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Appendix A

Minnesota Peace Officer Training and
Education: Final Report
prepared by

THE EVALUATION UNIT

Crime Control Planning Board
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TECHNICAL ISSUES
OF
SURVEY DATA COLLECTION

TABLE OF CONTENTS

GROUPS SURVEYED AND PROCEDURES OF DATA COLLECTION 1

CONFIDENTIALITY AND ANONYMITY 5

SURVEY DATA SAMPLES--CRITERIA FOR SELECTION AND REPRESENTATIVENESS
OF SAMPLES AND RETURNS 10

POPULATION DATA 12

BCA BASIC TRAINEE SAMPLE 15

BCA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE 22

SUPERVISORS OF 1976-77 BCA TRAINEES--SUPERVISORY I SAMPLE 28

BCA BASIC GRADUATE SAMPLE: THREE YEARS OF POST-TRAINING
JOB EXPERIENCE 35

SUPERVISORS IN AGENCIES WITH OFFICERS TRAINED IN 1973-74--
SUPERVISORY II SAMPLE 42

CONTROL GROUP: AGENCIES WITH UNTRAINED PERSONNEL 46

SUMMARY 50

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GROUPS SURVEYED AND PROCEDURES
OF DATA COLLECTION

A major portion of the data used in the training evaluation constitutes survey data. A number of groups have been surveyed and several procedures have been used to obtain the perceptions and opinions of these groups. Chart A.1 contains information on groups surveyed and data collection procedures followed. One sees from this chart that much of the data has been obtained from questionnaires distributed in person. The procedure for obtaining perceptions and opinions from officers attending training programs (BCA Basic, BCA In-Service, Minneapolis Basic) was to distribute questionnaires to trainees during the training program. In this way the purpose of the evaluation and instructions could be explained to respondents and errors from misunderstanding could be reduced.

Several groups were not as readily accessible as trainees and, hence, personal distribution of questionnaires was not feasible. The alternative procedures were mailing questionnaires to respondents or conducting personal interviews. The latter procedure has advantages in assuring high response rates, but it is very costly in terms of time and personnel. For large samples in which respondents were distributed throughout the state, mailing questionnaires was determined to be the only feasible alternative. This procedure was employed for the two samples of BCA graduates with post-training job experience, the two samples of supervisors of BCA graduates, and the control group of agencies with untrained personnel (See Chart A.1). The major disadvantage of mail surveys is the low response rate (50% returns

CHART A.1
GROUPS SURVEYED AND DATA COLLECTION PROCEDURES EMPLOYED

SECTION OF EVALUATION	GROUP SURVEYED	PROCEDURE		
		QUESTIONNAIRE DISTRIBUTED IN PERSON	MAIL QUESTIONNAIRE	PERSONAL INTERVIEW
BCA Basic Training Course evaluation and evaluation of training delivery (Chapter VII, XII, XV)	BCA 1976-77 trainees			
	1. pre-training survey	X		
	2. post-training survey	X		
	3. course evaluation	X		
	BCA graduates			
	1. six-month follow-up of 1976-77 trainees		X	
	2. graduates with three years of experience		X	
	Supervisors of BCA graduates			
	1. supervisors of 1976-77 graduates		X	
	2. supervisors of graduates with three years of experience		X	
Control group				
1. agencies with untrained personnel		X		
Trainers				
1. BCA full-time trainers	X		X	
2. training officer subsample of supervisory samples		X		
BCA in-service course evaluations (Chapter VII and separate in-service reports)	Intermediate Command course evaluation	X		
	Crime Scene Processing course evaluation	X		
	Refresher Training course evaluation	X		
	Basic Investigation course evaluation	X		
	Advanced Investigation course evaluation	X		
Educational Institutions (Chapter III and IV)	Administrators of law enforcement programs			X
Training Academies (Chapter II)	Training directors of BCA, Minneapolis, St. Paul, and State Patrol academies			X
Minneapolis training evaluation (Chapter VII, XII, and separate Minneapolis report)	Minneapolis 1976 recruit class evaluation			
	1. pre-training survey	X		
	2. post-training survey	X		
	3. course evaluation	X		

is considered acceptable). To minimize this problem, a cover letter (from Carl Pearson, Executive Director of the Training Board) encouraging returns was included with the questionnaires and instructions.¹ The name, phone number, and address of a project employee was included in case respondents had questions on the purpose or instructions of the surveys. Also, a follow-up letter from Don Peterson, Director of the BCA Training Section, was mailed a month later to the samples of recruit supervisors to encourage returns from those who had not yet responded. All mail questionnaires were sent to the head of the agency (Chief or Sheriff) who was asked to distribute them to the appropriate persons and encourage prompt returns. It was hoped that enlisting the aid of the agency head would increase returns. Response rates and representativeness of responses are discussed in a subsequent section.

Personal interviews were employed for groups of manageable size. Project personnel interviewed administrators of all vo-tech, college, and university law enforcement programs to obtain information on students, instructors, facilities and costs. In this way data were collected on the two vocational-technical institute programs, ten state community college programs, seven four-year state university programs, and four private college programs.

Data on certified training academies also have been collected in person rather than by formal questionnaire. Project personnel have worked closely with the BCA Training Section employees and continually have obtained information on BCA programs.

¹This letter was not included for the sample of agencies with untrained personnel since it was assumed that the Training Board would not carry so much influence with them.

Necessary information on the Minneapolis, St. Paul, and State Patrol academies as well as on the special driving course at St. Cloud has been obtained in personal or phone conversations.

In-addition, informal sessions were held with trainers to obtain their perceptions of various aspects of peace officer training that were not collected systematically by questionnaires.

All survey data are subject to some error, and each procedure minimizes or maximizes certain types of errors. Problems with particular sets of questions are mentioned in sections of the report in which the data are analyzed. In general, some major problems associated with data collection procedures used in the training evaluation have been minimized. Distribution of questionnaires during the training programs and support of the training staff ensured virtually 100% response rates for these surveys. Procedures mentioned above apparently contributed to unusually high return rates for mail questionnaires. The types of data obtained from interviews, especially with law enforcement program administrators, were mostly factual and not likely to be biased by reactive errors or a desire to withhold or distort information, although it is possible that program enrollments may have been inflated.

It was expected that the most likely general sources of bias in the survey data would be two. First, certain response sets might be likely if respondents suspected that results were not anonymous and confidential. For example, recruits would be likely to rate the training program highly if they felt trainers or agency supervisors might see their responses. Supervisors might be less critical of programs if they felt the Training Board or the Crime Commission (a major source of funding) might read responses. Second, biases in response rates particularly for mail

questionnaires (i.e., certain types of persons are more or less likely to return questionnaires) could produce systematic error in the data. The latter problem would mean that data obtained on a group would not be representative of the opinions and perceptions of that group. The following two sections address these two sources of error in more detail.

CONFIDENTIALITY AND ANONYMITY

In order to maximize the accuracy of responses as well as to ensure the legality of the research, it was necessary to assure respondents that all data obtained would remain anonymous and confidential. Recipients of all questionnaires were assured that their answers would be both anonymous and confidential. The following examples are typical of the assurance provided on questionnaires.

Please enter the last four digits on your Social Security number in the space marked "ID Number." This number is for purposes of matching information on this form with that on other questionnaires which we may ask you to complete in the future. No attempt will be made by any agency to use this number to identify you for any reason. This data will be used for statistical purposes only, and your responses will remain completely anonymous. (From instructions on BCA Basic Pre-Training Survey)

You need not identify yourself on this questionnaire; all responses will remain completely anonymous. Below you will see a code for region and distance from the metropolitan area. This code tells us from which region and from how far away the returning questionnaire is from. The purpose of this code is to ensure equal representation between different regions of the state and also to ensure that opinions are representative of outstate areas as well as the metro area. (From Supervisory Questionnaires)

Since no names were requested on questionnaires, responses were anonymous. Also with no means of identifying the respondent, all questionnaires, were in principle, confidential. This is true of all in-service questionnaires, the sample of officers with three years of post-training job

experience, and the sample of supervisors of BCA graduates with three years of experience. These questionnaires contained no name nor any identifying piece of information.

However; the problem of confidentiality did arise with survey data on the 1976-77 BCA Basic trainees because of the need to match questionnaires and coded data. The following information was collected on BCA 1976-77 recruits:

1. Pre-training questionnaire
2. Post-training questionnaire
3. End-of-course evaluation
4. Six-month follow-up questionnaire mailed to recruits in classes #54, #55, #56, and #57 (other classes did not finish in time for recruits to have six months of job experience)
5. Supervisory evaluation of recruits with six months job experience (the same agencies that received the six-month follow-up as well as those with Alexandria graduates from BCA class #68)
6. Coded data on background variables and test scores

It was valuable to match this information on each recruit for research purposes. For example, matched information enables one to see if recruit opinions change after training or job experience, how background variables relate to opinions and perceptions, how supervisors' evaluations of recruit job performance relate to training performance (test scores), and to probe many other questions that would remain unanswered if the six types of data listed above remained separate and unmatched. Matching thus required an identifying piece of information other than the name. Recruits were asked to provide the last four digits of their social security number since this would be a number they would remember from survey to survey. If a recruit had a social security number ending in "1234", then he was asked to put this number on all questionnaires completed, and his supervisor who was later

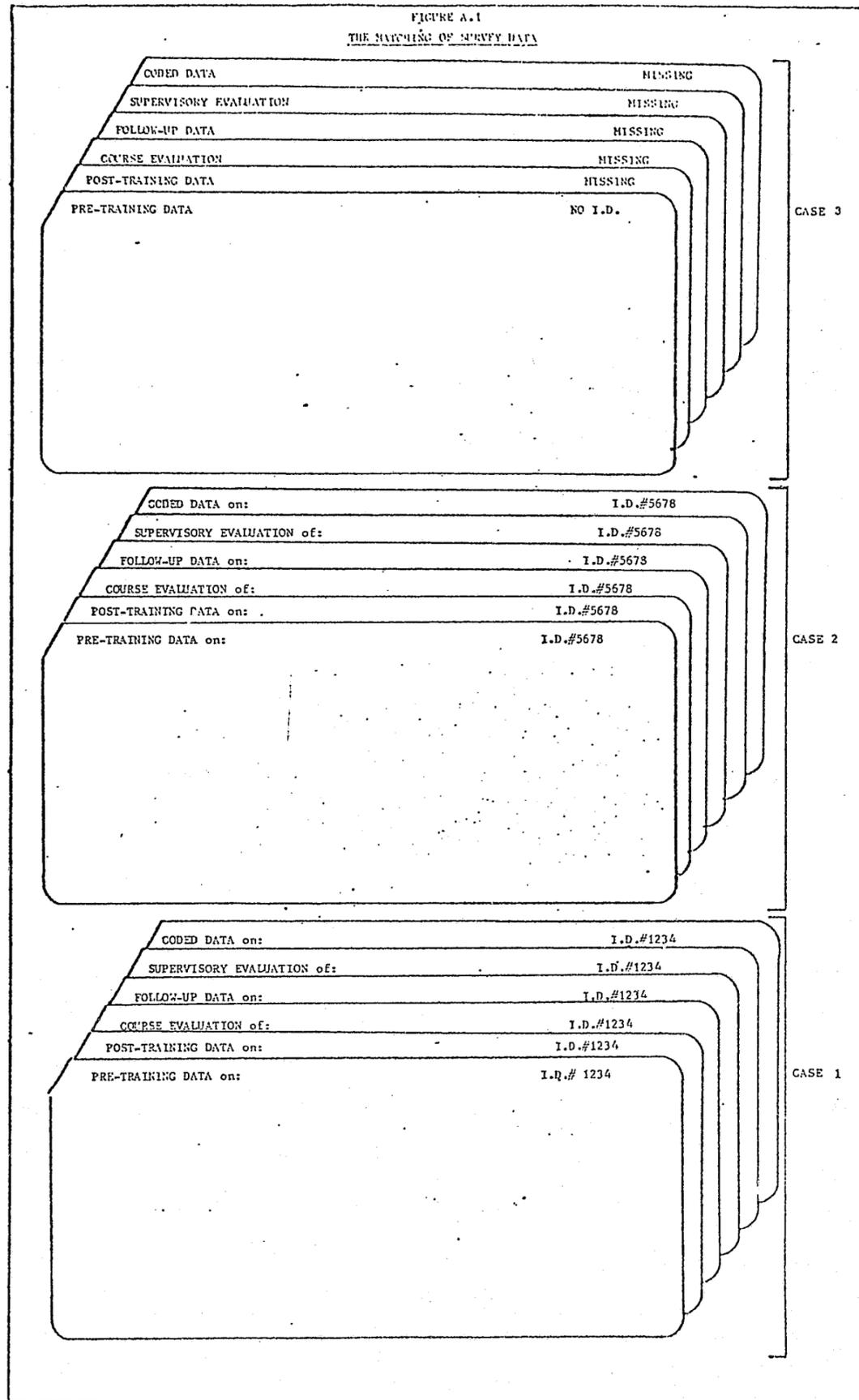
mailed a questionnaire was asked to evaluate the performance of his recent recruit with a social security number ending with "1234." Data from all these questionnaires would have the I.D. number of "1234" and then could be matched for statistical purposes without ever identifying a name.

Names were identifiable for one step. Therefore special precautions were followed. It was desirable to collect from the BCA training files information on training performance and some background characteristics not obtained through questionnaires. To avoid identifying individuals and potentially destroying promised anonymity, I.D. numbers rather than names were recorded with test scores and background data. Project personnel could then match the coded data to questionnaire data by a number without knowing the name involved. Project employees do not know the identity of individuals being analyzed and no agency has access to project data.

This process of identifying questionnaire data for purposes of statistical analysis while retaining anonymity and confidentiality did not ensure that all data could be matched. Respondents retained the option of providing no I.D. number either on the questionnaires or for their personnel data in the BCA files. For each class there are some questionnaires that could not be matched to others. Hence analyses requiring matched data are based on a sample size smaller than the total number of respondents. Figure A.1 depicts the matching process. In the first two cases, the recruit has provided an I.D. number on all questionnaires (#1234 and #5678). In the third case, the recruit gave no I.D. number on the pre-training survey and hence those data cannot be matched to any other.¹ In an analysis of

¹This means that this recruit's other questionnaires also cannot be matched to each other so long as he continues to provide no I.D.

FIGURE A.1
THE MATCHING OF SURVEY DATA



pre-training data, one would have three cases in this example, but if one were to assess change in recruit opinions between the pre-training survey and follow-up, there would be only two cases to analyze.

In one other instance, names of recruits were identified but confidentiality was not threatened. For the follow-up, three-year experience, and supervisory questionnaires it was necessary to obtain the names of BCA graduates and the agency from which they were trained in order to mail questionnaires to respondents. BCA files contain a list of recruits with their agency for each class which is kept separate from personal data contained in the files. Names and addresses readily could be obtained without seeing any confidential data. In some cases it was necessary to locate a graduate who obtained employment after training (e.g., graduates in class #68 for Alexandria students not yet employed) or who changed employment. In these cases, project personnel sent names to the Training Board, its employees located the current address from their files, and they sent the new address back to the project.

In sum, procedures followed by the project have assured the confidentiality and anonymity of responses. Assurances of anonymity should help to obtain less biased answers than if respondents feared that others might see their responses. The experience of those handing out questionnaires was that many trainees expressed concern over anonymity and even desired explanations that their I.D. number would not be used to identify them. On the other hand, many graduates and supervisors signed their questionnaires and apparently did not share such reservations. While anonymity and confidentiality were kept, procedures maximized the data that could be analyzed by enabling the matching of most of the data obtained on 1976-1977 recruits.

SURVEY DATA SAMPLES:
CRITERIA FOR SELECTION AND REPRESENTATIVENESS OF RETURNS

The previous section dealt with error introduced through inaccurate response to survey questions. This section deals with errors introduced through sampling. The purpose of this section is to discuss the composition of each sample and to assess how representative each sample and each set of returned questionnaires are of the population whose opinions are being sought. As will be elaborated below, the relevant populations for the survey data analyses are Minnesota law enforcement personnel and law enforcement agencies. Since there are too many individuals and agencies in these populations to survey all of them, one must select samples to represent them.

The technical issue involved is the ability to make inferences from a sample to a population. Unrepresentative samples can produce two types of problems. First, in describing responses of law enforcement personnel one wants to ensure that the sample described represents the population to which one wants to make inferences. For example, if one wants to summarize opinions of Minnesota Police Chiefs on where training facilities should be located and one samples only police chiefs in the metro area, conclusions based on that sample might not accurately reflect opinions of chiefs throughout the state even if each chief in the sample answered questions accurately.

Second, when one relates variables in statistical analyses, one wants to infer that relationships discovered in the sample can be generalized to the population. If the distribution of a variable in a sample is different from the distribution in the population, then inferences from the sample to the population could be inaccurate. For example, if one is relating size of agency to recruits' perceptions of training topic importance, and if the sample overrepresents large agencies (i.e., the proportion of large

agencies in the sample is larger than in the population), then the statistic summarizing the relationship between agency size and perception might not accurately represent the relationship that holds in the population.

Readers should be aware that there is no procedure to assure sample representativeness in all respects. One strategy is to employ probability sampling, the most common example being random sampling. Since inclusion in many of the law enforcement samples was dictated by the time of recruit training, random sampling was not feasible for this study. A second strategy is to select variables of importance on which population distributions are known and then to compare sample distributions to population distributions. This second strategy is the one employed below. There is no way of knowing representativeness on other variables, however.

Representativeness is discussed in terms of five variables--type of agency (police/sheriff), region,¹ size of agency, size of population served, and distance of the agency from the metro area. The latter four variables are all broken down by agency type for reference. Since different types of agencies or communities might argue that results of this evaluation are not relevant to them, it is useful to be able to assess whether such agencies are adequately represented in the samples on which results are based. Thus these five variables were selected for the assessment of samples.

Two points should be stressed for interpreting the results of the sample assessments. First, conclusions that samples are unrepresentative on certain variables should not lead one to presume that analyses of the

¹Since the writing of this report Region A has divided into Regions 1 and 2; Regions B,C and G are now called Regions 3, 4 and 11, respectively.

samples are not worthwhile. Instead, results can be used to suggest 1) how best to analyze the data, and 2) how best to interpret results. For example, results of this Appendix have been used to decide in which analyses to include the two spring, 1976, BCA classes (54 and 55) with the annual 1976-77 sample. Moreover, knowledge of the samples can assist in interpretation. An example can be found in Chapter VII where it appeared that supervisors might hold different opinions on a training delivery issue. Knowledge that opinion varied by whether one represented a metro or outstate agency and knowledge that the supervisory sample contained relatively more outstate personnel than the others, led to the conclusion that the difference found is probably a result of agency location rather than supervisory position. One could not arrive at such a conclusion without prior knowledge of the sample compositions.

Second, a major pattern that emerges in analyses is the agreement among law enforcement personnel on major training issues. In the majority of cases consensus emerges. This strong consensus reduces the number of situations in which unrepresentative samples could affect conclusions.

POPULATION DATA

One requires information on the relevant populations before sample representativeness can be assessed. Actually, two populations are relevant for this study. One consists of law enforcement personnel and one consists of law enforcement agencies. While one generally wants to conclude that results are representative of the states' personnel, representing agencies is equally important. The majority of the states' law enforcement personnel (and hence trainees) are located within or near the metro area. However, the majority of agencies are outstate. It is frequently personnel of these

outstate agencies that are least satisfied with current training arrangements. Since training needs might differ by agency type, adequate representation of Minnesota law enforcement agencies in the evaluation is necessary.

Several problems were encountered in collecting population data on these variables, which imposed limitations of feasible assessments of the samples. First, accurate data on law enforcement personnel do not exist. The Training Board has received grants to collect thorough information on state law enforcement agencies and personnel but data are not yet complete. Although project employees did tabulate some information on numbers of personnel by the five variables mentioned above, it was decided that data were too erroneous to include in analyses of samples. As a result, population information contained in this section relates only to law enforcement agencies, although for some samples personnel rather than agencies constitute the relevant population. For example, tables indicate how many law enforcement agencies there are in each region but not how many law enforcement personnel.

Tabulation of the total number of police and sheriff departments in the state was based on the Minnesota Law Enforcement Directory,¹ which lists by county each sheriff's office and all police departments. Regional and distance from metro area distributions were calculated from this list.

¹Minnesota Department of Public Safety, Bureau of Criminal Apprehension, Police Training Section, Minnesota Law Enforcement Directory, May, 1977.

Data on population size were gathered by the Research Unit of the Crime Commission and from 1974 Metro Council estimates. These data include the size of the population of the town/city/county that each agency serves and the size of the agency in terms of the number of full-time sworn officers.

Use of the latter data entails two problems. First, population and size figures are three years old. The 1977 Law Enforcement Directory lists 123 more police departments than the 1974 Crime Commission figures include. Second, a number of agencies failed to report information so that data are missing on 92 agencies for size and on 25 agencies for population served. For these reasons, state-wide data on agency size and size of population served are contained in tables for reference only and are considered too inaccurate for systematically assessing representativeness of samples.¹

The following sections discuss each of the major samples for which survey data have been collected and analyzed² and assess representativeness of the samples to the extent possible given data problems outlined above.

¹Sample data on these two variables were coded from BCA files for the 1976-77 BCA trainee and six-month follow-up samples and are considered relatively accurate. For other samples, however, size of agency and population are based on questionnaire responses that could contain response error. These expected errors in sample and return distributions strengthen the argument for eliminating statistical assessments of sample representativeness on these variables. Type of agency, region, and distance were precoded on all mail questionnaires so that sample and return distributions are sufficiently accurate for analysis.

²Discussions exclude in-service samples and Minneapolis recruit class sample.

BCA BASIC TRAINEE SAMPLE

Most of the survey data obtained during the training evaluation were collected from recruits trained by the BCA from Spring 1976 through Spring 1977. The first questionnaires were distributed to trainees at the completion of BCA Basic classes #54 and #55 in May, 1976. Although questionnaires used for remaining classes changed considerably, a few questions remained comparable and the course evaluation questions remained identical to those used in later trainee questionnaires. The BCA held a special shortened class for Alexandria Vo-Tech graduates in the Spring 1976, and some data were obtained from these trainees as well. Questionnaires were distributed to BCA trainees from Fall 1976 through Spring 1977 (classes #56 through #63) at the beginning and end of the training session. Thus, the total trainee sample consists of BCA classes #54 and #55 (Spring, 1976), class #68 for Alexandria graduates (Spring, 1976), and 1976-77 school year classes #56 through #63. Thorough and comparable data exist for classes #56 through #63, some background and attitudinal data as well as comparable course evaluation data exist for classes #54 and #55, and demographic data exist for class #68.¹

Tables A.1 through A.4 contain information on agency type, region, distance from metro area, agency size, and size of population served for the

¹Trainees in class #68 received the same attitudinal survey as classes #54 and #55. Lack of variance in responses led to dropping of most of these questions and to the creation of a revised questionnaire beginning with class #56. Alexandria students also completed a course evaluation but since class #68 was a shortened course, results are not comparable to course evaluation data from other BCA classes. Thus, demographic data are the only ones comparable to the other trainees.

full trainee sample and its subsets (classes #54 and #55; class #68; classes #56 through #63). State-wide agency data on the same variables are included for reference, but representativeness of the total sample is not a relevant question here. First, assessment of the representativeness of the trainee sample would require population data on personnel (rather than agencies) which are not available.¹ Second, since some agencies are exempt from training, one would not expect that the sample of trainees should be representative of the state. Given the small community exemption, one would expect smaller agencies, in smaller communities, probably in areas farther from the metro area to be somewhat under-represented as appears to be the case from Tables A.1 to A.4.

By obtaining data on a full year of trainees (1976-77), one could argue that the 1976-77 sample constitutes a population of trainees since everyone trained in that year has been surveyed. Chapter XV provides a through description of 1976-77 recruits with comparisons to Alexandria graduates (class #68) and to graduates of previous years (three-year experience sample) to assess how typical this one year is. These points need not be repeated here. Of interest now is whether including available data from other classes, especially #54 and #55, distorts the total trainee sample so that it is atypical of an annual class.²

Distributions on the five variables for classes #54 and #55 were compared

¹Since many trainees are from the same agency and since data are collected by trainee, not by agency, it is not possible to tabulate how many different agencies are represented in the trainee sample and thus, whether that sample would be representative of the state.

²Alexandria class #68 is excluded because no comparable data (to be included in analyses) exists on these recruits.

TABLE A.1
BCA BASIC TRAINEE SAMPLE: DISTRIBUTIONS BY REGION AND AGENCY TYPE

REGION	AGENCY TYPE	AGENCIES IN POPULATION		TOTAL TRAINEE SAMPLE		SPRING 1976 CLASSES #54-55		ALEXANDRIA CLASS #68 (EMPLOYED)		1976-77 SCHOOL YEAR CLASSES #56-63		CHI SQUARE TEST ^a CLASSES #54+55/ANNUAL SAMPLE	
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	AGENCY TYPE	REGION
A	Police	46	07%	5	01%	2	05%	0	-	3	01%		
	Sheriff	12	02	19	05	4	02	1	04%	14	05		
	Total	58	09	24	06	6	07	1	04	17	05		
B	Police	47	07	40	09	11	13	7	26	22	07		
	Sheriff	7	01	11	03	2	02	1	04	8	03		
	Total	54	09	51	12	13	16	8	30	30	10		
C	Police	48	08	22	05	9	11	2	07	11	04		
	Sheriff	9	01	4	01	0	-	0	-	4	01		
	Total	57	09	26	06	9	11	2	07	15	05		
D	Police	85	13	28	07	2	02	2	07	24	08		
	Sheriff	14	02	21	05	3	04	0	-	18	06		
	Total	99	16	49	12	5	06	2	07	42	13		
E	Police	99	16	28	07	6	07	2	07	20	06		
	Sheriff	18	03	5	01	1	01	0	-	4	01		
	Total	117	19	33	08	7	08	2	07	24	08		
9	Police	59	09	21	05	0	-	3	11	18	06		
	Sheriff	9	01	6	01	2	02	0	-	4	01		
	Total	68	11	27	06	2	02	3	11	22	07		
10	Police	67	11	20	05	4	05	6	22	10	03		
	Sheriff	11	02	14	03	5	06	2	07	7	02		
	Total	78	12	34	06	9	11	8	30	17	05		
G	Police	94	15	123 ^b	29	19 ^c	23	1	04	103 ^d	33		
	Sheriff	7	01	57	13	13	16	0	-	44	14		
	Total	101	16	180	43	32	39	1	04	147	47		
TOTAL	Police	545	86	287 ^b	68	53 ^c	64	23	85	211 ^d	68		
	Sheriff	87	14	137	32	30	36	4	15	103	33		
	TOTAL	632		424		83		27		314			
											X ² :	.36	22.09
											Degrees of Freedom:	1	7
											Significance:	.70	.01

a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected and "-" indicates that the observed value was lower than expected.
 b. Includes six recruits from state, county, or park agencies.
 c. Includes one recruit from state, county, or park agency.
 d. Includes five recruits from state, county, or park agencies.

TABLE A.2												
BCA BASIC TRAINEE SAMPLE: DISTRIBUTIONS BY DISTANCE AND AGENCY TYPE												
DISTANCE FROM METRO AREA	AGENCY TYPE	AGENCIES IN POPULATION		TOTAL TRAINEE SAMPLE		SPRING 1976 CLASSES #54-55		ALEXANDRIA CLASS #68 (EMPLOYED)		1976-77 SCHOOL YEAR CLASSES #56-63		CHI SQUARE TEST CLASSES #54-55/ ANNUAL SAMPLE ^c
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	
Within Metro Area	Police	94	15%	123 ^b	29%	19 ^c	23%	1	04%	103 ^d	33%	1.26 (-)
	Sheriff	7	01	57	14	13	16	0	-	44	14	
	Total	101	16	180	43	32	39	1	04	147	47	
Within 75 Miles of Metro Area	Police	173	27	55	13	6	07	5	19	44	14	.58 (-)
	Sheriff	31	05	34	08	9	11	1	04	24	08	
	Total	204	32	89	21	15	18	6	22	68	22	
75 to 150 Miles From Metro Area	Police	140	22	44	10	6	07	7	26	31	10	2.13 (-)
	Sheriff	22	03	11	03	0	-	1	04	10	03	
	Total	162	26	55	13	6	07	8	30	41	13	
More than 150 Miles From Metro Area	Police	138	22	64	15	22	27	10	37	32	10	15.18 (+)
	Sheriff	27	04	35	08	8	10	2	07	25	08	
	Total	165	26	99	23	30	36	12	44	57	18	
TOTAL	Police	545	86	286 ^b	67	53 ^c	64	23	85	210 ^d	68	
	Sheriff	87	14	137	32	30	36	4	15	103	33	
	TOTAL	632		423		83		27		313		
											X ² :	19.15
											Degrees of Freedom:	3
											Significance:	.001
<p>a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected and "-" indicates that the observed value was lower than expected.</p> <p>b. Includes six recruits from state, county, or park agencies.</p> <p>c. Includes one recruit from state, county, or park agency.</p> <p>d. Includes five recruits from state, county, or park agencies.</p>												

TABLE A.3
 BCA BASIC TRAINEE SAMPLE: DISTRIBUTIONS BY SIZE OF POPULATION SERVED AND AGENCY TYPE

POPULATION SIZE	AGENCY TYPE	AGENCIES IN POPULATION		TOTAL TRAINEE SAMPLE		SPRING 1976 CLASSES #54-55		ALEXANDRIA CLASS #68 (EMPLOYED)		1976-77 SCHOOL YEAR CLASSES #56-63		CHI SQUARE TEST ^a CLASSES #54-55/ ANNUAL SAMPLE
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	
Less than 1,000	Police	160	33%	21	05%	0	-	3	11%	18	06%	4.62 (-)
	Sheriff	0	-	0	-	0	-	0	-	0	-	
	Total	160	33	21	05	0	-	3	11%	18	06	
1,000 to 2,500	Police	91	19	38	10	8	11%	6	22	24	08	.55 (+)
	Sheriff	0	-	0	-	0	-	0	-	0	-	
	Total	91	19	38	10	8	11	6	22	24	08	
2,500 to 10,000	Police	93	19	82	21	18	23	14	52	50	17	1.97 (+)
	Sheriff	12	02	7	02	2	03	1	04	4	01	
	Total	105	22	89	23	20	26	15	56	54	19	
More than 10,000	Police	53	11	116	29	21	27	0	-	95	33	.13 (-)
	Sheriff	75	15	131	33	28	36	3	11	100	34	
	Total	128	26	247	65	49	64	3	11	195	67	
TOTAL	Police	397	82	257	65	47	61	23	85	187	64	
	Sheriff	87	18	138	35	30	39	4	15	104	36	
	No Data	25		32		6		0		26		
	TOTAL	509		427		83		27		317		

X²: 7.27
 Degrees of Freedom: 3
 Significance: .10

a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.

TABLE A.4
 BCA BASIC TRAINEE SAMPLE: DISTRIBUTIONS BY AGENCY SIZE AND AGENCY TYPE

AGENCY SIZE ^a	AGENCY TYPE	AGENCIES POPULATION		TOTAL TRAINEE SAMPLE		SPRING 1976 CLASSES #54-55		ALEXANDRIA CLASS #68 (EMPLOYED)		1976-77 SCHOOL YEAR CLASSES # 56-63		CHI SQUARE TEST CLASSES #54-55/ ANNUAL SAMPLE
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	
1-4	Police	206	49%	52	12%	5	06%	10	37%	37	12%	1.13 (-)
	Sheriff	25	06	12	03	3	04	2	07	7	02	
	Total	231	55	64	15	8	10	12	44	44	14	
5-9	Police	53	13	47	11	10	12	10	37	27	09	.19 (+)
	Sheriff	27	06	23	05	4	05	0	-	19	06	
	Total	80	19	70	16	14	17	10	37	46	15	
10-24	Police	42	10	67	16	12	15	3	11	52	16	.06 (-)
	Sheriff	25	06	41	10	9	11	2	07	30	10	
	Total	67	16	108	25	21	25	5	19	82	26	
25-49	Police	23	06	61	14	14	17	0	-	47	15	1.71 (+)
	Sheriff	5	01	17	04	6	07	0	-	11	04	
	Total	28	07	78	18	20	24	0	-	58	18	
50+	Police	7	02	62 ^c	15	12 ^d	14	0	-	50 ^e	16	.26 (-)
	Sheriff	4	01	45	11	8	10	0	-	37	12	
	Total	11	03	107	25	20	24	0	-	87	27	
TOTAL	Police	331	80	289 ^c	68	53 ^d	64	23	85	213 ^e	67	
	Sheriff	86	20	138	32	30	36	4	15	104	33	
	No Data	92		0		0		0		0		
	TOTAL	509		427		83		27		317		

X²: 3.35
 Degrees of Freedom: 4
 Significance: .50

a. Number of full-time, sworn officers.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.
 c. Includes eight recruits from state, county, or park agencies.
 d. Includes one recruit from state, county, or park agency.
 e. Includes seven recruits from state, county, or park agencies.

to those for the 1976-77 annual sample and chi-squares were calculated to test whether the distributions for the two samples were significantly different.¹ Chi-square information is contained in the right hand column. The contribution of each category to the total chi square is included--the larger the number, the more that category is contributing to an unrepresentative distribution. Also, the sign is included (+ or -) to indicate whether the category contains more or less cases than one would expect based on the annual sample. On two variables, agency type (Table A.1) and agency size (Table A.4), the two samples appear similar, but the distributions on region, distance from the metro area, and size of population served differ significantly. In other words, inclusion of classes #54 and #55 in the trainee sample would distort the larger sample so that it would not be representative of an annual sample of trainees on region, distance, and size of population served. Inspection of the last column of the tables indicates that the subsample of classes #54 and #55, in comparison to the annual trainee sample, overrepresents Regions B, C, and 10 (Table A.1) underrepresents Regions D and 9 (Table A.1), overrepresents persons in agencies more than 150 miles from the metro area (Table A.2), and underrepresents persons from communities less than 1,000 (Table A.3).

Since classes #54 and #55 do not appear representative of the annual

¹The 1976-77 annual sample (#56-#63) could not be compared to the larger sample of classes #54 through #63 since the two samples would not be independent, an assumption of the chi square test. A chi square significance of .10 or smaller is taken to mean that distributions are significantly different. Chi squares are calculated on each variable separately. One can control for other variables (e.g., region, controlling for agency type), but introduction of control variables reduces cell frequencies to a point too small for chi square calculations. All Tables include breakdowns by agency type for interested readers, but no control variables are included in chi square calculations.

sample on several state characteristics, discussions of recruit characteristics (Chapter XV) rely solely on data from the annual sample. When the variables on which classes #54 and #55 differ are likely to affect statistical results (e.g., in Chapter VII, region and distance from the metro area are likely to influence opinions on training delivery), the annual sample will be used but when the variables have little expected impact (e.g., most course evaluation results in Chapter XII) classes #54 and #55 will be included.

BCA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE

A subset of the recent trainee sample was chosen to constitute the six-month follow-up sample. It was desirable to select individuals from the trainee sample so that opinions and ratings from the follow-up could be compared to data on opinions and training performance from recruits during the basic program. Four classes (#54, #55, #56, #57) were completed in time for recruits to have six months of post-training job experience, and for the questionnaires to be completed and processed for analysis. All recruits who graduated from these four classes and who still were employed six months later were included in the sample.

Tables A.5 through A.8 contain distributions for the follow-up sample on the five agency and community characteristics. Since the sample is based on personnel, the population data on agencies are included for reference only.¹

¹The number of agencies in the sample could be calculated from mailing lists. As with the trainee sample, however, since there is no agency I.D. coded for each trainee, it is not possible to calculate number of agencies represented in the returns. Project personnel collected agency tabulations for the supervisory sample (next section), but follow-up data were processed before the value of agency tabulation was recognized.

Since the sample of classes #54 through #57 was dictated by the date of the class to enable six months of job experience, there is no assurance that the sample or returns are representative of recruits trained annually by BCA.

The distributions of the sample are similar to those of the 1976-77 school year, although the distributions of the returns generally appear somewhat less representative. Chi-square tests were calculated to assess if the distributions of follow-up returns were significantly different from those of a year of trainees on the five variables.¹

Returns appear to be representative of the annual sample on size of agency (Table A.8), type of agency (Table A.5), and distance from the metro area (Table A.6). Return distributions are significantly different from the annual sample on Region (Table A.5) and size of population served (Table A.7). Inspection of the last column of these tables indicates that Regions E and 10 are overrepresented, Regions D and 9 are underrepresented and middle-size communities (sized 1,000-2,500 and 2,500-10,000) are overrepresented to the detriment of the smallest and largest ones.

Two explanations exist for the differences in return distributions from those of the annual sample. First, the follow-up sample might not have been representative of the annual sample.² Percentages reported in the Tables indicate where sample distributions differ. For example, 07% of the annual

¹Since the follow-up sample overlaps with the annual sample (classes #56 and #57 are included in both), the samples are not independent and, therefore, the chi-square test should not be used to compare these two distributions. Returns, however, could be considered to be independent and hence, distributions of returns can be compared to those of (either) sample.

²The sample was not randomly selected but instead determined by the date of the class.

TABLE A.5												
BCA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE: DISTRIBUTIONS BY REGION AND AGENCY TYPE												
REGION	AGENCY TYPE	AGENCIES IN POPULATION		ANNUAL 1976-77 TRAINEE SAMPLE		FOLLOW-UP SAMPLE CLASSES #54-57		FOLLOW-UP RETURNS		RESPONSE RATE	CHI SQUARE TEST ^a	
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		FOLLOW-UP RETURNS/ANNUAL SAMPLE	AGENCY TYPE
A	Police	46	07%	3	01%	2	01%	2	02%	100%		
	Sheriff	12	02	14	05	6	04	4	04	67		
	Total	58	09	17	05	8	05	6	06	75		.11 (+)
B	Police	47	07	22	07	17	11	13	12	76		
	Sheriff	7	01	8	03	2	01	2	02	100		
	Total	54	09	30	10	19	12	15	14	79		1.93 (+)
C	Police	48	08	11	04	14	09	8	08	57		
	Sheriff	9	01	4	01	0	-	0	-	-		
	Total	57	09	15	05	14	09	8	08	57		1.44 (+)
D	Police	85	13	24	08	10	06	7	07	70		
	Sheriff	14	02	18	06	8	05	1	01	14		
	Total	99	16	42	13	18	11	8	08	44		2.34 (-)
E	Police	99	16	20	06	15	09	11	11	73		
	Sheriff	18	03	4	01	5	03	3	03	60		
	Total	117	19	24	08	20	12	14	13	70		3.73 (+)
9	Police	59	09	18	06	1	01	1	01	100		
	Sheriff	9	01	4	01	2	01	2	02	100		
	Total	68	11	22	07	3	02	3	03	100		2.57 (-)
10	Police	67	11	10	03	6	04	6	06	100		
	Sheriff	11	02	7	02	7	04	4	04	57		
	Total	78	12	17	05	13	08	10	10	77		4.30 (+)
G	Police	94	15	103 ^b	33	47 ^c	30	30	29	64		
	Sheriff	7	01	44	14	19	12	11	11	58		
	Total	101	16	147	47	66	41	41	39	62		1.41 (-)
TOTAL	Police	545	86	211 ^b	68	112 ^c	70	78	74	70		.61 (+)
	Sheriff	87	14	103	33	49	30	27	26	55		1.69 (-)
	TOTAL	632		314		161		105		65		
										X ² :	2.30	17.83
										Degrees of Freedom:	1	7
										Significance:	.20	.02
<p>a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.</p> <p>b. Includes five recruits from state, county, or park agencies.</p> <p>c. Includes one recruit from state, county, or park agency.</p>												

TABLE A.6 BCA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE: DISTRIBUTIONS BY DISTANCE FROM METRO AREA AND AGENCY TYPE											
DISTANCE FROM METRO AREA	AGENCY TYPE	AGENCIES IN POPULATION		ANNUAL 1976-77 TRAINEE SAMPLE		FOLLOW-UP SAMPLE CLASSES #54-57		FOLLOW-UP RETURNS		RESPONSE RATE	CHI SQUARE TEST ^a FOLLOW-UP RETURNS/ ANNUAL SAMPLE
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		
Within Metro Area	Police	94	15%	103 ^b	33%	47 ^c	30%	30	29%	64%	1.41 (-)
	Sheriff	7	01	44	14	19	12	11	11	58	
	Total	101	16	147	47	66	41	41	39	62	
Within 75 Miles of Metro Area	Police	173	27	44	14	16	10	13	12	81	.19 (-)
	Sheriff	31	05	24	08	16	10	8	08	50	
	Total	204	32	68	22	32	20	21	20	66	
75 to 150 Miles from Metro Area	Police	140	22	31	10	18	11	13	12	72	.13 (+)
	Sheriff	22	03	10	03	4	03	2	02	50	
	Total	162	26	41	13	22	14	15	14	68	
More than 150 Miles from Metro Area	Police	138	22	32	10	31	19	22	21	71	4.38 (+)
	Sheriff	27	04	25	08	10	06	6	06	60	
	Total	165	26	57	18	41	26	28	27	68	
TOTAL	Police	545	86	210 ^b	68	112 ^c	70	78	74	70	
	Sheriff	87	14	103	33	49	30	27	26	55	
	TOTAL	632		313		161		105		65	
										X ² :	6.11
										Degrees of Freedom:	3
										Significance:	.20
<p>a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.</p> <p>b. Includes five recruits from state, county, or park agencies.</p> <p>c. Includes one recruit from state, county, or park agency</p>											

TABLE A.7 BCA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE: DISTRIBUTIONS BY SIZE OF POPULATION SERVED AND AGENCY TYPE											
POPULATION SIZE	AGENCY TYPE	AGENCIES IN POPULATION		ANNUAL 1976-77 TRAINEE SAMPLE		FOLLOW-UP SAMPLE CLASSES #54-57		FOLLOW-UP RETURNS		RESPONSE RATE	CHI SQUARE TEST ^a FOLLOW-UP RETURNS/ ANNUAL SAMPLE
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		
Less than 1,000	Police	160	33%	18	06%	3	02%	1	01%	33%	4.16 (-)
	Sheriff	0	-	0	-	0	-	0	-	-	
	Total	160	33	18	06	3	02	1	01	33	
1,000 to 2,500	Police	91	19	24	08	17	11	13	13	76	3.13 (+)
	Sheriff	0	-	0	-	0	-	0	-	-	
	Total	91	19	24	08	17	11	13	13	76	
2,500 to 10,000	Police	93	19	50	17	32	21	30	30	93	7.57 (+)
	Sheriff	12	02	4	01	2	01	1	01	50	
	Total	105	22	54	19	34	22	31	31	91	
More than 10,000	Police	53	11	95	33	52	34	29	29	56	2.15 (-)
	Sheriff	75	15	100	34	47	31	26	26	55	
	Total	128	26	195	67	99	65	55	55	56	
TOTAL	Police	397	82	187	64	104	68	73	73		
	Sheriff	87	18	104	36	49	32	27	27		
	No Data	25		22		8		5		65	
	TOTAL	509		313		161		105			
										χ^2 :	17.01
										Degrees of Freedom:	3
										Significance:	.001
a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.											

TABLE A.8
 ECA BASIC TRAINEE SIX-MONTH FOLLOW-UP SAMPLE: DISTRIBUTIONS BY SIZE OF AGENCY AND AGENCY TYPE

AGENCY SIZE ^a	AGENCY TYPE	AGENCIES IN POPULATION		ANNUAL 1976-77 TRAINEE SAMPLE		FOLLOW-UP SAMPLE CLASSES #54-57		FOLLOW-UP RETURNS		RESPONSE RATE	CHI SQUARE TEST ^b FOLLOW-UP RETURNS/ ANNUAL SAMPLE
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		
1-4	Police	206	49%	37	12%	18	11%	13	12%	72%	
	Sheriff	25	06	7	02	6	04	3	03	50	
	Total	231	55	44	14	24	15	16	15	67	
5-9	Police	53	13	27	09	16	10	15	14	94	
	Sheriff	27	06	19	06	11	07	5	05	45	
	Total	80	19	46	15	27	17	20	19	74	
10-24	Police	42	10	52	16	24	15	19	18	79	
	Sheriff	25	06	30	10	12	08	7	07	58	
	Total	67	16	82	26	36	22	26	25	72	
25-49	Police	23	06	47	15	31	19	13	12	42	
	Sheriff	5	01	11	04	6	04	6	06	100	
	Total	28	07	58	18	37	23	19	18	51	
50+	Police	7	02	50 ^c	16	23 ^d	15	18	17	78	
	Sheriff	4	01	37	12	14	09	6	06	43	
	Total	11	03	87	27	37	23	24	23	65	
TOTAL	Police	331	80	213 ^c	67	112 ^d	70	78	74	70	
	Sheriff	86	20	104	33	49	30	27	26	55	
	No Data	92		317		161		105		65	

X²: 1.99
 Degrees of Freedom: 4
 Significance: .80

a. Number of full-time sworn officers.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that the observed value was higher than expected, and "-" indicates that the observed value was lower than expected.
 c. Includes seven recruits from state, county, or park agencies.
 d. Includes one recruit from state, county, or park agency.

sample was from Region 9 but only 02% of the follow-up sample was from Region 9. Thus, assuming equal response rates, one would expect Region 9 to be underrepresented in the follow-up returns.

The other source of bias in the returns is differential response rates. Tables A.5 through A.8 include response rates in the next to last column. Response rates by Region vary from 44% (Region D) to 100% (Region 9). The other tables also demonstrate considerable variation in response rates.

The overall response rate of 65% is quite acceptable. The response rate for the first mailing (classes #54 and #55) was close to 80% but fell to just over 50% for classes #56 and #57. The agencies for the latter classes had received (a month before) a supervisory questionnaire in which to evaluate the recruit and had recently received a follow-up letter encouraging the return of that questionnaire. Receipt of the follow-up questionnaire so soon after the other perhaps appeared a burden or perhaps incorrectly was presumed to be a duplicate of the other questionnaire. In either case, returns did fall off for classes #56 and #57 reducing the overall response rate to a lower, but still acceptable, 65%.

In sum, the follow-up returns appear to be unrepresentative of the annual sample of recruits on region and size of population served. Analyses in which these variables are likely to have an impact need to consider such biases. The sources of bias are both an unrepresentative sample and differential response rates. The general response rate of 65% is sufficiently high for analysis to be based on the returns.

SUPERVISORS OF 1976-77 BCA TRAINEES--SUPERVISORY I SAMPLE

The sample of supervisors of 1976-77 BCA trainees was derived from the

larger trainee sample because it was decided to obtain supervisory evaluations on recruits that could be matched to data on trainee opinions and training performance. As with the follow-up sample, it was necessary to select those classes that were completed in time to enable at least six-months of post-training performance on which to base evaluations. Thus, recruits in classes #54, #55, #56, and #57 also were selected to be the basis of the supervisory sample. In addition, Alexandria graduates who attended the BCA class #68 and later obtained law enforcement employment were included so that some evidence could be gathered on the relative job preparation and performance of BCA versus vo-tech graduates.

Questionnaires were mailed to the head of agencies employing graduates of BCA classes #54, #55, #56, #57, and #68 with instructions to distribute the questionnaire to the individual who most directly had supervised the graduate. The supervisor receiving the questionnaire was asked to complete a set of questions relating to training delivery and the BCA Basic training program. In addition, the supervisor rated the job preparation and performance of each graduate from classes #54, #55, #56, #57, and #68 in his agency. Thus, one set of survey questions was collected from each agency in the sample while job performance ratings were collected for each recruit in the sample.

Supervisory sample data in Tables A.9 through A.12 contain information on both the recruits on whom evaluations were made and the agencies represented. Assessments of the samples will differ for the recruits and agency distributions. Representation of recruits in the sample and returns are compared to the school year sample to assess if recruits evaluated are representative of 1976-77 trainees; distributions of the agencies in the sample are compared to population data to see if the sample is representative of the state's agencies.

TABLE A.9
BCA BASIC TRAINEE SUPERVISORY SAMPLE: DISTRIBUTIONS BY REGION AND AGENCY TYPE

REGION	AGENCY TYPE	INFORMATION BASED ON RECRUITS IN SAMPLE							INFORMATION BASED ON AGENCIES IN SAMPLE												
		ANNUAL SAMPLE		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE	CHI SQUARE TEST ^a		AGENCIES IN POPULATION		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE	CHI SQUARE TEST ^a			
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		TYPE	REGION	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		TYPE	REGION		
A	Police	3	01%	2	01%	1	01%	50%	.17 (-)		46	07%	2	02%	2	02%	100%	.43 (-)			
	Sheriff	14	05	7	04	5	04	71			12	02	5	05	4	05	80				
	Total	17	05	9	05	6	04	67			58	09	7	06	6	07	86				
B	Police	22	07	24	13	15	11	63	1.02 (+)		47	07	11	10	8	09	73	.60 (+)			
	Sheriff	8	03	3	02	3	02	100			7	01	2	02	2	02	100				
	Total	30	10	27	14	18	13	67			54	09	13	12	10	12	77				
C	Police	11	04	16	09	11	08	69	2.14 (+)		48	08	6	05	4	05	67	1.87 (-)			
	Sheriff	4	01	0	-	0	-	-			9	01	0	-	0	-	-				
	Total	15	05	16	09	11	08	69			57	09	6	05	4	05	67				
D	Police	24	08	12	06	8	06	67	.65 (-)		85	13	10	09	7	08	70	.26 (-)			
	Sheriff	18	06	8	04	7	05	88			14	02	5	05	5	06	100				
	Total	42	13	20	11	15	11	75			99	16	15	14	12	14	80				
E	Police	20	06	17	09	14	10	82	2.80 (+)		99	16	14	13	10	12	71	.75 (-)			
	Sheriff	4	01	5	03	3	02	60			18	03	4	04	3	03	75				
	Total	24	08	22	12	17	12	77			117	19	18	16	13	15	72				
9	Police	18	06	4	02	1	01	25	6.34 (-)		59	09	4	04	1	01	25	5.99 (-)			
	Sheriff	4	01	2	01	1	01	50			9	01	2	02	1	01	50				
	Total	22	07	6	03	2	01	33			68	11	6	05	2	02	33				
10	Police	10	03	12	06	10	07	83	9.00 (+)		67	11	11	10	9	10	82	.63 (+)			
	Sheriff	7	02	9	05	5	04	56			11	02	5	05	4	05	80				
	Total	17	05	21	11	15	11	71			78	12	16	14	13	15	81				
G	Police	103 ^b	33	48 ^c	26	43	30	90	1.14 (-)		94	15	25	23	23	26	92	12.29 (+)			
	Sheriff	44	14	19	10	15	11	79			7	01	5	05	4	05	80				
	Total	147	47	67	36	58	41	87			101	16	30	27	27	31	90				
TOTAL	Police	211 ^b	68	135 ^c	72	103	73	76	.43 (+)		545	86	83	75	64	74	77	1.51 (-)			
	Sheriff	103	33	53	28	39	28	74	1.32 (-)		87	14	28	25	23	26	82	9.26 (+)			
	Total	314		188		142		76			632		111		88	missing	79				
									X ² : 1.75	23.26										X ² : 10.77	22.82
									Degrees of Freedom: 1	7										Degrees of Freedom: 1	7
									Significance: .20	.01										Significance: .01	.01

a. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 b. Includes five recruits from state, county, or park agencies.
 c. Includes one recruit from state, county, or park agency.

TABLE A.10
BCA BASIC TRAINEE SUPERVISORY SAMPLE: DISTRIBUTIONS BY DISTANCE FROM METRO AREA AND AGENCY TYPE

DISTANCE FROM METRO AREA	AGENCY TYPE	INFORMATION BASED ON RECRUITS IN SAMPLE								CHI SQUARE TEST RETURNS/ ANNUAL SAMPLE	INFORMATION BASED ON AGENCIES IN SAMPLE								CHI SQUARE TEST RETURNS/ POPULATION
		ANNUAL SAMPLE		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE	AGENCIES IN POPULATION		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE				
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT			FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT				
Within Metro Area	Police	103 ^b	33%	48 ^c	26	43	30%	90%		94	15%	25	23%	23	26%	92%			
	Sheriff	44	14	19	10	15	11	79		7	01	5	05	4	05	80			
	Total	147	47	67	36	58	41	87	1.14 (-)	101	16	30	27	27	31	90	11.86 (+)		
Within 75 Miles of Metro Area	Police	44	14	21	11	15	11	71		173	27	19	17	14	16	74			
	Sheriff	24	08	17	09	11	08	65		31	05	12	11	9	10	75			
	Total	68	22	38	20	26	18	68	.88 (-)	204	32	31	28	23	26	74	.95 (-)		
75 to 150 Miles from Metro Area	Police	31	10	25	13	19	13	76		140	22	19	17	13	15	68			
	Sheriff	10	03	5	03	4	03	80		22	03	3	03	2	02	66			
	Total	41	13	30	16	23	16	77	1.12 (+)	162	26	22	20	15	17	68	2.71 (-)		
More than 150 Miles from Metro Area	Police	32	10	41	22	26	18	63		136	22	20	18	15	17	75			
	Sheriff	25	08	12	06	9	06	75		27	04	8	07	8	09	100			
	Total	57	18	53	28	35	25	66	3.49 (+)	165	26	28	25	23	26	82	.00		
TOTAL	Police	210 ^b	68	135 ^c	72	103	73	76		545	86	83	75	65	74	70			
	Sheriff	103	33	53	28	39	28	74		87	14	28	25	23	26	82			
	Total	313	100	188	142	142	101	76		632	111	111	88	88	79				
									χ^2 : 6.63										χ^2 : 15.52
									Degrees of Freedom: 3										Degrees of Freedom: 3
									Significance: .10										Significance: .01

1. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 2. Includes five recruits from state, county or park agencies.
 3. Includes one recruit from state, county, or park agency.

31

TABLE A.12
BCA BASIC TRAINEE SUPERVISORY SAMPLE: DISTRIBUTIONS BY AGENCY SIZE AND AGENCY TYPE

AGENCY SIZE ^a	AGENCY TYPE	INFORMATION BASED ON RECRUITS IN SAMPLE								CHI SQUARE TEST ^b RETURNS/ ANNUAL SAMPLE	INFORMATION BASED ON AGENCIES IN SAMPLE				
		ANNUAL SAMPLE		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE	AGENCIES IN POPULATION		SUPERVISORY RETURNS ^c RESPONSE				
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		FREQUENCY		PERCENT	FREQUENCY	PERCENT	RATE	
1 - 4	Police	37	12%	28	15%	18	13%	64%	.85 (+)	206	49%	NOT COLLECTED BY CATEGORY	20	23%	
	Sheriff	7	02	8	04	6	04	75		25	06		2	02	
	Total	44	14	36	19	24	17	67		231	55		22	25	
5 - 9	Police	27	09	26	14	18	13	69	2.11 (+)	53	13	NOT COLLECTED BY CATEGORY	15	17	
	Sheriff	19	06	11	06	10	07	91		27	06		4	05	
	Total	46	15	37	20	28	20	76		80	19		19	22	
10-24	Police	52	16	27	14	24	17	89	.66 (-)	42	10	NOT COLLECTED BY CATEGORY	16	18	
	Sheriff	30	10	14	07	8	06	57		25	06		12	14	
	Total	82	26	41	22	32	23	78		67	16		28	32	
25-49	Police	47	15	31	17	25	18	81	.23 (+)	23	06	NOT COLLECTED BY CATEGORY	9	10	
	Sheriff	11	04	6	03	3	02	50		5	01		2	02	
	Total	58	18	37	20	28	20	76		28	07		11	13	
50+	Police	50 ^d	16	23 ^e	13	18	13	78	1.81 (-)	7	02	NOT COLLECTED BY CATEGORY	5	06	
	Sheriff	37	12	14	07	12	09	86		4	01		3	03	
	Total	87	27	37	20	30	21	81		11	03		8	09	
TOTAL	Police	213 ^d	67	135 ^e	72	103	73	76		331	80	NOT COLLECTED BY CATEGORY	65	74	
	Sheriff	104	33	53	28	39	28	74		86	20		23	26	
	Total	317		188		142		76		509			111	68	79%
									X ² :	5.66					
									Degrees of Freedom:	4					
									Significance:	.30					

a. Number of full-time sworn officers. Coded from BCA files for recruits; coded from questionnaire responses for agencies.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 c. Where more agencies are reported in a category than recruits, data on agencies which were gathered from supervisory questionnaires are probably inaccurate.
 d. Includes seven recruits from state, county or park agencies.
 e. Includes one recruit from state, county or park agency.

The sample of recruits evaluated by supervisors is not representative of a yearly sample of BCA graduates. Results are similar to the follow-up returns as one would expect given the similar samples. Chi square information suggests that recruits evaluated are representative of the annual sample in terms of agency type (Table A.9) and size (Table A.12). Officers more than 150 miles from the metro area are somewhat overrepresented on the supervisory returns (Table A.10), and those from the smallest and largest communities are underrepresented (Table A.11). Regional distributions also are dissimilar in that Region 10 and to a lesser extent Region E are overrepresented while those from Region 9 are underrepresented. Inspection of the original supervisory sample distributions (column 2) and of differential response rates (column 4) suggests that the major sources of bias in the returns is the composition of the sample itself although differential response rates occasionally magnify the bias (e.g., low response rates for Region 9).

Results are quite different when one assesses the representativeness of the agencies included in supervisory returns. In this case, more sheriffs' offices are included in returns than would be expected from state distributions. Regional distributions differ from statewide agency distributions but in this case overrepresentation of Region G agencies is the major basis of the difference (Table A.9) Although Region G agencies are overrepresented in the original sample, a response rate of 90% contributes to their disproportionate share of returns. Similarly, more metro area agencies are in returns than one would expect for the same reasons (Table A.10). Inaccuracies in population data on agency and community size preclude a systematic assessment of returns but smallest communities and smallest agencies appear to be considerably underrepresented (Table A.11 and A.12).

In analyses of recruit performance, the failure of returns to reflect accurately the distribution of an annual sample of recruits on region, distance and population served should be considered, although analyses for Chapters XII and XVI indicate that these variables do not affect ratings. Similarly, when supervisory opinions are analyzed, the expected impact of the different distributions on all five variables from statewide distributions needs to be assessed, although some of the difference can be explained by the small community exemption (i.e., small agencies from small communities outside the metro area should be underrepresented). In spite of some bias in the returns, the general response rate by both recruit and agency was unusually high. Evaluations of 76% of the recruits in the sample were represented in returns. These response rates demonstrate exceptional cooperation on the part of the supervisory respondents.

BCA BASIC GRADUATE SAMPLE -- THREE YEARS
POST-TRAINING JOB EXPERIENCE

The previous three samples were determined by attendance in recent BCA basic classes and sufficient post-training job experience on which to assess job performance. On the other hand, the next three samples were selected independently of the recent trainee sample. Since six-months of post-training job experience (the criterion to be included in the follow-up sample or supervisory sample) is a relatively short period over which to assess job performance, it was decided to select a second sample of BCA graduates with more job experience than was possible selecting only from the recent trainee sample. The criteria for selecting this sample were to maximize the extent of job experience while obtaining respondents who

received training similar to the current program. The eight-week course was adopted in 1971 and to allow the program a couple years to take shape, recruits in the 1973-74 school year were chosen for the sample. This procedure thus provided three years of post-basic training job experience.

All recruits trained by BCA in 1973-74, including Alexandria students later employed, were included initially in the sample. Names were organized by agency and all agencies included in the recent trainee follow-up or supervisory samples were excluded. It was felt that inclusion of an agency in more than one questionnaire mailing would constitute a burden and significantly would reduce return rates.

The three year experience questionnaire was mailed with the second supervisory questionnaire (discussed in the next section) to heads of the remaining agencies in the sample with instructions to distribute one questionnaire to the BCA graduate of 1973-74 and the other to a supervisor of recent BCA graduates.¹ This coordination of the graduate and supervisory mailings necessitated the exclusion of an additional set of agencies from the sample. One-person agencies in which the Chief was the BCA trainee were omitted since the graduate and supervisor were not separate individuals. The original sample consisted of 204 agencies and was reduced to 140 by eliminating the duplicates with the other samples and the one-person agencies. This sample of 140 agencies was used for both the three-year experience survey and the second supervisory survey discussed in the following section.

Sampling was based on agencies. Therefore, it is appropriate to assess

¹If an agency had more than one officer trained in 1973-74, the head was asked to distribute the questionnaire to one of them.

how representative the sample and questionnaire returns are of law enforcement agencies across the state. Tables A.13 through A.16 contain population, sample, and return distributions on agency type, region, distance from metro area, agency size and size of population served for the three-year experience sample. Questionnaires were precoded on agency type, region and distance; sample distributions were calculated before the mailing. Agency size and population served were not precoded. Given the error in the population data that precludes systematic assessment of the samples, it was decided that tabulation of the sample data on these two variables did not merit the time and effort (also, see footnote #1, on page 14).

As was argued in the discussion of the recent trainee sample, one would not expect a trainee sample to be entirely representative of the state given the small community exemption. Tables A.13 and A.14 suggest that the sample does underrepresent agencies outside the metro area (and, hence, probably smaller agencies in smaller communities) although the bias appears less strong than in the recent trainee sample. Of most importance, however, is the representativeness of the returns since these provide the data to analyze.

A chi-square test was used to determine if the distribution of the returns was significantly different from the distribution of the population on each of the variables. Chi square information is reported in the last column of Table A.13 and A.14 for the variables in which relatively accurate population data exist. In all three cases, the distribution of the returns is significantly different from the population. Sheriffs' officers are overrepresented as are agencies from the metro area (Region G). A comparison in Tables A.13 and A.14 of the proportion in the sample to the proportions in the population (column 1 and 2) as well as response rates (column 4) indicates that distortions in the sample and differential response rates

TABLE A.13
 BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE: DISTRIBUTIONS BY REGION AND AGENCY TYPE

REGION	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE SAMPLE ^a		GRADUATE RETURNS		RESPONSE RATE	CHI SQUARE TEST ^b RETURNS/POPULATION	
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		AGENCY TYPE	REGION
A	Police	46	07%	6	04%	3	04%	50%		
	Sheriff	12	02	2	01	0	-	-		
	Total	58	09	8	06	3	04	38		2.60 (-)
B	Police	47	07	9	06	4	05	44		
	Sheriff	7	01	4	03	4	05	100		
	Total	54	09	13	09	8	10	62		.05 (+)
C	Police	48	08	9	06	4	05	44		
	Sheriff	9	01	4	03	3	04	75		
	Total	57	09	13	09	7	09	54		.02
D	Police	85	13	17	12	8	10	47		
	Sheriff	14	02	3	02	3	04	100		
	Total	99	16	20	14	11	13	55		.34 (-)
E	Police	99	16	6	04	3	04	50		
	Sheriff	18	03	12	09	6	07	50		
	Total	117	19	18	13	9	11	50		2.78 (-)
9	Police	59	09	10	07	4	05	40		
	Sheriff	9	01	7	05	6	07	86		
	Total	68	11	17	12	10	12	59		.11 (+)
10	Police	67	11	11	08	6	07	55		
	Sheriff	11	02	5	04	3	04	60		
	Total	78	12	16	11	9	11	56		.07 (-)
G	Police	94	15	34 ^c	24	24 ^d	.29	71		
	Sheriff	7	01	1	01	1	01	100		
	Total	101	16	35	25	25	31	71		10.76 (+)
TOTAL	Police	545	86	103 ^c	74	56 ^d	67	54		3.87 (-)
	Sheriff	87	14	37	26	26	32	70		18.37 (=)
	TOTAL	632		140		82		61		
								3missing		
								X ² :	22.24	16.73
								Degrees of Freedom:	1	7
								Significance:	.001	.02

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 c. Includes four recruits from state, county or park agencies.
 d. Includes two recruits from state, county or park agencies.

TABLE A.14
BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE: DISTRIBUTIONS BY DISTANCE FROM METRO AREA AND AGENCY TYPE

DISTANCE FROM METRO AREA	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE SAMPLE ^a		GRADUATE RETURNS		RESPONSE RATE	CHI SQUARE TEST ^b RETURNS/POPULATION
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		
Within Metro Area	Police	94	15%	34 ^c	24%	23 ^d	27%	62%	8.65 (+)
	Sheriff	7	01	1	01	1	01	100	
	Total	101	16	35	25	24	29	69	
Within 75 Miles from Metro Area	Police	173	27	29	21	12	15	41	.25 (-)
	Sheriff	31	05	15	11	12	15	80	
	Total	204	32	44	31	24	29	55	
75 to 150 Miles from Metro Area	Police	140	22	23	16	12	15	52	.59 (-)
	Sheriff	22	03	10	07	6	07	60	
	Total	162	26	33	24	18	22	55	
More than 150 Miles from Metro Area	Police	138	22	17	12	9	11	53	.97 (-)
	Sheriff	27	04	11	08	8	10	72	
	Total	165	26	28	20	17	21	61	
TOTAL	Police	545	86	103 ^c	74	56 ^d	67	52	2missing
	Sheriff	87	14	37	26	27	32	73	
	TOTAL	632		140		83		61	

X²: 10.46
Degrees of Freedom: 3
Significance: .02

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
c. Includes four recruits from state, county, or park agencies.
d. Includes two recruits from state, county or park agencies.

TABLE A.15

BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE:
DISTRIBUTIONS BY SIZE OF POPULATION SERVED AND AGENCY TYPE

POPULATION SIZE	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE ^a SAMPLE FREQUENCY	GRADUATE RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
Less than 1,000	Police	160	33%	NOT COLLECTED BY AGENCY	3	04%	
	Sheriff	0	-		0	-	
	Total	160	33		3	04	
1,000 to 2,500	Police	91	19		9	11	
	Sheriff	0	-		1	01	
	Total	91	19		10	12	
2,500 to 10,000	Police	93	19		20	24	
	Sheriff	12	02		2	02	
	Total	105	22		22	26	
More than 10,000	Police	53	11		25 ^b	29	
	Sheriff	75	15	24	29		
	Total	128	26	49	58		
TOTAL	Police	397	82	57 ^b	68		
	Sheriff	87	18	27	32		
	No Data	25		1			
	TOTAL	509		140	85	61%	

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.

b. Includes two recruits from state, county or park agencies.

TABLE A.16

BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE
DISTRIBUTIONS BY SIZE OF AGENCY AND AGENCY TYPE

AGENCY SIZE	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE ^a SAMPLE FREQUENCY	GRADUATE RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
1-4	Police	206	49%	NOT COLLECTED BY AGENCY.	17	20%	
	Sheriff	25	06		4	05	
	Total	231	55		21	25	
5-9	Police	53	13		12	14	
	Sheriff	27	06		10	12	
	Total	80	19		22	26	
10-24	Police	42	10		15	18	
	Sheriff	25	06		8	10	
	Total	67	16		23	27	
25-49	Police	23	06		9	11	
	Sheriff	5	01	3	04		
	Total	28	07	12	14		
50+	Police	7	02	4 ^b	05		
	Sheriff	4	01	2	02		
	Total	11	03	6	07		
TOTAL	Police	331	80	57 ^b	68		
	Sheriff	86	20	27	32		
	No Data	92		1			
	TOTAL	509		140	85	61%	

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.

b. Includes two recruits from state, county or park agencies.

TABLE A.15

BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE:
DISTRIBUTIONS BY SIZE OF POPULATION SERVED AND AGENCY TYPE

POPULATION SIZE	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE ^a SAMPLE FREQUENCY	GRADUATE RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
Less than 1,000	Police	160	33%	NOT COLLECTED BY AGENCY	3	04%	
	Sheriff	0	-		0	-	
	Total	160	33		3	04	
1,000 to 2,500	Police	91	19		9	11	
	Sheriff	0	-		1	01	
	Total	91	19		10	12	
2,500 to 10,000	Police	93	19		20	24	
	Sheriff	12	02		2	02	
	Total	105	22		22	26	
More than 10,000	Police	53	11		25 ^b	29	
	Sheriff	75	15	24	29		
	Total	128	26	49	58		
TOTAL	Police	397	82	57 ^b	68		
	Sheriff	87	18	27	32		
	No Data	25		1			
	TOTAL	509		140	85		61%

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.

b. Includes two recruits from state, county or park agencies.

TABLE A.16

BCA BASIC GRADUATE SAMPLE WITH THREE YEARS OF POST-TRAINING JOB EXPERIENCE
DISTRIBUTIONS BY SIZE OF AGENCY AND AGENCY TYPE

AGENCY SIZE	AGENCY TYPE	AGENCIES IN POPULATION		GRADUATE ^a SAMPLE FREQUENCY	GRADUATE RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
1-4	Police	206	49%	NOT COLLECTED BY AGENCY.	17	20%	
	Sheriff	25	06		4	05	
	Total	231	55		21	25	
5-9	Police	53	13		12	14	
	Sheriff	27	06		10	12	
	Total	80	19		22	26	
10-24	Police	42	10		15	18	
	Sheriff	25	06		8	10	
	Total	67	16		23	27	
25-49	Police	23	06		9	11	
	Sheriff	5	01	3	04		
	Total	28	07	12	14		
50+	Police	7	02	4 ^b	05		
	Sheriff	4	01	2	02		
	Total	11	03	6	07		
TOTAL	Police	331	80	57 ^b	68		
	Sheriff	86	20	27	32		
	No Data	92		1			
	TOTAL	509		140	85		61%

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.

b. Includes two recruits from state, county or park agencies.

are working in the same direction to magnify bias in the returns.

Although population data on size of population served and agency size are of questionable reliability, the differences in the distribution of returns from those of the population are so great that it is probably safe to infer that the returns underrepresent small agencies (Table A.16) and small communities (Table A.15). One would expect such a bias for several reasons. Given the small community exemption, small agencies and small towns should be underrepresented in a sample derived from BCA graduates. Second, since personnel turnover is thought to be higher in small towns and small agencies, many questionnaires may never have been delivered to the BCA graduate. In addition, the overrepresentation of metro area agencies would contribute to the lower representation of smaller communities and agencies.

The overall response rate of 61% is acceptable and is, in fact, probably considerably deflated. Technically, one should eliminate from the sample all questionnaires that could not be delivered. Four questionnaires were returned with an indication that the 1973-74 graduate was no longer employed in law enforcement, but there is no way of knowing how many other questionnaires were not returned because they were undelivered. Calculating response rate on the total number in the original sample underestimates the actual response rate.

Because some agencies are exempt from mandatory training the graduate sample should not be entirely representative of the state's agencies. Differences in return distributions from population distributions on all five agency and community variables are so great, however, that a biased sample needs to be considered in analyses where these variables are expected to

have some impact. A response rate of 61% produced 85 returns to analyze, but these returns are not entirely representative of Minnesota law enforcement agencies.

SUPERVISORS IN AGENCIES WITH OFFICERS TRAINED IN 1973-74 --
SUPERVISORY II SAMPLE

Although recruits can evaluate the basic course and relay their impressions of their own job preparation and performance, the perspectives of officers with considerably more job experience are important to obtain as well. It was decided that it would be valuable to survey more supervisors than were included in the sample to evaluate 1976-77 BCA graduates. A second sample of supervisors could be obtained easily by selecting the same agencies that were included in the three-year experience survey. The procedures for selecting the three-year experience sample (see previous section) assured that there would be no overlap with the other supervisory sample and that there would be a supervisor in the agency other than the 1973-74 BCA graduate. Using the same agencies for both the three-year experience and second supervisory surveys helped to reduce mailing time and costs since both questionnaires and instructions could be mailed together.

Population and sample data reported in Tables A.17 through A.20 are the same as for the tables on the three-year experience sample. Returns, response rates, and Chi square information differ. Of 140 supervisors mailed questionnaires, 104 (74%) completed and returned them. This response rate is unusually high for a mail survey and considerably higher than the 61% return rate for the 1973-74 graduates from the same agencies.

TABLE A.17
 SECOND SUPERVISORY SAMPLE (AGENCIES WITH OFFICERS TRAINED IN 1973-74): DISTRIBUTIONS BY REGION AND AGENCY TYPE

REGION	AGENCY TYPE	AGENCIES IN POPULATION		SUPERVISORY SAMPLE		SUPERVISORY RETURNS		RESPONSE RATE	CHI SQUARE TEST ^b RETURNS/POPULATION	
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		AGENCY TYPE	REGION
A	Police	46	07%	6	04%	2	02%	33%	6.48 (-)	
	Sheriff	12	02	2	01	2	02	100		
	Total	58	09	8	06	4	04	50		
B	Police	47	07	9	06	5	05	56	.00	
	Sheriff	7	01	4	03	4	04	100		
	Total	54	09	13	09	9	09	69		
C	Police	48	08	9	06	3	03	33	.48 (-)	
	Sheriff	9	01	4	03	4	04	100		
	Total	57	09	13	09	7	07	54		
D	Police	85	13	17	12	8 ^d	08	47	1.65 (-)	
	Sheriff	14	02	3	02	3	03	100		
	Total	99	16	20	14	11	11	55		
E	Police	99	16	6	04	5	05	83	2.00 (-)	
	Sheriff	18	03	12	09	8	08	67		
	Total	117	19	18	13	13	13	72		
9	Police	59	09	10	07	7	07	70	.32 (+)	
	Sheriff	9	01	7	05	6	06	86		
	Total	68	11	17	12	13	13	76		
10	Police	67	11	11	08	6	06	55	.37 (-)	
	Sheriff	11	02	5	04	4	04	80		
	Total	78	12	16	11	10	10	63		
G	Police	94	15	34 ^e	24	33 ^e	33	97	19.69 (+)	
	Sheriff	7	01	1	01	1	01	100		
	Total	101	16	35	25	34	34	97		
TOTAL	Police	545	86	103 ^e	74	69 ^e	68	67	3.67 (-)	
	Sheriff	87	14	37	26	32	32	86	22.56 (+)	
	Total	632		140		104		74		

X²: 26.23 30.99
 Degrees of Freedom: 1 7
 Significance: .001 .001

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 c. Includes four recruits from state, county or park agencies.
 d. Includes one recruit from state, county or park agencies.
 e. Includes three recruits from state, county or park agencies.

TABLE A.18
 SECOND SUPERVISORY SAMPLE (AGENCIES WITH OFFICERS TRAINED IN 1973-74): DISTRIBUTIONS BY DISTANCE FROM METRO AREA AND AGENCY TYPE

DISTANCE FROM METRO AREA	AGENCY TYPE	AGENCIES IN POPULATION		SUPERVISORY SAMPLE ^a		SUPERVISORY RETURNS		RESPONSE RATE	CHI SQUARE TEST ^b RETURNS/POPULATION
		FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT		
Within Metro Area	Police	94	15%	34 ^c	24%	33 ^e	33%	97%	19.69 (+)
	Sheriff	7	01	1	01	1	01	100	
	Total	101	16	35	25	34	34	97	
Within 75 Miles of Metro Area	Police	173	27	29	21	17	17	59	.34 (-)
	Sheriff	31	05	15	11	12	12	80	
	Total	204	32	44	31	29	29	66	
75 to 150 Miles from Metro Area	Police	140	22	23	16	12 ^d	12	52	1.49 (-)
	Sheriff	22	03	10	07	8	08	80	
	Total	162	26	33	24	20	20	61	
More than 150 Miles from Metro Area	Police	138	22	17	12	7	07	41	2.60 (-)
	Sheriff	27	04	11	08	11	11	100	
	Total	165	26	28	20	18	18	64	
TOTAL	Police	545	86	103 ^c	74	69 ^c	68	67	
	Sheriff	87	14	37	26	32	32	86	
	No Data					3			
	Total	632		140		104		74	
								X ² :	23.62
								Degrees of Freedom:	3
								Significance:	.001

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
 b. Chi Square equals $\frac{(O-E)^2}{E}$, where O=observed value and E=expected value. "+" indicates that observed value was higher than expected, and "-" indicates that observed value was lower than expected.
 c. Includes four recruits from state, county or park agencies.
 d. Includes one recruit from state, county or park agency.
 e. Includes three recruits from state, county or park agencies.

TABLE A.19
SECOND SUPERVISORY SAMPLE (AGENCIES WITH OFFICERS TRAINED IN 1973-74):
DISTRIBUTIONS BY SIZE OF POPULATION SERVED AND AGENCY TYPE

POPULATION SIZE	AGENCY TYPE	AGENCIES IN POPULATION		SUPERVISORY SAMPLE ^a FREQUENCY	SUPERVISORY RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
Less than 1,000	Police	160	33%		2 ^b	02%	
	Sheriff	0	-		0	-	
	Total	160	33		2	02	
1,000 to 2,500	Police	91	19		13	13	
	Sheriff	0	-		2	02	
	Total	91	19		15	15	
2,500 to 10,000	Police	93	19		22	22	
	Sheriff	12	02		5	05	
	Total	105	22		27	27	
More than 10,000	Police	53	11		32 ^c	32	
	Sheriff	75	15		25	25	
	Total	128	26		57	56	
TOTAL	Police	397	82		69	68	
	Sheriff	87	18		32	32	
	No Data	23			3		
	Total	509		140	104		74%

NOT COLLECTED BY CATEGORY

a. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
b. Includes one recruit from state, county or park agency.
c. Includes three recruits from state, county or park agencies.

TABLE A.20
SECOND SUPERVISORY SAMPLE (AGENCIES WITH OFFICERS TRAINED IN 1973-74):
DISTRIBUTIONS BY AGENCY SIZE AND AGENCY TYPE

AGENCY SIZE ^a	AGENCY TYPE	AGENCIES IN POPULATION		SUPERVISORY SAMPLE ^a FREQUENCY	SUPERVISORY RETURNS		RESPONSE RATE
		FREQUENCY	PERCENT		FREQUENCY	PERCENT	
1-4	Police	206	49%		17 ^c	17%	
	Sheriff	25	06		4	04	
	Total	231	55		21	21	
5-9	Police	53	13		16	16	
	Sheriff	27	06		11	11	
	Total	80	19		27	27	
10-24	Police	42	10		20 ^d	20	
	Sheriff	25	06		10	10	
	Total	67	16		30	30	
25-49	Police	23	06		12	12	
	Sheriff	5	01		4	04	
	Total	28	07		16	16	
50+	Police	7	02		4	04	
	Sheriff	4	01		2	02	
	Total	11	03		6	06	
TOTAL	Police	331	86		69	69	
	Sheriff	86	20		31	31	
	No Data	92			4		
	Total	509		140	104		74%

NOT COLLECTED BY CATEGORY

a. Number of full-time sworn officers.
b. Excludes all agencies with recruits in BCA basic trainee sample; includes agencies that hired Alexandria graduates after their training.
c. Includes one recruit from state, county, or park agency.
d. Includes two recruits from state, county, or park agencies.

The response rate of supervisors was higher than for the graduates, but the distributions of returns on the five agency and community variables are similar. Again, persons from sheriffs' offices are overrepresented (Table A.17) as are officers from Region G (Table A.17) and hence the metro area (Table A.18). Agencies in communities less than 1,000 and those with 1-4 full-time officers are underrepresented (Table A.19 and A.20).¹ As explained in the previous section, some of the differences in return distributions from state distributions are expected because of the small community exemption. These expected differences are probably reflected in sample distributions. Differential response rates, however, seem to magnify the differences and create a sufficient bias in return distributions to warrant caution in appropriate analyses.

CONTROL GROUP -- AGENCIES WITH UNTRAINED PERSONNEL

All of the samples discussed thus far have been selected from lists of BCA-trained personnel. For two reasons it was desirable to select a sample of agencies with untrained personnel. First, the sample with untrained officers would serve as a control group to compare to samples of trained officers. Second, obtaining opinions on training from officers in these agencies could help isolate their needs and desires should their training ever be required or further encouraged.

A list of 240 communities exempt from mandatory training was compiled. Communities that contracted with a sheriff's officer were eliminated and the remaining list was sent to the Training Board to check for agencies that sent

¹No statistical test is computed for these variables given the expected error in population and return data explained in previous sections.

officers to basic training although it was not required. The list was reduced to 187 and questionnaires were mailed to all of these. Ten communities responded that they no longer have a law enforcement agency, resulting in a total sample of 177.¹

Tables A.21 through A.24 contain information on the five agency and community characteristics for the control group sample. Population information is included for reference, but this sample is not meant to be representative of state agencies. On the other hand, it is meant to represent those agencies disproportionately excluded from samples based on BCA graduates. Moreover, it is not feasible to assess representativeness of the returns in terms of the sample since cell frequencies are so low. The general response rate of 23% is so low and resulting cell frequencies so low that tests of statistical significance are not warranted.

One cannot make any claims that the control group returns are representative of exempt agencies and the low N of 40 limits the analyses that are possible with these data. However, it is apparent that the agencies systematically excluded from previous samples (recall conclusions from the comparisons of three-year and supervisory samples to population data on agencies) are well represented in the control group. In particular, small agencies (1-4) in small communities outside the metro area (Region G) constitute close to 100% of the sample.

¹Perusal of the 1977 Minnesota Law Enforcement Directory (Department of Public Safety) indicates there were 173 agencies rather than 177. The Directory was not available when the sample was drawn.

TABLE A.21
CONTROL GROUP SAMPLE (AGENCIES WITH UNTRAINED PERSONNEL): DISTRIBUTIONS BY REGION^a

REGION	AGENCIES IN POPULATION		CONTROL SAMPLE		CONTROL RETURNS		RESPONSE RATE
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	
A	46	08%	26	15%	3	08%	12%
B	47	09	12	07	4	10	33
C	48	09	21	12	8	20	38
D	85	16	29	16	9	23	31
E	99	18	36	20	10	25	28
9	59	11	23	13	4	10	17
10	67	12	22	12	1	03	05
G	94	17	8	05	1	03	13
TOTAL							
Police					38		
Constable					2		
Total	545		177		40		23

a. All are police or constables.

TABLE A.22
CONTROL GROUP SAMPLE (AGENCIES WITH UNTRAINED PERSONNEL): DISTRIBUTIONS BY DISTANCE FROM METRO AREA^a

DISTANCE FROM METRO AREA	AGENCIES IN POPULATION		CONTROL SAMPLE		CONTROL RETURNS		RESPONSE RATE
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT	
Within Metro Area	94	17%	8	05%	1	03%	13%
Within 75 Miles of Metro Area	173	32	50	28	11	28	22
75 - 150 Miles from Metro Area	140	26	68	38	21	53	31
More than 150 Miles from Metro Area	138	25	51	29	7	18	14
TOTAL	545		177		40		23

a. All are police or constables.

TABLE A.23
CONTROL GROUP SAMPLE (AGENCIES WITH UNTRAINED PERSONNEL): DISTRIBUTIONS BY SIZE OF AGENCY^a

AGENCY SIZE	AGENCIES IN POPULATION		CONTROL SAMPLE FREQUENCY	CONTROL RETURNS		RESPONSE RATE
	FREQUENCY	PERCENT		FREQUENCY	PERCENT	
1			NOT COLLECTED BY CATEGORY	27	82%	
2				5	15	
3				1	03	
1-4	206	62%		33	100	
5+	125	38		0	-	
TOTAL						
No Data	91			7		
Total	422		177	40		23%

a. All are police or constables.

TABLE A.24
CONTROL GROUP SAMPLE (AGENCIES WITH UNTRAINED PERSONNEL): DISTRIBUTIONS BY SIZE OF POPULATION SERVED^a

POPULATION SIZE	AGENCIES IN POPULATION		CONTROL SAMPLE FREQUENCY	CONTROL RETURNS		RESPONSE RATE
	FREQUENCY	PERCENT		FREQUENCY	PERCENT	
Less than 1,000	160	40%	NOT COLLECTED BY CATEGORY	37	93%	
1,000 to 2,500	91	23		3	07	
2,500 to 10,000	93	23		0	-	
More than 10,000	53	13		0	-	
TOTAL						
No Data	25					
Total	422		177	40		23%

a. All are police or constables.

SUMMARY

The previous six sections discuss the samples used for the survey data analyses of the training evaluation. The first three samples were subsets of recent (1976-77) BCA basic graduates and representativeness of these samples was assessed in relation to a population of recruits trained annually (1976-77) by the BCA. Three other samples were compared to state agency distributions. Chart A.2 summarizes the samples, the population to which each was compared, and the variables on which sample (or return) distributions differed.

The three samples (subset #54 and #55, follow-up returns, and supervisory evaluations of recruits) compared to the annual sample of recruits are representative of the annual sample on agency type and size, but recruits from more than 150 miles from the metro area are disproportionately represented. These samples underrepresent the smallest communities, tend to overrepresent Regions E and 10, and tend to underrepresent Regions D and 9.

Three samples compared to state-wide agency distributions appear not to be representative of the state on all five variables. One finds more sheriffs' offices, Region G (metro area) agencies, communities over 1,000, and agencies of five or more persons represented than one would expect on the basis of state-wide population data. Some of the differences can be explained by the small community exemption which would eliminate more police agencies, outstate agencies, small agencies, and small communities from samples derived from BCA Basic graduates. Thus, samples would not be so unrepresentative of agencies required to train their personnel as they are of all state agencies. Since exempt agencies can train their personnel and might someday be required to train them, opinions from exempt agencies which

CHART A.2
SUMMARY OF ASSESSMENTS OF SAMPLES

SAMPLE	COMPARED TO:	VARIABLES ON WHICH DISTRIBUTIONS DIFFERED									
		AGENCY TYPE	COMMENT	REGION	COMMENT	DISTANCE	COMMENT	POPULATION SIZE	COMMENT	AGENCY SIZE	COMMENT
Classes #54-55, Spring, 1976	1976-77 School Year Sample			X	B,C,10 overrepresented; D,9 underrepresented	X	Persons more than 150 miles from metro area overrepresented	X	Communities less than 1,000 underrepresented		
Follow-up Returns Classes #54-57	1976-77 School Year Sample			X	E,10 overrepresented; D,9 underrepresented			X	Communities of middle size overrepresented		
Supervisory Returns Classes #54-57, 68	1976-77 School Year Sample			X	E,10 overrepresented; 9 underrepresented	X	Persons more than 150 miles from metro area overrepresented	X	Communities of middle size overrepresented		
Supervisory Returns Classes #54-57, 68	Population of State Agencies	X	Sheriffs' offices overrepresented	X	G overrepresented	X	Metro area overrepresented	X ^a	Communities less than 1,000 underrepresented	X ^a	Size 1-4 underrepresented
Graduate Returns (Trained 1973-1974)	Population of State Agencies	X	Sheriffs' offices overrepresented	X	G overrepresented	X	Metro area overrepresented	X ^a	Communities less than 1,000 underrepresented	X ^a	Size 1-4 underrepresented
Supervisory Returns (of those trained 1973-74)	Population of State Agencies	X	Sheriffs' offices overrepresented	X	G overrepresented	X	Metro area overrepresented	X ^a	Communities less than 1,000 underrepresented	X ^a	Size 1-4 underrepresented

a. Because of error in population data, statistical tests were not calculated.

have been largely excluded from the various samples are still useful to obtain. Hence, the control group deliberately was selected from a set of agencies not required to train their personnel and thus taps opinions and perspectives of those in small outstate agencies and communities.

This assessment of sample representativeness provides useful information for various analyses reported in the text. Biases discovered here can be noted or controlled when they are likely to affect statistical results.

END