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State and Local Survey on Auto Theft Arrests and Outcomes and on Theft Reporting/Recovery Procedures

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16. Abstract

This survey collected information on: methods and procedures used for collecting, compiling and desseminating information on theft and recovery of vehicles; the experience of state and local officials in making arrests and prosecuting persons for motor vehicle theft related violations. The information was collected in support of the report to the Congress on the effects of the Motor Vehicle Theft Law Enforcement Act of 1984.

Theft arrest and court files were sampled at seven high motor vehicle theft cities in the U. S. A nationwide survey of State and local officlas involved in combatting motor vehicle theft was conducted to obtain the remaining information.

There was not a sufficient number of motor vehicle theft arrest and conviction cases found in the sample to conduct a statistical analysis. Case experiences for those found are described in the report. The national survey did yield information on the experience of law enforcement officers, motor vehicle administration officials, and district attorneys concerning procedures used to conduct investigations, make arrests and prosecute, sentence and convict motor vehicle theives.

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TABLE OF CONTENTS

LIST OF EXHIBITS

EXECUTIVE SUMMARY

A. Background and Purpose

In 1984, Congress passed legislation aimed at reducing motor vehicle theft: the Motor Vehicle Theft Law Enforcement Act of 1984. This legislation included the introduction of several motor vehicle theft countermeasures, including:

- Inscribing or affixing Vehicle Identification Numbers (VIN) onto certain major original equipment and replacement parts for designated likely high-theft passenger car lines
- Broadening Federal criminal penalties for motor vehicle theft
- Imposing new criminal sanctions against tampering with identification markings
- Imposing tighter controls on the import and export of motor vehicles

Under Title VI of the Act, the National Highway Traffic Safety Administration (NHTSA) is charged with selecting the vehicles and component parts to be marked, establishing performance criteria for inscribing or affixing the identification numbers, and specifying compliance requirements.

Congress also mandated that the Department of Transportation Secretary submit a report to Congress not later than five years after the promulgation of the theft prevention standard. This report must include specific information necessary to support recommendations for continuing, modifying, or terminating the component parts marking standard. To help NHTSA collect the information necessary to prepare the report, Price Waterhouse has conducted a study of automobile theft arrests and

outcomes and of reporting/recovery procedures. The goals of the study included the collection of information concerning:

- The methods and procedures used by public and private entities for collecting, compiling, and disseminating information concerning the theft and recovery of vehicles
- The experience of State and local officials in making arrests and successfully prosecuting persons for motor vehicle theft-related violations

The purpose of this report is to present an analysis of the data collected during the study from site visits to high-theft cities and a nationwide survey of State and local officials involved in combatting motor vehicle theft. The report also describes the approaches tested to collect the information and discusses the methodology that was finally adopted.

B. Approach

To meet the project objectives, we designed and implemented a two part analytical approach:

- Data Analysis - Collect and analyze information from sampled arrest and court files
- Survey Analysis - Collect and analyze information obtained through a nationwide telephone/mail survey

To sample arrest and court files, we traveled to seven high theft cities. The data collected was used to calculate arrest and conviction rates for the theft of pre- and post-standard cars. From these files, information was also collected concerning: (1) cases where law enforcement officers had used marked component parts to make arrests, and (2) penalties imposed for motor vehicle theft-related convictions.

In the nationwide survey, we interviewed a representative sample of law enforcement officers, Motor Vehicle Administration officials, and District Attorneys. From the law enforcement and Motor Vehicle Administration officials, information was collected concerning the flow of motor vehicle theft and recovery data. From District Attorneys, information was collected concerning their experiences with the prosecution and conviction of persons arrested for motor vehicle theft.

Below, we present a description of the methodologies used to collect and analyze data from the arrest files, court files, and nationwide survey.

C. Data Analysis

The data analysis portion of the study had two main objectives. The first objective was to develop clearance and conviction rate estimates for two groups of data: Experimental Group and Control Group. These groups are defined as follows:

- Experimental Group - Marked passenger cars (model years 1988-1987) and predecessors of the marked passenger cars (model years 1986 and earlier)
- Control Group - Unmarked passenger cars (model years 1987-1988) and predecessors of the unmarked passenger cars (model years 1986 and earlier)

The second objective was to determine if significant differences existed among the clearance and conviction rates of the two groups. The primary analysis used to compare these rates evaluated the difference between the rates for marked and their predecessors (experimental) with the difference between the rates for unmarked and their predecessors (control). This experimental vs. control framework was used for both the clearance rate and conviction rate analysis.

1. Methodology

The methodology developed to conduct the data analysis consisted of the following four steps:

- Sample arrest and court files for the years 1984-1988 to record clearance and conviction information for the experimental and control groups
- Create a clearance and conviction database of the sampled records
- Calculate clearance and conviction rates
- Conduct statistical analysis of clearance and conviction rates to determine if there is a difference in the rates between the two groups

To collect the raw data, we randomly sampled a total of 326 arrest files (yielding 304 clearances) from the police records in seven high theft cities[1]. The names of the individuals arrested and information on the stolen vehicles (i.e., model year, make, line) was recorded. Using the names of the subject arrested, court clerks pulled the court files to determine the outcome of the trials. This yielded the required conviction information.

The format and organization of the arrest and court files did not lend itself to efficient identification and selection of automobile theft cases. Files were often stored not in computer databases, but rather in folders or on microfilm. Thus, because of time and budget constraints, a limited number of records was sampled.

After sampling the records, a database of the arrest and conviction information was created and sorted by city and vehicle group (i.e., experimental vs. control). The

[1]Boston MA, Chicago IL, Houston TX, Los Angeles CA, Miami FL, New York NY, Philadelphia PA

database was used to calculate the clearance and conviction rate estimates. Finally, a statistical analysis was conducted of the changes in clearance and conviction rates. If the comparison among experimental and control groups indicated a significant difference in the rates, then evidence would have been developed that the 1984 Act has had an impact on clearance or conviction rates.

Below, we define clearance and conviction rates and present the results of the analysis.

2. Clearance Rate Development and Results

For this study, clearance rate is defined as the number of automobile thefts solved by arrest or exceptional means divided by the number of stolen automobiles. This calculation was conducted for the experimental and control groups. The results are presented in Table 1.

TABLE 1

Group	Definition	Clearance Rate	Confidence Interval (95%)
Experimental	Marked Predecessor	7.6%	2.6 - 12.7%
Experimental	Marked	18.6%	0.0 - 41.16%
Control	Unmarked Predecessor	9.9%	4.8 - 15.0%
Control	Unmarked	10.2%	0.0 - 26.1%

As depicted in Table 1, the clearance rate for marked passenger cars is substantially higher than all other categories. This would seem to indicate that parts marking has enhanced the ability of law enforcement officers to make arrests for the

theft of marked cars. However, the confidence intervals on the clearance rate estimates are sufficiently large to limit possible conclusions. With such large confidence intervals, (caused by the limited number of clearances that were sampled), the differences in the clearance rates are statistically insignificant.

3. Conviction Rate Development and Results

For this study, conviction rate is defined as the number of sampled convictions divided by the number of sampled dispositions involving automobile theft-related charges. The methodology developed to analyze the conviction data was similar to the methodology developed to analyze the clearance data. However, because of difficulty in identifying and sampling court cases involving motor vehicle theft-related charges, a limited number of cases were selected. The sparse data prevented the calculation of any meaningful statistical analysis.

D. Survey Analysis

The purpose of the nationwide survey of State and local law enforcement officers, Motor Vehicle Administration officials, and District Attorneys was to collect information concerning the procedures used to conduct investigations, make arrests, and prosecute, sentence, and convict motor vehicle thieves. Survey topics were tailored to each agency and included:

- o Law Enforcement Survey Topics - theft reporting/recovery procedures, information flow, investigative techniques, theft and arrest estimates, and resources allocated to auto theft investigation

- o Motor Vehicle Administration Survey Topics - information used to prevent retitling of stolen vehicles and investigative techniques

- o District Attorney Survey Topics - motor vehicle theft-related statutes and penalties, and experiences in prosecuting, convicting, and sentencing offenders

Below, we discuss the methodology used to select the survey respondents.

1. Methodology

The methodology used to collect and analyze the desired information consisted of three main steps:

- o Select nationally representative sample
- o Implement high response rate survey procedures
- o Tabulate and categorize responses by region of the country and population density (urban, suburban, rural)

To select a nationally representative sample, we first selected 11 states (stratified and selected based on the statewide number of motor vehicle thefts). From those 11 states, 31 counties were selected with probability of selection proportionate to population of the counties. We then attempted to identify the law enforcement, Motor Vehicle Administration, and judicial officials most knowledgeable of motor vehicle theft-related issues. In general, we interviewed police officers assigned to motor vehicle theft investigation units, Motor Vehicle Administration investigators or administrators, and District Attorneys. In all, 91 officials were contacted.

After identifying the appropriate officials, the next goal was to obtain a high response rate. To do this, a combination mail/telephone survey was employed. The officials were mailed survey questionnaires, and their responses were collected through telephone interviews. The use of telephone interviews increased the overall response rate, and allowed for immediate clarification of ambiguous answers. With these procedures, we obtained an overall response rate of 80 percent.

Once the responses were collected, they were tabulated and percentage estimates were calculated for each topic. For those questions where regional or population density influences may have affected the responses, the answers were broken down by those categories.

We now highlight the responses to the survey for each of the three types of respondents.

2. Law Enforcement Agencies

The survey of State and local law enforcement agencies collected information on such topics as the flow of motor vehicle theft data, body shop monitoring procedures, and theft and arrest estimates.

Flow of Motor Vehicle Theft Data

The flow of motor vehicle theft and recovery information is similar throughout law enforcement agencies. When an automobile is stolen, the owner notifies the local police department. An officer compiles an incident/offense report either in person or over the telephone. Specific information regarding the stolen vehicle is forwarded to NCIC. The level of computerization within each law enforcement agency determines the format (e.g., hardcopy or electronic) of the data transmission.

Collection and recording procedures concerning vehicle recovery are also similar throughout law enforcement agencies. The officer who recovered or located the stolen vehicle prepares a recovery report. NCIC guidelines require the recovering agency notify the reporting agency via on-line computer or teletype. Upon recovery of a stolen vehicle or notification from the recovering agency, the law enforcement agency which initiated the stolen vehicle report must clear the initial theft from the NCIC network, and notify the registered owner, insurer, and registered lienholder.

71 percent of the participating law enforcement agencies reported no change in collection and recording practices within the last five years. 19 percent of the agencies implemented stolen motor vehicle databases between 1987-1988, and 10 percent developed telephone reporting units composed of law enforcement officers between 1987-1988. However, neither of these changes was attributed to the parts marking requirement.

Body Shop Monitoring Procedures

Survey respondents were asked about their procedures to inspect businesses that repair, dismantle, store, or sell vehicles (e.g., body shops, salvage yards). 76 percent of the law enforcement agencies surveyed do not monitor these establishments. The remaining 24 percent perform random on-site inspections. However, parts marking did not appear to be a factor in these practices.

Theft and Arrest Estimates

Respondents were asked about statistics for the past year concerning motor vehicle thefts, recoveries, and arrests in their jurisdiction. The following are examples of data collected from the survey of law enforcement agencies:

- Estimated number of monthly motor vehicles thefts in jurisdiction: 92
- Estimated motor vehicle theft recovery rate: 76 percent

- o Estimated motor vehicle theft arrest rate: 17 percent
- o Estimated motives for motor vehicle theft:
  - Transportation: 30%
  - Joyriding: 24%
  - Domestic: 14%
  - Use in Other Crime: 13%
  - Chop Shop: 10%
  - Insurance Fraud: 9%

3. Motor Vehicle Administrations

The survey of Motor Vehicle Administration (MVA) officials collected information on the flow of motor vehicle recovery data and body shop monitoring procedures. In general, the main responsibility of MVAs is to direct the licensing of drivers and the registration/titling of motor vehicles. Thus, most MVAs do not conduct motor vehicle theft investigations or monitor businesses that repair, dismantle, store, or sell vehicles. Of the 23 survey respondents, 15 (65 percent) do not conduct these investigations. They are notified by local law enforcement officials when a car is stolen. The MVA, in turn, notifies the local law enforcement agency if an attempt is made to register or retitle a stolen vehicle. However, eight MVAs (35 percent) do conduct investigations and inspections in addition to their licensing and registration responsibilities. The responses of these eight are highlighted below.

Flow of Motor Vehicle Recovery Data

For the MVAs that investigate and recover stolen motor vehicles, collection and recording procedures are standard. Upon recovery of a stolen vehicle, the MVA notifies the law enforcement agency which initiated the stolen vehicle report, the NCIC, the registered owner, insurer, and registered lienholder. In three of the MVAs, raw data is forwarded to the State MVA headquarters where it is compiled for UCR purposes. No changes in reporting procedures were instituted over the past five years because of the parts marking standard.

Body Shop Monitoring Procedures

Of the eight respondents that actively investigate motor vehicle theft, four monitor the operation of body shops, salvage yards, and auto dealerships through random on-site inspections. The remaining four conduct investigations through the issuance of licenses to dismantlers and the inspection of salvaged, rebuilt, and reconstructed vehicles. No changes in monitoring and inspection procedures between 1983 and 1988 were reported by the participating MVAs.

4. District Attorneys

The survey tailored for District Attorneys (DA) was designed to collect information regarding the following topics:

- State statutes and penalties imposed for theft of motor vehicles and motor vehicle parts
- The impact of parts marking on the prosecution and conviction of persons arrested for the theft of motor vehicles or motor vehicle parts

Statutes and Penalties Imposed for Auto Theft and Parts Theft

Five of the eleven states surveyed, California, Connecticut, Colorado, Georgia, and Nevada, have statutes specifically relating to motor vehicle theft. Under these statutes, a felony conviction carries maximum state prison sentences varying in length from three to twenty years. Only one state, Colorado, has a statute specifically addressing theft of motor vehicle parts, with the value of the stolen part(s) determining the length of sentence.

In the remaining six states, Arizona, Florida, North Carolina, New York, Texas, and Virginia, motor vehicle theft falls under the general theft or larceny statutes.

Under these statutes, the value of the automobile dictates the severity of the penalty imposed. Maximum prison sentences range from 5 to 20 years.

Impact of Parts Marking as Mandated by the 1984 Act

Over 95 percent of the District Attorneys surveyed stated that parts marking had not affected the prosecution, conviction, or sentencing of motor vehicle theft-related offenders. In addition, 39 percent of the District Attorneys surveyed were unaware of the Motor Vehicle Theft Law Enforcement Act of 1984 and its provisions. District Attorneys frequently stated that the prosecution of other crimes, such as drug-related or homicide cases, receive more attention and resources. As a result, 65 percent of the District Attorneys stated that first time offenders are given either a suspended sentence or probation rather than a jail term.

* * * * *

In addition to the data that was collected for calculation of clearance and conviction rates and for a nationwide analysis of law enforcement officers, Motor Vehicle Administration officials, and District Attorneys, other information was collected for an analysis of the application of the parts marking requirements. This information is summarized below.

E. Other Findings

In discussions with motor vehicle theft investigators, two topics emerged concerning law enforcement officer's application of parts marking and their ability to use these requirements in investigating auto theft and arresting suspects:

- Local Judicial Interpretation of Labels
- Case Experiences

1. Local Judicial Interpretation of Labels

A key determinant in the ability of a law enforcement officer to successfully use labels in conducting investigations and making arrests is the local judicial interpretation of whether a label can be considered a valid VIN. In those jurisdictions where the courts have recognized the label as a VIN, law enforcement officers can make full use of the labels (even if removed) and make arrests based on their presence or absence.

In those jurisdictions where the courts have ruled that the label is not a VIN, law enforcement officers are restricted to using labels solely as a supplemental tool to identify a stolen vehicle. The presence or absence of labels cannot be used as evidence to make arrests. Given the labels ease of removal, the overall impact of component parts marking is greatly reduced in these jurisdictions.

2. Case Experiences

Through the sampling of arrest files and discussions with motor vehicle theft investigators, we recorded information on cases where labels were used as a means of identifying a stolen automobile or as evidence to make an arrest. The cases are divided into two groups:

- As information to supplement vehicle or part identification (if label is present)
- As evidence of VIN tampering (if label is removed)

The frequency of cases where marked parts were used as evidence to make arrests is directly linked to the jurisdiction's interpretation of labels as valid VINs.

* * * * *

In this study, Price Waterhouse collected a variety of information. Through site visits to high-theft cities, arrest and court files were sampled in order to develop clearance and conviction rates. Although the limited data hindered this analysis, other information, such as the disparity in local judicial interpretations of labels, was collected. Finally, through a nationwide survey of law enforcement officers, Motor Vehicle Administration officials, and District Attorneys, information was collected concerning the procedures used to conduct investigations, make arrests, and prosecute, sentence, and convict motor vehicle thieves.

I. INTRODUCTION

A. Project Objectives

To assist the National Highway Traffic Safety Administration (NHTSA) in assessing the effectiveness of the Motor Vehicle Theft Law Enforcement Act of 1984, Price Waterhouse has conducted a study of auto theft arrests and outcomes and of reporting/recovery procedures. The two primary objectives of this study were:

Objective 1: Collect and analyze data relating to the experiences of State and local law enforcement and judicial agencies in apprehending, prosecuting, and convicting persons involved with the theft of motor vehicles. This objective included:

- a quantitative analysis of arrests and convictions for thefts of pre- and post-standard cars or trafficking in stolen parts
- a description of the experiences of judicial agencies in prosecuting and convicting persons arrested for motor vehicle theft

Objective 2: Provide a description of the methods and procedures used by law enforcement agencies and Motor Vehicle Administrations in collecting, compiling, using, and disseminating information concerning vehicle thefts and recoveries--before and after implementation of the 1984 Act. This analysis included:

- a description of procedures used to record and report thefts and recoveries
- a description of how this information is used to look for stolen vehicles to prevent retitling or dismantling

B. Project Approach

The approach to conduct the study and fulfill the objectives had two equally important steps: (1) collect the data, and (2) analyze the results. The approach centered on collecting data that would facilitate making comparisons between the "before component parts marking" time period and the "after component parts marking" time period. In this comparison framework, NHTSA can use the analysis to help evaluate the overall effectiveness of the 1984 Act.

However, both the collection and analysis steps were constrained by external limits. To collect and analyze data from law enforcement and judicial organizations, it was necessary to sample arrest and court files. However, these files are organized to track individuals through the arrest and trial proceedings, not to improve sampling efficiency. Therefore, data was sparse and difficult to collect. In addition, the limited data availability constrained the statistical analysis of the results. Statistical tests based on limited data narrow the reliability of the estimates. Thus, the project approach to collect and analyze data must work within the constraints of limited data.

In designing the project approach to collect and analyze the arrest, conviction, and procedural information, Price Waterhouse tested two alternatives:

Approach 1: Collect arrest, conviction, and procedural information through a nationwide survey of State and local law enforcement, Motor Vehicle Administration, and judicial agencies - Surveys were mailed to a sample of State and local officials asking them to randomly select arrest and court files, record information on the individuals and stolen motor vehicles, complete the questionnaire on procedures, and mail the completed survey responses back to Price Waterhouse. The

high degree of burden placed on the respondents caused a low response rate.

Approach 2: Collect procedural information through a nationwide survey, and collect arrest and conviction information through trips to seven high theft cities - While the nationwide questionnaire on procedures remained the same, the new approach called for Price Waterhouse project members to travel to high theft cities to conduct the sampling of arrest and court records.

Approach 1 - Nationwide Survey

In the original approach, we planned to collect all of the information through a nationwide mail survey of selected officials in 31 counties in 11 states. To collect arrest and conviction data, the planned approach required the assistance of law enforcement and court clerks. Law enforcement records clerks were to randomly sample arrest files, record the names of the individuals arrested and the stolen vehicles involved, and return the survey. Price Waterhouse would then receive the survey responses and produce a list of the names of persons arrested. The list of names would then be forwarded to the county court where a clerk would locate the proper court files, record conviction information, and return the survey forms.

To collect information on the procedures and experiences of State and local officials, we planned to conduct a combination mail-phone survey of law enforcement, Motor Vehicle Administration, and judicial officials experienced in combatting motor vehicle theft. Price Waterhouse would mail the surveys to the officials and collect the responses in a subsequent phone interview.

To see if this approach would work, we conducted a pilot test in November, 1988 of the survey methodology in three counties:

- o Los Angeles County, California - selected to represent large, urban jurisdictions with extensive computer resources
- o Mecklenburg County, North Carolina (Charlotte, NC) - selected to represent mid-size jurisdictions with moderate computer resources
- o Newport News, Virginia - selected to represent small jurisdictions with limited computer resources

The results of the pilot test indicated the need for a revised approach[1]. While the survey to collect information on procedures and experiences worked well, the mail survey approach to collecting arrest and conviction data yielded a low response rate. This was because the level of effort required from the law enforcement and court clerks was too burdensome given their normal day to day duties. In addition, because of the large differences among the sites in the organization of the arrest and court record keeping systems, each survey had to be tailored to the jurisdiction. While this was possible for a pilot test of three counties, the individual tailoring on a nationwide scale would be prohibitively complex. Thus, the high burden and low response rate led us to reject this approach and develop a revised approach.

Approach 2 (Final) - Nationwide Survey and Site Visits

Our revised approach called for a change in the data collection methodology. The approach to conduct the nationwide survey of State and local officials on procedures and experiences remained the same. However, the methodology to collect arrest and conviction data was modified to eliminate the potential burden on law enforcement and court clerks. In the revised approach, Price Waterhouse project team members would travel to selected jurisdictions and sample arrest and court files with minimal assistance from the clerks.

[1]For a detailed description of the results, see the Pilot Test Report (February 7, 1989).

Because of budget and time constraints, it was impossible to travel to each of the 31 counties selected in our nationwide sampling plan. A priority in determining the number of jurisdictions to be included in the study was to represent as much of the nation's motor vehicle theft activity as possible. This indicated that we should travel exclusively to high-theft cities. In determining which cities to include, we sought to include as many as possible given budget, time, and OMB-approval constraints. Based on these limitations, we selected seven high-theft cities,[2] representing over 25 percent of the nation's motor vehicle thefts.

Between February and May of 1989, Price Waterhouse project team members traveled to the seven cities and sampled motor vehicle theft arrest and court records. The approach called for the random sampling of records to develop clearance and conviction rate estimates. In addition, the approach included the identification of cases where marked parts had been used as evidence in making arrests and/or convictions. This analysis would provide insight into the impact of parts marking on law enforcement and court officials.

Using this approach, we identified and sampled arrest and court files. The task of locating, examining, and recording information from these manual files was time consuming. Because of the limited number of cases, the data for our analysis includes all sampled records involving the theft of passenger cars regardless of model years. The small number of records sampled and the few number of years since the implementation of the parts marking standard prohibited any year-to-year trend analysis.

To analyze the data obtained through the random sample of arrest and court records, we grouped the results from each city and calculated clearance and conviction

[2]Boston MA, Chicago IL, Houston TX, Los Angeles CA, Miami FL, New York NY, Philadelphia PA

rates. The problem of limited data affected the analysis and was especially pronounced in the development of conviction rates. Despite alternative methods tested to identify a sufficient number of court records involving the theft of post-standard passenger cars, we were unable to collect enough data to conduct a valid statistical evaluation. Thus, a detailed analysis (e.g., development of confidence intervals, hypothesis testing) of the sampled data was conducted only for the clearance rate calculations.

We conducted three types of comparisons to identify differences in the clearance rates:

- o Comparison 1: Compare automobiles subject to parts marking and their predecessors - calculate differences between the clearance rate for model years 1988 and 1987 of automobiles with marked parts and the clearance rate for model years 1986 and earlier of their predecessors
- o Comparison 2: Compare automobiles not subject to parts marking and their predecessors - calculate difference between the clearance rate for model years 1988 and 1987 of automobiles without marked parts and the clearance rate for model years 1986 and earlier of their predecessors
- o Comparison 3: Compare the differences calculated in Comparisons 1 and 2 - if the differences are statistically significant, the comparison is evidence that component parts marking has affected clearances

Thus, we focused our analysis on a comparisons of the differences in rates between marked and unmarked passenger cars and their predecessors.

In regards to the identification of cases where law enforcement officers had used marked parts as evidence in making arrests, the approach yielded relatively few

cases. The reasons for this low number of cases included difficulty in sampling arrest records, difficulty in identifying the primary evidence, and the few number of cases where marked parts were actually involved.

As expected from the results of the pilot test, the response rate to the nationwide survey of State and local law enforcement, Motor Vehicle Administration, and judicial officials was high. To analyze the information, the responses were divided by region of the country (West, South, and North East)[3] and population density (Urban, Rural, and Suburban)[4].

* * * * *

Thus, to accomplish the project objectives, the final survey approach focused on two areas of data collection and analysis. First, site visits to seven high-theft cities were conducted to sample arrest and court files, calculate clearance and conviction rates, and determine the frequency of cases where law enforcement officers had used marked component parts as evidence to make arrests. Second, a nationwide survey of State and local law enforcement, Motor Vehicle Administration, and judicial officials was conducted to collect information on their procedures and experiences in investigating, apprehending, prosecuting, and convicting persons arrested for motor vehicle theft. The remainder of this report details the results of this final approach.

[3]No states from the Midwest region were selected in the sample design process.

[4]Based on the county's population and geographic proximity to a Metropolitan Statistical Area

C. Report Organization

The remainder of this report is divided into the following three sections:

- Section II - Data Collection and Analyses - presents the analytic design and results of the clearance and conviction rate calculations
- Section III - Survey of State/Local Agencies - presents the findings from the nationwide survey of law enforcement officers, Motor Vehicle Administration officials, and District Attorneys
- Section IV - Cases Involving Marked Component Parts - presents examples of cases identified in site visits where marked parts were used by law enforcement officials as evidence to make arrests

Information on formulas used in statistical tests and a list of survey respondents can be found in Appendices A and B, respectively.

II. DATA COLLECTION AND ANALYSES

In this portion of the study, arrest and conviction information was collected from a sample of the arrest and court records of seven high-theft cities. The data collected from the files was used to calculate clearance and conviction rates. An analysis was then conducted to determine if there was a difference between: (1) the clearance rate for cars subject to the parts marking requirement, and (2) the clearance rate for cars not subject to the parts marking requirement. A comparative analysis of conviction rates could not be conducted because of an insufficient number of sampled court records.

In this section, we present the methodology used to collect and analyze the clearance and arrest data. The section is divided into the following four parts:

- o Data Collection Methodology - presents the sampling techniques used to sample arrest and court files
- o Clearance Rate Analysis - discusses the analytic design, data calculations, and hypothesis testing used to develop and evaluate clearance rate estimates
- o Conviction Rate Analysis - discusses the analytic design and data calculations used to develop conviction rate estimates
- o Types of Charges and Penalties - describes the charges and penalties imposed for motor vehicle theft-related convictions in the seven cities

A. Data Collection Methodology

To collect information necessary to develop clearance and conviction rate estimates, we sampled arrest and court files from the following seven Metropolitan Statistical Areas (MSA):

- Boston, Massachusetts
- Chicago, Illinois
- Houston, Texas
- Los Angeles, California
- Miami, Florida
- New York, New York
- Philadelphia, Pennsylvania

The seven cities were chosen for their high number of motor vehicle thefts (over 25 percent of the nationwide total) and geographic coverage of the nation.

Methodology Overview

The procedures used to sample arrest and court files varied greatly from city to city. Because arrest records are typically cross-referenced and stored by crime, motor vehicle theft arrest records could be identified and sampled from all arrest records. However, court cases are neither cross-referenced nor stored by charge. Thus, there was no way to distinguish motor vehicle theft court cases from the population of all court cases. The following methodology was developed to sample arrest and court files given these constraints:

- Step 1: Select a sample of motor vehicle theft arrest files
- Step 2: Record the name of the person(s) arrested, date(s) of arrest, and information on the stolen vehicle(s)
- Step 3: Using the name of the subject and the date of arrest, obtain the final outcome (disposition) from the court records

Arrest Records

The organization of arrest files varied greatly among the seven cities. Files were stored in hard-copy folders, microfilm, or computer databases. Because some of the police departments we visited stored their records in hard-copy format, sampling a large number of auto theft records was impossible given time constraints. Other police departments stored their records in computer databases that allowed for more efficient sampling. Thus, more records were sampled from some cities than others, based on the sophistication of their systems.

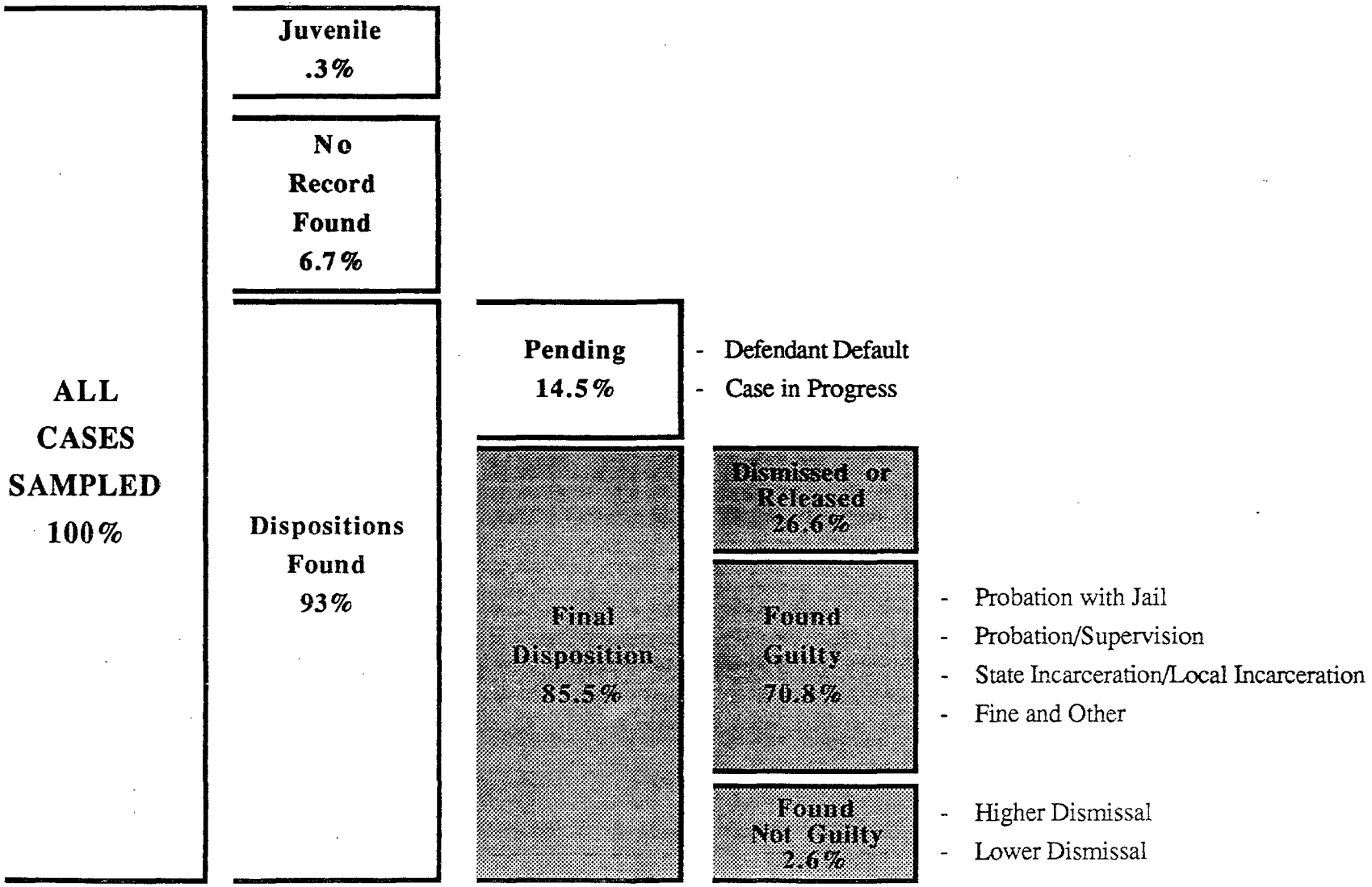
Regardless of the structure of the arrest records, we randomly selected a total of 326 arrest files and recorded the name of the individuals arrested and the model year, make, and model of the stolen vehicles. Data on those subjects arrested for stealing non-passenger automobiles (e.g., truck or motorcycle) were excluded from the analysis.

Court Records

To obtain conviction information from each city, a list of the names and dates of arrest was created from the sampling of arrest files and given to a court record's clerk. The case was pulled from storage and final disposition information was recorded. In many cases, however, disposition information was not available. Reasons for this included the fact that cases were still pending, court actions were transferred to another state, or the charges were dropped. Thus, there is not a one-to-one correspondence between arrests and convictions. Exhibit II-1 depicts the flow of data through the disposition sampling process.

Once the final dispositions were obtained from the court files, the first step was to assign each case to one of the four vehicle categories (predecessor of marked, predecessor of unmarked, marked, and unmarked). For cases involving one vehicle and one arrest, this process was straightforward. In cases with multiple vehicles and

CASE DISPOSITION FLOWCHART



defendants, clearances and dispositions were not so clearly related. For example, one case may have involved one arrest/disposition but several vehicle clearances.

For the purposes of the analysis, it was necessary to have a one-to-one relationship between clearances and dispositions. Clearances are the basis of comparison for the clearance rate (clearance/theft) and the conviction rate (convictions/clearances). Any allocation that did not have a one-to-one relationship between clearances and dispositions would result in multiple counting of clearances. Since clearances correspond directly with the vehicles involved in a case and thus with thefts, defendant and disposition information was adjusted to correspond to clearances. This resulted in comparability between thefts, clearances, and convictions.

To achieve this comparability, the following allocation rules were developed to for cases that involved multiple vehicles or multiple defendants:

Allocation Rules

- Multiple defendants, single vehicle - Select one of the defendants based on the severity of the charges prior to sentencing, and allocate that arrest and corresponding disposition to the appropriate vehicle category
- Multiple defendants, multiple vehicles - Select one of the defendants based on the severity of the charges prior to sentencing, and allocate that arrest and corresponding disposition to each of the vehicles in their respective categories
- Single defendant, multiple vehicles - Allocate the defendant's arrest and disposition to each of the vehicles in their respective categories

The defendant with the most severe charges was selected from the case so that the defendant most likely responsible for the theft would be represented in the conviction rate. Severity of charges for this allocation was determined by:

- o Comparing Felony vs. Misdemeanor Status: A defendant with felony charges was selected over one with misdemeanor charges
- o Number of charges: If a selection could not be made based solely on the first comparison, the number of counts of charges were used to select a defendant.

If neither of these criteria was sufficient basis for a selection, one of the defendants was selected at random to represent the case. In the majority of cases, this step was not necessary.

In cases with multiple vehicles and multiple defendants, it was not only necessary to have one defendant per vehicle, but also to have the same defendant information representing each of the vehicles in that case. This procedure applied also to cases where there were the same number of vehicles as defendants (i.e. two cars, two corresponding arrests). Although a one-to-one vehicle/defendant ratio already exists in such a case, one defendant is selected to provide the conviction information for that case. Vehicles of the same case were treated identically for the following reasons:

- o No clear and unbiased method could be devised to differentiate between multiple vehicles in terms of the evidence provided for prosecution
- o No clear and unbiased way could be devised to distinguish which defendant and which vehicle should be allocated together

In other words, in order to conduct the vehicle allocation, it was necessary to either allocate the same defendant information to all vehicles involved in a particular case

or to determine, based on the evidence in the case narrative, which defendants and which vehicles should be allocated together. Thus due to a lack of information and to avoid bias, vehicles of the same case were allocated the same disposition. This disposition was selected according to the rules described above.

The result of this methodology was the allocation of arrests, clearances, and convictions across vehicle categories. Although some information was lost when defendants were dropped from the sample, the methodology retained all vehicle information while minimizing possible bias.

Once arrest files from each of the seven cities were sampled and court records were reviewed and categorized, the clearance and conviction rate analysis could be performed. These procedures are described below. For each analysis, we define the goal, the analytical design, input data, and rate calculation.

B. Clearance Rate Analysis

The goals of the clearance analysis were to estimate clearance rates for cars subject to and not subject to the marking requirement and to determine if a significant difference existed between the rates. Clearance rate is defined in this study as the number of automobile thefts solved by arrest or exceptional means divided by the number of stolen automobiles.

1. Analytic Design

The framework for the clearance rate analysis centered on the comparison of two groups of data: Experimental Group and Control Group. These groups are defined as follows:

- o Experimental Group - Marked passenger cars (model years 1987-1988) and predecessors of the marked passenger cars (model years 1986 and earlier)

- o Control Group - Unmarked passenger cars (model years 1987-1988) and predecessors of the unmarked passenger cars (model years 1986 and earlier)

These groups are presented graphically in Exhibit II-2, Description of Categories. As can be seen in the exhibit, the four categories are unbalanced. The Marked and Unmarked categories consist of two model years of automobiles, 1987 and 1988. The Predecessor Marked and Predecessor Unmarked categories, meanwhile, consist of many model years (1986 and earlier). A more balanced analysis would have included only 1985 and 1986 model year predecessors. However, because sampled clearance data was sparse, an attempt was made to include as many clearances as possible (i.e., model years 1986 and earlier). This approach is acceptable because the analysis focuses on rates, not whole numbers. Thus, as long as the numerators (clearances) and denominators (thefts) are consistent across categories, the analytic design is valid.

To analyze the clearance rates among the four categories, a primary comparison was developed. This comparison is a longitudinal analysis and is depicted in Exhibit II-3, Development of Primary Comparison. It compares the difference in clearance rates between the two experimental categories with the difference in clearance rates between the two control categories. Three steps are taken in this comparison:

- o Step 1: Calculate the change in clearance rates for marked cars (Predecessors of Marked vs. Marked).

- o Step 2: Calculate the change in clearance rates for unmarked cars (Predecessors of Unmarked vs. Unmarked).

DESCRIPTION OF CATEGORIES

Group	Model Years	Marked or Unmarked	Example
Experimental	1986 and earlier	Predecessors of Marked	1981 Chevrolet Camaro
Experimental	1987 and 1988	Marked	1988 Chevrolet Camaro
Control	1986 and earlier	Predecessors of Unmarked	1986 Ford Escort
Control	1987 and 1988	Unmarked	1988 Ford Escort

DEVELOPMENT OF PRIMARY COMPARISON

Step No.	Calculation	Group	Model Years	Marked or Unmarked	Example
1.	Calculate Change in Clearance Rate (Experimental)	Experimental	1986 and earlier	Predecessors of Marked	1981 Chevrolet Camaro
		Experimental	1987 and 1988	Marked	1988 Chevrolet Camaro
2.	Calculate Change in Clearance Rate (Control)	Control	1986 and earlier	Predecessor of Unmarked	1986 Ford Escort
		Control	1987 and 1988	Unmarked	1988 Ford Escort
3.	Calculate Difference Between Change in Clearance Rate (Experimental) and Change in Clearance Rate (Control)				

- Step 3: Compare the changes. If the difference is significant, then this is evidence that parts marking has affected clearances.

Before presenting the results of this comparison, we describe the calculation of the clearance rates, including a description of the data inputs: theft data and clearance data.

2. Theft Data

The theft data used in the clearance rate analysis consists of all passenger cars reported stolen in each MSA during the five year time period 1984-1988. This definition includes all model years, but specifically excludes non-passenger vehicles such as:

- Pick-up Trucks
- Vans
- Motorcycles

The theft data was provided by the National Crime Information Center (NCIC), a part of the Federal Bureau of Investigation (FBI). NCIC supplied NHTSA with magnetic tapes containing one record for every motor vehicle reported stolen to NCIC in the United States from 1984 to 1988. Each record included information such as:

- Model Year - used in the analysis to separate 1986 and earlier model years from the 1987 and 1988 model years
- Make and Model - used in the analysis to classify vehicle as marked or unmarked

- o Vehicle Identification Number (VIN) - compared with model year and make and model to verify correct entry into system
- o Law Enforcement Agency that Entered the Theft Record (ORI Code) - used to identify vehicles reported stolen in one of the seven cities

NHTSA conducted preliminary screening and editing of the NCIC theft tapes. Non-passenger car records were deleted and VINs were compared with the reported make/model. For each of the five calendar years and for each of the seven MSAs (28 counties), NHTSA summed the records by make, model, and model year. In addition, each make-model combination was identified as one of three types:

- o Marked - Passenger car lines that are covered by the Standard and have marked component parts
- o Unmarked - Passenger car lines that are not covered by the Standard
- o Anti-theft - Passenger car lines that are covered by the Standard but are exempt from labelling requirements because of anti-theft devices installed as standard equipment[1]

To transform the data to a format conducive to the comparative analysis, the theft records were aggregated by category for each MSA. Section 1 of Exhibit II-4 presents the raw auto theft totals.

Section 2 of the exhibit presents another source of auto theft totals per MSA, Uniform Crime Reports (UCR). Under the UCR program, a system also directed by the FBI, local law enforcement agencies tally crimes reported to their organization. The UCR receives these counts and combines them with all other reporting agencies to establish national estimates. These totals are published and widely quoted.

[1]For the purposes of this analysis, these records were included with the Unmarked vehicles.

THEFT DATA (1984 - 1988)
EXPANSION OF NCIC DATA TO UCR THEFT TOTALS

	CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILADELPHIA
(1)	AUTO THEFTS (NCIC)							
	Predecessors of Marked	76,088	29,758	13,934	131,631	48,901	184,159	44,884
	Predecessor of Unmarked	77,350	18,280	8,945	169,203	46,487	175,350	42,399
	Marked	4,515	1,317	693	4,843	2,617	7,924	2,561
	Unmarked	4,899	1,466	611	7,972	3,365	11,242	3,367
	RAW AUTO THEFT TOTAL	162,852	50,821	24,183	313,649	101,370	378,675	93,211
(2)	UCR - TOTAL AUTO THEFTS (1984-1988)	158,036	250,220	140,384	415,009	118,485	475,895	122,964
	EXPANSION RATIO (UCR/RAW)	0.97	4.92	5.81	1.32	1.17	1.26	1.32
(3)	EXPANDED AUTO THEFTS							
	Predecessors of Marked	73,838	146,515	80,888	174,169	57,157	231,439	59,211
	Predecessor of Unmarked	75,062	90,003	51,926	223,883	54,336	220,369	55,933
	Marked	4,381	6,484	4,023	6,408	3,059	9,958	3,378
	Unmarked	4,754	7,218	3,547	10,548	3,933	14,128	4,442
	EXPANDED AUTO THEFT TOTAL *	158,036	250,220	140,384	415,009	118,485	475,895	122,964

* Note: May not sum to total due to rounding

To collect the UCR auto theft totals, we contacted the State UCRs in which the seven MSAs are located. For each state, the UCRs provided data on the number of automobile thefts in each county in the MSA for the years 1984-1988. These county totals were summed to produce the UCR Total Auto Thefts data. As can be seen by comparing the Raw Auto Theft Total (NCIC) with the UCR Total Auto Thefts, there is a discrepancy between the two sources. One possible explanation is a difference in reporting procedures between the two systems. Another possible explanation concerns the process employed in processing the NCIC tapes. The key to identify MSA theft records was the originating law enforcement agency code (ORI code). In the selection process, certain law enforcement agencies may not have been identified. Thus, thefts reported by these agencies would not have been included in the analysis.

Because the UCR data more accurately reflects the number of automobile thefts in each MSA and is widely quoted, this analysis uses the UCR data as the source of total thefts and uses the NCIC auto theft information to identify the distribution of thefts among the four categories. The NCIC data is then scaled to the UCR total. This yields Expanded Auto Thefts as depicted in section 3 of Exhibit II-4. These numbers will be used as the denominators in the clearance rate calculations.

3. Clearance Data

To develop the numerators for the clearance rate calculations, we used information obtained from the sampling of arrest files in the seven MSAs. Included in the information recorded from each arrest file sampled was the number of clearances and the model year, make, and line of the automobile(s) involved. Based on this information, the clearances were assigned to one of the four categories. The number of clearances sampled is presented in top section of Exhibit II-5. In two cities, Houston and New York, the random sampling did not record a clearance of a

CLEARANCE DATA (1984 - 1988)
EXPANSION OF SAMPLED CLEARANCES TO TOTAL CLEARANCES

	CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILADELPHIA
(4)	SAMPLED AUTO CLEARANCES							
	Predecessors of Marked	19	20	13	15	12	29	20
	Predecessor of Unmarked	19	15	13	28	16	28	36
	Marked	1	2	No Data	1	1	6	2
	Unmarked	1	2	No Data	3	1	No Data	1
	TOTAL SAMPLED AUTO CLEARANCES	40	39	26	47	30	63	59
(5)	SAMPLED AUTO CLEARANCES (PERCENTAGE)							
	Predecessors of Marked	47.5%	51.3%	50.0%	31.9%	40.0%	46.0%	33.9%
	Predecessor of Unmarked	47.5%	38.5%	50.0%	59.6%	53.3%	44.4%	61.0%
	Marked	2.5%	5.1%	No Data	2.1%	3.3%	9.5%	3.4%
	Unmarked	2.5%	5.1%	No Data	6.4%	3.3%	No Data	1.7%
	TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(6)	UCR - TOTAL AUTO CLEARANCES (1984-1988)	11,900	23,545	11,651	39,824	12,707	36,273	14,775
(7)	EXPANDED AUTO CLEARANCES (SAMPLED PERCENTAGE * UCR TOTALS)							
	Predecessors of Marked	5,653	12,074	5,826	12,710	5,083	16,697	5,008
	Predecessor of Unmarked	5,653	9,056	5,826	23,725	6,777	16,121	9,015
	Marked	298	1,207	No Data	847	424	3,455	501
	Unmarked	298	1,207	No Data	2,542	424	No Data	250
	EXPANDED AUTO THEFT TOTAL	11,900	23,545	11,651	39,824	12,707	36,273	14,775

model year 1987-1988 unmarked car (denoted by "No Data"). The Houston sampling also did not record a clearance of a marked car. These three data points will be excluded from further calculations, and the words "No Data" will appear throughout subsequent exhibits.

Because the denominators in the clearance rate are numbers that represent the total MSA (total thefts), the numerator must also represent the total MSA (total clearances). To derive total clearances per category from the sampled clearances, the analysis first converted the sampled numbers to percentages (Exhibit II-5, section 5). The percentages were then multiplied by UCR Total Auto Clearances (Exhibit II-5, section 6). The total auto clearances were obtained from State UCRs for each county in the MSAs for the years 1984 to 1988. The reported clearances were summed across counties and across the five years to produce the MSA total. The multiplication of UCR total auto clearances and sampled auto clearance percentages yields the Expanded Auto Clearances (Exhibit II-5, section 7). These numbers will be used as the denominators in the development of the clearance rates.

4. Development of Clearance Rates

After developing the denominators (total thefts per MSA per category) and the numerators (total clearances per MSA per category), the clearance rates can be calculated. Exhibit II-6 presents this computation. Clearances (repeated from Exhibit II-5, section 7) are divided into Thefts (repeated from Exhibit II-4, section 3) to yield Intermediate Clearance Rates (section 8). The clearance rates are labeled intermediate because the numbers need to be weighted before overall clearance rates can be generated. To develop overall clearance rates that accurately reflect the MSAs, each MSA must contribute an amount proportionate to their percentage of total thefts. For example, if automobile thefts in Los Angeles are 25 percent of the

CALCULATION OF INTERMEDIATE CLEARANCE RATES
(1984 - 1988)

	CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILADELPHIA
(7)	EXPANDED AUTO CLEARANCES							
	Predecessors of Marked	5,653	12,074	5,826	12,710	5,083	16,697	5,008
	Predecessor of Unmarked	5,653	9,056	5,826	23,725	6,777	16,121	9,015
	Marked	298	1,207	No Data	847	424	3,455	501
	Unmarked	298	1,207	No Data	2,542	424	No Data	250
	TOTAL CLEARANCES	11,902	23,544	11,652	39,824	12,708	36,273	14,774
(3)	EXPANDED AUTO THEFTS							
	Predecessors of Marked	73,838	146,515	80,888	174,169	57,157	231,439	59,211
	Predecessor of Unmarked	75,062	90,003	51,926	223,883	54,336	220,369	55,933
	Marked	4,381	6,484	4,023	6,408	3,059	9,958	3,378
	Unmarked	4,754	7,218	3,547	10,548	3,933	14,128	4,442
	TOTAL AUTO THEFTS	158,035	250,220	140,384	415,008	118,485	475,894	122,964
(8)	INTERMEDIATE CLEARANCE RATES							
	Predecessors of Marked	7.66%	8.24%	7.20%	7.30%	8.89%	7.21%	8.46%
	Predecessor of Unmarked	7.53%	10.06%	11.22%	10.60%	12.47%	7.32%	16.12%
	Marked	6.80%	18.62%	No Data	13.22%	13.86%	34.70%	14.83%
	Unmarked	6.27%	16.72%	No Data	24.10%	10.78%	No Data	5.63%

total automobile thefts for the MSAs, then the clearance rate for Los Angeles should represent 25 percent of the total clearance rate.

The development of the final clearance rates is a three step process and is depicted in Exhibit II-7:

- Step 1: Develop MSA Weights (Section 9) - Total UCR auto thefts from Exhibit II-4 are summed across all MSAs to yield a total of 1,680,993 thefts. An MSA weight is calculated by dividing its total thefts into the sum of thefts for all MSAs.
- Step 2: Multiply Weight and Rates (Section 10) - the weights for each MSA are then multiplied by the intermediate clearance rates.
- Step 3: Calculate Final Clearance Rates (Section 11) - The results of step two are summed across all MSAs to produce the final clearances rates.

Although the results of these calculations indicate that the clearance rate for marked automobiles (18.56 percent) is greater than the rate for the other categories (7.64, 9.89, and 10.20 percent), an analysis of the standard errors, confidence intervals, and t-ratios must be conducted before any conclusions can be made.

5. Variance and Standard Error Estimates

The calculations of the variances and standard errors of the final clearance rates are depicted in Exhibit II-8. To calculate the variance of the clearance ratios, we used the statistical formula:

CALCULATION OF FINAL CLEARANCE RATES
(1984 - 1988)

	CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILADELPHIA
(8)	INTERMEDIATE CLEARANCE RATES							
	Predecessors of Marked	7.66%	8.24%	7.20%	7.30%	8.89%	7.21%	8.46%
	Predecessor of Unmarked	7.53%	10.06%	11.22%	10.60%	12.47%	7.32%	16.12%
	Marked	6.79%	18.62%	No Data	13.22%	13.85%	34.69%	14.83%
	Unmarked	6.26%	16.73%	No Data	24.10%	10.77%	No Data	5.64%
(9)	TOTAL AUTO THEFTS PER MSA (UCR: 1984-1988)	158,036	250,220	140,384	415,009	118,485	475,895	122,964
	TOTAL AUTO THEFTS ALL MSAs (Summation across MSAs)				1,680,993			
	MSA WEIGHT (Thefts per MSA / Total Thefts)	0.094	0.149	0.084	0.247	0.070	0.283	0.073
(10)	MSA WEIGHT * CLEARANCE RATE							
	Predecessor of Marked	0.007	0.012	0.006	0.018	0.006	0.020	0.006
	Predecessor of Unmarked	0.007	0.015	0.009	0.026	0.009	0.021	0.012
	Marked	0.006	0.028	No Data	0.033	0.010	0.098	0.011
	Unmarked	0.006	0.025	No Data	0.059	0.008	No Data	0.004

(11)	FINAL CLEARANCE RATES (Summation across MSAs)	
	Predecessor of Marked	7.64%
	Predecessor of Unmarked	9.89%
	Marked	18.56%
	Unmarked	10.20%

CALCULATION OF VARIANCE AND STANDARD ERROR ESTIMATES FOR FINAL CLEARANCE RATES

	CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILADELPHIA
(4)	SAMPLED AUTO CLEARANCES							
	Predecessors of Marked	19	20	13	15	12	29	20
	Predecessor of Unmarked	19	15	13	28	16	28	36
	Marked	1	2	No Data	1	1	6	2
	Unmarked	1	2	No Data	3	1	No Data	1
(8)	INTERMEDIATE CLEARANCE RATES							
	Predecessors of Marked	7.66%	8.24%	7.20%	7.30%	8.89%	7.21%	8.46%
	Predecessor of Unmarked	7.53%	10.06%	11.22%	10.60%	12.47%	7.32%	16.12%
	Marked	6.79%	18.62%	No Data	13.22%	13.85%	34.69%	14.83%
	Unmarked	6.26%	16.73%	No Data	24.10%	10.77%	No Data	5.64%
(12)	VARIANCE: INTERMEDIATE CLEARANCE RATE							
	Predecessors of Marked	0.0037	0.0038	0.0051	0.0045	0.0068	0.0023	0.0039
	Predecessor of Unmarked	0.0037	0.0060	0.0077	0.0034	0.0068	0.0024	0.0038
	Marked	0.0633	0.0758	No Data	0.1147	0.1193	0.0378	0.0631
	Unmarked	0.0587	0.0696	No Data	0.0610	0.0961	No Data	0.0532
(9)	MSA WEIGHT							
	(Thefts per MSA / Total Thefts)	0.094	0.149	0.084	0.247	0.070	0.283	0.073
(13)	VARIANCE * WEIGHT (SQUARED)							
	Predecessor of Marked	0.00003	0.00008	0.00004	0.00027	0.00003	0.00019	0.00002
	Predecessor of Unmarked	0.00003	0.00013	0.00005	0.00021	0.00003	0.00019	0.00002
	Marked	0.00056	0.00168	No Data	0.00699	0.00059	0.00303	0.00034
	Unmarked	0.00052	0.00154	No Data	0.00372	0.00048	No Data	0.00028

(14)	FINAL STANDARD ERROR (Summation across MSAs)	VARIANCE	STANDARD ERROR
	Predecessor of Marked	0.00067	2.58%
	Predecessor of Unmarked	0.00067	2.60%
	Marked	0.01319	11.48%
	Unmarked	0.00654	8.09%

$$\text{Variance} = (p)(q) / n$$

where p = clearance rate
q = 1 - p
n = total number of sampled auto clearances

The results of this calculation are presented in section 12, Variance: Intermediate Clearance Rates. To be consistent with the clearance rates, the variances must be weighted to reflect each MSAs proportionate size. Thus, the same ratios that were used to weight the clearance rates are used to weight the variances. The weighting process is depicted in section 13.

Once the variance for each category and MSA has been weighted, the final variances are calculated by summing across MSAs. The final variances are presented in section 14 of the exhibit. The standard errors in percentage terms are calculated by taking the square root of the variances and multiplying by 100.

6. Hypothesis Testing

The standard errors are used to calculate confidence intervals around the clearance rates. This analysis is depicted in Exhibit II-9. With the intervals developed in this process, we can assert with 95 percent confidence that the true clearance rates fall within the calculated limits. As seen in the exhibit, the confidence intervals are wide, especially for the marked and unmarked automobiles. The wide ranges are caused by the limited number of clearances recorded for those two categories.

Given these large standard errors and confidence intervals, no statistically significant difference could be detected among the clearance rates for the four

CLEARANCE RATE HYPOTHESIS TESTING

CATEGORY	CLEARANCE RATE	S.E.	LIMITS OF 95% CONFIDENCE INTERVAL	
A - Predecessor of Marked	7.64%	2.58%	2.58%	12.70%
B - Predecessor of Unmarked	9.89%	2.60%	4.79%	14.99%
C - Marked	18.56%	11.48%	0.00%	41.06%
D - Unmarked	10.20%	8.09%	0.00%	26.06%

HYPOTHESIS	t-RATIO	CRITICAL VALUE NEEDED TO EXCEED	ACCEPT OR REJECT ?	RESULT
H0: C <= A H1: C > A	0.9281	1.645	Accept	No Significant Difference
H0: D = B	0.0365	1.960	Accept	No Significant Difference
PRIMARY COMPARISON				
H0: (C - A) - (D - B) <= 0 H1: (C - A) - (D - B) > 0	0.7310	1.645	Accept	No Significant Difference

categories. This analysis is presented in the bottom section of Exhibit II-9. To simplify the presentation of the hypothesis testing, the categories are referred to by the labels A-D as defined in the top portion of the exhibit.

We conducted a t-test on the following three null hypotheses:

- Hypothesis 1: Clearance rate for marked cars (C) is less than or equal to the clearance rate for the predecessors of marked cars (A)
- Hypothesis 2: Clearance rate for unmarked cars (D) is equal to the clearance rate for predecessors of the unmarked cars (B)
- Hypothesis 3: Difference between the change in clearance rates for marked and predecessors of marked (C - A) and the change in clearance rates for unmarked and predecessors of unmarked (D - B) is less than or equal to zero

The equations used to develop the t-ratios are presented in Appendix A.

In the first hypothesis, we expect to find a difference in the clearance rates. Thus, a one-tailed t-test is conducted. For a one-tailed test with 95 percent confidence, the t-ratio needs to exceed 1.645 in order to reject H0, the null hypothesis. With a t-ratio of .9281, we must accept the null hypothesis that the clearance rate for marked cars is less than or equal to the clearance rate of predecessors of marked cars. Thus, there is no significant difference between the two categories.

In the second hypothesis, we do not expect to find a difference between the clearance rates of unmarked automobiles (D) and unmarked predecessors (B). Thus, a two-tailed t-test is conducted. For a two-tailed test with 95 percent confidence, the

t-ratio needs to exceed 1.960 in order to reject the null hypothesis. With a t-ratio of 0.0365, we must accept the null hypothesis that the two clearance rates are equal.

The last hypothesis combines the two previous comparisons and tests that the "difference of the two group's differences" is significant. The outcome of this test is known at this point because of the previous two tests. If the difference between marked and predecessors to marked cannot be statistically separated from zero (test 1) and the difference between unmarked and predecessors of unmarked cannot be statistically separated from zero (test 2), then it will be impossible to distinguish the difference between these two tests from zero.

To verify this assumption, we conducted a one-tailed t-test (critical value of 1.645 at 95 percent confidence level). With a t-ratio of 0.7310 we must accept the null hypothesis that the difference between the two differences is less than or equal to zero.

The clearance rates developed in this analysis indicate a large increase in the rate for marked cars. However, an analysis of the variances, standard errors, confidence intervals, and hypothesis tests demonstrate that these differences are not statistically significant at the 95 percent confidence level.

C. Conviction Rate Analysis

The goals of the conviction analysis were to calculate conviction rate estimates for the theft of automobiles subject to and not subject to the marking requirement and to determine if a significant difference existed between the rates. In this study, conviction rate is defined as the number of convictions for automobile theft-related charges divided by the number of automobile clearances.

Below, we describe the analytic design, input data, and rate calculation for the conviction rate analysis.

1. Analytic Design

The framework for the conviction rate analysis is similar to that of the clearance rate analysis. Conviction rates are calculated for each of the four categories. However, a comparative analysis of the conviction rates could not be conducted because of insufficient data. As described above, court records are not generally sorted or cross-referenced by charge. Thus, there was no efficient way to identify a large number of cases involving motor vehicle theft. In addition, trials often extend over a lengthy period of time. Thus the outcome of many cases, especially those involving the theft of post-standard cars, is still pending. As a result of the limited data, the standard errors, confidence intervals, and hypothesis tests do not have any statistical validity and are not presented in this report.

The steps taken to develop the conviction rates are described below. This includes a discussion of the data inputs: clearance data and conviction data. In the clearance rate analysis, data on total MSA automobile thefts and total MSA clearances were available from the State UCRs. However, in the conviction rate analysis, data on total MSA convictions for automobile theft-related charges does not

exist. Thus, the only inputs to the analysis are the conviction and clearance data obtained from the sample of arrest and court records.

2. Conviction Data

To develop the numerators for the conviction rate calculations, we used the number of sampled clearances that resulted in convictions. This information is presented in section 1 of Exhibit II-10. As can be seen from the exhibit, data on convictions of automobile theft-related charges is sparse. This is especially true for the model years 1987-1988 automobiles. For the five year time period and seven MSAs, only two convictions for the theft of marked cars were sampled. This lack of data restricted the conviction rate analysis.

3. Clearance Data

The clearance data used as the denominator in the calculation of the conviction rates consists of the number of clearances for which a final disposition was obtained from the court records. Court records were not available for approximately one out of every three clearances. As previously described, court records were not available for a variety of reasons including outcome still pending, case transferred to another jurisdiction, and charges dropped. Section 2 of Exhibit II-10 presents the number of sampled clearances with dispositions for each category and MSA across the five year time period (1984-1988). In three cities, Boston, Houston, and New York, the sampling process did not yield any dispositions associated with the clearance of an unmarked car (model year 1987-1988). The Houston sampling also did not yield any dispositions associated with the clearance of a marked car. The "No Data" points for Houston and New York exist because no clearances were sampled for those categories. For Boston, one clearance of an unmarked car was sampled. However,

CALCULATION OF SAMPLED CONVICTION RATES
(1984 - 1988)

CATEGORY	BOSTON	CHICAGO	HOUSTON	LOS ANGELES	MIAMI	NEW YORK	PHILA-DELPHIA	TOTAL
(1) SAMPLED CLEARANCES WITH CONVICTIONS								
Predecessors of Marked	5	9	8	13	4	7	11	57
Predecessor of Unmarked	5	9	8	20	6	8	17	73
Marked	1	0	No Data	1	0	0	0	2
Unmarked	No Data	1	No Data	2	1	No Data	0	4
TOTAL	11	19	16	36	11	15	28	136
(2) SAMPLED CLEARANCES WITH DISPOSITIONS								
Predecessors of Marked	8	15	11	13	7	9	18	81
Predecessor of Unmarked	8	10	12	21	15	16	28	110
Marked	1	1	No Data	1	1	2	1	7
Unmarked	No Data	1	No Data	2	1	No Data	1	5
TOTAL	17	27	23	37	24	27	48	203
(3) SAMPLED CONVICTION RATES								
Predecessors of Marked	62.5%	60.0%	72.7%	100.0%	57.1%	77.8%	61.1%	70.4%
Predecessor of Unmarked	62.5%	90.0%	66.7%	95.2%	40.0%	50.0%	60.7%	66.4%
Marked	100.0%	0.0%	No Data	100.0%	0.0%	0.0%	0.0%	28.6%
Unmarked	No Data	100.0%	No Data	100.0%	100.0%	No Data	0.0%	80.0%

the court file was not available for review. Thus, the conviction data has four "No Data" points that will be excluded from subsequent calculations.

4. Development of Conviction Rates

After listing the sampled clearances with convictions (numerator) and the sampled clearances with dispositions (denominator), the conviction rates can be calculated. As depicted in section 3 of Exhibit II-10, sampled conviction rates are calculated by dividing Total Convictions by Total Clearances.

* * * * *

The above description of the data collection and analysis demonstrates the problems associated with collecting arrest and conviction information on persons charged with a motor vehicle theft-related crime. Although the clearance analysis indicated a substantial increase in the clearance rate of marked cars, the difference was statistically insignificant. In addition, the conviction analysis did not have enough data points to develop meaningful conviction rates. Thus, we must supplement this analysis with other types of information concerning the arrest, prosecution, and conviction of motor vehicle thieves.

As an additional part of the arrest and conviction analysis, we next discuss another type of information that was developed from the sampling of arrest and court files, an analysis of the charges and penalties imposed for motor vehicle theft-related crimes. This analysis includes a comparison of actual and maximum allowable penalties.

D. Types of Charges and Penalties

The final analysis to be conducted on the data collected at the seven high-theft cities concerns the types of penalties imposed on those arrested for motor vehicle theft-related crimes. During the site visits to sample arrest and court records, we recorded the sentence given to each convicted offender. Thus, we collected information on the penalties that judges actually impose for motor vehicle theft.

To assess these actual penalties, the analysis compared them with data collected on the maximum allowable penalties. The comparison of the actual and the maximum sentences provides insight into the court's perception of the status of motor vehicle theft relative to other crimes. Information on the maximum sentences was collected in the nationwide survey of District Attorneys' (a complete description of their responses appears in the next section).

The discussion of the comparative analysis is divided into two parts:

- Description of charges and penalties imposed for motor vehicle theft - For each of the seven cities, a description of the most common motor vehicle theft-related charges and penalties is provided
- Comparison with maximum penalties allowable by law - For the four high-theft cities covered by the nationwide survey of District Attorneys, a comparison of maximum and actual penalties is presented

1. Charges and Penalties Imposed for Motor Vehicle Theft-Related Crimes

Among the seven high theft cities included in the study, there were two basic types of motor vehicle theft-related charges, but there was a wide variation in the penalties. The two types of charges were:

- Theft of a motor vehicle - The subject is charged with actually stealing the motor vehicle.

- Possession of a stolen motor vehicle - If it cannot be proven that the subject stole the vehicle, the authorities can charge the subject with having possession of the stolen item. This is frequently the outcome of a plea bargain or a reduced charge.

Exhibit II-11 summarizes the charges and penalties received in each of the seven cities.

As can be seen in the exhibit, in three of the cities, the convicted offender typically will not serve any jail time (Chicago, Los Angeles, and Miami). In the other four cities (Boston, Houston, New York, and Philadelphia), jail terms typically range from one to two years. The city of Houston had the most consistent record of sentencing convicted offenders to lengthy prison terms (35 percent of all sampled convictions were sentenced to three or more years in the Texas Detention Center). Miami, on the other hand, had the lightest sentences. The average penalty was not a jail term, but rather a one year probation period. From the information collected in Miami, it could not be ascertained whether the light sentences were a function of lenient sentencing of repeat offenders or the prevalence of first-time offenders who normally receive light sentences.

2. Comparison of Actual and Maximum Allowable Penalties

The purpose of the penalties analysis is to compare actual vs. maximum sentences. As described above, the analyses focuses on those four cities that were covered by both the nationwide survey and the data collection site visits. Exhibit II-12 highlights the comparison. For each of the four cities, the exhibit lists the primary charge associated with motor vehicle theft, the maximum penalty allowable under

SUMMATION OF CHARGES AND PENALTIES REVIEWED IN SEVEN CITIES

City	Total Number of Charges Reviewed *	Most Common Charge	Number of Common Charges Reviewed	Most Common Penalty **	Most Severe Penalty
Boston	17	Larceny of Motor Vehicle	9	6 months incarceration	1 year incarceration $500 restitution
Chicago	19	Possession of Stolen Vehicle	11	2 years probation	3 years incarceration
Houston	20	Theft	11	3 years incarceration	10 years incarceration
Los Angeles	27	Receiving Stolen Property	19	3 years probation	3 years incarceration
Miami	16	Grand Theft	8	1 year probation	2 and half years incarceration
New York	26	Criminal Possession of Stolen Property	16	1 year incarceration 2 years probation	7 years incarceration
Philadelphia	34	Theft	12	1-2 years incarceration	2-3 years incarceration

* In survey, court records were sampled. A court record could involve more than one charge. Total number includes all charges reviewed

** Of the penalties given for the most common charge, this was the most frequently observed

COMPARISON OF MAXIMUM AND ACTUAL PENALTIES

City	Auto Theft Charge (1)	Maximum Penalty (2)	Most Common Actual Charge (3)	Actual Penalty (4)
Houston	Theft	10 years prison $5,000 fine	Theft	3 years prison
Los Angeles	Grand Theft Auto	3 years prison	Receiving Stolen Property	3 years probation
Miami	Grand Theft	5 years prison	Grand Theft	1 year probation
New York	Larceny	7 years prison	Criminal Possession of Stolen Property	1 year prison and 2 years probation

1 From Statute - Official charge used against individual caught stealing a motor vehicle
2 From Statute - Maximum penalty for persons convicted of official charge
3 From Court Records - Of all charges reviewed in motor vehicle theft court records, this was the most frequent
4 From Court Records - Of the penalties imposed for the most common charge, this was the most frequent

State law, and the most common charge and penalty determined from the sample of court records.

For all four cities, the actual penalties were substantially lighter than the maximum allowable. This is an expected result because the maximum allowable sentence is normally reserved for multiple repeat offenders. Many of the persons arrested for motor vehicle theft are first or second time offenders, and as such do not qualify for the maximum penalty.

In addition to lighter penalties, the charges used to convict an offender are often less severe. In Los Angeles and New York, the primary auto theft charge is different from the most common actual charge. In Los Angeles, offenders were charged not with Grand Theft Auto, but rather Receiving Stolen Property. In New York, the charge most commonly used was Criminal Possession of Stolen Property, not Larceny. In both instances, the charge actually used (possession) was easier to prove than the primary auto theft charge (theft), but carried a lighter sentence. This is an indication of the frequent practice of reducing charges or plea bargaining to speed motor vehicle theft cases through the court system.

* * * * *

State statutes provide judges with wide discretion in sentencing motor vehicle theft offenders. In the comparison involving penalties in the four cities, the analysis demonstrates that the maximum sentence is much more severe than the penalties normally imposed. There are often good reasons for these differences, such as the prevalence of first time offenders. However, this apparent leniency in sentencing is consistent with the responses of District Attorneys in the nationwide survey. As you will read in the next section, imposing lengthy jail terms on convicted motor vehicle theft offenders is not a priority in many of the nation's judicial systems.

III. SURVEY OF STATE/LOCAL AGENCIES

In this section, we present the approach and results of the nationwide survey of State and local law enforcement officers, District Attorneys', and Motor Vehicle Administration officials involved with combatting motor vehicle theft. The discussion is presented in four parts:

- o General Approach - Provides an overview of the survey including a discussion of the sample selection and survey administration procedures
- o Law Enforcement Agencies - Presents the results of the survey of auto theft investigators
- o Motor Vehicle Administration - Presents the results of the survey of licensing agencies' investigators and officials
- o Judicial Agencies - Presents the results of the survey of District Attorneys

A. General Approach

The purpose of the survey was to collect information concerning the procedures used to conduct investigations, make arrests, and prosecute, sentence, and convict motor vehicle thieves. Survey topics were tailored to each type of agency:

- o Law Enforcement Survey - topics included theft reporting/recovery procedures and information flow, investigative techniques, theft and arrest estimates, and resources allocated to auto theft investigation
- o Motor Vehicle Administration Survey - topics included information used to prevent retitling of stolen vehicles, investigative techniques, and arrest estimates

- Judicial Agencies Survey - topics included motor vehicle theft related statutes and penalties, and experiences in prosecuting, convicting, and sentencing offenders

In interviewing officials concerning these topics, we employed a sample design and survey implementation process that yielded nationally representative responses. These processes are outlined below.

1. Sample Design

The goal of the sample design process was to ensure that the data collection efforts resulted in estimates that are representative of the nationwide motor vehicle theft, arrest, and conviction patterns through the years 1984-1988. Towards this goal, a two-stage cluster sample design was employed: (I) States and (II) Counties. In all, 11 states and 31 counties were chosen to be included in the survey.

a. Stage I: States

To select the 11 states to be included in the survey, we listed all 50 states, the District of Columbia, and Puerto Rico according to the number of motor vehicle thefts reported in 1986 (from "Crime in the United States: 1986"). We divided the states into three strata:

- Certainty Stratum
- Medium-Theft Stratum
- Low-Theft Stratum

The Certainty Stratum included the three states with the largest number of motor vehicle thefts: California, Texas, and New York. Boundaries for the other two

stratum were defined by the Dalenius-Hodges method. The Neyman allocation method was used to apportion the eight other states to be selected across the two lower strata. Six states were selected at random from the medium theft stratum (Connecticut, Florida, Arizona, Colorado, North Carolina, and Georgia), and two states were selected at random from the low theft stratum (Nevada and Virginia).

b. Stage II: Counties

To select the counties to be included in the survey, we used a list of county-level population data as a proxy for theft. Using this data, three counties were selected from each state using with replacement probability proportionate to size (PPS) sampling. In two states, Texas and Nevada, a county was selected twice. Thus, from the 11 states, 31 counties were selected.

2. Survey Implementation

For each of the 31 counties, we attempted to identify the law enforcement, judicial, and Motor Vehicle Administration official most knowledgeable of motor vehicle theft-related issues. In general, we interviewed the following types of individuals:

- Law Enforcement - Officer assigned to motor vehicle theft (either auto theft squad or general investigations)
- Judicial - District Attorney for county or state
- Motor Vehicle Administration - Investigator or staff administrator

The officials were identified by telephone. A letter was drafted to explain the provisions of the Motor Vehicle Theft Law Enforcement Act of 1984, the role of

Price Waterhouse in collecting data, and the respondents role in the survey. This initial letter and a copy of the relevant survey was mailed to the targeted official. Within two weeks of mailing the request, the official was contacted and a mutually agreed upon time was set aside to collect the survey responses over the telephone.

We now present the survey results for each of the three types of respondents.

B. Law Enforcement Agencies

The purpose of the survey of State and local law enforcement officials was to collect information on the flow of motor vehicle theft data, body shop monitoring procedures, the resources allocated by organizations to combat vehicle theft, and the impact of the 1984 Act.

1. Survey Participants

Of the 31 law enforcement agencies contacted, 23 responded to the survey (74 percent response rate). To identify the most appropriate law enforcement personnel to participate in the survey, we attempted to contact the official most knowledgeable of motor vehicle theft in each jurisdiction. The officials identified were members of one of three types of law enforcement agencies:

- o County Police Departments - 10 of the 31 agencies (32 percent)
- o City Police Departments - 19 of the 31 agencies (61 percent)
- o State Police Departments - 2 of the 31 agencies (7 percent)

The responding officers were either investigators in auto theft units or, for those jurisdiction that did not have an auto theft unit, a general assignment detective.

At least one law enforcement official from each state responded to the survey. The geographical and population density breakdown of the 23 respondents is as follows:

- Geographical Location
  - Western Region: Arizona, California, Colorado, and Nevada (39 percent of respondents)
  - Southern Region: Florida, Georgia, North Carolina, Texas, and Virginia (44 percent of respondents)
  - North East Region: Connecticut and New York (17 percent of respondents)
- Population Density
  - Urban: 16 counties (70 percent of respondents)
  - Suburban: 4 counties (17 percent of respondents)
  - Rural: 3 counties (13 percent of respondents)

2. Survey Responses

For several of the survey topics, answers could vary because of the nature of the respondent's jurisdiction. For example, the number of auto theft investigators in a large urban jurisdiction is likely to be different from the number of auto theft investigators in a rural jurisdiction. A listing of only the nationwide average would blur this distinction. To provide more insight into the distribution of answers given to this type of question, a breakdown by the above regions and population densities is

presented directly beneath the response. The responses to other questions, such as those regarding collection and distribution of motor vehicle theft information, do not vary by region or population density of the jurisdiction. Thus, only nationwide totals or averages are presented for these answers.

The responses of the 23 participating law enforcement agencies are outlined below.

QUESTION 1:

How do you collect and record information concerning motor vehicle thefts?

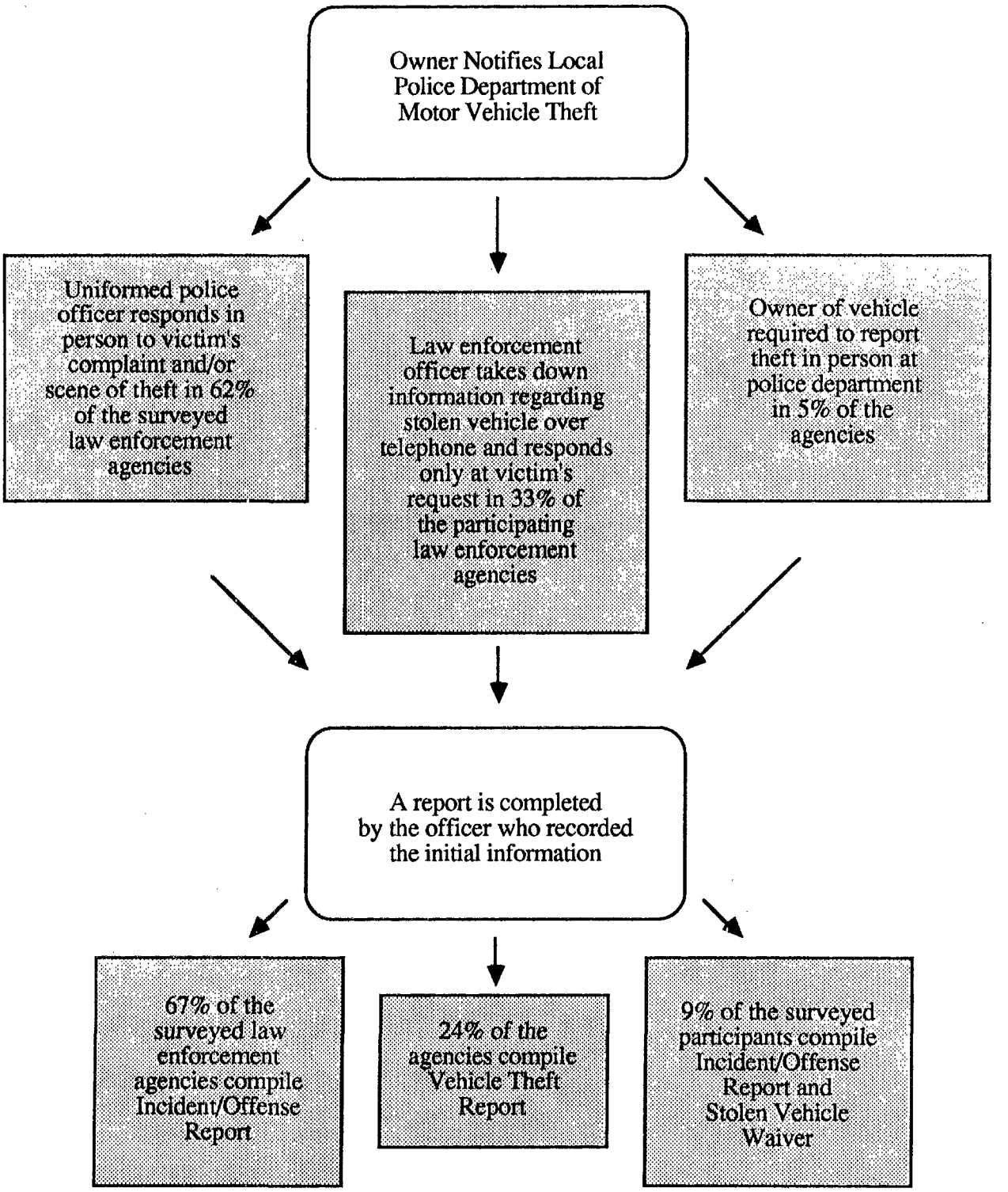
When a motor vehicle is stolen, the owner notifies the local police department. The ensuing collection and recording procedures are illustrated in Exhibit III-1. An officer creates an incident/offense report either in person or over the telephone. 24 percent of the law enforcement agencies surveyed manually record specific information, such as date and location of theft, victim's name and address, description of vehicle, case number, and assigned detective, into a ledger or log. At this point, the flow of intelligence varies depending on the level of computerization within each law enforcement agency. Exhibit III-2 details the compilation of vehicle theft data among the surveyed respondents.

QUESTION 1A:

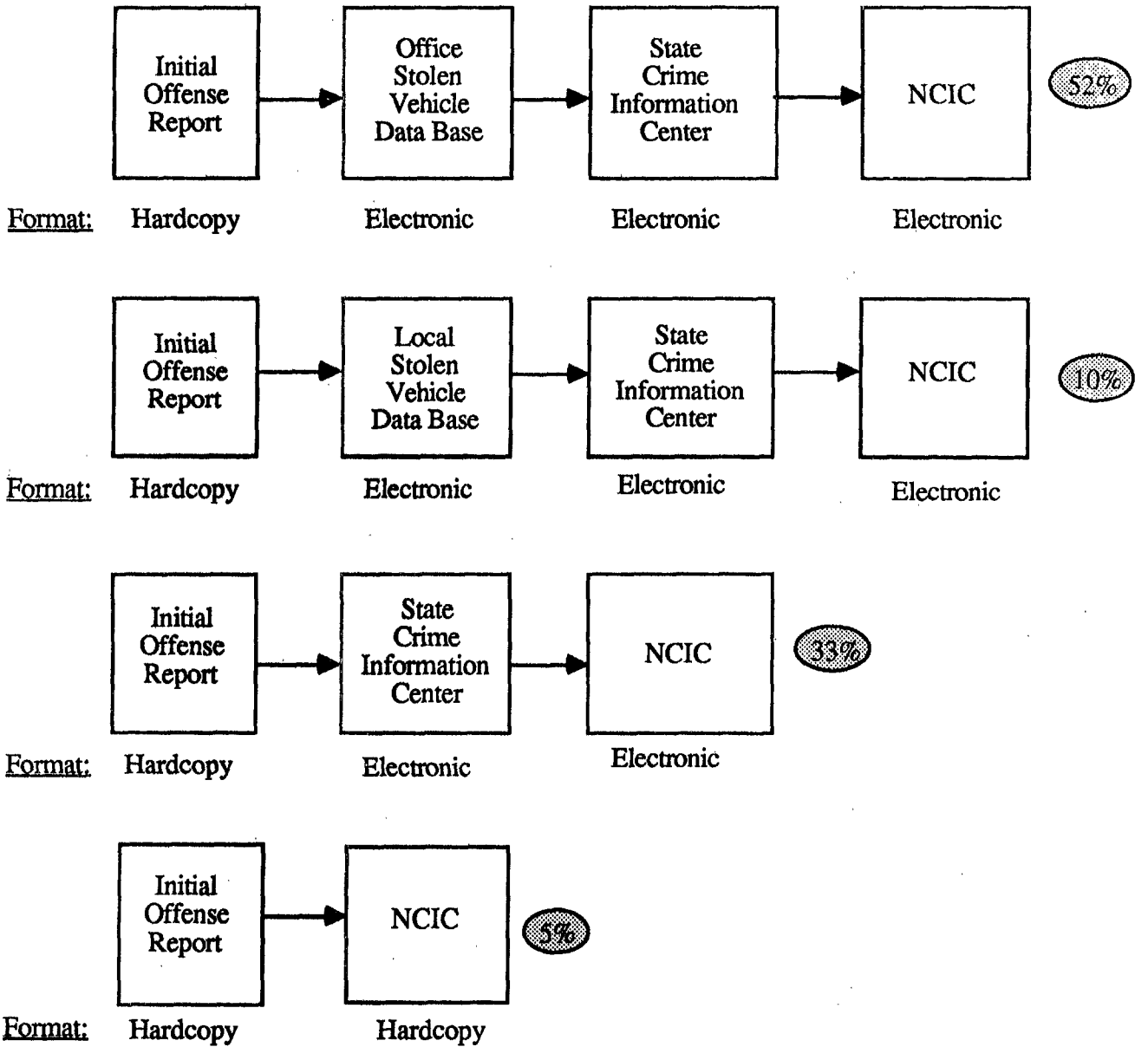
Please describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period regarding collection and recording practices.

- 71% of the respondents reported no change.
- 19% of the surveyed law enforcement agencies implemented office stolen vehicle data bases between 1987-1988.
- 10% of the agencies surveyed developed telephone reporting units composed of law enforcement officers between 1987-1988.

Collection and Recording of Motor Vehicle Theft Information



Compilation of Vehicle Theft Data



QUESTION 2:

Exactly what information do you record for each theft?

The basic information recorded for each motor vehicle theft is standard throughout most law enforcement agencies:

- The owner's name and address
- Description of stolen vehicle - make, model, year, color
- License plate number, state, expiration date
- VIN
- Date and location of theft
- Suspect information
- Case number and assigned detective

QUESTION 2A:

Please describe what changes in information content have taken place between the 1983-1986 time period and the 1987-1988 time period.

- 71% of the respondents reported no change.
- 19% of the law enforcement officers surveyed reported a change in format of the vehicle theft report but not information content between 1987-1988.
- 5% of the participating law enforcement agencies expanded vehicle theft report by adding boat information section and vehicle inventory section between 1987-1988.
- 5% of the agencies surveyed expanded vehicle theft report by adding method of theft and method of operation sections between 1983-1986.

QUESTION 3:

How do you collect and record information concerning vehicle recovery?

Collection and recording procedures are standard throughout most law enforcement agencies. The officer who recovered or located the stolen vehicle compiles a report:

- o 43% of the surveyed law enforcement officers complete a supplemental report, which is basically a blank sheet completed with a narrative description and attached to the original incident/offense report.
- o 33% of the participating agencies complete an incident/offense report, which is a standard report also used to report crimes.
- o 24% of the agencies complete a vehicle theft report, which is a report designed for vehicle theft and includes more detailed information regarding the contents of the vehicle and method of theft.

From this point, the flow of recovery information is identical to that of theft information. If a journal or ledger is kept, a manual entry is made to note the recovery. Again the level of computerization determines where this information is documented. NCIC guidelines require that the recovering agency notify the reporting agency via on-line computer or teletype. Upon notification or recovery, the law enforcement agency which initiated the stolen vehicle report, must notify the NCIC network (clear the entry from the list of active thefts), the registered owner, insurer, and registered lienholder.

QUESTION 3A:

Please describe what changes in collection and recording have taken place between the 1983-1986 time period and the 1987-1988 time period.

- 100% of the respondents reported no change.

QUESTION 4:

Exactly what information do you record for each vehicle recovery?

The information recorded for each motor vehicle recovery is standard throughout most law enforcement agencies:

- The owner's name and address
- Description of vehicle - make, model, year, and color
- License plate number, state, expiration date
- VIN
- Date, time, and location of recovery

QUESTION 4A:

Please describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period.

- 76% of the respondents reported no change.
- 14% of the law enforcement officers surveyed reported a change in format of the vehicle recovery report but not information content between 1987-1988.
- 5% of the participating agencies expanded vehicle recovery report by adding method of theft section between 1987-1988.
- 5% of the agencies surveyed expanded vehicle recovery report by adding inventory section between 1987-1988.

QUESTION 4B:

Do you record the condition of recovered cars (intact, parts missing, burned, etc.)?

- o 62% of the law enforcement agencies record the condition of recovered cars in the supplementary or miscellaneous section of the vehicle theft report.
- o 38% of the law enforcement agencies record the condition of recovered cars by making a forced choice on the vehicle theft report for computer entry. Reports of this nature had two approaches to forced choices, general categories and vehicle inventory. In forms with general categories, choices include: driveable, wrecked, burned, engine/transmission strip, and parts missing. In forms with the more specific vehicle inventory, choices covered a detailed listing of car parts such as hub caps, upholstery, radio, battery, transmission, left-front tire, right-front tire, etc. Officers check whether each part is missing, damaged, or intact.

QUESTION 5:

What summaries or internal reports of vehicle theft and recovery information do you produce?

Internal reporting varies among law enforcement agencies. Specifically five types of internal reports were mentioned by the surveyed counties. (Because agencies frequently produce more than one type of internal report, percentages will sum to more than 100 percent.)

- o 71% of the law enforcement agencies surveyed compile monthly statistics on motor vehicle thefts, recoveries, and clearances for UCR purposes. Prepared by Crime Analysis or Records Division, monthly statistics are distributed to Division Commanders.
- o 33% of the survey respondents produce a Bulletin or Hot Sheet, which is a list of stolen vehicles within a twenty-four hour, one week, or one month time period, depending on the law enforcement agency involved. Prepared by either Crime Analysis, Records Division, or an Auto Theft Unit Sergeant, the daily bulletin lists a description of the stolen vehicle, VIN, license plate number, and case number to both uniformed police officers and detectives.
- o 24% of the surveyed law enforcement agencies distribute a crime pattern bulletin to the auto theft unit. Produced by Crime Analysis, these bulletins are summaries of patterns or trends which relate the location, date, and time of thefts or recoveries within a specific geographical area.

- o 19% of the participating law enforcement agencies compile comparative statistics on a monthly basis, which compare the number of motor vehicle thefts, recoveries, and clearances with the previous year. Comparative statistics are prepared by Crime Analysis or Records Division and distributed to Division Commanders.
- o 14% of the respondents produce an auto theft report, which is a list of cases within the auto theft unit detailing the case number, assigned detective, and whether or not the case was cleared with an arrest. Compiled by an auto theft detective, the auto theft report is distributed to supervisors.
- o 10% of the surveyed agencies have no form of internal reporting.

38 percent of the law enforcement agencies produce just one type of internal report. An additional 38 percent distribute two types of internal reports. 10 percent compile three types and 5 percent four types. No law enforcement agency produces all five reports.

QUESTION 5A:

Please describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period regarding these reports.

- o 100% of the respondents reported no change.

QUESTION 6:

How do you share vehicle theft and recovery information with other local, State, and Federal agencies?

Motor vehicle theft and recovery information is shared in a variety of ways. (Because agencies share vehicle theft and recovery information more than one way, percentages will sum to more than 100 percent.)

- o 95% of the law enforcement agencies surveyed contact NCIC and state law enforcement agencies via on-line computer.
- o 52% of the participating law enforcement agencies contact other local law enforcement agencies via radio, telephone, and teletype.
- o 48% of the law enforcement officers surveyed contact other state and local law enforcement officers, special investigators with licensing agencies, representatives from the National Auto Theft Bureau (NATB), and insurance agents through informal meetings held monthly or quarterly.
- o 19% of the agencies surveyed contact other local law enforcement agencies through hot sheets and daily bulletins.

QUESTION 6A:

Please describe what changes have taken place information sharing practices between the 1983-1986 time period and the 1987-1988 time period.

- o 100% of the respondents reported no change.

QUESTION 7:

What reports do investigators use to look for stolen vehicles, to prevent retitling, and to deter dismantling?

- 100% of the respondents use no specific reports.

QUESTION 8:

Do you have measures for monitoring the operation of body shops and their parts acquisition process?

- 76% of the law enforcement agencies surveyed do not monitor body shop operations. The main reason cited was lack of manpower. Two officers stated, "Paperwork keeps detectives off the street and in the office." In most of the agencies surveyed one or two detectives work all auto theft cases that come through the department. Given the volume of auto theft, the best these detectives can do is keep up with the mounting paperwork. 10 percent of the officers mentioned a State statute that allows police officers to walk onto a body shop lot and inspect the premises without a search warrant. However, these agencies are unable to utilize the statute because of a lack of manpower.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
14%	29%	33%	43%	19%	14%

- 24% of the agencies perform random on-site inspections. All 24 percent acknowledged a State statute that allows investigators to inspect the premise of any business that repairs, dismantles, stores, or sells vehicles. This includes body shops, dismantling operations, salvage yards, wrecking yards, and automobile dealerships. However, most agencies do not utilize the statute to its fullest jurisdiction. 10 percent monitor salvage yards in addition to body shop operations. 5 percent monitor abandon vehicle reports and tow logs in addition to body shops. A lack of manpower was cited for the main reason agencies are not monitoring more than one parts acquisition process.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
5%	14%	5%	24%	0%	0%

In law enforcement agencies in which random body shop inspections take place, detectives have received specialized training, either through the department or at the police academy, detailing the location of the labels and the investigative techniques used to determine if a label has been removed. Consequently, these investigators utilize parts labeling in monitoring body shop operations. In law enforcement agencies in which body shop monitoring procedures are not undertaken, detectives are also well informed concerning labeled component parts and have received literature from either the NATB or specific manufacturers detailing the location of the labels.

QUESTION 8A:

Do you confiscate stolen vehicles or stolen parts?

- o 100% of the respondents reported yes.

QUESTION 9:

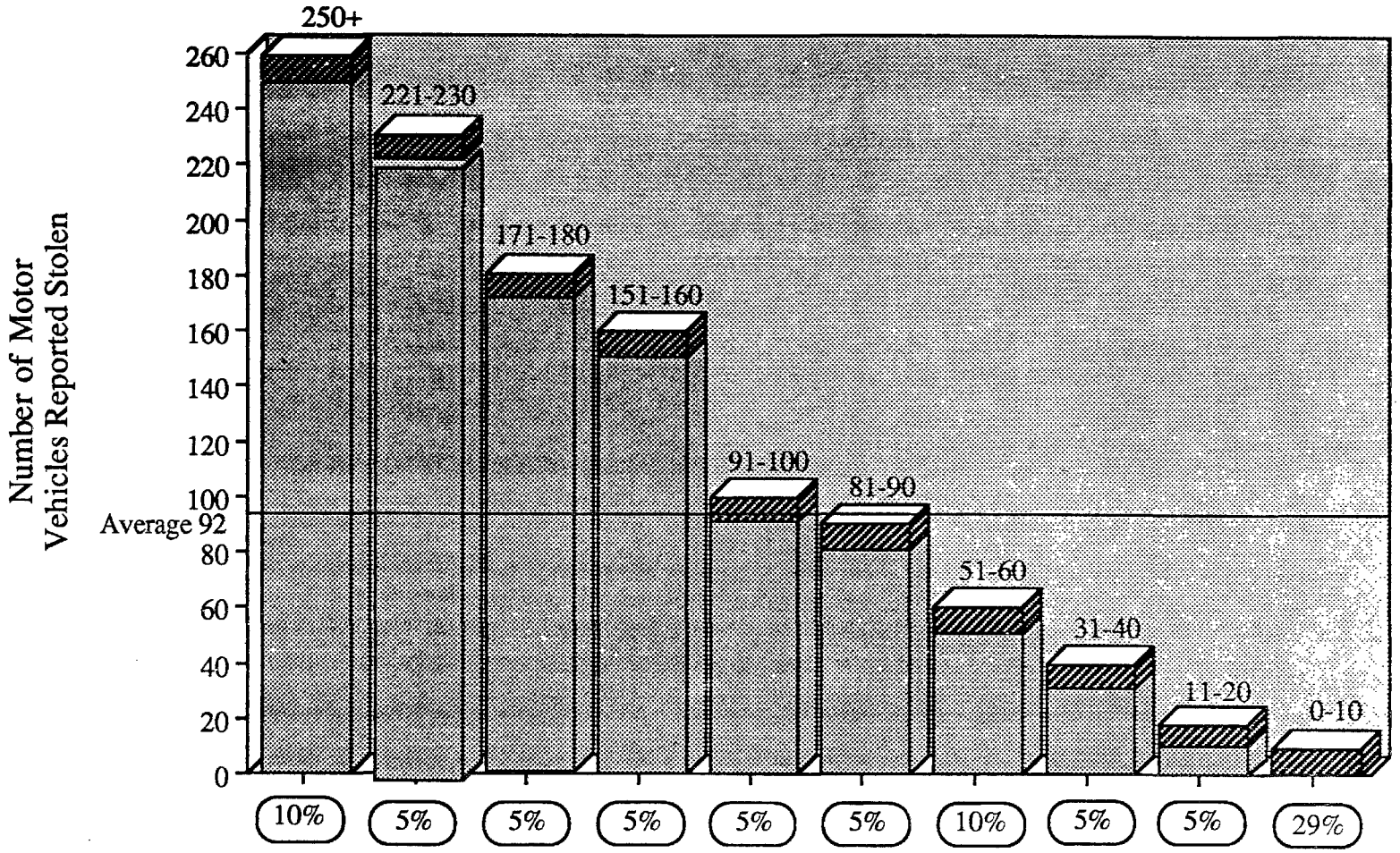
What statistics do you keep concerning motor vehicle theft, recovery, and arrest?

All statistics refer to the 12-month period July 1988 to July 1989.

- o Exhibit III-3 details the average number of motor vehicles currently reported stolen in a month by the participating law enforcement agencies in which data was available.
- o Exhibit III-4 relates the current estimated recovery rate, or the percentage of stolen cars that were recovered within each participating law enforcement agency in which data was available.
- o Exhibit III-5 presents the current estimated arrest rate, or the percentage of stolen cars resulting in arrest, reported by the survey respondents where data was available.

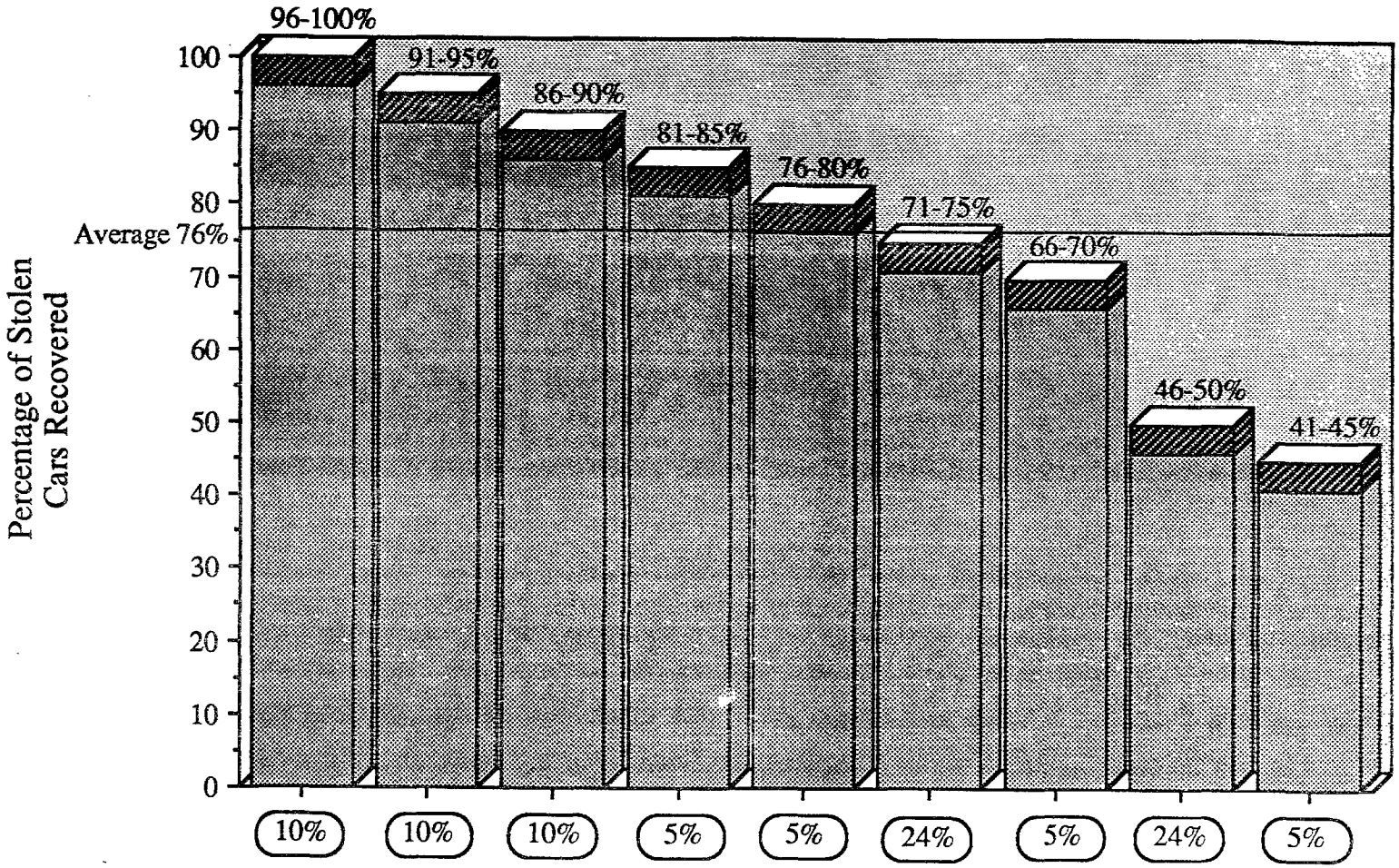
Table 1 depicts a distribution of the average number of motor vehicles reported stolen in a month, the average estimated recovery rate, and the average estimated arrest rate reported by region of the country and population density of the jurisdictions.

Average Number of Motor Vehicles Reported Stolen in a Month by the Surveyed Law Enforcement Agencies



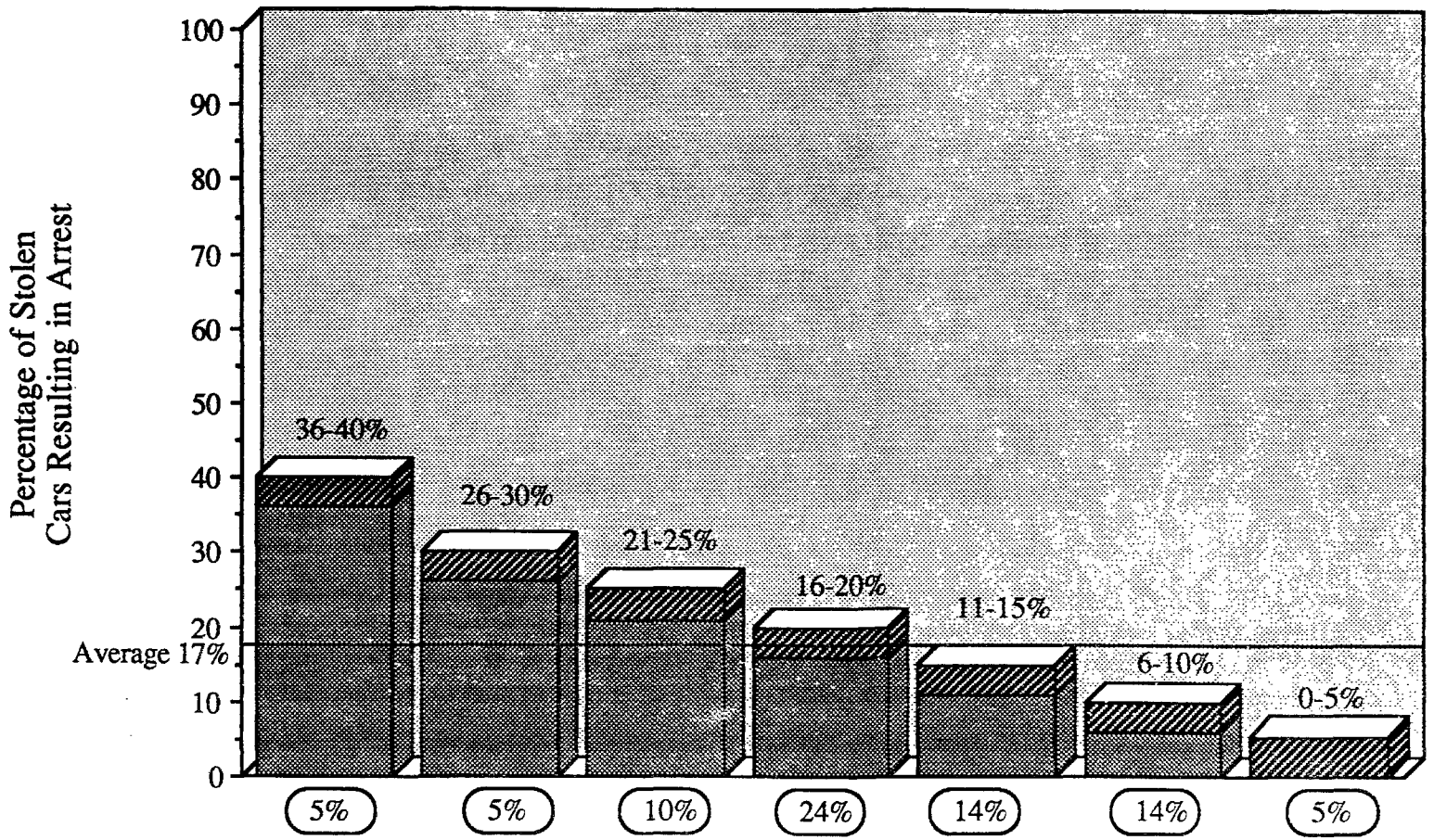
Note: Estimates are for the 12-month period July 1988 to July 1989

Estimated Motor Vehicle Recovery Rates for Surveyed Law Enforcement Agencies



Note: Estimates are for the 12-month period July 1988 to July 1989

Estimated Motor Vehicle Theft Arrest Rates for Surveyed Law Enforcement Agencies



Note: Estimates are for the 12-month period July 1988 to July 1989

TABLE 1

MOTOR VEHICLE THEFT, RECOVERY, AND ARREST STATISTICS

	Average Number of Motor Vehicle Thefts per Month per Jurisdiction	Average Recovery Rate	Average Arrest Rate
Total	92	76%	17%
Northeast	97	84%	19%
South	93	71%	15%
West	90	79%	19%
Urban	127	80%	18%
Suburban	55	67%	19%
Rural	5	80%	14%

QUESTION 9A:

Please describe what trends, if any, you have observed in these statistics over the past five years in your jurisdiction.

- 43% of the law enforcement officers surveyed reported a significant increase in the number of motor vehicle thefts within the past two to three years.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
10%	14%	19%	33%	5%	5%

- 19% of law enforcement agencies surveyed reported that their top twenty high theft vehicles are consistently different from the national average. Older model passenger car lines along with Ford, Chevrolet, and Toyota trucks and 4-wheel drives are frequent targets yet are not subject to the mandatory marking requirements of the Motor Vehicle Theft Prevention Standard.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	0%	19%	19%	0%	0%

- 14% of the law enforcement agencies experience a problem with theft of passenger car lines and trucks for export.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	0%	14%	14%	0%	0%

QUESTION 10:

Please describe the subjects you arrest for motor vehicle theft.

The law enforcement officers surveyed ranked those arrested for motor vehicle theft by sex according to percentage breakdown:

- o Male averaged from 80 to 100%
- o Female averaged from 0 to 20%

The participating law enforcement officers ranked those arrested for motor vehicle theft by race according to percentage breakdown:

- o White averaged 41%
- o Black averaged 41%
- o Hispanic averaged 14%
- o Other averaged 2%
- o American Indian averaged 1%
- o Asian averaged 1%

The law enforcement officers surveyed ranked those arrested for motor vehicle theft by age according to a percentage breakdown. Table 2 presents the average total and the average percentages of each of the participating law enforcement agencies categorized by region and population density for the 12-month period July 1988 to July 1989. No data was available from agencies located in rural jurisdictions. Officers in rural areas generally felt they could not accurately breakdown those arrested for auto theft by age because there were few auto theft cases and consequently few arrests for auto theft in their region.

TABLE 2

Age	Total	Northeast	South	West	Urban	Suburban
15 and Under	9%	9%	10%	9%	14%	2%
16-18	31%	29%	28%	40%	32%	29%
19-25	39%	37%	38%	40%	32%	50%
26-40	16%	19%	19%	6%	17%	14%
Over 40	5%	6%	5%	5%	5%	5%

The total estimated distribution by age can be compared with nationally available statistics from Uniform Crime Reports. This comparison is presented in Table 3.

TABLE 3

Age	Survey Estimates	UCR Estimates
15 and Under	9%	19.7%
16-18	31%	28.0%
19-25	39%	27.6%
26-40	16%	21.6%
Over 40	5%	3.1%
Total	100%	100.0%

QUESTION 10A:

Describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period.

- 76% of the law enforcement officers surveyed reported no change.
- 24% of the participating law enforcement officers reported an increase in the number of juveniles participating in motor vehicle theft. As an example of this trend, one law enforcement officer stated that the crime of auto theft is "youth oriented."

QUESTION 11:

What are the motives for motor vehicle theft in your jurisdiction?

The law enforcement officers surveyed ranked the motives for motor vehicle theft according to percentage breakdown. Table 4 depicts the average total, and the average percentages of the responding law enforcement agencies categorized by geographical location and population density. No data was available from agencies located in rural regions. Officers in rural jurisdictions felt they could not accurately estimate the motives behind motor vehicle theft because they investigate few auto theft cases.

TABLE 4

MOTIVES FOR MOTOR VEHICLE THEFT

Motive	Total	Northeast	South	West	Urban	Suburban
Transportation	30%	20%	30%	40%	28%	35%
Joyriding	24%	35%	27%	12%	23%	28%
Domestically related	14%	15%	17%	6%	14%	8%
Use in other crime	13%	8%	8%	26%	15%	12%
Chop shop	10%	12%	8%	8%	10%	9%
Insurance fraud	9%	10%	8%	8%	10%	8%

To clarify the above distribution, a definition of each motive is provided below:

- Transportation - Theft of a motor vehicle to purposefully use as a means of travel from one place to another, often to another state. This includes both short-term use (from city A to B) and longer-term use (using as personal vehicle for days or weeks).
- Joyriding - Theft of a vehicle to drive for typically only several hours in a limited area without intent of keeping for a longer term.
- Domestically Related - Theft of a vehicle often on a temporary basis from an acquaintance, friend, or family member (e.g., runaways, marital disputes).
- Use in Other Crime - Theft of a vehicle to use in committing another crime such as distribution of drugs or robbery.
- Chop Shop - Theft of a vehicle to remove parts (stripping) or dismantle vehicle (chopping) and sell for profit.
- Insurance Fraud - The purposeful abandonment, burning, or destroying of a vehicle in order to file a vehicle theft report and make a claim with insurance company.

QUESTION 12:

How has the 1984 Act affected apprehension of violators?

In response to this question, 20 of the 23 survey respondents stated that the 1984 Act has not affected apprehension of violators. Three participants related specific examples of cases where marked component parts were used as evidence to make an arrest. These include:

- The owner of a body shop was arrested when officers discovered on his lot several "dog houses," or front portions of automobiles, covered with footprints left behind from removed labels.
- A county sheriff's office received an anonymous tip that a certain individual was driving a stolen Lincoln Continental bearing altered VINs. The police identified the car through its C-VIN, arrested the individual, and used a falsified label discovered on the trunk deck as evidence.
- An arrest was made when officers discovered that the P-VIN of a particular car had been altered. The C-VIN was intact, however, two labeled VINs had been removed from the hood and drivers door.

QUESTION 12A:

Has the number of apprehensions changed as a result of the Act?

- 86% of the respondents reported no change.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
14%	43%	29%	53%	19%	14%

- 14% of the respondents reported increased somewhat.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
4.7%	0%	9.3%	14%	0%	0%

QUESTION 12B:

Has the effort involved in investigating these cases changed?

- 71% of the respondents reported no change.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
19%	28%	24%	47%	10%	14%

- 29% of the respondents reported increased somewhat.

Response Breakdown

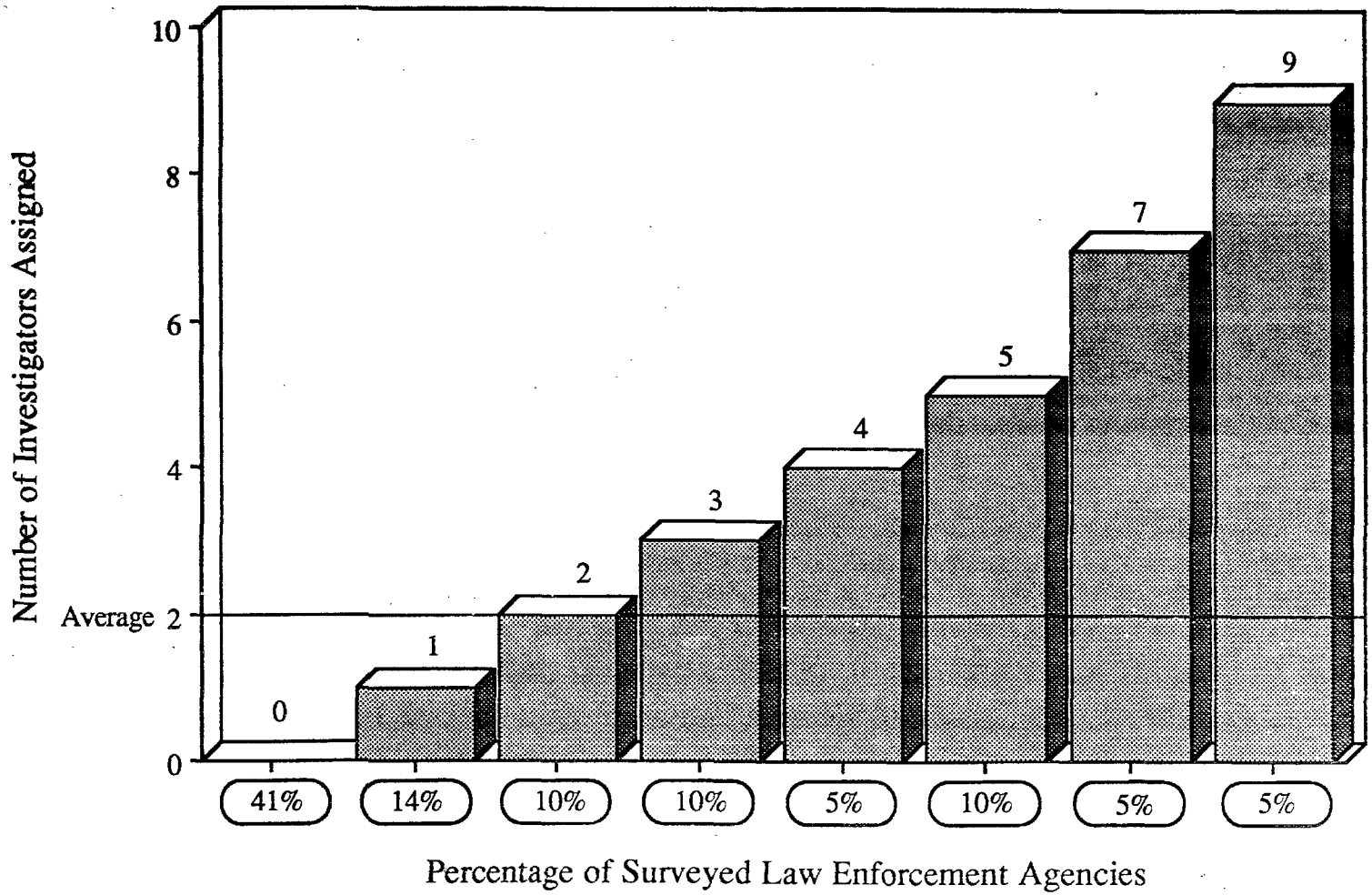
Northeast	South	West	Urban	Suburban	Rural
0%	14.5%	14.5%	19%	10%	0%

QUESTION 13:

What resources does your organization allocate to combat vehicle theft?

- Exhibit III-6 details the number of investigators in each participating law enforcement agency assigned to work exclusively in the area of motor vehicle theft. Table 5 depicts the average number of auto theft investigators, the average number of investigators per agency, and the percent of total investigators assigned to work auto theft cases in the participating law enforcement agencies categorized by region and population density.

Investigators in the Surveyed Law Enforcement Agencies Assigned to Work Auto Theft Cases Exclusively



Note: Numbers are from August 1989

TABLE 5

INVESTIGATORS ALLOCATED TO COMBAT VEHICLE THEFT

	Average Number of Investigators	Average Number of Total Investigators	Percentage of Investigators Assigned to Auto Theft Investigatons[1]
Total	2	38	4%
Northeast	1	52	0.25%
South	2	38	6%
West	26	39	2%
Urban	3	46	6%
Suburban	0.25	28	4%
Rural	0	11	0%

[1] Steps in Calculation: (1) divide number of auto theft investigators by total investigators for each jurisdiction. (2) Calculate average across all jurisdictions. Thus, dividing column 1 by column 2 will not yield column 3.

QUESTION 13A:

Do you have analysts assigned to work exclusively in the area of motor vehicle theft?

- 100% of the respondents reported that no analysts work exclusively in this area.

QUESTION 13B:

Do you have any other personnel assigned to work exclusively in the area of motor vehicle theft?

- 71% of the respondents reported no.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
19%	28%	24%	38%	19%	14%

- 14% of the participating law enforcement agencies reported a clerk.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	4.7%	9.3%	14%	0%	0%

- 10% of the agencies surveyed reported an investigative aid.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	5%	5%	10%	0%	0%

- 5% of the agencies surveyed reported a cadet.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	5%	0%	5%	0%	0%

QUESTION 13C:

Do you have a special unit or task force that handles auto theft cases?

- 62% of the law enforcement agencies do not have an auto theft unit.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
19%	24%	19%	29%	19%	14%

- 38% of the law enforcement agencies surveyed have some type of auto theft unit.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	19%	19%	38%	0%	0%

QUESTION 13D:

Do you allocate special money or special equipment to fight motor vehicle theft?

- 90% of the respondents reported no.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
19%	42%	29%	57%	19%	14%

- 10% of the respondents reported yes.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
0%	0%	10%	10%	0%	0%

QUESTION 13E:

Do you implement sting operations to apprehend violators?

- 76% of the respondents reported no.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
14%	33%	29%	43%	19%	14%

- 24% of the respondents reported yes.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
4.8%	9.6%	9.6%	24%	0%	0%

QUESTION 13F:

Does your organization receive funding from outside sources (NATB, FBI, etc.) for any of its operations?

- 81% of the respondents reported no.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
10%	38%	33%	48%	19%	14%

- 19% of the respondents reported yes.

Response Breakdown

Northeast	South	West	Urban	Suburban	Rural
9.5%	4.75%	4.75%	19%	0%	0%

QUESTION 14:

What other changes have resulted from the 1984 Act?

- o 38% of the law enforcement officers surveyed expressed a strong, favorable reaction with regards to labeled component parts. The most frequent reason noted was the additional information that the labels supply to the investigator. If an investigator finds a vehicle or component part with a label, he can determine the origin of the vehicle/part and assess whether or not the vehicle/part is stolen. In instances where the label has been removed, the footprint signals to the officer that further investigation is appropriate. As one officer put it, "The more numbers you put on a car, the happier I am."
- o 33% of the law enforcement officers surveyed could not comment on changes initiated by the 1984 Act and did not express satisfaction or dissatisfaction with regards to adhesive labels.
- o 14% of participating respondents foresee the 1984 Act having an impact if manufacturers saturate their passenger car lines with labeled component parts.
- o 14% of the participating law enforcement officers stated a preference for imprinted VINs rather than adhesive labels.
- o 5% of the law enforcement officers were unaware of labeled component parts.
- o 5% of the law enforcement officers surveyed noticed an increase in the percentage of recovered cars with labeled component parts.

3. Other Responses

In the process of conducting this survey, opinions and observations about auto theft and law enforcement agencies were collected. Even though auto theft is the number one property crime in the country, 24 percent of the counties surveyed maintain it is not a priority within law enforcement agencies (19 percent of these law enforcement agencies are located in the west and 5 percent in the south. All 24 percent are in an urban area). Three main reasons were cited for this lack of emphasis:

- Lack of funds - budget constraints
- Lack of manpower
- Lack of interest - police resources are directed to fight other crimes such as drug use and distribution

In addition, other insights regarding labeled component parts and auto theft were provided:

- 14% of the law enforcement officers surveyed stated that most of the parts they come across are from older model cars or cars exempt from the marking requirement.
- 10% of the surveyed law enforcement officers noted a minor theft problem as a result of rural characteristics in their jurisdiction.
- 5% of the participating officers stated that they were not monitoring body shop operations or participating in investigations in which labeled VINs would be beneficial.

C. Motor Vehicle Administrations

The purpose of the survey of State Motor Vehicle Administration[1] (MVA) officials was to collect information concerning the flow of motor vehicle recovery information, body shop monitoring procedures, and changes in operating procedures attributed to the Motor Vehicle Theft Law Enforcement Act of 1984.

1. Survey Participants

23 of the 24 MVA officials we contacted participated in the survey. Information was collected from state MVA investigators in a variety of subdivisions such as Field Investigation and Audit, Bureau of Investigations, Bureau of Enforcement, and Bureau of Licensing and Records.

Of the 23 MVAs surveyed, 8 (35 percent) are actively involved in the investigation of motor vehicle theft. In addition to carrying out the normal automobile and driver licensing functions, these eight MVAs conduct a variety of official investigations. For example, in one state the MVA not only issues licenses to automobile dismantlers, but also inspects their premises for compliance with record keeping statutes. In another state, the MVA conducts physical inspections of all salvage, rebuilt, and reconstructed vehicles.

The remaining 15 MVAs (65 percent) do not actively participate in auto theft investigations. Like all of the MVAs surveyed, they are notified by local law enforcement agencies when a car is stolen. The MVA places an "Administrative Hold" or all purpose "action stop" on its computer system to prevent any type of

[1]Also commonly known as Department of Motor Vehicles, Division of Motor Vehicles, Department of Highway Safety and Motor Vehicles, and State Department of Highways and Public Transportation

title or registration transaction and notifies the local law enforcement agency if an attempt is made to retitle or register the stolen vehicle.

2. Survey Responses

The eight surveyed Motor Vehicle Administrations that participate in the identification and recovery of stolen vehicles are distributed across five states. The geographical and population density breakdown of the eight respondents is as follows:

- o Geographical Location
  - Western Region: California, Nevada, and Texas (50%)
  - Southern Region: North Carolina and Virginia (37.5%)
  - North Eastern Region: New York (12.5%)

- o Population Density
  - Urban: 5 counties (62.5%)
  - Suburban: 2 counties (25%)
  - Rural: 1 county (12.5%)

Their responses to each question are outlined below.

QUESTION 1:

How do you receive the information that you use to identify stolen vehicles, prevent retitling and deter dismantling?

- o 25% of the MVAs surveyed receive information regarding motor vehicle thefts in the form of specific assignments via mail or telephone from the state MVA headquarters. Assignments range from a minor investigation on an "administrative stop" to an in-depth investigation of a particular dismantling operation. In one particular state, the MVA grants licenses to automobile dismantlers. Investigators monitor these dismantlers by performing spontaneous on-site inspections of both licensed and unlicensed dismantling operations.
- o 25% of the participating MVAs receive standard information regarding stolen vehicles from local law enforcement agencies and on-line NCIC computer network; and a quarterly journal from the National Auto Theft Bureau (NATB).
- o 25% of the participating respondents receive daily printouts listing the stolen vehicles that were identified by MVA Branch Offices (using NCIC data) or that had a VIN inconsistent with that assigned by the manufacturer, and a quarterly printout from the NATB listing the vehicles reduced to salvage.

- o 12.5% of investigators surveyed receive from the state MVA headquarters a daily printout listing the vehicles stolen within a specific geographical location. If the circumstances surrounding the theft are suspicious or indicate some type of conversion activity, the MVA will contact the reporting law enforcement agency, obtain a copy of the initial incident report, and sponsor its own official investigation. In addition, MVA investigators conduct physical inspections or examinations of all salvage, rebuilt, and reconstructed vehicles.
- o 12.5% of the MVAs surveyed receive from the NATB, North American Theft Information System (NATIS) salvage tapes, and "Confidential Number Information" detailing the year, make, model, assembly plant, engine, transmission, public-VIN (P-VIN), confidential-VIN (C-VIN), and labeled VIN locations.

QUESTION 1A:

Please describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period in regards to receiving information.

- o 100% of the survey respondents record no change.

QUESTION 2:

How do you use this information to identify stolen vehicles, prevent retitling, and deter dismantling?

- o 37.5% of the participating MVAs use the information provided by NATB to classify high theft automobiles, identify possible VIN switches, and target cars prone to chop shop activity.
- o 25% of the participating investigators utilize information from state MVA headquarters to identify stolen vehicles, and monitor dismantling operations.
- o 25% of the MVAs surveyed use a combination of salvage information supplied by NATB and inconsistent VIN information supplied by MVA Branch Offices to identify possible stolen vehicles that should be investigated or examined.
- o 12.5% of the participating agencies compare "NATIS" salvage tapes from NATB against MVA car or VIN records. Any match or corresponding entry is examined by an investigator to ensure no stolen vehicles or component parts have been substituted.

QUESTION 3:

How do you collect and record information concerning vehicle recovery?

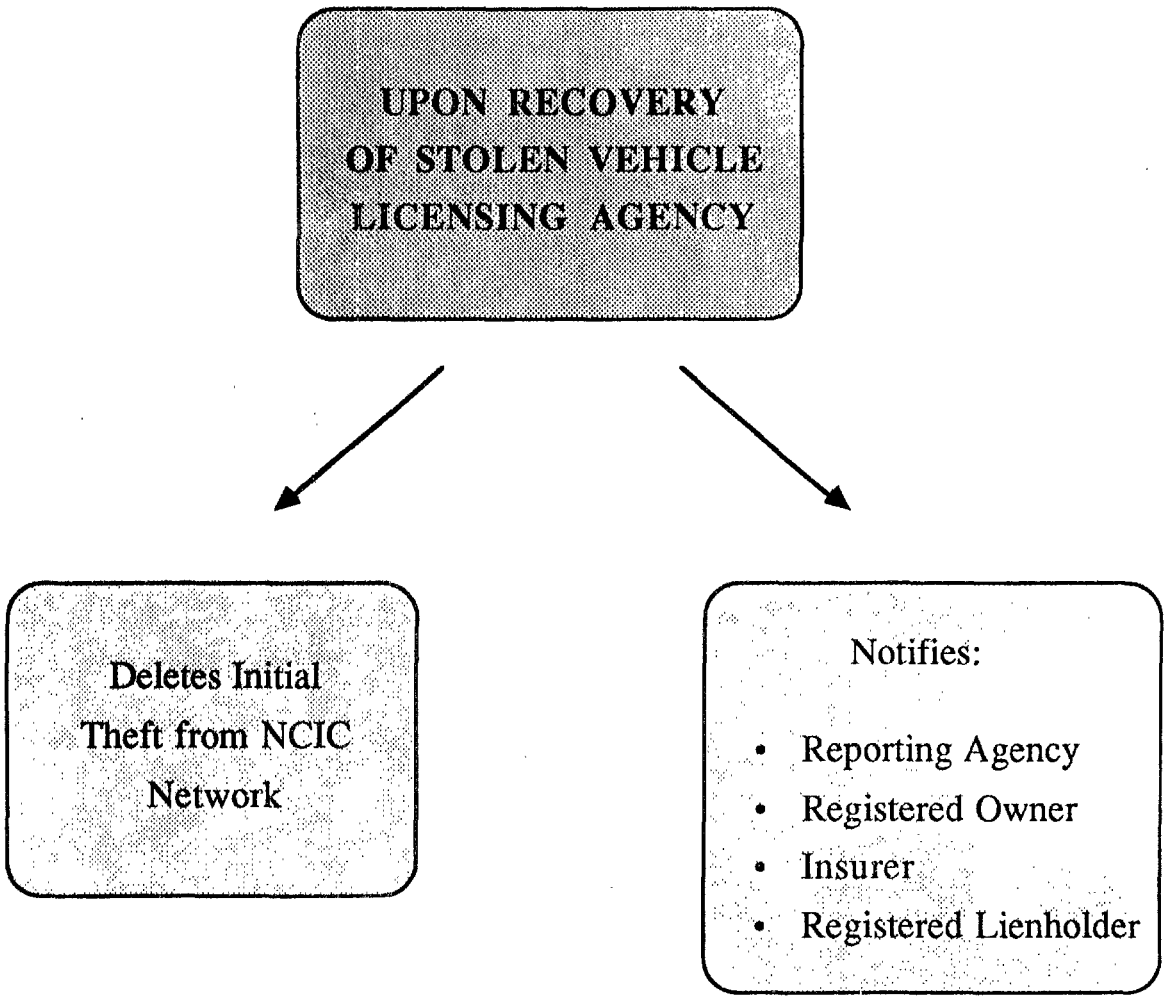
Collection and recording procedures are standard throughout most MVAs. Exhibit III-7 details the flow of vehicle recovery information. 37.5 percent of the surveyed MVAs forward raw intelligence to state MVA headquarters where data is compiled and statistics maintained for UCR purposes. 25 percent of the MVAs share vehicle recovery information with state law enforcement agencies where recoveries are recorded into the UCR system.

QUESTION 3A:

Please describe what changes in collection and recording have taken place between the 1983-1986 time period and the 1987-1988 time period.

- o 87.5% of the survey respondents record no change.
- o 12.5% of the participating respondents record an increase in the effort involved in reporting and transmitting raw vehicle recovery information to state MVA headquarters.

Flow of Motor Vehicle Recovery Information



QUESTION 4:

Exactly what information do you record for each vehicle recovery?

The basic information recorded for each motor vehicle recovery is standard throughout most Motor Vehicle Administrations:

- The owner's name and address
- Description of vehicle - make, model, year, color
- VIN, License plate number, state, expiration
- Date, time, and location of recovery

QUESTION 4A:

Please describe what changes have taken place between the 1983-1986 time period and the 1987-1988 time period.

- 100% of the participating respondents record no change.

QUESTION 4B:

Do you record the condition of recovered cars (intact, parts missing, burned, etc.)?

- 62.5% of the investigators surveyed record the condition of recovered cars by making a forced choice on the vehicle recovery report for computer entry. Categories include: driveable, wrecked, burned, vandalized, engine/transmission strip, miscellaneous parts strip, and VIN switch.
- 25% of the investigators surveyed do not record the condition of recovered vehicles.
- 12.5% of the investigators surveyed record the condition of recovered cars in the comment or narrative section of the recovery report.

QUESTION 5:

How do you share vehicle recovery information with other local, State, and Federal agencies?

Agencies that participate in information sharing techniques generally practice more than one. Consequently, percentages will sum to greater than 100 percent.

- o 75% of the MVAs surveyed do not practice information sharing techniques other than the standard flow of recovery information reported in question number 3 of this survey.
- o 25% of the investigators surveyed participate in monthly meetings at the county level. Held in conjunction with the local law enforcement agencies, these periodic meetings act as an informal exchange of raw intelligence.
- o 12.5% of the participating investigators periodically meet with a representative from NATB to exchange information.

QUESTION 5A:

Please describe what changes have taken place in information sharing practices between the 1983-1986 time period and the 1987-1988 time period.

- o 100% of the surveyed respondents record no change.

QUESTION 6:

What reports do investigators use to look for stolen vehicles, to prevent retitling, and to deter dismantling?

- o 100% of the participating respondents record no specific reports.

QUESTION 7:

Do you have measures for monitoring the operation of body shops and their parts acquisition process?

- o 50% of the MVAs monitor the operation of body shops, salvage yards, and auto dealerships through random on-site inspections. 25% of these state MVAs issue licenses to body shop operations.
- o 25% of the participating MVAs do not monitor body shop operations, salvage yards, or auto dealerships. However, in one state the MVA issues licenses to dismantlers and investigators monitor dismantling operations.
- o 25% of the respondents do not monitor body shop operations.

QUESTION 7A:

Please describe what changes in monitoring have taken place between the 1983-1986 time period and the 1987-1988 time period.

- o 100% of the respondents record no change.

QUESTION 8:

How has the 1984 Act affected apprehension of violators?

- o 75% of the respondents had no comment.
- o 25% of the respondents stated, "Very few apprehensions have been made solely as a result of the 1984 Act."

QUESTION 8A:

Has the number of apprehensions changed as a result of the Act?

- o 50% of the respondents report increased somewhat.
- o 50% of the respondents report no change.

QUESTION 8B:

Has the effort involved in investigating these cases changed?

- o 62.5% of the respondents report no change.
- o 12.5% of the participants report increased somewhat.
- o 12.5% of the investigators report decreased somewhat.
- o 12.5% of the respondents report increased.

QUESTION 9:

What other changes have resulted from the 1984 Act?

- o 100% of the respondents stated that the labels increased their latitude in tracing the origin and ownership of stolen motor vehicles.
- o 25% of the respondents attributed an increase in the number of recovered cars to the labels.
- o 25% of the investigators specifically stated that auto thieves appear to be shying away from vehicles with marked component parts.
- o 12.5% of the investigators stated that they believe labels have deterred car thieves from disassembling motor vehicles and reselling component parts.
- o 12.5% of the investigators surveyed stated that labels have not yet benefitted MVAs, but have the potential to do so within the next 2 to 3 years. Also, a change was noted in MVA investigators knowledge of component parts marking.

D. Judicial Agencies

The project methodology called for the collection of information concerning State and local experiences in prosecuting, convicting, and sentencing persons arrested for motor vehicle theft related crimes. Information on these matters was collected from two sources:

- Nationwide Survey of District Attorneys - respondents were surveyed concerning motor vehicle theft statutes, prosecutions, convictions, sentences, and the impact of the 1984 Act
- Site Visits to Seven High Theft Cities - interviews with law enforcement investigators included discussions of local judicial decisions concerning the use of labels as legal evidence in motor vehicle theft cases

The information collected in the nationwide survey of District Attorneys is presented first. Following the survey information, we present a description of the different interpretations of labels as evidence.

1. Nationwide Survey of District Attorneys' Offices

The survey of local District Attorneys' Offices (DA) collected two types of information: (1) information concerning state statutes and penalties imposed for the theft of motor vehicles and motor vehicle parts, and (2) information regarding the 1984 Act's impact on the prosecution and conviction of persons arrested for the theft of motor vehicles or motor vehicle parts.

a. Survey Participants

The sampling plan called for the surveying of District Attorneys' in 31 counties in 11 states. Of the 31 DAs Offices contacted, 23 responded to the survey (75

percent response rate). Information was collected from either the District Attorney or a Deputy District Attorney.

At least one DA's Office from each state responded to the survey. The geographical and population density breakdown of the 23 respondents is as follows:

- o Geographical Location
  - Western Region: Arizona, California, Colorado, and Nevada (39 percent of respondents)
  - Southern Region: Florida, Georgia, North Carolina, Texas, and Virginia (48 percent of respondents)
  - North East Region: Connecticut and New York (13 percent of respondents)
- o Population Density
  - Urban: 15 counties (65 percent of respondents)
  - Suburban: 3 counties (13 percent of respondents)
  - Rural: 5 counties (22 percent of respondents)

b. Survey Responses

The responses of the 23 participating DA's Offices are outlined below. For questions concerning State statutes and penalties, responses are the same for all counties within each state. Thus, the survey responses to these questions simply list the State statutes or penalties. For questions concerning prosecution and impact, the District Attorneys' were required to provide estimates. These responses are summarized in percentage form.

QUESTION 1:

What types of penalties are imposed for the theft of motor vehicles in your jurisdiction?

In six of the surveyed states, the theft of a motor vehicle falls under general theft or larceny statutes:

- Under Arizona state statute 13-1802, motor vehicle theft is punishable as a theft, and considered a Class 3 Felony carrying a maximum state prison sentence of 5 years
- In Florida, under state statute 812.014, motor vehicle theft is punishable as a theft, and considered a Second Degree Felony carrying a maximum state prison sentence of 5 years
- Under North Carolina state statute 14-70, motor vehicle theft is punishable as a larceny, and considered a Class H Felony, carrying a maximum state prison sentence of 10 years
- In New York, under state statute 155.30, motor vehicle theft is punishable as a larceny, and considered a Class D Felony carrying a maximum state prison sentence of 7 years
- Under Texas state statute 31.03, motor vehicle theft is punishable as a theft, and considered a Third Degree Felony carrying a maximum state prison sentence of 10 years and/or a $5000 fine
- In Virginia, under state statute 18.2-95, motor vehicle theft is punishable as a larceny, and considered a Class 5 Felony carrying a maximum state prison sentence of 20 years

Five of the eleven surveyed states have statutes specifically relating to motor vehicle theft:

- Under California state statute 487(3), Grand Theft Automobile, motor vehicle theft is punishable as either a felony, carrying a maximum state prison term of 3 years, or a misdemeanor, carrying a maximum jail term of 1 year.

- In Connecticut, under state statute 53a-122, Motor Vehicle Theft, the penalty for auto theft depends on the value of the automobile. If the automobile is worth more than $10,000, the charge is a Class B Felony, punishable by a state prison sentence carrying a maximum of 20 years. If the automobile is worth more than $5000 but less than $10,000, the charge is a Class C Felony, punishable by a state prison sentence carrying a maximum of 10 years. If the automobile is worth $5000 or less, the charge is a Class D Felony, punishable by a state prison sentence carrying a maximum of 5 years.

- Under Colorado state statute 18-4-409, Motor Vehicle Theft, the penalty for auto theft depends on the value of the stolen vehicle. If the automobile is worth more than $10,000, the charge is a Class 3 Felony, punishable by a state prison sentence carrying a maximum of 8 years. If the automobile is worth $10,000 or less, the charge is a Class 4 Felony carrying a maximum state prison sentence of 16 years.

- In Georgia, under state statute 16-8-2, Motor Vehicle Theft is punishable as a felony carrying a maximum state prison sentence of 20 years.

- Under Nevada state statute 205.220, Grand Larceny Automobile, motor vehicle theft is punishable as a felony carrying a maximum state prison sentence of 10 years and/or a $10,000 fine.

QUESTION 2:

What types of penalties are imposed for the theft of motor vehicle parts in your jurisdiction?

In 10 of the 11 surveyed states, the theft of motor vehicle parts falls under the general theft or larceny statutes. The value of the stolen part(s) dictates the severity of the sentence. Two broad categories of charges are used to determine the penalty: Felony and Misdemeanor. Maximum prison sentences range in length from 3 months to 20 years, while fines range from $0 to $10,000. Exhibit III-8 presents the range of penalties for each of the 10 states.

In the one other state, Colorado, the theft of motor vehicle parts is specifically addressed by a statute (statute number 42-5-104). As with the general theft or larceny statutes in the other states, the penalties imposed for the theft of motor vehicle parts in Colorado varies with the value of the part(s) involved:

- For theft of part(s) worth $10,000 or more - the charge is a Class 3 Felony, punishable with a state prison sentence carrying a maximum of 16 years
- For theft of part(s) worth between $300 and $10,000 - the charge is a Class 4 Felony, punishable with a state prison sentence carrying a maximum of 8 years
- For theft of part(s) worth less than $300 - the charge is a Class 2 Misdemeanor, punishable with a jail term of no longer than 1 year and/or $1000 fine

PENALTIES FOR THEFT OF MOTOR VEHICLE PARTS

State	Value of Stolen Parts ($)	Charge	Maximum Penalty
Arizona	Greater than $1,000	Felony - Class 3	3-10 years
	Between $500 and $1,000	Felony - Class 4	2-5 years
	Between $250 and $499	Felony - Class 5	1-2 years
	Between $100 and $249	Felony - Class 6	1 year
	Less than $100	Misdemeanor - Class 1	6 months
California	Greater than $400	Felony	3 years
	Less than $400	Misdemeanor	1 year
Connecticut	Greater than $10,000	Felony - Class B	1-20 years
	Between $5,001 and $10,000	Felony - Class C	1-10 years
	Between $1,001 and $5,000	Felony - Class D	1-5 years
	Between $501 and $1,000	Misdemeanor - Class A	1 year
	Between $251 and $500	Misdemeanor - Class B	6 months
	$250 or less	Misdemeanor - Class C	3 months
Florida	Greater than $300	Felony	5 years and/or $5,000 fine
	Less than $300	Misdemeanor	1 year and/or $1,000 fine
Georgia	Greater than $100	Felony	1-20 years
	Less than $100	Misdemeanor	1 year
Nevada	Greater than $250	Felony	1-10 years and/or $10,000 fine
	Less than $250	Misdemeanor	6 months and/or $1,000 fine
New York	Greater than $250	Felony	1-4 years
	Less than $250	Misdemeanor	6 months
North Carolina	Greater than $400	Felony	1-10 years
	Less than $400	Misdemeanor	2 years
Texas	Greater than $750	Felony	2-10 years and/or $5,000 fine
	Less than $750	Misdemeanor	1 year and/or $2,000 fine
Virginia	Greater than $200	Felony	1-20 years
	Less than $200	Misdemeanor	1 year and/or $1,000 fine

QUESTION 3:

How has the 1984 Act affected prosecution of violators?

- o 96% of the District Attorneys' surveyed had no comment.
- o 4% of the participating District Attorneys' said, "Made easier the prosection of professional thieves and 'chop shop' operators."

QUESTION 3A:

Has the number of prosecuted cases changed as a result of the Act?

- o 96% of the respondents recorded no change.
- o 4% of the respondents recorded increased somewhat.

QUESTION 3B:

Has the effort involved in prosecuting these cases changed?

- o 100% of the participating judicial agencies recorded no change.

QUESTION 4:

How has the 1984 Act affected conviction of violators?

- o 100% of the participating respondents had no comment.

QUESTION 4A:

Has the number of convictions changed as a result of the Act?

- o 96% of the respondents recorded no change.
- o 4% of the respondents recorded increased somewhat.

QUESTION 5:

How has the 1984 Act affected sentencing of violators?

- o 96% of the respondents stated that the Act has not affected sentencing
- o One District Attorney described a case in which a labeled component part was used as evidence to convict an auto thief. In the case, an engine part with a label was stolen from one car and installed in another. The label was used as evidence to convict the subject of a misdemeanor offense.

QUESTION 5A:

Have the sentences changed as a result of the Act?

- o 100% of the District Attorneys' surveyed reported no change. In addition, 65% stated that first time offenders are given either a suspended sentence, fine, or probation, while only subsequent offenders are given jail terms.

QUESTION 6:

What other changes have resulted from the 1984 Act?

While no District Attorneys' described changes that have resulted from the 1984 Act, they used this question to express miscellaneous opinions:

- 39% of the District Attorneys' surveyed had no knowledge of the 1984 Motor Vehicle Theft Law Enforcement Act.
- 26% of the District Attorneys' surveyed stated that because of the nature of their rural jurisdiction, there were few arrests for auto theft, and hence few prosecutions.
- 17% of the District Attorneys' surveyed noted the majority of auto theft cases prosecuted involved joyriding.
- 4% of the District Attorneys' surveyed stated that auto theft was a "good crime to commit." Specifically, sentences are lenient, jails are overcrowded, and auto theft is a victimless crime. Consequently, first time offenders are given suspended sentences or probation rather than jail terms.

QUESTION 7:

Please provide copies of all state and local statutes covering vehicle theft in your jurisdiction.

- Five states (Arizona, California, Colorado, Connecticut, and Florida) have a State statute regarding VIN tampering. The penalty imposed for such tampering can range from a misdemeanor conviction carrying a maximum jail term of 1 year to a felony conviction carrying a maximum state prison sentence of 2 years.

- Seven states (Arizona, California, Connecticut, North Carolina, Nevada, Texas, and Virginia) have joyrider statutes for unauthorized use of a motor vehicle without intent to permanently deprive the owner. Penalties range from a Class A Misdemeanor, carrying a maximum jail term of one year to a Third Degree Felony, carrying a maximum state prison sentence of 2 years.

- Six states (Arizona, California, Florida, North Carolina, Nevada, and Virginia) have a statute concerning the possession of a stolen vehicle in which the original theft cannot be proven. The penalties imposed for possession can range from a misdemeanor carrying a maximum jail term of 1 year to a felony carrying a maximum state prison sentence of 5 years.

- One state, Florida, has a statute specifically relating to chop shop activity. Under statute 812.16, the operation of a chop shop is considered a Third Degree Felony, punishable with a maximum state prison sentence of five years.

* * * * *

The information collected from the survey of District Attorneys provides insight into the nationwide impact of the Act on prosecutions, convictions, and sentences. The survey had a high response rate, and the few non-respondents were not from one particular region of the country or type of jurisdiction (rural, suburban, urban). Thus, the responses detailed above reflect the experiences of District Attorneys' on an overall national level.

In addition to the information that was collected in the nationwide survey of District Attorneys, judicial information was also compiled during the data collection trips to the seven high theft cities. In each city, information was collected concerning how labels are used as evidence to prosecute and convict persons arrested for motor vehicle theft. The results of this data collection are presented below.

2. Use of Labels as Evidence in Seven High Theft Cities

In the seven high theft cities, there is a wide variation in the ability of local law enforcement officials and District Attorneys to use labels as evidence to arrest, prosecute, and convict motor vehicle theft offenders. The cause of this variation focuses on the local interpretation of whether or not an adhesive label is considered to be a valid VIN. Below, we discuss the application of labels as an investigative aid and courtroom evidence and provide examples of the different possible judicial interpretations.

a. Application of Labels

In general, labels can be useful to law enforcement officials in two ways:

- As information or evidence to supplement and support vehicle and part identification
- As evidence of a VIN tampering violation

The first application involves using the labels to identify stolen parts or vehicles. For example, the investigators may check the labels to determine if they match the public VIN. This application of the labels can be used by most jurisdictions with some general knowledge of label location, etc. However, the use of

this application is undermined by the fact that the labels have often been removed from the parts by the time of recovery.

The second application of labels as evidence entails using label tampering as grounds for arrest based on VIN tampering laws. Many jurisdictions have serious penalties for tampering with or counterfeiting VINs. The ability of a jurisdiction to apply these laws to labels is dependent on the motor vehicle codes and the definition of a VIN. Given the labels ease of removal, the success of this second application can be a significant factor in a jurisdiction's overall application of the Act. Additionally, some jurisdictional laws classify VIN tampering as a felony, and others classify it as a misdemeanor. This also affects the extent of the jurisdiction's application of the labels.

Below we provide examples of the variation in VIN laws and discuss their effect on the application of labels. The examples are divided into two types:

- o Cities that Recognize Labels as VINs
  - Chicago
  - Los Angeles
- o Cities that Do Not Recognize Labels as VINs
  - Boston
  - New York

b. Labels Recognized as VINS

Below we present two examples of cities where labels are recognized as true VINs. In these instances, law enforcement officials have great latitude in using the labels (whether present or missing) as evidence to make arrests.

Chicago, IL

The Illinois Motor Vehicle Code is quite extensive (comprising a dense 350 page volume), and includes the following definition of a VIN:

> *". . . the numbers and letters on a vehicle or essential part, affixed by its manufacturer, the Illinois Secretary of State, or the Illinois Department of State Police for the purpose of identifying the vehicle or essential part, or which is required to be affixed to the vehicle or part by federal or state law."*

This definition includes labels. Based on this, all the laws that apply to VINs apply equally to these labels. For instance, parts that have had labels removed can be confiscated, and possession of such parts is sufficient evidence for felony charges. The possession, purchase, sale, or disposition of such a part, with or without knowledge of the label's absence, is grounds for charges. Unlike some other states, Illinois does not require that the removal of the labels be witnessed. Possession of such a part with knowledge that the label is missing is a felony, possession without knowledge is a misdemeanor.

This interpretation has increased Chicago's application of this law significantly. As one investigator stated, the presence of the labels forces the thief to remove them, thereby committing a felony, or to leave them on, thus allowing the police to prove the part is stolen. This is the basis of the enforcement of VIN violation laws in Chicago.

Los Angeles, CA

In California, it is not clear whether or not the definition of a VIN applies to labels. California defines VINs as:

"the motor number other distinguishing number, or identification mark of a vehicle required or employed for registration purposes"

Legal officials in California have decided that this definition covers labels. Given this, Los Angeles investigators can make arrests based on the absence of the labels. The possession, sale, offering for sale, or purchase of parts with missing labels is a misdemeanor. However, fraudulent acquisition or disposition of VINs is a felony. Examples of fraudulent acquisition and disposition include counterfeiting VINs or merely possessing removed VIN plates or labels. Additionally, the burden of proof is on the defendant to prove that the part in their possession was not stolen if they are a 'vendor or swapper' of parts.

c. Labels Not Recognized as VINs

We next present two examples of cities where labels are not recognized as true VINs. In these jurisdictions, law enforcement officials are limited in their use of labels as evidence to make arrests. In most instances, investigators only can use the labels as supporting or "back-up" information in the identification of a vehicle. If the labels have been removed from a component part, the law enforcement officials are not permitted to confiscate the part or use it as evidence to make an arrest.

Boston, MA

Massachusetts' Motor Vehicle Code, as it pertains to VIN violations, states the following:

> *" 'Identifying number or numbers' as used in this section, shall mean the manufacturer's number or numbers identifying the motor vehicle, trailer, or motor vehicle part as required to contained in an application for registration . . ."*

From this, it is not clear whether the labels are included in this definition of a VIN. In a recent Boston case, auto theft investigators attempted to build a case based on the discovery of several parts in a body shop with the labels missing. When the Commonwealth Attorney's Office was presented with this case, they decided that labels did not to fall within the definition of a true VIN. Given this decision, investigators in Boston are unable to make an arrest if they find parts with the labels missing. They need to collect evidence that the parts were stolen from other sources.

New York, NY

The New York Police Department's (NYPD) strict legal interpretation of New York's VIN definition greatly reduces the effectiveness of the labels as evidence. The definition states:

> *"the term 'original identification number,' shall mean any number embossed, engraved, or etched, or similarly marked on any part of a motor vehicle, trailer, or motor vehicle part . . . and the location of which number is made available to the public."*

Since this definition excludes adhesive labels, law enforcement officials are unable to confiscate parts or make arrests if the labels are missing. Investigators recently

prepared a "test case" in an attempt to have the courts rule that a label could be used as evidence in making an arrest. However, New York Police Department legal officials rejected the use of the evidence.

* * * * *

Thus, in combining information collected from the nationwide survey of District Attorneys with information from the site visits, three themes emerge:

- Labels can be used in two possible ways: (1) as supplemental information to verify the identity of a vehicle, and (2) as evidence to charge persons with possession of stolen parts or VIN tampering

- In some jurisdictions, legal rulings do not allow labels to be used as evidence of possession of stolen parts or VIN tampering

- Because of the evidence restrictions, the link is often not made between the intent of the Federal Act and the application by local jurisdictions

IV. CASES INVOLVING MARKED COMPONENT PARTS

As described in the previous section, auto theft investigators use marked component parts to assist in the identification of stolen vehicles and employ as evidence of VIN tampering. To demonstrate how investigators have used labels to identify stolen cars and make arrests, we describe five cases that were pulled from police department arrest files in the seven high-theft cities.

Case 1

Investigators conducted an investigation of a chop-shop based on the unusually large number of abandoned vehicles in the area. When they conducted a search of the establishment, they discovered several General Motors parts (Camaro, Cutlass, Firebird) with all the labels intact. Using the labels, they were able to identify several of the original stolen vehicles. Investigators then used fingerprints to link the parts to the garage owners. They were arrested, prosecuted, and convicted on 14 counts of receiving stolen property and stolen motor vehicles, and two counts of defacement of motor vehicle VINs.

Case 2

Investigators successfully used the labels in an inspection of a body parts establishment. They discovered two matching doors in the yard that had their labels intact. The officers believed that the criminal had overlooked these labels because of their hard-to-find location beneath the door. Using the labels, they identified the parts as having come from a stolen vehicle, and arrested the owner of the shop.

Case 3

Detectives conducted a long term investigation of a thief known to specialize in luxury automobiles. During a search of his garage, officers discovered a Mercedes 560SL in his garage. The Mercedes had all visible means of identification removed from it. Finally, they checked for a label in a location often overlooked by thieves. They discovered a label, and based on this alone, were able to identify the vehicle as stolen. After further investigation, the subject was charged with 35 counts of receiving stolen vehicles, and was sentenced to 6 years and 3 months in prison.

Case 4

During a repair of his 1988 Oldsmobile Delta 88, the owner painted over the label on the front fender. The vehicle was later stolen by a thief who removed all visible means of identification. The vehicle was partially stripped and abandoned. When they recovered the vehicle, police were initially unable to identify the ownership because there were no visible VINs. However, an experienced auto theft investigator realized that the fender had been painted. He scraped off the paint on the finder to find the label. The vehicle's origin and ownership were identified.

Case 5

Detectives used labels in an investigation of an attempted fraud involving a BMW 325i. The owner of the vehicle stripped the car himself, abandoned the hull, and reported it stolen in order to collect on the insurance policy. Later, he repurchased the salvaged hull and rebuilt the car. He then took the car for servicing to the dealership where he originally purchased it. The police received an anonymous tip from the dealership that the labels were missing from the parts of the BMW. Detectives conducted an investigation, and although the labels were removed, they were able to match paint samples to prove that the parts on the car were the original manufacturer's parts. The subject was arrested and charged with attempted fraud.

* * * * *

These five cases represent some of the ways law enforcement officers have been able to use marked component parts to identify stolen vehicles and make arrests. In reviewing arrest files and interviewing auto theft investigators, we recorded information on other cases where labels were used as evidence. However, these five cases are typical examples of the ways in which law enforcement officers have used labels to identify stolen parts (cases 1 and 2), identify stolen vehicles (cases 3 and 4), and investigate insurance fraud (case 5).

APPENDIX A

FORMULAS USED IN STATISTICAL TESTS

We present the statistical formulas used in testing clearance rate and conviction rate hypotheses.

STATISTICAL FORMULAS

Hypothesis	Formula to Calculate t-ratio
$C <= A$	$\frac{C - A}{SQRT\{(S.E._C)^2 + (S.E._A)^2\}}$
$D <= B$	$\frac{D - B}{SQRT\{(S.E._D)^2 + (S.E._B)^2\}}$
$(C - A) - (D - B) > 0$	$\frac{(C - A) - (D - B)}{SQRT\{(S.E._C)^2 + (S.E._A)^2 + (S.E._D)^2 + (S.E._B)^2\}}$

where

A = Rate (clearance or conviction) for predecessor of marked passenger cars (model years 1986 and earlier)

B = Rate (clearance or conviction) for predecessor of unmarked passenger cars (model years 1986 and earlier)

C = Rate (clearance or conviction) for marked passenger cars (model years 1987 and 1988)

D = Rate (clearance or conviction) for unmarked passenger cars (model years 1987 and 1988)

S.E. = Standard Error

APPENDIX B

SURVEY RESPONDENTS

We present a list of the jurisdictions selected for participation in the nationwide survey and the agencies that responded to the questionnaire.

Summary of Nationwide Survey Respondents

AGENCY STATE / COUNTY		LAW ENFORCEMENT	MOTOR VEHICLE ADMINISTRATION	DISTRICT ATTORNEY
AZ	MARICOPA	√	√	√
	NAVAJO		√	
	PIMA	√	√	√
CA	LOS ANGELES	√	√	√
	ORANGE	√	√	√
	VENTURA	√	√	
CO	EAGLE	√	√	√
	LA PLATA		√	√
	LARIMER	√	√	√
CT	HARTFORD	√	√	
	LITCHFIELD	√	*	√
	NEW LONDON		*	√
FL	CITRUS	√	√	√
	HILLSBUROUGH	√		√
	LEE		√	√
GA	COBB	√	√	√
	HART		√	
	MUSCOGEE	√	√	√
NV	CLARK	√	√	√
	WASHOE	√	√	√
NY	ONANDAGA	√	√	√
	WESTCHESTER	√	*	
	SARATOGA		*	
NC	GUILFORD	√	√	
	MECKLENBURG	√	√	√
	RANDOLPH	√	√	√
TX	HARRIS	√	√	√
	WILSON		√	√
VA	NEWPORT NEWS			√
	PITTSYLVANIA	√		
	VIRGINIA BEACH	√		√

* In Connecticut and New York, Motor Vehicle Administration offices are standardized throughout the state. Thus, only one survey was needed for each state.