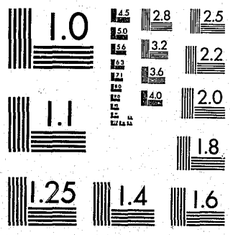
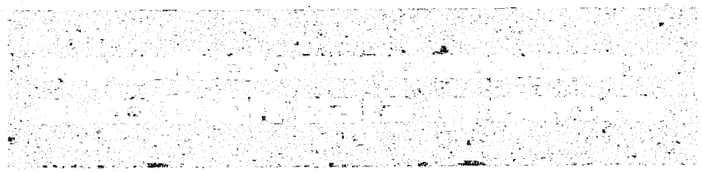
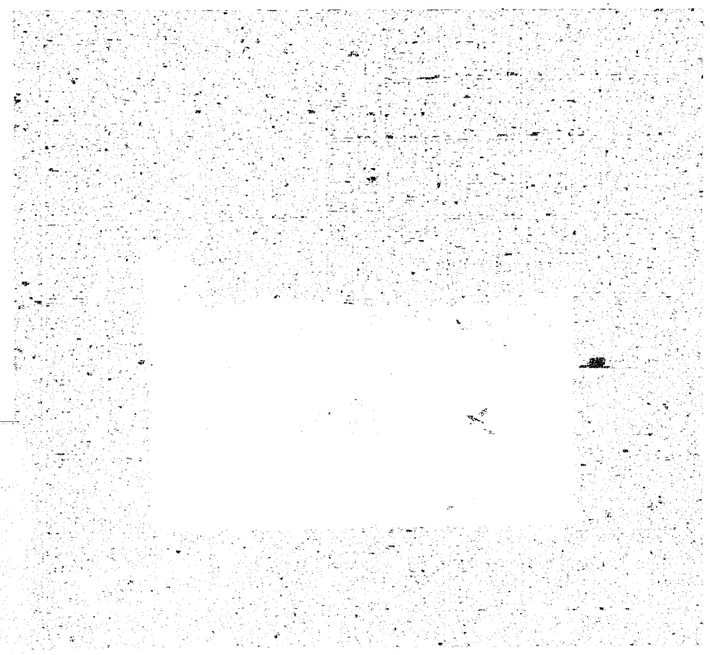


5-12-82

National Institute of Justice
United States Department of Justice
Washington, D.C. 20531





The research described in this report was conducted by the Denver Research Institute, University of Denver, under Grant No. NI71-120-G from the National Institute of Law Enforcement and Criminal Justice, LEAA, U.S. Department of Justice. The views presented herein are those of the investigators and do not necessarily reflect those of the National Institute.

DRI #2595

THE COLLECTION AND ANALYSIS OF AUTO THEFT DATA IN DENVER JULY 1970-JUNE 1971

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PREFACE AND SUMMARY

The crime of automobile theft represents an increasingly serious national problem. The various campaigns being waged by public and private sectors to combat the problem attest to its pervasiveness. One of the issues confronting those who attempt to deal with auto theft is that they have not been provided with sufficient information to fully understand the theft problem in their own locales. A national survey conducted by the Department of Justice in 1968 is still being used as the data base for most anti-theft campaigns. The Denver Research Institute (DRI) study had as its main prupose the collection and analysis of information which might provide law enforcement personnel and other concerned persons with a data base and technique for improving and refining the direction and scope of their efforts to alert potential victims and deter potential thieves.

The City of Denver, in which this study was performed, is a medium-sized city with a high ratio of automobiles per capita and a median ratio of thefts per automobile (compared with national data). The study details the magnitude and pattern of Denver auto thefts over a one-year period (July 1970-June 1971). The second product of the research is a set of computer programs to enable investigators to summarize similar data in other cities for the use of local law enforcement personnel.

The investigation was limited to an examination of an existing data base. These data were mostly from the Denver Police Department (DPD) with additional information regarding vehicle registration, population numbers and distribution, and atmospheric conditions collected and used as parameters for interpreting the DPD theft data. The factors chosen for examination and theorized to be of importance in analyzing theft data included: make and year distribution for registered vehicles, distribution of gross population by location within the city, teenage population distribution, and general population density. From the experience of other auto theft investigators it was hypothesized that weather conditions might also be an influencing factor in the crime rate in general and in the rate of auto theft crimes in particular. Therefore, information on temperature, relative humidity, barometric pressure and the amount and type of precipitation for each 4-hour segment of the year were included for analysis. Information from 7,585 stolen car reports and 1,128 persons charged with theft were reviewed for this

analysis. There were several rather important questions that went unexamined due to the lack of reliable information. These include the analysis of theft data as functions of street illumination, anti-theft devices in use (except that which can be implied from the make and year of the stolen vehicle), and the number of cars with the key left in the vehicle and/or with the door unlocked.

The results of the study were not vastly different from the Department of Justice questionnaire survey of 1968. Denver had a yearly stolen automobile rate of 3 percent of the registered vehicles and 1.5 percent of the population. Denver has an older vehicle population than the national average and a higher incidence of stolen older cars even after adjusting for age. Chevrolets accounted for 52 percent of all thefts (as compared with a registration figure of 29 percent) and General Motors cars in general were stolen more often than their proportionate registration. Ford automobiles were the next most frequently taken (14 percent) although proportionate to their registration. Forty-two percent of all vehicles were stolen from parking lots or used car lots (supervised and non-supervised) and 53 percent were taken from streets away from the owner's residence. The study confirms the fact that auto theft is predominately a crime of youthful offenders with 64 percent of all persons apprehended under 18 and with 16 percent under the age of 15. Car theft is mostly an after dark crime with a high incidence of thefts on Fridays and Saturdays. The fall of the year was the worst season for thefts and the highest number were reported in December. Atmospheric conditions appeared to have no marked effect on theft rates.

The data presented in this report can be used to alert police and public to high risk automobiles, parking habits, and circumstances. In addition to revealing theft patterns, special tables are prepared to yield "vulnerability indices" that show the extent to which certain theft parameters differ from their chance occurrence.

In addition to attesting to the need for citizen and government cooperative efforts in combatting the auto theft problem, two specific recommendations are made. A checklist of items that would be important for data analyses should be incorporated in all theft report forms. The checklist would assist officers in preserving information without adding to their already heavy load of paper work. It is also recommended that the computer programs developed here be used to repeat this study in other cities. This would provide the information

needed to compare data so that theories concerning thefts as a function of local economic, social, political, and environmental conditions might be examined.

The author wishes to acknowledge with gratitude the cooperation received from the Denver Police Department, particularly in the Auto Theft Bureau, the Data Processing Division and the Criminal Identification Bureau. The same spirit of concerned cooperation was found in city and state data processing offices, the Denver City Planner's Office, and from the Metropolitan Area Automobile Dealers Association, and the U.S. Weather Service.

THE COLLECTION AND ANALYSIS OF AUTO THEFT DATA

Introduction

The rate of increase of auto thefts has more than doubled the percentage of increase in auto registrations since 1960. Automobile thefts directly or indirectly cost the nation over $640 million a year.[1] An intensive effort to prevent thefts by both alerting potential victims and deterring potential thieves is clearly in order. This report summarizes the results of a seven man-month task to systematically organize facts from Denver police files concerning the circumstances of auto theft. The first objective of the project was to provide information for a comprehensive analysis of the auto theft problem by supplying the hard data needed, in conjunction with considered judgements of specialists in this area, before proceeding with any large scale theft prevention programs. A second objective was to provide local law enforcement personnel with a documented one-year history of automobile theft data so that prevention procedures and investigation guidelines might be re-evaluated and updated in the light of this summary information. An important product of the research is a set of information retrieval computer programs for effectively examining the problem in other cities.

The bulk of the data for this research was taken from the files of the Denver Police Department (DPD). Complementary information, mostly for examining the meaning and importance of DPD data came from the Motor Vehicle Department, the Metropolitan Area Automobile Dealers Association, the United States National Weather Service, and the 1970 United States Census Reports. This extensive data gathering effort in a single metropolitan area over a one year period from July 1970 through June 1971 has resulted in the presentation of detailed information regarding the circumstances of urban theft and, perhaps of more importance, the basis from which to generate testable hypotheses regarding the commission, and hopefully the prevention, of auto theft and auto theft-related crimes.

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[1] Wolfslayer, D. R., "Overall Assessment of the Auto Theft Problem," AMA, Incorporated. Presentation to the Association of Auto Theft Investigators, Wayne State University, August, 1971.

The organization of this report is directed toward the accomplishment of two goals: (1) a description of the data gathering process and instruments, and of the data presentation computer programs, and (2) a display of the data summaries and a discussion of the results of the analysis. For readers interested in both problem areas, the entire report should be read. For those interested primarily in the results of the analysis, Part I may be omitted and used as a reference.

The inclusion of the detail in Part I has, itself, a dual purpose: to allow readers to review the procedures in order to evaluate the research and the results reported; and to introduce the methods and computer programs to other investigators who might wish to perform similar analyses in locations with different geographic or demographic characteristics. Therefore, Part I is a detailed account of the investigation and data reduction methodology.

PART I

DATA COLLECTION AND REDUCTION

A summary of the data collection procedures used during the investigation and a discussion of the digital computer programs used for the analysis are described in this section.

1.0 Data Collection

The data collected can be characterized both by content and by agency or city office. In most cases, a single agency is identified with the information gathered there and data will therefore be reported by agency name.

1.1 Denver Police Department

The search for automobile theft data began at the Auto Theft Bureau of the Denver Police Department. An explanation of the specific goals of the LEAA-sponsored study was given to police and civilian personnel in the Bureau and project personnel for DRI were introduced to the DPD staff. The investigation team became familiar with DPD report forms and procedures, and reviewed with the Criminal ID Bureau the Denver Crime Information Center records and other files maintained at that division.

Officers' and detectives' handwritten theft report forms are sent from the Auto Theft Bureau to the DPD data processing division for selective coding and keypunch. The forms are then returned to the Bureau files. Recovery forms are similarly routed for coding and keypunch before being returned to the files. Report and recovery forms can be matched by the I.D. case number entry on each, but are maintained in separate files. These procedures were reviewed to see (1) what was available, (2) where information access would be the most convenient for project personnel and least disruptive for police department personnel, and (3) what problems might be encountered in gathering the required information. Because this was a modestly funded study, a trade-off with information value versus time and effort for retrieval had to be a consideration throughout the effort.

The information available at the police department was broken down into two classes: stolen automobile data and offender data. The

data for examining the circumstances of theft: place, description of car, time, date, etc., were taken from verified theft reports. Verified reports are defined as reports pertaining to those automobiles reported stolen that were not later found to have been borrowed by relatives, parked and forgotten, or otherwise temporarily missing without having been taken by unauthorized persons. Much of this data was already being processed for storage and retrieval by the data processing division and a computer print-out of their data card files was extremely helpful in beginning the data base. A sample sheet from this print-out is shown in Figure 1. Unfortunately, the 96-column, IBM System 3, compressed keypunch cards used at DPD were not compatible with computers accessible for the analysis, nor could they be used to create a conformable magnetic tape. Most of the information was therefore re-punched at the DU Computer Center. Offender information was more difficult to retrieve as it was necessary to access original hand-written report forms at the Auto Theft Bureau. A special collection form was prepared for this purpose (see Figure 2) and a clerical staff member at the Bureau was hired to collect this information. The serial number (Case number I.D.), in column one of this form, was again the linking bit of information; this time between the identification of the theft suspect and information identifying the stolen vehicle, and when and from where it was taken. A Denver Police Department number (next to the right-most column) was assigned to each non-juvenile suspect (18 years or older), and was used to follow through on the disposition of cases, many of which are still pending. The hiring of a Bureau employee for this study was advisable from the point of view of efficiency because of her familiarity with the report forms and filing system. It also allowed the Denver Police Department to avoid a problem of their permitting outside access to the names of arrested juveniles. A Colorado law prevents the Department from opening its files containing the identification of juvenile offenders to persons unauthorized by the courts. This law is rigorously enforced to the degree that many police department employees are denied access to these files.

Since there are no identification codes for juvenile offenders, nor can the juvenile records be accessed by crime code without searching all 5400 filings, juvenile case disposition records were sampled rather than searched in their entirety. The sample was kept random by selecting every 10th serial number belonging to a juvenile. The names were neither alphabetical nor sorted by age or offense. A total of 540 juvenile records with 80 convictions were thus selected. Thirteen of these cases

Serial No.	Theft Code	Make Code	Mo./Day	Precinct	Detail - Bureau	Time	Day	Detective
4614770720092073030034 1N412062237	98016613	64909			00550055	10701 271 3		
4615140720092081010144530220 80417	98016613	15619			05000500	10701 271 3		
4615150720092081030403341320 80017	98016613	15032			03000300	10701 271 3		
4615340730902083150430 0N792062137	98016863	64909			03000300	10701 271 3		
4615850720612084160320111820816 17	73016943	15929			03500350	10701 271 3		
4615860720092082120264052820723 37	98016613	76156			03000300	10701 271 3		
4615870720092084060248 5M112072337	98016943	75209			00550055	10701 271 3		
4615880720092081120196231520815 27	98016613	15030			07000700	10701 271 3		
4615890720132084020100041620523 37	98016613	54624			02750275	10701 271 3		
4616220720092084130010045720820 37	98016943	16029			02750275	10701 271 3		
4616240720092084120097 08622082137	72016613	16110			02250225	10701 271 3		
4616310720902084050063 0M302080237	98016863	16029			03000300	10701 271 3		
4616460720092 0820201600512208101 7	98016943	14231			03000300	10701 271 3		
4616500720672082150323952020817 27	72016613	16156			28002800	10701 271 3		
4616610720612082040120092020820 37	98016943	16005			07500750	10701 271 3		
4616660720092082060532853520621 37	72016863	66365			05000500	10701 271 3		
4616670720092082060470031820821 37	72016943	16365			00350035	10701 271 3		
4616690720682082170324657220820 37	72016613	16005			18001800	10701 271 3		
4616720720092082040201531120823 37	98016943	15619			02000200	10701 271 3		
4616760720092084020040041420813 27	98016943	14624			05000500	10701 271 3		
4617240720092092160440052720823 37	98016613	16365			03000300	10701 271 3		
4617250720672092020170051220520 37	98016613	55041			28002800	10701 271 3		
4617260720092092110160051320620 37	98016943	64744			02750275	10701 271 3		
4617410720682093150325 0N482022037	72016613	24909			17001700	10701 271 3		
4617420720902092050230051820913 27	72016613	24624			02250225	10701 271 3		
4617430720052092040250031420923 37	72016613	26365			03000300	10701 271 3		
4617820720092094030400001520901 37	98016943	25209			09000900	10701 271 3		
4617830720092092010210030520912 27	98016943	26110			02250225	10701 271 3		
4617840720052093130520001520910 17	98016943	24909			12001200	10701 271 3		
4617850720902092030268055420907 17	73016613	26156			02250225	10701 271 3		
4617970720092092020171901920914 27	98016943	24624			07000700	10701 271 3		
4618080720092091040310001820919 37	98016613	25032			02250225	10701 271 3		
4618190720682092010180050120922 37	98016943	26156			42004200	10701 271 3		
4618400720092094060208 4M0120923 37	72016943	26029			00650065	10701 271 3		
4618410720092094130030 0M572092137	98016943	25929			18001800	10701 271 3		
4618420720092091030340141520923 37	72016613	25619			05000500	10701 271 3		
4618470720092093010100150520920 37	98016943	24231			05000500	10701 271 3		
4618500720092093010040101120920 37	98016943	24231			02250225	10701 271 3		
4618550730092092040201592020923 37	72016943	26110			02250225	10701 271 3		
4618880720832104120097 7d622080137	73016613	16110			02250225	10701 271 3		
4618890720084210203016275422100137	98016613	36156			10001000	10701 271 3		
4618900720052102010205430621001 37	72016613	36005			03500350	10701 271 3		
4618910749092102020160051321003 17	98183613	36156			06000600	10701 271 3		
4619110720092102140301031020120 37	72016613	15929			02000200	10701 271 3		
4619120720882103120080051020922 37	98016613	24909			08000800	10701 271 3		
4619290720092104020108041321009 17	72016943	36029			00400040	10701 271 3		
4619300720884210415009110312100917	98016613	35032			015U0150	10701 271 3		
4619310720882104160320111821012 27	72016943	36029			01000100	10701 271 3		
4619320720882102040201031021012 27	73016943	36365			10001000	10701 271 3		
4619330720092102020185352020921 37	98016613	25929			00750075	10701 271 3		
4619440740372103040041 7N242100137	72183243	35041			07000700	10701 271 3		

Figure 1. Denver Police Department Theft Report Data - Sample Printout Sheet

DPD Serial N. Case ID	Age	Sex	Home ~~Address~~ ~~Precinct~~ DISTRICT	Alone When Aressted?	Specific Charge	Previous Arrests?	Juvonile Ct-JC Released - R Convicted - C Beyond DPD- OS	Dpd. No. (Adults)	Mo.
422696	15	M	2	YES	J-R	1	JC		JULY
421853	18	F	1	Y	TOMV	0	D C	154602	
422767	45	M	3	N	TOMV/Removal	0	D C	31037	
423767	38	M	3	N	TOMV/Removal	0	D C	83640	
423022	15	M	2	Y	JR	4	J C		
424182	17	M	1	Y	JR	1	J C		
424187	17	M	1	N	JR	2	J C		
424199	14	M	2	N	TOMV	2	R	COMPLAINANT REFUSED TO PROS	
424293	18	M	3	Y	TOMV/TFMV	1	D. C	149923.	
424339	15	M	4	N	TOMV/C	2	J.C		
424557	22	M	4	N	J-R	UNKNOWN	D. C	147589 (ON PROBATION)	
423495	20	M	4	N	TOMV	1	D. C	149641	
423608	19	M	1	N	TOMV/C	1	RELEASED -	COMPLAINANT REFUSED	
425571	14	M	2	Y	JR	0	J.C		
429500	20	M	2	Y	JR	UNKNOWN	D.S. (MILITARY-LAFB)		
431040	13	M	3	Y	JR	0	RELEASED		
430957	15	M	3	N	JR	2	J.C	(ON PROBATION)	AUG.
431257	15	M	1	Y	JR/TAMPERING	1	J.C		
431255	15	M	2	N	TOMV	1	J.C		
430255	15	F	4	N	JR	1	J.C		
430940	13	F	4	N	JR	1	J.C		

*TOMV- THEFT OF MOTOR VEHICLE *TFMV - THEFT FROM MOTOR VEHICLE *USUALLY OUT OF STATE

Figure 2. Offender Data Collection Form

were not in the record file for one reason or another, leaving 67. Of these 67, fourteen were convicted of auto theft. There remained, therefore, only fourteen juveniles for which statistical records of previous arrests and case dispositions were collected, in addition to age, sex, and other data collected, for all those charged with auto theft.

In all, 7585 "stolen" report forms for passenger cars and trucks and 6101 "recovery" forms for the period July 1970 through June 1971 were data reduced for analysis. During this same period, there were 808 juveniles and 320 adults apprehended and charged with automobile theft and related crimes, e.g., joyriding, theft from a vehicle, etc.

The statistical analysis treats information on convicted automobile theft offenders and those apprehended and charged with theft synonomously, principally because of data availability. A more complete rationale is listed below.

1. Convictions for auto theft are many times the result of plea bargaining for more serious crimes, and similarly, auto thieves are many times convicted of misdemeanor charges or dismissed by the courts, so that a review of convicted offenders might also represent a biased population.

2. Many of the cases for which charges were made during July 1970 through June 1971 have not yet come to trial or otherwise received final disposition.

3. The case number I.D. used in police files was the only information that permitted investigators to take a preliminary look at the correlation between offenders and the cars they selected, and this I.D. is not carried over into court records, or police juvenile records.

4. A complete listing of suspects for the year was available from police files. The file was complete as to age, sex, specific charge, and many other associated statistics.

5. Court records of persons convicted of auto theft are not separated from the mass of conviction data and would have taken months to compile.

6. The information on suspects was never used to name any individual, but only to examine group characteristics.

7. The sample of 14 juveniles convicted of theft were compared statistically with the entire listing. Average age and number of previous arrests were calculated for both groups. Although both means were slightly higher for the convicted group in each case, the differences could have been atrributed to sample size.

Should the information on convicted auto thieves ever be collected and released, it would be important to compare population characteristics between the two groups. This report cautions that if biases exist in apprehending certain persons for auto theft, this study must not be used to substantiate or reinforce this bias.

1.2 Motor Vehicle Department, Metropolitan Area Automobile Dealers Association

Reporting data on the percentage of all stolen vehicles for any particular car make and year helps to determine a vulnerability predictor for that automobile. Also of interest in examining the preselection process for stealing automobiles is a comparison of that percentage with the percentage of all such cars registered in the city.

The logical place to begin the search for a model-year-make breakdown of automobiles registered in the city of Denver seemed to be the Motor Vehicle Department (MVD), which has computerized its registration data for several years. As helpful as city and state motor vehicle and data processing people tried to be in assisting in this effort, and despite the fact that the information of interest was stored on magnetic computer tapes, retrieval of the information became a complicated problem. The city's main purposes for storing registration data on tape are: (1) to provide easy access for determining a license number-owner relationship and, (2) to generate a mailing list for registration renewals. Make-model information is not coded for quick retrieval, but is recorded literally on tape. Searching over one-quarter of a million sets of data entries for this information would have cost the project an estimated 12 percent of the total funding. Fortunately, the Metropolitan Area Automobile Dealers' Association, a privately funded organization that primarily monitors the sale of new cars, maintains office space at the MVD and has collected, clerically for

their own purposes, most of this information which they provided to the study at no charge. Classification of registered automobiles by make and by year was thus obtained, although a specific listing of model types was not.

1.3 United States National Weather Service

Among the parameters of interest in examining the circumstances of auto theft were data regarding ambient weather conditions. Incremental weather data for the one-year period of interest were collected and coded directly from weather bureau records for insertion into the theft analysis program. Weather statistics (temperature, relative humidity, barometric pressure, and amount and type of precipitation) was recorded for each 4-hour segment of the year. A computer subroutine was written for interpolating weather data for each hour of the day to use with probable time of loss. These data were used to compare atmospheric conditions at time of offenses with actual yearly distribution of the same parameters.

1.4 Denver City Planning Department (Census Tract Data)

Population statistics of total numbers, age and sex distribution throughout the city of Denver were collected from the City Planning Office. These were taken from 1970 census tapes and are roughly within the period of interest for this analysis. It was assumed that the dates were close enough to make population distribution, as a correlate of precinct of loss and home address of offenders, a pertinent and permissable examination for this study. Precinct maps and census track maps were used to approximate the census information with the precinct data reported from police department files (see Figure 3). In many cases boundaries coincided and, in general, it was not a difficult problem to make the adjustment from one set of geographical designations to the other. By combining these sources, it was possible to come up with the following information for each Denver precinct: persons per gross acre (population density), total population, teenage population, number of automobiles reported stolen, and the resident district of persons apprehended for car theft.

Also, assigned to each precinct was a denoter of precinct characteristics, e.g., Inner City Business, Outer City Residential, etc. These assignments, of course, did involve judgement decisions on the part of the investigators, and primary characteristics were

DISTRICT NO.

Census Track Block	Precinct	Total Population	10-17 Yr. Olds	p.g.a.*	Primary** Descriptor	Percent of Auto Thefts

* persons per gross acre

** Precinct Classification
R1 - residential inner city
R2 - residential outer city
B1 - business inner city
B2 - business outer city
UD - under development, largely uninhabited
RB - residential-business

Figure 3. Precinct Data Collection Form

necessarily used for the descriptor. Incidental neighborhood businesses (gas stations, groceries, drug stores, etc.) are included within the "Residential" description.

City offices, in general, were very cooperative about trying to supply information. In most cases, the data sought was available, somewhere. There was, however, a problem of information retrieval that plagued almost every office encountered, especially when an attempt was made to coordinate information from one division to another within a department (e.g., auto theft and juvenile crime information at DPD), and particularly across departments (e.g., police department and the courts). The success of the data collection portion of this effort is due in no small measure to the unusual cooperation of clerks and administrators in searching, and permitting the investigators to search, clumsy and outdated information systems. In defense of the city administration, it should be noted that many of these systems are undergoing procedural changes to eliminate this problem.

2.0 Data Presentation - Computer Programs

The large amount of information collected necessitated the use of data reduction programs before the analysis of data could begin. Three major programs, two in FORTRAN and one in ALGOL, were written for this purpose: Theft Analysis (DPD theft report and recovery data), Offender Profile (data reduced from the collection reports on the 1128 persons arrested for car theft), and a third program, Match, which matched information from the data files created by the two former programs to examine individual offender characteristics with the automobile he is alleged to have stolen.

2.1 Program Descriptions

2.1.1 Stolen Automobile Data (Theft Analysis)

The input for Program 1 is essentially the information provided by the form shown in Figure 1, Theft Report Information. Additional data was provided from recovery reports and from the collection of Weather Bureau information for direct calculation of the atmospheric conditions at the probable hour of loss, also an input parameter. The program, besides interpolating for hourly weather conditions, is essentially a counting program for reducing the data. That is, counting variables are defined for each of the output parameters (day of the week,

time of day, make of car, etc.) and are incremented appropriately as the data is read in. Some of this information is first categorized, e.g., quarter of the month, but most of the calculations simply add up occurrences. A flow chart of the program is shown in Figure 4 and a complete listing appears in the Appendix. The program is compatible for FORTRAN IV and V compilers.

2.1.2 Offender Profile

Program 2 handles data taken from forms such as Figure 2 and, like Program 1, categorizes and sums information classes of interest. The main program, also written to be compatible with FORTRAN IV and V compilers, reads in data by month and calls for subroutine DOIT to increment counters and subroutine OTP to print the results. The program listing appears in the Appendix.

2.1.3 Offender Age with Stolen Automobiles (Match)

The third major programming effort involved a comparison of information compiled in Programs 1 and 2. Using the serial number ID code appearing both in theft report data and offender data, an examination of adult and juvenile crime patterns was permissible. Unlike the other two programs, this program was written in ALGOL, the most efficient compiler language for the B5500 on which it was run. The several thousand data cards prepared for Program 1 were stored on a card-image data tape. Profile information remained on punch cards. Using the tape file as program data storage, the cards were read in and matched with tape-stored data in order to set up counters for the stolen automobiles according to whether they were assumed to have been taken by juveniles or adults. The array DD [*] was filled with DPD automobile code numbers for identification.

The Program outputs and the discussion of these data summaries are given in Part II of this report.

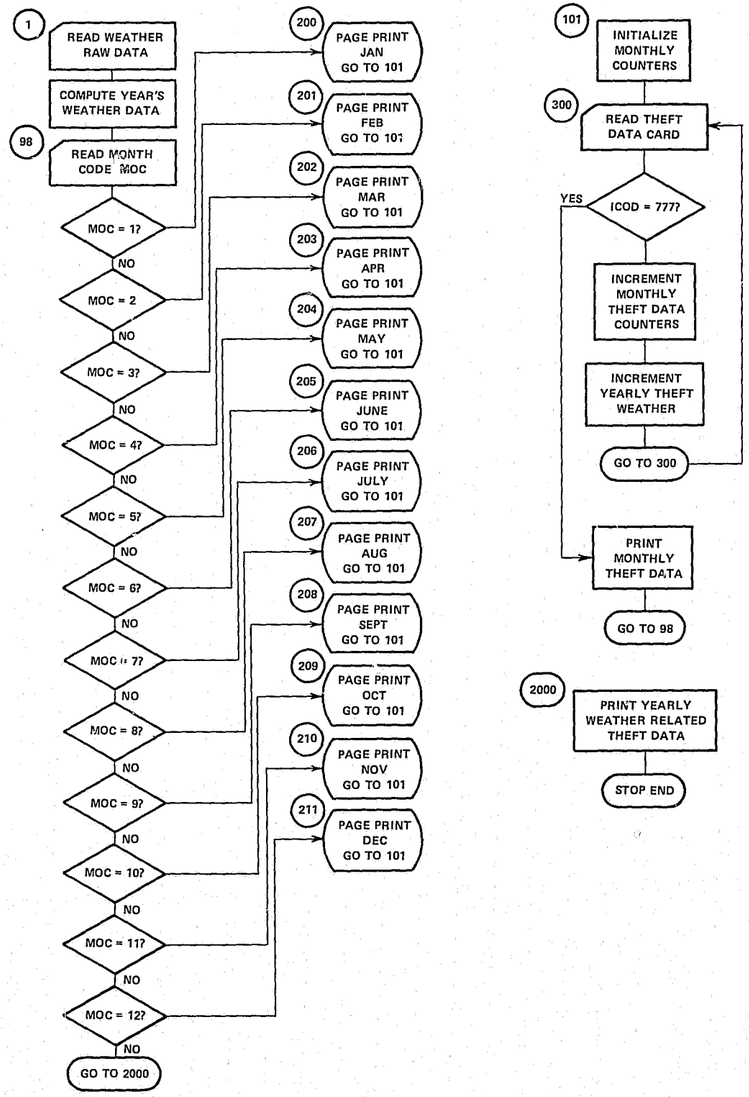

Figure 4. Gross Flow Diagram of Theft Analysis Program

PART II

DATA PRESENTATION AND ANALYSIS

1.0 Data Presentation

The city of Denver (proper) has a population of slightly over one-half million. There are more than 260,000 passenger cars registered in the city, or one car for every 1.9 people, and one for every 1.4 persons over sixteen. There is an estimated* ratio of 0.9 automobiles for every licensed driver in Denver. There were 7585 automobiles, or almost 3 percent of all those registered, stolen during the one-year period from July 1970 through June 1971. During this same period, there were 808 juveniles and 320 adults apprehended and charged with auto theft crimes, about one person for every seven stolen vehicles.

The remainder of this part of the report presents a summary of the particulars of these crimes and the persons charged with their commission, and an analysis of the data reported. The analysis consists of a comparison of the Denver auto theft statistics with national data and estimates, and determines "vulnerability factors" for an assortment of situation and environmental parameters. Tables 1 through 8 of summary data follow.

1.1 Vulnerability Factors

From the data in Tables 1 through 8 the ratio of actual losses by parameters (automobile make, parking location, time, etc.) to the chance number of such occurrences can be computed for a "vulnerability factor." For example, if no biases exist, there is one chance in seven (14.3%) of having an automobile stolen on any particular day of the week. Yet 16.9 percent of all cars are stolen on Saturday. A vulnerability factor for Saturday will be expressed as the ratio of 16.9 to 14.3 or 1.2. In the case of automobile make and year the relative percentages of registered and stolen automobiles are used, rather than a simple theft rate for each. In no case was significance determined before calculating the vulnerability ratio. The data from which the numbers were derived were from a one year sample of auto

* Number of licensed drivers in Denver is estimated from number of licensed drivers in Colorado.

THEFT REPORT DATA FROM JULY 1970 THROUGH JUNE 1971

			CARS	TRUCKS
NUMBER OF VEHICLES REPORTED STOLEN THIS YEAR-			7115	470
BY QUARTER OF MONTH-	FIRST	1716		
	SECOND	1974		
	THIRD	2034		
	FOURTH	1859		
BY DAY OF WEEK-	MONDAY	950		
	TUESDAY	955		
	WEDNESDAY	1065		
	THURSDAY	1082		
	FRIDAY	1257		
	SATURDAY	1283		
	SUNDAY	992		
BY TIME OF DAY-	MIDNIGHT TO 4 00AM	2086		
	4 00AM TO 8 00AM	211		
	8 00AM TO 12 NOON	715		
	12 NOON TO 4 00PM	879		
	4 PM TO 8 00PM	1130		
	8 PM TO MIDNIGHT	2564		

TYPE OF PROPERTY STOLEN

AUTOMOBILE ONLY	7411
AUTO AND ACCESSORIES	103
AUTO AND JEWELRY	2
AUTO AND OTHER PROPERTY	0

PRECINCT OF LOSS

101-	96	201-	271	301-	135	401-	113
102-	88	202-	298	302-	223	402-	135
103-	120	203-	220	303-	175	403-	172
104-	122	204-	284	304-	88	404-	126
105-	140	205-	135	305-	97	405-	118
106-	78	206-	200	306-	25	406-	183
107-	18	207-	159	307-	9	407-	116
108-	8	208-	44	308-	14	408-	17
109-	40	209-	30	309-	18	409-	31
110-	19	210-	25	310-	28	410-	39
111-	110	211-	156	311-	134	411-	183
112-	81	212-	160	312-	127	412-	214
113-	166	213-	173	313-	207	413-	168
114-	117	214-	154	314-	70	414-	162
115-	98	215-	122	315-	154	415-	127
		216-	178			416-	58
		217-	1				

Table 1

Yearly Summary of Stolen Automobile Data
Part I. Date, Day, Time and Precinct

STOLEN VEHICLES REPORTED

BUICK	330
CADILLAC	128
CHEVROLET CAMARO	49
CORVAIR	146
CORVETTE	68
OTHER	3648
GMC TRUCK	23
OLDSMOBILE	266
PONTIAC	595
INTERNATIONAL TRUCK	31
FORD BRONCO	9
FALCON	27
MAVERICK	11
MUSTANG	160
PINTO	5
SHELBY	3
THUNDERBIRD	17
OTHER	799
LINCOLN CONTINENTAL	0
OTHER	14
MERCURY CUMET	13
COUGAR	13
OTHER	77
CHRYSLER IMPERIAL	2
OTHER	54
DODGE	164
PLYMOUTH BARRACUDA	0
VALIANT	15
OTHER	203
GREMLIN	0
HORNET	1
JAVELIN	7
JEEP	30
NASH RAMBLER	91
DATSUN	21
FIAT	10
JAGUAR	6
MERCEDES-BENZ	5
MG	17
OPEL	8
RENAULT	1
TOYOTA	17
VOLKSWAGEN	376
PORSCHE	22
VOLVO	7

AGE DISTRIBUTION OF STOLEN VEHICLES

MORE THAN 10 YEARS	2007
10 YEARS	408
9 YEARS	919
8 YEARS	732
7 YEARS	704
6 YEARS	728
5 YEARS	375
4 YEARS	473
3 YEARS	341
2 YEARS	306
1 YEAR	300
CURRENT MODEL YEAR	292

LOCATION FROM WHICH CAR REPORTED STOLEN

GARAGE	32
STREET, ALLEY	4042
YARD	282
PARKING LOT, USED CAR LOT	3217

HOW ENTERED (IF KNOWN)

UNLOCKED DOOR OR WINDOW	3103
INSTRUMENT, TYPE UNKNOWN	0
PASS KEY	16
WIRE	1
SCREW DRIVER	1
SIPHON HOSE	0

7585

Table 2.

Yearly Summary Part 2
Stolen Vehicle by Make, Age and Location

WEATHER CONDITIONS AT TIME OF OFFENSE

T TEMP RANGE	% OF YEAR WITH TEMP = T	% THEFTS WHEN TEMP = T	% DAYS WITH TMAX = T	% THEFTS ON DAYS TMAX = T	% DAYS WITH TMIN = T	% THEFTS ON DAYS TMIN = T
T< 0 DEG F	**	**	0	0		
0 ≤ T < 10	1	1	1	**	2	1
10≤ T < 20	5	4	1	1	4	3
20≤ T < 30	10	10	1	1	12	12
30≤ T < 40	16	20	9	8	23	25
40≤ T < 50	18	19	12	13	20	20
50≤ T < 60	17	16	16	17	16	15
60≤ T < 70	15	17	19	20	18	17
70≤ T < 80	10	8	13	13	5	5
80≤ T < 90	6	3	17	17	0	0
90≤ T <100	1	1	11	11	0	0
T≥ 100	0	**	0	0	0	0

RH RELATIVE HUMIDITY RANGE	% OF YEAR WITH REL HUM = RH	% THEFTS AT REL HUM = RH
0 ≤ RH < 10 %	1	**
10 ≤ RH < 20 %	4	3
20 ≤ RH < 30 %	11	9
30 ≤ RH < 40 %	13	12
40 ≤ RH < 50 %	13	12
50 ≤ RH < 60 %	13	15
60 ≤ RH < 70 %	13	15
70 ≤ RH < 80 %	12	13
80 ≤ RH < 90 %	11	12
90 ≤ RH ≥100 %	9	10

P BAROMETRIC PRESSURE RANGE	% OF YEAR AT PRESS P	% THEFTS AT PRESS P
P < 29.50 IN HG	1	1
29.50 ≤ P < 29.70	8	8
29.70 ≤ P < 29.90	23	24
29.90 ≤ P < 30.10	36	35
30.10 ≤ P < 30.30	27	27
30.30 ≤ P < 30.50	6	5
P ≥ 30.50	**	**

% SEGMENTS IN WHICH BAR PRESSURE WAS RISING 45 STEADY 7 FALLING 47
% THEFTS WHEN BAR PRESSURE WAS RISING 27 STEADY 49 FALLING 25

% SEGMENTS DURING WHICH THERF WAS MEASURABLE PRECIPITATION 14
% THEFTS WHEN THERE WAS MEASURABLE PRECIPITATION 13

TYPE OF PRECIPITATION	% DAYS WITH MEASURABLE PRECIP	% THEFTS ON DAYS WITH MEASURABLE PRECIP
ALL KINDS	24	23
SNOW ONLY	10	9

Table 3

Yearly Summary Part 3
Weather Conditions at Time of Offense

Month		Percent Vehicles Stolen
(1970)	July	7.95
	August	8.46
	September	7.60
	October	9.49
	November	8.38
	December	10.06
(1971)	January	8.87
	February	7.15
	March	8.44
	April	7.70
	May	7.86
	June	8.03
January - March		24.46
April - June		23.59
July - September		24.01
October - December		27.93

Table 4

Percent Thefts by Month and Season

Make	Percent of Registered Automobiles	Percent of Stolen Automobiles
Buick	3.57	4.4
Cadillac	2.13	1.6
Chevrolet	28.82	52.0
Chrysler	1.9	.7
Dodge	6.23	2.2
Ford	14.48	14.2
Lincoln	.64	.2
Mercury	4.12	1.4
Oldsmobile	3.43	3.6
Plymouth	9.50	3.0
Pontiac	5.20	8.2
Rambler	3.10	1.1
Datsun	1.31	0.3
Fiat	.44	0.1
Jaguar	.05	0.1
Mercedes	.34	0.1
MG	.27	0.2
Toyota	1.07	0.2
Volvo	1.11	0.1
VW	4.58	5.2
Porsche	.19	0.3
Opel	.79	0.1

Model Year	Percent of Registered Automobiles	Percent of Stolen Automobiles
Current	5	4
1 year old	10	4
2 years old	12	4
3	9	4
4	9	6
5	8	5
6	8	10
7	21	9
8	6	10
9	5	12
10	4	5
More than 10	17	26

Total Number Cars Registered 261,007
Total Number Cars Stolen 7,585
Total Number Cars Recovered 6,596 (Includes 1969-1970 Recoveries)

Table 5

Comparison of Stolen and Registered Vehicles

NUMBER OF JUVENILES ARRESTED FOR AUTO THEFT RELATED OFFENSES DURING YEAR = 808

NUMBER OF ADULTS ARRESTED FOR AUTO THEFT RELATED OFFENSES DURING YEAR = 320

AGE DISTRIBUTION OF OFFENDERS	MALES		FEMALES	
UNDER 13	34	3%	4	0%
13	67	5%	6	0%
14	97	8%	10	0%
15	180	15%	21	1%
16	219	19%	17	1%
17	145	12%	8	0%
18 OR OVER	311	27%	9	0%

	JUVENILES	ADULTS
% ALONE WHEN ARRESTED	18	45
% WITH PREVIOUS ARRESTS	62	38
% RELEASED BEFORE GOING TO COURT	16	34

HOME ADDRESS DISTRICT	JUVENILES		ADULTS	
1	101	12%	27	8%
2	256	31%	87	27%
3	210	25%	53	16%
4	203	25%	74	23%

BREAKDOWN OF THEFT RELATED CHARGES

	JUVENILES		ADULTS	
JOYRIDING	307	37%	83	25%
W/CONSPIRACY	37	4%	10	3%
TAMPERING	25	3%	4	1%
W/CONSPIRACY	16	1%	0	0%
TOMV	434	53%	208	65%
W/CONSPIRACY	12	1%	9	2%
TFMV	90	11%	16	5%
W/CONSPIRACY	5	0%	4	1%
REM. AUTO PARTS	9	1%	2	0%
W/CONSPIRACY	0	0%	1	0%
CURFEW	13	1%	0	0%
W/CONSPIRACY	2	0%	0	0%

Table 6

Offender Characteristics

Model	Percent Juveniles	Percent Adults
Buick	7	6
Cadillac	1	4
Chevrolet	50	37
Corvair	2	0
Corvette	2	3
Chrysler	1	1
Dodge	1	5
Ford	11	14
Mercury	1	2
Mustang	3	2
Oldsmobile	2	2
Plymouth	2	2
Pontiac	8	7
Rambler	1	2
Volkswagen	3	6
Other	4	9

Model Year	Percent Juveniles	Percent Adult
Current model year	4	6
1 year old	7	5
2 years old	3	7
3	5	6
4	3	9
5	3	3
6	9	9
7	10	9
8	11	7
9	16	11
10	6	5
More than 10	24	23

Table 7

Breakdown of Year and Model for Juvenile and Adult Offenders

City District	Percent Population	Percent 10-17 Year	Percent Thefts	Home Address Offenders
1*	15.6	14.2	16.5	12.7
2	18.5	22.9	36.0	33.9
3	34.4	27.1	20.6	26.0
4	31.5	35.8	26.9	27.4

* Contains most of Downtown Denver

Primary Precinct Descriptor**	Percent Population	Percent Thefts
R1	9.3	14.5
R2	73.1	49.4
B1	3.9	19.0
B2	1.3	4.0
RB1	5.4	9.6
RB2	6.8	3.5

** Precinct Classification
R1- residential inner city
B1- business inner city
RB- residential-business
R2- residential outer city
B2- business outer city

Persons Per Gross Acre	Percent Population	Percent Thefts
2- 4	2.3	6.5
4- 6	8.1	6.2
6- 8	15.2	12.0
8-10	14.2	18.5
10-12	20.9	8.8
12-14	10.3	12.3
14-16	7.1	7.6
16-20	6.5	4.6
20-24	7.4	8.3
24-30	4.3	10.1
Over 30	3.5	5.1

Table 8

Population - Theft Precinct Characteristics

theft history but comprised the entire population of stolen cars for the year. Since the population of 1970-1971 may be unique, this analysis treats the data as a population rather than a sample, and does not attribute any reported differences to sampling.

The random chances of having an automobile stolen in Denver during the year are 3 out of 100 or 0.03. A product of vulnerability factors for an individual's vehicle and parking habits will predict an estimate of how much more or less vulnerable to theft he is than the average Denverite.

1.2 Examination of Vulnerability Table and Comparison with National Theft Data

The data from Tables 1 through 8 are used in Table 9 to help assess Denver area theft patterns by observing the extent to which actual theft parameters differed from those one might expect by chance. Taking the product of factors from Sections 1-11 of Table 9, one can predict an estimated "likelihood of theft" based on the Denver auto theft history of last year. Numbers greater than one tend to increase a Denverite's chances of having his vehicle stolen; numbers less than one tend to decrease this probability.

For example, a 1967 Chevrolet, parked downtown on the first Monday in May at 10:00 P.M. on a cool rainy evening has a vulnerability product of

Parameters from Table 9

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
.94	× .91	× 2.03	× .88	× 1.07	× 1.10	× .66	× 1.14	× 2.13	× 1.80	× .63 = 3.3

This product, 3.3, can be used in a general way to estimate the degree of modification of a driver's random chances of having his automobile stolen on any particular day of the year. The same automobile parked at home in his garage on the same evening has a vulnerability product of 0.03.

Because some of this information is overlapping (e.g., precinct description is not independent of either district or location) and because some "expected" values are based on population rather than number of vehicles in the area, or on neither (e.g., location factor is based on the ratio of percent of actual theft to 25 percent for the four locations

1. Month of the Year	
January	1.06
February	.86
March	1.01
April	.92
May	.94
June	.96
July	.95
August	1.01
September	.91
October	1.14
November	1.00
December	1.21

2. Quarter of the Month	
First Quarter	.91
Second Quarter	1.04
Third Quarter	1.07
Fourth Quarter	.98

3. Time of Day	
Midnight - 4:00 AM	1.65
4:00 AM - 8:00 AM	.16
8:00 AM - 12 Noon	.56
12 Noon - 4:00 PM	.70
4:00 PM - 8:00 PM	.90
8:00 PM - Midnight	2.03

4. Day of Week	
Monday	.88
Tuesday	.88
Wednesday	.98
Thursday	1.00
Friday	1.16
Saturday	1.18
Sunday	.92

5. Temperature Range	
Below 30°	.94
30° - 80°	1.05
Over 80°	.57

6. Relative Humidity	
0 - 30%	.75
30% - 80%	1.03
Over 80%	1.10

7. District of City	
1	.66
2	1.44
3	.82
4	1.08

8. Precinct Description	
R1*	.87
R2	2.96
B1	1.14
B2	.24
RB1	.58
RB2	.21

9. Location	
Garage (Home)	.02
Street (Except at Home)	2.13
Residence (Ungaraged)	.15
Parking Lot, Used Car Lot	1.69

10. Make	
Buick	1.23
Cadillac	.75
Chevrolet	1.80
Chrysler	.37
Dodge	.35
Ford	.98
Lincoln	.31
Mercury	.34
Oldsmobile	1.05
Plymouth	.32
Pontiac	1.58
Rambler	.35
Datsun	.23
Fiat	.23
Jaguar	2.00
Mercedes	.29
MG	.74
Toyota	.19
Volvo	.90
VW	1.13
Porsche	1.58
Opel	.13

11. Model Year	
Current	0.80
1 Year old	0.40
2	0.33
3	0.44
4	0.66
5	0.63
6	1.25
7	1.28
8	.66
9	2.40
10 Years old	1.25
More than 10 years old	1.50

* See Table 8 for definitions

Table 9

Vulnerability Factors (Actual Loss/Expected Loss)

monitored) these numbers cannot be used to indicate theft likelihood on a linear scale; i.e., not 3.3 × average likelihood in the case of the example, but merely to rank likelihood according to magnitude; i.e., 3.3 indicates more likelihood than a vehicle with a product of 2.5 and less vulnerability than one with a product of 4.

A review of Tables 1 through 8 permits law enforcement personnel to review the magnitude and pattern of thefts, and a glance at the individual factors (Table 9) can indicate to owners and to police ways in which theft patterns are digressing from chance occurrence.

2.0 Results of the Analysis

So that readers might get some feel for the area in which the study was performed, and how certain of its characteristics compare with other parts of the country, Table 10 lists some comparative data.

	Population* in Thousands	Automobiles*	Autos/ 100,000 pop.	Thefts/* 100,000	Thefts/ Auto
National	203,212	88,841	43,700	432	.98%
California	19,953	9,821	49,200	679	1.40
Colorado	2,207	1,092	49,600	507	1.02
Massachusetts	5,688	2,301	40,400	859	2.12
Mississippi	2,217	817	36,800	73	.20

* U.S. Bureau of the Census, Statistical Abstract of the United States 1971, (32nd edition) Washington, D.C. 1971.

Table 10

Comparative Vehicle-Population Data

2.1 Automobile Make and Age

It is difficult to get exact statistics for any particular metropolitan areas but with an estimated 0.9 automobiles for each registered driver, Denver appears to have one of the highest rates of automobiles per person in the nation.

In general, Denver vehicles are a little older than the national average, and the percent of stolen older vehicles (more than 8 years old) is higher than average even after norming for the age distribution.

(See Table 11 for some comparisons.) A noticeable exception to the pattern of stealing older automobiles is the high incidence of brand new Corvettes stolen; almost one-half of the Corvettes taken were current model year or one year old.

Table 12 compares Denver thefts by make and year with those reported in the Department of Justice Survey (1968). This study processed 1659 questionnaires completed during interviews with persons (adults and juveniles) convicted of auto theft and serving prison sentences or on probation. The results of this survey have supplied the data base for most of the theft prevention campaigns since 1968.

2.2 Environmental Parameters, Time of Year, Day of Week, Weather, etc.

The results of the Denver study tend to agree with other sources that estimate car thefts peak in the fall of the year (almost 28%) with December the highest month, and that about 2/3 of the stolen cars are taken after dark (Denver shows 62%). Weather conditions did not appear to be a major influencing factor. It had been theorized from experiences in other cities and from discussions with local police officers that cold and snowy weather conditions discouraged theft. Auto thefts did not seem to be a function of either temperature or precipitation, but Denver experienced a mild winter in 1970-1971 and it may be that only a paralyzing snow storm has a marked effect on thefts. Change in barometric pressure was used as a study parameter at the suggestion of a police criminologist, but there appears to be no differences in the theft rate during rising or falling pressure patterns. The large percentage of thefts occurring when the barometer pressure was neither rising nor falling can be explained by the high incidence of nighttime thefts, when barometric pressure is generally at a leveling period. Nighttime thefts would also account for the lower percentage of thefts when the temperature was over 80°.

2.3 Offender Data

The Denver study appears to confirm the assertion that most auto thefts are performed by young people and a large proportion of the thefts are for simple joyriding (vehicle returned or abandoned within the city). The National Auto Theft Bureau estimates that nationally 58 percent of all auto thefts are by persons under 18, and that 16 percent of the thefts are by those under 15. In this study it was observed

Model Year	National Percent Registered (By Age Group)	Denver Percent Registered		Percent Thefts Denver/Percent Registered Denver
Current		5		.80
1 year old	30	10	27	.40
2 years old		12		.33
3 years old		9		.44
4 years old	31	9	26	.66
5 years old		8		.63
6 years old		8		1.25
7 years old	23	7	21	1.28
8 years old		6		1.66
9 years old	10	5	9	2.40
10 years old		4		1.25
Over 10 years old	6	17		1.50

Table 11

Vehicle Age Distribution-Denver and National

Make	Percent of Thefts (U.S. Dept. of Justice Survey - 1968)	Percent of Thefts Denver 1970-71
Buick	7.4	4.4
Cadillac	2.5	1.6
Chevrolet	46.8	52.0
Chrysler	1.2	.7
Dodge	2.2	2.2
Ford	18.4	14.2
Lincoln	.6	.2
Mercury	2.1	1.4
Oldsmobile	5.4	3.6
Plymouth	3.2	3.0
Pontiac	7.2	8.2
Rambler	1.6	1.1
Volkswagen	1.5	5.2

Table 12

Comparison of Stolen Automobiles by Make Denver and National Survey

that 64 percent of the persons charged were under 18, and 16 percent were under 15. For comparative purposes, 30 percent of the Denver population are under 18 and 9 percent are between 10 and 14. Only 35 percent of the offenders in Denver were charged specifically with joyriding as opposed to national estimates of 70-80 percent. Some technicalities in the police charge description, however, may be obscuring the intent of the crime. That is, of the 55 percent of offenders charged with theft of a Motor Vehicle (TOMV) there may be a considerable number of joyriders. As pointed out in Part I of this Report, offender data are summarized from information regarding those charged and arrested for auto theft and are not limited to those actually convicted of theft. The reasons for this are predominently those of information accessibility but a full rationale is presented on page 10 along with a caution against using this study to perpetuate any biases which might exist in apprehension.

Comparing records of arrest and successful prosecution, nationally one out of every five stolen vehicles leads to arrest with 65 percent chance of successful prosecution, or a 13 percent chance of apprehending and convicting the auto thief. In Denver last year 14 percent of the stolen vehicles led to charges, 10 percent to actual arrests, and an estimated 5 percent of the total were convicted. Table 13 shows the disposition, by percentage, of adults charged during the subject year with auto theft crimes.

Disposition	Number	Percent of Sample
Case Pending	35	22.6
Dropped/Dismissed	37	23.9
No Auto Theft Arrest	24	15.5
Probation	27	17.4
Detention	20	12.9
Acquittal	2	1.3
Suspended Sentence	10	6.5
	155	

Table 13

Disposition of Cases for Adults
Charged with Auto Theft N=155

2.4 Location of Thefts

As might be expected, the most protected location in which to park a vehicle is one's own garage, and the most vulnerable location is on the street away from home. Thefts reported (Table 2) from a yard are in fact those taken from the street adjacent to the owner's residence or elsewhere ungaraged on his property. They account for less than 4 percent of all thefts. Vehicles left in parking lots or on used car lots comprise a high 42 percent of all stolen vehicles, about 75 percent the number taken from streets away from home. More automobiles (49 percent) were stolen from residential districts away from the inner city than anywhere else, but 73 percent of the Denver population live out of the inner city. Fourteen and one-half percent of the vehicles were taken from inner city residential sections where 9.3 percent of the population live. An examination of thefts according to population density shows some erratic patterns, probably because of intruding factors, for example, the lowest density, 2-4 persons per gross acre is not in a wealthy subdivision but in the industrial Stockyards section. The highest theft rate per population was in the 24-30 p.g.a. group which consists of predominantly RB1 precincts (older homes, apartments and businesses) close to the inner city, and the lowest was in the 10-12 p.g.a. which is also the Denver median.

When precincts are examined in a frequency tabulation of auto thefts, it can be observed that 51.6 percent of the precincts had between 120 and 299 thefts and 48.4 percent of the precincts had less than 120. The class A and class B precincts, see Table 14, were analyzed to see if any uniform characteristics for the two groups could be observed. There was no unifying revelation across districts, but within three of the four precinct districts there was a noticeable pattern, see Figure 5 for district locations. In District I all of the class A precincts were in lower downtown Denver. District II precincts, which comprise most of Northeast Denver were all in class A with two exceptions - the railroad yards (precincts 208 and 209) and the precinct surrounding Manual High School (210) which lies almost in the center of District II and had only 25 stolen vehicle reports. In District III which includes Southeast Denver, the principal targets were the more affluent metro suburban precincts, and no clear pattern was observed in District IV.

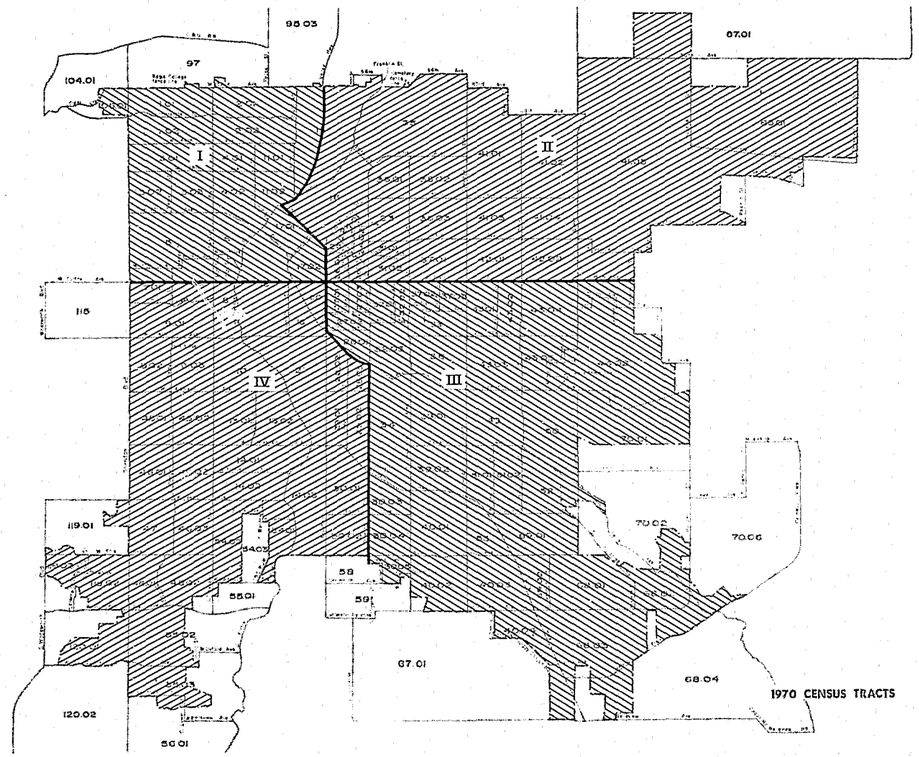

Figure 5. Census Tracks and City Districts Map

Auto Theft Frequency	Number of Precincts	Percent	
240-299	3	5.0	A
180-239	5	8.3	
120-179	23	38.3	
60-119	14	23.4	B
0- 59	15	25.0	

Table 14

Auto Theft Frequency and Number of Precincts

3. Conclusions and Recommendations

The problem of auto theft in Denver has been dimensioned and to large extent its pattern has been detailed. There were no big surprises from the data as compared with that reported in other studies, except perhaps for the unusually high number of older vehicles stolen and the high incidence of parking lot thefts. Denver police might wish to take note that although national auto theft prevention programs warn of a high incidence of luxury new car thefts, the number of new cars (last 2 model years) stolen in Denver was in fact less than 8 percent, compared with almost 32 percent that were 10 years or older. Since the study was limited to an examination of available data, rather than one which monitors the procedures for collecting and preserving the information, some vital questions went unexplored. These include the effects of street illumination, the relative effectiveness of various anti-theft devices, and whether or not the missing vehicle had keys inside or had been locked, for which the investigators were unable to gather reliable information.

A replication of this study in other locations would help to generate hypotheses regarding the reasons for which local patterns differ from national data and each other as functions of local situations such as number of automobiles per capita, average income, quality of the public transportation system, teenage unemployment rates, program for juvenile rehabilitation (62 percent of all juveniles had been previously arrested), local problems of drug abuse, etc.

In general this study confirms the frequency of the crime of auto theft and the need for a comprehensive cooperative approach to its

solution from community, industry, and government. The objectives of an auto theft control program are to minimize thefts and maximize the rate of recovery. This report provides a comprehensive technique for data collection and analysis to facilitate those objectives. It also provides the data from which to assess the value of the theft prevention programs that develop.

APPENDIX

Listing of Computer Programs


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            UNIV. OF DENVER--B5500 FORTRAN COMPILATION      X.14.
C     PHASE 1 ANALYSIS OF REPORT INFORMATION                          *
C     SEGMENT 1 INPUT WEATHER DATA AND MAKE COUNTS                    *

      INTEGER P(2897),T(2897),RH(2897),X,DEL,DPDT,PBAR,TEMP,RHUM,     *
     1        IMAX(466),TMIN(466),H2O(466),SNO(466)                    *
      REAL  KT(12),KTMAX(12),KTMIN(12),KRH(12),KP(12),KPOS,KCON,KNEG, *
     1      KPCP,KH2O,KSNO                                            *
      DIMENSION N1(2897),N2(2897),NTHFT(466),WKT(12),WKRH(12),WKP(12), *
     1          WTMAX(12),WTMIN(12)                                   *
C     WEATHER INFORMATION  7/1/70 TO 6/31/71                          *
      NOD = 366                                                       *
      FOD=NOD                                                         *
      NSEG = 2191                                                     *
      FSEG = NSEG                                                     *
      DO 20 J=1,NOD                                                   *
      N = J*6 - 6                                                     *
      READ 21,   (P(N+I),T(N+I),RH(N+I),N1(N+I),N2(N+I),I=1,4),TMAX(J), *
     1   TMIN(J),  H2O(J),  SNO(J)                                    *
      READ 21,   (P(N+I),T(N+I),RH(N+I),N1(N+I),N2(N+I),I=5,6)        *
   21 FORMAT(4X,4(I5,3I3,I1),4I4)                                     *
   20 CONTINUE                                                        *
      DO 28 I=1,NOD                                                   *
   28 NTHFT(I) = 0                                                    *
      WKPOS =0                                                        *
      KPOS  =0                                                        *
      KCON  =0                                                        *
      WKNEG =0                                                        *
      KNEG  =0                                                        *
      KPCP  =0                                                        *
      KH2O  =0                                                        *
      WH2O  =0                                                        *
      KSNO  =0                                                        *
      WSNO  =0                                                        *
      DO 29 I=1,12                                                    *
      KT(I)  =0                                                       *
      KRH(I) =0                                                       *
      KP(I)  =0                                                       *
      WTMAX(I)=0                                                      *
      KTMAX(I)=0                                                      *
      WTMIN(I)=0                                                      *
   29 KTMIN(I)=0                                                      *
C     INITIALIZE COUNTERS FOR SEGMENT 1                               *
      WKPCP =0                                                        *
      WKT( 7) = 1                                                     *
      WKRH( 8)=1                                                      *
      WKP( 5) =1                                                      *
      WKCON =1                                                        *
C     GENERAL WEATHER COUNTS BY SEGMENT                               *
      DO 30 NS=2,NSEG                                                 *
      IF(T(NS) .LT. 0)  K1 = 1                                        *
      IF(T(NS-1) .LT. 0) K2 = 1                                       *
      I=1                                                             *
      DO 33 J=1,91,10                                                 *
```

```
      I= I+1
      IF(T(NS) .GE. (J-1) .AND. T(NS) .LT. (J+9)) K1 = I
   33 IF(T(NS-1),GE.(J-1) .AND. T(NS-1),LT.(J+9)) K2 = I
      IF(T(NS) .GE. 100) K1 = 12
      IF(T(NS-1) .GE. 100) K2 = 12
      KDIF =  T(NS) -  T(NS-1)
      IF (KDIF .GE. 0) GO TO 400
      NUM = K2 +1 -K1
      FN = 1./NUM
      DO 401 I=K1,K2
  401 WKT(I) = WKT(I) + FN
      GO TO 403
  400 NUM = K1 +1 -K2
      FN = 1./NUM
      DO 402 I=K2,K1
  402 WKT(I) = WKT(I) + FN
  403 CONTINUE
      I=0
      DO 34 J=1,81,10
      I=I+1
      IF (RH(NS) .GE. (J-1) .AND. RH(NS) .LT. (J+9)) K1 = I
   34 IF (RH(NS-1),GE.(J-1) .AND. RH(NS-1),LT.(J+9)) K2 = I
      IF (RH(NS) .GE. 90 .AND. RH(NS) .LT. 101) K1 = 10
      IF (RH(NS-1),GE. 90.AND. RH(NS-1),LT.101) K2 = 10
      KDIF = RH(NS) - RH(NS-1)
      IF (KDIF .GE. 0) GO TO 410
      NUM = K2 +1 -K1
      FN = 1./NUM
      DO 411 I=K1,K2
  411 WKRH(I) = WKRH(I) + FN
      GO TO 413
  410 NUM = K1 +1 -K2
      FN = 1./NUM
      DO 412 I=K2,K1
  412 WKRH(I) = WKRH(I) + FN
  413 CONTINUE
      IF (P(NS) .LT. 2950) K1 = 1
      IF (P(NS-1) .LT. 2950) K2 = 1
      I=1
      DO 35 J=2950,3030,20
      I= I+1
      IF (P(NS) .GE. J .AND. P(NS) .LT. (J+20)) K1 = I
   35 IF (P(NS-1),GE.J .AND. P(NS-1),LT.(J+20)) K2 = I
      IF (P(NS) .GE. 3050) K1 = 7
      IF (P(NS-1),GE. 3050) K2 = 7
      KDIF =  P(NS) -  P(NS-1)
      IF (KDIF .GE. 0) GO TO 420
      NUM = K2 +1 -K1
      FN = 1./NUM
      DO 421 I=K1,K2
  421 WKP(I) = WKP(I) + FN
      GO TO 423
  420 NUM = K1 +1 -K2
      FN = 1./NUM
      DO 422 I=K2,K1
```



```
  422 WKP(I) = WKP(I) + FN
  423 CONTINUE
      DPDT = (P(NS) - P(NS-1))
   41 IF (DPDT .GT. 0) WKPOS = WKPOS +1
      IF (DPDT .EQ. 0) WKCON = WKCON +1
      IF (DPDT .LT. 0) WKNEG = WKNEG +1
      IF (N1(NS) .GT. 0 .AND. N1(NS) .NE. 10) WKPCP = WKPCP +1
   30 CONTINUE
C     GENERAL WEATHER COUNTS BY DAY
      DO 31 NDA=1,NOD
      I= 1
      DO 36 J=1,91,10
      I = I+1
   36 IF (TMAX(NDA) .GE. (J-1) .AND. TMAX(NDA) .LT. (J+9)) WTMAX(I) =
     1   WTMAX(I) +1
      IF(TMAX(NDA) .GE. 100) WTMAX(12) = WTMAX(12) +1
      IF(TMIN(NDA) .LT. 0) WTMIN(1) = WTMIN(1) +1
      I=1
      DO 37 J=1,91,10
      I = I+1
   37 IF(TMIN(NDA) .GE. (J-1) .AND. TMIN(NDA) .LT. (J+9)) WTMIN(I) =
     1   WTMIN(I) +1
      IF(H2O(NDA) .GT. 0) WH2O = WH2O +1
      IF(SNO(NDA) .GT. 0) WSNO = WSNO +1
   31 CONTINUE
C     SEGMENT 2 INPUT REPORT DATA MONTH AT A TIME
   98 READ 99,MOC
   99 FORMAT(I2)
      NOF    = NUF   + I1 + I2
  100 IF(MOC.EQ.7)  GO TO 200
      IF(MOC.EQ.8)  GO TO 201
      IF(MOC.EQ.9)  GO TO 202
      IF(MOC.EQ.10) GO TO 203
      IF(MOC.EQ.11) GO TO 204
      IF(MOC.EQ.12) GO TO 205
      IF(MOC.EQ.1)  GO TO 206
      IF(MOC.EQ.2)  GO TO 207
      IF(MOC.EQ.3)  GO TO 208
      IF(MOC.EQ.4)  GO TO 209
      IF(MOC.EQ.5)  GO TO 210
      IF(MOC.EQ.6)  GO TO 211
      GO TO 2000
  200 PRINT 105
  105 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
     2       " JULY, 1970")
      GO TO 101
  201 PRINT 106
  106 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
     2       " AUGUST, 1970")
      GO TO 101
  202 PRINT 107
  107 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
     2       " SEPTEMBER,1970")
      GO TO 101
  203 PRINT 108
```

```
108 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " OCTOBER, 1970")
     GO TO 101
204 PRINT 109
109 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " NOVEMBER, 1970")
     GO TO 101
205 PRINT 110
110 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " DECEMBER, 1970")
     GO TO 101
206 PRINT 111
111 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " JANUARY, 1971")
     GO TO 101
207 PRINT 112
112 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " FEBRUARY, 1971")
     GO TO 101
208 PRINT 113
113 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " MARCH, 1971")
     GO TO 101
209 PRINT 114
114 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " APRIL, 1971")
     GO TO 101
210 PRINT 115
115 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " MAY, 1971")
                                                                  SEGMENT
     GO TO 101
211 PRINT 116
116 FORMAT(1H1,10X,"ANALYSIS OF THEFT REPORT DATA FOR MONTH OF",
   2       " JUNE, 1971")
     GO TO 101
300 READ 301, ICOD,ICAR,IPE,    IDAM,ITI,IHE,IPROP,IWT,IDAW,ICUR,IJWL,
   2          IFR,ICLO,IYR
301 FORMAT(6X,I4,I2,3X,I3,9X,   I2,I2,4X,I2,I3,I2,5X,I1,8X,5I4)
     IF(ICOD.EQ.777) GO TO 976
     GO TO 302
C    ANALYSIS SEGMENT
C    INITIALIZE COUNTERS AND GO TO 300
101  I1 = 0
     I2 = 0
     I3 = 0
     I4 = 0
     I5 = 0
     I6 = 0
     I7 = 0
     I8 = 0
     I9 = 0
     I10= 0
     I11= 0
     I12= 0
```



```
     I13= 0
     K1 = 0
     K2 = 0
     K3 = 0
     K4 = 0
     K5 = 0
     K6 = 0
     K7 = 0
     K8 = 0
     K9 = 0
     K10= 0
     K11= 0
     K12= 0
     K13= 0
     K14 = 0
     K15 = 0
     K16 = 0
     K17 = 0
     K18 = 0
     K19 = 0
     K20 = 0
     K21 = 0
     K22 = 0
     K23 = 0
     K24 = 0
     K25 = 0
     K26 = 0
     K27 = 0
     K28 = 0
     K29 = 0
     K30 = 0
     K31 = 0
     K32 = 0
     K33 = 0
     K34 = 0
     K35 = 0
     K36 = 0
     K37 = 0
     K38 = 0
     K39 = 0
     K40 = 0
     K41 = 0
     K42 = 0
     K43 = 0
     K44 = 0
     K46=0
     L11 = 0
     L12 = 0
     L13 = 0
     L14 = 0
     L15 = 0
     L16 = 0
     L17 = 0
     L18 = 0
     L19 = 0
```

```
      L110= 0
      L111= 0
      L21 = 0
      L22 = 0
      L23 = 0
      L24 = 0
      L25 = 0
      L26 = 0
      L27 = 0
      L28 = 0
      L29 = 0
      L210= 0
      L211= 0
      L212= 0
      L213= 0
      L214= 0
      L215= 0
      L216= 0
      L217= 0
      L31 = 0
      L32 = 0
      L33 = 0
      L34 = 0
      L35 = 0
      L36 = 0
      L37 = 0
      L38 = 0
      L39 = 0
      L310= 0
      L311= 0
      L312=0
      L41 =0
      L313 = 0
      L314 = 0
      L315 = 0
      L112 = 0
      L113 = 0
      L114 = 0
      L115 = 0
      L42 =0
      L43 =0
      L44 =0
      L45 =0
      L46 =0
      L47 =0
      L48 =0
      L49 =0
      L410=0
      L411=0
      L412=0
      L413=0
      L414=0
      L415=0
      L416=0
      M1  =0
```



```
      M2  =0
      M3  =0
      M4  =0
      M5  =0
      M6  =0
      M7  =0
      M8  =0
      M9  =0
      M10 =0
      M11 =0
      M12 = 0
      M13 = 0
      M14 = 0
      M15 = 0
      M16 = 0
      M17 = 0
      M18 = 0
      M19 = 0
      M20 = 0
      M21 = 0
      M22 = 0
      M23 = 0
      M24 = 0
      M25 = 0
      M26 = 0
      M27 = 0
      M28 = 0
      M29 = 0
      M30 = 0
      M31 = 0
      M32 = 0
      M34 = 0
      M35 = 0
      M36 = 0
      M37 = 0
      M38 = 0
      M39 = 0
      M40 = 0
      GO TO 300
  302 IF((ICOD.NE.710).AND. (ICOD.NE.720).AND. (ICOD.NE.730)) GO TO 300
C     WEATHER CONDITIONS AT TIME OF OFFENSE
      IF (MOC.EQ. 7) X = 0
      IF (MOC.EQ. 8) X = 31
      IF (MOC.EQ. 9) X = 62
      IF (MOC.EQ. 10) X= 92
      IF (MOC.EQ. 11) X=123
      IF (MOC.EQ. 12) X=153
      IF (MOC.EQ. 1)  X=184
      IF (MOC.EQ. 2)  X=215
      IF (MOC.EQ. 3)  X=243
      IF (MOC.EQ. 4)  X=274
      IF (MOC.EQ. 5)  X=304
      IF (MOC.EQ. 6)  X=335
      IF (III.LE. 24) NSDA = 7
      IF (III.LE. 22) NSDA = 6
```

```
      IF (ITI.LE. 18) NSDA=5                                                *
      IF (ITI.LE. 14) NSDA=4                                                *
      IF (ITI.LE. 10) NSDA=3                                                *
      IF (ITI.LE. 6) NSDA =2                                                *
      IF (ITI.LE. 2) NSDA =1                                                *
      DEL = 4*NSDA -2 -ITI                                                  *
      NDA = X + IDAM                                                        *
      NS = 6*(NDA-1) + NSDA                                                 *
      IF (NS .EQ. 1) GO TO 1                                                *
      DPDT =(P(NS) -P(NS-1))/4                                              *
      PBAR = P(NS) - DEL*DPDT                                               *
      TEMP = T(NS) - DEL *(T(NS)-T(NS-1))/4                                 *
      RHUM = RH(NS) - DEL*(RH(NS) - RH(NS-1))/4                             *
      GO TO 2                                                               *
    1 DPDT = 0                                                              *
      PBAR = P(NS)                                                          *
      TEMP = T(NS)                                                          *
      RHUM = RH(NS)                                                         *
    2 IF (TEMP .LT. 0) KT(1) = KT(1) +1                                     *
      I = 1                                                                 *
      DO 3 J=1,91,10                                                        *
      I = I +1                                                              *
    3 IF (TEMP .GE. (J-1) .AND. TEMP .LT. (J+9)) KT(I) = KT(I) +1           *
      IF (TEMP .GE. 100)KT(12) =KT(12) +1                                   *
      I=0                                                                   *
      DO 4 J=1,81,10                                                        *
      I=I+1                                                                 *
    4 IF (RHUM .GE. (J-1) .AND. RHUM .LT. (J+9)) KRH(I) = KRH(I) +1         *
      IF (RHUM .GE. 90 .AND. RHUM .LT. 101) KRH(10) = KRH(10) +1            *
      IF (PBAR .LT. 2950) KP(1) = KP(1) +1                                  *
      I=1                                                                   *
      DO 5 J=2950,3030,20                                                   *
      I= I +1                                                               *
    5 IF (PBAR .GE. J .AND. PBAR .LT. (J+20)) KP(I) = KP(I) +1              *
      IF (PBAR .GE. 3050) KP(7) = KP(7) +1                                  *
      IF (DPDT .GT. 0) KPOS = KPOS +1                                       *
      IF (DPDT .EQ. 0) KCON = KCON +1                                       *
      IF (DPDT .LT. 0) KNEG = KNEG +1                                       *
      IF (N1(NS) .GT. 0 .AND. N1(NS) .NE. 10) KPCP = KPCP +1                *
      NTHFT(NDA) = NTHFT(NDA) +1                                            *
      I = 1                                                                 *
      DO 6 J=1,91,10                                                        *
      I = I+1                                                               *
    6 IF (TMAX(NDA) .GE. (J-1) .AND. TMAX(NDA) .LT. (J+9)) KTMAX(I) =       *
     1  KTMAX(I)+1                                                         *
      IF (TMAX(NDA) .GE. 100) KTMAX(12) = KTMAX(12) +1                      *
      IF (TMIN(NDA) .LT. 0) KTMIN(1) = KTMIN(1)+1                           *
      I=1                                                                   *
      DO 7 J=1,91,10                                                        *
      I= I+1                                                                *
    7 IF (TMIN(NDA) .GE. (J-1) .AND. TMIN(NDA) .LT. (J+9)) KTMIN(I) =       *
     1  KTMIN(I)+1                                                         *
                                                                           *
                                                          SEGMENT
                                                  START OF SEGMENT
      IF (H20(NDA) .GT. 0) KH20 = KH20 +1                                   *
```



```
      IF (SNO(NDA) .GT. 0) KSNO = KSNO +1                                   *
      IF(ICUD.EQ.720) I1 = I1+1                                             *
      IF(ICUD.EQ.730) I2 = I2+1                                             *
      IF(IDAM.LT.8)   I3 = I3+1                                             *
      IF((IDAM.GE.8).AND.(IDAM.LT.16)) I4=I4+1                              *
      IF((IDAM.GE.16).AND.(IDAM.LT.24))I5=I5+1                              *
      IF (IDAM.GE.24) I6= I6+1                                              *
      IF(IDAW.EQ.1) I7=I7+1                                                 *
      IF(IDAW.EQ.2) I8=I8+1                                                 *
      IF(IDAW.EQ.3) I9=I9+1                                                 *
      IF(IDAW.EQ.4) I10=I10+1                                               *
      IF(IDAW.EQ.5) I11=I11+1                                               *
      IF(IDAW.EQ.6) I12=I12+1                                               *
      IF(IDAW.EQ.7) I13=I13+1                                               *
      IF(ICAR.EQ.5 )  K1=K1+1                                               *
      IF(ICAR.EQ.7 )  K2=K2+1                                               *
      IF(ICAR.EQ.8 )  K3=K3+1                                               *
      IF(ICAR.EQ.9 )  K4=K4+1                                               *
      IF(ICAR.EQ.10)  K5=K5+1                                               *
      IF(ICAR.EQ.11)  K6=K6+1                                               *
      IF(ICAR.EQ.12)  K7=K7+1                                               *
      IF(ICAR.EQ.13)  K8=K8+1                                               *
      IF(ICAR.EQ.14)  K9=K9+1                                               *
      IF(ICAR.EQ.18)  K10=K10+1                                             *
      IF(ICAR.EQ.19)  K11=K11+1                                             *
      IF(ICAR.EQ.20)  K12=K12+1                                             *
      IF(ICAR.EQ.22)  K13=K13+1                                             *
      IF(ICAR.EQ.25)  K14=K14+1                                             *
      IF(ICAR.EQ.27)K46=K46+1                                               *
      IF(ICAR.EQ.29)  K15=K15+1                                             *
      IF(ICAR.EQ.31)  K16=K16+1                                             *
      IF(ICAR.EQ.33)  K17=K17+1                                             *
      IF(ICAR.EQ.39)  K18=K18+1                                             *
      IF(ICAR.EQ.40)  K19=K19+1                                             *
      IF(ICAR.EQ.41)  K20=K20+1                                             *
      IF(ICAR.EQ.42)  K21=K21+1                                             *
      IF(ICAR.EQ.43)  K22=K22+1                                             *
      IF(ICAR.EQ.50)  K23=K23+1                                             *
      IF(ICAR.EQ.53)  K24=K24+1                                             *
      IF(ICAR.EQ.54)  K25=K25+1                                             *
      IF(ICAR.EQ.56)  K26=K26+1                                             *
      IF(ICAR.EQ.58)  K27=K27+1                                             *
      IF(ICAR.EQ.59)  K28=K28+1                                             *
      IF(ICAR.EQ.60) K47=K47+1                                              *
      IF(ICAR.EQ.61)  K29=K29+1                                             *
      IF(ICAR.EQ.64)  K30=K30+1                                             *
      IF(ICAR.EQ.66)  K31=K31+1                                             *
      IF(ICAR.EQ.67)  K32=K32+1                                             *
      IF(ICAR.EQ.68)  K33=K33+1                                             *
      IF(ICAR.EQ.69)  K34=K34+1                                             *
      IF(ICAR.EQ.77)  K3 =K3 +1                                             *
      IF(ICAR.EQ.79)  K36=K36+1                                             *
      IF(ICAR.EQ.81)  K37=K37+1                                             *
      IF(ICAR.EQ.82)  K38=K38+1                                             *
      IF(ICAR.EQ.83)  K39=K39+1                                             *
```

```
      IF(ICAR.EQ.84)  K40=K40+1                                         *
      IF(ICAR.EQ.87)  K41=K41+1                                         *
      IF(ICAR.EQ.88)  K42=K42+1                                         *
      IF(ICAR.EQ.90)  K43=K43+1                                         *
      IF(ICAR.EQ.97)  K44=K44+1                                         *
      IF(IPE.EQ.101)  L11=L11+1                                         *
      IF(IPE.EQ.102)  L12=L12+1                                         *
      IF(IPE.EQ.103)  L13=L13+1                                         *
      IF(IPE.EQ.104)  L14=L14+1                                         *
      IF(IPE.EQ.105)  L15=L15+1                                         *
      IF(IPE.EQ.106)  L16=L16+1                                         *
      IF(IPE.EQ.107)  L17=L17+1                                         *
      IF(IPE.EQ.108)  L18=L18+1                                         *
      IF(IPE.EQ.109)  L19=L19+1                                         *
      IF(IPE.EQ.110)  L110=L110+1                                       *
      IF(IPE.EQ.111)  L111=L111+1                                       *
      IF(IPE.EQ.201)  L21 =L21+1                                        *
      IF(IPE.EQ.202)  L22 =L22+1                                        *
      IF(IPE.EQ.203)  L23 =L23+1                                        *
      IF(IPE.EQ.204)  L24 =L24+1                                        *
      IF(IPE.EQ.205)  L25 =L25+1                                        *
      IF(IPE.EQ.112) L112 = L112 + 1                                    *
      IF(IPE.EQ.113)  L113 = L113 + 1                                   *
      IF(IPE.EQ.114) L114 = L114 + 1                                    *
      IF(IPE.EQ.115) L115 = L115 + 1                                    *
      IF(IPE.EQ.313) L313 = L313 + 1                                    *
      IF(IPE.EQ.314) L314 = L314 + 1                                    *
      IF(IPE.EQ.315)L315 = L315 + 1                                     *
      IF(IPE.EQ.206)  L26 =L26+1                                        *
      IF(IPE.EQ.207)  L27 =L27+1                                        *
      IF(IPE.EQ.208)  L28 =L28+1                                        *
      IF(IPE.EQ.209)  L29 =L29+1                                        *
      IF(IPE.EQ.210)  L210=L210+1                                       *
      IF(IPE.EQ.211)  L211=L211+1                                       *
      IF(IPE.EQ.212)  L212=L212+1                                       *
      IF(IPE.EQ.213)  L213=L213+1                                       *
      IF(IPE.EQ.214)  L214=L214+1                                       *
      IF(IPE.EQ.215)  L215=L215+1                                       *
      IF(IPE.EQ.216)  L216=L216+1                                       *
      IF(IPE.EQ.217)  L217=L217+1                                       *
      IF(IPE.EQ.301)  L31 =L31 +1                                       *
      IF(IPE.EQ.302)  L32 =L32+1                                        *
      IF(IPE.EQ.303)  L33 =L33+1                                        *
      IF(IPE.EQ.304)  L34 =L34+1                                        *
      IF(IPE.EQ.305)  L35 =L35+1                                        *
      IF(IPE.EQ.306)  L36 =L36+1                                        *
      IF(IPE.EQ.307)  L37 =L37+1                                        *
      IF(IPE.EQ.308)  L38 =L38+1                                        *
      IF(IPE.EQ.309)  L39 =L39+1                                        *
      IF(IPE.EQ.310)  L310=L310+1                                       *
      IF(IPE.EQ.311)  L311=L311+1                                       *
      IF(IPE.EQ.312)  L312=L312+1                                       *
      IF(IPE.EQ.401)  L41 =L41 +1                                       *
      IF(IPE.EQ.402)  L42 =L42 +1                                       *
      IF(IPE.EQ.403)  L43 =L43 +1                                       *
```



```
      IF(IPE.EQ.404)  L44 =L44 +1                                       *
      IF(IPE.EQ.405)  L45 =L45 +1                                       *
      IF(IPE.EQ.406)  L46 =L46 +1                                       *
      IF(IPE.EQ.407)  L47 =L47 +1                                       *
      IF(IPE.EQ.408)  L48 =L48 +1                                       *
      IF(IPE.EQ.409)  L49 =L49 +1                                       *
      IF(IPE.EQ.410)  L410=L410+1                                       *
      IF(IPE.EQ.411)  L411=L411+1                                       *
      IF(IPE.EQ.412)  L412=L412+1                                       *
      IF(IPE.EQ.413)  L413=L413+1                                       *
      IF(IPE.EQ.414)  L414=L414+1                                       *
      IF(IPE.EQ.415)  L415=L415+1                                       *
      IF(IPE.EQ.416)  L416=L416+1                                       *
      IF(IWT.EQ.24)   M1=M1+1                                           *
      IF(IWT.EQ.61)   M2=M2+1                                           *
      IF(IWT.EQ.94)   M4=M4+1                                           *
      IF((IWT.EQ.83).OR.(IWT.EQ.84).OR.(IWT.EQ.85).OR.(IWT.EQ.86))      *
     2    M3=M3+1                                                       *
      IF(IPROP.EQ.16)  M5 =M5+1                                         *
      IF(IPROP.EQ.17)  M6 =M6+1                                         *
      IF(IPROP.EQ.20)  M7 =M7+1                                         *
      IF(IPROP.EQ.22)  M8 =M8+1                                         *
      IF(IPROP.EQ.31)  M9 =M9+1                                         *
      IF(IPROP.EQ.183) M10=M10+1                                        *
      IF(IPROP.EQ.998) M11=M11+1                                        *
      IF(IHE.EQ.64)   M12=M12+1                                         *
      IF(IHE.EQ.70)   M13=M13+1                                         *
      IF(IHE.EQ.72)   M14=M14+1                                         *
      IF(IHE.EQ.73)   M14=M14+1                                         *
      IF(IHE.EQ.80)   M16=M16+1                                         *
      IF(IHE.EQ.37)   M17=M17+1                                         *
      IF(IHE.EQ.46)   M18=M18+1                                         *
      IF(IYR.LT.275)  M20=M20+1                                         *
      IF((IYR.GE.275) .AND.(IYR.LT.300))  M21=M21+1                     *
      IF((IYR.GE.300) .AND.(IYR.LT.500))  M22=M22+1                     *
      IF((IYR.GE.500) .AND.(IYR.LT.700))  M23=M23+1                     *
      IF((IYR.GE.700) .AND.(IYR.LT.900))  M24=M24+1                     *
      IF((IYR.GE.900) .AND.(IYR.LT.1200)) M25=M25+1                     *
      IF((IYR.GE.1200).AND.(IYR.LT.1400)) M26=M26+1                     *
      IF((IYR.GE.1400).AND.(IYR.LT.1800)) M27=M27+1                     *
      IF((IYR.GE.1800).AND.(IYR.LT.2100)) M28=M28+1                     *
      IF((IYR.GE.2100).AND.(IYR.LT.2400)) M29=M29+1                     *
      IF((IYR.GE.2400).AND.(IYR.LT.2800)) M30=M30+1                     *
      IF( IYR.GE.2800)M31=M31+1                                         *
      IF(ITI.LE.4)  M35=M35+1                                           *
      IF((ITI.GT.4).AND.(ITI.LE.8))       M36=M36+1                     *
      IF((ITI.GT.8).AND.(ITI.LE.12))      M37=M37+1                     *
      IF((ITI.GT.12).AND.(ITI.LE.16))     M38=M38+1                     *
      IF((ITI.GT.16).AND.(ITI.LE.20))     M39=M39+1                     *
      IF (ITI.GT.20)                      M40=M40+1                     *
      GO TO 300                                                         *
  976 CONTINUE                                                          *
C     PRINT MONTHLY DATA AND READ IN NEXT MOC CARD                      *
  980 FORMAT(/56X,"CARS",4X,"TRUCKS")                                   *
  981 FORMAT(  5X,"NUMBER OF VEHICLES REPORTED STOLEN THIS MONTH=",      *
```

```
   2       5X,I4,6X,I4)                                                    *
 982 FORMAT(/7X,"BY QUARTER=",6X,"FIRST",I7)                               *
 983 FORMAT(24X,"SECOND",I6)                                               *
 984 FORMAT(24X,"THIRD" ,I7)                                               *
 985 FORMAT(24X,"FOURTH",I6,/)                                             *
 986 FORMAT(7X,"BY DAY OF WEEK="2X,"MONDAY",4X,I4)                         *
 987 FORMAT(24X,"TUESDAY",3X,I4)                                           *
 988 FORMAT(24X,"WEDNESDAY",I5)                                            *
 989 FORMAT(24X,"THURSDAY",2X,I4)                                          *
 990 FORMAT(24X,"FRIDAY",4X,I4)                                            *
 991 FORMAT(24X,"SATURDAY",2X,I4)                                          *
 992 FORMAT(24X,"SUNDAY",4X,I4)                                            *
 993 FORMAT(/7X,"BY TIME OF DAY-  MIDNIGHT TO  4 00AM ", I7)               *
 994 FORMAT(24X,                 "4 00AM   TO  8 00AM ", I7)               *
 995 FORMAT(24X,                 "8 00AM   TO 12 NOON ", I7)               *
 996 FORMAT(23X,                "12 NOON   TO  4 00PM ", I7)               *
 997 FORMAT(24x,                 "4 PM     TO  8 00PM ", I7)               *
                                                                           SEGMENT
 998 FORMAT(//7X,"TYPE OF PROPERTY STOLEN ")                               *
 979 FORMAT(24X,                 "8 PM     TO  MIDNIGHT",I6)               *
 999 FORMAT(13X, "AUTOMOBILE ONLY",12X,I4)                                 *
1000 FORMAT(13X, "AUTO AND ACCESSORIES",7X,I4)                             *
1001 FORMAT(13X, "AUTO AND JEWELRY",11X,I4)                                *
1002 FORMAT(13X, "AUTO AND OTHER PROPERTY",4X,I4)                          *
1003 FORMAT(//7X,"PRECINCT OF LOSS")                                       *
1004 FORMAT(10X,"101-",I5,5X,"201-",I5,5X,"301-",I5,5X,"401-",I5)         *
1005 FORMAT(10X,"102-",I5,5X,"202-",I5,5X,"302-",I5,5X,"402-",I5)         *
1006 FORMAT(10X,"103-",I5,5X,"203-",I5,5X,"303-",I5,5X,"403-",I5)         *
1007 FORMAT(10X,"104-",I5,5X,"204-",I5,5X,"304-",I5,5X,"404-",I5)         *
1008 FORMAT(10X,"105-",I5,5X,"205-",I5,5X,"305-",I5,5X,"405-",I5)         *
1009 FORMAT(10X,"106-",I5,5X,"206-",I5,5X,"306-",I5,5X,"406-",I5)         *
1010 FORMAT(10X,"107-",I5,5X,"207-",I5,5X,"307-",I5,5X,"407-",I5)         *
1011 FORMAT(10X,"108-",I5,5X,"208-",I5,5X,"308-",I5,5X,"408-",I5)         *
1012 FORMAT(10X,"109-",I5,5X,"209-",I5,5X,"309-",I5,5X,"409-",I5)         *
                                                                           SEGMENT
1013 FORMAT(10X,"110-",I5,5X,"210-",I5,5X,"310-",I5,5X,"410-",I5)         *
1014 FORMAT(10X,"111-",I5,5X,"211-",I5,5X,"311-",I5,5X,"411-",I5)         *
1015 FORMAT(10X,"112-",I5,5X,"212-",I5,5X,"312-",I5,5X,"412-",I5)         *
1016 FORMAT(10X,"113-",I5,5X,"213-",I5, 5X,"313-",I5,5X,"413-",I5)        *
1017 FORMAT(10X,"114-",I5,5X,"214-",I5, 5X, "314-",I5,5X,"414-",I5)       *
1018 FORMAT(10X,"115-",I5,5X,"215-",I5, 5X,"315-",I5,5X,"415-",I5)        *
1019 FORMAT(24X,              "216-",I5,19X,          "416-",I5)          *
1020 FORMAT(24X,              "217-",I5)                                   *
1021 FORMAT(1H1,5X,"STOLEN VEHICLES REPORTED",15X,"AGE DISTRIBUTION OF"   *
     2/48X,"STOLEN VEHICLES")                                              *
1022 FORMAT(/5X,"BUICK",17X,I4,14X,"MORE THAN 10 YEARS",2X,I4)             *
1023 FORMAT( 5X,"CADILLAC",14X,I4,14X,          "10 YEARS",12X,I4)         *
1024 FORMAT( 5X,"CHEVROLET CAMARO",6X,I4,15X,"9 YEARS",12X,I4)             *
1025 FORMAT(15X,"CORVAIR",5X,I4,15X,"8 YEARS",12X,I4)                      *
1026 FORMAT(15X,"CORVETTE",4X,I4,15X,"7 YEARS",12X,I4)                     *
1027 FORMAT(15X,"OTHER",7X,I4,15X,"6 YEARS",12X,I4)                        *
                                                                           SEGMENT
1028 FORMAT(5X,"GMC TRUCK",13X,I4,15X,"5 YEARS",12X,I4)                    *
1029 FORMAT(5X,"OLDSMOBILE",12X,I4,15X,"4 YEARS",12X,I4)                   *
1030 FORMAT(5X,"PONTIAC",15X,I4,15X,"3 YEARS",12X,I4)                      *
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1031 FORMAT(46X,"2 YEARS",12X,I4/5X,"INTERNATIONAL TRUCK",3X,I4,           *
     215X,"1 YEAR",13X,I4)                                                 *
1032 FORMAT(46X,"CURRENT MODEL YEAR",1X,I4/5X,"FORD BRONCO",11X,I4)       *
1033 FORMAT(10X,"FALCON",11X,I4)                                           *
1034 FORMAT(10X,"MAVERICK",9X,I4)                                          *
1035 FORMAT(10X,"MUSTANG",10X,I4)                                          *
1036 FORMAT(10X,"PINTO",12X,I4)                                            *
1037 FORMAT(10X,"SHELBY",11X,I4)                                           *
1038 FORMAT(10X,"THUNDERBIRD",6X,I4)                                       *
1039 FORMAT(10X,"OTHER",12X,I4)                                            *
1040 FORMAT(5X,"LINCOLN CONTINENTAL",3X,I4)                                *
1041 FORMAT(13X,"OTHER",9X,I4)                                             *
1042 FORMAT(5X,"MERCURY COMET",9X,I4)                                      *
1043 FORMAT(13X,"COUGAR",8X,I4)                                            *
1044 FORMAT(13X,"OTHER",9X,I4)                                             *
1045 FORMAT(/5X,"CHRYSLER IMPERIAL",5X,I4)                                 *
1046 FORMAT(14X,"OTHER",8X,I4)                                             *
1047 FORMAT(5X,"DODGE",17X,I4)                                             *
1048 FORMAT(5X,"PLYMOUTH BARRACUDA",4X,I4)                                 *
1049 FORMAT(14X,"VALIANT",6X,I4)                                           *
                                                                           SEGMENT
1050 FORMAT(14X,"OTHER",8X,I4)                                             *
1051 FORMAT(/5X,"GREMLIN",15X,I4)                                          *
1052 FORMAT( 5X,"HORNET",16X,I4)                                           *
1053 FORMAT( 5X,"JAVELIN",15X,I4)                                          *
1054 FORMAT(5X,"JEEP",18X,I4)                                              *
1055 FORMAT(5X,"NASH RAMBLER",10X,I4)                                      *
1056 FORMAT(/5X,"DATSUN",16X,I4)                                           *
1057 FORMAT(5X,"FIAT",18X,I4)                                              *
1058 FORMAT(5X,"JAGUAR",16X,I4)                                            *
1059 FORMAT(5X,"MERCEDES-BENZ",9X,I4)                                      *
1060 FORMAT(5X,"MG",20X,I4)                                                *
1061 FORMAT(5X,"OPEL",18X,I4)                                              *
1062 FORMAT(5X,"RENAULT",15X,I4)                                           *
1063 FORMAT(5X,"TOYOTA",16X,I4)                                            *
1064 FORMAT(5X,"VOLKSWAGEN",12X,I4)                                        *
1065 FORMAT(16X,"PORSCHE",4X,I4)                                           *
1066 FORMAT(1H1,5X,"LOCATION FROM WHICH CAR REPORTED STOLEN",/)            *
1067 FORMAT(10X,"GARAGE",23X,I4)                                           *
1068 FORMAT(10X,"STREET,ALLEY",17X,I4)                                     *
1069 FORMAT(10X,"YARD",25X,I4)                                             *
1070 FORMAT(10X,"PARKING LOT, USED CAR LOT",4X,I4)                         *
1072 FORMAT(//,5X,"HOW ENTERED (IF KNOWN)"/)                               *
1073 FORMAT(10X,"UNLOCKED DOOR OR WINDOW",5X,I4)                           *
1074 FORMAT(10X,"INSTRUMENT, TYPE UNKNOWN",4X,I4)                          *
1075 FORMAT(10X,"PASS KEY",20X,I4)                                         *
1076 FORMAT(10X,"WIRE",24X,I4)                                             *
1077 FORMAT(10X,"SCREW DRIVER",16X,I4)                                     *
                                                                           SEGMENT
1078 FORMAT(10X,"SIPHON HOSE",17X,I4)                                      *
1079 FORMAT(5X,"VOLVO", 17X,I4)                                            *
     PRINT 980                                                             *
     PRINT 981, I1,I2                                                      *
     PRINT 982, I3                                                         *
     PRINT 983, I4                                                         *
```

```
      PRINT 984, I5
      PRINT 985, I6
      PRINT 986, I7
      PRINT 987, I8
      PRINT 988, I9
      PRINT 989, I10
      PRINT 990, I11
      PRINT 991, I12
      PRINT 992, I13
      PRINT 993, M35
      PRINT 994, M36
      PRINT 995, M37
      PRINT 996, M38
      PRINT 997, M39
      PRINT 979, M40
      PRINT 998
      PRINT 999, M5
      PRINT 1000,M6
      PRINT 1001,M7
      PRINT 1002,M9
      PRINT 1003
      PRINT 1004,L11,L21,L31,L41
      PRINT 1005,L12,L22,L32,L42
      PRINT 1006,L13,L23,L33,L43
      PRINT 1007,L14,L24,L34,L44
      PRINT 1008,L15,L25,L35,L45
      PRINT 1009,L16,L26,L36,L46
      PRINT 1010,L17,L27,L37,L47
      PRINT 1011,L18,L28,L38,L48
      PRINT 1012,L19,L29,L39,L49
      PRINT 1013,L110,L210,L310,L410
      PRINT 1014,L111,L211,L311,L411
      PRINT 1015, L112,L212,L312,L412
      PRINT 1016, L113,L213,L313,L413
      PRINT 1017, L114,L214,L314,L414
      PRINT 1018, L115,L215,L315,L415
      PRINT 1019,L216,L416
      PRINT 1020,L217
      PRINT 1021
      PRINT 1022,K1,M20
      PRINT 1023,K2,M21
      PRINT 1024,K9,M22
      PRINT 1025,K8,M23
      PRINT 1026,K3,M24
      PRINT 1027,K4,M25
      PRINT 1028,K15,M26


      PRINT 1029,K29,M27
      PRINT 1030,K33,M28
      PRINT 1031,M29,K16,M30
      PRINT 1032,M31,K13
      PRINT 1033, K14
      PRINT 1034, K25
      PRINT 1035, K24
```

SEGMENT
START OF SEGMENT


```
      PRINT 1036, K30
      PRINT 1037, K36
      PRINT 1038, K37
      PRINT 1039, K43
      PRINT 1040, K7
      PRINT 1041, K23
      PRINT 1042, K11
      PRINT 1043, K21
      PRINT 1044, K27
      PRINT 1045, K6
      PRINT 1046, K5
      PRINT 1047, K10
      PRINT 1048, K20
      PRINT 1049, K39
      PRINT 1050, K32
      PRINT 1051, K16
      PRINT 1052, K17
      PRINT 1053, K22
      PRINT 1054, K41
      PRINT 1055, K28
      PRINT 1056, K12
      PRINT 1057, K46
      PRINT 1058, K19
      PRINT 1059, K26
      PRINT 1060, K44
      PRINT 1061, K47
      PRINT 1062, K34
      PRINT 1063, K37
      PRINT 1064, K42
      PRINT 1065, K31
      PRINT 1079, K40
      PRINT 1066,
      PRINT 1067, M1
      PRINT 1068, M2
      PRINT 1069, M3
      PRINT 1070, M4
      PRINT 1072
      PRINT 1073, M14
      PRINT 1074, M17
      PRINT 1075, M18
      PRINT 1076, M13
      PRINT 1077, M12
      PRINT 1078, M80
      GO TO 98
C PRINT WEATHER DATA
 2000 PRINT 2001, NOF
 2001 FORMAT(315)
   50 FORMAT(18X,"WEATHER CONDITIONS AT TIME OF OFFENSE"///)
   51 FORMAT(13X," % OF YEAR  % THEFTS    % DAYS  % THEFTS     % DAYS",
     1  "  % THEFTS")
   52 FORMAT(5X,"T",10X,"WITH",7X,"WHEN",7X,"WITH   ON DAYS",7X,
     1  "WITH   ON DAYS")
   53 FORMAT(" TEMP RANGE    TEMP = T  TEMP = T  TMAX = T  TMAX = T "
     1  "  TMIN = T  TMIN = T"/)
   54 FORMAT(" T< 0 DEG F",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)
```

```
 55 FORMAT(" 0 ≤ T < 10",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 56 FORMAT(" 10≤ T < 20",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 57 FORMAT(" 20≤ T < 30",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 58 FORMAT(" 30≤ T < 40",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 59 FORMAT(" 40≤ T < 50",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 60 FORMAT(" 50≤ T < 60",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 61 FORMAT(" 60≤ T < 70",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
                                                                    SEGMENT
 62 FORMAT(" 70≤ T < 80",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 63 FORMAT(" 80≤ T < 90",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 64 FORMAT(" 90≤ T <100",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)          *
 65 FORMAT(4X," T≥ 100",8X,I2,6X,I2,10X,I2,6X,I2,11X,I2,6X,I2)           *
 66 FORMAT(//12X,"RH",19X,"% OF YEAR WITH     % THEFTS AT")              *
 67 FORMAT(" RELATIVE HUMIDITY RANGE",10X,"REL HUM = RH"6X,              *
   1  "REL HUM = RH"/)                                                  *
 68 FORMAT(7X," 0 ≤ RH < 10 %",22X,I2,9X,I2)                            *
 69 FORMAT(7X,"10 ≤ RH < 20 %",22X,I2,9X,I2)                            *
 70 FORMAT(7X,"20 ≤ RH < 30 %",22X,I2,9X,I2)                            *
 71 FORMAT(7X,"30 ≤ RH < 40 %",22X,I2,9X,I2)                            *
 72 FORMAT(7X,"40 ≤ RH < 50 %",22X,I2,9X,I2)                            *
 73 FORMAT(7X,"50 ≤ RH < 60 %",22X,I2,9X,I2)                            *
 74 FORMAT(7X,"60 ≤ RH < 70 %",22X,I2,9X,I2)                            *
 75 FORMAT(7X,"70 ≤ RH < 80 %",22X,I2,9X,I2)                            *
 76 FORMAT(7X,"80 ≤ RH < 90 %",22X,I2,9X,I2)                            *
 77 FORMAT(7X,"90 ≤ RH ≥100 %",22X,I2,9X,I2)                            *
 78 FORMAT(/13X,"P",24X," % OF YEAR    % THEFTS")                       *
                                                                    SEGMENT
 79 FORMAT(" BAROMETRIC PRESSURE RANGE",12X,"AT PRESS P   AT PRESS P"   *
   1  /)                                                                *
 80 FORMAT(13X,"P < 29.50 IN HG",15X,I2,10X,I2)                         *
 81 FORMAT(5X,"29.50 ≤ P < 29.70",21X,I2,10X,I2)                        *
 82 FORMAT(5X,"29.70 ≤ P < 29.90",21X,I2,10X,I2)                        *
 83 FORMAT(5X,"29.90 ≤ P < 30.10",21X,I2,10X,I2)                        *
 84 FORMAT(5X,"30.10 ≤ P < 30.30",21X,I2,10X,I2)                        *
 85 FORMAT(5X,"30.30 ≤ P < 30.50",21X,I2,10X,I2)                        *
 86 FORMAT(5X,"       P ≥ 30.50",21X,I2,10X,I2)                         *
 87 FORMAT(//" % SEGMENTS IN WHICH BAR PRESSURE WAS   RISING ",I2,       *
   1  "  STEADY ",I2,"  FALLING ",I2)                                   *
 88 FORMAT(7X,"% THEFTS WHEN BAR PRESSURE WAS   RISING ",I2,             *
   1  "  STEADY ",I2,"  FALLING ",I2//)                                 *
 89 FORMAT(" % SEGMENTS DURING WHICH THERE WAS MEASURABLE",              *
   1  " PRECIPITATION   ",I2)                                           *
 90 FORMAT(11X,"% THEFTS WHEN THERE WAS MEASURABLE",                     *
   1  " PRECIPITATION   ",I2//)                                         *
 91 FORMAT("  TYPE OF PRECIPITATION",8X,"% DAYS WITH",5X,               *
   1  "% THEFTS ON DAYS WITH")                                          *
                                                                    SEGMENT
 92 FORMAT(28X,"MEASURABLE PRECIP    MEASURABLE PRECIP")                *
 93 FORMAT(/7X,"ALL KINDS",24X,I2,10X,I2)                               *
 94 FORMAT (7X,"SNOW ONLY",24X,I2,10X,I2)                               *
 95 FORMAT(1H1)                                                         *
 96 FORMAT(10X,"NUMBER OF THEFTS PER DAY"//)                            *
 97 FORMAT(20I4)                                                        *
C     OUTPUT WEATHER INFO                                              *
      PRINT 95                                                          *
```



```
      PRINT 50                                                          *
      PRINT 51                                                          *
      PRINT 52                                                          *
      PRINT 53                                                          *
      FOF = NUF                                                         *
      RND = 0.0                                                         *
      WKPOS =(WKPOS*100)/FSEG  + RND                                    *
      WKCON =(WKCON*100)/FSEG  +RND                                     *
      WKNEG =(WKNEG*100)/FSEG  +RND                                     *
      KPOS =(KPOS*100)/FOF  +RND                                        *
      KCON =(KCON*100)/FOF  +RND                                        *
      KNEG =(KNEG*100)/FOF  +RND                                        *
      WKPCP =(WKPCP*100)/FSEG  +RND                                     *
      KPCP  =(KPCP *100)/FOF   +RND                                     *
      WH2O  =(WH2O*100)/FOD    +RND                                     *
      KH2O  =(KH2O*100)/FOF    +RND                                     *
      WSNO  =(WSNO*100)/FOD    +RND                                     *
      KSNO  =(KSNO*100)/FOF    +RND                                     *
      DO 45 I=1,12                                                      *
      WKP(I)  = (WKP(I) * 100)/FSEG   +RND                              *
      WKT(I) =  (WKT(I)*100)/FSEG     +RND                              *
      WKRH(I) = (WKRH(I) *100)/FSEG   +RND                              *
      KT(I)  =  (KT(I) *100)/FOF   +RND                                 *
      WTMAX(I)= (WTMAX(1)*100)/FOD    +RND                              *
      KTMAX(I)= (KTMAX(1)*100)/FOF    +RND                              *
      WTMIN(I)= (WTMIN(1)*100)/FOD    +RND                              *
      KTMIN(I)= (KTMIN(I)*100)/FOF    +RND                              *
      KRH(I)  = (KRH(I) * 100)/FOF    +RND                              *
   45 KP(I)   = (KP(I)  * 100)/FOF    +RND                              *
      PRINT 54, WKT( 1),KT( 1),WTMAX( 1),KTMAX( 1),WTMIN( 1),KTMIN( 1)  *
      PRINT 55, WKT( 2),KT( 2),WTMAX( 2),KTMAX( 2),WTMIN( 2),KTMIN( 2)  *
      PRINT 56, WKT( 3),KT( 3),WTMAX( 3),KTMAX( 3),WTMIN( 3),KTMIN( 3)  *
      PRINT 57, WKT( 4),KT( 4),WTMAX( 4),KTMAX( 4),WTMIN( 4),KTMIN( 4)  *
      PRINT 58, WKT( 5),KT( 5),WTMAX( 5),KTMAX( 5),WTMIN( 5),KTMIN( 5)  *
      PRINT 59, WKT( 6),KT( 6),WTMAX( 6),KTMAX( 6),WTMIN( 6),KTMIN( 6)  *
      PRINT 60, WKT( 7),KT( 7),WTMAX( 7),KTMAX( 7),WTMIN( 7),KTMIN( 7)  *
      PRINT 61, WKT( 8),KT( 8),WTMAX( 8),KTMAX( 8),WTMIN( 8),KTMIN( 8)  *
      PRINT 62, WKT( 9),KT( 9),WTMAX( 9),KTMAX( 9),WTMIN( 9),KTMIN( 9)  *
      PRINT 63, WKT(10),KT(10),WTMAX(10),KTMAX(10),WTMIN(10),KTMIN(10)  *
      PRINT 64, WKT(11),KT(11),WTMAX(11),KTMAX(11),WTMIN(11),KTMIN(11)  *
      PRINT 65, WKT(12),KT(12),WTMAX(12),KTMAX(12),WTMIN(12),KTMIN(12)  *
      PRINT 66                                                          *
      PRINT 67                                                          *
      PRINT 68, WKRH( 1), KRH( 1)                                       *
      PRINT 69, WKRH( 2), KRH( 2)                                       *
      PRINT 70, WKRH( 3), KRH( 3)                                       *
      PRINT 71, WKRH( 4), KRH( 4)                                       *
      PRINT 72, WKRH( 5), KRH( 5)                                       *
      PRINT 73, WKRH( 6), KRH( 6)                                       *
      PRINT 74, WKRH( 7), KRH( 7)                                       *
      PRINT 75, WKRH( 8), KRH( 8)                                       *
      PRINT 76, WKRH( 9), KRH( 9)                                       *
      PRINT 77, WKRH(10), KRH(10)                                       *
      PRINT 95                                                          *
      PRINT 78                                                          *
```

```
      PRINT 79
      PRINT 80,WKP(1),KP(1)
      PRINT 81,WKP(2),KP(2)

      PRINT 82,WKP(3),KP(3)
      PRINT 83,WKP(4),KP(4)
      PRINT 84,WKP(5),KP(5)
      PRINT 85,WKP(6),KP(6)
      PRINT 86,WKP(7),KP(7)
      PRINT 87, WKPOS, WKCON, WKNEG
      PRINT 88, KPOS, KCON, KNEG
      PRINT 89, WKPCP
      PRINT 90, KPCP
      PRINT 91
      PRINT 92
      PRINT 93, WH2O, KH2O
      PRINT 94, WSNO, KSNO
      PRINT 95
      PRINT 96
      PRINT 97, (NTHFT(NDA), NDA = 1,NOD)
      STOP
      END
```

SEGMENT
START OF SEGMENT
SEGMENT
SEGMENT

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```
FILE  3=CARD,UNIT=READER
                                                                  START OF SEGMENT
10    FORMAT(I2)
20    FORMAT(6X,4I2,5I1,6X,I2)
99    FORMAT("1")
      INTEGER MM(7),MF(7),YMM(7),YMF(7),
     1        MJ(7),MA(7),YMJ(7),YMA(7),
     2 MJ2(20),MA2(20),YMJ2(20),YMA2(20)
      INTEGER YTOT,MTOT,YTJ,YTA,MTJ,MTA,
     1  YPT,MPT,YPJ,MPJ,YPA,MPA
      INTEGER PMM(7),PMF(7),PMJ(7),PMA(7),PMJ2(20),PMA2(20)
      INTEGER PYMM(7),PYMF(7),PYMJ(7),PYMA(7),PYMJ2(20),PYMA2(20)
      REAL OFF(3),CRM(20)
      REAL MT(24)
      COMMON OFF,NA,NX,NAL,ND,NPA,NC,MO,MT,CRM
      DATA CRM/1,3,5,7,9,11,13,15,17,19,2,4,6,8,10,12,14,16,18,20/
      DATA MT/"JANUARY","FEBRUARY","MARCH   ","APRIL   ","MAY     ",
     1 "JUNE    ","JULY    ","AUGUST  ","SEPTEMBER","OCTOBER","NOVEMBER",
     2 "DECEMBER"/
      COMMON /AA/MNTH
      READ(3,10) MNTH
30    READ(3,20,END=100)OFF,NA,NX,NAL,ND,NPA,NC,MO
      IF(MO.NE.MNTH)GO TO 40
      CALL UPIT(MM,MF,MJ,MA,MJ2,MA2,MTOT,MTJ,MTA,PMM,PMF,PMJ,PMA,PMJ2,
     1 PMA2)
40    CALL UPIT(YMM,YMF,YMJ,YMA,YMJ2,YMA2,YTOT,YTJ,YTA,PYMM,PYMF,PYMJ,
     1 PYMA,PYMJ2,PYMA2)
      GO TO 30
100   CONTINUE
      CALL UTP(MTOT,MTJ,MTA,MM,MF,MJ,MA,MJ2,MA2,PMM,PMF,PMJ,PMA,PMJ2,
     1 PMA2,.FALSE.)
      PRINT 99
      CALL UTP(YTOT,YTJ,YTA,YMM,YMF,YMJ,YMA,YMJ2,YMA2,PYMM,PYMF,PYMJ,
     1 PYMA,PYMJ2,PYMA2,.TRUE.)
      STOP
      END
                                                                  SEGMENT
```

```
                                                                    START OF SEGMENT
      SUBROUTINE OTP(MTOT,MTJ,MTA,MM,MF,MJ,MA,MJ2,MA2,PMM,PMF,PMJ,PMA,     *
     1 PMJ2,PMA2,YR)                                                        *
      LOGICAL YR                                                            *
      DIMENSION MM(7),MF(7),MJ(7),MA(7),MJ2(20),MA2(20)                     *
      INTEGER   PMM(7),PMF(7),PMJ(7),PMA(7),PMJ2(20),PMA2(20)               *
      COMMON OFF(3),NA,NX,NAL,ND,NPA,NC,MO,MT(24),CRM(20)                   *
      COMMON /AA/MNTH                                                       *
  100 FORMAT(1X,"NUMBER OF JUVENILES ARRESTED FOR AUTO THEFT",              *
     1 " RELATED OFFENSES DURING")                                          *
  101 FORMAT(/1X,"NUMBER OF ADULTS ARRESTED FOR AUTO THEFT",                *
     2 " RELATED OFFENSES DURING")                                          *
  102 FORMAT(1X,"MONTH OF ",A6,"=",I4)                                      *
  103 FORMAT(1X,"YEAR =",I4)                                                *
  104 FORMAT(//1X,"AGE DISTRIBUTION OF OFFENDERS",5X,"MALES"                *
     1 ,4X,"FEMALES"/                                                       *
     2 4X,"UNDER 13",21X,2(I3,I4,"%",3X)/,                                  *
     3 10X,"13",21X,2(I3,I4,"%",3X)/                                        *
     4 10X,"14",21X,2(I3,I4,"%",3X)/                                        *
     5 10X,"15",21X,2(I3,I4,"%",3X)/                                        *
     6 10X,"16",21X,2(I3,I4,"%",3X)/                                        *
     7 10X,"17",21X,2(I3,I4,"%",3X)/                                        *
     8 10X,"18 OR OVER",13X,2(I3,I4,"%",3X)///)                             *
  105 FORMAT(36X,"JUVENILES",3X,"ADULTS"/                                   *
     1 " % ALONE WHEN ARRESTED",18X,I2,8X,I2/                               *
     2 " % WITH PREVIOUS ARRESTS",16X,I2,8X,I2/                             *
     3 " % RELEASED BEFORE GOING TO COURT",7X,I2,8X,I2//)                   *
  106 FORMAT(" HOME ADDRESS DISTRICT",3X,"JUVENILES",4X,"ADULTS"//          *
     1 (8X,I1,17X,2(I3,I4,"%",3X)))                                         *
  107 FORMAT(///1X,"BREAKDOWN OF THEFT RELATED CHARGES"//                   *
     1 27X,"JUVENILES",5X,"ADULTS"//                                        *
     2 6X,"JOYRIDING",13X,2(I3,I4,"%",3X)/                                  *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     4 6X,"TAMPERING",13X,2(I3,I4,"%",3X)/                                  *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     6 6X,"TOMV",18X,2(I3,I4,"%",3X)/                                       *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     8 6X,"TFMV",18X,2(I3,I4,"%",3X)/                                       *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     2 6X,"REM. AUTO PARTS",7X,2(I3,I4,"%",3X)/                             *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     C 6X,"CURFEW",16X,2(I3,I4,"%",3X)/                                     *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     C 6X,"MAL. MIS.",13X,2(I3,I4,"%",3X)/                                  *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     C 6X,"DRUNK",17X,2(I3,I4,"%",3X)/                                      *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     4 6X,"THEFT BY BAILEE",7X,2(I3,I4,"%",3X)/                             *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)//                              *
     6 6X,"DESTRUCT. PRI. PROP.",2X,2(I3,I4,"%",3X)/                        *
     C 6X,"W/CONSPIRACY",10X,2(I3,I4,"%",3X)///)                            *
                                                                    SEGMENT
      DO 400 I=1,7                                                          *
      PMM(I)=FLOAT(MM(I))/FLOAT(MTOT)*100                                   *
      PMF(I)=FLOAT(MF(I))/FLOAT(MTOT)*100                                   *
```



```
      PMJ(I)=FLOAT(MJ(I))/FLOAT(MTJ)*100                                    *
  400 PMA(I)=FLOAT(MA(I))/FLOAT(MTA)*100                                    *
      DO 420 I=1,20                                                         *
      PMJ2(I)=FLOAT(MJ2(I))/FLOAT(MTJ)*100                                  *
  420 PMA2(I)=FLOAT(MA2(I))/FLOAT(MTA)*100                                  *
      IF(YR)GO TO 10                                                        *
      PRINT 100                                                             *
      PRINT 102,MT(2*MNTH-1),MT(2*MNTH),MTJ                                 *
      PRINT 101                                                             *
      PRINT 102,MT(2*MNTH-1),MT(2*MNTH),MTA                                 *
      GO TO 20                                                              *
   10 PRINT 100                                                             *
      PRINT 103,MTJ                                                         *
      PRINT 101                                                             *
      PRINT 103,MTA                                                         *
   20 PRINT 104,((MM(I),PMM(I),MF(I),PMF(I)),I=1,7)                         *
      PRINT 105,((PMJ(I),PMA(I)),I=1,3)                                     *
      PRINT 106,((I,MJ(I+3),PMJ(I+3),MA(I+3),PMA(I+3)),I=1,4)               *
      PRINT 107,((MJ2(I),PMJ2(I),MA2(I),PMA2(I)),I=1,20)                    *
      RETURN                                                                *
      END                                                                   *
                                                                            *
                                                                    SEGMENT
```

```
                                                                    START OF SEGMENT
      SUBROUTINE DOIT(MM,MF,MJ,MA,MJ2,MA2,MTOT,MTJ,MTA,PMM,PMF,PMJ,PMA,
     1 PMJ2,PMA2)                                                                  *
      DIMENSION MM(7),MF(7),MJ(7),MA(7),MJ2(20),MA2(20)                            *
      INTEGER PMM(7),PMF(7),PMJ(7),PMA(7),PMJ2(20),PMA2(20)                        *
      COMMON OFF(3),NA,NX,NAL,ND,NPA,NC,MO,MT(24),CRM(20)                          *
      REAL NN                                                                      *
      MTOT=MTOT+1                                                                  *
      IF(NX.EQ.0)GO TO 310                                                         *
      IF(NA.LT.13)MM(1)=MM(1)+1                                                    *
      IF(NA.GE.18)MM(7)=MM(7)+1                                                    *
      IF(NA.LT.18.AND.NA.GE.13)MM(NA-11)=MM(NA-11)+1                               *
      GO TO 320                                                                    *
310   IF(NA.LT.13)MF(1)=MF(1)+1                                                    *
      IF(NA.GE.18)MF(7)=MF(7)+1                                                    *
      IF(NA.LT.18.AND.NA.GE.13)MF(NA-11)=MF(NA-11)+1                               *
320   IF(NA.GE.18)GO TO 340                                                        *
      MTJ=MTJ+1                                                                    *
      IF(NAL.EQ.1)MJ(1)=MJ(1)+1                                                    *
      IF(NBA.EQ.1)MJ(2)=MJ(2)+1                                                    *
      IF(NC.EQ.0)MJ(3)=MJ(3)+1                                                     *
      IF(ND.NE.0)MJ(3+ND)=MJ(3+ND)+1                                               *
      DO 330 I=1,3                                                                 *
      NN=OFF(I)                                                                    *
      IF(NN.EQ.0.AND.EQUIV(NN,0).NE.COMPL(0))GO TO 330                             *
      NN=CRM(NN+1)                                                                 *
      MJ2(NN)=MJ2(NN)+1                                                            *
330   CONTINUE                                                                     *
      GO TO 350                                                                    *
340   IF(NAL.EQ.1)MA(1)=MA(1)+1                                                    *
      MTA=MTA+1                                                                    *
      IF(NPA.EQ.1)MA(2)=MA(2)+1                                                    *
      IF(NC.EQ.0)MA(3)=MA(3)+1                                                     *
      IF(ND.NE.0)MA(3+ND)=MA(3+ND)+1                                               *
      DO 360 I=1,3                                                                 *
      NN=OFF(I)                                                                    *
      IF(NN.EQ.0.AND.EQUIV(NN,0).NE.COMPL(0))GO TO 360                             *
      NN=CRM(NN+1)                                                                 *
      MA2(NN)=MA2(NN)+1                                                            *
360   CONTINUE                                                                     *
350   RETURN                                                                       *
      END                                                                          *
                                                                    SEGMENT
```


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```
      BEGIN                                                                        *
FORMAT FGE                                                                         *
("MORE THAN 10 YEARS OLD",X3,2(I4,X6,I2,X8)/                                       *
X10,"10 YEARS OLD",X3,       2(I4,X6,I2,X8)/                                       *
X11,"9 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"8 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"7 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"6 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"5 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"4 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"3 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"2 YEARS OLD",X3,        2(I4,X6,I2,X8)/                                       *
X11,"1 YEAR OLD",X4,         2(I4,X6,I2,X8)/                                       *
"CURRENT MODEL YEAR",X7,     2(I4,X6,I2,X8));                                      *

SWITCH FORMAT  FCAR←                                                               *
               ("OTHER"),                                                          *
               ("BUICK"),                                                          *
               ("CADILLAC"),                                                       *
               ("CHEVROLET"),                                                      *
               ("CORVAIR"),                                                        *
               ("CORVETTE"),                                                       *
               ("CHRYSLER"),                                                       *
               ("DODGE"),                                                          *
               ("FORD"),                                                           *
               ("MERCURY"),                                                        *
               ("MUSTANG"),                                                        *
               ("OLDSMOBILE"),                                                     *
               ("PLYMOUTH"),                                                       *
               ("PONTIAC"),                                                        *
               ("RAMBLER"),                                                        *
               ("VOLKSWAGEN");                                                     *

ARRAY          J3,A3[0:11,0:15];                                                   *
FORMAT         FH1(X6,"MODEL YEAR",X12,"JUVENILES",X13,"ADULTS"/                   *
               X25,2("NUMBER  PERCENT",X5)),                                       *
               FH2(X2,"MODEL",X21,"JUVENILES",X13,"ADULTS"/                        *
               X25,2("NUMBER  PERCENT",X5)),                                       *
               FP1(I6,X6,I2),                                                      *
               FT1(I6,X1,I3,I2,X60,I4);                                            *

ARRAY          CD[0:99],J1,A1[0:11],J2,A2[0:15],DD[0:24];                          *
INTEGER        TJ,TA,I,J,K,SQ,MND,TC,MYR;                                          *
REAL           X,Y,Z;                                                              *
FILE           TAPE 2 "CRDIMG"/"WEST" (5,56,10);                                   *
ARRAY          FRF[0:900];                                                         *
DEFINE         ADL=[45:1]#;                                                        *
FILE           LINE 18(2,15),CARD(2,10);                                           *
LIST           LPR(SQ,MND,TC,MYR);                                                 *
LABEL          EOF,EOF1,L1;                                                        *
```

```
DEFINE          LN1(LN11)=                                              *
               [J1[LN11],J1[LN11]/TJ×100,A1[LN11],A1[LN11]/TA×100]#,    *
                LN2(LN21)=                                              *
               [J2[LN21],J2[LN21]/TJ×100,A2[LN21],A2[LN21]/TA×100]#;    *
                FILL DD[*] WITH 105,207,309,314,413,577,508,610,611,718, *
                879,890,822,825,844,942,958,919,1053,1161,1283,1257,1368,*
                1459,1588;                                              *

                FOR I←0 STEP 1 UNTIL 24 DO                              *
                CC[(J←DD[I]) MOD 100]←J DIV 100;                        *
                FILL DD[*] WITH 275,300,500,700,900,1200,1400,1800,2100, *
                2400,2800;                                              *

                K←-1;                                                   *
DO          BEGIN                                                       *
                READ(CARD,FP1,SQ,J)[EOF];                               *
                IF SQ≠MND THEN PREFIX[K←K+1]←SQ&REAL(J≥18)[45:0:1];     *
                MND←SQ;                                                 *
            END UNTIL FALSE;                                            *
EOF:            SPACE(TAPE,1);                                          *
DO          BEGIN                                                       *
                READ(TAPE,FT1,LPR)[ECF1];                               *
                IF MND=777 THEN                                         *
            BEGIN                                                       *
                SPACE(TAPE,1);                                          *
                GO TO L1                                                *
            END;                                                        *
                MND←11;                                                 *
                FOR I←0 STEP 1 UNTIL 10 DO                              *
                IF MYR<DD[I] THEN DOUBLE(I,11,←,MND,I);                 *
                MYR←MND;                                                *
                TC←CC[TC];                                              *
                FOR I←0 STEP 1 UNTIL K DO                               *
            BEGIN                                                       *
                IF SQ=X←PRF[I] THEN                                     *
            BEGIN                                                       *
                IF BOOLEAN(X,ADL) THEN                                  *
            BEGIN                                                       *
                A3[MYR,TC]←A3[MYR,TC]+1;                                *
                TA←TA+1;                                                *
            END ELSE                                                    *
            BEGIN                                                       *
                J3[MYR,TC]←J3[MYR,TC]+1;                                *
                TJ←TJ+1;                                                *
            END;                                                        *
                GO TO L1;                                               *
            END;                                                        *
            END I LOOP;                                                 *
L1:         END UNTIL FALSE;                                            *
EOF1:                                                                   *
                WRITE(LINE,FF2);                                        *
                WRITE(LINE);                                            *
                FOR I←1 STEP 1 UNTIL 15,0 DO                            *
            BEGIN                                                       *
                WRITE(LINE,FCAR[I]);                                    *
```



```
                WRITE(LINE,FGE,FOR J←0 STEP 1 UNTIL 11 DO               *
                [J3[J,I],J3[J,I]/TJ×100,A3[J,I],A3[J,I]/TA×100]);       *
                WRITE(LINE);                                            *
            END;                                                        *
            END.                                                        *


NUMBER OF ERRORS DETECTED =   0.  COMPILATION TIME =   11 SECONDS.
PRT SIZE =  58; TOTAL SEGMENT SIZE =   534 WORDS; DISK SIZE =  27 SEGS; NO. PGM. SEGS =  15
ESTIMATED CORE STORAGE REQUIREMENT =  2962 WORDS.
MAXARA = 1338; NOOFARRAYS =   1; FILENO =   4; IOBUFFSIZE =  480; SGAVL =  16
COMPILER VINTAGE:  9/27/71. TIME: 1508 HOURS
```

END