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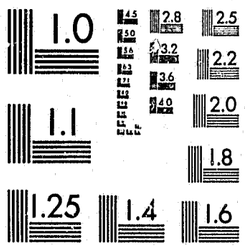

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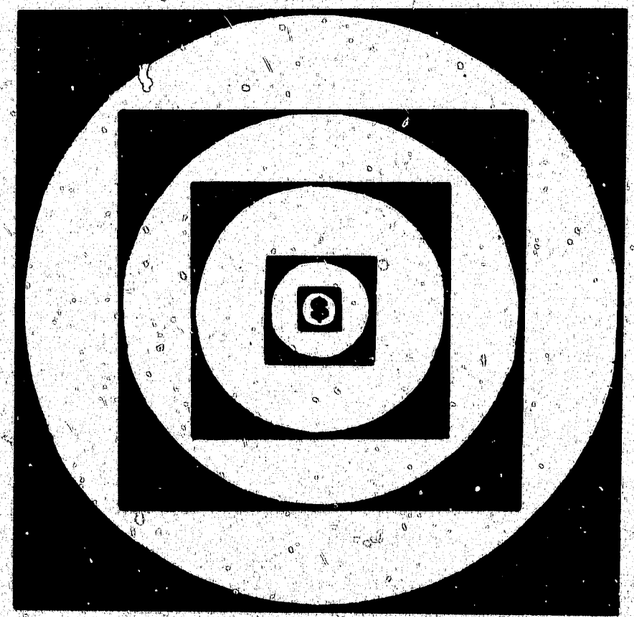
LAW ENFORCEMENT OPERATIONAL AND COST DATA



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BEYOND CRIME:

LAW ENFORCEMENT OPERATIONAL AND COST DATA

by

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BJS/NACJP
Statistical Series Project
Report No. 1
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PREFACE

This report is the result of nearly three years of discussion with representatives of the Bureau of Justice Statistics and the Executive Committee of the National Association of Criminal Justice Planners. Those discussions resulted in identifying those areas where agency data were likely to exist and also in fine tuning the questionnaires used for collecting the data, especially in the clarification of terms used in the instruments so as to make them as generic as possible.

This report also owes a debt of gratitude to the planners and agency personnel who represent the following jurisdictions and who went through the effort of filling in the questionnaires as best they could:

Addison, TX
Bal Harbour, FL
Baltimore, MD
Baltimore County, MD
Biscayne Park, FL
Brooklyn Park, MN
Cambridge, MA
Carpentersville, IL
Colfax County, NM
Coral Gables, FL
Denver, CO
Elgin, IL
Espanola, NM
Evansdale, IA
Hanover, NJ
Hennepin County, MN
Hialeah, FL
Jefferson County, KY
Jefferson Parish, LA
Kane County, IL
Kenner, LA
Las Vegas, NV
Los Alamos, NM
Louisville, KY
Lucas County, OH
Metro-Dade County, FL
Miami, FL
Miami Beach, FL
Miami Springs, FL
Midwest City, OK
Milwaukee, WI
Mine Hill, NJ
Minneapolis, MN
Morris Township, NJ
New Orleans, LA
North Bay Village, FL
North Miami, FL
North Miami Beach, FL
Oak Park, IL
Oklahoma City, OK
Oklahoma County, OK
Opa-Locka, FL
Richfield, MN
Rochester, NY
St. Charles, IL
St. Louis, MO
San Miguel County, NM
South Miami, FL
Taos, NM
Toledo, OH
University City, MO
Wayzata, MN
Yonkers, NY

INTRODUCTION

This report is the first in a series that examines selected operational and cost data from the major component parts of the criminal justice system; i.e., law enforcement, corrections and the courts (including prosecution). The focus is on agencies that operate at the local level regardless of where the funds may come from to operate the agency. This first report deals with law enforcement.

Fifty-three agencies contributed data to support this analysis of law enforcemnt operational and cost data. Throughout the report the data are presented along the dimension of the population size of the jurisdiction being served by the agency. Two population categories are used: under 100,000 population; and population of 100,000 or more. Of the fifty-three participating agencies, twenty-nine (55%) serve populations of less than 100,000 and twenty-three (45%) serve populations of 100,000 or more.

Throughout the report reference is made to averages; i.e. the average rate of calls per 1,000 population. These averages that are presented were computed by summing the entries from each participating agency and then dividing that sum by the number of agencies that were able to provide the data. The analysis revolves around the experiences of the agencies and <u>not</u> on the volume of uses that make up that experience.

To illustrate this point let us take as an example the number of calls for service that are citizen initiated. One agency may have 10,000 calls with 90% of the calls being citizen initiated while another agency may only have 1,000 calls with 80% being citizen initiated. The way this report treats this information is to add the two percentages (90% + 80% = 170%) and then to divide by the number of

agencies providing the data (2). So the average for calls that are citizen initiated is 85% (170%/2). If one were to look at the individual calls, a quite different result would develop. By looking at the calls we would have 9,800 calls being citizen initiated (90% of 10,000 = 9,000 plus 80% of 1,000 = 800) divided into a base of 11,000 (the sum of the total number of calls from the two agencies. The result would be 89% of the calls for service being citizen initiated (9,800/11,000). Again, because the analysis focuses on agency experience, the procedure for calculating the first average (85%) is the method used throughout this report.

Included in this analysis are data from Sheriff's Departments. As those familiar with criminal justice are aware, the law enforcement responsibilities for Sheriff's Departments ranges from none to sole responsibility within the jurisdiction. When the Sheriff's Department constitutes less than 5% of the law enforcement officers within the county that it is serving, which is the case with four of the Sheriff's Departments that are included in this report, a problem arises. The problem relates to population sensitive statistics, for example, the number of calls for service per 1,000 population. The base for calculating such a rate would be the total county population to which these Sheriff's Departments provide only a small share of the service. To address this problem, the report presents the various population sensitive statistics in parentheses. When this occurs, the rate <u>is not included</u> in the calculation of the averages that appear in the affected data tables.

Sheriff's Departments that constitute a small share of the law enforcement effort within a county tend to provide services not only to the citizens of the county but also to the other law enforcement

agencies in the county. For example, the Sheriff's Department is often the locus of consolidated dispatching services. The Sheriff's Department may also provide specialized services, such as investigation or criminal forensics, to the other law enforcement agencies in the county. So while the analysis would have benefitted from isolating the Sheriff's Departments into a separate sub-group, the number of Sheriff's Departments responding to the present effort was too small to permit us to do so.

In presenting the data in the tables throughout this report, letters of the alphabet were substituted for the names of the participating agencies in identifying site specific data. This was done in furtherance of a promise made by the project to the participating agencies that they would remain anonymous in the presentation of any site specific data. This promise was made to mitigate any fears that the prospective participants may have had about the way the data would be presented as well as doubts about how the agency would come out looking. No agency wants to be identified as the worst in this or that. In effect, the project recognized the risk taking that the prospective participants had to consider in getting involved in the effort and responded by offering them anonymity.

In addition to providing a measure of protection to the participating agencies, anonymity advances the discussion of what the data reveal about law enforcement practices. In a first time effort like this, the emphasis should be on the data, not the individual agencies. Consequently, while anonymity crimps an "open" examination, it has some considerable advantages going for it as well.

As can be seen in Table 1, the average population served in the

TABLE 1
PROFILE OF AGENCIES RESPONDING TO QUESTIONNAIRE

JURISDICTION	POPULATION	SQUARE MILES IN JURISDICTION	POPULATION PER SQUARE MILE	TIME TO COMPLETE QUESTIONNAIR
A	8500	2.30	3696	4.00
B	2978	0.50	5956	
C	3100	1.00	3100	1.50
D	47000	27.00	1741	2.00
E	24000	4.40	5455	4.00
F	42500	12.25	3469	16.00
G	11000	27.00	407	20.00
H	6600	6.00	1100	
I	12000	10.20	1176	10.00
J	19000	110.00	173	3.00
K	12800	3.20	4000	9.00
L	4100	2.70	1519	2.00
M	18486	15.70	1177	7.00
N	5200	9.00	578	16.00
O	38000	6.50	5846	12.00
P	17000	4.50	3778	
Q	37500	7.80	4808	1.50
R	17500	8.44	2073	22.00
S				8.00
T	42738	6.00	7123	60.00
U	3800	2.80	1357	3.50
V	45000	11.00	4091	10.00
W	12000	3.00	4000	10.00
X	16000	21000.00	1	18.00
Y	24000	4800.00	5	10.00
Z	65000	20.30	3202	3.00
AA	70000	15.40	4545	10.50
AB	55000	27.00	2037	9.00
AC	58000	4.50	12889	24.00
AVERAGE FOR SERVING POP. <100000		25672	933.87	3189	11.00
AD	786741	86.00	9148	8.00
AE	664246	610.00	1089	3.00
AF	100000	6.00	16667	4.00
AG	497700	111.00	4484	23.50
AH	180000	22.00	8182	4.00
AI	385725	316.00	1221	
AJ	297817	61.00	4882	10.00
AK	872600	1836.00	475	37.00
AL	440000	34.00	12941	32.00
AM	636210	96.00	6627	
AN	327000	58.00	5638	
AO	570000	196.00	2908	27.00
AP	409700	649.00	631	8.00
AQ	242900	37.00	6565	27.00
AR	453085	61.00	7428	40.00
AS	354265	86.00	4119	9.50
AT	103000	8.00	12875	30.00
AU	(566179)	(700.00)	N.A.	16.00
AV	(484370)	(343.00)	N.A.	54.00
AW	(273300)	(522.00)	N.A.	6.00
AX	474139	445.00	1065	
AY	(945141)		N.A.	
AZ	190000	22.00	8636	
AAA	387716	7793.00	50	48.00
AVERAGE FOR SERVING POP >100000	AGENCIES	418642	626.65	5782	21.50
AVERAGE FOR PARTICPATING	ALL AGENCIES	189409	805.86	4269.45	15.30

under 100,000 category is only 25,672 persons while the average population for those agencies in the 100,000 or more category is 418,642 persons. Despite the vast difference in the average population size, the reader is cautioned against thinking of these agencies as typical small and large agencies. This caution stems from the much more narrow difference in the average for the population per square mile found for these two groupings. The population density for the jurisdictions of 100,000 or more populations is less than twice that of those jurisdictions of less than 100,000 (5,782 to 3,189 persons per square mile). This is substantially closer than the twenty times difference in average population size.

Many of the agencies in the population category of less than 100,000 operate within a suburban setting, not a rural one. That is the reason for their relatively high population density. Because of the nature of the environment in which they must operate, their experience does not reflect what one would associate with the more "normal" small size agency which is heavily influenced by agencies operating in rural settings.

On the other side of the coin, those agencies serving populations of 100,000 or more do not all serve densely populated urban areas. A number of the agencies in this category are county based. In some instances, the agency serves a unified government; i.e., a combined city and county governmental structure. Such a configuration tends to have a heavy urban flavor. However, there are other county based agencies that serve a mix of urban and suburban areas with some evidencing a heavy tilt to the suburban environment.

The presence of suburban environments in each of the population categories, therefore, prevents us from making such characterizations

as urban and rural for these population categories. Knowledge of the type of jurisdiction being served in terms of such categorical designations as urban, suburban and rural categories is useful. However, the small number of participating agencies in the present effort keeps us from employing such an approach.

The data presented in this report were drawn from a self-report methodology; i.e., agencies were asked to complete a seventeen page questionnaire on a number of operational and cost factors associated with their routine practices. The overall average time for completing the questionnaire was 15 hours. As can be seen in Table 1, the average time for those agencies serving populations of 100,000 or more was nearly twice that of those serving populations of less than 100,000 (21.5 hours versus 11 hours). This is not a surprising finding because it is expected that those agencies serving the larger population group would be larger in size with more elaborate administrative structures and larger workloads.

In examining the individual responses in Table 1 for the time taken to fill out the questionnaire, one is struck by the wide variation among the agencies. The time ranges from one-and-a-half hours to sixty hours. This finding prompts us to pause and to consider what could bring about such wide variation. While the validity of the entry itself may be open to question (1), this time measure can reflect either on the effort put forth by the agency or on the state of the

1. The questionnaire asked the person who was filling out the instrument to indicate the total time taken by him/her as well as all others in the agency providing data for the effort. It is possible that the entries made for time to fill out the questionnaire may reflect only that of the principal contact and not everyone who was involved in the effort.

agency's records. Based on a review of the returns one can surmise that some agencies did not have the requested information readily available and did not take the time to try to retrieve it through sampling. In other words, the short response time translated into incomplete returns. Other agencies, however, must have had the requested data already on hand because most of the questionnaire was completed in a short period of time. Consequently, a short time for filling out the questionnaire does not automatically imply one that is riddled with incomplete information.

The data provided by the participating agencies was aggregate data that were drawn from a one year reference period. While most of the data reflect the 1982 calendar year, the questionnaire permitted entries from some other reference period (a fiscal year, for example) if the data were more readily available in that format. Consistency in time frame was sacrificed in the interest of obtaining data. It should be noted, however, that most of the data provided was in the context of the 1982 calendar year.

The principal purpose of this report is to demonstrate that administrative and cost data can be collected through the cooperative efforts of selected jurisdictions. Doubts have existed as to whether or not such data were retrievable at all, especially in light of the variation that exists within criminal justice and law enforcement as to organizational structure, practice, procedure and definition of terms. The variation is real but the variation need not paralyze our efforts to obtain more detailed data on agency operations.

The data presented in this report would not find acceptance if they were subjected to classically defined validity and reliability criteria. The purpose of this report, however, was not to write about

clinical experiments but rather to describe how agencies operate based on their own accounts. The project recognizes that there are "problems" with the "representativeness" of the sample which was not randomly selected and that there are problems with definitions and consistency in the data provided by the agencies. Nevertheless, this report enables us to describe aspects of law enforcement operations that have not been touched upon before. This report enables agencies to hold up a mirror, crude though it may be, into which the agency can peer to compare and assess its operations with that of others.

This report documents that administrative data can be collected in partnership with the law enforcment agency. It is hoped that in those instances where an agency does not have certain data elements that it can at least see that the data are collectable if it chooses to collect them. It is also hoped that the agencies participating in this effort, as well as other agencies that may wish to participate in future efforts, will acknowledge the shortcomings in the data and will work with future efforts to address them.

Calls for service and dispatching is the first topic covered in the report. That section focuses on how a major input for law enforcement services comes into the agency and how it is administratively processed. The next topic covered in the report is that of records wherein an examination is made to determine what they reveal about the agency's operations and the types of cases that it processes. The investigative function is then analyzed and this is the most difficult area to get a handle on. The report then closes with a description of the agency's resources; i.e., its budget and personnel.

Chapter I: CALLS FOR SERVICE AND DISPATCHES

1.1 Calls For Service

This chapter examines the process by which a major input into law enforcement activity, calls for service, is handled by the agency, especially in terms of dispatching a police officer(s) to the scene in order for him/her to take some form of official action. Before undertaking this analysis it is useful to begin by describing what a call for service and a dispatch are. There is a tendency, even in law enforcement, to equate the two terms when in reality they represent two quite different phenomena. Because neither term has a readily identifiable definition (neither call for service nor dispatch appear in the Dictionary of Criminal Justice Data Terminology) we begin by distilling the elements of a call for service and a dispatch from the information obtained from the agencies participating through this present effort.

The following sampling of definitions of "call for service" was obtained from the questionnaires and it provides a flavor for the variation among agencies in the use of the term:

- Any call into the department, e.g. for information, notification of an abandoned car, need for escort, notification of a crime, etc.
- Any call where a police officer is required to perform a service.
- Any time an officer is dispatched to perform a service or document a crime, traffic stops, any other activity generating a report.
- Any request for police service by a citizen or an officer initiated call.
- A communication to the police originating from a citizen, an alarm system, a police officer, or other detector reporting the need for on the scene police assistance.

As the reader will readily note, there is considerable range in the scope of activity covered in these definitions among the participating

jurisdictions. Rather than try to come up with a standardized definition, let us examine some of the characteristics of calls for service.

We begin by looking at the number of calls for service by controlling for the population size of the jurisdiction being served. This can be done by computing a rate, calls per 1,000 population. We calculate this rate by dividing the number of calls coming into the agency by the population of the jurisdiction and then multiplying that quotient by 1,000. This facilitates comparisons among the agencies because it standardizes the data and so neutralizes differences that are attributable to population size alone.

In examining calls for service in the context of the number of calls per 1,000 population, one is struck by the wide range in rates among the responding jurisdictions that is observed in Table 2. While the average rate is 955 calls per 1,000 population, this statistic ranges from a high of 3,491 per 1,000 population to a low of 410 per 1,000 population. The standard deviation is quite large (640) which indicates a very loose fit around the average. When the rate, calls for service per 1,000 population, is examined along the dimension of population size of the jurisdiction being served by the law enforcement agency, small size jurisdictions (less than 100,000) exhibit pretty much the same rate of calls per 1,000 population (982) as the large size jurisdictions (populations of 100,000 or more) where the rate of calls per 1,000 population is 922. Within both population categories, considerable variation exists.

The source of the calls for service is principally the public. Better than three out of four calls (77%) coming into a law enforcement agency are citizen initiated. Once again, the responding agencies

TABLE 2
CALLS FOR SERVICE AND DISPATCHING

JURISDICTION	POPULATION	NUMBER OF CALLS FOR SERVICE	CALLS FOR SERVICE PER 1000 POPULATION	PERCENT OF CALLS CITIZEN INITIATED	POLICY FOR SCREENING CALLS	PERCENT OF CALLS HANDLED BY PHONE	PERCENT OF CALLS RESULTING IN DISPATCH
A	8500	11272	1326	0.70	NO	0.00	0.88
B	2978	2971	998	0.75	YES	0.10	0.75
C	3100	1270	410	0.60	NO	0.00	
D	47000	24668	525	0.87	YES	0.08	
E	24000	15811	659	0.98	NO	0.00	0.95
F	42500	88630	2085		NO	0.00	0.60
G	11000	38400	3491	0.95	NO	0.00	0.28
H	6600	3840	582	0.75	NO	0.00	0.90
I	12000	9700	808	0.70	YES	0.10	0.98
J	19000						
K	12800	12000	938	0.85	YES	0.10	0.94
L	4100	5914	1442	0.30	YES	0.05	0.70
M	18486	8012	433	0.67	NO	0.00	1.00
N	5200	3068	590	0.95	NO	0.00	1.00
O	38000	26195	689	0.75	YES	0.01	0.78
P	17000	14789	870	0.70	NO	0.00	1.00
Q	37500	19870	530	0.75	NO	0.00	0.90
R	17500	18972	1084	0.58	NO	0.00	1.00
S							
T	42738	90011	2106	0.41	YES	0.03	0.80
U	3800			0.80	NO	0.00	
V	45000	19602	436	0.85	YES	0.15	0.85
W	12000	9500	792	0.95	NO	0.00	0.99
X	16000						
Y	24000						
Z	65000	43395	668	0.76	YES	0.10	1.00
AA	70000	35112	502	0.95	NO	0.00	0.12
AB	55000			0.87	NO	0.00	
AC	58000	36403	628	0.70	NO	0.00	1.00
AVERAGE FOR AGENCIES SERVING POP. <100000		25672	23452	982	0.76	0.03	0.83
AD	786741	1522140	1935	1.00	YES	0.02	0.55
AE	664246	302475	455	0.95	YES	0.09	0.95
AF	100000	90000	900	0.65	YES		0.66
AG	497700	602000	1210	0.67	YES	0.04	0.67
AH	180000	83000	461	0.65	YES	0.05	0.64
AI	385725	641620	1663		YES		0.19
AJ	297817	308984	1037	0.54	YES	0.25	0.54
AK	872600	452852	519	1.00	YES	0.11	0.89
AL	440000	325516	740	0.82	YES	0.15	0.99
AM	636210						
AN	327000	217162	664	0.70	YES	0.05	0.95
AO	570000	418370	734	0.81	YES	0.05	0.90
AP	409700	250125	611	0.96	YES	0.05	1.00
AQ	242900	356900	1469	0.78	YES	0.03	0.78
AR	453085	917288	2025		YES		0.98
AS	354265	288804	815		YES	0.08	0.80
AT	103000	78323	760	0.82	YES	0.06	0.94
AU	(566179)			0.90			
AV	(484370)	(12202)	N.A.	0.96	YES	0.04	0.96
AX	(273300)	(19011)	N.A.	0.64	NO	0.00	1.00
AW	474139	252637	533	0.90	YES	0.04	0.96
AY	(945141)						
AZ	190000	80223	422	0.92	YES	0.14	0.84
AAA	387716	217763	562	0.86	YES	0.07	0.79
AVERAGE FOR AGENCIES SERVING POP >100000		418642	389799	922	0.82	0.07	0.81
AVERAGE FOR ALL PARTICPATING AGENCIES		189409	189181	955	0.77	0.05	0.80

indicate considerable range in the percent of calls that are citizen initiated. The percent of calls attributed to citizens range from a low of 30% to a high of 100%. Unlike the rate of calls per 1,000 population, however, the standard deviation for percent of calls that are citizen initiated is 0.16. While this indicates a tighter fit around the average than that which would be found with calls per 1,000 population, the standard deviation, nonetheless, underscores the variability among the responding law enforcement agencies with regard to the proportion of calls attributable to citizens.

While the vast majority of calls for service are citizen initiated, there are a number of communications to a law enforcement agency that are officer initiated. Many of the definitions provided by the participating agencies formally acknowledge those communications in their definition of a call for service. The fact that only two of the law enforcement agencies responding to the questionnaire indicated that the proportion of calls for service attributable to citizens was 100%, demonstrates that police initiated activity contributes to the calls for service count. On the average, nearly one-fourth (23%) of the calls for service are attributable to police officers themselves. These calls may range from the officer notifying the agency that s/he has observed a crime and is requesting permission to be taken out of service to respond to the incident, to the more mundane request of being taken out of service for a coffee or lunch break.

Routine administrative calls made by patrol officers as well as calls from citizens involving such matters as informational requests do not require that an officer be sent to the scene. Yet a number of police agencies define a call for service as those instances where an

officer is dispatched to perform a service. Indeed, many of the definitions imply that the call results in an officer being sent to the scene; e.g. any call where a police officer is required to perform a service. What happens to those calls (citizen or officer initiated) that do not result in an officer being dispatched? Are such calls counted? This is a gray area that would have to be examined more closely in future efforts.

In addition to the fact that not all calls require the sending of a patrol officer(s) to the scene, there is also the possibility of the matter being taken care of over the telephone. Calls can be screened to determine whether a report can be taken over the phone or in person with the caller coming to the law enforcement agency. Overall, 29 of the agencies responding indicate that they do screen calls in this manner. Consequently, one out of every 20 calls (5%) are handled in this fashion.

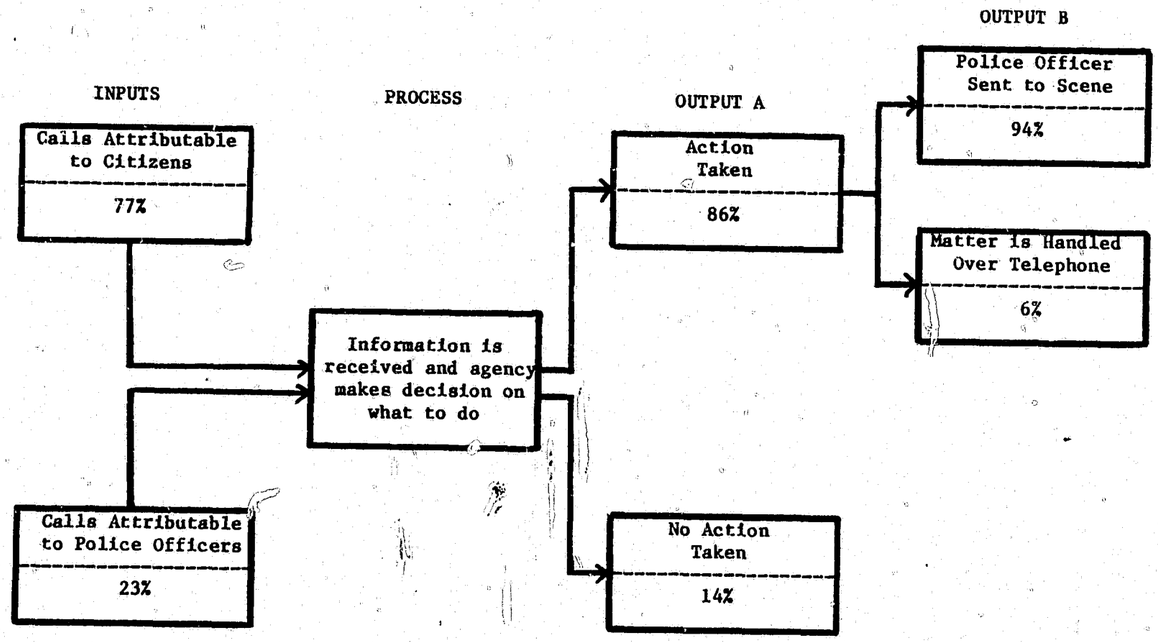
This use of call screening varies between those agencies serving populations of less than 100,000 and those serving populations of 100,000 or more. Of those agencies serving populations of less than 100,000 only one-third (31%) have programs to screen calls so as to handle them short of dispatch; i.e. over the phone or having the caller come to the department. Consequently, an average of only three percent of the calls for service are handled in this fashion by these agencies. With agencies serving populations of 100,000 or more, all but one of the agencies have programs for screening calls to see if they can be handled short of a dispatch. Of those agencies able to provide the data (18 of 24), it was found that seven percent of the calls for service are handled in this manner.

Overall eight out of ten calls for service result in an officer being dispatched to the scene to handle the matter being reported to the law enforcement agency. A standard deviation of .23 reveals the variation that can exist in this measure among the responding agencies. Beyond the variation among all of the agencies, there also exists a noticeable difference between those agencies serving small populations versus those serving the larger populations. The percent of calls resulting in a dispatch for agencies serving populations of less than 100,000 is 82% as opposed to the 77% found for those agencies serving populations of 100,000 or more. This difference in dispatching, however, disappears when one remembers the call screening practices of the agencies serving the larger population group (7% to the 3% of the small populations grouping of less than 100,000).

A call for service, therefore, is usually citizen initiated and usually, but not always, results in sending an officer to the scene where assistance is being requested. Understanding what is coming in as a call for service enables us to understand the output generated by the law enforcement agency, namely that 14% of the time no official agency action is taken in response to a call for service; i.e., an officer is not dispatched nor is a report taken over the phone. In addition, in those instances where an official action is taken, six percent of the time the matter is handled over the telephone and the other 94% of the time an officer is sent to the scene; i.e. a dispatch. Chart A summarizes this flow of incoming calls to the dispatching of a police officer to the scene.

This lack of consistency in defining calls for service as well as the lack of consistency in counting calls for service makes it a

Chart A
Work Flow of Calls for Service to Dispatch of Law Enforcement Officer to the Scene



Percentages in chart are estimates generated from law enforcement agencies participating in Statistical Series Project.

measure of limited utility. Calls for service can be used in computing measures dealing with the source and sifting of the calls for service. Such measures give us descriptive information on a major input on the demand for law enforcement services. However, calls for service do not provide a very sound basis for computing workload or performance measures. Dispatches provide a more sound basis for such measures because dispatches are more consistently defined and counted than calls for service as well as the fact that they represent a formal response to a request for service.

1.2 Dispatch

Dispatching is the act of sending an officer(s) to a specific location to take official action on a situation brought to the attention of the law enforcement agency; e.g. traffic accident, medical emergency, hazardous condition (hole in the street), crime incident, etc. While there is general consistency in the use of term, there is an aspect associated with dispatching that is not necessarily consistent; i.e. how dispatches are counted.

What is the counting rule? Does an agency count the number of officers (or units) sent to the scene of the incident or does it count the number of incidents? There is no "correct" answer but we do know from the survey returns that most law enforcement agencies use the number of incidents as the counting rule, not the number of officers (or units) sent to the scene. Furthermore, while some of the agencies indicate that their dispatch count is a mix; i.e., sometimes each additional police unit sent (cover car) is counted, and sometimes it isn't, by and large the agency either tallies the extra unit(s) or it does not. This consistency in counting within a department provides a

basis for adjusting the dispatch figures from those departments where cover cars are counted in the total dispatch count so that they can be comparable to those agencies where the cover cars are not counted (2).

Despite these variations in counting, dispatching provides a sound basis for examining workload and performance measures for law enforcement agencies. Among such measures are:

- Number of dispatches per 1,000 population
- Proportion of dispatches involving cover cars
- Proportion of dispatches that are "Priority"
  - Response time to "Priority Dispatches"
  - Time spent at the scene for "Priority Dispatches"

As with calls for service, there is a method of standardizing dispatches so that a basis of comparison exists among agencies of different sizes. This can be done by dividing the number of dispatches by the jurisdiction's population and then multiplying by 1,000. This yields the dispatches per 1,000 population. The average number of dispatches per 1,000 population for those agencies participating in the statistical series project is 715. The large standard deviation (355) along with the range where the low is 60 and the high is 1,841 underscores the variability among the respondents.

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2. For example, an agency may report that it had 10,000 dispatches in the year and that it counts cover cars in this number. Because the questionnaire asked how frequently cover cars were sent, we have a basis for making an adjustment on the assumption that all of the instances in which cover cars were sent only one additional car was involved. This may not be the perfect solution to the problem but it begins to make such an agency's dispatch count more comparable with the bulk of the respondents. Continuing our example, the agency may report that 20% of all dispatches involve a cover car. The following "correction" would be made:

Total Dispatches	–	(Total dispatches x Cover Car Rate)	=	Adjusted Dsptch.
10,000	minus	(10,000 x .20)	=	8,000

With regard to the differential experience of those agencies serving large and small population groups, we observe a sizeable difference. Those agencies serving populations of less than 100,000 have 790 dispatches per 1,000 population as opposed to those agencies serving populations of 100,000 or more whose rate is 620 dispatches per 1,000 population. Dispatches per 1,000 population for smaller jurisdictions is twenty-seven percent (27%) higher than that found for larger jurisdictions.

The disparity in dispatch rates between these groups of agencies takes on a different complexion when one examines dispatches from another perspective; i.e. the number of patrol units available to respond to calls for service. An estimate on the number of patrol units available can be obtained by multiplying the total staffing component of a law enforcement agency by the percentage of staff assigned to patrol and then dividing that product by the staffing ratio of the patrol car (all of these factors will be discussed in more detail later in this report). When this calculation is done for those agencies from which the requisite data are available we observe that the number of dispatches per available patrol unit is 486 in a year for agencies serving populations of less than 100,000 while the dispatches per available unit is 537 in a year for agencies serving populations of 100,000 or more. This finding is primarily attributed to the difference in the patrol car staffing ratio evidenced by the two types of jurisdictions. The value of a measure like this lies in its ability to call attention to the difference between a general workload measure (dispatches per 1,000 population) and the workload per available resource unit; i.e. the patrol car.

The number of dispatches per 1,000 population as well as the number of dispatches per available unit in a year are quantitative measures that sheds light on how a law enforcement agency elects to respond to calls for service as much as it reflects the citizen's perception of what a law enforcement agency is expected to do. For example, a call requesting police action on an "abandoned car" may receive a response (perhaps even a quick response) in some jurisdictions, while in other jurisdictions an agency response would be deferred or the citizen would be referred to another government agency, e.g. the Department of Transportation or the Department of Sanitation. There is no standard response across law enforcement agencies in terms of how they handle the vast majority of calls for service that come into the agency. In addition, the likelihood of such a call ("abandoned car") coming into the law enforcement agency to begin with is probably higher in agencies serving basically single family homes where people have a pretty good idea of which cars belong on the block as opposed to densely settled areas where such familiarity is less likely to exist. The number of dispatches per 1,000 population and the number of dispatches per available unit, therefore, are relative measures of workload that reflect expectations for services to be performed as well as the actual delivery of such services.

Another aspect of the dispatch workload as mentioned earlier is the number of dispatches in which more than one car was sent to the scene (3). In the aggregate, three out of ten dispatches (31%) involve

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3. In discussing this topic of "cover cars," the analysis deals only with those situations where the agency's records indicate that more than one car was dispatched to the scene. It is not unusual for a patrol car to respond to an incident when the officer hears the dispatcher sending another unit to the scene.

more than one patrol unit, but once again considerable variation exists among the responding agencies as evidenced by the standard deviation of .18. While there is some difference between the large and small agencies in the aggregate (35% versus 29%), the difference is modest especially when one considers the difference in the staffing ratio per car between the two types of jurisdictions. The staffing ratio for agencies serving populations of less than 100,000 is 1.02 officers per patrol car while the staffing ratio for agencies serving populations of 100,000 or more is 1.25 officers per car. One would tend to think that cover cars would be more prevalent where the staffing ratio was low, especially among those agencies serving populations of 100,000 or more. However, when a Pearson's r was computed for the relationship between incidence of cover cars and the staffing ratio of the patrol car among the larger jurisdictions, no relationship was found (Pearson's r = -.14).

1.3 Priority Calls

There are various types of dispatches. These depend on the nature of the call so that the response may be anything from an immediate response (red lights and siren) to a one or two hour delayed response. Consequently, nearly all law enforcement agencies have some type of classification scheme for prioritizing calls for service. Indeed some of these classification schemes can be rather detailed. To minimize the difficulty of trying to compare classification schemes among the responding agencies, the questionnaire inquired about those calls for service that would demand the agency's quickest response. These calls were designated, "Highest Priority Calls." The questionnaire sought information on the number of such calls as well as information on the time spent in responding to and handling such calls.

To provide a flavor for how the highest priority call is conceived of among law enforcement agencies a selection of definitions from the responding agencies is provided below. Priority calls for service were defined as:

- Incidents involving personal injury, potential injury or felony in progress;
- Crimes in progress or just occurred, and medical emergencies;
- In progress crimes, order maintenance and disturbance calls that could lead to violence, medical emergencies;
- Life threatening situations; and,
- Life threatening felony in progress.

Clearly, while in progress crimes and medical emergencies constitute the major criteria in determining what is a priority call, the responding agencies evidence considerable range in how broadly these criteria can be interpreted.

The broadness in scope in terms of how "priority call" is operationally defined is underscored by the range in the proportion of dispatches that involve priority calls. The proportion of dispatches involving priority calls for service ranges among the responding agencies from a low of 3% to a high of 56% with the average being 16%. The standard deviation for this variable is .14. When priority calls are examined by the population size of the jurisdiction being served, one observes a higher incidence of priority calls for those agencies serving populations of 100,000 or more (19%) than that found for agencies serving populations of less than 100,000 (14%).

Because of the non-uniformity among the agencies as to what constitutes a priority call, the data are not measuring similar circumstances. However, these data do inform one about law enforcement's administrative reponse to a portion of its dispatch

workload. Priority calls also provide a basis for examining one aspect of an agency's performance. That aspect of performance is how quickly the agency is able to respond to its own self-defined emergency.

In examining response, the analysis will look at three time components: response time; time at the scene; and, the total time spent on the priority call. The category "response time" includes the time taken in obtaining information from the caller as well as the time it takes the patrol unit to arrive at the scene after it is dispatched.

In examining response time by size of population served by the law enforcement agency we observe some striking differences in Table 3. On one hand, law enforcement agencies servicing populations of under 100,000 indicate that they are able to respond twice as quickly as those agencies servicing populations of 100,000 or more (three minutes versus six minutes). On the other hand, departments serving populations of 100,000 or more spend 40% more time at the scene than those who serve populations of less than 100,000 (28 minutes versus 20 minutes).

Examining response time by population per square mile in the police jurisdiction reveals no strong relationship when examined in the context of all of the responding agencies. However, when a Pearson's r correlation coefficient is computed for those agencies serving populations of 100,000 or more the r comes out -.56 between response time (dispatch to arrival on scene) and population per square mile; i.e. the higher the population per square mile, the slower the response time. It appears that the higher population per square mile would tend to create such conditions as more traffic and more intersections which would inhibit officers from stepping on the gas all

TABLE 3
SELECTED CHARACTERISTICS OF DISPATCHES

JURISDICTION	TOTAL NUMBER OF DISPATCHES	DISPATCHES PER 1000 POPULATION	NUMBER OF DISPATCHES INVOLVING MORE THAN ONE CAR	PROPORTION OF DISPATCHES INVOLVING PRIORITY CALLS	RESPONSE TIME FOR PRIORITY CALLS: RESPONSE TIME	TIME AT SCENE	TOTAL TIME FOR PRIORITY	POPULATION PER SQ MILE	PRESENCE OF 911/CAD
A	9897	1164	0.37	0.15	1.10	N.A.	N.A.	3696	
B	2228	748	0.25	0.16	1.66	15.00	16.66	5956	911
C					2.00	10.00	12.00	3100	911
D			0.50		3.25	N.A.	N.A.	1741	911
E	15020	626	0.05		4.50	18.00	22.50	5455	911
F	53178	1251	0.40	0.01	2.17	15.00	17.17	3469	911
G	10800	982	0.50	0.07	3.17	20.00	23.17	407	
H	3456	524	0.20	0.13	3.00	10.00	13.00	1100	
I	9500	792	0.60	0.08	5.50	15.00	20.50	1176	
J	7361	387		0.04	2.60	12.00	14.60	173	911
K	11284	882	0.20	0.04	2.30	59.20	61.50	4000	911
L	4150	1012	0.40	0.56	1.33	9.50	10.83	1519	CAD
M	8012	433	0.23	0.44	2.83	19.50	22.33	1177	
N	3068	590	0.30	0.12	1.20	30.00	31.20	578	911
O	20330	535	0.41	0.02	4.05	23.26	27.31	5846	911
P	14789	870	0.05	0.03	2.18	35.00	37.18	3778	911
Q	17883	477	0.10	0.11	3.25	12.00	15.25	4808	911
R	18972	1084	0.13	0.08	3.20	17.55	20.75	2073	CAD/911
S			0.25		3.50	45.00	48.50		
T	71798	1680	0.18	0.14	2.94	7.63	10.57	7123	911
U	2100	553	0.01		2.12	11.13	13.25	1357	911
V	17536	390	0.70	0.27	2.75	20.00	22.75	4091	CAD/911
W	9400	783	0.35	0.16	1.58	15.00	16.58	4000	CAD
X								(1)	
Y			0.10					(5)	911
Z	43395	668	0.25		8.00	20.00	28.00	3202	
AA	4200	60	0.80		6.00	20.00	26.00	4545	
AB	101256	1841	0.06		3.00	30.00	33.00	2037	CAD
AC	36403	628	0.10	0.01	2.00	12.00	14.00	12889	CAD/911
AVERAGE FOR AGENCIES SER POP <100000	20667	790	0.29	0.14	3.01	20.07	23.14	3307	
AD	833077	1059	0.19	0.18	6.12	25.00	31.12	9148	
AE	287170	432	0.50	0.17	7.00	22.00	29.00	1089	CAD/911
AF	59000	590		0.32	N.A.	N.A.	25.00	16129	CAD/911
AG	401500	807	0.23	0.30	7.45	23.45	30.90	4471	911
AH	53050	295	0.20	0.03	2.17	N.A.	N.A.	8182	CAD/911
AI	121621	315			10.74	13.64	24.38	1221	
AJ	168298	565	0.09	0.29	6.00	24.00	30.00	4923	
AK	400951	459	0.40	0.06	4.90	67.10	72.00	475	CAD/911
AL	323842	736	0.35		4.50	45.00	49.50	12828	CAD/911
AM								6641	
AN	206805	632	0.50	0.19	2.75	25.00	27.75	5938	CAD/911
AO	377116	662	0.46	0.33	7.05	27.05	34.10	2907	CAD
AP	250125	611	0.54		9.14	51.00	60.14	631	CAD
AQ	278382	1146	0.45		6.15	32.93	39.08	6637	
AR	344863	761			5.00	N.A.	N.A.	7383	911
AS	229686	648	0.21		8.00	22.00	30.00	4119	
AT	74407	722	0.61	0.10	6.33	10.10	16.43	12875	911
AU									
AV	(11763)	(24)	0.29	0.31	6.00	12.50	18.50	(1412)	
AW	(19611)	(72)	0.30	0.08	8.32	54.17	62.49	(525)	
AX	252637	533						1065	
AY									
AZ	67706	356	0.16	0.34	5.00	35.00	40.00	8636	CAD
AAA	172392	445	0.42	0.14	5.00	16.18	21.18	50	CAD
AVERAGE FOR AGENCIES SER POP >100000	258033	620	0.35	0.19	6.19	28.12	35.64	5767	
AVERAGE FOR ALL AGENCIES	125550	715	0.31	0.16	4.32	23.44	28.38	4354	

of the way. So this relationship between response time and population per square mile is somewhat understandable.

1.4 911 and CAD Systems

Does electronic technology affect law enforcement's response to calls for service? The answer would appear to be yes based on an analysis of the data along the dimension of the presence or absence of a 911 Emergency Number System or a Computer Aided Dispatch (CAD) system.

To begin with let us first discuss the prevalence of 911 and CAD among the agencies participating in the statistical series project. Table 4 presents the information on these systems by the size of the population being served by the law enforcement agency. As Table 4 illustrates, 911 is more prevalent than CAD. A 911 system is present in one out of every two agencies (49%) while CADS is present in three out of every ten (30%). Of those agencies indicating that they have 911, all but one indicated that they either had one or both of the enhanced features that are available for 911 (automatic locator or number indicator) or is used in conjunction with a CADS. As discussed here, therefore, 911 goes beyond the mere presence of a phone number that is easy to call to include system aspects that also provide information on the call (the phone number or the address of the caller).

It should be noted that among the participating agencies in the statistical series project, a number of agencies serving populations under 100,000 operate in counties in which there is a county wide 911 system. A sizeable number of these responding agencies are concentrated within two such counties: Dade County, Florida and Hennepin County, Minnesota. Consequently, the finding that 911 is

Table 4

Percent Distribution of Agencies Having 911 or Computer Aided Dispatch (CAD) by Size of Population Served

		Does Agency Have System?		Total
		Yes	No	
911	Agencies Serving Populations of < 100,000	59% (17)	41% (12)	100% (29)
9				
1	Agencies Serving Populations of 100,000 or more	38% (9)	62% (15)	100% (24)
1				
	Total	49% (26)	51% (27)	100% (50)
CAD	Agencies Serving Populations of < 100,000	21% (6)	79% (23)	100% (29)
C				
A	Agencies Serving Populations of 100,000 or more	42% (10)	58% (14)	100% (24)
D				
	Total	30% (16)	70% (37)	100% (53)

present in 6 out of 10 (59%) agencies serving populations under 100,000 versus 38% of those agencies serving populations of 100,000 or more is probably not reflective of the general condition in law enforcement. The distribution on the presence and absence of CAD, on the other hand, is probably more reflectve of general law enforcement experience in that such systems are much more likely to be found with larger departments.

Do 911 and CAD make a difference? With regard to eliciting a faster response time to priority calls the answer is yes. Time is a major consideration to law enforcement agencies in responding to emergencies. In looking at time in the context of dispatching, two distinct processes occur. First is the time involved in obtaining the information from the caller regarding location and nature of the emergency. This accounts for approximately one-third of the total time involved in responding to a priority call (one minute, 30 seconds out of four minutes, 24 seconds). The remaining time is tied up between the moment the patrol officer is dispatched to the scene and his/her arrival there.

In both aspects agencies with 911 systems evidence faster response times. Those agencies with 911 use nearly one minute less than those agencies without 911 in taking the information from the caller and relaying it to the dispatch section (one minute, 34 seconds versus two minutes, 30 seconds for those agencies serving populations of 100,000 or more and 32 seconds versus one minute, 20 seconds for agencies serving populations of less than 100,000). In addition, those agencies with 911 systems evidence a faster time for dispatch to arrival at the scene than those without 911 systems (three minutes, 15 seconds versus four minutes, 31 seconds for agencies serving populations of 100,000 or

more while the difference is one minute, 52 seconds versus three minutes, 22 seconds for those agencies serving populations of less than 100,000). The overall response time for priority calls, therefore, is nearly fifty percent quicker for those agencies with 911 systems than those without.

The other aspect of time involving priority calls is the amount of time spent at the scene to address the situation. While agencies serving populations with less than 100,000 population and without 911 show more time spent at the scene than their sister agencies with 911 (23 minutes, 40 seconds versus 19 minutes, 50 seconds), the opposite holds for those agencies serving populations of 100,000 or more. There the time spent at the scene is 36 minutes, 30 seconds for those agencies with 911 as opposed to 27 minutes, 42 seconds for those without 911.

In analyzing these time components along the dimension of the presence or absence of a CAD system, we were limited to looking at the experience of those departments that service populations of 100,000 or more. It should be noted that six out of the ten agencies in this population category that had a 911 system also had a CAD system. Consequently, a good deal of overlap exists in the distribution of cases in this analysis and that just described for 911. The findings, therefore, are not substantially different from those found with 911; i.e. faster response times for taking the call as well as the patrol officer's getting to the scene along with longer average times spent at the scene.

The impact of a 911 system on calls for service coming into the law enforcement agency varies with the size of the population being

served. Those agencies serving populations of less than 100,000 which have 911 systems evidence a higher rate of calls per 1,000 population than those without 911 (1,020 per 1,000 versus 795 per 1,000). These agencies, however, show minor differences with regard to the proportion of calls for service attributable to citizens (75% versus 74%) and dispatch rates (88% and 84%).

An examination of agencies serving populations of 100,000 or more reveals a relationship contrary to that found with the smaller agencies regarding the impact of a 911 system. Agencies with 911 systems averaged fewer calls for service than those without (846 per 1,000 versus 1,127 per 1,000). In addition, those without 911 systems had a higher proportion of calls for service attributable to citizens than those with 911 (84% versus 78%). On the other hand, the dispatch rate for those agencies with 911 was higher than that found for agencies without 911 (76% versus 71%). These are confounding findings which deserve more attention in future efforts but which, unfortunately, cannot be addressed here.

With regard to the presence or absence of a CAD system the analysis was limited to those agencies serving populations of 100,000 or more. The most dramatic, and, to a certain extent, expected, finding was the much higher dispatch rate for those agencies with CAD systems than those without it. The dispatch rate for agencies with a CAD system is one-and-a-half times greater than that for agencies without CAD (86% versus 56%).

1.5 Patrol Car Characteristics

A law enforcement agency's response to calls for service is handled by its patrol division. The patrol division of a law enforcement agency consumes a considerable amount of its resources. A measure of the agency's commitment to patrol (4) is reflected in the proportion of total personnel assigned to the patrol division. Based on the returns of the agencies participating in the statistical series, better than half of the agency's personnel (54%) works in the patrol division.

While patrol officers do not spend all of their time responding to calls for service, a major portion of their time is dedicated to that task. Indeed, what the patrol division within an agency does has been subject to considerable discussion since the Police Foundation published its report, The Kansas City Patrol Experiment: A Technical Report, (1974). Without getting into the various proposals for patrol, it is useful to examine: how patrol is organized; how patrol officers spend their time; and what some of its cost components are.

Law enforcement agencies deploy most of their patrol force through beats. A patrol beat is classically thought of as providing twenty-four hour coverage, seven days a week, fifty-two weeks in the year, to a clearly defined geographical area. This is the full coverage beat. Not all beats are necessarily full coverage beats. Some beats

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4. Each responding agency was asked to provide its organization chart with staffing numbers. Based on a review of those charts, the distribution of staff among patrol, investigation, and other was computed. For patrol, in addition to those units designated patrol, we counted the traffic division (but not traffic investigators) and specialized units, such as crime prevention and family crisis, that are assigned to the precinct or station house. Such units were not counted if operated out of central headquarters. In addition, persons assigned to dispatch, personnel, the jail/lock-up, and animal control were not counted as patrol.

may vary based on the time of day and/or the day of the week. Table 5 presents a grid of possible beat configurations wherein the "X" designates the full coverage beat. This concept of the full coverage beat is important for understanding how law enforcement agencies view patrol as well as for understanding what the data on patrol operations and cost represent.

Table 5
Illustration of Possible Beat Configurations

	Five Days per Week Coverage	Seven Days per Week Coverage
8 Hours per Day Coverage		
16 Hours per Day Coverage		
24 Hours per Day Coverage		X

The "X" indicates the cell that represents the full coverage beat.

The manner in which law enforcement agencies conduct patrol revolves around the patrol car. While beats used to be patrolled by foot, and even though some agencies are trying to reintroduce some measure of foot patrol to their jurisdictions, the car is the integral part of patrol operations.

The average patrol car receives considerable use during its short life, as can be seen in Table 6. It is in operation nineteen hours per day (2.37 shifts) for 321 days in the year (the equivalent of one day off per week). The average patrol car logs nearly 33,000 miles per

TABLE 6
SELECTED CHARACTERISTICS OF PATROL CARS

JURISDICTION	AVERAGE NUMBER OF MILES TRAV PER YEAR	AVERAGE NUMBER OF DAYS IN SERVICE	AVERAGE NUMBER OF SHIFTS PER DAY	BEAT MILES TRAVELLED IN ONE YEAR	AVERAGE CAR LIFE EXPECTANCY IN YEARS	AVERAGE CYLINDER SIZE OF POLICE CAR
A	29000	330	2.50	38491	2.00	8.00
B	20000	300	3.00	24333	2.00	8.00
C	47000	350	2.00	73521	4.00	8.00
D	48000	330	2.00	79636	2.50	8.00
E	50000	300	2.50	73000	1.10	7.71
F	12644	339	3.00	13614	2.50	8.00
G	20000	208	1.01	104246	5.00	8.00
H	30000	350	1.20	78214	3.00	8.00
I	44407	350	3.00	46310	2.30	8.00
J	43000	312	3.00	50304	2.50	8.00
K	30000	345	3.00	31739	2.00	8.00
L	31442	300	3.00	38254	4.00	
M	60000	365	2.00	90000	1.40	8.00
N	15000	312	2.00	26322	3.00	
O	15625	208	1.00	82257	4.00	8.00
P	15047	315	3.00	17435	3.50	
Q	38500	350	2.60	46327	2.00	8.00
R	40140	307	2.00	71585	1.80	6.00
S	8327		1.00		8.00	8.00
T	37700	334	3.00	41199	1.00	8.00
U	32500	365	3.00	32500	2.00	
V	10880	365	1.00	32640	3.50	8.00
W	30000	300	2.50	43800	4.00	8.00
X	14296	240	1.00	65225	3.00	8.00
Y	30000	324	3.00	33796	5.00	
Z	48046	310	2.55	66553	1.75	8.00
AA	16000	264	1.00	66364	4.00	8.00
AB	59862	365	3.00	59862	2.00	8.00
AC	32000	286	3.00	40839	2.50	5.07
AVERAGE FOR AGENCIES SERVING POP <100000	31359	315	2.27	52442	2.94	7.78
AD	19000	365	3.00	19000	3.50	6.00
AE	43541	320	3.00	49664	1.80	6.00
AF	30000	348	3.00	31466	3.00	8.00
AG	45650	340	3.00	49007	1.50	8.00
AH	19000	226	2.00	46029	3.00	8.00
AI	20000	345	1.00	63478	3.00	8.00
AJ	43000	325	3.00	48292	2.00	7.76
AK	30000	329	3.00	33283	2.00	8.00
AL	18000	325	1.00	60646	3.50	8.00
AM	33619	364	3.00	33711	3.00	8.00
AN	43000	310	3.00	50629	2.00	8.00
AO	23246	329	3.00	25790	3.50	7.42
AP	28548	335	2.00	46657	3.50	8.00
AQ	25186		3.00		3.00	6.15
AR	19646	335	2.00	32108	3.00	7.79
AS	50000	320	3.00	57031	2.00	7.29
AT	26000	261	2.00	54540	3.00	7.73
AU	35000	365	2.00	52500	2.00	
AV	100000	365	3.00	100000	0.75	6.00
AW	48096	220	3.00	79796	2.50	8.00
AX		240	1.00		3.60	7.62
AY		304	3.00		1.00	8.00
AZ	35000		3.00		3.00	7.08
AAA	33000	348	2.00	51918	2.00	8.00
AVERAGE FOR AGENCIES SERVING POP >100000	34933	319	2.50	49277	2.55	7.51
AVERAGE FOR ALL PARTICIPATING AGENCIES	32901	317	2.37	51123	2.76	7.65

year and has a life expectancy of two-and-three-quarter years. These statistics do not vary substantially when one examines those agencies serving populations of less than 100,000 persons versus those serving populations of 100,000 or more.

With the amount of use that the average patrol car receives, it is not surprising to observe that many of the law enforcement agencies use eight cylinder cars. Some of the agencies (mostly those serving populations of 100,000 or more) evidence a mixed fleet of eight and six cylinder cars, with only four of the respondents indicating a major commitment to a downsize car (six cylinder).

The use of the average patrol car is not the equivalent of the vehicle usage involved in a full coverage beat. There is the need to upgrade the average number of miles travelled by a patrol car by multipliers that reflect 24 hour coverage (three shifts a day) for 365 days in the year. Such adjustments are necessary in order to obtain comparable data between those agencies that assign cars to specific officers for a single shift a day, five days a week and those agencies that have no such individual car assignment and basically operate the cars 24 hours a day. Table 6 reflects these adjustments under the column, "Beat Miles Travelled in One Year."

The impact of these adjustments on the average number of miles travelled per car is rather substantial. On the whole, beat miles represent a 55% enhancement of the average car miles (51,123 versus 32,901). This enhancement is much larger (67%) for those agencies serving populations of less than 100,000 than that found for those agencies serving populations of 100,000 or more (41%). Because of the greater impact of these adjustments on the smaller agencies, one now observes the beat miles for the smaller agencies to be slightly higher (6%) than

that found for the larger agencies (52,442 versus 49,277).

In examining beat miles by the population per square mile, a Pearson's r correlation coefficient of .63 was computed. This measure indicates that 40% of the variation in beat miles among agencies could be explained by the jurisdiction's population density. More detailed analysis along the dimension of the population size of the jurisdiction being served (under 100,000 versus 100,000 or more) revealed that the relationship is more true of those agencies serving populations of less than 100,000 ($r = .65$) rather than those agencies serving populations of 100,000 or more ($r = .41$).

This is a confounding finding in that one would expect a negative, not a positive relationship. The Pearson's r indicates that the more densely populated an area is the more beat miles travelled in a year. However, intuition indicates that more beat miles would be required to cover more sparsely populated areas. Consequently, this is an area that would merit closer scrutiny in future efforts.

1.6 Patrol Duties

Granted that officers log a lot of miles in patrolling their beats but what are they doing when they log those miles? Unfortunately, data such as these are difficult to obtain because it involves the officers' recording how they spend their time in a format that facilitates aggregation by function over a substantial period of time (one to two months). However, two of the participating jurisdictions (Las Vegas and Denver) did undertake such an analysis of how patrol officers spend their time.

The Denver study found that 34% of the patrol officer's time was devoted to handling calls for service. The other two-thirds of his/her

time was spent on discretionary police initiated activity (door checks, car stops, etc), administrative matters (mail runs, car maintenance, roll call), and time "free for patrol" (5). The Las Vegas analysis was based on information tabulated from its computer aided dispatch system. The Las Vegas data indicated that one-third (32%) of a patrol officer's time was spent on calls for service and officer initiated activity and the remaining time was spent on administrative matters and "free for patrol." Both Denver and Las Vegas reported substantial time allotted to "free for patrol" (Denver - 42%, Las Vegas - 35%) (6).

Clearly, calls for service that result in a dispatch are a major work generator for the patrol division. To a certain extent this workload can be regulated through mechansisms like call screening which was discussed earlier. Nevertheless, the call for service resulting in a dispatch will remain the keystone for patrol operations in the forseeable future. The issues that arise around patrol deal with such topics as:

- What is a good mix for officer initiated activity (proactive policing) versus the handling of calls for service resulting in a dispatch (reactive policing)?

5. It should be noted that meal and coffee breaks were not included in tabulating how time was spent -- that amount of time (45 minutes per shift) was subtracted out.

6. A similar study on how the patrol officer spends his/her time was published in 1974 by the (then) National Institute of Law Enforcement and Criminal Justice (now the National Institute of Justice). The publication was a prescriptive package on Improving Police Productivity, Volume I - Routine Patrol. On page three of that publication it indicated that, based on its analysis, patrol officers spent 23% of their time on calls for service, 23% of their time on administrative time (including lunch), 14% of their time on officer initiated activity, and 40% of their time on "available for patrol." The finding on available for patrol is very comparable to the Denver finding (40% versus 43%) but differences do exist among the other activity categories which are partially attributable to counting rules; i.e. how lunch and coffee breaks were handled.

- How does an agency solve the problem of balancing workload without jeopardizing a fast response time for emergency calls?
- How much direction should an agency provide the patrol officer when s/he is one "free for patrol" (directed versus non-directed patrol)?

These issues are qualitative and will reflect a number of considerations such as community expectations and administrative preferences within the law enforcement agency. However, the quantitative data presented here provide a context in which such issues can be considered. In addition to the operational characteristics of the car itself, there are matters of staffing and costs that can be examined here.

1.7 Patrol Car Costs

The patrol car is just a means of transportation for the law enforcement officer. The critical component of the car is its staffing. While two person patrol cars were once fairly common in many law enforcement agencies, they are now more the exception than the rule despite the recurring television programs showing two officers to a car. As can be seen in Table 7, The overall staffing ratio for the patrol car from the participating agencies is 1.12 officers per car (7). There is a substantial difference in the staffing ratio between jurisdictions based on their population size. Agencies serving populations of less than 100,000 have a staffing ratio of 1.02 officers per car; i.e. virtually every car has only one officer. Agencies serving populations of 100,000 or more show a much higher ratio of 1.25 officers per car which translates into: one two-officer car for every three one-officer cars. These agencies serving the larger populations,

7. This ratio was arrived at by taking the total number of officers sent out in a day and dividing by the total number of cars sent out in the same day.

TABLE 7
BEAT COSTS AND STAFFING PATERNS OF PATROL CARS

JURISDICTION	ANNUAL PERSONNEL COSTS TO COVER A 24 HOUR BEAT	ANNUAL CAR COSTS TO COVER A 24 HOUR BEAT	TOTAL ANNUAL COSTS TO COVER A 24 HOUR BEAT	PERCENT OF BEAT COSTS ATTRIBUTABLE TO THE CAR	STAFFING PATTERN FOR POLICE PATROL CAR	AVERAGE ANNUAL PAT OFF SALARY	AVERAGE FRINGE RATE
A	117913	12702	130615	0.10	1.00	23592	0.19
B	102480	11193	113673	0.10	1.00	20000	0.22
C		9558			1.00	18000	
D	132299				1.00	24803	0.27
E		24820			1.00	21737	
F	131871	4220	136091	0.03	1.09	23419	0.23
G	66697	10425	77122	0.14	1.00	11940	0.33
H	71527	19554	91081	0.21	1.00	14809	0.15
I	107574	12041	119615	0.10	1.00	22080	0.16
J		12073			1.00	18000	
K					1.00	21387	
L					1.00	15000	
M		18000			1.00	24885	
N					1.00	21000	
O		15629			1.00	22500	
P					1.00	19333	
Q	132048				1.00	24000	0.31
R	140080	20044	160124	0.13	1.00	26897	0.24
S					1.00	12000	
T	97499	17304	114803	0.15	1.00	19841	0.17
U	125012				1.00	24804	0.20
V	115500	14021	129521	0.11	1.00	22000	0.25
W	131040				1.20	20000	0.30
X	66259	17234	83493	0.21	1.00	12325	0.28
Y							
Z	224063	13710	237773	0.06	1.17	27468	0.66
AA	98634	29562	128196	0.23	1.00	18939	0.24
AB	98002	8019	106021	0.08	1.00	17949	0.30
AC	157531				1.10	23039	0.48
AVERAGE FOR AGENCIES SERVING POP <100000	117557	15006	125241	0.13	1.02	20420	0.28
AD	145760	9310	155070	0.06	1.46	17101	0.39
AE	115873	14899	130772	0.11	1.00	19848	0.39
AF	189567	8240	197807	0.04	1.50	25500	0.18
AG	208134	16946	225080	0.08	1.33	27000	0.38
AH	140070				1.00	23000	0.45
AI	118385	21390	139775	0.15	1.00	19850	0.42
AJ	110177	17828	128005	0.14	1.18	17368	0.28
AK	189194	15626	204820	0.08	1.50	23834	0.30
AL	200261	34751	235012	0.15	1.46	22838	0.43
AM						24000	0.56
AN	213791	20758	234549	0.09	1.50	27148	0.25
AO	158615	7927	166542	0.05	1.70	20891	0.25
AP	119069	14653	133722	0.11	1.24	18145	0.26
AQ	135291				1.00	21765	0.48
AR	143531	11924	155455	0.08	1.38	19499	0.27
AS	251553	18089	269642	0.07	1.58	24939	0.52
AT	143413				1.00	23962	0.43
AU	68161				1.00	14400	0.13
AV	92355	18501	110856	0.17	1.00	15165	0.45
AW	111544	13182	124725	0.11	1.00	19600	0.36
AX							
AY	110797				1.00	21822	0.21
AZ	234303				1.55	26271	0.37
AAA	174985	16970	191955	0.09	1.20	27555	0.26
AVERAGE FOR AGENCIES SERVING POP >100000	153401	16312	175237	0.10	1.25	21804	0.35
AVERAGE FOR ALL PARTICIPATING AGENCIES	137271	15621	152825	0.11	1.12	21044	0.32

it should be noted, evidence considerable range in their staffing ratios with the low being 1.00 to a high of 1.70 officers per car.

The staffing ratio of a patrol car can be an emotional issue for patrol officers in terms of their perception of safety. While statistics were not collected to reflect in what circumstances two-officer cars were used, conversations with respondents indicate that they are used for the more troublesome neighborhoods and at night. Beyond the individual officer's concern, however, the staffing ratio has a dramatic affect on the law enforcement response within a community. The simple mathematics of a high staffing ratio can be described in two basic scenarios involving similarly situated agencies. One scenario would have the agency with the high staffing ratio maintaining the same size patrol division as an agency with the low staffing ratio. The agency with the high staffing ratio would have to compensate for the fewer units available for patrol by having fewer beats with larger geographical areas to be covered. On the other hand, if the agency with the high staffing ratio wanted to match its sister agency in the number of beats, it would then have to assign more personnel to the patrol division in order to accomplish this. The staffing ratio for patrol cars stands not only to affect the size and deployment of the patrol division, but it is also a major cost factor when unit costs per patrol car are computed. Personnel and fringe costs constitute 89% of the costs associated with providing a full coverage beat. As Table 7 displays, the average cost of a full coverage beat (8) is $152,825 with

8. The full coverage beat involves multipliers that not only bring car costs up to reflect full year usage for 24 hours a day, but also multipliers for bringing personnel and fringe costs (fringe rate times salary) was multiplied by 4.2 (the number of people required to provide 24 hour coverage every day in the year). This total was further enhanced by multiplying by the staffing ratio for the car.

$137,000 being spent on personnel and fringe costs and only $15,600 being spent on the car itself (9). These costs vary substantially among the agencies responding to the questionnaire. The differences are attributable to three factors:

- Salary of patrol officers;
- Patrol officer fringe rates; and,
- Staffing ratio.

On all three factors, agencies serving populations of less than 100,000 evidence substantial differences from agencies serving populations of 100,000 or more. The smaller agencies reveal salaries that are 7% lower ($20,420 versus $21,804), fringe rates that are 25% lower (28% versus 35%), and a staffing ratio that is 23% lower (1.02 versus 1.25), which all contribute to a 40% lower cost for a full coverage beat than that found for the larger agencies ($125,241 versus $175,237). Even with these lower costs, agencies serving populations of less than 100,000 still exhibit a small share of the costs being attributable to the vehicle itself (13%). This share of the costs associated with the vehicle, however, is 30% higher than that found for agencies serving populations of 100,000 or more where the vehicle share of the costs is only 10%.

With regard to vehicle costs, there are three major components:

9. The reader will note that the personnel and fringe costs along with the equipment costs do not add up. This is the result of the average costs being computed with different size N's. All of the agencies were not able to provide the requisite data for computing costs. Some provided data that enable us to compute some costs and not others. Consequently, costs are shown wherever they can be computed and factored into the average costs within each appropriate category.

gas and oil; maintenance; and capital costs (10). To facilitate the comparison of these costs, they are expressed as costs per mile and they appear in Table 8. The total operating cost per mile for the vehicle, as reported by the responding agencies, is 32 cents. Maintenance incurs only 24% of the total costs while gas and oil costs (35%), capital costs (32%) are fairly even in their cost contribution. With regard to maintenance and capital costs, a Pearson's r was computed to determine whether any relationship existed between the two. None (r = .05) was found.

Each of the vehicle cost components display considerable variation among the responding jurisdictions as evidenced by standard deviations of .05 for each of the component costs and .11 for the total car costs per mile. With regard to the costs experienced by agencies serving populations of less than 100,000 versus those with populations of 100,000 or more, one observes sizeable differences in gas and oil costs as well as maintenance costs. Agencies serving populations of 100,000 or more have higher gas and oil costs (14 cents versus 11 cents per mile) and higher maintenance costs (11 cents versus 6 cents per mile). The capital costs are comparable between the two types of agencies (11 cents and 10 cents per mile).

Before leaving the topic of patrol vehicle costs, we would like to discuss the auxillary epuipment usually associated with the car. There are three major pieces of equipment that are added onto the patrol vehicle. They are the radio, light bar, and the siren (11). These items

10. Capital costs were computed by taking the average purchase price of a new car minus the average resale value (if any) and then dividing by the average number of lifetime miles.

11. The light bar and siren may be a single unit. In those instances where it is, the combined light bar/siren cost is tabulated under light bar.

TABLE 8
PER MILE COSTS OF PATROL CARS

JURISDICTION	COST OF OIL GAS AND LUBE PER MILE	COST OF MAINTENANCE PER MILE	CAR CAPITAL COST PER MILE	TOTAL CAR COSTS PER MILE [W/O PERSON AUX EQUIPMENT]
A	0.07	0.04	0.22	0.33
B	0.12	0.10	0.24	0.46
C	0.05	0.03	0.05	0.13
D	0.13		0.08	
E	0.16	0.05	0.13	0.34
F	0.06	0.04	0.21	0.31
G	0.07	0.01	0.02	0.10
H	0.12	0.04	0.09	0.25
I	0.12	0.06	0.08	0.26
J	0.12	0.07	0.05	0.24
K			0.14	
L	0.05	0.06		
M	0.09	0.02	0.09	0.20
N	0.15	0.05		
O	0.11	0.05	0.03	0.19
P		0.10	0.02	
Q			0.13	
R	0.13	0.05	0.10	0.28
S	0.15		0.08	
T	0.13	0.14	0.15	0.42
U	0.12	0.07		
	0.14	0.08	0.21	0.43
	0.17	0.07		
	0.13	0.03	0.10	0.26
V	0.08	0.05	0.08	0.21
W	0.14	0.10	0.21	0.45
X	0.04	0.03	0.07	0.13
Y	0.07	0.11		
AVERAGE FOR AGENCIES SERVING POP <100000	0.11	0.06	0.11	0.28
AA	N.A.	N.A.	N.A.	0.49
AB	N.A.	N.A.	N.A.	0.30
AC	0.11	0.05	0.10	0.26
AD	0.11	0.13	0.11	0.35
AE				
AF	0.17	0.04	0.12	0.33
AG	0.14	0.14	0.09	0.37
AH	0.17	0.17	0.13	0.47
AI	0.25	0.25	0.07	0.57
AJ		0.07	0.07	
AK	N.A.	N.A.	N.A.	0.41
AL	0.11	0.10	0.10	0.31
AM	0.13	0.11	0.08	0.32
AN	0.15	0.19	0.11	0.45
AO	0.11	0.17	0.09	0.37
AP	0.10	0.12	0.10	0.32
		0.14		
	0.09	0.01	0.09	0.19
	0.08	0.02	0.07	0.17
AQ	0.18	0.04	0.07	0.29
AR	0.14	0.14	0.12	0.40
AVERAGE FOR AGENCIES SERVING POP >100000	0.14	0.11	0.10	0.35
AVERAGE FOR ALL PARTICIPATING AGENCIES	0.12	0.08	0.11	0.32

have life spans that outlast the car and so are not purchased as frequently. Table 9 displays the average purchase price, life expectancy, and annual capital costs for each of these items. While the purchase price of these items can add up to sizeable sums of money, especially when multiple pieces must be purchased, their overall contribution to the annual operating cost of a vehicle is a modest $261.

1.8 Summary

This section of the report focused on a major input into law enforcement; i.e. calls for service. Calls for service have been shown to cover a broad range of activities from citizen requests for service to officer requests to be taken out of service for meal breaks. While calls for service initiate the process by which a significant portion of the law enforcement agency's workload is generated, they do not provide a good basis for measuring that workload. Dispatches provide a much better basis for examining how an agency responds to demands for its services.

The analysis has shown that dispatches are used to handle only a portion of the calls for service coming into the agency. The agency's administrative discretion in handling workload was pointed out with the practice of the agency taking reports over the telephone. This administrative discretion was also shown to exist in terms of how the agency responded to its workload regarding such considerations as prioritizing calls, the use of cover cars, and patrol car staffing ratios.

There has been much variation evidenced among the agencies in terms of demands for service as well as in their response to those

Table 9

Purchase Price, Life Expectancy and Annual Capital Costs for Selected Auxillary Equipment for a Patrol Car

	Annual Purchase Price	Average Life Expectancy (in years)	Annual Capital Cost
Radio	$ 1,555	9.1	$ 171
Light bar	$ 585	8.1	$ 72
Siren	$ 142	8.0	$ 18
		Total Annual Cost	$ 261

demands. The variation stems not only from the different environments in which these agencies operate but also to the discretion that each agency has in implementing its administrative response. In the next section the analysis moves from a description of how the agency responds to a major workload factor, calls for service, to an examination of agency records. Administrative discretion plays a major role in determining how well an agency is able to document what it does.

Chapter II: AGENCY REPORTS

2.1 Report Writing Rate

The value of an inquiry into the official reports maintained by the law enforcement agency lies with the light that they can shed on agency reporting practices; i.e. how much activity shows up in written reports as opposed to matters being handled verbally. Agency records also provide some insights into the activities in which law enforcement officers engage.

The first area of inquiry addresses the rate at which an agency writes up reports on its dispatches. In the questionnaire, the agency was asked to provide a count on the number of reports that were generated as an official disposition to a dispatch. This number was then divided into the total number of dispatches (modified as outlined earlier in this report) to generate a report writing rate. Report writing rates vary substantially. A few agencies indicated that all of their dispatches result in a report being written while one agency indicated that reports are written up only 13% of the time. The overall report writing rate as shown in Table 9 for the participating jurisdictions is 57%. When the agencies are examined in the aggregate by the size of the jurisdiction that they serve, a substantial difference is observed. For agencies serving populations of less than 100,000 population, the average report writing rate is 63% in contrast to the rate of 48% for agencies serving populations of 100,000 or more. Within each population category, however, agencies continue to evidence considerable range in their report writing rates.

Clearly, then, official agency records, especially in agencies serving larger jurisdictions, provide a filtered view on services

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being performed by the law enforcement agency. This shortcoming in documentation is not necessarily limited to non-crime related calls. Evidence exists that crime related matters may also suffer gaps in documentation. The IACP-UCR Audit/Evaluation Manual (1976) outlined the following major reporting system deficiencies when it examined the practices of twenty law enforcement agencies (p. 132):

- There is a high degree of officer autonomy and discretion with regard to report accountability. Although a [dispatch] card is prepared, a complaint number is not assigned to each complaint and/or call for service which comes to the attention of the agency.

- The disposition code system may be abused. A rather high proportion of the Part I and Part I relevant activity discovered at the dispatch card stage was handled with a A (gone on arrival), B (no report required), or C (unfounded complaint) code.

- The dispatch cards are not matched with the companion incident/offense reports at the staff review level.

Without getting into a discussion over the merits and demerits of a law enforcement agency's recording everything that comes to its attention, let us simply say that an agency's report writing practices are an important element to be considered when examining the agency's records, crime or otherwise. Knowledge of the frequency at which reports get written up alerts us to the limits of the records and may even prompt us to inquire whether some formal or informal criteria guide the decision to record, for example the relative seriousness of an event. Knowledge on report writing practices also assists us in interpreting changes in volume counts over time. Are the changes the product of changes in report writing practices or an increase/decrease in the demands for service? An agency's report writing practices, therefore, are an important consideration in interpreting and analyzing agency records. The measure presented here is crude but its utility is

illustrated when we examine the crime data provided by the participating jurisdictions.

2.2 Types of Reports

Before pursuing this point, let us first turn our attention to an overview of the types of reports maintained by law enforcement agencies. Four types of reports are examined here -- traffic tickets, traffic accidents, crime incidents and arrests. Traffic and crime are not the only matters that require the attention of the law enforcement agency. The agency may engage in a range of activities from licensing (taxicabs for example) to emergency rescue services that may result in a report. However, when responses from the agencies were tabulated, those reports that were not traffic or crime related (categorized as "Other") evidenced considerable range in terms of their proportionate share of the total reports shown. Some agencies showed the "Other" category as constituting more than 60% of the agency's reports while other agencies showed the "Other" category making up less than 5% of the agency's reports. One out of every four of the responding agencies did not even provide an entry. This development makes the examination of these other reports very problematic and so the analysis focuses only on traffic and crime related reports.

As can be observed in Table 10, the automobile occupies a good deal of an officer's attention. As outlined in Table 10, 57% of the reports are traffic related (tickets and accidents) while 43% are crime related (criminal incidents and arrests). This general distribution holds for agencies serving small jurisdictions (less than 100,000 population) as well as large jurisdictions (populations of 100,000 or more). However, considerable variation is evident in the

TABLE 10
SELECTED CHARACTERISTICS OF LAW ENFORCEMENT REPORTS

JURISDICTION	REPORT WRITING RATE	NUMBER OF REPORTS EXCLUDING OTHER	PERCENT DISTRIBUTION OF REPORTS EXCLUDING OTHER: TRAFFIC TICKETS	TRAFFIC ACCIDENTS	CRIME REPORTS	ARREST REPORTS
A	1.00	10637	0.64	0.07	0.17	0.12
B	1.00	6758	0.92	0.04	0.03	0.01
C		1600	0.90	0.02	0.04	0.03
D		23621	0.22	0.04	0.72	0.02
E	0.67	10928	0.47	0.06	0.40	0.07
F	0.27	31080	0.68	0.12	0.16	0.04
G		6099	0.45	0.13	0.26	0.16
H	0.73	1314	0.33	0.08	0.43	0.16
I	1.00	13208	0.23	0.04	0.68	0.05
J	0.27	5797	0.63	0.08	0.23	0.06
K	0.38	10339	0.71	0.05	0.17	0.07
L	1.00	4051	0.64	0.03	0.26	0.06
M		2569	0.73	0.08	0.10	0.10
N	0.80	2279	0.70	0.11	0.09	0.10
O	0.46	15555	0.52	0.15	0.22	0.11
P	1.00	19881	0.21	0.04	0.72	0.03
Q	0.62	8747	0.58	0.09	0.30	0.03
R	0.87	7460	0.41	0.17	0.29	0.13
S		4912	0.37	0.07	0.42	0.15
T	0.15	9340	0.19	0.06	0.53	0.22
U		3711	0.81	0.06	0.14	0.00
V	0.99	23759	0.59	0.11	0.26	0.04
W	0.50	17048	0.73	0.04	0.17	0.06
X		(252)	0.04	0.25	0.60	0.12
Y		(455)	0.02	0.01	0.70	0.26
Z	0.39	23959	0.43	0.11	0.37	0.09
AA		20001	0.55	0.12	0.10	0.23
AB	0.13	16299	0.49	0.12	0.26	0.13
AC	0.41	21972	0.40	0.07	0.41	0.12
AVERAGE FOR AGENCIES SERVING POP <100000	0.63	12108	0.50	0.08	0.32	0.10
AD	0.87	430627	0.54	0.09	0.21	0.15
AE	0.34	179698	0.36	0.09	0.42	0.13
AF		41403	0.51	0.13	0.29	0.08
AG	0.86	329059	0.51	0.09	0.23	0.17
AH		116581	0.31	0.07	0.56	0.05
AI		61723	0.38	0.16	0.30	0.16
AJ		148509	0.57	0.10	0.18	0.16
AK	0.61	357169	0.51	0.06	0.33	0.09
AL	0.51	262811	0.50	0.08	0.28	0.15
AM		928471	0.85	0.02	0.07	0.05
AN	0.25	111115	0.36	0.06	0.44	0.14
AO	0.28	645706	0.81	0.04	0.08	0.07
AP						
AQ	0.27	131152	0.39	0.11	0.38	0.12
AR	0.24	588141	0.66	0.03	0.25	0.05
AS		138778	0.26	0.15	0.49	0.11
AT	0.46					
AU						
AV	0.47	(7166)	0.18	0.05	0.61	0.16
AW	0.78	(13851)	0.34	0.14	0.52	0.00
AX						
AY						
AZ	0.53	69528	0.69	0.02	0.24	0.05
AAA	0.30	254027	0.43	0.05	0.33	0.18
AVERAGE FOR AGENCIES SERVING POP >100000	0.48	282029	0.48	0.08	0.33	0.11
AVERAGE FOR ALL PARTICIPATING AGENCIES	0.57	116396	0.49	0.08	0.32	0.10

percent distributions of these reports among the agencies within each grouping. While these statistics do not indicate how much time was spent in responding to the circumstances that necessitated the filling out of these reports, the percentage share of these records given to traffic matters underscores the fact that vehicular traffic absorbs a considerable amount of attention from law enforcement agencies.

2.3 Crime Reports

Traffic related activity tends to be an officer initiated activity. Crime, on the other hand, tends to be something that is brought to the attention of the officer by individual citizens rather than through the officer's personal observation as can be seen in Table 11. Eight out of every ten crimes recorded by the law enforcement agency (79%) come to the agency's attention due to citizen notification. This finding does not vary in the aggregate between those agencies serving large jurisdictions (populations of 100,000 or more) and those serving small jurisdictions (less than 100,000 population). However, the agencies continue to exhibit considerable variation individually. The range for proportion of crime reports attributable to citizens goes from a low of 35% to a high of 97%.

When official crime report data are presented to the public, it is usually in the context of the Uniform Crime Reports (UCR) Part I Offenses where counts of crime are presented without benefit of standardization that would facilitate cross agency comparisons. In presenting the crime data here, the data are standardized by expressing crime as a rate per 100,000 population (i.e., number of crimes divided by the jurisdiction's population and then multiplied by 100,000).

Table 11 presents the crime rates for the total crimes reported

TABLE 11
SELECTED CHARACTERISTICS OF CRIME REPORTS AND CRIME RATES

JURISDICTION	PROPORTION OF CRIME REPORTS GENERATED THROUGH CITIZENS	CRIME RATES (PER 100000 POPULATION) TOTAL CRIME RATE	U C R PART I CRIME RATE	UCR VIOLENT CRIME RATE	PROPORTION OF TOTAL CRIME THAT IS UCR PT I
A	0.92	20859	12118	847	0.58
B	0.75.	6783	6279	2720	0.93
C	0.65				
D	0.87	36170	5366	255	0.15
E	0.90	18033	6588	250	0.37
F	0.90		11522	736	
G		14555			
H	0.90	8500	4545	45	0.53
I	0.75	75000	6667	1042	0.09
J	0.79	6905	2337	79	0.34
K	0.90	13695	9625	836	0.70
L	0.37	26000	3415	171	0.13
M	0.35		3462	151	
N	0.95	3904	3538	231	0.91
O	0.77	8984	8363	1063	0.93
P	0.70				
Q	0.77	7061	4280	664	0.61
R		12457	5434	851	0.44
S	0.80				
T	0.76	11531	7977	576	0.69
U		13289	6395	632	0.48
V	0.80	13702	9313	878	0.68
W	0.70	24000	10025	1625	0.42
X	0.95	(938)	(938)	(63)	1.00
Y	1.00				
Z	0.75	13808	7129	446	0.52
AA	0.90	2820	567	567	0.20
AB	0.85		7791	1080	
AC		15503	5821	562	0.38
AVERAGE FOR AGENCIES SERVING POP <100000	0.79	16836	6459	709	0.53
AD	0.95	11765	9267	2121	0.79
AE		11375	6481	985	0.57
AF	0.97	11855	8492	862	0.72
AG		15369	8492	1089	0.55
AH	0.65	36351	4611	667	0.13
AI		4825	3649	239	0.76
AJ	0.90	8902	7762	865	0.87
AK	0.95	13585	9742	1397	0.72
AL		16614	12023	2264	0.72
AM		10477	7264	591	0.69
AN		14993	11413	1299	0.76
AO			8987	1504	
AP			9421	1046	
AQ	0.78	20565	11042	1156	0.54
AR	0.52	32755	13273	2222	0.41
AS		19051	8538	679	0.45
AT		14004	11203	1064	0.80
AU	0.75	(191)	(44)	(5)	0.23
AV	0.65	(904)	(826)	(97)	0.91
AW		(2649)			
AX	0.90		5491	551	
AY	0.85	(171)	(61)	(9)	0.36
AZ	0.93	8896	5523	472	0.62
AAA	0.37	21725	11696	1153	0.54
AVERAGE FOR AGENCIES SERVING POP >100000	0.78	16065	8718	1111	0.61
AVERAGE FOR ALL PARTICIPATING AGENCIES	0.79	16491	7510	896	0.55

by the agency as well as the UCR Part I crime rate and the Violent UCR Part I crime rate (12). One of the interesting developments in Table 11 is how the aggregate rates for the two types of agencies compare with one another. While those agencies serving populations of less than 100,000 show an overall crime rate that is slightly higher than that found for agencies serving the larger populations of 100,000 or more (16,836 per 100,000 versus 16,065 per 100,000) the larger jurisdictions evidence a considerably higher UCR Part I crime rate (8,718 versus 6,459) and Violent UCR Part I crime rate (1,111 versus 709).

Another way of presenting these data is to compute ratios between the two groups. Taking the above information the following ratios for crime rates from agencies serving populations of less than 100,000 to the crime rates from agencies serving populations of 100,000 or more can be computed:

Total Crime Rate Ratio = 1.05
UCR Part I Crime Rate Ratio = .74
Violent UCR Part I Crime Rate Ratio = .64

To what extent does the variation in these ratios reflect a differential experience with the various types of crime versus differential recording practices? A precise answer is not available but both factors need to be taken into account. We know from the National Crime Survey victimization data as well as from the UCR Crime Reports that urban areas have higher crime rates than suburban and rural areas and that suburban areas experience higher rates than rural areas. Are we to believe that such differences in crime rates begin to

12. The average rates shown in Table 11 were computed by summing the rates within each appropriate category and then dividing by the number of agencies providing rates. The rates are averages, therefore, and were not computed by dividing the total number of crimes into the total number of people covered and multiplying by 100,000.

narrow as one proceeds down the hierarchy of crime from Violent UCR Part I to total crime? Are smaller communities plagued with the same volume of crime, though it may be less serious, as found in the larger communities?

Perhaps yes, but we also cannot discount the influence of report writing practices on this finding as well. Earlier it was found that the report writing rate for agencies serving the population grouping of less than 100,000 was substantially higher than that found for those agencies serving the larger population grouping of 100,000 or more (63% versus 48%). Could this higher reporting rate be a principal contributor to the development of the overall crime rate being nearly equal between the two population categories? Quite possibly, because one can envision officers serving the larger population grouping not writing up the less serious types of offenses (disturbing the peace for example) as frequently as their counterparts in the smaller population grouping. The depth of the data collected through the questionnaire does not allow us to make a definitive statement in this regard but the juxtaposition of the report writing rates and the crime rate ratios certainly make this explanation plausible.

2.4 Arrests

The other major component of an agency's crime records is that of arrests. As was shown in Table 10, for every three crime reports there is one arrest report. The analysis of arrest reports focuses on some administrative considerations with regard to arrests. This section looks at the distribution of arrests by the general classification in the jurisdiction's penal code; i.e., felony or misdemeanor, along with those arrests for local ordinance violations and juvenile status

offenses. We begin this section on arrests by examining three administrative characteristics of arrests: the arrest rate per sworn officer; the proportion of arrests made by the patrol officer; and the proportion of arrests made with an arrest warrant.

As can be observed in Table 12, the average number of arrests per sworn officer in a year among the participating agencies is 25. There is a substantial difference in this rate between those agencies serving large jurisdictions and those serving small jurisdictions (30 versus 20 arrests per sworn oficer). However, the range among the participating agencies is considerable with a low of 4 arrests per sworn officer to a high of 64 arrests per sworn officer.

In examining the relationship between the number of arrests per sworn officer and the proportion of total arrests that are felony, a mild negative relationship (Pearsons r = -.28) was found. An interesting development occurs, however, when this relationship is examined by the size of the jurisdiction being served by the agency. While the correlations remain modest, the relationship is a negative one for those agencies serving populations of less than 100,000 (r = -.35); i.e. the higher the arrest rate per sworn officer the lower the felony share of arrests is. The relationship for those agencies serving populations of 100,000 or more, on the other hand, is a positive one r = .39); i.e. the higher the arrest rate per sworn officer, the higher the felony share of arrests is. Once again one must ask to what extent can these differences be attributed to environment as opposed to administrative priorities.

Another aspect of the arrest deals with who made the arrest. As can be seen in Table 12, nearly nine out of every ten arrests (87%) are made by the patrol officer. There is a notable difference between

TABLE 12
SELECTED CHARACTERISTICS OF ARRESTS

JURISDICTION	TOTAL NUMBER OF ARRESTS	ARREST RATE BASED ON TOTAL NUMBER OF SWORN OFF.	PROPORTION OF ARRESTS MADE WITH AN ARREST WARRANT	PROPORTION OF ARRESTS MADE BY PATROL OFFICER	PERCENT DISTRIBUTION OF ARRESTS TOTAL: JUVENILE STATUS OFF.	LOCAL ORDIN VIOLATION	MISDEMEANOR	FELONY
A			0.05	0.98				
B	72	4	0.03	0.95	0.00	0.00	0.53	0.47
C				1.00				
D	16		0.03	0.75	1.00	0.00	0.00	0.00
E	814	23		0.75	0.00	0.00	0.72	0.28
F	1343	10	0.14	0.94	0.00	0.32	0.32	0.36
G				0.95				
H	160	23	0.01	1.00	0.00	0.00	0.93	0.07
I	630	24	0.60	0.60	0.04	0.22	0.23	0.50
J								
K	717	21	0.10	0.88	0.01	0.00	0.55	0.44
L	262	29	0.90	0.85	0.11	0.86	0.03	0.00
M	630	15	0.45	0.95	0.07	0.00	0.88	0.04
N	275	13	0.20	0.85	0.00	0.05	0.59	0.36
O	1209	13	0.04	0.90	0.01	0.00	0.61	0.38
P	1049	24	0.02	0.90	0.00	0.00	0.65	0.35
Q	237	6	0.05	0.95	0.07	0.00	0.64	0.29
R	897	25		0.83	0.13	0.02	0.75	0.11
S				1.00				
T	2205	29	0.43	0.97	0.02	0.33	0.38	0.27
U				1.00				
V	975	10	0.10	0.90	0.00	0.00	0.71	0.29
W	1150	27	0.15	0.82	0.00	0.00	0.70	0.30
X	30	4	0.99	1.00				
Y	120	15	0.80	1.00				
Z								
AA								
AB	5382	64	0.05	0.83	0.00	0.50	0.42	0.08
AC								
AVERAGE FOR AGENCIES SER POP <100000	909	20	0.27	0.90	0.08	0.13	0.54	0.26
AD	47666	16	0.24	0.82	0.00	0.00	0.70	0.30
AE	22750	17	0.67	0.89	0.01	0.00	0.63	0.36
AF	10842	44	0.28	0.85	0.00	0.09	0.24	0.67
AG	41201	30			0.03	0.15	0.55	0.28
AH			0.02	0.73				
AI	9194	22			0.00	0.17	0.68	0.14
AJ	23327	34	0.23	0.89	0.00	0.03	0.80	0.17
AK	33840	17	0.20	0.90	0.00	0.00	0.60	0.40
AL	35490	34			0.00	0.00	0.74	0.26
AM	62098	30			0.22	0.00	0.36	0.42
AN	23159	34	0.15		0.01	0.00	0.91	0.08
AO								
AP	31096	42	0.05		0.00	0.00	0.69	0.30
AQ	15792	26	0.09	0.90	0.01	0.31	0.52	0.16
AR			0.45	0.66				
AS								
AT	9880	36						
AU	1200	40	0.85					
AV	1160	24	0.47	0.50				
AW								
AX	42909	51	0.09		0.03	0.00	0.80	0.17
AY	490		0.37		0.00	0.00	0.03	0.97
AZ	295	7	0.17	0.82	0.00	0.16	0.54	0.30
AAA								
AVERAGE FOR AGENCIES SER POP >100000	22911	30	0.29	0.80	0.02	0.06	0.59	0.33
AVERAGE FOR ALL AGENCIES	11331	25	0.28	0.87	0.05	0.10	0.56	0.29

agencies serving large and small jurisdictions (80% versus 90%). This high percentage of arrests attributable to patrol officers is not particularly surprising given the substantial share of the agency's staff dedicated to patrol which is the eyes and ears of the law enforcement agency in the community.

Another aspect of arrest is whether it was effected with a warrant. As can be seen in Table 12, warrants were used in better than one out of every four arrests (28%). While there is little difference in the aggregate between the two population categories, one notes the considerable variation among the agencies where the proportion ranges from 1% to 90%.

When arrest statistics are presented in the Uniform Crime Reports, they appear in the context of the UCR crime categories. Such a presentation provides a measure of uniformity in terms of what the person was arrested for and also enables one to relate the information back to the crime data so as to calculate arrest rates per crime category. This is useful information but it does not shed light on how that arrest might be processed through the local criminal justice system.

The initial step in that process lies with how the law enforcement officer interprets the offense; i.e. ordinance violation, misdemeanor or felony. That interpretation may be changed at a later time by the prosecutor but that initial interpretation by the officer still has an administrative impact.

As can be seen in Table 12, nearly three out of every ten arrests (29%) is for a felony. Misdemeanors make up the overriding share of arrests (56%) while only one out of every ten arrests is for a local ordinance violation. The remaining arrests (9%) are for juvenile

status offenses; i.e. behavior that would not be a crime if the person were an adult (truancy for example).

When we compare the data in Table 12 between those agencies serving populations of less than 100,000 and those serving populations of 100,000 or more, we note more arrests for State penal code violations in the larger jurisdictions. Better than nine out of every ten arrests in jurisdictions of 100,000 or more are misdemeanor or felony arrests with very few arrests for local ordinance violations or juvenile status offenses. Agencies serving populations of less than 100,000 evidence a higher proportionate share of their arrests being attributed to local ordinance violations and juvenile status offenses (23%) than that found for the larger jurisdictions (9%). This finding might reflect the different crime problems experienced by these two types of jurisdictions as outlined earlier. However, this difference may also stem from such considerations as community expectations and the availability of court facilities for processing the arrestees.

As Table 12 demonstrates, there is considerable variation among the responding agencies in the proportion of arrests involving local ordinance violations and status offenses even within each population category. Some agencies in both population categories show no arrests for juvenile status offenses or local ordinance violations while others show substantial entries for these arrest categories. This probably reflects the variety in state codes on the legislative authority of local governments as well as the variety among juvenile courts as to how they view their role.

One significant characteristic of local ordinance arrests involving adults is the fact that the arrest is processed through a city or county court of limited jurisdiction. These courts of limited

jurisdiction, depending upon state code, may also have the authority to try misdemeanor cases (Chart B illustrates the possible routing patterns). The judicial environment in which a law enforcement agency operates probably has a substantial impact on the officer's arrest decisionmaking. It should be pointed out that an arrest creates cross system impacts. Consequently, the officer's arrest decisionmaking can be affected not only by the judicial environment but also by the charging practices of the prosecutor and even by the capacity of the local jail.

These cross-system interactions are difficult to explore because each component uses its own counting rules and methods of counting in handling their caseload. In addition, each component has its own perspectives on where its interests begin and end in the process. Perhaps future efforts can better address these issues.

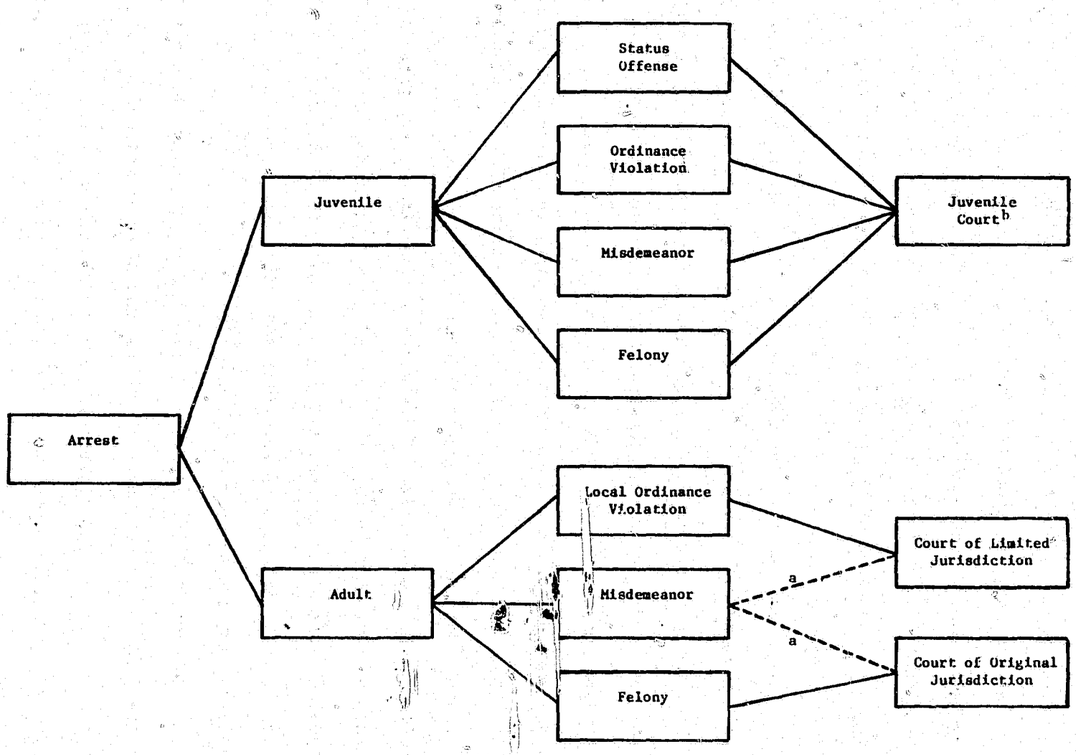
In the meantime, another major consideration in processing arrests is the age of the offender. If the person arrested is a juvenile, that person is processed through the juvenile court division. The definition of a juvenile varies among jurisdictions. Of those agencies responding to the survey, 80% indicated that their definition of juvenile was a person under 18 years of age. The remaining agencies were evenly divided between definitions where the person was under 17 and those where the person was under 16.

The data on juvenile arrests are dealt with in two distinct ways: proportion of arrests that are attributable to juveniles; and the percent distribution of arrests across the various offense categories. The analysis first turns its attention to the proportion of arrests that are attributable to juveniles vis-a-vis adults.

The aggregate average among the participating agencies with regard

CHART B

Flow of Arrests to Court that Will Hear the Case



a. Routing would depend on what the state code permits.
b. While some juvenile cases may be transferred to the adult criminal court, this is a rare development with the vast majority of cases handled in the juvenile court.

to the proportionate share of arrests attributed to juveniles is 21% This proportionate share does not differ greatly between the two population categories where agencies serving populations of less than 100,000 show 22% of the arrests involving juveniles compared to 20% for those agencies serving populations of 100,000 or more. As can be observed in Table 13, the smaller jurisdictions do, however, evidence a much higher proportion of local ordinance violations being attributable to juveniles compared to that found for the larger jurisdictions (35% versus 16%). On the other hand, the larger jurisdictions show a higher proportion of their felony arrests involving juveniles than that found for the smaller communities (25% versus 20%).

While the proportion just discussed compared juvenile arrests to the total number of arrests, we now look strictly within the juvenile arrests to examine how they are distributed among status offenses, ordinance violations, misdemeanors and felonies. From Table 14 we observe that three out of every ten (31%) juvenile arrests are for felonies and one out of every two (51%) are for misdemeanors. Arrests for minor offenses are just about evenly distributed between status and local ordinance violations (11% and 9% respectively). The highlight of Table 13 lies with the aggregate figures for the two types of jurisdictions. The agencies serving the larger jurisdictions (100,000 or more) evidence a proportionate share of juvenile felony arrests that is nearly twice that of those agencies serving smaller jurisdictions (40% versus 23%). In fact when the distribution of arrests is examined within the larger jurisdictions between adults and juveniles, we observe juvenile felony arrests constituting 40% of all juvenile arrests compared to the 29% share found under adult felony arrests. Do the juveniles in these larger jurisdictions represent a

TABLE 13
PROPORTION OF ARRESTS ATTRIBUTABLE TO JUVENILES

JURISDICTION	PROPORTION OF ARRESTS JUVENILE STATUS OFFENSE	LOCAL ORDIN VIOLATION	MISDEMEANOR	FELONY	TOTAL
A					
B			0.05	0.00	0.03
C					
D					
E			0.10	0.41	0.19
F		0.68	0.30	0.52	0.50
G					
H			0.11	0.18	0.11
I	1.00	0.63	0.33	0.19	0.35
J					
K	1.00		0.12	0.08	0.11
L	1.00	0.10	0.00		0.20
M	1.00		0.38	0.10	0.41
N		0.48	0.28	0.14	0.24
O	1.00		0.14	0.15	0.15
P					
Q	1.09		0.38	0.17	0.36
R	1.00	0.36	0.34	0.35	0.35
S					
T	1.00	0.08	0.26	0.23	0.21
U					
V			0.09	0.14	0.10
W			0.10	0.14	0.11
X					
Y					
Z					
AA					
AB		0.15	0.16	0.13	0.15
AC					
AVERAGE FOR AGENCIES SERVING POP <100000	1.00	0.35	0.20	0.20	0.22
AD			0.16	0.33	0.21
AE	1.00		0.17	0.34	0.24
AF	1.00	0.15	0.35	0.25	0.27
AG	1.00	0.08	0.09	0.32	0.15
AH					
AI	1.00	0.17	0.05	0.17	0.09
AJ		0.49	0.07	0.19	0.10
AK			0.24	0.24	0.24
AL					
AM	1.00		0.24	0.26	0.42
AN			0.17	0.40	0.20
AO					
AP	1.00		0.24	0.26	0.58
AQ	1.00	0.00	0.13	0.12	0.09
AR					
AS					
AT					
AU			0.04	0.20	0.08
AV					0.05
AW					
AX					0.14
AY			0.44	0.09	0.10
AZ		0.10	0.27	0.30	0.25
AAA					
AVERAGE FOR AGENCIES SERVING POP >100000	1.00	0.16	0.19	0.25	0.20
AVERAGE FOR ALL PARTICIPATING AGENCIES	1.00	0.27	0.19	0.21	0.21

TABLE 14
PERCENT DISTRIBUTION OF JUVENILE ARRESTS

JURISDICTION	PERCENT DISTRIBUTION OF ARRESTS JUVENILE STATUS OFFENSE	LOCAL ORDIN VIOLATION	MISDEMEANOR	FELONY	TOTAL
A					
B	0.00	0.00	1.00	0.00	1.00
C					
D					
E	0.00	0.00	0.38	0.61	1.00
F	0.00	0.44	0.19	0.37	1.00
G					
H	0.00	0.00	0.93	0.11	1.00
I	0.12	0.40	0.22	0.27	1.00
J					
K	0.13	0.00	0.60	0.32	1.00
L	0.57	0.43	0.00	0.00	1.00
M	0.18	0.00	0.82	0.01	1.00
N	0.00	0.11	0.69	0.21	1.00
O	0.04	0.00	0.57	0.38	1.00
P					
Q	0.19	0.00	0.68	0.14	1.00
R	0.41	0.02	0.45	0.12	1.00
S					
T	0.08	0.13	0.47	0.30	1.00
U					
V	0.00	0.00	0.61	0.39	1.00
W	0.00	0.00	0.63	0.37	1.00
X					
Y					
Z					
AA					
AB	0.00	0.50	0.44	0.07	1.00
AC					
AVERAGE FOR AGENCIES SERVING POP <100000	0.11	0.13	0.54	0.23	1.00
AD	0.00	0.00	0.53	0.47	1.00
AE	0.02	0.00	0.45	0.52	1.00
AF	0.00	0.05	0.31	0.62	1.00
AG	0.21	0.08	0.33	0.39	1.00
AH					
AI	0.04	0.33	0.38	0.27	1.00
AJ	0.00	0.14	0.56	0.33	1.00
AK	0.00	0.00	0.59	0.41	1.00
AL					
AM	0.53	0.00	0.20	0.26	1.00
AN	0.07	0.00	0.77	0.16	1.00
AO					
AP	0.03	0.00	0.49	0.50	1.00
AQ	0.15	0.00	0.75	0.21	1.00
AR					
AS					
AT					
AU					
AV					
AW					
AX	0.47	0.00	0.53	0.00	1.00
AY	0.00	0.00	0.14	0.86	1.00
AZ	0.00	0.07	0.58	0.36	1.00
AAA					
AVERAGE FOR AGENCIES SERVING POP >100000	0.11	0.05	0.47	0.40	1.00
AVERAGE FOR ALL PARTICIPATING AGENCIES	0.11	0.09	0.51	0.31	1.00

tougher breed of criminal than the adult population or do these statistics reflect the larger jurisdiction's priorities to pursue the more serious juvenile offenses formally and to handle the other offenses informally? We cannot answer this question with the present data but we think the latter point deserves serious consideration.

2.5 Summary

This section has focused on agency records and has pointed out the apparent impact of administrative discretion on those records. While the analysis cannot provide a quantitative measure on the impact of administrative discretion, a number of differences observed throughout this section underscores its presence especially in terms of report writing rates and the type of arrests being made.

Up to now, the analysis has been describing aspects of an agency's patrol division. The next section deals with another major component of a law enforcement agency, the investigative division.

Chapter III: INVESTIGATIONS

3.1 The Role of Patrol

Like the patrol division, the investigative division enjoys a high profile with law enforcement agencies and requires a sizeable amount of an agency's resources (13). The term, investigation, however, is loosely defined because it can be used to describe a broad range of activities from follow up work on crime incident reports to the pursuit of the organized crime element within the community or the enforcement of vice, gambling and drug laws. For the purposes of the analysis here, the investigative function is narrowly defined to cover only that process by which law enforcement conducts follow up inquiries on crime incident reports.

Chart C provides an overview of how this section will attempt to address the investigative process. The starting point for this analysis is the total number of recorded crimes in an agency for a one year time period. From that base the analysis then examines how many cases are referred to the investigative division. This referral process usually involves the screening of cases and the analysis discusses which divisions within the law enforcement agency become involved in the screening process. From the perspective of cases that are "actively" investigated, the analysis then explores how cases are disposed of. Included in this examination is a discussion of the process by which cases are deactivated.

The vast majority of an agency's recorded crimes are generated by the patrol division. Not only does the patrol officer take down

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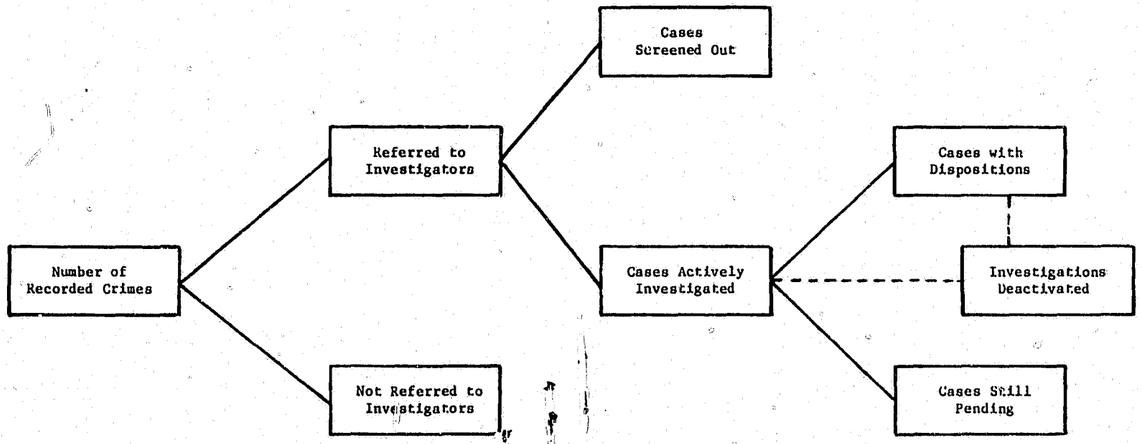
13. The investigative division makes up better than 10% of an agency's staff. See the next section on resources for further discussion of this topic.

CHART C

The Flow of Cases through the Investigative Process



information on the crime incident but s/he may even conduct follow up investigations. The questionnaire inquired of the agency as to whether or not the agency permitted patrol officers to conduct such follow up investigations.

As can be seen in Table 15, three out of four agencies (74%) permit their patrol officers to conduct such investigations. The scope of such follow up work as to the various types of crime eligible for investigation or the depth to which officers were allowed to probe is not covered in the questionnaire and so cannot be addressed here. Nevertheless, this finding alerts us to the fact that patrol officers do perform some role in the investigative process.

In examining the responses to this question by the size of the jurisdiction being served, we observe that 76% of those agencies serving populations of less than 100,000 permit their patrol officers to conduct these follow up investigations compared to only 63% of those agencies serving populations of 100,000 or more. A possible explanation for this is that the personnel size of those agencies serving the smaller populations hinders specialization so that the patrol officer is more of a generalist who is expected to perform both patrol and ivestigative functions. Indeed, some of those agencies serving smaller populations did not provide information on the number of officers assigned to the investigative function while almost all of the agencies serving the larger populations did. This may very well reflect that some of these smaller agencies do not have an investigative division. Of those agencies that were able to provide the information, the average staff size for the investigative function was ten officers for the smaller agencies versus an average staff size of 134 for the larger agencies.

This specialization in law enforcement between patrol and

TABLE 15
SCREENING: THE FLOW OF CRIME REPORTS TO INVESTIGATION

JURISDICTION	PATROL OFFICERS CONDUCT FOLLOW UP INVEST.	AGENCY USES SCREENING CRITERIA	TOTAL NUMBER OF RPTD CRIMES	REFERRALS TO INVEST IN THE YEAR	CASES SCREENED AFTER REFERRAL	ACTIVE REFERRALS	PROPORTION OF TOTAL CRIMES THAT BECOME ACTIVE REFERRALS
A	YES	NO	1773	474		474	0.27
B	YES	YES	202				
C	YES	YES	69				
D	YES	YES	17000	4425		4425	0.26
E	YES	NO	4328				
F	YES	YES	4897	2834		2834	0.58
G	YES	YES	1601	218		218	0.14
H	YES	YES	561	224		224	0.40
I	NO	YES	9000	3800		3800	0.42
J	YES	YES	1312				
K	NO	YES	1753	1121		1121	0.64
L	YES	YES	1066	496		496	0.47
M	NO	NO	640	597		597	0.93
N	NO	NO	203	203		203	1.00
O	YES	YES	3414	2072	829	1243	0.36
P	YES	YES	14239	2786	1867	919	0.06
Q	YES	NO	2648	1376		1376	0.52
R	YES	NO	2180	996		996	0.46
S	YES	NO	2050				
T	YES	YES	4928	1729		1729	0.35
U	YES	YES	505	277		277	0.55
V	NO	YES	6166	4653		4653	0.75
W	NO	YES	2880	1800		1800	0.63
X	YES	YES					
Y	YES	YES					
Z	YES	YES	8975	3959		3959	0.44
AA	YES	YES					
AB	YES	YES	4285	4285		4285	1.00
AC	NO	NO	8992				
AVERAGE FOR AGENCIES SERVING POP <100000	0.76	0.72	4064	1916		1781	0.51
AD	YES	YES	92562	10492		10492	0.11
AE	YES	YES	75557	7692		7692	0.10
AF	NO	YES	11855	2228		2228	0.19
AG	YES	YES	76494	76494		76494	1.00
AH	NO	NO	65432	7800		7800	0.12
AI	NO	YES	18613				
AJ	YES	YES	26513	6993		6993	0.26
AK	NO	YES	118543	16350		16350	0.14
AL	YES	YES	73101	26073	17208	8865	0.12
AM	NO	NO	66658				
AN	YES	YES	49028	11677		11677	0.24
AO	NO	YES	51226	51226		51226	1.00
AP	NO	NO		60992		60992	
AQ	YES	YES	49953	4548		4548	0.09
AR	NO	YES	148410	148410	120212	28198	0.19
AS	YES	YES	67491	47896		47896	0.71
AT	YES	YES	9880	8206	2216	5990	0.61
AU	NO	YES	1080	1080		1080	1.00
AV	YES	YES	4381	2183		2183	0.50
AW	YES	YES	7241	3991		3991	0.55
AX	YES	YES					
AY	YES	YES	1613	1613		1613	1.00
AZ	YES	YES	16903	1574		1574	0.09
AAA	YES	YES	84230	20318		20318	0.24
AVERAGE FOR AGENCIES SERVING POP >100000	0.63	0.88	50762	24659		18010	0.41
AVERAGE FOR ALL PARTICIPATING AGENCIES	0.74	0.79	25467	13565		10093	0.46

investigative functions has been viewed as a mixed blessing by some in the law enforcement community. Since the early 1970's some law enforcement executives have come to believe that it may not only be more efficient to permit patrol officers to do follow up investigations, but also that such a practice may give the patrol officer more job satisfaction. Consequently, the practice of patrol officers' conducting follow up investigations may stem not only from resource considerations but policy preferences as well.

3.2 Case Screening

This discussion on patrol officers conducting follow up investigations leads to the issue of what gets referred to the investigative division and what does not. Furthermore, not all cases referred to the investigative division receive follow up. Cases do get screened out. The ability to analyze this screening process and other aspects of the investigative function is very limited. To begin with, agencies do not appear to keep very good counts of what comes in and what goes out of the investigative division. In addition, some of the questions in the questionnaire were not targeted well. For example, the questionnaire approached case screening as being a single step process. Screening was conceived as occurring either in the patrol division or in the investigative division. Based on the entries from the participating agencies, screening occurs in both places.

In response to the question as to whether or not the agency screens cases for investigation based on solvability or other criteria, three out of four agencies indicated that they did. The affirmative response on this question was substantially higher among those agencies serving populations of 100,000 or more than for those agencies serving populations of less than 100,000 (88% versus 72%). As can be observed

in Table 15, the absence of a screening process based on solvability or other criteria did not prevent agencies from screening cases. In that situation, the screening process was informal.

The questionnaire also inquired as to the proportion of cases screened out. The entries provided in response to this question were examined in conjunction with the responses to the question as to which division within the agency screened the cases. In those instances where the investigative division was identified, the percentage was used to create an entry, "cases screened after referral," which was then subtracted from the "referrals in the year" to create an entry designated "active referrals." (14).

As Table 15 indicates, 46% of recorded crimes become active referrals to the investigative division. There is considerable range among the responding agencies. Several agencies indicate that all of their cases receive investigative follow up while at the other extreme several agencies indicate that only 10-12% of their crime reports receive such follow up. When one examines the data by size of population being served, a substantial difference is observed. Agencies serving populations of less than 100,000 have a higher proportion of total crimes that become active referrals to the investigative division than that found for those agencies serving

14. It must be noted here that this process could not be followed in all cases because the results were very inconsistent with other data provided by the agency. For example, one agency indicated that it screened out 100% of its cases while at the same time it showed 228 referrals to the investigative division. In addition, when the proportion given for the cases screened out was applied against the total number of crimes, the result was not always consistent with other entries provided by the agency (this was done where a division other than the investigative division was identified as the screening agent). In fact, the odds were only 50-50 that you would come up with a consistent answer. Consequently, it is very difficult to discern what the percentages given by the agencies in response to the proportion of cases screened out represent.

populations of 100,000 or more (51% versus 41%).

These active referrals in the course of a year generally constitute the major component of the workload of the investigative division but it is not the entire workload. Chart D diagrams how one can visualize the inputs and outputs for the investigative process wherein the other input into the investigative workload, cases carried over from the previous year, can be observed.

In Table 16 these carry over cases are designated as "Active Cases, January 1." These carry over cases are divided into the "Total Active Caseload" (active cases as of January 1 and the active referrals in the year) to generate a percentage as to what share these carry over cases represent of the total workload. Overall the share of the workload is modest with several notable exceptions. Those agencies (especially AK and AN) that evidence a high proportionate share of the workload attributed to carry over cases probably continue to hold cases in an active status even though there may be no new evidence or witnesses on the case.

When a case becomes cold (no witnesses or evidence coming in), there is a tendency for investigators to "deactivate" the case. The process of deactivating cases is difficult to track because of the variety in practice among the agencies by which it is carried out. First of all, only 15% of the participating agencies indicate that they have any policy guiding the practice. The second major problem is how deactivated cases are viewed. Is deactivation a disposition? For many agencies it is and constitutes better than one third of the dispositions reported by the agencies as to how their investigations are taken care of. Deactivation, however, may not always show up as a disposition. Cases that are deactivated are in a very ambiguous state.

CHART D

Diagram of Inputs and Outputs of the Investigative Process

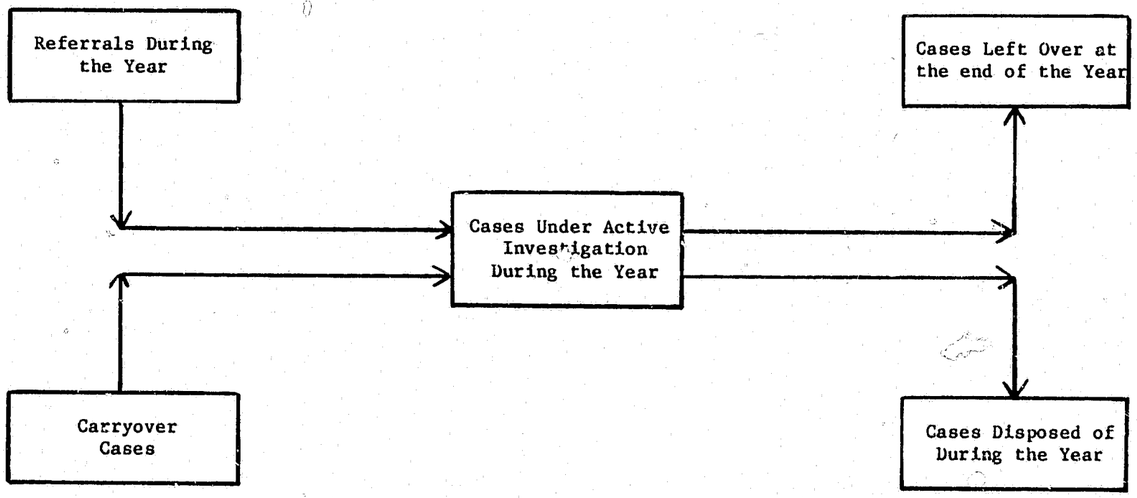


TABLE 16
SELECTED CHARACTERISTICS OF WORK FLOW FOR INVESTIGATION

JURISDICTION	ACTIVE CASES JANUARY 1	ACTIVE REFERRALS	TOTAL ACTIVE CASELOAD	CASES DISPOSED DURING CAL. YEAR	ACTIVE CASES AS OF DECEMBER 31	AGENCY HAS POLICY FOR DEACTIVATING INVESTIGATIONS	CARRYOVER CASES AS A PERCENT OF TOT. ACT. CASELOAD	DISPOSITION RATE ON TOTAL ACTIVE INVEST	DISPOSITON RATE BASED ON ACTIVE REFERRALS	PERCENT OF INVESTIGATION CLEARED BY ARREST
A	505	474	979	463	516	NO	0.52	0.47	0.98	0.46
B	12	461	473	447	26	NO	0.03	0.95	0.97	0.25
C	6	154	160	140	3	NO	0.04	0.88	0.91	0.10
D		4425	4425			NO				
E						NO				
F	34	2834	2868	2786	48	YES	0.01	0.97	0.98	0.01
G	39	218	257	N.A.	85	NO	0.15			0.40
H	4	224	228	220	23	NO	0.02	0.96	0.98	0.29
I	15	3800	3815		150	NO				0.35
J						NO				0.20
K	120	743	863	758	105	NO	0.14	0.88	1.02	0.10
L	292	83	375	83	292	NO	0.78	0.22	1.00	0.12
M	453	144	597	144	453	NO	0.76	0.24	1.00	0.82
N	205	66	271	66	139	NO	0.76	0.24	1.00	0.50
O	70	1243	1313	1260	61	NO	0.05	0.96	1.01	0.09
P	281	919	1200	972	209	NO	0.23	0.81	1.06	0.35
Q				497		NO				0.36
R	30	996	1026	968	28	NO	0.03	0.94	0.97	0.16
S						NO				
T				1677		NO				0.33
U	15	277	292	277	15	NO	0.05	0.95	1.00	0.39
V	1000	4653	5653	4600	1000	NO	0.18	0.81	0.99	0.10
W	150	1800	1950	545	150	NO	0.08	0.28	0.30	0.10
X						NO				0.05
Y						NO				0.50
Z	28	2805	2833	2805	28	YES	0.01	0.99	1.00	
AA					120	NO				0.65
AB	40	4439	4479	4439	35	NO	0.01	0.99	1.00	0.23
AC						NO				
AVERAGE FOR AGENCIES SER POP <100000	174	1538	1548	1218	174	0.07	0.21	0.74	0.85	0.29
AD	3000	8906	11906	8906	3000	NO	0.25	0.75	1.00	0.27
AE	78	5683	5761	5616	145	YES	0.01	0.97	0.99	0.27
AF	288	2228	2516	1940	288	NO	0.11	0.77	0.87	0.03
AG						NO				0.20
AH	262	7800	8062		292	NO	0.03			0.19
AI						YES				
AJ	620	6993	7613	7062	651	NO	0.08	0.93	1.01	0.35
AK	68656	16350	85006	20486	64520	NO	0.81	0.24	1.25	0.24
AL	1583	8865	10448	8163	3557	NO	0.15	0.80	0.94	
AM						NO				
AN	40616	11677	52293	13481	39060	NO	0.78	0.26	1.15	0.25
AO	4274	53860	58234	53974	4260	NO	0.08	0.93	1.00	0.17
AP	8133	60992	69125	64650	4475	NO	0.12	0.94	1.06	
AQ	231	1715	1946	1709	237	YES	0.12	0.88	1.00	0.40
AR	862	28198	29060	16514	909	YES	0.03	0.57	0.59	0.26
AS	250	28570	28820	28560	260	YES	0.01	0.99	1.00	0.32
AT	140	5990	6130	5986	140	NO	0.02	0.98	1.00	0.16
AU						NO				
AV	480	2183	2663	817	556	NO	0.18	0.31	0.37	0.07
AW						NO				
AX						NO				0.52
AY	327	1613	1940	1782	158	NO	0.17	0.92	1.10	0.47
AZ	160	1574	1734	1574	160	YES	0.09	0.91	1.00	0.38
AAA						NO				0.40
AVERAGE FOR AGENCIES SER POP >100000	7651	14894	20171	15089	7216	0.25	0.18	0.76	0.96	0.28
AVERAGE FOR ALL AGENCIES	3704	7674	10178	7559	3410	0.15	0.20	0.71	0.90	0.28

Based on conversations with staff from the participating agencies, there appears to be a reluctance to close out serious crimes with this disposition. However, time has a way of making these cases fade from view. One might even speculate that they might also begin to fade from the workload count. Such a development wherein the cases just fade away might help to explain the inconsistency in counts on inputs and outputs provided by so many of the agencies.

3.3 Disposition of Cases

Returning to Table 16, we call your attention to two columns. One is titled, "Disposition Rate on Total Active Caseload." This column takes the number of cases disposed of during the calendar year and divides it into the total active caseload which is the summation of active cases as of January 1 and active referrals during the course of the year. The other column is titled, "Disposition Rate Based on Active Referrals." This column takes the number of cases disposed of during the year and divides it into only the active referrals that came in during the course of the year.

These are complimentary measures that take into account the different circumstances surrounding the management of the investigative workload. For example, agencies with high carry over rates from the previous year will have lower dispositions rates based on total workload because of the larger base workload that the carryover cases create. The disposition rate on active referrals provides a relative measure of how well the agency is keeping up with new inputs. As can be observed in Table 16, the average disposition rate based on active referrals is 90% which indicates a very strong tendency on the part of the investigative divisions of the agencies to dispose of almost as

many cases as come in during the course of the year.

With regard to the nature of the disposition, arrest appears to be the only commonly defined disposition category. While the questionnaire provided other disposition categories such as referred to another agency, deactivated or suspended due to lack of witnesses/evidence, exceptionally cleared, crime incident unfounded and other, these terms did not appear to enjoy any common use or understanding among the participating agencies. Consequently, only the data on the percentage of dispositions attributed to, "cleared by arrest," is presented in Table 16.

While arrest may enjoy a common understanding among the responding agencies, one must be advised that it may not enjoy the same degree of commonality in how it is used. One agency may use one arrest to close out 100 cases while another may use a similarly situated arrest to close out only 10. The difference in such practice may be affected by agency policy which would delineate the information required before a person who is arrested for one crime can be linked to a series of similar crimes that were committed in the community. Some departments may have stringent regulations applying to this circumstance while others may have quite liberal policies or none at all.

Twenty-eight percent of all investigative dispositions involve an arrest. The range among the participating agencies is once again considerable. One agency reports that 82% of its investigative dispositions are due to an arrest while another reports that only 3% of its dispositions fall into the arrest category. The aggregate averages between the two different population groupings are practically the same (28% and 29%).

3.4 Summary

The data provided by the participating agencies on the investigative process contained many gaps and inconsistencies. The main value of the information provided by them lies not so much with the numbers themselves but with the insights into the investigative process that the data were able to provide limited though the data may be. The information presented here sensitizes us to the need to examine the screening processes within an agency along with its deactivation practices to obtain some idea of what an agency's investigative workload represents.

There is the need for better accounting procedures to keep track of what happens to investigations. Hopefully software programs like the Investigative Management Information System (IMIS) can make a substantial contribution in this effort. However, such software is only a tool that supports administrative practices which may just as often be informal as they are formal. There is the need to know what the practices are in order to better understand the data that may come forth from programs like IMIS.

Chapter IV: RESOURCES

4.1 Agency Budgets

Up to now, this report has focused on two specific functions of the law enforcement agency: patrol and investigation. The analysis now shifts focus to examine the agency as a whole. This section on resources covers budget as well as personnel data on law enforcement agencies. In addition, data on recruit training is also examined.

A law enforcement agency's budget is as much a legal document as it is a financial one. The budget does not reflect what an agency actually expends money on but rather provides the legal authority for the agency to incur those expenditures that are listed in it. However, there tends to be a strong correlation between the amount of money budgeted and the amount of money spent by an agency. The advantage of looking at budgeted monies versus expended monies is time. Budget information is available in a single document prior to the start of the fiscal year while expenditure information becomes available only some time after the fiscal year has ended and may or may not show up in a single financial document.

The principal focus of a governmental budget is on the authority to spend money. Interest in putting a cost on government services varies considerably among jurisdictions. Consequently, when one examines a law enforcement agency budget, that budget may or may not contain all of the prospective expenditures that will be incurred in providing law enforcement services. Specifically fringe items such as retirement contributions for law enforcement personnel or the medical insurance payments for the agency's personnel may just as likely show up in some other agency's budget, the jurisdiction's personnel

department for example, as in the law enforcement agency's budget. Capital expenditures, which may cover building construction as well as equipment, including motor vehicles, also may experience this phenomenon of being assigned to some other agency's budget.

In the questionnaire distributed to the participating jurisdictions, a series of questions were asked about the law enforcement agency's budget. Information was sought on the total budget as well as how the budget was distributed among the following categories: personnel; fringe; equipment; and other. Additional inquiries were made with regard to fringe items that might appear in other agency budgets as well as a number of other prospectively expensive operational items which included the purchase of vehicles and their maintenance and fueling costs. The agency was also asked about the amount of money it budgeted for rent and utilities.

This information provided the basis for making adjustments to the total budget figures provided by the agencies. The adjustments grew out of modifications to the fringe, equipment and other budget categories. No changes were made to the personnel budget category.

The fringe category was amended so that it reflects those monies budgeted outside of the law enforcement agency. Fifteen out of fifty-three of the agencies (28%) underwent this change. In making some of these changes, the fringe rate based on an officer's salary that was provided by the agency was used to compute the fringe costs when the actual budgeted figures were not made available. For example, if it were known that the officer's fringe rate was 30% of salary and the total personnel budget was one million dollars, a fringe budget figure of $300,000 was computed and entered into the agency's budget in those instances where all of the fringe budget fell outside of the law

enforcement agency's budget and the detailed costs were not provided.

The equipment budget was increased by the amount of money that the agency reported for the purchase of police vehicles but which appeared in another agency's budget. Similarly, in those instances where the maintenance and fuel budgets for the agency's fleet appeared in another agency's budget, the "other" category was increased by the stated amount.

The "other" category also stood to be decreased. This occurred in those instances where the agency indicated that its budget included funds for rent and utilities. This was done because these items are handled very differently among local governments. Many agencies do not have these costs in their budgets. If they do not appear in the agency's budget, it is very difficult to track them down. In the interest of trying to create a "standardized budget" among the agencies, it was easier to subtract these costs out whenever they appeared than to try to track them down when they occurred outside of the agency's budget.

4.2 Budget Distribution

Table 17 presents the total budget figures provided by the agencies along with the budget figures that were modified along the lines just discussed. An entry of 1.00 in the column "Ratio: Modified Budget to Original Budget" indicates that there was no change or a very small change to the budget figures provided by the agency. In several instances the ratio falls below 1.00 and this is due to the subtracting out of rent and utility costs. Of those agencies where the data were available for making modifications (N = 31), better than half (55%) evidence a ratio of more than 1.00. In some instances there are

TABLE 17
SELECTED CHARACTERISTICS OF THE LAW ENFORCEMENT BUDGET

JURISDICTION	TOTAL BUDGET	MODIFICATION TO POLICE BUDGET	RATIO: MODIFIED BUDGET TO ORIGINAL BUDGET	PERCENT DISTRIBUTION OF ITEMS IN MODIFIED BUDGET: PERSONNEL	FRINGE	EQUIPMENT	OTHER	PER CAPITA BUDGETED COST
A	1635068	1638068	1.00	0.73	0.12	0.06	0.09	193
B	944730	944730	1.00	0.75	0.16	0.03	0.06	317
C	210000	210000	1.00	0.81	0.11	0.07	0.00	68
D	1907479	1907479	1.00	0.62	0.17	0.04	0.18	42
E	1461975	1458375	1.09	0.69	0.07	0.13	0.11	61
F	7005583	7032742	1.00	0.65	0.15	0.03	0.17	165
G	896970	896970	1.00	0.68	0.15	0.03	0.14	82
H	278457							42
I	1016000	1016000	1.00	0.77	0.12	0.06	0.05	85
J	1375855							72
K	1336208	1391208	1.04	0.88	0.04	0.02	0.06	109
L	192500							47
M	1626899							88
N	729156	743250	1.02	0.83	0.02	0.04	0.11	143
O	3810473	3810473	1.00	0.66	0.08	0.02	0.23	100
P	1753575	1755395	1.00	0.88	0.01	0.00	0.10	103
Q	1712631	1827331	1.07	0.79	0.00	0.03	0.18	49
R	1764225	1852006	1.05	0.57	0.23	0.05	0.15	106
S	471408	466736	0.99	0.77	0.00	0.04	0.20	
T	2564263	3032813	1.18	0.71	0.12	0.05	0.12	71
U	240340							63
V	3548315	4312866	1.22	0.73	0.18	0.05	0.04	96
W	1317814	1583309	1.20	0.73	0.22	0.01	0.03	132
X	167476	167476	1.00	0.54	0.17	0.09	0.19	(10)
Y								
Z	5180655	5179475	1.00	0.90	0.07	0.02	0.01	80
AA	2387186	2374066	0.99	0.65	0.10	0.15	0.10	34
AB	2943858	2943858	1.00	0.93	0.00	0.04	0.02	54
AC	6868826	6868826	1.00	0.63	0.24	0.02	0.11	118
AVERAGE FOR AGENCIES SER POP <100000		2322324	1.03	0.74	0.11	0.05	0.11	97
AD	117295131	116377790	0.99	0.63	0.25	0.12	0.00	148
AE	41561984	54826287	1.32	0.64	0.25	0.01	0.11	83
AF	8259855	9613890	1.16	0.79	0.14	0.06	0.00	96
AG	63240300	63142300	1.00	0.73	0.16	0.05	0.05	127
AH	13869530	19071381	1.38	0.61	0.27	0.07	0.05	106
AI	18397990	18115140	0.98	0.56	0.24	0.05	0.15	47
AJ	23275419	26721569	1.15	0.68	0.19	0.01	0.12	90
AK	111257000	109592000	0.99	0.65	0.17	0.04	0.14	126
AL	57261000	57133645	1.00	0.61	0.26	0.01	0.12	130
AM	88260889	87882732	1.00	0.64	0.30	0.01	0.05	138
AN	33071385	32932345	1.00	0.71	0.18	0.00	0.11	101
AO	59824151	62252697	1.04	0.84	0.00	0.04	0.12	109
AP	29636942	29636942	1.00	0.70	0.11	0.12	0.07	72
AQ	31019000	30928100	1.00	0.61	0.28	0.02	0.09	127
AR	62265000	69744202	1.12	0.69	0.19	0.02	0.10	154
AS	29416810	29416810	1.00	0.71	0.19	0.04	0.07	83
AT	14808239	19489366	1.32	0.63	0.27	0.01	0.09	189
AU	1656658	1656658	1.00	0.75	0.10	0.09	0.07	(3)
AV	1398095	1710308	1.22	0.61	0.18	0.03	0.18	(4)
AW	1551404	2023986	1.30	0.66	0.23	0.03	0.08	(7)
AX	18208944	18208944	1.00	0.72	0.11	0.01	0.15	38
AY	7697298	7697298	1.00	0.71	0.15	0.08	0.06	(8)
AZ	17020021	23466906	1.38	0.68	0.25	0.05	0.02	124
AAA	44088259	43870789	1.00	0.67	0.17	0.03	0.13	113
AVERAGE FOR AGENCIES SER POP>100000	37264221	38979670	1.10	0.68	0.19	0.04	0.09	110
AVERAGE FOR ALL AGENCIES		21040969	1.07	0.71	0.15	0.04	0.10	103

modest increases but in quite a few the ratio climbs above 1.30; i.e. the budget figure presented by the agency would only be three-quarters of the actual budget required to operate the agency. These higher ratios tend to occur when the fringe budget or significant components of the fringe budget appear outside of the agency's budget.

In looking at the data by the size of the jurisdiction served, we observe that the ratio of the modified budget to the original budget is smaller for those agencies serving populations of less than 100,000 than for those agencies serving populations of 100,000 or more (1.03 versus 1.10). Perhaps this is due to more complex bureaucracies that one may encounter in these larger jurisdictions. For example, these jurisdictions might have their own retirement plan as opposed to a state retirement plan or a central purchasing department as opposed to individual purchasing components within each agency.

The percent distribution of the budget across the various categories is also presented in Table 17 and is illustrated in Chart E. In reading these figures one should really look at personnel and fringe costs together because some agencies include some fringe items, especially vacation and sick time, in the personnel budget category. Indeed, some agencies indicated that all of the fringe costs are included in the personnel budget category. We can observe that 86% of an agency's budget is devoted to the people who staff it; i.e. personnel and fringe costs. This distribution does not differ to any substantial degree between the two types of agencies.

The equipment category comsumes only 4% of the budget. In examining the information provided by more than half of the responding agencies, the purchase of police vehicles constituted the entire or

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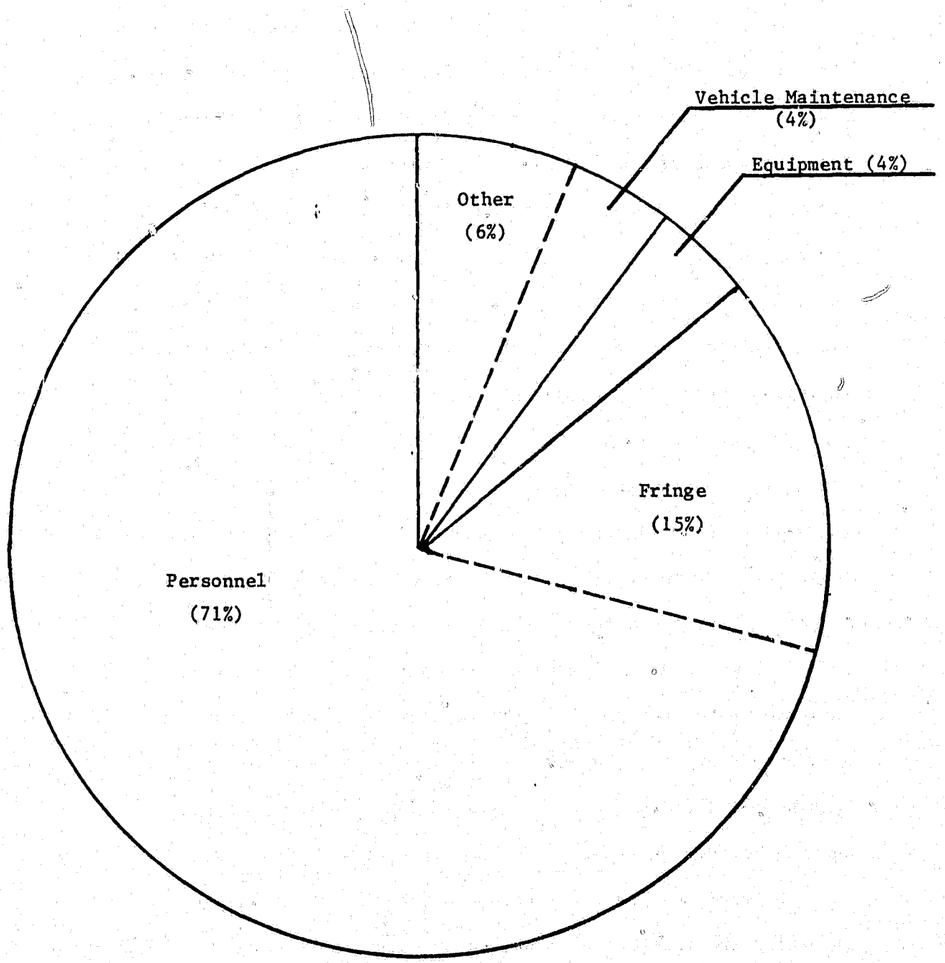
1 OF 2

CHART E

Distribution of the Law Enforcement Budget



a substantial share of the equipment budget.

The "other" category consumes one-tenth of the law enforcement agency's budget. A substantial share of this "other" budget category goes to vehicle maintenance. Two-thirds of the responding agencies provided budget figures for vehicle maintenance and fuel and they revealed that 5% of the total agency's budget or half of the "other" category goes to keeping the fleet operating. With regard to vehicle maintenance, it should be noted that some agencies are no longer purchasing vehicles but instead are leasing them. Of two agencies that lease instead of purchase, one showed the leasing costs which include maintenance as falling into the equipment category while the second agency placed it in the "other" category.

It would appear from the information provided on vehicle purchase along with vehicle maintenance and fueling, that the agency's fleet consumes on the average 7-9% of the agency's budget. That represents half of what is left in the budget after personnel and fringe costs are taken out of consideration.

Budget figures on utilities and rent were provided by only a few agencies. Rent as reported by these agencies represented one-half of one percent of the agency's budget while utilities came in somewhat higher (0.7%). Whether these figures represent "real " costs is difficult to say. There is a tendency for governments to be more sensitive to rent after they just completed a new building as opposed to that circumstance where the agency's headquarters is forty or fifty years old.

The last column in Table 17 provides the per capita budgeted cost for providing law enforcment to a jurisdiction which comes in at an

average of $103 per year for the agencies responding to the questionnaire. In examining the costs by the size of the jurisdiction served, we observe that the budgeted cost is 13% higher for those agencies serving populations of 100,000 or more compared to those agencies serving populations of less than 100,000 ($110 versus $97 per year).

The range in the per capita budgeted costs is very broad. There is a high of $317 per capita per year to a low of $38 per capita per year. These costs may reflect the type of jurisdiction being served (a resort/vacation area) as well as the agency's share of the law enforcement responsibility within the jurisdiction (a county police department providing direct service to only a portion of the county population).

Another prospective factor that could affect the variation in per capita budgeted cost is the average number of years in service that the officers have in the agency. Based on presentations that representatives from three participating jurisdictions made at the national conference of the NACJP, patrol officers stand to obtain pay increases based on the number of years in service as well as based on merit. These increases can have the effect of increasing the officer's starting salary by as much as 40-50%. Personnel costs, the major cost factor in law enforcement, can change not only due to changes in the number of employees or newly negotiated salaries but also due to changes in the average time on the job for the officers.

4.3 Staffing

Unfortunately the questionnaire did not attempt to collect information regarding the average time on the job, but it did collect

information about recruits and staffing characteristics of the agency. One such characteristic is the relationship between the actual number of sworn personnel versus the authorized level of sworn officers for the agency. As can be seen in Table 18, the ratio tends to be very high with the overall ratio being .97; i.e. for every 100 authorized sworn positions there are 97 employed staff.

In examining the ratios for the individual agencies we observe several of them falling below .90. Based on conversations with staff from some of these jurisdictions, these low ratios are due to the need to meet budget cutbacks which are primarily accomplished by not replacing officers who leave the agency. The extent to which these cutbacks in staff and budget are temporary cannot yet be determined.

While the sworn officer makes up the principal component of a law enforcement agency's staff, a substantial portion of the staff is composed of civilians. The civilianization of law enforcment agencies received considerable discussion in the 1970's. A principal argument in favor of it was to free the sworn officer from administrative tasks so that s/he could patrol the streets. Another argument was to facilitate the introduction of technically skilled people into the agency, chemists for the crime lab for example. So the move toward civilianization was intended to cover not just clerical positions but positions that required professional skills.

As can be seen in Table 18, better than one out of every five law enforcement employees is a civilian (22%). From examining the civilianization rates among the individual agencies one observes a considerable range from a high of 42% to a low of 7%. Interestingly enough agencies serving populations of less than 100,000 have a

TABLE 18
SELECTED CHARACTERISTICS OF STAFFING WITHIN LAW ENFORCEMENT

JURISDICTION	AUTHORIZED SWORN STRENGTH	RATIO OF ACTUAL TO AUTHORIZED STRENGTH	PERCENT OF AGENCY CIVILIANIZED	TOTAL SIZE OF AGENCY	PERCENT OF AGENCY ASSIGNED TO PATROL	INVEST-IGATION	OTHER	TOTAL AGEN. SIZE RATE PER 100000 POPULATION
A	33	1.00	0.27	45	0.47	0.11	0.42	529
B	23	0.83	0.27	26	0.77	0.08	0.31	873
C	6	1.00	0.00	6				194
D	40	0.98	0.30	56				123
E	36	0.97	0.16	42	0.63	0.10	0.29	173
F	135	0.96	0.23	168	0.52	0.16	0.32	395
G	28	0.89	0.38	40	0.53	0.08	0.48	364
H	7	1.00	0.42	12				182
I	26	1.00	0.21	33				275
J	32	0.94	0.21	38				200
K	35	0.97	0.17	41	0.63	0.12	0.27	320
L	9	1.00	0.10	10				244
M	43	0.98	0.19	52	0.60	0.10	0.33	281
N	21	1.00	0.22	27				519
O	93	1.00	0.16	111	0.57	0.20	0.23	292
P	45	0.98	0.31	64				376
Q	42	0.98	0.35	63				168
R	36	1.00	0.19	45	0.63	0.04	0.34	254
S	15	0.93	0.33	21				
T	79	0.96	0.22	98	0.59	0.09	0.32	229
U	7	1.00	0.13	8				211
V			0.16	116				258
W	43	0.98	0.29	54	0.65	0.07	0.28	450
X	7	1.00	0.46	13				(81)
Y	8	1.00	0.47	15				(63)
Z	94	0.99	0.34	141	0.66	0.11	0.23	217
AA			0.16	83	0.53	0.18	0.29	119
AB	84	1.00	0.26	114	0.44	0.12	0.44	207
AC	125	0.96	0.34	181				312
AVERAGE FOR AGENCIES SER POP <100000	43	0.97	0.25	59	0.59	0.10	0.31	299
AD	3172	0.97	0.14	3595	0.70	0.06	0.25	457
AE	1396	0.98	0.11	1543	0.58	0.09	0.32	232
AF	259	0.97	0.10	277	0.64	0.06	0.29	277
AG	1375	1.00	0.18	1680	0.44	0.13	0.43	338
AH	268	0.86	0.33	368				204
AI	447	0.94	0.37	670	0.40	0.12	0.49	174
AJ	695	0.98	0.22	871	0.50	0.15	0.35	292
AK	2282	0.87	0.26	2688	0.41	0.16	0.44	308
AL	1050	0.99	0.26	1402	0.43	0.09	0.48	319
AM	2098	0.98	0.13	2366	0.72	0.14	0.14	372
AN	692	0.98	0.12	767	0.65	0.12	0.22	235
AO	1465	0.92	0.27	1854	0.40	0.07	0.53	325
AP	762	0.98	0.22	962	0.51	0.13	0.38	235
AQ	617	0.99	0.17	738	0.60	0.09	0.32	304
AR	1900	0.94	0.23	2339	0.55	0.08	0.37	516
AS	674	0.88	0.07	637	0.63	0.15	0.22	180
AT								
AU	127	0.91	0.12	34	0.21	0.56	0.24	(6)
AV	240	1.00	0.08	52	0.56	0.10	0.33	(11)
AW	98	1.00	0.11	61	0.56	0.11	0.33	(22)
AX	1068	1.00	0.08	834				176
AY				119	0.19	0.16	0.65	(13)
AZ	483	0.95	0.13	528	0.62	0.13	0.25	278
AAA	745	0.95	0.42	1218	0.42	0.09	0.49	314
AVERAGE FOR AGENCIES SER POP >100000	997	0.96	0.19	1113	0.51	0.13	0.36	291
AVERAGE FOR ALL AGENCIES	471	0.97	0.22	525	0.54	0.12	0.34	296

higher civilianization rate average than that found for agencies serving populations of 100,000 or more (25% versus 19%).

When one examines the placement of civilians in the law enforcement agency, one does not expect to see them in the patrol or investigative division. As expected, the civilians are heavily concentrated in the divisions outside of patrol and investigations (called "other") to the extent that civilians constitute better than half of this staffing component (54%). Agencies serving populations less than 100,000 evidence a higher civilianization rate in this category than that found for the larger agencies (63% versus 46%).

4.4 Distribution of Staff

The report has made reference to patrol and investigative staffing components earlier. It is useful at this point to describe how staffing counts were generated for those components.

The starting point for this effort was the organizational chart that was provided by the responding agency. The agencies were requested to indicate how many sworn officers were assigned to each organizational cell and how many civilians were assigned to each organizational cell.

As can be imagined, there is no prototypical organizational chart that law enforcment agencies adhere to. In fact as the agency gets larger in size, one encounters increasingly specific organizational cells, some of which can be quite unique such as a separate unit that is specifically charged with taking calls and handling them over the phone. Not all of the cells are easily identified as patrol or investigation so some rules had to be drawn up. Also not all of the staff in some cells fell neatly into an all patrol or an all

investigative designation. Some counts had to be split between those two categories as well as with the "other" category. Basically the counting rules were as follows:

Patrol - patrol divisions, including traffic and specialized patrol areas such as airports, but did not include investigators, dispatchers, crossing guards, lock up personnel, etc.

Investigation - those persons assigned to do follow up investigation at the station house level as well as those at headquarters including specialized units addressing burglary, homicide, robbery and the juvenile bureau, but did not count staff assigned to Internal Affairs, Vice, Organized Crime, Traffic and non-crime specific units such as crime prevention or victim services.

Other - this includes all those persons who did not fall into either patrol or investigation.

We acknowledge that there may be some disagreement on how these functions were defined and how we may have assigned various components from the agencies. However, we feel that these rules at least create a degree of consistency to provide some basis for making comparisons among the different agencies.

As can be seen in Table 18, better than half of the agency staff (54%) is assigned to patrol and that one out of every ten staff (12%) is assigned to investigations. The range in these assignments can be considerable. With patrol, one agency shows 77% of its staff assigned to patrol while another has only 40% assigned there. Similarly, with

investigations the range goes from 4% to 20% of the agency's staff being assigned to that function.

Better than one third of the agency's staff (34%) is assigned to "other." It should be remembered that "other" goes beyond administration to include such services as dispatching, training, and special task forces (organized crime, for example). While it would be informative to break this category down into more specific functions such as service versus administrative functions, the problems encountered in trying to isloate patrol and investigative functions gave us pause in trying to expand the categorical breakdowns in the description of staff allocation within the agency.

What has just been discussed is the agency's regularly employed staff. Nearly two out of three agencies (65%) make use of auxillary officers to complement the regular staffing component of the agency (15). The use of these auxillary officers can be uneven in those agencies that have programs; i.e. the number of hours can be very minimal to modest. No agency evidenced substantial reliance on an auxillary staffing component. What kind of functions these auxillary officers perform cannot be addressed here because the questionnaire did not seek information on the qualifications needed to be an auxillary officer or the types of tasks that they performed.

Finally, with regard to staffing, we observe in Table 18 that the number of law enforcement employees (both sworn and civilian) per 100,000 population does not vary in the aggregate between the two types

15. The individual law enforcement agency may distinguish between auxillary staff who would not have police officer powers and reserve staff who would have police officer powers. The present effort did not attempt to distinguish between these two types of part-time staff.

of jurisdictions. The overall rate is 296 law enforcement employees per 100,000 population. While there is no appreciable difference between the two types of agencies, we do see considerable variation among the agencies within each population grouping. The range among all of the agencies goes from a high of 873 law enforcement employees per 100,000 population to a low of 119.

4.5 Training

A critical element in staff development is training. Training may address itself to recruits or to officers already in the agency (in-service training). The focus of this section is on recruit training because it is well defined and better structured than in-service training. Three aspects of recruit training are examined here: the hours of training, the flow of recruits through training, and its costs.

Table 19 presents two columns that provide information on the number of recruit training requirements. One column presents the minimum number of hours required by the state while the other column presents the number of hours required by the law enforcement agency. As can be seen in Table 19, there is a tendency for those agencies serving populations of less than 100,000 to match state requirements. Of those that exceed the state requirements, three are in Dade County, Florida, where nearly all of the law enforcement agencies use a regional training program that has much higher training requirements than those demanded by the state. Those agencies serving jurisdictions of 100,000 or more, on the other hand, evidence a very strong tendency to exceed the state minimum require- ments such that on the average the agency required hours is 60% higher than that of the state minimum

TABLE 19
SELECTED CHARACTERISTICS OF RECRUIT TRAINING

JURISDICTION	STATE MANDATED HOURS	AGENCY REQUIRED HOURS	RATIO AGENCY TO STATE MANDATED HOURS	RECRUIT DROP OUT RATE	PERCENT OF GRADUATED RECRUITS TO TOTAL ACT. SWORN OFF.	WHERE TRAIN TAKES PLACE [INSIDE/ OUTSIDE]
A	340	340	1.00			
B						
C	360	360	1.00			
D						
E	400	400	1.00			OUT
F	320	320	1.00	0.00		OUT
G				0.00	0.16	
H	340	340	1.00			OUT
I				0.00	0.04	OUT
J				0.00	0.23	OUT
K						OUT
L	640	640	1.00	0.00	0.11	OUT
M	560	560	1.00	0.00	0.10	OUT
N	320	320	1.00			OUT
O	320	810	2.53	0.00	0.02	IN
P	320	810	2.53			OUT
Q						
R						OUT
S	280	280	1.00	0.00	0.14	OUT
T	640	640	1.00	0.00	0.09	OUT
U						
V	320	810	2.53			
W	320	320	1.00			OUT
X	425	425	1.00			OUT
Y	425	425	1.00	0.00	0.13	OUT
Z	400			0.00	0.03	OUT
AA	240	300	1.25	0.00	0.21	
AB	300	880	2.93	0.00	0.08	OUT
AC	400	400	1.00	0.29	0.04	OUT
AVERAGE FOR AGENCIES SERVING POP <100000	404	494	1.36	0.02	0.11	
AD	424	700	1.65	0.10	0.09	IN
AE	484	1051	2.17	0.04	0.01	IN
AF	240	240	1.00	0.11	0.03	IN
AG	334	703	2.10	0.08	0.04	IN
AH	320	720	2.25	0.00	0.06	
AI	400	520	1.30	0.10	0.06	OUT
AJ	400	680	1.70	0.00	0.05	
AK	320	810	2.53	0.12	0.24	IN
AL	320	810	2.53	0.11	0.22	IN
AM	240	800	3.33	0.04	0.06	IN
AN						
AO	240	650	2.71	0.19	0.05	IN
AP	300	760	2.53	0.10	0.10	IN
AQ	285	673	2.36	0.07	0.02	OUT
AR	600	640	1.07	0.16	0.00	IN
AS	292	720	2.47	0.07	0.08	IN
AT	320	810	2.53	0.00	0.05	OUT
AU	300	300	1.00		0.10	
AV	350					OUT
AW	300	544	1.51	0.00	0.05	
AX	240	680	2.83	0.00	0.04	IN
AY						
AZ	285	500	1.75	0.00	0.02	OUT
AAA	200	628	3.14	0.05	0.03	IN
AVERAGE FOR AGENCIES SERVING POP >100000	330	664	2.12	0.07	0.07	
AVERAGE FOR ALL PARTICIPATING AGENCIES	364	583	1.76	0.05	0.08	

requirements (583 versus 364 hours).

With regard to the agency required hours for recruit training, we observe considerable range among the agencies with a low of 280 hours to a high of 1,051 hours. In looking at the number of agency required training hours, we find that those agencies serving populations of 100,000 or more requires one-third more training than those agencies serving populations of less than 100,000 (664 versus 494). Perhaps this higher training requirement among the larger agencies is required for the recruit to understand how the larger (and more complicated) agency works as well as to learn how to cope with the many different types of people and circumstances that the officer will encounter there.

4.6 Recruits

The data on recruit inflow and outflow from the agencies sheds light on the dropout rate from recruit training as well as a measure of new blood being injected into the agency. As can be seen in Table 19, there is a negligible drop out rate (2%) among the recruits for those agencies serving populations of less than 100,000. Of those agencies providing the data from that population grouping, only one agency indicated that they had any dropouts at all. Those agencies serving populations of 100,000 or more, on the other hand, evidence a dropout rate of 7%.

One wonders: Is the dropout rate related to where the training takes place? Thirteen out of eighteen agencies serving populations of 100,000 or more indicated that they conduct the recruit training themselves compared to only one out of twenty of the smaller agencies. Because the bulk of these larger agencies provide their own training, perhaps they are better able to make assessments of the recruits in terms of their suitability for law enforcement service

before they are sworn in. Such assessment may be harder to make by outside trainers who basically cover specified subjects and then test only the recruit's knowledge of those subject areas. The recruit is not an employee of the outside training facility but rather a client so it is easy to understand how s/he might be treated differently from those who receive their training directly from their prospective employer.

The number of recruits completing training does provide a glimpse into the makeup of an agency in terms of new persons coming into the agency. On the average, recruits completing training constitute 8% of the total sworn staff of the agency. Among the responding agencies we observe considerable variation among them. It is difficult to interpret these data on recruits completing training in terms of those agencies experiencing high percentages of the staff being recruits. Are these agencies going through an expansion or are they experiencing higher exit rates from the agency? Future efforts may want to examine how many officers left the agency and why (retirement, fired, etc.) along with the officer's average time spent with the agency. Information such as this can provide a more rounded view of the turnover within the agency.

4.7 Training Costs

In examining training costs, we limit the analysis to the larger agencies only. While two-thirds of these agencies were able to provide all of the requisite data elements for computing training costs, few of the smaller agencies were able to do so.

The average cost to train a recruit in these larger jurisdictions is $12,163. As can be observed in Table 20, 39% of the cost ($4,739)

TABLE 20
RECRUIT TRAINING COSTS

JURISDICTION	TRAINING FACILITY COSTS	RECRUIT PERSONNEL COSTS FOR TRAINING	RECRUIT FRINGE COSTS	TOTAL TRAINING COSTS
AD	2347	5250	2048	9645
AE	26000	8124	3168	37293
AF	2736	1848	333	4917
AG	2982	6657	2530	12169
AH	1400	6394	2877	10671
AI	2000	3349	1406	6755
AJ				
AK				
AL				
AM	2224	8080	4525	14829
AN				
AO	11224	3959	990	16172
AP	2920	4955	1288	9164
AQ	2500	5653	2714	10867
AR	1393	4518	1220	7131
AS				
AT	605	7646	2294	10545
AU				
AV				
AW				
AX				
AY	5500	3962	622	10084
AZ				
AAA	2514	5972	1553	10039
AVERAGE FOR AGENCIES SERVING POP >100000	4739	5455	1969	12163

is attributable to the training facility costs (including instructor salaries and fringe). The bulk of the costs (61%) is incurred by personnel and fringe costs payable to the recruit.

We observe in Table 20, considerable range in the cost figures among the agencies, especially for the training facility costs. These variations may be attributable to the age of the training facility (agencies with newer facilities may be reflecting capital costs in their figures while those with older facilities would not). There may also be different degrees of rigor in separating training costs for recruits from those incurred for in-service training.

4.8 Summary

While this chapter on resources was limited in depth and scope, it did underscore the personnel intensive nature of law enforcement. Staffing is a critical component in the cost of law enforcement services and the types of services provided depends on how personnel are assigned within the agency. Deliberations on the relationship between cost and services are hindered by a number of factors including the purpose of an agency budget (fiscal accountability) and the incomplete rendering of total agency costs (most notable with fringe costs). However, this chapter was able to delineate the broad boundaries that need to be established before one tries to delve into cost specific inquiries.

CONCLUSION

This report clearly illustrates that there is considerable variation in law enforcement administrative practice in the United States. This is not a surprising finding because law enforcement is primarily a function that is performed by local government. Consequently, how a law enforcement agency operates is heavily influenced by the community that it serves.

Variation also stems from the administrative discretion afforded law enforcement officials in running their agencies. There are different ways by which law enforcement officials can approach the workload coming into their agencies. For example with investigations, some agencies have policies that direct the screening of crimes before they can become eligible for investigation. This reflects an attempt to exercise some control over the investigative workload coming into the agency.

This report strove to be non-judgmental as to what constituted good versus bad practice. The aim of the report was to describe, and not to assess, law enforcement practice in a number of different settings. Variety need not be looked at with a zero-sum approach wherein one practice is viewed as good and the other as not so good. Variety can also be seen from the perspective of providing options to elected and agency officials when they discuss the mission and operation of the law enforcement agency within its community. By describing existing practice, this report hopes to facilitate the discussion that needs to take place within each community as to what services and functions the law enforcment agency is to perform, how the agency is to perform them, and on what basis the agency's performance is

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to be assessed. The community needs to struggle with these issues because there is no set formula on how a law enforcement agency should conduct its business. Communities can learn from one another but given the way law enforcement is organized within the United States, it is the community which must decide what it wants from its law enforcement agency.

While variation has its positive aspects, it has drawbacks as well. One drawback is the lack of a common language within the law enforcement community. The most notable example of this that was discussed in the report dealt with calls for service. In addition, minimal attention is paid, by law enforcement and elected officials as well as by the public, to the affects of prior decisions on various operational practices. For example, a high carryover rate in investigations will have a substantial affect on the disposition rate of investigations. There is the need to be sensitive to the filtering that goes on within an agency and to obtain measures on the degree of that filtering.

The fact that filtering occurs demonstrates the need to be aware of the qualitative aspects of the workload as much as the quantitative aspects of it. The most notable illustration of the impact of filtering in the report appeared when the crime rates of jurisdictions serving populations of less than 100,000 were compared to the crime rates of those serving populations of 100,000 or more. While the overall crime rates showed the smaller jurisdictions to actually have a higher rate, their rates for the UCR Part I crimes and the Violent UCR Part I crimes were only a fraction of what the larger jurisdictions experienced.

The reliability and the validity of the statistics presented in this report also suffer from the variation in the practices of the law enforcement agencies analyzed here. More can be done to improve the reliability and validity of these statistics and the very presence of this report should do much to advance that improvement. This report points out where some major problems exist so that future efforts can focus more closely on those areas, especially in the area of investigations. However, data collection efforts that attempt to deal with agency operations will always fall short of clinical standards for reliability and validity. Accomodation to the work environment needs to take place or there is the risk of paralyzing future data collection efforts. This report provides a basis for moving ahead in the collection of statistical data that not only describes law enforcement practices but also begins the routinization of such efforts so as to obtain trend data on law enforcement operations.

END