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Revealed Preferences of
the Criminal Justice System
During a Period of
Workload Shedding

Report No. II: National Survey
of Police Departments

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Report No. II: National Survey
of Police Departments

PREPARED FOR:

National Institute of Justice
U.S. Department of Justice

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FOREWORD

This Report is the second in a three-Report series prepared under National Institute of Justice (NIJ) Grant No. 82-IJ-CX-0044, "Revealed Preferences of the Criminal Justice System During a Period of workload Shedding." Awarded to Public Systems Evaluation, Inc. (PSE) in October 1982, the Grant is part of NIJ's program of research on Performance and Productivity Measurement in the criminal justice system.

PSE gratefully acknowledges the support of ENFORTH Corporation, Cambridge, Massachusetts. Under funding from the New York City Office and Management and Budget, ENFORTH undertook a national study of police patrol practices which encompassed a survey of police departments. Without ENFORTH's assistance, the extraordinarily high level of response to the survey discussed in this report would not have been possible.

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TABLE OF CONTENTS

	<u>Page</u>
Foreword	i
List of Exhibits	iii
1 INTRODUCTION	1
1.1 Survey Background.	1
1.2 Survey Process	3
1.3 Survey Response and Analysis Approach.	8
2 GENERAL FINDINGS	11
2.1 Department Background.	12
2.2 Patrol Assignments	16
2.3 One- and Two-Officer Cars.	22
2.4 Dispatching Policies	33
2.5 Call Prioritization.	37
2.6 Alternative Response Strategies.	40
2.7 Alarm Response Policies.	43
2.8 Civilian Employees	44
2.9 Departmental Operations.	45
3 CONCLUSIONS.	48
Appendix A: Survey Instrument	A-1

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ACQUISITIONS

LIST OF EXHIBITS

<u>Exhibit</u>	<u>Page</u>
1 Cities and Counties Comprising Survey Sample	4
2 Summary of Survey Response	9
3 Department Background: Summary Statistics	12
4 Department Background: Derived Statistics	13
5 Calls for Service (1982) vs. City Population	15
6 Distribution of One-Officer Cars by Tour	18
7 Percentage of One-Officer Cars in Ten Largest Responding Police Departments	19
8 Percentage of One-Officer Cars in Departments of Ten Most Densely Populated Jurisdictions Responding	20
9 Results of Seattle Patrol Safety Study	31
10 Distribution of Injuries Occurring to One-Officer Unit Occupants Prior to Arrival of Second Officer	32
11 Summary of Backup Police Statistics.	36
12 Ranking of Calls for Service by Assigned Priority.	38
13 Alternative Response Strategies: Summary Statistics	41
14 Department Workload Index by Use of Alternative Responses.	42
15 Reported Response Time vs. Estimated Travel Time	47
16 Summary of Survey Results.	A-2

INTRODUCTION

1.1 SURVEY BACKGROUND

Since Public Systems Evaluation, Inc. (PSE) has been charged with assessing the workload shedding practices of correctional systems and law enforcement agencies in an era of severe budgetary constraints, it was necessary to develop a series of strategies for conducting our inquiry. In the corrections area we chose two parallel courses of action: first, to examine recent trends in State prison populations and to document the methods by which the states have either forestalled or responded to the impact of prison overcrowding; and second, to examine the recent upsurge in prison intakes nationally through the development and implementation of a mathematical, computer-based prison population projection model. The results of our analyses in the corrections area are documented in Reports No. I and III of this series.

Examination of workload shedding practices of police departments necessitated a somewhat different approach. After considerable discussion among the PSE project staff, we identified a survey based strategy that builds on previously funded NIJ research and was intended to identify the way in which police departments' practices have been revised to shed some of their earlier accepted workloads. More specifically, we conducted a national survey of major urban and rural police departments which dealt with a spectrum of issues related to the allocation of police resources and, the categorization of and response to calls for service.

Finally, it should be noted that the issue of one- vs. two-officer patrol staffing is emphasized in the survey as well as in our associated analyses. This is entirely appropriate in that police patrol, whose principal purpose is to respond to citizen requests for service, is at once the least efficient and most expensive aspect of police operations. For example, if one takes into account fringe and other benefits which supplement police salaries, it currently costs the city of New York more than \$500,000 annually to staff one of its two-officer cars around the clock. (This estimate excludes the amortized cost of the car itself as well as its associated operating expenses.) Patrol "inefficiency" stems from the temporal and spatial unpredictability, or randomness, of citizen calls-for-service patterns and the resulting need to allocate patrol resources in anticipation of this demand; in other words, the police cannot schedule their responses to this random demand. Thus any reduction — even a modest one — in the fraction of two-officer patrol units, represents potentially substantial savings for urban and municipal police departments.

The remaining subsections of Section 1 identify the process by which the survey sample was selected and the survey was conducted and analyzed, as well as the level of the survey response and our approach to its analysis. Section 2 comprises our general survey findings including the characteristics of the responding departments and emphasizes survey findings regarding the explicit workload shedding practices related to one- and two-officer car utilization, while Section 3 consists of summary conclusions. Finally, Appendix A contains the survey instrument including tabulated responses to the quantitative questions.

1.2 SURVEY PROCESS

Conduct of the survey evolved in a multi-stage process. First, we prepared several draft versions of the survey which were subjected to careful scrutiny and review by our in-house technical staff and several outside survey specialists. Each sequential draft incorporated a number of modifications and enhancements recommended by the reviewers. The final version of the survey instrument appears as Exhibit 16 in Appendix A of this Report.

Second, we sought the cooperation and assistance of the Police Executive Research Forum (PERF) in developing our survey sample of police departments. In 1978, in conjunction with a National Institute of Justice-funded study of alternative response strategies, PERF conducted a survey of the approximately 200 law enforcement agencies serving the nation's largest (i.e., most populous) jurisdictions. Of those departments surveyed, 150 cities and 25 counties responded and PERF was willing to supply us with copies of the completed survey instruments. Employing these 175 departments as a starting point, we expanded the list to include all other city police departments with populations of more than 100,000 — according to the 1980 Census — and 19 other county police departments with more than 500 employees — according to the Municipal Yearbook [International City Management Association, 1982]. Exhibit 1 identifies the 187 city departments and 44 county departments which constituted the final survey sample. [1]

1 It should be noted that the 231 sample departments include the 61 jurisdictions identified as using both one- and two-officer cars according to the Survey of Police Operations and Administrative Practices (Police Foundation, 1981).

Exhibit 1

Cities and Counties Comprising Survey Sample

("x" = Responded to the Survey)

x 1. Akron, OH	x 44. Denver, CO
x 2. Albany, NY	x 45. Des Moines, IA
x 3. Albuquerque, NM	x 46. Detroit, MI
x 4. Alexandria, VA	x 47. District of Columbia
5. Allentown, PA*	48. Duluth, MN
6. Amarillo, TX	49. Durham, NC*
7. Anaheim, CA	x 50. East Orange, NJ
x 8. Anchorage, AK	x 51. Elizabeth, NJ
x 9. Ann Arbor, MI	x 52. El Paso, TX
x 10. Arlington, TX	53. Erie, PA
x 11. Atlanta, GA	x 54. Eugene, OR
x 12. Aurora, CO	55. Evansville, IN*
x 13. Austin, TX	x 56. Evanston, IL*
x 14. Bakersfield, CA*	x 57. Flint, MI
x 15. Baltimore, MD	x 58. Ft. Lauderdale, FL
x 16. Baton Rouge, LA*	x 59. Fort Wayne, IN
x 17. Bayonne, NJ	x 60. Fort Worth, TX
18. Beaumont, TX	x 61. Fremont, CA
19. Berkeley, CA	x 62. Fresno, CA
x 20. Birmingham, AL	x 63. Fullerton, CA*
21. Boise, ID*	64. Garden Grove, CA
x 22. Boston, MA	x 65. Garland, TX*
23. Bridgeport, CT*	66. Gary, IN
x 24. Buffalo, NY*	x 67. Glendale, CA
25. Canton, OH	x 68. Grand Rapids, MI
26. Cedar Rapids, IA	x 69. Greensboro, NC
x 27. Charlotte, NC	x 70. Hampton, VA
28. Chattanooga, TN	71. Hartford, CT
x 29. Chesapeake, VA*	x 72. Hialeah, FL
x 30. Chicago, IL	73. Hollywood, FL*
x 31. Cincinnati, OH	x 74. Honolulu, HI*
32. Cleveland, OH	x 75. Houston, TX
x 33. Colorado Springs, CO	76. Huntington Beach, CA
x 34. Columbia, SC	x 77. Huntsville, AL*
35. Columbus, GA	x 78. Indianapolis, IN
x 36. Columbus, OH	79. Independence, MO*
x 37. Compton, CA	80. Inglewood, CA
x 38. Concord, CA*	81. Irving, TX
x 39. Corpus Christi, TX	82. Jackson, MS
x 40. Dallas, TX	x 83. Jacksonville-Duval Co., FL
x 41. Davenport, IA*	x 84. Jersey City, NJ
x 42. Dayton, OH	x 85. Kansas City, KS
x 43. Dearborn, MI	x 86. Kansas City, MO

*Did not respond to PERF Survey, but population was over 100,000 in 1980.

Exhibit 1

(Page 2 of 4)

- 87. Knoxville, TN*
- x 88. Lakewood, CO
- 89. Lansing, MI
- x 90. Las Vegas-Clark Co., NV
- x 91. Lexington-Fayette, Co., KY
- x 92. Lincoln, NB
- x 93. Little Rock, AR
- x 94. Livonia, MI
- x 95. Long Beach, CA
- x 96. Los Angeles, CA
- 97. Louisville, KY
- x 98. Lubbock, TX
- 99. Macon, GA
- x 100. Madison, WI
- 101. Memphis, TN*
- x 102. Mesa, AZ*
- x 103. Miami, FL
- 104. Milwaukee, WI*
- x 105. Minneapolis, MN
- x 106. Mobile, AL
- x 107. Modesto, CA*
- x 108. Montgomery, AL
- x 109. Nashville, TN
- x 110. Newark, NJ
- x 111. New Haven, CT
- x 112. New Orleans, LA
- x 113. Newport News, VA
- x 114. New Rochelle, NY
- 115. Newton, MA
- 116. New York, NY
- x 117. Norfolk, VA
- x 118. Oakland, CA
- x 119. Oklahoma City, OK
- x 120. Omaha, NB
- 121. Orlando, FL
- 122. Oxnard, CA*
- 123. Pasadena, CA
- x 124. Pasadena, TX
- x 125. Paterson, NJ
- x 126. Peoria, IL
- 127. Philadelphia, PA
- x 128. Phoenix, AZ
- 129. Pittsburgh, PA
- x 130. Pontiac, MI
- x 131. Portland, OR
- x 132. Portsmouth, VA
- x 133. Providence, RI
- x 134. Pueblo, CO
- x 135. Racine, WI
- x 136. Raleigh, NC
- x 137. Reno, NV*
- x 138. Richmond, VA
- x 139. Riverside, CA
- x 140. Roanoke, VA
- x 141. Rochester, NY
- x 142. Rockford, IL
- x 143. Sacramento, CA*
- x 144. Saginaw, MI
- x 145. St. Louis, MO
- x 146. St. Paul, MN
- x 147. St. Petersburg, FL
- 148. Salt Lake City, UT
- x 149. San Antonio, TX
- 150. San Bernardino, CA
- x 151. San Diego, CA
- x 152. San Francisco, CA
- 153. San Jose, CA
- 154. Santa Ana, CA
- 155. Savannah, GA
- x 156. Scottsdale, AA
- x 157. Seattle, WA
- x 158. Shreveport, LA*
- x 159. Southfield, MI*
- x 160. South Bend, IN
- x 161. Spokane, WA
- x 162. Springfield, MA
- x 163. Springfield, MO
- x 164. Stamford, CT
- x 165. Sterling Heights, MI
- x 166. Stockton, CA
- 167. Sunnyvale, CA
- x 168. Syracuse, NY
- x 169. Tacoma, WA
- x 170. Tampa, FL
- x 171. Tempe, AZ*
- 172. Toledo, OH
- x 173. Topeka, KS
- x 174. Torrance, CA
- x 175. Tucson, AZ
- x 176. Tulsa, OK
- x 177. Virginia Beach, VA
- 178. Waco, TX
- x 179. Warren, MI
- x 180. Waterbury, CT

*Did not respond to PERF survey, but population was over 100,000 in 1980.

Exhibit 1

(Page 3 of 4)

- x 181. White Plains, NY
- x 182. Wichita, KS
- x 183. Wilmington, DE
- x 184. Winston-Salem, NC*
- x 185. Worcester, MA
- 186. Yonkers, NY
- 187. Youngstown, OH

*Did not respond to PERF survey, but population was over 100,000 in 1980.

Exhibit 1

(Page 4 of 4)

Counties (N=44)

- | | |
|-------------------------|---------------------------|
| x 1. Alameda, CA | 23. Los Angeles, CA |
| x 2. Anne Arundel, MD** | x 24. Maricopa, AZ |
| x 3. Arlington, VA | x 25. Marion, IN** |
| x 4. Baltimore, MD | x 26. Mecklenberg, NC |
| x 5. Broward, FL** | 27. Milwaukee, WI |
| 6. Charleston, SC | x 28. Montgomery, MD |
| x 7. Contra Costa, CA** | x 29. Nassau, NY |
| 8. Cook, IL** | x 30. Orange, CA |
| x 9. Dade, FL | x 31. Orange, FL |
| x 10. Dallas, TX | 32. Palm Beach, FL** |
| x 11. DeKalb, GA | 33. Pima, AZ** |
| 12. Erie, NY | x 34. Pinellas Park, FL** |
| 13. Essex, NJ | x 35. Prince Georges, MD |
| x 14. Fairfax, VA | 36. Riverside, CA** |
| 15. Fresno, CA** | 37. Sacramento, CA** |
| 16. Hamilton, OH | 38. St. Louis, MO** |
| 17. Hamilton, TN | 39. San Bernardino, CA_* |
| x 18. Harris, TX | 40. San Diego, CA |
| 19. Hillsborough, FL** | 41. Santa Clara, CA** |
| x 20. Jefferson, KY | 42. Suffolk, NY** |
| 21. Jefferson, LA** | x 43. Ventura, CA** |
| x 22. King, WA** | x 44. Wayne, MI |

**Did not respond to PERF survey, but has more than 500 employees.

On April 25 we mailed 231 surveys including stamped, self-addressed return mail envelopes advising recipients to direct questions regarding survey content or interpretation to our staff. Those police departments responding to the survey are identified in Exhibit 1.

1.3 SURVEY RESPONSE AND ANALYSIS APPROACH

The survey response rate was 71.4 percent, remarkably high for a survey of this type (see Exhibit 2). It should be noted that responses from three cities — Las Vegas (NV), Huntsville (AL) and Long Beach (CA) — were received after the August 25 "cut-off" date and could not be included in the computer-based analysis.

Our computer-based analytical approach also evolved in stages. First, every questionnaire was carefully reviewed to eliminate obviously incorrect responses resulting from misinterpretation of the questions. Failure to do so would have "contaminated" the correct responses. [2] (For example, one department improperly answered the question about numbers of CFS received with numbers of patrol units dispatched.) Next, a coding format was selected for each individual survey item. While responses to most of the questions were objective and could be coded directly, responses to the more subjective questions could only be recorded in textual form or summarized independently.

2 Such contamination could often be identified from built-in "information redundancy checks" designed into the questionnaire.

Exhibit 2

Summary of Survey Response

<u>Type of Jurisdiction</u>	<u>Number of Surveys Sent</u>	<u>Number of Responses Received</u>	<u>Percentage of Response</u>
City	187	139	74.3%
County	44	26	59.1%
<u>TOTAL</u>	<u>231</u>	<u>165</u>	<u>71.4%</u>

While every effort was made to extract a codable set of objective responses to the subjective questions, this did not prove feasible.

Ultimately, the 162 surveys received before the "cut-off" date were coded in 379-character records which were then keypunched and transferred to computer disk for subsequent statistical analysis. Our principal analytical software tool was the Statistical Package for the Social Sciences (SPSS) and the results of our analyses are reported in the following sections.

2. GENERAL FINDINGS

2.1. DEPARTMENT BACKGROUND

Responses to the nine questions on department background reflect the diversity of the responding police departments. Exhibit 3 displays summary statistics for each of these questions. We chose the median, as opposed to the mean, as a measure of the "average" response because extreme values reported by the most populous jurisdictions tend to distort the mean. In fact, the mean response was generally twice as large as the median response.

From these responses, we can derive other measures of interest such as population density (i.e., number of residents per square mile), number of sworn officers per citizen, etc. Summary statistics for these and other derived measures appear in Exhibit 4. While measures such as these are interesting in their own right, their principal utility stems from their potential to "explain" the responses to other questions in the survey. For example, what effect does department size have on the fraction of one-officer cars deployed in that jurisdiction? We shall examine many such interactions throughout this report.

Aside from assisting one to develop policy-relevant conclusions, the analysis of these surveys can also serve to confirm, or perhaps disconfirm, certain hypotheses or "rules-of-thumb" that have been employed in the police research field. For example, it has been hypothesized that, on the average, each citizen in an urban jurisdiction "contributes" one call for service (CFS)

Exhibit 3

Department Background: Summary Statistics

<u>Characteristic</u>	<u>N</u>	<u>Minimum</u>	<u>Median</u>	<u>Maximum</u>
Square Miles Department Serves	159	4	68	8,602
Population of Department's Jurisdiction	159	50,000	200,452	3,041,294
Department's Operating Budget (Fiscal Year 1982)	157	\$4,500,000	\$14,805,000	\$500,541,000
City or County's Operating Budget for Fiscal Year (1982)	150	\$13,130,000	\$112,005,000	\$1,554,264,000
Authorized Number of Sworn Officers (1982)	158	116	387.5	12,787
Actual Number of Sworn Officers (1982)	158	116	362.5	12,387
Number of Civilian Employees (1982)	159	4	119.67	3,461
Number of Calls for 'Service (1978)	129	24,657	119,978	4,527,319
Number of Calls for Service (1982)	149	25,500	128,334	3,503,015

Exhibit 4

Department Background: Derived Statistics

<u>Characteristic</u>	<u>N</u>	<u>Minimum</u>	<u>Median</u>	<u>Maximum</u>
Population Density*	158	23.4	2,991.1	18,750
Calls for Service per Sworn Officer (1978)	128	120.0	314.5	1,893.0
Calls for Service per Sworn Officer (1982)	148	48.0	335.0	2,182.0
Sworn Officers per 1,000 Citizens	157	0.3	1.8	6.0
Calls for Service per Citizen (1982)	148	0.02	0.6	3.8

* Population density statistics are given in residents per square mile.

per year to the local police department's workload. Using responses to both the population and CFS-related questions, we examine this hypothesis in detail.

Let C = Number of CFS received in a jurisdiction in one year

Let P = Population of the jurisdiction

Thus, we hypothesize that:

$$C = 1 \times P \quad (2.1)$$

Exhibit 5 is a "scatter plot" of the 1982 annual CFS and population coordinate pairs, or "points," for every city police department responding to the survey. The first characteristic of this plot we observe is a tendency for the points to be positively associated; that is, an increase in population is clearly accompanied by a concomitant increase in number of CFS. While this is certainly not unexpected, the degree to which this relationship applies is measured to some extent by the "statistical correlation" of the two variables (i.e., population and CFS). Our analysis indicates a particularly high correlation coefficient of 0.88, where the maximum possible value would be 1.00.

Our next observation is that although the points do not lie along a straight line, a single straight line might constitute a good approximation to the relationship. In fact, employing the well-known "method of least squares," the straight line which best fits the points is the following:

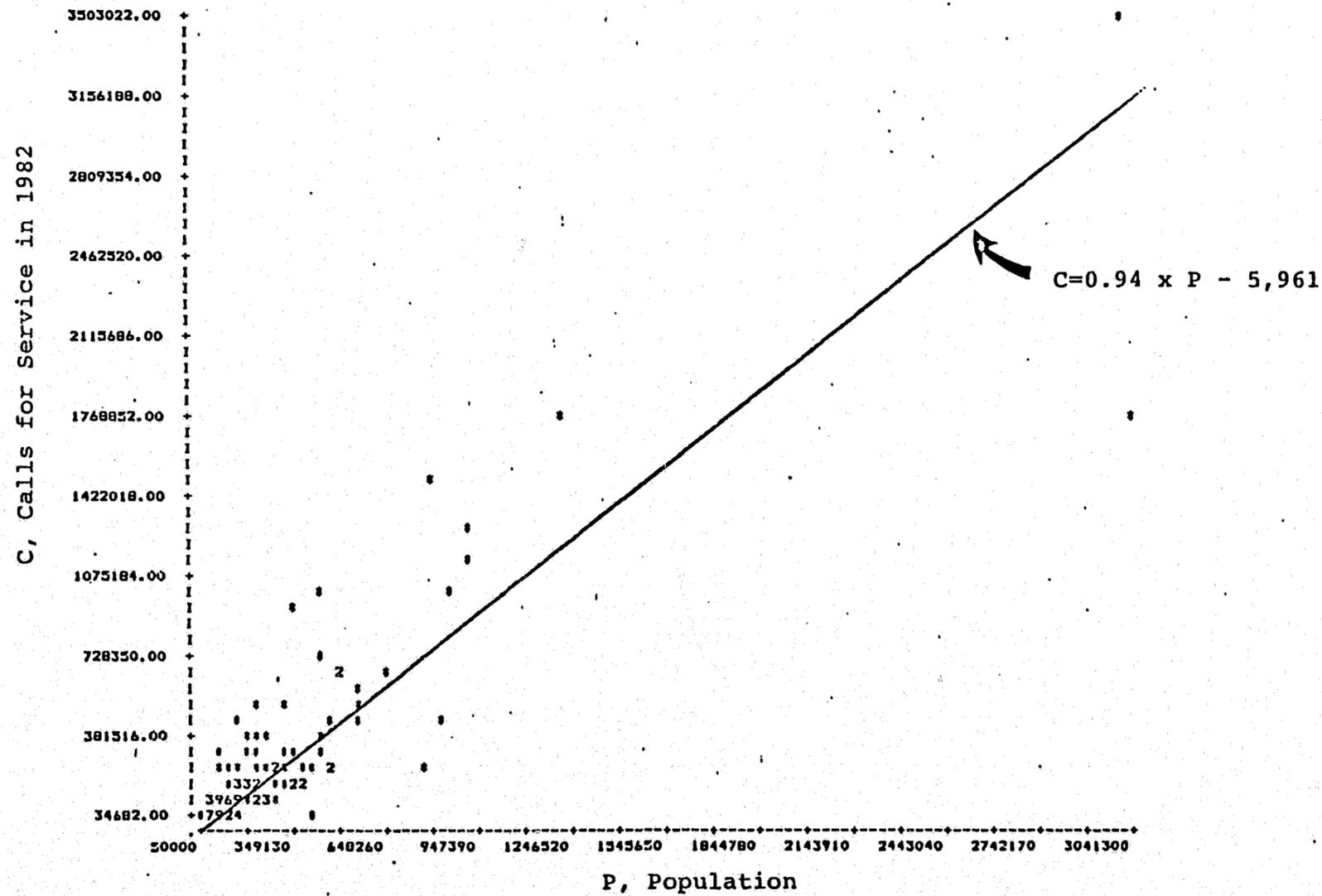
$$C = 0.94 \times P - 5,961 \quad (2.2)$$

This equation — which represents the straight line plotted in Exhibit 5 — is a very close approximation to the hypothesized relationship of equation (2.1) which would tend to confirm the hypothesis, or rule of thumb, that the

Exhibit 5

Calls for Service (1982) vs. City Population

15



population of an urban jurisdiction is a reasonable 1:1 predictor of the numbers of CFS the responsible police department will receive annually.

We tested the data for the responding counties and found a smaller, though substantial, correlation but a "best" line which did not approximate the hypothesized relationship.

2.2 PATROL ASSIGNMENT

It is of interest to compare the responses concerning the number of patrol officers in 1978 to the number in 1982 (see Exhibit 16, Questions B.1 and B.2). [3] While the median response increased from 186 to 214.5, the mean response decreased from 491.22 to 459.25. This is probably because many of the large, urban police departments have significantly reduced the size of their patrol forces due to budget austerity and/or tax-cutting initiatives.

While the median number of patrol officers increased 15 percent from 1978 to 1982, the percentage of patrol officers assigned to specialized field units increased 21 percent. Whereas the mean number of patrol officers decreased, the mean percentage of patrol officers in specialized field units increased reflecting a trend toward greater specialization in policing accompanied by an attempt to conduct routine patrol with fewer personnel — i.e., improve productivity.

³ Throughout the remaining Sections of the report, survey questions will be referred to by number. The reader should refer to Exhibit 16 for quantitative responses.

Question B.3, examining the number of patrol units assigned by type of unit, is certainly one of the most significant from an analytic perspective. From these figures, we can derive the average percentage of one-officer cars deployed on each tour, expressed as a proportion of the combined numbers of one- and two-officer cars. Exhibit 6 displays the overall distribution of all jurisdictions in the sample, while Exhibits 7 and 8 give the percentages for the largest police departments — measured by number of sworn officers — and the most densely populated jurisdictions, respectively. Two points should be clear from these exhibits. First, both cities and counties deploy a high fraction of one-officer cars; and second, that fraction varies significantly from tour-to-tour. In fact, the overall average percentage of one-officer cars used is 84 percent in the day tour, 69 percent in the evening tour, and 71 percent in the evening tour. This observed tour variation confirms a point raised in the open-ended responses concerning one-officer cars (see Section 2.3) — namely, that time of day is an important factor in deciding how to deploy one-officer units.

We were also interested in determining whether there is a systematic relationship between any measure of department "size", as described in Exhibits 3 and 4, and the percentage of one-officer cars. The "Chi-Square Goodness of Fit" statistical test provides one way of measuring the degree of dependence between two variables and has been used in this case to assess the relationship between department size and the percentage of one-officer cars.

Our Chi-Square test indicated that the fraction of one-officer cars deployed is independent of population, CFS, and CFS per officer, but is dependent on the population density. In particular, the higher the population

Exhibit 6

Distribution of One-Officer Cars by Tour

Percentage of One-Officer Cars	Percentage of Departments Responding			
	Day Tour (N=117)	Evening Tour (N=115)	Night Tour (N=113)	Overall (N=113)
0% - 10%	0.9%	5.2%	9.7%	0.9%
11% - 20%	0.0	2.6	0.0	0.9
21% - 30%	1.7	1.7	0.9	1.8
31% - 40%	3.4	6.1	5.3	6.3
41% - 50%	3.4	2.6	3.5	4.5
51% - 60%	3.4	7.8	6.2	7.2
61% - 70%	5.1	2.6	3.5	6.3
71% - 80%	6.8	12.2	13.3	9.9
81% - 90%	19.7	18.2	15.9	18.0
91% -100%	55.6	40.9	41.6	44.1
TOTAL	100.0%	100.0%	100.0%	100.0%

Exhibit 7

Percentage of One-Officer Cars in Ten Largest
Responding Police Departments

Jurisdiction	Total Sworn Patrol Officers	Percentage of One-Officer Cars*		
		Day Tour	Evening Tour	Night Tour
Chicago, IL .	8,893	100%	0%	0%
Los Angeles, CA	4,951	42%	18%	7%
Washington, DC	2,759	79%	76%	62%
Detroit, MI	2,149	24%	15%	0%
Houston, TX	2,052	71%	39%	34%
Baltimore, MD	1,992	79%	79%	79%
San Francisco, CA	1,323	0%	0%	0%
Dallas, TX	1,234	67%	66%	50%
Honolulu, HI	1,032	100%	100%	100%
Metro-Dade Co., FL	940	60%	57%	60%
Phoenix, AZ	907	91%	91%	91%

*
$$\frac{\text{No. of One-Officer Cars} \times 100}{\text{No. of One-Officer Cars} + \text{No. of Two-Officer Cars}}$$

Exhibit 8

Percentage of One-Officer Cars in Departments of
Ten Most Densely Populated Jurisdictions Responding

Jurisdiction	Population Density *	Percentage of One-Officer Cars		
		Day Tour	Evening Tour	Night Tour
East Orange, NJ	18,750	90%	90%	86%
Paterson, NJ	17,253	50%	50%	0%
Bayonne, NJ	16,250	100%	100%	0%
San Francisco, CA	14,277	0%	0%	0%
Chicago, IL	13,065	100%	0%	0%
Newark, NJ	13,000	29%	0%	0%
Miami, FL	12,941	41%	59%	58%
Boston, MA**	9,795	0%	0%	0%
Jersey City, NJ	9,280	100%	0%	0%
Washington, DC..	9,120	79%	76%	62%

*Measured in residents per square mile.

**Boston has deployed a number of one-officer units since the survey.

density the more likely the jurisdiction would be to deploy a smaller fraction of one-officer cars. This result concurs with the open-ended responses on one-officer cars. Furthermore, the result is intuitively satisfying since we would expect that population density is a more reasonable proxy for the degree of risk confronting a patrol unit than, say, population, per se.

About half of the departments responding to Question B.5 indicated that the numbers of one- and two-officer cars are not fixed. In these cases, departments stated that assignments are primarily based on the availability of manpower. Implying that there is a set number of patrol units that must be deployed, these departments further indicated that two-officer cars were deployed only if "additional manpower were available." Many departments using exclusively one-officer units (as indicated in Question B.3) said that two-officer units were used only for training purposes. Several departments suggested that assignments were based on periodic surveys designed to reassess crime trends and workloads.

According to Question B.6, 44.3 percent of the respondents have switched patrol modes in the past 15 years. A wide variety of responses were given as to the form of staffing used and why it was changed. Some had shifted from mostly two-officer units to mostly one-officer units, while other departments had gone the opposite way. In fact, a statistical test showed that the percentage of one-officer cars used is independent of whether or not the department had changed patrol staffing patterns. Thus, we cannot conclude that there is a general trend toward more one-officer cars. Most responding departments indicated they have always deployed a large fraction of one-officer units.

On the other hand, whether or not a department changed staffing from does depend on whether or not their budget has increased or decreased. In particular, if a department had experienced a decrease in the patrol officers' budget, then that department is more likely to have switched to a more efficient — i.e., one-officer — form of patrol staffing.

The 22.3 percent of responding departments that contemplate or desire a change in patrol staffing (see Question B.7) all indicated that they were responding to "changing conditions by redeploying their manpower in different ways." Revised staffing plans included greater use of non-sworn police service aides, greater use of directed patrol, redesigning of sectors, and cut backs — as well as increases — in the use of one-officer cars.

Responses to this question were also found to be independent of the percentage of one-officer cars used, again illustrating the diversity of prevailing views on the utility of one-officer cars.

2.3 ONE- AND TWO-OFFICER CARS

Throughout this report the widespread use of one-officer patrol cars among survey respondents is emphasized. Forty to fifty percent of the police departments surveyed indicated their patrol fleets consist of at least 90 percent one-officer cars. Furthermore, 97.5 percent of all departments use one-officer cars to some extent. Yet, in spite of its widespread use, the one-officer car is the focus of considerable controversy. Through careful analysis of the responses to the open-ended questions concerning one-officer cars (see Exhibit 16 for a list of these questions) and additional reports and

memoranda supplied by the departments, we have attempted to assess whether or not this particular productivity improvement strategy is being employed effectively — taking into account officer safety — and whether or not departments are, in general, satisfied with its use.

DEPARTMENT PRACTICES

Different jurisdictions have attempted to resolve the issue of one-versus two-officer car deployment in a variety of ways. Before giving a general summary of responding department practices, we will examine how two cities — Detroit and Los Angeles — utilize one-officer cars. Both cities attached informative memoranda on one-officer cars to their respective questionnaires.

Detroit deploys a combination of one- and two-officer patrol cars. On the day tour, 42 percent of the patrol cars are one-officer cars. On the evening and night tours, the percentage drops to 18 and 7 percent, respectively. One-officer cars are not restricted to any given area, but rather are restricted to daylight hours and to the selected types of runs to which they may respond.

A memorandum attached to Detroit's survey, "Guidelines for Dispatching Precinct Special Detail Car," (Detroit's term for one-officer cars) highlighted the following dispatching procedures:

- (1) One-officer units shall be assigned to non-emergency complaints only. These include parking complaints; injury reports at hospitals; adult missing; verify the return of a missing; delivery of information and/or missing; transportation of witnesses; latent breaking and entering; vandalism and larceny reports; and other minor complaints that can be handled by one-officer.
- (2) One-officer cars shall respond only to runs to which they have been dispatched, with the exception of officer-in-trouble runs.
- (3) Dispatchers shall give priority to a radio call from a one-officer car.
- (4) One-officer cars shall not be given an in-service run.
- (5) The dispatcher shall endeavor to establish radio contact with a one-officer car that has not been heard from within a reasonable length of time. If contact cannot be made, a patrol car shall be dispatched to the last known location, and the precinct desk shall be notified.
- (6) One-officer cars shall obtain permission from the dispatcher before proceeding on a run assigned to another car.
- (7) One-officer cars shall not be referred to as "one-man cars." Instead, use a special prefix to identify the car.
- (8) The officer in the one-officer car shall inform the dispatcher each time he leaves or returns to his vehicle.

(9) One-officer cars shall not be dispatched across sector lines.

(10) No one-officer car shall be dispatched to a large complex, apartment, warehouse or site where the officer would be required to use long flights of stairs, elevators or be otherwise separated from his vehicle for unusual lengths of time.

The department did not submit any results of studies on officer safety and only indicated, "the use of one-officer cars to handle non-emergency calls has freed more manpower to handle more serious offenses."

Los Angeles also deploys a combination of one- and two-officer patrol cars: the percentages of one-officer cars on the day, evening and night tours are 42, 18, and 7, respectively. One-officer cars were first considered for use in 1950 due to personnel shortages. Since then, the Los Angeles Police Department (LAPD) has identified those types of police activities that it believes are suitable for one-officer cars. These include preliminary crime investigation and report taking, crime suppression, traffic enforcement, and accident investigation. To determine the number of one-officer cars to deploy in each area, the LAPD's primary criterion is the percent of the above listed one-officer car CFS in a particular area at a particular time of day. Presently, one-officer cars are used in all parts of Los Angeles.

As was the case with Detroit, Los Angeles did not enclose results of any studies on officer safety, but seemed satisfied with one-officer cars in general. As they put it, "the current deployment of one-officer units is

logical, allowing the maximum utilization of these units without sacrificing officer safety, productivity or cost effectiveness."

Responses to the question, "What factors did your department consider in selecting an area for one-officer car use?", demonstrated that like Los Angeles, the majority of departments use some proxy for relative safety to determine where to allocate their one-officer cars. One of the most common proxies is the one Los Angeles uses — the percentage of CFS that the department considers appropriate for one-officer car response. Two other measures of officer safety were also frequently mentioned: the demographics of the area including population density, type of dwellings, and socio-economic makeup; and the size of beats, and presence of barriers to travel, to the extent that they may hinder the availability of backup units. Two departments quoted the principles articulated by the Report of the President's Commission on Law Enforcement and the Administration of Justice [1967]:

"[an area is inappropriate for a one-officer car if characterized by] too many incidents for a one-officer car to handle in a physically limited, densely populated area; a high frequency of circumstances in which officers are likely to be assaulted; and the high prospect of raucous misbehavior that can only be prevented by the concerted effort of two or more officers."

On the other hand, many jurisdictions did not indicate that they allocated one-officer cars on a precinct-by-precinct basis. Rather, these jurisdictions apply a criterion city-wide to determine the allocation. That is, rather than saying, "Precinct A has these characteristics and so it will have one one-officer car, and Precinct B has other characteristics and so it will have three one-officer cars", these jurisdictions might say, "The ratio of one- to two officer cars in all precincts will be 1:2." Frequently

mentioned city-wide criteria were exclusive use of one-officer cars, exclusive use of two-officer cars, a fixed ratio of one-to-two officer cars, and exclusive use of one-officer cars during a particular shift. More specifically, many departments did not use one-officer cars at night, thus of course implying time of day is a key factor in one-officer car use. It is entirely possible that these jurisdictions decided on the basis of some empirical study that their city-wide criterion was the most appropriate deployment scheme. However, such criteria provide little, if any, insight into what determines if a specific area is appropriate for a one-officer car - the primary objective of this question.

DEPARTMENT EXPERIENCES

The principal advantages and disadvantages of one-officer cars are well known. Obviously, the same patrol force, in terms of manpower, can field twice as many one-officer cars as two-officer cars. And since common performance measures - visibility, patrol frequency, response time - all improve with increasing numbers of patrol units, overall system performance (in terms of these measures) will improve. On the other hand, concerns about officer safety may require additional hardware devices (e.g., shotguns, bullet-proof vests, etc.) as well as the dispatching of two cars where previously only one car would be needed. These advantages and disadvantages, along with several others mentioned in the responses, are quantifiable and measurable. However, few, if any, of the departments provided empirical data to support their responses to this question, thus limiting their utility.

As expected, most of the advantages that the respondents listed were performance related. Lower response time on routine calls, better use of manpower on low-priority calls, higher police visibility, increased patrol frequency, increased flexibility with manpower, and more cost effectiveness were all frequently mentioned as advantages of one-officer cars. One department said one-officer cars provide "overall better service to the community."

The most frequently mentioned disadvantage of one-officer cars was the need for additional backup cars. Those departments that dispatch one-officer cars to crimes in progress and other high priority calls indicated they dispatch two one-officer cars, whereas, if they deployed two cars, one two-officer car would handle the call. Departments complained that this complicated dispatching, increased cross-sector dispatches, and increased airtime. A few respondents said this resulted in a lowering of officer morale. Earlier it was mentioned that the lack of empirical data limited the utility of the responses to this question. This is especially true concerning the above claim that more backups are needed due to use of one-officer cars. As will be pointed out in Section 2.4, the backup frequency data that we derived from responses do not support this claim.

Likewise, inconsistencies arose over officer safety and the cost factor of one-officer cars, as some jurisdictions stated these two issues are advantages of one-officer cars and some jurisdictions claimed they are disadvantages. A sizeable number of departments simply stated "officer safety is decreased"; but an equally sizeable number said that one-officer cars had increased officer alertness, improved their judgement, and increased officer

comaraderie, all leading — they claimed — to an increase in officer safety. A few departments said their officers preferred to work alone.

At the same time, there was no general agreement as to whether cost was an advantage or a disadvantage of one-officer cars. Those departments that claimed cost was an advantage said they could achieve the same system performance at a lower cost, while departments arguing cost is a disadvantage cited greater gasoline consumption and more vehicle maintenance. Since typically over 90 percent of the budget of an urban police department is consumed by salaries, fringe benefits, and related personnel expenses, it is surprising that departments cited "cost" as a disadvantage of one-officer cars.

SAFETY ISSUES

Departments were asked to describe the results of any studies or investigations providing factual information on officer safety. Unfortunately, approximately 80 percent of the respondents indicated they had performed no such studies. This fact by itself is surprising, given the controversial nature of one-officer cars and officer safety. Of the respondents that did answer the question, the vast majority did not have specific results from an empirical study; rather, they simply gave a broad statement describing their general impressions. A clear majority claimed one-officer cars are as safe or safer than two-officer cars. Some comments included, "[an] unofficial survey shows that one-officer cars are the best, safest, and most productive [patrol cars]", and "our observations and information from FBI reports would seem to indicate no correlation between the

numbers of officers in a car and injury." On the other hand, one department stated, "all injuries occurred to one-officer car officers." Of the sixteen most densely populated jurisdictions only one, Baltimore, which deploys 79 percent one-officer cars, reported any officer safety statistics. In Baltimore, 10 percent of officer injuries occurred to two-officer cars, 38 percent occurred to unassisted one-officer cars, and 52 percent to assisted one-officer cars. Seattle provided the most detailed results of an officer injury study, which are summarized in Exhibit 9.

The data in the exhibit show that from 1976 to 1980 the percentage of radio runs involving unassisted one-officer cars increased 34 percent, while at the same time assaults to officers in unassisted one-officer cars increased only 21 percent. It is also interesting to note that the number of assaults per 1,000 officer-runs is by far the lowest for one-officer cars assisted, but in 1976 it was 53 percent higher for two-officer cars than for unassisted one-officer cars; and in 1980, that percentage difference increased to over 190 percent!

Another question asked what percent of assaults or injuries occurred to officers in one-officer cars before a second officer was present. As in the previous question, a majority of the departments did not respond. Of those jurisdictions that did, the general trend was again, to downplay the danger to the officer in one-officer cars. Forty-two departments — nearly all of the departments responding to the question — simply reported a percentage figure. The frequency distribution contained in Exhibit 10 indicates that more than 50 percent of the responding departments stated that less than 20 percent of the injuries to officers in one-officer units occurred prior to the arrival of a

Exhibit 9

Results of Seattle Patrol Safety Study

Year	Percent of Patrol Cars That Are:		Percent of Radio Runs Involving:			Percent of Assaults Involving Police Officers in:			Number of Assaults per 1,000 Officer-Runs in:		
	Two-Officer	One-Officer	Two-Officer Cars	One-Officer Cars Alone	One-Officer Cars Assisted	Two-Officer Cars	One-Officer Cars Alone	One-Officer Cars Assisted	Two-Officer Cars	One-Officer Cars Alone	One-Officer Cars Assisted
1976	47.0% (N=323)	53.0	49.5%	22.2 (N=221,085)	28.3	76.1%	11.2 (N=465)	12.7	1.62%	1.06	0.47
1980	20.0% (N=433)	80.0	24.1%	29.8 (N=274,416)	46.1	63.8%	13.6 (N=626)	22.7	3.02%	1.04	0.56

Exhibit 10

Distribution of Injuries Occurring to One-Officer
Unit Occupants Prior to Arrival of Second Officer

<u>Percent of Injuries</u>	<u>Number of Departments</u>	<u>Percent</u>
0% - 10%	19	45.2%
11% - 20%	6	14.3
21% - 30%	4	9.5
31% - 40%	3	7.1
41% - 50%	4	9.5
51% - 60%	0	0.0
61% - 70%	1	2.3
71% - 80%	2	4.9
81% - 90%	1	2.3
91% - 100%	2	4.9
<u>TOTAL</u>	<u>42</u>	<u>100.0%</u>

back-up officer. This would tend to support the notion that an officer alone is not in significantly greater danger given that backup is available.

Finally, departments were asked to list safety features or precautions instituted primarily because of the use of one-officer cars. In general, the features or precautions fell into two main categories. The first might be called "hardware safety devices". These included modifications to the one-officer car itself, such as installing front/rear safety dividers, removing interior back seat door handles, and installing state-of-the-art communication equipment. Furthermore, the officer was provided with shotguns, bullet-proof vests, or portable radios. Departments that listed such devices usually cited the cost of these items as a disadvantage of one-officer cars.

The other general category consisted of policy or procedural changes. These included increasing the frequency of backups, increasing the amount of officer training relating to one-officer cars, modifying dispatching procedures to accommodate one-officer cars (see for example, Detroit's procedures above), and changing policies regarding the transportation of suspects. Again, most of the departments listing these changes also cited them as disadvantages of one-officer cars.

2.4 DISPATCHING POLICIES

The type of unit typically assigned as the first responding unit was addressed in Question D.1. Since many respondents checked more than one box, the percentages in each row do not add to 100 percent. What is of most interest is the relative proportion of beat cars to closest cars, and one-

officer cars to two-officer cars. The former provides a measure of call urgency, while the latter offers some indication of perceived risk to the responding officer. This two-by-two urgency/danger matrix would constitute a simple model of dispatching priorities. That is, calls for service could be classified in one of four ways — urgent with high risk to officer, urgent with low risk to officer, not urgent with high risk to officer, or not urgent with low risk to officer. Unfortunately, the relative percentages of one- and two-officer cars responding as the first unit would only be meaningful if roughly equal proportions of each were deployed — that is, if the dispatcher actually has a choice of which type of unit to dispatch. However, too few responding jurisdictions fell in this category to make the comparison valid.

The next two questions, D.2 and D.3, asked respondents to indicate the type of unit typically assigned as a backup unit to the six identified CFS, as well as to indicate the percent of such CFS assigned only one backup unit and the percent assigned two or more backup units. The responses contain few surprises: an officer in trouble nearly always draws at least two backups, while few, if any, backups are dispatched to cold burglaries. These two questions, however, enable us to test the hypothesis that those cities using a large fraction of one-officer cars have higher backup frequencies. In their open-ended responses on one-officer cars, departments cited more extensive use of backups both as a safety precaution — implemented primarily because of one-officer car use — and as a disadvantage of one-officer car use. In order to ensure adequate data points, respondents were divided into two groups: departments that deploy less than 90 percent one-officer cars and departments deploying 90 percent or more one-officer cars. In the second group, we can be reasonably certain that in fact, a one-officer car is responding initially to

virtually every CFS. Two measures were used to discern the extent of "backing up": first, the average number of units responding to a CFS (ignoring the small fraction of CFS that receive more than two backups) and second, the fraction of calls that receive at least one backup. It was our conjecture that there is a greater jurisdictional differentiation according to "one backup" vs. "no backup" than exists comparing "two backups" with "one backup".

The results of the analysis are presented in Exhibit 11. In general, we cannot conclude from the surveys that departments with predominantly one-officer patrol forces have significantly higher backup frequencies. In fact, with the exception of backup frequencies to "noise" CFS, there is little difference between the two groups. However, these results must be questioned for two reasons. First, the sample size was small due to missing data. Second, the open-ended responses regarding one-officer cars clearly indicated that one-officer car use results in higher backup frequencies.

Seventy-three percent of the police departments responding to Question D.5 indicated they use some form of alternative response [4] to handle CFS. One might expect that those departments that do respond to every CFS by dispatching a police unit tend to be the smaller departments. This turns out to be the case in the cities, but curiously, not in the counties. To pursue this issue, we employed the number of CFS per actual sworn officer as a proxy

4 A response to a non-critical call for service other than the immediate dispatch of a patrol unit.

Exhibit 11

Summary Backup Police Statistics

<u>Category of Call for Service</u>	<u>Jurisdiction Type</u>	<u>Percentage of One-Officer Cars</u>	<u>Average Number of Cars Dispatched*</u>	<u>Percentage of CFS Receiving at Least One Backup Car**</u>
Officer in Trouble	Cities (N=44)	0% - 90% 91% - 100%	1.94 1.92	100% 100%
	Counties (N=7)	0% - 90% 90% - 100%	2.00 2.00	100% 100%
Robbery in Progress	Cities (N=54)	0% - 90% 91% - 100%	1.74 1.71	99% 100%
	Counties (N=7)	0% - 90% 91% - 100%	1.60 1.50	100% 100%
Burglary, Cold	Cities (N=58)	0% - 90% 91% - 100%	0.21 0.12	17% 11%
	Counties (N=14)	0% - 90% 91% - 100%	0.40 0.00	3.2% 0.0%
Suspicious Car or Person	Cities (N=57)	0% - 90% 91% - 100%	0.89 0.86	7.6% 7.6%
	Counties (N=11)	91% - 100% 91% - 100%	0.80 0.73	62% 71%
Unarmed Dispute or Fight	Cities (N=58)	0% - 90% 91% - 100%	1.11 1.13	85% 93%
	Counties (N=10)	0% - 90% 91% - 100%	1.17 1.12	96% 98%
Noise	Cities (N=59)	0% - 90% 91% - 100%	0.49 0.65	42% 59%
	Counties (N=12)	0% - 90% 91% - 100%	0.38 0.83	38% 78%

*1 x % of CFS receiving 1 backup unit + 2 x % of CFS receiving 2 or more backup units

**% of CFS receiving 1 backup unit + % of CFS receiving 2 or more backup units

for a CFS-related workload index. With an overall average of 460 CFS per officer, those cities using some form of alternative response averaged 506 CFS per officer, while those cities that do not, averaged 412 CFS per officer —an intuitively satisfying result. However, while counties using some form of alternative responses averaged 256 CFS per officer, those counties that do not averaged 409 CFS per officer. In general, we observed that the percent of CFS for which the responding departments do not send a police unit rose 59 percent between 1978 and 1982.

The types of CFS which are not handled by a police unit are quite varied and are discussed in Section 2.6. Finally, we found that those departments that have a computer aided dispatch (CAD) system are more likely to employ some form of alternative response. CAD systems provide a more efficient means of deploying police resources and, although we did not test this hypothesis, it may be that the larger cities in the sample are more likely to have a CAD system.

2.5 CALL PRIORITIZATION

On the basis of the distribution of responses to Question E.1 about call prioritization, we derived a weighted priority score for each type of CFS and then rank ordered the scores. The results of this analysis and the weighting scheme constitute Exhibit 12. It should be noted that the lower the score, the higher the priority, or sense of urgency, assigned to the CFS category. The vast majority, 80.0 percent, of the responding police departments rank calls for service by priority of response, according to Question E.2's responses. Some of the departments who answered "no" indicated they have an informal, rather than a formal, ranking.

Exhibit 12

Ranking of Calls for Service by Assigned Priority

Call for Service Category	Priority Score*
Officer in trouble	1.0
Robbery in progress	1.1
Burglary in progress	1.2
Assault in progress	1.2
Alarm, victim-triggered	1.5
Alarm, standard burglary	1.6
Injured, sick persons	1.9
Disorderly conduct, crowd	2.0
Domestic disturbances	2.0
Unarmed dispute or fight	2.0
Suspicious person	2.2
Auto accident, damage only	2.7
Assault, cold	2.8
Burglary, cold	2.9
Drunk person	2.9
Harrassments or threats	3.1
Missing persons, runaways	3.2
Fraud, forgery, bad checks	3.2
Motor vehicle theft, cold	3.3
Noise	3.3
Traffic or parking troubles	3.4
Larceny, theft, cold	3.4
Lost property	3.4
Barking dog	3.8
Vandalism, cold	3.8
Annoying, obscene phone call	3.8
Bicycle theft, cold	3.9

* $Score = \frac{4}{\sum_{i=1}^4 i \times \text{Percent Assigning Priority } i} + 5 \times \text{Percent Not Responding}$

Questions E.3 through E.6 ask whether a unit assigned to a particular CFS would be preempted in order to assign it to another CFS. The responses are self-explanatory (see Exhibit 16). It is clear from these results that preemption is in fact, a common strategy and that its stated utilization is entirely consistent with the prioritization scale reflected in Exhibit 12.

According to the responses to Question E.7, a substantial majority, 88.7 percent, of police departments formally delay some CFS. What is more interesting is that of those departments that do formally delay some CFS, 73.4 percent would not stack a CFS unless all cars in the area are busy. This concurs with our survey finding that although a patrol car is assigned to a specific beat, it will typically respond to a CFS anywhere in its district. It is also interesting to note that 2.9 percent of the responding departments employ a special car to respond to stacked, or delayed, calls and that 80.9 percent of the departments utilizing delayed responses purport to inform their clients of the length of delay to expect. Some caution should be exercised in interpreting the latter, since our experience suggests that while many departments notify clients of an impending delay, few estimate its expected length.

The types of CFS which may be stacked or delayed varied greatly, but typical comments included, "calls where no immediate danger is anticipated" and "calls in which nothing can be accomplished by sending a car immediately." Some commonly-cited delayed CFS were stolen vehicles, missing persons, parking violations, theft, animal complaints, obscene phone calls, and fraud.

2.6 ALTERNATIVE RESPONSE STRATEGIES

In response to the fiscal realities of the recent past, many police departments have been forced to re-examine their methods of handling citizen-initiated CFS, questioning the tradition of dispatching a police car to every call. While in Section 2.5 we noted that many departments do not dispatch units to some CFS, this Section looks at the extent to which alternative response strategies are actually utilized.

Exhibit 13 contains a summary of the four main strategies examined in the survey. Note that in all cases the percent of CFS receiving these alternative responses increased from 1978 to 1982. Exhibit 14 is concerned with the relationship between the use of alternative responses and department workload indices as measured in CFS per sworn officer. The exhibit clearly demonstrates that the busier departments tend to use citizen walk-in reports and telephone reports while the less busy departments tend to use scheduled appointments and request mailed-in reports more frequently.

Departments were asked to identify CFS for which each of the four alternative responses strategies was most appropriate. However, most departments employ at most one or two of the four strategies, and where more than one is employed the citizen tends to be given an option as to how to report the complaint. For example, many departments give citizens the option of either filing a report at a police facility or making a telephone report.

Whatever alternative strategy or strategies a department uses, they seem to apply them to the same general types of CFS. The list of CFS types

Exhibit 13

Alternative Response Strategies: Summary Statistics

Alternative Response Strategy	Percentage of Departments Using the Strategy	Average Year Adopted	Percentage of Calls For Service Handled in this Manner	
			1978	1982
Ask citizen to file report at police facility (N=146)	53.1%	1976	8.2%	11.3%
Ask citizen to make a telephone report (N=146)	78.7%	1978	6.0%	13.0%
Ask citizen to schedule an appointment with a police official (N=146)	15.0%	1977	1.7%	4.1%
Ask citizen to mail a report to the department (N=147)	21.1%	1977	1.9%	5.8%

Exhibit 14

Department Workload Index by Use of Alternative Responses

Alternative Response Strategy	Average Calls for Service per Sworn Officer in:	
	Departments Using This Strategy	Departments <u>Not</u> Using This Strategy
Ask Citizen to File Report at Police Facility	523.8 (N=80)	386.5 (N=66)
Ask Citizen to Make a Telephone Report	500.6 (N=116)	309.8 (N=30)
Ask Citizen to Schedule An Appointment with a Police Official	404.1 (N=23)	473.0 (N=123)
Ask Citizen to Mail a Report to the Department	400.0 (N=30)	476.0 (N=117)

included minor auto accidents, petty larceny, missing adults, tampering with motor vehicles, minor assaults, lost property, animal complaints, sanitation complaints, obscene phone calls, stolen bicycles, pickpockets, and property damage.

According to Question E.5, there was no widely used alternative response method other than the four explicitly addressed in the survey. Several departments, however, cited special procedures designed to handle particular types of CFS, such as traffic complaints and animal complaints. One department employs a patrol concept in which an auxiliary patrol team handles CFS not requiring an immediate response. Other departments stated they defer certain low-priority CFS to special social or government agencies.

Question E.6 asked respondents if their departments had abandoned the use of any alternative response strategies. Most of the departments responding "yes" (10.6 percent) abandoned one of the four types of alternative response strategies discussed because they claimed the strategies were not effective. One department stated "...mail-in police reports were abandoned because they lacked vital information and were often incomplete."

2.7 ALARM RESPONSE POLICIES

It is well known that alarm-related CFS almost always turn out to be "false." Yet, as is noted in Section 2.5, next to "officer in trouble" and various other crimes in progress, alarm calls have the highest priority of any CFS. Clearly, departments espouse the official position that alarm CFS are treated as though they were all "true", despite the inordinately high prevail-

ing false alarm rates. Still, efforts have been made to reduce the number of false alarms as a means of shedding the associated non-productive response workload. As noted in Question G.1, almost two thirds of the departments have a false alarm ordinance and they employ a variety of techniques to control false alarms, as reflected in the responses to Question G.3.

As to the effect of this ordinance or policy on the number of false alarms, most of the departments responding to Question G.4 indicated their ordinances had been quite effective. Sample responses included: "46 percent decrease after the first six month period [that the ordinance was in effect]", "1980-81; 52 percent total reduction in false alarm calls", and "reduced burglar alarm CFS by 16.5 percent." One department implemented stiffer penalties as the solution "...initially false alarms decreased; however, recently there has been a noticed increase causing an ordinance change to impose heavier fines and fewer maximum false alarms per year."

2.8 CIVILIAN EMPLOYEES

Nearly three quarters of the departments responding to Question H.1 use civilians in some capacity as a means of reducing the high cost of uniformed personnel. Furthermore, the average number of civilian volunteers increased 11 percent from 1978 to 1982, and the average number of civilian employees increased 16 percent over that same time period, according to Question H.3.

From the responses to Question H.4, it is clear that civilians provide a wide variety of services. Fifty-nine of the departments indicated that either civilian volunteers or employees respond to CFS. In most cases, this occurs

in one of two modes. Either a sworn officer would accompany the civilian — responding to all types of CFS — or a sworn officer would not accompany the civilian, in which case the civilian would, as one department put it, "handle report calls of low risk and non-injury traffic accident calls."

2.9 DEPARTMENTAL OPERATIONS

In spite of the fiscal uncertainties of the past few years, the majority of departments responding to Question I.1, which asked if characteristics of departmental operations had increased, decreased, or remained the same from 1978 to 1982, reported increases in all of the characteristic categories, with the exception of "average age of patrol cars". In particular, the total budgets for both the entire department and for patrol operations had increased in 90 percent of the responding departments. However, the numbers of sworn officers — both in patrol and overall — increased in only half the supporting departments and, in fact, decreased in more than 30 percent. On further examination we determined that the number of sworn officers has, in fact, decreased in jurisdictions with a high population density. A statistical test demonstrated that the higher the population density the more likely the department is to have experienced a decrease in the number of sworn officers, both for the department as a whole and for the patrol force.

It should also be noted that almost 60 percent of the departments reported increased use of civilians in the overall agency while 40 percent indicated increased use of civilians in the patrol area. This finding attests to police departments' efforts to shift patrol workload from expensive

uniformed personnel to less expensive civilian staff. As one might expect, accompanying the relative reductions in sworn police strength and absolute reductions in the proportion of sworn vs. civilian officers, some of the "gap" has been made up through the increased use of overtime.

Perhaps the most widely quoted performance measure in policing, average response time, has decreased roughly 6 percent from 1978 to 1982. There is, however, a large degree of variation in response times reported — roughly 40 percent of the reported response times were less than 5 minutes; 40 percent were between 5 and 10 minutes; 10 percent were between 10 and 15 minutes; and 10 percent were greater than 15 minutes. In order to gain insight into the causes of this variation, we independently examined the two components of response time, dispatch delay and travel time.

A well-known "back-of-the-envelope" operations research model predicts that travel time is proportional to the square root of the area divided by the number of patrol units. Using data from other questions in the survey, this estimate of travel time was computed and plotted against the actual, reported response time for the responding cities only (see Exhibit 15). From this graph we see that for cities, the variation in the estimated travel time is small compared to the variation in response time. Put another way, the variation in city response time cannot be explained by variation in the travel time. Thus, we conclude that for cities, variations in response time are attributable to variations in dispatch delay. Since few counties reported response time, a similar analysis could not be performed.

of its workload by reverting to alternative responses to non-critical CFS. Survey analysis indicates that the "busier" departments — in terms of per-officer workload — tend to make greater use of telephone reports, a strategy which entails no patrol response.

At the extreme end of the alternative response spectrum is the non-response, invoked informally by some departments for selected categories of CFS. For example, certain alarm-related CFS are known to be false and thus disregarded by either the communications center or the local patrol officer assigned to the call. Other CFS may be routinely referred to non-police agencies or the citizen advised that department policy precludes dispatch of a patrol vehicle.

Civilianization: Since sworn police personnel constitute the vast majority of the cost of operating a police department — due in part to their substantial fringe and pension benefits — there is an ever increasing trend toward using civilians. Our survey determined that, on the average, responding departments were using 16 percent more civilian employees in 1982 as compared to 1978 and that these civilians are assuming an ever-broadening spectrum of police responsibilities. Surprisingly, in more than 35 percent of the departments, civilians, or police service aides as they're often referred to, respond to CFS —sometimes without an accompanying uniformed officer. In the latter case, it should be assumed that only "low-risk" CFS are involved.

In sum, it is clear that workload shedding practices in municipal police departments are widespread and growing. Interestingly, there is no evidence to suggest that the quality of police services has noticeably deteriorated as a result of their institution. This preservation is due, in part, to the fact that police resources have until recently been "fat", especially in comparison to those of other non-public safety municipal agencies. As a result, there has been room to trim back resources, i.e., increase efficiency, without degrading the effectiveness with which police services have been provided. In addition, as several major police research studies have noted, public

satisfaction with police services is very much a function of citizen expectation. [5] Although police executives have resisted workload shedding strategies in the fear that citizens would object strenuously, they have discovered that, for example, alternative responses have been readily accepted by the public.

It should also be noted that, for the most part, those workload shedding practices in wide use make sense operationally, and would probably not be abandoned if times of budget plenty should return (an unlikely scenario, to be sure). For example, use of civilians in police agencies frees up sworn personnel to perform the specialized duties for which they have been specifically trained. In the same vein, it is totally unnecessary for a sworn officer to respond immediately to an after-the-fact burglary when there is no present danger and "zero chance" of apprehending the burglar(s).

In view of the foregoing, it is safe to anticipate not only use of existing workload shedding strategies, but also development of innovative new strategies. We express the hope that there will be a sufficient level of research interest and resources to permit this next generation of strategies to be fully evaluated, as was the last. If not, we should not expect them to meet with equal success.

5 See, for example, Cahn and Tien, An Alternative Approach in Police Response: The Wilmington Management of Demand Program, Cambridge, MA: Public Systems Evaluation, Inc., March 1981.

APPENDIX A. SURVEY INSTRUMENT

Exhibit 16 consists of the Police Patrol Practices Survey Instrument. This exhibit summarizes the answers to the multiple choice and quantitative survey questions. Where multiple choices were offered, the percentage of respondents selecting each choice is indicated. If the respondent was asked to provide a numerical answer, responses are summarized in terms of mean — or in some cases, median — statistics. Responses to the open-ended, more qualitative questions have been integrated with the main text of this report, where appropriate. No attempt to summarize them has been made in this Exhibit for reasons of brevity. Finally, the number of jurisdictions responding to each survey question, "N", is underlined.

Exhibit 16

Summary of Survey Results

A. BACKGROUND

Page 1 of 17

1. Number of square miles your department serves: Mean = 252 Median = 68 N=159
2. Population (1980 census or most recent estimate) of your department's jurisdiction: Mean = 361,391 Median = 200,452 N=159
3. Jurisdiction (i.e., cities and/or county served): City = 136 County = 26 N=162
4. Department's operating budget (including fringes and pensions) for fiscal year 1982: Mean = \$34,027,117 Median = \$14,805,000 N=157
5. City's or county's operating budget (including fringes and pensions) for fiscal year 1982: Mean = \$302,585,813 Median = \$112,005,000 N=150
6. Authorized number of sworn officers in 1982: Mean = 739.3 Median 387.5 N=158
7. Actual number of sworn officers in 1982: Mean = 730.0 Median = 362.5 N=158
8. Number of civilian employees in 1982: Mean = 225.7 Median = 119.67 N=159
9. Number of citizen-initiated requests for service your department received in
 1978: Mean = 286,284 N=129 Median = 119,978 1982: Mean = 281,398 N=149 Median = 128,334

B. PATROL ASSIGNMENTS

Page 2 of 17

1. How many sworn officers were actually assigned to patrol in
 1978: Mean = 491.2 N=135 1982: Mean = 459.3 N=156
2. Of the sworn officers assigned to patrol, approximately what percent, if any, were assigned to specialized field units (for example, traffic, accident investigation, evidence, K-9) in
 1978: Mean = 13.2% N=130 1982: Mean = 13.8% N=147
3. For each shift listed below, please list the number of patrol units typically assigned by type of unit.

	Day Shift Mean	Evening Shift Mean	Night Shift Mean	Other Shift Mean
1-officer cars:	35.3 N=151	34.0 N=147	28.7 N=146	14.0 N=71
2-officer cars:	6.7 N=118	15.4 N=120	11.8 N=119	3.0 N=65
Supervisory cars:	8.9 N=153	9.0 N=153	8.0 N=152	2.6 N=73
Other units:*	9.3 N=102	7.5 N=109	4.1 N=80	3.2 N=44
TOTAL patrol units:	55.6 N=145	60.2 N=145	47.5 N=144	19.2 N=77

*Please describe:

4. If the numbers of 1-officer and 2-officer cars are not fixed (that is, they are changed on a daily, weekly, or monthly basis), please describe how these assignments are made:

Exhibit 16

(Page 2 of 9)

Page 3 of 17

Page 4 of 17

5. What is the administrative area (e.g., beat, precinct, district) within which 1-officer cars (if used), 2-officer cars (if used), and supervisory cars are assigned for patrol (that is, the area to which a car is assigned when it is not responding to calls for service) and response (that is, the area within which the dispatcher would typically assign calls for service to that car)?

6. Has your department ever operated with a different form of patrol unit staffing within the past 15 years (e.g., switched from all 2-officer cars to both 1-officer and 2-officer cars)? N-15B

44.36 Yes → please respond below
 55.7 No → please go to question 7

Unit	Administrative Area	Description
Sample Response 1-officer car	Patrol: beat Response: district	Each car is assigned to a separate beat in which it is responsible for general patrol. However, it may be assigned to calls for service from anywhere in its district (which generally consists of 4 to 5 beats).
1-officer car	Patrol: Response:	
2-officer car	Patrol: Response:	
Super-visory car	Patrol: Response:	
Other	Patrol: Response:	

Please describe the form of staffing used and why it was changed: _____

7. Is any change in your current patrol unit staffing contemplated or desired in the near future? N-157

22.34 Yes → please respond below
 77.7 No → please go to section C

Please describe these staffing plans and why a change is desired: _____

Exhibit 16

(Page 3 of 9)

C. 1-OFFICER CARS

Page 5 of 17

1. Does your department assign 1-officer cars to patrol? N=160
97.5% Yes → please answer questions 2-6 below
2.5 No → please go to section D

2. What factors did your department consider in selecting an area for 1-officer cars to patrol? _____

3. What advantages or disadvantages have been experienced by your department as a result of 1-officer car operations? _____

Page 6 of 17

4. Please describe the results of any studies or investigations your department has conducted which provide factual information on officer safety (e.g., differences in line-of-duty injuries, traffic accidents, or assaults on officers) in 1- vs. 2-officer cars. _____

5. Of the assaults on or injuries to patrol officers in the last 5 years, about what percent have occurred to officers in 1-officer cars before a second officer was present? _____

6. What safety features or precautions, if any, were instituted primarily because of the use of 1-officer cars? _____

A-4

Exhibit 16

(Page 4 of 9)

Page 8 of 17

D. DISPATCHING CALLS FOR SERVICE

Page 7 of 17

1. For each call type listed below, please check the box which corresponds to the type of unit typically assigned as the first responding unit.

	1-Officer		2-Officer		Beat Closest		Other*	None	
	Car	Car	Car	Car	Car	Car			
Officer in trouble	<input type="checkbox"/> 25.0%	<input type="checkbox"/> 8.5%	<input type="checkbox"/> 8.5%	<input type="checkbox"/> 80.2%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=152
Robbery, in progress	<input type="checkbox"/> 22.6%	<input type="checkbox"/> 20.0%	<input type="checkbox"/> 25.8%	<input type="checkbox"/> 53.0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=155
Burglary, cold	<input type="checkbox"/> 41.4%	<input type="checkbox"/> 3.2%	<input type="checkbox"/> 72.0%	<input type="checkbox"/> 1.9%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=157
Suspicious car or person	<input type="checkbox"/> 31.4%	<input type="checkbox"/> 16.9%	<input type="checkbox"/> 62.8%	<input type="checkbox"/> 10.6%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=159
Unarmed dispute or fight	<input type="checkbox"/> 30.4%	<input type="checkbox"/> 21.5%	<input type="checkbox"/> 56.3%	<input type="checkbox"/> 14.6%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=158
Noise	<input type="checkbox"/> 38.8%	<input type="checkbox"/> 7.9%	<input type="checkbox"/> 69.7%	<input type="checkbox"/> 2.7%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=152

*Please describe: _____

2. For each call type listed below, please check the box which corresponds to the type of unit typically assigned as a backup unit.

	1-Officer		2-Officer		Beat Closest		Other*	None	
	Car	Car	Car	Car	Car	Car			
Officer in trouble	<input type="checkbox"/> 27.8%	<input type="checkbox"/> 12.3%	<input type="checkbox"/> 3.4%	<input type="checkbox"/> 78.9%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=147
Robbery, in progress	<input type="checkbox"/> 26.6%	<input type="checkbox"/> 16.2%	<input type="checkbox"/> 7.1%	<input type="checkbox"/> 72.0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=154
Burglary, cold	<input type="checkbox"/> 45.2%	<input type="checkbox"/> 6.9%	<input type="checkbox"/> 31.5%	<input type="checkbox"/> 31.5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=73
Suspicious car or person	<input type="checkbox"/> 43.6%	<input type="checkbox"/> 8.4%	<input type="checkbox"/> 21.1%	<input type="checkbox"/> 44.4%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=133
Unarmed dispute or fight	<input type="checkbox"/> 42.0%	<input type="checkbox"/> 8.3%	<input type="checkbox"/> 17.9%	<input type="checkbox"/> 49.6%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=145
Noise	<input type="checkbox"/> 47.6%	<input type="checkbox"/> 3.9%	<input type="checkbox"/> 24.8%	<input type="checkbox"/> 39.0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N=105

*Please describe: _____

3. For each call type listed below, please estimate the percent of such calls which are assigned only 1 backup unit and the percent assigned 2 or more backup units.

	1 backup unit		2 or more backup units	
	Mean	% N=78	Mean	% N=152
Officer in trouble	14.9		96.4	
Robbery, in progress	39.4	% N=95	78.5	% N=146
Burglary, cold	13.5	% N=142	2.6	% N=102
Suspicious person	65.8	% N=151	8.9	% N=98
Unarmed dispute or fight	75.0	% N=151	20.1	% N=102
Load noise	41.6	% N=150	4.7	% N=99

4. When 2 or more units are dispatched to a call for service, which has responsibility for the disposition of the call (i.e., writes any reports and leaves the scene last)? N=161

57.8% Real car, regardless of type (i.e., 1-officer, 2-officer) or assignment (i.e., first responding or backup unit)

26.1 First responding unit, regardless of type (i.e., 1-officer, 2-officer)

0.6 Backup unit, regardless of type (i.e., 1-officer, 2-officer)

0.6 1-officer car, regardless of assignment (i.e., first responding or backup), if both a 1-officer car and a 2-officer car were dispatched

0.0 2-officer car, regardless of assignment (i.e., first responding or backup), if both a 1-officer car and a 2-officer car were dispatched

14.9 Other (please describe): _____

5. Are there any types of citizen calls for services to which your department typically does not send a police unit? N=161

73.3% Yes -> please respond below

26.7 No -> please go to question 6

a. What year was this policy adopted? Mean = 1977 N=91

b. Please list the calls for service for which this policy is used:

(attach policy, if available)

c. About what percent of all calls for service were handled this way in

1978: Mean = 10.5% N=66 ; 1982: Mean = 16.7% N=82

6. Do you have a computer-aided dispatching (CAD) system? N=161

39.8% Yes -> what year did it become operational? Mean = 1978 N=62

60.2 No

Exhibit 16

(Page 5 of 9)

E. CALL PRIORITY

Page 9 of 17

1. For each call type listed below, please check the box which most closely corresponds to the urgency with which your department would respond, where a 1 represents the highest priority response and a 4 represents the lowest priority response. If your department does not usually respond to a call type, please check no response.

	Highest Priority				Lowest Priority		No Response	N
	1	2	3	4				
Assault in progress	<input type="checkbox"/> 80.1%	<input type="checkbox"/> 19.3	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=161
Burglary in progress	<input type="checkbox"/> 83.2%	<input type="checkbox"/> 16.1	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=161
Robbery in progress	<input type="checkbox"/> 94.4%	<input type="checkbox"/> 5.0	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=160
Assault, cold	<input type="checkbox"/> 0.6%	<input type="checkbox"/> 35.0	<input type="checkbox"/> 50.0	<input type="checkbox"/> 11.9	<input type="checkbox"/> 0.0	<input type="checkbox"/> 2.5	<input type="checkbox"/> 0.0	N=160
Burglary, cold	<input type="checkbox"/> 1.9%	<input type="checkbox"/> 24.4	<input type="checkbox"/> 56.9	<input type="checkbox"/> 16.2	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	N=160
Larceny, theft, cold	<input type="checkbox"/> 0.0%	<input type="checkbox"/> 12.6	<input type="checkbox"/> 47.8	<input type="checkbox"/> 27.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 12.6	<input type="checkbox"/> 0.0	N=159
Bicycle theft, cold	<input type="checkbox"/> 0.0%	<input type="checkbox"/> 6.3	<input type="checkbox"/> 22.5	<input type="checkbox"/> 45.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 26.2	<input type="checkbox"/> 0.0	N=160
Motor vehicle theft, cold	<input type="checkbox"/> 1.9%	<input type="checkbox"/> 13.7	<input type="checkbox"/> 46.2	<input type="checkbox"/> 25.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 12.5	<input type="checkbox"/> 0.0	N=160
Vandalism, cold	<input type="checkbox"/> 0.0%	<input type="checkbox"/> 6.9	<input type="checkbox"/> 27.7	<input type="checkbox"/> 44.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 21.4	<input type="checkbox"/> 0.0	N=159
Fraud, forgery, bad checks	<input type="checkbox"/> 4.4%	<input type="checkbox"/> 16.4	<input type="checkbox"/> 39.6	<input type="checkbox"/> 30.8	<input type="checkbox"/> 0.0	<input type="checkbox"/> 8.8	<input type="checkbox"/> 0.0	N=159
Officer in trouble	<input type="checkbox"/> 100.0%	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=159
Auto accident, damage only	<input type="checkbox"/> 1.3%	<input type="checkbox"/> 45.9	<input type="checkbox"/> 39.6	<input type="checkbox"/> 8.8	<input type="checkbox"/> 0.0	<input type="checkbox"/> 4.4	<input type="checkbox"/> 0.0	N=159
Injured, sick persons	<input type="checkbox"/> 48.4%	<input type="checkbox"/> 32.7	<input type="checkbox"/> 9.4	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 9.4	<input type="checkbox"/> 0.0	N=159
Alarm, victim-triggered	<input type="checkbox"/> 60.4%	<input type="checkbox"/> 30.2	<input type="checkbox"/> 6.9	<input type="checkbox"/> 1.3	<input type="checkbox"/> 0.0	<input type="checkbox"/> 1.3	<input type="checkbox"/> 0.0	N=159
Alarm, standard burglary	<input type="checkbox"/> 52.5%	<input type="checkbox"/> 39.4	<input type="checkbox"/> 8.1	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=160
Lost property	<input type="checkbox"/> 0.6%	<input type="checkbox"/> 4.4	<input type="checkbox"/> 11.9	<input type="checkbox"/> 49.7	<input type="checkbox"/> 0.0	<input type="checkbox"/> 33.3	<input type="checkbox"/> 0.0	N=159
Suspicious person	<input type="checkbox"/> 11.5%	<input type="checkbox"/> 59.2	<input type="checkbox"/> 28.7	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=157
Disorderly conduct, crowd	<input type="checkbox"/> 23.6%	<input type="checkbox"/> 56.7	<input type="checkbox"/> 18.5	<input type="checkbox"/> 1.3	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=157
Domestic disturbances	<input type="checkbox"/> 21.4%	<input type="checkbox"/> 60.4	<input type="checkbox"/> 15.7	<input type="checkbox"/> 2.5	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=159
Unarmed dispute or fight	<input type="checkbox"/> 20.6%	<input type="checkbox"/> 63.1	<input type="checkbox"/> 15.6	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	N=160
Harassment or threats	<input type="checkbox"/> 1.3%	<input type="checkbox"/> 23.3	<input type="checkbox"/> 45.3	<input type="checkbox"/> 25.8	<input type="checkbox"/> 0.0	<input type="checkbox"/> 4.4	<input type="checkbox"/> 0.0	N=159
Annoying, obscene phone call	<input type="checkbox"/> 0.6%	<input type="checkbox"/> 5.7	<input type="checkbox"/> 28.3	<input type="checkbox"/> 40.9	<input type="checkbox"/> 0.0	<input type="checkbox"/> 24.5	<input type="checkbox"/> 0.0	N=159
Drunk person	<input type="checkbox"/> 3.1%	<input type="checkbox"/> 25.2	<input type="checkbox"/> 53.5	<input type="checkbox"/> 17.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 1.3	<input type="checkbox"/> 0.0	N=159
Noise	<input type="checkbox"/> 0.0%	<input type="checkbox"/> 11.9	<input type="checkbox"/> 44.7	<input type="checkbox"/> 42.8	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	N=159
Barking dog	<input type="checkbox"/> 0.6%	<input type="checkbox"/> 5.7	<input type="checkbox"/> 16.4	<input type="checkbox"/> 64.2	<input type="checkbox"/> 0.0	<input type="checkbox"/> 13.2	<input type="checkbox"/> 0.0	N=159
Traffic or parking troubles	<input type="checkbox"/> 0.0%	<input type="checkbox"/> 10.0	<input type="checkbox"/> 40.6	<input type="checkbox"/> 48.7	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.6	<input type="checkbox"/> 0.0	N=160
Missing persons, runaways	<input type="checkbox"/> 3.8%	<input type="checkbox"/> 19.5	<input type="checkbox"/> 42.8	<input type="checkbox"/> 21.4	<input type="checkbox"/> 0.0	<input type="checkbox"/> 12.6	<input type="checkbox"/> 0.0	N=159

Page 10 of 17

2. Does your department rank calls for service by priority of response? N=156

80.8% Yes → please attach, if available, a call priority list

19.2% No

3. If a unit is assigned to a suspicious person call, will you interrupt the unit to assign it to a call for:

Officer in trouble?	<input type="checkbox"/> Yes 97.5%	<input type="checkbox"/> No 2.5	N=160
Burglary, cold?	<input type="checkbox"/> Yes 1.2%	<input type="checkbox"/> No 98.7	N=160
Robbery, in progress?	<input type="checkbox"/> Yes 97.5%	<input type="checkbox"/> No 2.5	N=160
Unarmed dispute or fight?	<input type="checkbox"/> Yes 41.5%	<input type="checkbox"/> No 58.5	N=159
Loud noise?	<input type="checkbox"/> Yes 0.6%	<input type="checkbox"/> No 99.4	N=160

4. If a unit is assigned to an unarmed dispute or fight call, will you interrupt the unit to assign it to a call for:

Officer in trouble?	<input type="checkbox"/> Yes 95.6%	<input type="checkbox"/> No 4.4	N=160
Burglary, cold?	<input type="checkbox"/> Yes 1.9%	<input type="checkbox"/> No 98.1	N=160
Robbery, in progress?	<input type="checkbox"/> Yes 91.2%	<input type="checkbox"/> No 8.7	N=160
Suspicious car or person?	<input type="checkbox"/> Yes 6.3%	<input type="checkbox"/> No 93.8	N=160
Loud noise?	<input type="checkbox"/> Yes 0.6%	<input type="checkbox"/> No 99.4	N=160

5. If a unit is assigned to a cold burglary call, will you interrupt the unit to assign it to a call for:

Officer in trouble?	<input type="checkbox"/> Yes 98.1%	<input type="checkbox"/> No 1.9	N=159
Robbery, in progress?	<input type="checkbox"/> Yes 96.2%	<input type="checkbox"/> No 3.8	N=159
Suspicious car or person?	<input type="checkbox"/> Yes 49.4%	<input type="checkbox"/> No 50.6	N=160
Unarmed dispute or fight?	<input type="checkbox"/> Yes 60.6%	<input type="checkbox"/> No 39.4	N=160
Loud noise?	<input type="checkbox"/> Yes 6.9%	<input type="checkbox"/> No 93.1	N=160

6. If a unit is assigned to a robbery in progress, will you interrupt the unit to assign it to a call for:

Officer in trouble?	<input type="checkbox"/> Yes 61.8%	<input type="checkbox"/> No 38.2	N=157
Burglary, cold?	<input type="checkbox"/> Yes 3.1%	<input type="checkbox"/> No 96.9	N=160
Suspicious car or person?	<input type="checkbox"/> Yes 2.5%	<input type="checkbox"/> No 97.5	N=159
Unarmed dispute or fight?	<input type="checkbox"/> Yes 2.5%	<input type="checkbox"/> No 97.5	N=159
Loud noise?	<input type="checkbox"/> Yes 2.5%	<input type="checkbox"/> No 97.5	N=159

Exhibit 16

(Page 6 of 9)

Page 11 of 17

7. Does your department stack or formally delay response to some types of calls for service? N=160

88.7% Yes -> please respond below

11.2 No -> please go to section F

a. Under what conditions is a call for service stacked or delayed? N=139

15.1% Best car is busy

73.4 All cars in area are busy

11.5 Other (please describe): _____

b. When is a patrol car assigned to a stacked or delayed call? N=139

30.2% When the best car is available

23.7 When the closest car in the area is available

30.9 When any car in the area is available

2.9 When a special car designated to respond to stacked or delayed calls is available

12.2 Other (please describe): _____

c. Is the citizen who requests service informed of the length of delay to expect? N=141

80.9% Yes

19.1 No

d. Please list the calls for service which may be stacked or delayed:

(attach policy, if available)

F. ALTERNATIVE RESPONSE STRATEGIES

Page 12 of 17

1. Does your department ask citizens requesting some types of police services to file a report at a police facility in lieu of dispatching a police car? N=160

53.1% Yes -> please respond below

46.9 No -> please go to question 2

a. What year was this policy adopted? Mean = 1976 N=56

b. Please list the calls for service for which this policy is used:

(attach policy, if available)

c. About what percent of all calls for service were handled this way in

1978: Mean = 8.2% N=38 1982: Mean = 11.3% N=48

2. Does your department ask citizens requesting some types of police services to make a telephone report in lieu of dispatching a police car? N=160

78.7% Yes -> please respond below

21.2 No -> please go to question 3

a. What year was this policy adopted? Mean = 1978 N=106

b. Please list the calls for service for which this policy is used:

(attach policy, if available)

c. About what percent of all calls for service were handled this way in

1978: Mean = 6.0% N=57 1982: Mean = 13.0% N=81

Exhibit 16

(Page 7 of 9)

Page 13 of 17

Page 14 of 17

3. Does your department ask citizens requesting some types of police services to schedule an appointment with an officer or civilian in lieu of immediately dispatching a police car? N=160

15.0% Yes -> please respond below

85.0% No -> please go to question 4

a. What year was this policy adopted? Mean = 1977 N=13

b. Please list the calls for service for which this policy is used:

(attach policy, if available)

c. About what percent of all calls for service were handled this way in

1978: Mean = 1.7% N=7 1982: Mean = 4.1% N=7

4. Does your department ask citizens requesting some types of police services to mail a report to the department in lieu of dispatching a police car? N=161

21.1% Yes -> please respond below

78.9% No -> please go to the question 5

a. What year was this policy adopted? Mean = 1977 N=22

b. Please list the calls for service for which this policy is used:

(attach policy, if available)

c. About what percent of all calls for service were handled this way in

1978: Mean = 1.9% N=11 1982: Mean = 5.8% N=12

5. Does your department use any other alternative methods to handle or respond to calls for service that have not been mentioned? N=160

18.8% Yes -> please respond below

81.2% No -> please go to question 6

Please describe these alternative methods and the calls for service to which they apply:

(attach policies, if available)

6. Has your department abandoned the use of any alternative methods to handle or respond to calls for service because the method was found to be ineffective, or for other reasons such as the lack of appropriate funding or a change of administration? N=160

10.6% Yes -> please respond below

89.4% No -> please go to question 6

Please describe these alternative methods, the calls for service to which they applied, and the reasons they were abandoned:

(attach policies, if available)

A-8

Exhibit 16

(Page 8 of 9)

Q. ALARM RESPONSE POLICIES

Page 15 of 17

1. Has your department adopted a false alarm ordinance or alarm response policy designed to reduce the number of false alarms? N=159
 62.3% Yes → please attach a copy and answer questions 2-4 below
 37.7% No → please go to section H

2. What year was the ordinance or policy adopted? Mean = 1979 N=89

3. Which of the following techniques to control false alarms does your department use (check all that apply)? N=100
 35.0% Alarm owners must obtain a permit (permit fee = \$ _____)
 60.0% Alarm owners are charged a fine for each false alarm in excess of a stated maximum (fine = \$ _____; max. = _____)
 15.0% The department will not respond to an alarm if the number of false alarms in a given period exceeds a stated maximum (max. = _____)
 An alarm owner's permit is revoked if the number of false alarms in a given period exceeds a stated maximum (new permit fee = \$ _____; max. = _____)
 20.0% Automatic telephone dialers are prohibited to connect (i.e., dial directly) with the department's phone system
 32.0% Audible alarms must shut off within a specified time period
 29.0% Other (please describe): _____

4. What has been the effect of this ordinance or policy on the number of false alarms received by your department?

A-9

H. CIVILIAN EMPLOYEES

Page 16 of 17

1. Does your department use civilians (volunteers and/or employees) in any capacity within the patrol function? N=159
 73.6% Yes → please answer questions 2-5 below
 26.4% No → please go to section I

2. In general,
 a. do civilian volunteers work: with sworn officers as a team? 43.2%
N=88 without sworn officers 25.0% both 31.8%
 b. do civilian employees work: with sworn officers as a team? 18.8%
N=85 without sworn officers 69.4% both 11.8%

3. a. How many civilian volunteers worked in patrol in
 1978: Mean = 51.4 N=97 1982: Mean = 57.3 N=107
 b. How many civilian employees worked in patrol in
 1978: Mean = 35.8 N=105 1982: Mean = 41.6 N=106

4. What types of services do civilians provide? (check all that apply)

	Civilian Volunteers	Civilian Employees		
Call for service response	<input type="checkbox"/> 62.7%	<input type="checkbox"/> 22.0	<input type="checkbox"/> 15.3	<u>N=59</u>
Preventive patrol	<input type="checkbox"/> 88.3%	<input type="checkbox"/> 3.3	<input type="checkbox"/> 8.3	<u>N=60</u>
Traffic	<input type="checkbox"/> 60.9%	<input type="checkbox"/> 21.7	<input type="checkbox"/> 17.4	<u>N=69</u>
Animal Enforcement	<input type="checkbox"/> 31.8%	<input type="checkbox"/> 65.9	<input type="checkbox"/> 2.3	<u>N=44</u>
Crowd Control	<input type="checkbox"/> 84.5%	<input type="checkbox"/> 5.2	<input type="checkbox"/> 10.3	<u>N=58</u>
Chaplain	<input type="checkbox"/> 68.5%	<input type="checkbox"/> 30.1	<input type="checkbox"/> 1.4	<u>N=73</u>
Evidence Gathering	<input type="checkbox"/> 31.7%	<input type="checkbox"/> 59.2	<input type="checkbox"/> 8.2	<u>N=49</u>
Family Disturbances	<input type="checkbox"/> 92.3%	<input type="checkbox"/> 5.1	<input type="checkbox"/> 2.6	<u>N=39</u>
Parking	<input type="checkbox"/> 36.7%	<input type="checkbox"/> 53.3	<input type="checkbox"/> 10.0	<u>N=90</u>
Accident Investigation	<input type="checkbox"/> 63.2%	<input type="checkbox"/> 28.9	<input type="checkbox"/> 7.9	<u>N=38</u>
Medical (paramedic) assist	<input type="checkbox"/> 61.9%	<input type="checkbox"/> 38.0	<input type="checkbox"/> 0.0	<u>N=21</u>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5. What calls for service, if any, do civilians respond to?

Exhibit 16
(Page 9 of 9)

I. DEPARTMENTAL OPERATIONS

Page 17 of 17

1. Several characteristics of departmental operations are listed below. For each, please indicate (check the appropriate box) whether there was an increase, decrease, or no change from 1978 to 1982. (Leave blank if an item does not apply to your department.)

	Change Due To:			Change Due To:			N
	Increase	Decrease	No Change	Budget Back	Budget Increase	Policy/Procedure	
Total budget for:							
-patrol	N=153 <input type="checkbox"/> 89.5%	<input type="checkbox"/> 0.5	<input type="checkbox"/> 2.0	<input type="checkbox"/> 10.9%	<input type="checkbox"/> 85.9	<input type="checkbox"/> 3.1	N=128
-department	N=153 <input type="checkbox"/> 90.2%	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.3	<input type="checkbox"/> 11.5%	<input type="checkbox"/> 86.3	<input type="checkbox"/> 2.3	N=131
No. of sworn officers in:							
-patrol	N=157 <input type="checkbox"/> 52.9%	<input type="checkbox"/> 32.5	<input type="checkbox"/> 14.6	<input type="checkbox"/> 30.8%	<input type="checkbox"/> 46.7	<input type="checkbox"/> 22.5	N=120
-department	N=154 <input type="checkbox"/> 51.9%	<input type="checkbox"/> 35.1	<input type="checkbox"/> 13.0	<input type="checkbox"/> 35.3%	<input type="checkbox"/> 50.4	<input type="checkbox"/> 14.3	N=119
No. of paid civilians in:							
-patrol	N=120 <input type="checkbox"/> 40.0%	<input type="checkbox"/> 22.5	<input type="checkbox"/> 37.5	<input type="checkbox"/> 31.6%	<input type="checkbox"/> 32.9	<input type="checkbox"/> 35.5	N=76
-department	N=146 <input type="checkbox"/> 58.2%	<input type="checkbox"/> 27.4	<input type="checkbox"/> 14.4	<input type="checkbox"/> 33.6%	<input type="checkbox"/> 37.9	<input type="checkbox"/> 28.4	N=116
Hours of printing in:							
-patrol	N=148 <input type="checkbox"/> 51.4%	<input type="checkbox"/> 29.7	<input type="checkbox"/> 18.9	<input type="checkbox"/> 30.0%	<input type="checkbox"/> 29.0	<input type="checkbox"/> 41.0	N=100
-department	N=145 <input type="checkbox"/> 55.2%	<input type="checkbox"/> 25.5	<input type="checkbox"/> 19.3	<input type="checkbox"/> 29.3%	<input type="checkbox"/> 31.3	<input type="checkbox"/> 39.4	N=99
Hours of employee training in:							
-patrol	N=153 <input type="checkbox"/> 59.5%	<input type="checkbox"/> 11.8	<input type="checkbox"/> 28.8	<input type="checkbox"/> 15.0%	<input type="checkbox"/> 18.0	<input type="checkbox"/> 67.0	N=100
-department	N=151 <input type="checkbox"/> 56.3%	<input type="checkbox"/> 11.9	<input type="checkbox"/> 31.8	<input type="checkbox"/> 15.5%	<input type="checkbox"/> 18.6	<input type="checkbox"/> 66.0	N=97
Maintenance budget for:							
-patrol cars	N=149 <input type="checkbox"/> 72.5%	<input type="checkbox"/> 10.1	<input type="checkbox"/> 17.4	<input type="checkbox"/> 13.9%	<input type="checkbox"/> 72.2	<input type="checkbox"/> 13.9	N=108
-department facilities	N=146 <input type="checkbox"/> 67.1%	<input type="checkbox"/> 9.6	<input type="checkbox"/> 23.3	<input type="checkbox"/> 14.7%	<input type="checkbox"/> 69.6	<input type="checkbox"/> 15.7	N=102
Average age of patrol cars:	N=150 <input type="checkbox"/> 27.3%	<input type="checkbox"/> 19.3	<input type="checkbox"/> 53.3	<input type="checkbox"/> 39.0%	<input type="checkbox"/> 24.7	<input type="checkbox"/> 36.4	N=77

A-10

2. Estimate the average response time (dispatch delay + travel time) to a call for service in

1978: Mean = 8.5 minutes N=107 1982: Mean = 8.0 minutes N=128

3. Estimate the average on-scene time for a call for service in

1978: Mean = 27.2 minutes N=85 1982: Mean = 27.3 minutes N=117

THANK YOU!!!

END