons or suspects involved,

vehicle descriptions, prisoner escort mileage and times, if a records check was made on a subject or vehicle, report number applicable to the event if one was assigned, arrestee's prisoner number, event disposition, space for additional Dispatcher's or Officer's comments, and Watch Commander's approval block.

In addition the Records Bureau will subsequently add the principal party's name and his relationship to the event (victim, suspect, informant, driver, prisoner, or other), and prisoner's date and place of birth at the top of the card. After processing, the Event Card is placed in the Records Bureau files as the Master Name Index Card. This eliminates the previous requirement of typing a 3x5 index card for the master file.

Because of the reporting features of the Event Card and the introduction of the Daily Watch Report into the system, the requirement for the Dispatcher to type up a Daily Activity Log has been eliminated.

Since specific information is always recorded on particular sections of the card and since these sections may be coded, information may be quickly correlated by either manual or machine processing methods. Prior to the advent of the Event Card, any such correlations would require tedious manual searches through masses of formal reports or Daily Activity Logs and would be biased by the lack of consistency inherent in these fatiguing searches.

In summary, by merely "filling in the blanks" on the structured Event Card one is more assured of capturing the pertinent and required information concerning a call than in the previous manner of "scratching notes and remembering". The Event Card also serves as an informal report for minor incidents where a formal report is not required. It further

serves as the Master Name Index Card, thus eliminating the preparation of a separate card.

b. Unit Status Rack. Under the previous system, the notes made concerning calls or complaints were accounted for by most Dispatchers by placing them in one of two piles--pending, or completed. The pending notes were periodically shuffled for review to determine if there was an Officer available to handle the call. When a call was completed, the note was transferred to the completed pile. This organizing of calls was not a planned and well-thought-out process on the part of the Dispatcher, but it served to separate the calls to be handled from the ones completed. A major system improvement would have been to pound six nails into the wall and append each note on the nail corresponding to the applicable patrol area.

The Unit Status Rack was designed to organize the Dispatcher's job. Rather than having to remember everything and wonder what the outcome had been on a call where the note was incomplete, by proper placement of the Event Cards the Dispatcher can refer to the Unit Status Rack and have full information concerning all of the following:

- (1) Calls that are waiting to be dispatched.
- (2) Calls that have been dispatched.
- (3) Whether the area unit is enroute to, or at, the scene.
- (4) Calls that have been completed.
- (5) The number of calls that have been completed during the shift by any area unit.
- (6) Formal report numbers that have been assigned to each area unit.
- (7) Which units are busy on events.
- (8) Which units are clear and available for dispatch.
- (9) Which units are engaged in any of the following activities.
  - (a) Lunch Break
  - (b) Traffic Stop

- (c) Back-up another unit
- (d) Station duty
- (e) Special assignment

- (10) Which Event Cards have been reviewed and approved by the Watch Commander.
- (11) Any stolen or recovered vehicles in the surrounding cities which were reported to the Dispatcher during the shift.
- (12) Which calls not requiring immediate dispatch, such as for Patrol Requests, that should be brought to the Watch Commander's attention for inclusion in his Daily Watch Report.

c. Officer's Miscellaneous Activity Report. The previous Activity Report had a one-line narrative entry in chronological order for each Police activity whether dispatched or discovered by the Officer on-view. For personnel evaluation, the Watch Commander made a total count of citations, back-ups, reports, arrests, field interviews, and responses.

The revised Activity Report is used only for that Officer activity which is not recorded on an Event Card. The form is structured in the fourteen categories in which the Officers spend the major part of their activity time with an additional category titled "Other". They record only beginning, ending, and elapsed times for each entry. No narrative is required unless the Officer chooses to make a more extensive note on the back of the form which is structured for that purpose. By either manual or automatic means, Officer activity can be compared against departmental or watch averages to more fairly evaluate performance.

d. Daily Watch Report. In the previous system, the Dispatcher typed a Daily Activity Log from the notes maintained concerning each call. No provisions were made for approving this Log--it was just issued when completed. The Watch Sergeant would skim this Log for significant entries to read to his personnel during briefing. The Watch Commander or Watch Sergeant would approve reports from his own or the previous

watch depending upon when they were turned in. Also, each day the Watch Commander prepared a tabulation of totals taken from the previous day's Officer Activity sheets.

The new system design stresses that the Watch Commander be more deeply involved in the entire management of his watch. Accordingly, he now approves all Event Cards, all Officer's Activity Reports, and all formal reports prepared by Patrol Officers assigned to his watch. In addition, rather than having the Dispatcher prepare a Daily Log which lists all things, the Watch Commander prepares a Daily Watch Report which emphasizes significant and meaningful information only.

The Daily Watch Report has three primary purposes.

- (1) It is the Watch Commander's report to his management and others concerned of the significant happenings that occurred during his watch.
- (2) It is a historical documentation of those significant happenings.
- (3) It is used as an aid for briefing oncoming personnel on subsequent watches.

e. Fact Sheets. Fact Sheets are devices used for the purpose of extracting data from the various Event Cards, reports, citations, booking sheets, etc. The Fact Sheet approach arranges the data being collected into a consistent set of definitions which makes subsequent comparative analysis more valid. Each type of Fact Sheet is color-coded and is used for the following purposes.

- (1) White. For Part I Offenses.
- (2) Yellow. For Part II Offenses, Traffic Accidents, and Other Reported Events (which are not offenses).
- (3) Pink. For All Persons Arrested, Sex and Narcotics Registrants, Field Interviews, Missing Persons, and Suspects.
- (4) Green. Faceside - for recording all detailed information on Reported Traffic Accidents (investigated or not) for monthly reporting to the National Safety Council.

Backside - for recording all detailed information on Traffic Citations written.

f. Management Reporting. The system generates the monthly statistical report information for submission to the State and the FBI. Beyond this, the reporting philosophy is that of exception. Wherever possible, management information will be presented in display or graphic form. Certain displays have been designed to include Crime Control Index points or lines. Any deviations which exceed these Crime Control Index points will serve as a signal that the identified problem should be analyzed to a more detailed level.

g. Management Planning. Middle management, consisting of Watch Commanders, the Patrol Division Commander, and the Investigative Commander, is being brought more into the planning cycle by means of a Quarterly Plan which they prepare and submit to the Chief for approval. The plan will include, as a minimum:

- (1) Summary of Major Crime Problems
- (2) Summary of Plan for Solving Problems, to include:
  - (a) Allocation of Assigned Manpower and Other Resources
  - (b) Plan for Patrol and Investigative Activity
- (3) Requirements for Other Division Support
- (4) Requirements for Overlapping Watch Participation
- (5) Summary of Administrative Problems and Suggested Solutions
- (6) Detailed Quarterly Training Plan

h. Squad Room Displays. Displays of crime, traffic, and general activity will be posted in the Squad Room. This will serve to create more informed Patrolmen who in turn will be able to do a better job.

i. Selective Case Assignment, Criminal Case Results, and Investigative Activity. A method of selective case assignment to Detectives was designed. Cases would be reviewed for active

assignment based on the seriousness of the individual crime or the type of crime, the probability of solution, and the availability of investigators. The cases not assigned would be reviewed and filed by type of crime in a suspense file. This suspense file would be supported by a planned Case Characteristic Report which describes the facts associated with each case.

Criminal cases would be tracked to indicate the amount of investigative time and the case result. This data could be analyzed to determine training requirements related to investigation and evidence practices and training programs modified accordingly. A monthly report would be prepared by the Court Officer which would provide a status of each outstanding case that has been scheduled for court or that has completed court action.

An Active Case Record form was designed to control actively worked cases. The assigned Detective would note follow-up actions and the related time spent on each case. This record would be used to prepare a monthly Active Case Summary Report whose purpose would be to summarize current activity on unsolved cases and assist in reaching decisions regarding case closure.

Since Redondo Beach has chosen not to implement these Investigative features at the present time, they have not been proven by test and use.

#### Information System Capabilities

The information system generates the data required each month for statistical reporting purposes. Beyond this, the reporting philosophy adopted is that of exception.

The "Exception-Principle System" reports on significant happenings or on actual results that differ from a normal range of planned results. Using this principle, the Daily Watch Report was designed to report on "significant" crimes or incidents. Also, as a result of this outlook, a Crime Control Index (or "alerting") feature was employed for the crimes of burglary, robbery, and crimes against vehicles.

These three crimes, as well as the others listed subsequently in this section, are reported to management each month in the form of displays. These curves, bar charts, graphs, etc., pictorially represent information useful in determining exactly:

What crimes were committed;

When they occurred, by month, day of week, and watch;

Where they occurred - in what Patrol Area; and

How many of each crime occurred in each location by month, day of week, and watch.

The pre-established Crime Control Index is drawn right on the applicable displays so that realizations may be compared with prior expectations. Whenever any Index point is exceeded, management is "signalled" that the identified problem should be analyzed to a more detailed level.

If, for example, the display for City Burglaries reveals that the Burglary Control Index level was substantially exceeded in the city during the month of May, management should investigate the problem further. Since they also will have Burglary displays for each month at the Patrol Area level, they should first examine these. Each Burglary display depicts residential burglaries, burglaries of other structures, and total burglaries on a bar chart. In addition, total burglaries are shown on a monthly cumulative graph.

In this hypothetical example, suppose that the Patrol Area displays revealed that residential burglaries in both Patrol Areas 4 and 5 exceeded their individual Control Indexes and were the major contributors to the excessive burglary condition in May. The information system can then, by special request, provide the manager with the following additional information concerning these residential burglaries:

1. Where. The city consists of six Patrol Areas but these are further divided into smaller segments consisting of a few square blocks each. Data is recorded at the detail level of each of these seventy-one "Reporting Districts". The total burglaries can be isolated to which Reporting Districts are involved.
2. When. In addition to month, day of week, and watch, the hour of day can be determined and correlated to see if any patterns develop.
3. Why, or What Taken. Motive information, by means of a tabulation of what types of property were stolen and their values can be provided and correlated.

All of this what, when, where, how and why information is readily available and does not present any strain on the capabilities of the system. Because, however, the processing equipment consists of unit record machines, the speed of retrieval is not instantaneous. However, the ability to provide correlated information at this level in a matter of one or two or, at most, a few hours is not considered unreasonable when compared with the previous methods.

While it cannot be stated that information of the detail just described was impossible to get through the previous system, the reader may compare the Model System procedures with the previous system procedures outlined below.

Residential burglary totals were available by Patrol Area by month. This was recorded in a ledger maintained in the Records Bureau. Data was not routinely plotted for management, but could have been if someone

had wished to use this method of control. If, at the end of May (1968), a manager or investigator determined that burglary was at too high a level, he would have had the following available to assist him.

- What - The monthly figures available tabulated totals by type of crime and by Patrol Area. To more properly examine the data, he should plot it in a meaningful fashion.
- When - The report only indicated the month of occurrence.
- Where - The report only indicated Patrol Area.
- How - many was indicated by month by Area for each crime category.

Further detailed information would be gathered in the following fashion.

1. Determine which reports were for residential burglaries. The ledger showed burglaries in the categories of auto, residential, and commercial (compares with "other structures" now). The ledger listed the report (DR) number assigned to each report. If he were interested in totals for the months of January through May (1968), he would have found that there were 4,476 total reports written, of which 800 were for burglary and 389 of those for residential burglaries.
2. Have the Records Clerks pull each of these 389 residential burglary reports and provide a copy of each to the investigator.
3. Read each of the 389 reports and make a tabulation of the desired information.
4. To get the same detailed information that is machine processed by the Model System, the following steps are involved:
  - a. When. To get day of week, he would find the date occurred on the report and refer to a calendar. To get time of day, he would read it from each report. Watch, of course, then could be determined from having time of day.
  - b. Where. Patrol Area is supposed to be written in on each report. To determine Reporting District, he would check the address at which the crime occurred on a city map and note the applicable District.

- c. Why, or what taken. The report includes a breakdown of property taken in the categories of (1) currency, (2) furs, (3) clothing, (4) vehicles, and (5) miscellaneous. (The Model System includes all these plus a further breakdown of miscellaneous in the categories of (1) bicycles, (2) TV, cameras, stereos, (3) coin collections, and (4) all other. Since color televisions and coin collections are very popular items with burglars, to get data at this detail would require the investigator to read the narrative of each report.

The foregoing example helps to explain, in part, why Daytime Residential Burglary was up 187% and Nighttime Residential Burglary rose 64% in the United States from 1960 to 1967 as quoted in the 1967 Uniform Crime Reports for the United States issued by the FBI. Because it has typically been (and still is in the majority of moderate-sized Police Departments) entirely too difficult to secure detailed and correlated what, when, where, how, and why information on crime in an area or city, Police Department "brass" has not had this effective management tool.

Displays of the following information are routinely available to departmental management at Redondo Beach. As outlined previously, more detailed information is available as desired.

1. Monthly Event Profile. Three displays provide an analysis of the three most frequent events that occurred during the month in the classifications of (a) Part I Class of Offenses, (b) Part II Class of Offenses, (c) Traffic Accidents, (d) Other Reported Events, (e) Called For Services and Other Incidents, and (f) Total Events. Separate displays report on these six classifications of events by (a) watch, (b) day of week, and (c) patrol area.
2. Monthly Departmental Activity Profile. Three displays are prepared here also. Each shows the percentage of total patrol time that is spent on (a) events, (b) miscellaneous activities, and (c) the remainder available for preventive patrol. These percentage relationships are prepared on a city-wide basis by (a) month, (b) watch, and (c) day of week.

3. Monthly Officer Activity Profile. This display is a key tool that will be used in performance evaluation. It is a plot of the average time spent by each Officer on each of the many miscellaneous activities shown on his daily Activity Report. It is plotted on a year-to-date basis. Average times spent on these same activities, on a total departmental basis, are also plotted to allow direct comparisons.
4. Monthly Burglary Profile. Burglaries are displayed for each of the six patrol areas and for the total city in the categories of residential burglaries, burglaries of other structures, and total burglaries.
5. Monthly Robbery Profile. Robberies are displayed for each patrol area and for the entire city.
6. Monthly Crimes Against Vehicles Profile. These are separately plotted for each patrol area and the entire city in the categories of (a) auto theft, (b) auto burglaries, (c) thefts of auto parts and accessories, (d) thefts from autos, and (e) total crimes against vehicles.
7. Monthly Grand and Petty Theft Profile. Thefts are separated into the two categories of over \$200, and those of \$200 or less. They are displayed for each patrol area and for the entire city.
8. Monthly Bicycle Theft Profile. Bike thefts are displayed as a total monthly number for the entire city.
9. Monthly Traffic Profile. Traffic statistics are displayed monthly by patrol area and for the entire city in the following categories: (a) number of fatalities, (b) number of injured persons, (c) number of fatal and injury accidents, (d) number of property damage only accidents, and (e) number of traffic citations issued. Cumulative year-to-date totals are displayed in either a graph or in a table for ease in reference.
10. Monthly Exception Report. A monthly narrative report, accompanied by the foregoing data displays, is issued to the Chief. This report highlights the problem or "exception" areas revealed by

the displays. It also includes significant information on other items that may not be readily apparent from a cursory review of the displays.

The following "Analysis of Events - 1st Quarter 1969" shown on the succeeding pages is a further example of information that may be correlated and presented for review as a special report. Due to processing equipment considerations, the percentages and averages shown would have to be hand calculated. As a matter of interest, the response times shown were acquired from a computer run of data accomplished on North American Rockwell Corporation's computers. This computer run was accomplished to substantiate the Model System design requirements of "upward compatibility".

REDONDO BEACH POLICE DEPARTMENT  
INFORMATION MANAGEMENT SYSTEM

Analysis of Events  
First Quarter 1969

Highlights

1. 15% of the total time available (841,773 minutes) was expended on Events (126,617 minutes).
  - a. 37% of the total time available was expended on Officer's Miscellaneous Activities (311,870 minutes).
  - b. 48% of the total time available was "residual" and available for preventive patrol (403,286 minutes).
  - c. 22.5% of the total Officer's Miscellaneous Activity time (311,870 minutes) was expended for Court, Special Duty or Training (69,932 minutes).
2. 44.4% of all Events occurred on the 3rd watch - over twice as many as on the 1st watch (18.1%).
3. 60.1% of all Events were of the "Called For Services or Other Incident" variety (no report).
4. Response time on the 1st watch (5.4 minutes) was superior to the 2nd (9.2 minutes) and the 3rd (8.8 minutes).
5. Best response time (3.5 minutes) was on Part II Class Offense Events (Drunk, Drunk Driving, Hit & Run, Marijuana, Public Nuisance, etc.) probably due to many of them being "On View" by the Patrol Officer.
6. Second best response time (4.9 minutes) was on Traffic Accidents.
7. Worst response time (10 minutes) was on Part I Class Offenses (Robbery, Burglary, Theft, etc.) probably due to the non-urgent nature of responding to take a report long after the crime had been committed.
8. 10% of the Part I Class Offenses reported in the 1st quarter resulted in arrests.
9. 36.2% of the Part II Class Offenses reported in the 1st Quarter resulted in arrests.
10. The most predominant of all complaints received was "Disturbance" (approximately 12% of total).

11. More Events took place on Saturday than any other day of the week.  
The days of the week in order of % of calls handled are:

- a) Saturday 15.5%
- b) Monday 14.9%
- c) Wednesday 14.8% (New Year fell on a Wednesday)
- d) Friday 14.6%
- e) Sunday 14.4%
- f) Thursday 14.0%
- g) Tuesday 11.9%

12. More Events took place in Patrol Area 4 than in any other area. The Patrol Areas in order of % of calls handled are:

- a) Area 4 19.5%
- b) Area 6 18.3%
- c) Area 5 16.5%
- d) Area 2 15.8%
- e) Area 3 15.4%
- f) Area 1 11.8%
- g) Station 2.7%

NOTE: District 68 (South Bay Center) accounted for 29% of the calls handled in Patrol Area 6. It also accounted for 5.3% of all calls handled.

13. The three most pre-dominant Reporting Districts in order of number of calls handled were:

- a) District 20 5.6% of total
- b) District 68 5.3% of total
- c) District 42 4.3% of total

Table 1. Analysis of Events  
(Jan/Feb/Mar 1969)

REDONDO BEACH POLICE INFORMATION MANAGEMENT SYSTEM.....ANALYSIS OF EVENTS.....JAN/FEB/MAR (First Qtr.) 1969

ITEM	JANUARY			MOST PREDOMI- NANT COMPLAINT	FEBRUARY			MOST PREDOMI- NANT COMPLAINT	MARCH			MOST PREDOMI- NANT COMPLAINT
	NUMBER	%	AVE.		NUMBER	%	AVE.		NUMBER	%	AVE.	
CALLS HANDLED	2,873	33.8		Disturbance	2,787	32.8		Disturbance	2,835	33.4		Disturbance
RESPONSE TIME			8.0				8.4					8.6
EVENT TIME			20.4				22.1					20.9
WATCH 1	544	19.0		Disturbance	478	17.5		Alarm	509	17.9		Disturbance
RESPONSE TIME			5.9				5.5					4.9
EVENT TIME			19.8				19.8					16.7
PART I OFFENSES	63	11.6	7.1	459 Residence	70	14.6	7.1	459 Residence	56	11.0	6.8	459 Residence 484 Lck'd.Veh.
PART II OFFENSES	43	8.0	3.0	Hit and Run	47	10.2	3.4	Marijuana	45	8.8	1.6	Drunk Driving
TRAFFIC ACCIDENTS	24	4.4	4.2	Prop.Dmg.Only	10	2.0	5.1	Injury	9	1.8	2.2	Prop.Dmg.Only
OTHER RPT'D. EVENTS	61	9.0	3.3	Vehicle Rcvr'd.	45	9.4	2.9	Vehicle Rcvr'd.	69	13.6	3.1	Veh. Reposs'd.
C.F.S. & OTH. INCI.	353	67.0	6.6	Disturbance	306	63.8	5.9	Alarm	330	64.8	4.8	Disturbance
WATCH 2	1,075	37.0		Veh. Abandoned	1,036	37.5		Veh. Abandoned	1,076	37.9		Veh. Abandoned
RESPONSE TIME			9.0				9.5					9.0
EVENT TIME			20.5				22.0					21.2
PART I OFFENSES	163	15.2	12.2	484 Lck'd.Veh.	181	17.5	12.0	484 Lck'd. Veh.	192	17.8	10.6	459 Residence
PART II OFFENSES	104	9.7	3.9	Bad Checks	113	10.9	2.6	Nuisances	135	12.5	3.7	Bad Checks
TRAFFIC ACCIDENTS	37	3.0	6.1	Prop.Dmg.Only	31	3.0	5.5	Prop.Dmg.Only	45	4.2	6.4	Prop.Dmg.Only
OTHER RPT'D. EVENTS	143	13.0	4.4	Vehicle Stor'd	168	16.2	5.7	Vehicle Stor'd.	147	13.7	5.9	Veh. Stored
C.F.S. & OTH. INCI.	628	59.1	10.3	Veh. Abandoned	543	52.4	11.6	Veh. Abandoned	557	51.8	10.7	Veh. Abandoned
WATCH 3	1,252	44.0		Disturbance	1,273	45.0		Disturbance	1,250	44.2		Disturbance
RESPONSE TIME			8.0				8.6					9.8
EVENT TIME			20.5				23.0					22.2
PART I OFFENSES	215	17.2	10.8	459 Residence	254	20.0	10.9	459 Residence	215	17.2	12.6	459 Residence
PART II OFFENSES	87	7.0	4.5	Drunk	111	9.0	3.5	Bad Checks	102	8.2	5.2	Mal.Mischief
TRAFFIC ACCIDENTS	66	5.3	4.5	Injury	47	3.7	5.5	Prop.Dmg.Only	48	3.0	4.4	Injury
OTHER RPT'D. EVENTS	106	8.5	4.8	Veh.Recovered	124	9.7	8.0	Property Rcv'd.	119	9.5	5.8	Prop. Rcvr'd.
C.F.S. & OTH. INCI.	778	62.0	8.4	Disturbance	737	57.6	9.4	Disturbance	766	62.1	10.7	Disturbance

#### Evaluation Comments

Although Redondo Beach is having an independent evaluation of the system made by others, a few comments on the subject from the Contractor's viewpoint are offered here.

Evaluation Analyses. Since system implementation, there have been two distinct times at which detailed evaluation analyses were made. The first was during February after the tabular reports of the January data were available. The second was in April after the March data was available.

A complete set of records were maintained in January and February using both the old (ledger recording) system and the new (Event Card/ Fact Sheets) system. At the end of January, all records from both systems were compared against each other and all differences were fully investigated. As far as Class I crimes were concerned, all of the 337 for January were classified correctly as to principal classification (homicide, rape, assault, robbery, burglary, theft, and auto theft). However there were thirty-one coding errors made in subclassifying these offenses. These errors had to do with the improper coding of a number of "other structures" burglaries as night-time burglaries when they should have been coded "unknown" as to day or night. Some thefts were also improperly coded as to the amount of the theft. As a result of this analysis, the Part I Crimes (white) Fact Sheet was restructured in such a manner as to make it extremely difficult to apply erroneous subclassification codes. The redesigned Fact Sheet was instituted during the first week of March and has proven to be a satisfactory "fix".

The January analysis also revealed that the manner of recording arrests on the white and yellow Fact Sheets (for Part I and Part II Offenses respectively) resulted in an error ratio of almost 19% (fifteen errors out of eighty arrests). It was decided to (1) remove all arrest information from the white and yellow Fact Sheets, (2) implement the pink Fact Sheet on March 1 for recording all information relating to misdemeanor

and felony arrests of adults, (3) discontinue any attempt to capture juvenile arrest information on Fact Sheets since the Investigative Division maintains this data on all juveniles anyway, and (4) have one clerk do the coding of all arrest information to minimize future coding errors.

The February data was also compared with that recorded in the (old) ledger system. The Services Division Commander chose to discontinue the parallel ledger recording system at that time because, as he stated, "85% of all the differences between the two systems were correct on the new system".

The March evaluation verified that the restructured white Fact Sheet had proven effective. Only five coding errors were made in March out of 384 Part I Offenses. Only one coding error was made out of 128 adult arrests.

The elapsed time prior to submitting accurate crime statistics to the State and FBI was reduced from 45 days for January end-of-month statistics, to 31 days for February data, to 28 days for the March report. Such statistics are supposed to be reported no later than fifteen days after the close of the month. In addition to the additional time required in thoroughly verifying each entry due to the newness of the system, the delays were contributed to by:

1. The lack of aid from the Information Analyst who was not hired until May 5, 1969.
2. The lack of a final operating procedures manual during that time due to the changes implemented in March. This manual is available now.
3. The unavailability of contractor personnel in February and March to process data on-site and "take up the slack" caused by not having an Information Analyst. Contractor personnel were deeply involved in the "three-city check" requirements during this period.

Clerical Personnel. Of the eleven Records Clerks who perform the bulk of the data extraction functions, four have been hired since the first training sessions began last August. And one of these began work in late February of this year. Of the other seven, three came to work at the Redondo Beach Police Department between January and April of 1968. And of the four with over one-and-one-half years of service, one is presently on sick leave. The major factor in this relatively new work crew is that Redondo Beach lost a number of their more experienced Records Clerks when they decided to use all female dispatchers early in 1968. The point to be made is that the system has been implemented and is producing satisfactory results in spite of a quite inexperienced work force. This is in large measure attributable to (1) thorough training through classroom instruction and operational simulation practice, (2) the devotion of the Services Division Commander and the Chief Records Clerk in exemplary performance of their assignments, and (3) the attitude and willingness on the part of all Records Bureau personnel in accomplishing their duties.

Dispatcher Duties. The use of the standard complaint record (the Event Card), the filing features of the Unit Status Rack, and the installation of a large city map in front of the Dispatcher, and the relocation and organization of the Dispatch Office has resulted in a better organized work station. A window placed to more effectively dissipate the reflected noise from the Records Bureau has proven too effective. It makes communication between the Dispatcher and Records Bureau difficult when they do wish to converse. It is expected that this window will be modified to overcome this deficiency.

#### General Comments

To determine the performance and effectiveness--and, hence, value--of a system of any type, there must be some type of yardstick developed against which the system may be measured. The evaluation may involve a very simple process or it may be highly involved and mathematical. But basically it must be able to determine how it performs "after" in comparison with how it performed "before".

However, of utmost concern in evaluation is that sufficient data be gathered during the operation of the old system to make a fair and valid comparison after the new system has been installed. This requires that the evaluation team gather data on the old system at about the time that the departmental survey is being conducted. If initial data is not gathered until the test and implementation phases, it will be difficult, if not impossible, to prevent introducing biases into the data which are introduced by the new system test activity. It must be stressed that for the comparison to be valid, the collection of "old system" data must be accomplished early.

While it is not recommended that the system designers be the sole evaluators of any project, it is strongly recommended that an evaluator be chosen (and begin work) early in the program. For an evaluator to effectively gather the "base", or "before", data to which all accomplishments will be compared, it is very important that it be gathered in its original mode of conduct.

This project demonstrated the value of thorough training prior to actual dependence upon the new system. If anything, more, rather than fewer, operational simulations should be conducted. Any schedule planned for these types of projects should contain as long a test and operational simulation period as possible. The more minor deficiencies that are corrected during this time, the fewer major problems will crop up later. And, very importantly, the longer the time that operational personnel can practice with forms and procedures, the better will be the forms and procedures that are put into subsequent use.

In the implementation of a similar system, it may be most practical to train teams of specialists to initially accomplish certain tasks. Such an example would be the extraction of data elements from Event Cards and reports and coding these elements on Fact Sheets. It would be easier to provide corrective direction to one or two persons in a detailed procedural matter such as this, rather than to many persons.

Task 5 Evaluate Applicability of the Improved Data System to Other Small City Police Departments

Three of the cities which had been most interested during the system survey made during Task 1 of this project were asked to participate as test cities in the evaluation of the Model System to their data systems. The three cities were contacted and all agreed to function as test cities. Since the Model System was designed for a Southern California city, it was felt that one test city should be located in this region. The city chosen was Covina, California. To preclude the possibility of a bias being introduced into the test cities evaluation, it was decided that the other two cities should not be in Southern California. Accordingly, Lancaster, Pennsylvania was chosen as the representative of the eastern part of the United States. Edina, Minnesota was selected to represent the midwest.

A detailed on-site survey was made of each of these three cities. In every case, the Model System was determined to be transferable.

A thorough report was written to each city. Each report included a detailed description (including flowcharts) of that city's existing information system procedures, a detailed description of the Model System, and a section entitled "Discussion and Recommendations" that suggested which features of the Model System that city could advantageously apply. In no instance was it suggested that Redondo Beach's methods be incorporated without change. But it was shown that the majority of features designed into the Model System would be of benefit to the Information Management System practices in each city.

Table 2 presents comparisons and differences among the three test cities and Redondo Beach.

Specific findings and recommendations made to each test city are shown below.

Table 2. Comparison of Cities

Item	Redondo Beach, Calif.	Covina, Calif.	Lancaster, Pa.	Edina, Minn.
1. Population	58,000 Highly Transient	30,000 Relatively Fixed	60,000 Relatively Fixed	42,000 Relatively Fixed
2. Square Miles	6.2	5.0	7.2	16
3. Police Force	84 Total 62 Sworn 17 Clerks 5 Cadets	52 Total 39 Sworn 8 Clerks, Aides, Parking 5 Cadets	114 Total 104 Sworn 5 Clerks 5 Cadets	41 Total 36 Sworn 2 Clerks 3 Dispatchers
4. Sworn Officers per 1000 population	1.07	1.30	1.73	0.86
5. Number of Patrol Areas	6 Vehicle	4 Vehicle	3-8 depending on time of day, personnel availability, etc.	6 Vehicle
6. Urban Proximity	Suburb	Suburb	25 miles away	Suburb
7. Shared Jurisdictions	State Highway Patrol County Sheriff Four adjacent cities	County Sheriff Four adjacent cities	State Police Only	State Police County Sheriff Adjacent cities
8. Radio	Shared with four other Police Departments	Shared with four other Police Departments	Shared with the small Manheim Township	Has own frequency
9. Uniform Crime Index (comparable sized cities)	Among highest in nation	Lower middle range	Among lowest in nation	Among lowest in nation
10. Data Processing Equipment	City has IBM EAM Series 50 Unit Record Equipment	City has Terminal Input Device to Time-shared computer	City has IBM System 360 Model 20 computer	None
11. <u>1968 Statistics</u>				
Part I Offense Reports	4,790	1,313	1,868	1,283
Stolen Vehicle Reports	488	150	94	74
Arrests - Adults	1,591	932	1,866	
Arrests - Juveniles	1,651	1,047	691	
Clearance Rate - Part I Offenses	12%	33%	31%	29%

Covina, California

The report to Covina included the statement "Our survey of your department affirmed that the Model System is transferable to your operation. However, because of your planned participation in the San Gabriel Valley regional computerized system in the next few years, we would recommend that you adopt only a portion of the Model System described". Covina's records system and procedures were found to be quite straightforward and operate very efficiently in comparison with most of the cities included in the Task 1 survey. Their records system, however, is similar to that of most other cities in that it provides statistics for monthly reporting to the State, the FBI, the National Safety Council, and summary reports to City management, but it provides very little information for internal planning or resource allocation.

It was recommended that Covina adopt the Event Card and Unit Status Rack designed for the Model System. It was further recommended that since they already have a very sophisticated Policeman's Daily Log in operation, that they would probably not need to change to the Officer's Miscellaneous Activity Report designed for Redondo Beach. The use of the Event Card together with their present Officer's Activity Log and the processing of the information collected on both forms would provide Covina with internal management information. This would be a natural interim measure until the San Gabriel Valley computerized system is a reality. By that time, Covina would have a data base built up on Event Cards that could be transferred directly onto magnetic tape or punched paper tape and used in the computerized system. This would give them a data base of approximately two years at the time that system is put in operation, if they were to adopt the Event Card System soon.

Covina's records are quite centralized. This would lend itself very nicely to a Model type of system.

To process the data recorded by the Event Card system as an interim measure, Covina was advised that a detailed system design would have to consider exactly what type and amount of output reporting is required. Because of the volume of input data, a system for the Covina Police Department should

consider (a) manual sorting methods such as a "key-sort" system in which a long needle is inserted through holes punched in cards and then the cards in each pile manually counted to determine each total, (b) a portable punch system in which the data is manually punched on a processable card, (c) whether to lease card processing equipment and prepare tabulated reports themselves, (d) whether to have all processing accomplished by an outside service bureau, or (e) whether to process some internally and send the remainder out. Regardless of which method of processing was chosen, Covina would benefit considerably by adopting the Event Card and building up the data base for their eventual computerized system.

Lancaster, Pennsylvania

The survey of the Lancaster Police Department also affirmed that the Model System is transferable to their operation. They have, in fact, one great advantage that Redondo Beach does not enjoy. Lancaster has an IBM computer, System 360, Model 20. This computer has approximately two hours per day on the day watch in which the computer is idle. In addition, it is not being used at all on any other shift. It would be available for police applications. Lancaster intends to place their parking tickets system of notification and collection on that computer in the near future.

Lancaster's records system is highly decentralized. It is, however, similar to that of most other cities in that it provides statistics for monthly reporting to the State and the FBI and a summary report of city management, but provides very little information for internal planning or resource allocation. For these reasons it was recommended that Lancaster consider centralizing their records and transferring certain personnel to the Records Bureau to maintain these records. Some clerical functions that are being performed by management personnel should also be transferred to the Records Bureau and accomplished by the clerks there.

It was recommended that Lancaster adopt the Event Card System. In conjunction with their present modification activity of installing new consoles in their dispatch area, they should build and install a Unit Status Rack for filing Event Cards according to patrol areas or beats. Lancaster was

advised that their Cruiser Log (which corresponds to the Officer's Miscellaneous Activity Report at Redondo Beach) could be significantly improved. They were further advised, however, that they should consider an activity report similar to that in the Model System only if the additional information collected on the more sophisticated report were used by Lancaster Police Department management personnel. If the information would not be used, then they should refine their present Cruiser Log to be more meaningful or do away with it.

Lancaster has a Lieutenant's Log which corresponds to the Daily Activity Log or the Dispatcher's Log maintained in many Police Departments. It was recommended that this Lieutenant's Log should be analyzed to determine (a) if the information collected is really of beneficial use, (b) if all that is now collected is required, (c) if it or a part of it could be presented in a more usable manner, and (d) if the procedures for collection and presentation are consistently being followed by all concerned. Their present Lieutenant's Log contains entirely too much mundane information that is repeatable day after day with only the names and addresses changed. Its sheer bulk discourages its being widely read. This document would be of more value if it were an "exception" or "significant crime" report rather than a documentation of routine patrol activities. Accordingly, it was recommended to Lancaster that they incorporate a Daily Watch Report similar to that being prepared by the Watch Commander in the Model System design. This would require very little in the way of changed procedures at Lancaster since their Watch Commander now prepares the Lieutenant's Log. The information recorded by the Dispatcher on the Event Card would provide more meaningful information than is now collected on their "scrap paper" complaint sheet.

#### Edina, Minnesota

The survey performed under Task 5 of this contract also affirmed that the Model System is transferable to Edina's operation. Again, however, it was not recommended that Edina incorporate the entire Model System as described. The data collection aspects of the Event Card would prove very beneficial because it would provide the data necessary for monthly reporting purposes

as well as information for management planning. To process the data recorded by the Event Card system, Edina should conduct a detailed system design to consider exactly what type and amount of output reporting is desired. Since Edina is presently conducting a study on random patrol (Edina has a \$52,000 LEAA grant to help fund a deployment system study which will use a computer to process data and assign cars) using the computer facilities of the University of Minnesota in conjunction with a consultant, Edina very possibly would want to add the Event Card processing to that already being accomplished on the computer.

As recommended for all three cities, a Unit Status Rack for housing and filing the Event Cards should be installed in the dispatch room.

It was only recommended that Edina change their present Officer's Activity Report if the additional data gathered would be used. Their present Activity Report seems to adequately serve their purposes.

In general, their records system and procedures are quite straightforward and not too complicated in spite of wide decentralization. This is in part due to the small number of Headquarters type personnel found in the Edina department. Certain records, however, should be centralized to function better with the Model System procedures. The Edina records system is similar to that of most other cities in that it provides statistics for reporting to the State, to the FBI, to the National Safety Council, and to City Management, but provides very little information for internal planning or resource allocation. Because of their random patrol study they are coding each complaint sheet so that they do know exactly in what sub-zone of their city their crimes, incidents, and accidents are occurring. The addition of the Event Card and its attendant coding could be merged with the coding accomplished on the random patrol system and it all could be coded on the same card.

## ADDITIONAL PROGRESS AND ACCOMPLISHMENT

### Management Planning Support

In addition to the activity outlined above under Tasks 4 and 5, statistical data was tabulated and made available so the Police Chief and his Division Commanders could establish the Crime Control Index values for the oncoming year. Crime Control Indexes were established for Burglarly, Robbery, Theft, and Crimes Against Vehicles. Each month, data will be updated to reflect the happenings of the previous month. At any time that the Crime Control Index value is reached or exceeded, the applicable Division Commander(s) will decide what strategy will be employed to halt the rise of whichever offense has exceeded its Index value.

Data was also made available to the Patrol Commander and to his Watch Commanders so that the initial Watch Commanders' Quarterly Plans could be developed in mid-April. These reports were reviewed by contractor personnel and suggestions made for their improvement.

### Information Analyst

As outlined in the Implementation and Test Plan (Autonetics Report C8-1205/030 dated May 31, 1968), it was recommended that the full-time position of Information Analyst be created with the responsibility for preparing regularly specified reports, conducting special studies, and assisting in assuring proper system operation. It was scheduled that this position be filled in July 1968.

After trying two Policemen in this role (neither of whom decided to continue in the position), Redondo Beach had to abide by Civil Service procedures to advertise, test, and interview personnel for this position. Finally the Information Analyst reported for work on May 5, 1969. Because of these unavoidable delays, the Analyst has not achieved the degree of training and proficiency that had been planned for him to achieve by this time. His subsequent training, beginning in June, will have to be provided by the Redondo Beach Liaison Officer who is the Commander of the Services Division.

### System Specification

The Model System Specification was updated, rewritten as necessary, and reissued on May 31, 1969 as a System Specification. This System Specification reflects the practices, methods, procedures, and reports adopted by Redondo Beach. Recommendations, especially in the Investigative area, which were not adopted by Redondo Beach, have not been included in the System Specification. It is, in effect, an "as built" document which describes the system as implemented.

### Transfer Handbook

The Transfer Handbook was written and delivered on schedule. This contractual document provides a detailed guide that may be followed in adapting Model System features to any other department planning to, or attempting to, incorporate an updated data system for their use. Special emphasis was placed on providing a thorough description of the Model System.

### Desk Instructions

The contractor prepared and issued formal Desk Instructions at the time of delivery of final system documentation. Since it was originally planned to have the Information Analyst prepare these instructions during his formal training period, these instructions are not as detailed as would be preferred. The Dispatcher Manual, for example, should be expanded to include sample Event Cards showing correct procedures for documenting every type of situation likely to occur.

A complete list of Desk Instructions and all other system documentation delivered is included in the "Index of Project Documents" section of this report.

### Progress Reports

This Progress Report, the final system document which signifies completion of the contractor's responsibility under the contract, was prepared and transmitted to Redondo Beach by May 31, 1969. Together with the Phase I Progress Report (Autonetics Report C8-1201/030 dated May 31, 1968), it forms a complete record of the contractor's activities under this contract.

Supplementing these two annual reports were the quarterly progress reports submitted informally to the Redondo Beach City Manager by letter and attachments thereto.

### CONCLUSIONS AND RECOMMENDATIONS

The foregoing report documents many ways in which a system such as the Model System designed for Redondo Beach could be of benefit to moderate-sized cities. Among these are:

1. A standard complaint form such as the Event Card.
2. The Unit Status Rack to keep track of the handling of complaint calls and the location and status of patrol units.
3. The Watch Commander's better awareness of activity on his watch through his review and approval of all Event Cards and his preparation of the Daily Watch Report.
4. The use of a Daily Activity Report by the Patrolman which minimizes the amount of time required for him to prepare it.
5. More detailed involvement of the Watch Commanders and Division Commanders in the planning function.
6. The management reporting concept in which meaningful information is distributed monthly in an easy to use display format.
7. The ability to provide the manager or investigator with detailed correlated information concerning any type of crime or incident with which he may be concerned.
8. The Fact Sheet concept which structures facts or data in a logical fashion which provides for easy retrieval of these facts.

It is recommended that the demonstrated benefits of this system be made available to as many moderate-sized Police Departments in the United States as possible. The distribution of this information could be made in some or all of the following ways:

1. Mass mailing of the Phase I and Phase II Progress Reports and/or Transfer Handbook.
2. Preparation of a number of copies of a film strip which would be loaned to interested departments.

3. Conducting of regional or area seminars in which the Model System would be described.
4. Conducting of individual department visits on a scheduled basis in which the Model System would be described using suitable training aids.

This project also indicates further effort that should be investigated that would benefit moderate-sized Police Departments. Among these are:

1. Providing Federal funding support to additional moderate-sized cities who have law enforcement problems and not the methods to analytically determine the details of these problems. Hence, they are limited in planning preventive and apprehension strategies.
2. The setting up of regional data centers in which all, or at least offense, records are fed in for a number of moderate-sized cities. In this manner, all participating cities in an area would be aware of the regional offense activity of any individual.
3. Computer assisted regional or local data centers should be investigated in more detail on specific projects. In a very cursory manner, this project demonstrated that the Model System data could be manipulated to advantage at greater speeds than with unit record processing equipment. A computerized Model System project would further the worthwhile effort began on the Redondo Beach non-computerized Model System project.

PROJECT SUMMARY

Perhaps an effective way to summarize the two years of effort devoted to this project is to present a comparison between "typical" and "Model System" features. And perhaps a good way to present this comparison is to combine the narrative with the pictorial. After all, since the city for which the Model System was designed was, at the initiation of this project, included among those grouped as "typical", the cartoons on the next pages do represent the "before" as well as the "after".

At any rate, this manner of presentation was chosen. It is hoped that this pictorial representation, together with the foregoing detailed Progress Report, sufficiently illustrates the Contractor's Phase II efforts to provide a basis for evaluating its worth and effectiveness.

PROJECT SUMMARY

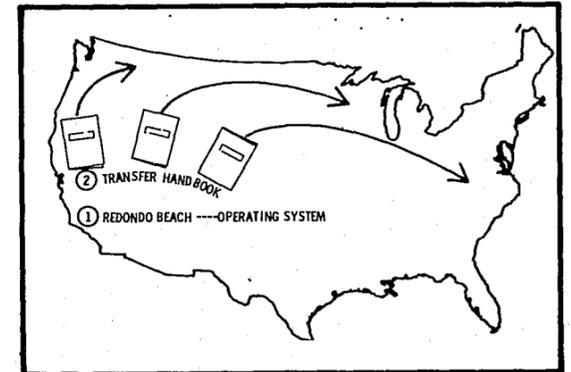
# POLICE INFORMATION MANAGEMENT SYSTEM PROJECT



Louis J. Sunyich  
Chief of Police  
Consultant  
North American Rockwell Corporation

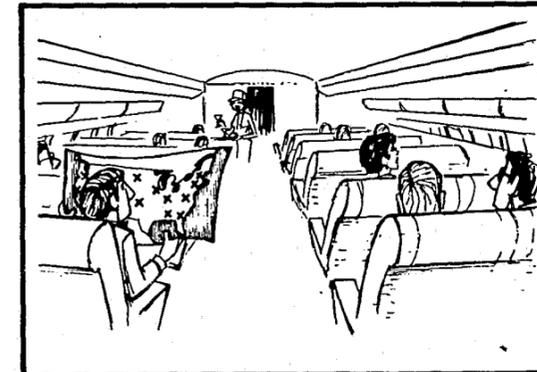
## Project Products

This Transfer Handbook provides a description of a Police Information Management System that is operational in Redondo Beach, California. It includes a description of the process any department could use to adapt and install the same system.



## Current Practices

First, a survey of 47 cities was conducted to identify current records and information management practices in Police Departments of moderate size, and to discover current innovative practices that could be of use in the system designed for Redondo Beach.

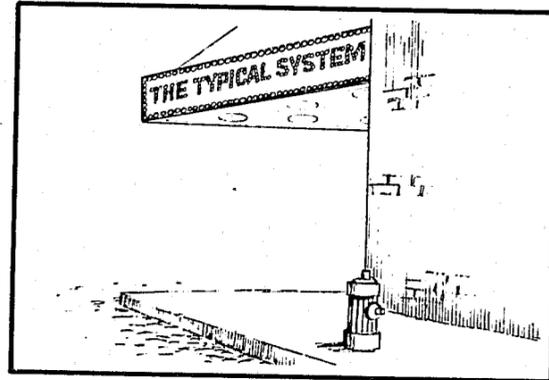


## Major Findings

1. Startling consistency of practice.
2. There is truly a typical Records and Information System in use by Departments of this size in all parts of the country.

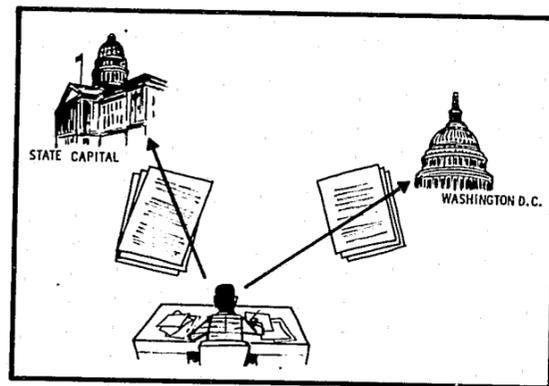
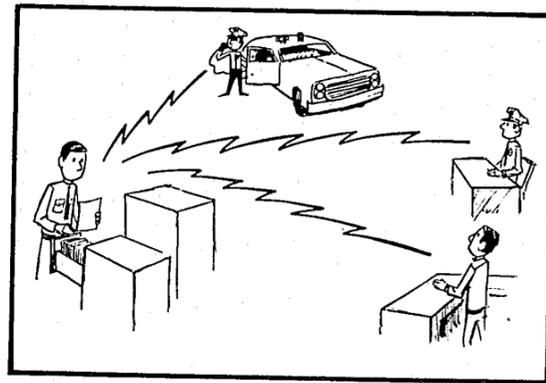
This typical system is grossly inadequate to support good management planning practices.





Incident, Person, Property

The first function of the typical System is to retrieve documents or information related to a single specific incident, person, or property item. This response is usually related to an inquiry from an Officer, another law enforcement agency, a citizen, or an insurance company.

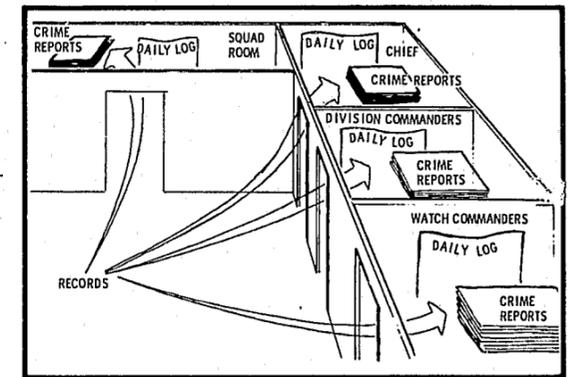


Statistical Reports

The second primary function of the system is to produce summary statistical reports prescribed in format by Federal and State agencies. The problem with these reports is that, while they reflect raw crime counts on a monthly and annual basis, they contain little information useful in local problem analysis.

Available Information

Information used locally usually consists of reports provided daily. The Daily Log provides a summary of most reports and incidents. Use of this system forces the recipient to establish his own relationships and interpretations of this raw data.



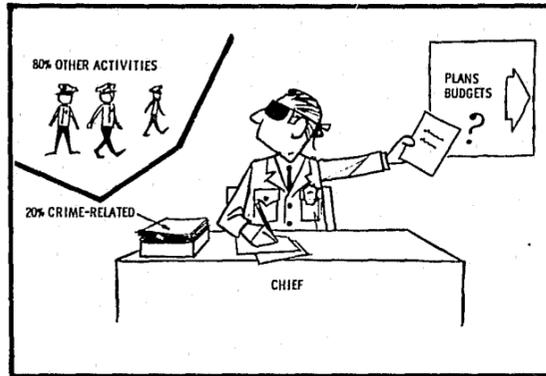
Mental Correlation of Facts

This is comparable to a department store manager keeping a running inventory in his head by reading all sales slips at the end of the day.

Internal Information Exchange

The Field Officer seldom, if ever, receives information on the outcome of cases in which he participated. If the outcome of the case had been good, he might have derived some satisfaction from this knowledge. More important, if the outcome of the case had been bad, he might have benefited from knowledge which could make his future performance better. Unfortunately, the Field Officer often views himself as a report collector for the Detectives. This situation contributes to low-quality Field Reports resulting from poor preliminary investigation.



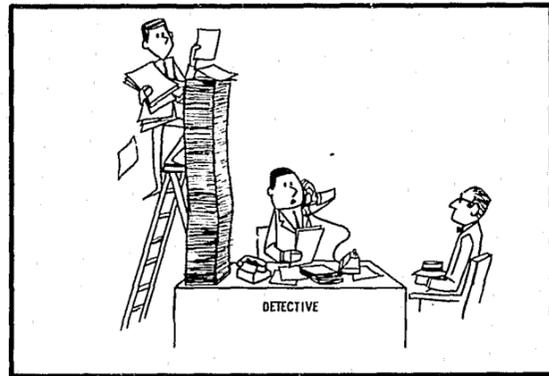


Management Information

The average Chief is served inadequately by this same system. He receives little information useful in the definition of problems and the planning of preventive programs. He is unable to determine what his total departmental activity is, either by the type of activity or amount of time involved. Formal Field Reports relating to crimes or incidents generally reflect only about 20 percent of total departmental activity. Hence, the Chief and his Division Commanders are in no position to set complete performance standards, measure performance, or provide effective direction to Field Officers. Without a total picture of his operation, the Chief is unable to allocate current resources rationally or prepare and justify a meaningful budget.

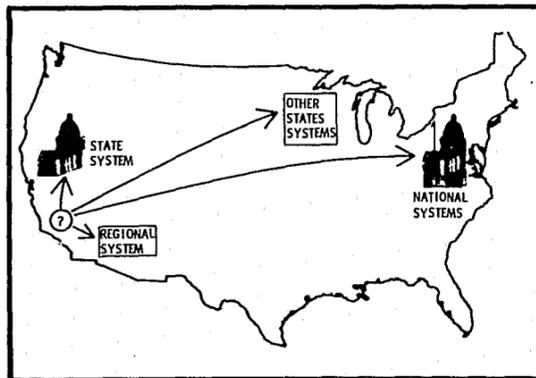
Investigative Information

The Investigative Officer is no better off than other members of the department. He will receive copies of crime-related reports and an assignment for follow-up. Unfortunately, he receives hundreds of these reports, with little or no selectivity of assignment, and little guidance as to priority of investigation. Thus, the Detective is faced with a normal caseload of between three and four hundred cases and no real support from the information system. He too must mentally relate a mass of facts to establish relationships between types of crime, locations, dates, times, and possible suspects.



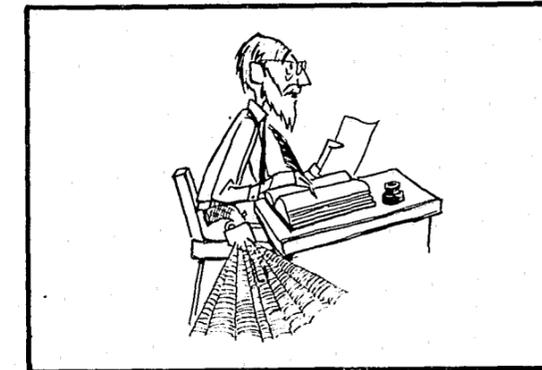
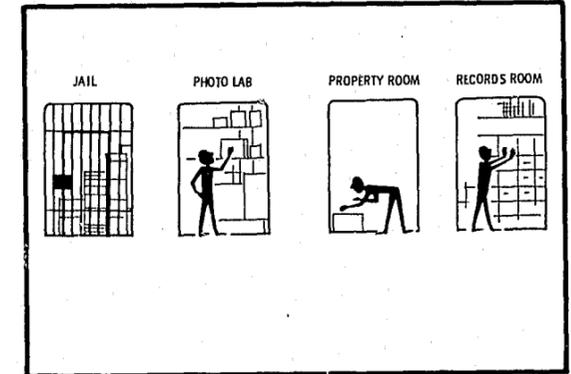
Regional, State, and National Systems

There is some lack of understanding on the part of the Chiefs of Police regarding Federal, State, and Regional law enforcement information systems. Some are not sure what will be left for the local Police Department when these larger systems are fully operational. Others believe that these regional systems will provide all of their informational needs. This confusion results in part from the fact that most local data systems now respond only to specific inquiries regarding persons and property, and simply collect and report summary statistics for use by some other agency. These are the same tasks that can and will be performed effectively by regional, state, and national systems. This is another reflection of our failure to give sufficient attention to the requirement to collect and produce information useful in local problem definition, planning, and management control. This problem remains as a major challenge to local law enforcement.



Records Retention

In general, no records are ever thrown away. Confusion exists as to what must be kept from a legal standpoint. Another, and more immediate constraint on records purging, is the lack of personnel required for laborious file renovations. Many of the file entries are of an extremely minor nature and are rarely looked at after filing. Many records have been retained either to satisfy insurance claim requirements or to insure the ability to prove that the Police Department has responded to minor complaints.

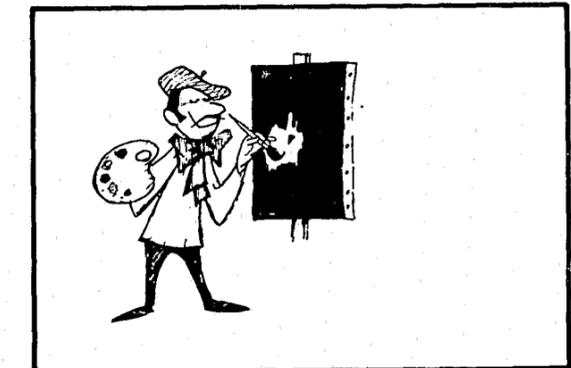


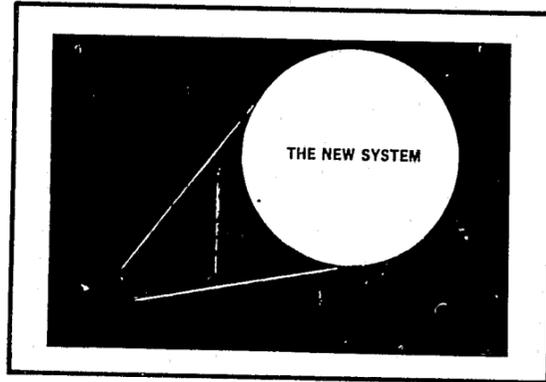
Recognition of the Records Function

The status accorded records and reporting work within police organizations is out of balance with the importance of good police information. Police Officers tend to feel they may suffer in promotion if they spend too much time working in Records. The job is looked upon as an assignment to be tolerated until rotation occurs. The operational efficiency of the Records system often reflects this lack of interest.

Conceptual Background

It was not the intent to paint a dark picture. A detailed on-site survey of the Redondo Beach department served to verify the validity of the national survey findings. It was against this background and established set of needs that the new Police Information Management System was designed.

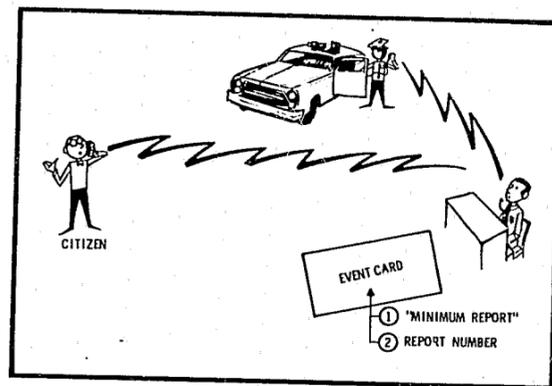




Information

This system is designed to collect and store information relating to two basic categories of police effort. Events are police contacts involving crimes, accidents, or incidents in response to citizen requests or where formal reporting is required. Miscellaneous Activity includes such things as Field Interviews, writing citations, court time, etc.

EVENT RELATED	MISCELLANEOUS OFFICER ACTIVITY
• PATROL UNIT DISPATCHED	• MINOR ON-VIEW INCIDENTS
CRIME	• CITATIONS
ACCIDENTS	• BACKUPS
INCIDENTS	• STATION DUTY
• ARRESTS	• COURT
• FORMAL REPORTING	• TRAINING



Events

As soon as the Dispatcher in the radio communications room is made aware of an event, as reported by the citizen via phone or by the Field Officer in on-view situations, an Event Card is filled out and time-stamped to reflect the time of receipt and subsequent actions by that Officer.

There are two methods by which a Field Officer may make disposition of a recorded event. First, if the event was of a minor enough nature to indicate a minimum report, the Officer may complete and sign the Event Card at the end of his watch. In this case, the Event Card serves as the report. Second, he may prepare a formal Field Report and the Dispatcher will assign a Report Number and note the number on the associated Event Card. All Event Cards and formal reports are reviewed by the Watch Commanders and forwarded to Records for processing.

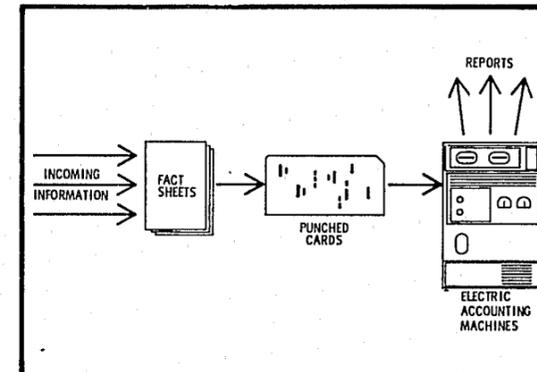
Miscellaneous Activity

No entry is made on his Activity Report when he has been dispatched on an "Event." He posts "Activity" times on a prestructured Activity Report form. The back of the form is a structured scratch pad for the Officer's use in note taking. These reports are reviewed by the Watch Commander prior to processing.



Information Processing

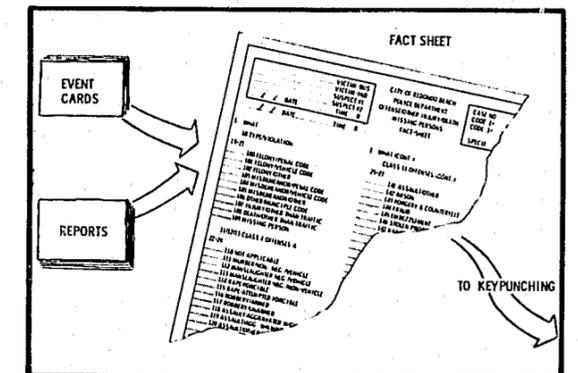
Data is also collected relating to warrants; lost, found, or recovered property; and the circumstances and subjects associated with Field Interview activities. The information will be processed into keypunched unit record cards. They could be processed manually without machines, but the Police Information system uses EAM available in another Redondo Beach City Department. This processing approach provides great flexibility and the ability to search and report by a variety of subjects.

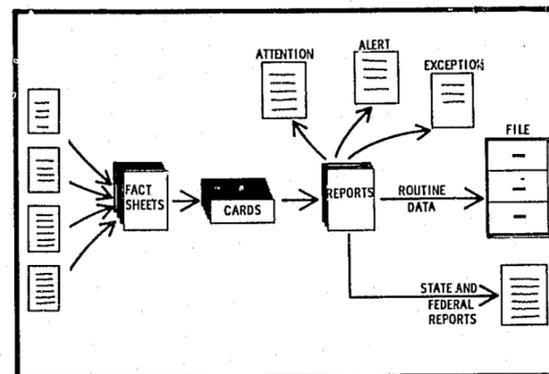


Fact Sheet

Processing of data into punch card form is accomplished by Records personnel. Event Cards and reports are reviewed by a Records Clerk, and the pertinent facts are captured by checking off the appropriate facts on a prestructured Fact Sheet. These Fact Sheets contain almost all categories of facts coded by three-digit numbers.

The Fact Sheet approach arranges the data being collected into a consistent set of definitions which makes later comparative analysis more valid.



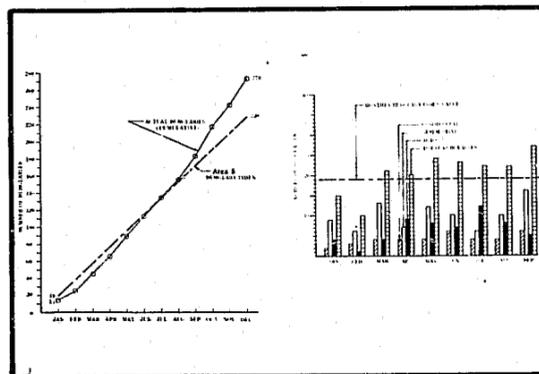


### Exception Reporting

Naturally the system generates the monthly statistical report information. Beyond this, the reporting philosophy is that of exception. Wherever possible, information is presented in display or graphic form. The displays have been designed to include Crime Control Index points. When the Index point is exceeded, it serves as a signal to analyze the identified problem to a more detailed level.

### Monthly Burglary Report

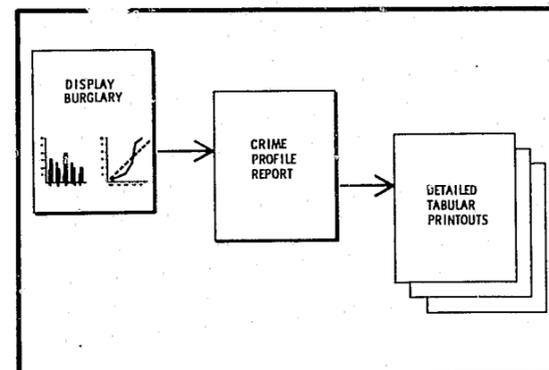
As may be seen on the accompanying burglary bar charts, the index line signalled that the burglary problem became acute during March even though the cumulative plot did not cross the line until July.



### Analysis

The next step would be a review of the statistical report from which the graphs were prepared. The crime profile report will tell the day of the week and the watch within which these crimes were committed. A special tabular report on burglary in Area Five would provide the location within the ten reporting Sub-Districts of Area Five, the day, date, time, property involved, characteristics of the methods used, and any available physical description of suspects. Analysis of this type of data will allow for planning appropriate preventive action.

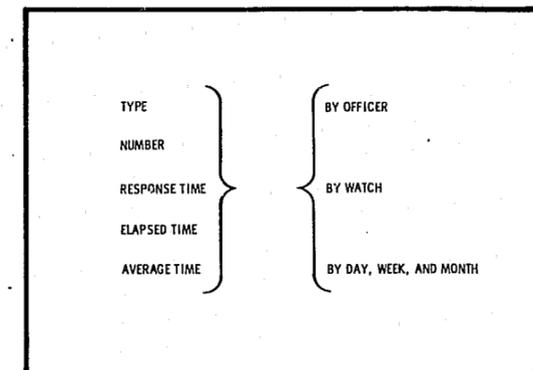
This kind of exception reporting and capability for problem analysis is available on all offenses.



### Total Departmental Activity

Reports of total departmental activity are also available. This activity is reported by type, number of actions or responses, and the amount of time involved in each activity on an average and as a total. These reports reflect activity by individual officer, by watch, by day of the week, and by month. This ability to determine where time is being spent and what daily, weekly, and monthly fluctuations are being experienced greatly enhances the ability to plan and allocate resources in a more effective manner.

Employee evaluation and training will benefit greatly from the system. It will be possible to identify both individual and departmental weaknesses to a level of detail where proper direction, supervision, and training can be determined and provided.



### Reports and Plans

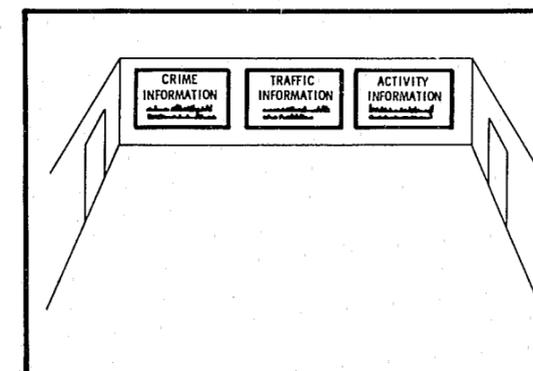
Each Watch Commander will prepare a Watch Report at the end of his shift. Preparation of this report will require him to summarize only the significant activities of his watch. This cannot be done without close review of all Field Reports, Activity Reports, and Event Cards.

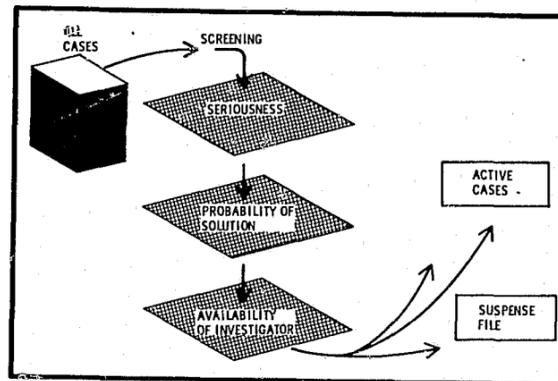
Once each quarter, the Watch Commanders will be required to prepare an operational plan. This document will outline his major problems and his plan for dealing with them. In this report he also will define the major training requirements of the Officers assigned to his watch. The reports will be reviewed by the Patrol Commander and forwarded to the Chief for review. The Investigative Commander also will prepare a quarterly plan. It is obvious that this planning and reporting requirement will greatly encourage the use of available information.

REDWOOD BEACH POLICE DEPARTMENT						RECORD DIVISION	
Watch Commander				DATE		DATE	
Recorder				DAY OF WEEK		DAY OF WEEK	
Dispatcher				WATCH		WATCH	
On-Duty Officer							
REDWOOD BEACH STOLEN, STOLEN, IMPOUNDING AND REPOSSESSED VEHICLES							
Time	Category	License	Year Model Color	Owner	Location	Circumstances	DR
PATROL REQUESTS							
Time	Location	Requester	Reason	Watch Hours	For How Long		
SIGNIFICANT CRIMES REPORTED							
Time	Crime	Victim	Address	MO	Entry	Property	Value
				DR			
ARRESTS AND BOOKINGS							
Time	Name	Offense	Circumstances	Officer	DR, P		
MISCELLANEOUS							
Time	Name	Address	Incident	Circumstances	DR		

### Squad Room Display

In addition, displays of crime, traffic, and general activity are scheduled for posting in the Squad Room in a manner which is easily reviewed. This will serve to create more informed Patrolmen who in turn will be able to do a better job.



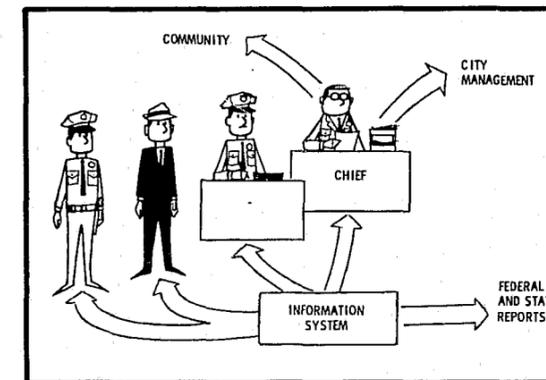
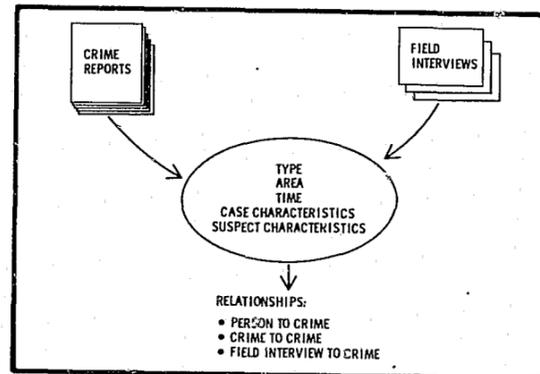


### Selective Case Assignment

Cases to detectives may be selectively assigned based on the seriousness of the individual crime or type of crime problem, the probability of solution, and availability of investigators. Cases not assigned will be filed by type of crime in a suspense file.

### Information Relationships

The ability to provide detailed information to investigative personnel will eliminate the total reliance on mental correlation of crime facts on their part. Multiple clearance of cases should be assisted by these tools by providing ready access to related crime facts.



### SYSTEM BENEFITS

- \* Uniformed and investigative personnel are regularly informed of local problems and have access to detailed data on specific problems. Further, they are guided by more definitive direction, training, and performance standards.
- \* Middle management is brought into the planning process and has more effective tools for directing and evaluating their personnel.
- \* The Chief and Division Commanders are provided with information required for problem definition, strategic planning, allocation of manpower and equipment, and preparation of budget requests which are based on fact.
- \* All members of the department and City Government are in the position to provide authoritative answers to public inquiry.
- \* Crime prevention programs may provide factual information to the community at a level of detail to which they can personally relate.
- \* Individual neighborhood groups can be told what their specific problems are and what they can do about them. More importantly, they can be shown if their prevention efforts produced any results.

INDEX OF PROJECT DOCUMENTS

The basic reports and specifications that form the complete set of documentation applicable to this project are listed below by title and report number.

While each report listed was delivered as a separate report, they have been packaged together in an eight volume set and assembled in three-ring binders. Certain minimum distribution was made of these sets. The content of each binder is shown below.

<u>Volume Number</u>	<u>Report Number</u>	<u>Title</u>
1	C8-1201/030 C9-1034/030	Progress Report - Phase I Progress Report - Phase II
2	C8-1202/030	Police Information Management Systems in Moderate-Sized Cities
3	C8-1203/030	Current Redondo Beach Police Information Management Practices
4	C8-1204/030	Model System Specification
5	C8-1205/030	Implementation and Test Plan
6	C8-1206/030	Preliminary Evaluation Plan
7	C9-1035/030	System Specification
8	C9-1036/030	Transfer Handbook - A Guide to a Police Information Management System for Moderate-Sized Cities

In addition, desk instructions have been prepared that explain all of the new forms and the procedures for using them. These desk instructions are contained in Volumes 9 through 16. These instructions were also delivered to the Redondo Beach Police Department in three-ring binders.

These binders were assigned volume numbers and titles as shown below.

<u>Volume Number</u>	<u>Report Number</u>	<u>Title</u>
9	C9-1037/030	Event Cards Instructions
10	C9-1038/030	Officer's Miscellaneous Activity Report Instructions
11	C9-1039/030	Watch Commander's Manual
12	C9-1040/030	Fact Sheets Instructions
13	C9-1041/030	Keypunch Instructions
14	C9-1042/030	Data Processing Instructions
15	C9-1043/030	Report Preparation Instructions
16	C9-1044/030	Dispatcher Manual

The sixteen volumes listed above form the complete set of documentation from the initiation of the project through to completion. They include procedures for designing, testing, and implementing the system as well as procedural instructions for operating the system.

The instructions shown in Volumes 9 through 16, as well as the System Specification in Volume 7, should be updated as changes in methods or procedures are made. These volumes do, after all, represent the system as implemented and provide day-to-day preparation and operational instructions for each of the methods, forms, and procedures discussed.

**END**