

MINNESOTA

**CRIME  
CONTROL  
PLANNING  
BOARD**

RESEARCH REPORT

46231 c2





NCJRS

APR 11 1978

ACQUISITIONS

A Research Report  
of the  
Statistical Analysis Center  
and  
Research Unit

by

Neil Johnson     Dianne Healy

Minnesota Statistical Analysis Center

Crime Control Planning Board  
444 Lafayette Road  
St. Paul, Minnesota 55101

February, 1978

FELONY INVESTIGATION  
DECISION MODELS



## EXECUTIVE SUMMARY

This study focused on the feasibility of using felony investigation decision models in the investigation of crimes. Decision models for robbery and burglary, developed by the Stanford Research Institute, were applied to cases in Minnesota. A decision model is a set of numerically weighted variables or elements of information that, if present in a crime report, will enable the case outcome to be predicted with a degree of certainty high enough to warrant application of the decision model.

There were three primary purposes of this research effort:

1. to validate the findings of Stanford's study by extending the research to medium-sized cities within Minnesota (populations of 20,000 to 60,000),
2. to review the problem of allocation of investigative time by police departments, and
3. to develop a decision model for the crime of larceny.

The study itself involved testing the decision models in four police agencies in Minnesota. We reviewed all cleared and uncleared cases for robbery, usually covering the years 1974 through 1976. For burglary, we reviewed all cleared cases in most instances and a sample of uncleared cases, usually for 1976.

For the decision model to be discriminating successfully, we required a degree of accuracy of 75 percent. The results from all four agencies were above the 75 percent level. A test was conducted to determine the significance of the results and a possible sampling error was corrected for, resulting in the tests being statistically significant at the .001 level; that is, there is only one chance in a thousand that the results are in error.



No determination has yet been made on whether a decision model for larceny can be developed. Extensive data on larceny were collected from two police agencies in Minnesota and researchers are presently analyzing that information by computer.

We make several recommendations based on the results achieved in this study:

1. The decision models for robbery and burglary should be adopted and implemented by police departments in the state of Minnesota. If a department decides to adopt the decision models, we suggest an on-going evaluation be done to determine if any change in clearances occurs because of the application of the decision models.
2. A uniform offense report should be instituted statewide with the help and assistance of the Bureau of Criminal Apprehension (BCA) and the Crime Control Planning Board (CCPB). In addition, investigators should be given a separate copy of each offense report to retain in a file of their own. More emphasis should be placed on reports and preliminary investigation for police in their course work needed for certification.
3. A uniform interpretation of definitions of crimes is needed. Toward this end, the BCA and the Minnesota Board of Peace Officers Standards and Training (MBPOST) should place greater emphasis on how to classify a crime. In addition, it may be necessary for the Minnesota state legislature to redefine some crimes to make them more consistent with the national standards and to provide Minnesota law enforcement personnel with better definitions.





## TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	iii
LIST OF FIGURES	ix
LIST OF TABLES	xiii
ACKNOWLEDGMENTS	xv
I. DESCRIPTION OF THE STUDY	1
II. METHOD OF ANALYSIS	5
A. Glossary of Terms	5
B. Selection of Test Sites	6
C. Data Collection	7
D. Data Analysis	8
III. RESULTS	12
A. Robbery Analysis	12
B. Burglary Analysis	13
IV. CONCLUSIONS	16
APPENDIX A: INDIVIDUAL TEST SITES	19
1. Richfield	21
2. St. Cloud	29
3. Rochester	37
4. Maplewood	46
APPENDIX B. OFFENSE REPORT FORMS	55
Richfield	57
St. Cloud	62
Rochester	65
Maplewood	68

20

LIST OF FIGURES

<u>Title</u>	<u>Page</u>
Figure 1 Decision Model Matrix	9
Figure 2 Aggregate Robbery Cases	12
Figure 3 Total Robbery Percentages	13
Figure 4 Aggregate Burglary Case Estimate	14
Figure 5 Total Burglary Percentages	14
Figure 6 Richfield Case Flow Prior to Team Policing	22
Figure 7 Richfield Robbery Cases	25
Figure 8 Richfield Robbery Percentages	26
Figure 9 Richfield Burglary Cases	27
Figure 10 Richfield Burglary Estimates	28
Figure 11 Richfield Burglary Percentages	28
Figure 12 St. Cloud Police Department Organizational Chart	30
Figure 13 St. Cloud Robbery Cases	33
Figure 14 St. Cloud Robbery Percentages	34
Figure 15 St. Cloud Burglary Cases	35
Figure 16 St. Cloud Burglary Estimates	35
Figure 17 St. Cloud Burglary Percentages	36
Figure 18 Rochester Police Department Organizational Chart	38
Figure 19 Rochester Robbery Cases	42
Figure 20 Rochester Robbery Percentages	43
Figure 21 Rochester Burglary Cases	44
Figure 22 Rochester Burglary Estimates	44
Figure 23 Rochester Burglary Percentages	45



<u>Title</u>		<u>Page</u>
Figure 24	Maplewood Police Department Organizational Chart	47
Figure 25	Maplewood Robbery Cases	51
Figure 26	Maplewood Robbery Percentages	51
Figure 27	Maplewood Burglary Cases	52
Figure 28	Maplewood Burglary Estimates	53
Figure 29	Maplewood Burglary Percentages	54



LIST OF TABLES

<u>Title</u>	<u>Page</u>
Table I Robbery Investigation Decision Model	3
Table II Burglary Investigation Decision Model	4
Table III Richfield Robbery Offenses	25
Table IV Richfield Burglary Offenses	27
Table V St. Cloud Robbery Offenses	33
Table VI St. Cloud Burglary Offenses	34
Table VII Rochester Robbery Offenses	42
Table VIII Rochester Burglary Offenses	43
Table IX Maplewood Robbery Offenses	51
Table X Maplewood Burglary Offenses	52



D

7

U



#### ACKNOWLEDGMENTS

The authors would like to thank the four police departments that participated in this research for their cooperation and assistance in completing this study. Special thanks are in order for Mr. Paul Linnee, Supervisor of Administration Services for Richfield; Assistant Chief Richard Witchen of St. Cloud; Assistant Chief Thomas Hagen of Maplewood; and Robert Miller, Records and Identification Officer for Rochester, whose help greatly facilitated the study.



## I. DESCRIPTION OF THE STUDY

In recent years, the state of Minnesota has been faced with a rising crime rate. Minneapolis has been the only exception to this trend. Clearance rates, meanwhile, have remained at approximately the same low level.

To assist police departments, the Stanford Research Institute (SRI) attempted to develop decision models for four Part I crimes--robbery, assault with a deadly weapon, car theft, and rape--to determine cases having sufficient probability of clearance to warrant intensive investigation.<sup>1</sup> A decision model is a set of weighted variables or elements of information that, if present in a crime report at a predetermined numerical level, will enable the case outcome to be predicted with a high degree of certainty.<sup>2</sup>

An earlier SRI study produced a decision model for burglary which has generated much interest among law enforcement personnel. Of the four crimes dealt with in a more recent SRI study, it was possible to develop a model only for robbery. Oakland, California, with a population of 350,000, was used as the test site.

The purpose of our research was threefold. A primary purpose of this project was to validate the findings of SRI's study. Too often emphasis is given only to new and innovative research. An

---

<sup>1</sup>B. Greenberg et al., Felony Investigation Decision Model: An Investigative Elements of Information, Stanford Research Institute, Menlo Park, California (1975), p. iii.

<sup>2</sup>Ibid., p. 1.

equally important facet of research is to validate and expand upon a given body of knowledge. Because Minnesota's major population base is located in medium-sized cities (from 20,000 to 60,000), this project was designed to test SRI's case screening methodology in police departments serving a population of this size.

A second purpose of this study was to review the problem of allocation of investigative time. Studies have indicated that a majority of police departments do not have procedural guidelines concerning case follow-up or inactivation. With the crime rate rising and the clearance rate remaining relatively constant, the police today are faced with an increasing need to maximize their existing investigative resources.

The third purpose of the study was to develop a decision model for larceny. The crime of larceny was chosen because it is the only Part I crime, other than murder and non-negligent manslaughter, for which a decision model had not been attempted. It would seem to have many characteristics common to robbery and burglary, and it is the one crime that is uniformly increasing in Minnesota.

Over 370 larceny cases were collected for analysis from the St. Cloud and Richfield police departments. Analysis is continuing and, if a decision model for larceny can be constructed, a report will be forthcoming. The present report covers the results of testing the robbery and burglary decision models only.

To validate the findings of the Stanford Research Institute, we employed the decision models that SRI had developed for robbery (Table I) and burglary (Table II). SRI developed the following

instructions to weight cases when using the models:

1. The weighting factor for each information element that was present in the incident report was circled.
2. The circled factors were totaled.
3. If the sum was less than 10, the case should have been suspended or inactivated; otherwise, the case should have been followed up.
4. With respect to the robbery decision model, weighting factors which were subdivisions of vehicle registration or offender movement did not accumulate; instead, the largest number was used; i.e., if both the auto license and color were known the score was only 3.0 instead of 4.8.

TABLE I

ROBBERY INVESTIGATION DECISION MODEL

<u>Information Element</u>	<u>Weighting Factor</u>
Suspect named	10
Suspect known	10
Suspect previously seen	10
Evidence technician used	10
Places suspect frequented named	10
Physical evidence--each item matched	6.1
Vehicle registration	
Query information available	1.5
Vehicle stolen	3.0
Useful information returned	4.5
Vehicle registered to suspect	6.0
Offender movement description	
On foot	0
Vehicle (not car)	0.6
Car	1.2
Car color given	1.8
Car description given	2.4
Car license given	3.0
Weapon used	1.6

Source: B. Greenberg et al., Enhancement of the Investigative Function, Vols. I and IV, Stanford Research Institute, Menlo Park, California (1972-1973).

TABLE II

BURGLARY INVESTIGATION DECISION MODEL

<u>Information Element</u>	<u>Weighting Factor</u>
Estimated range of time of occurrence	
Less than 1 hour	5
1 to 12 hours	1
12 to 24 hours	0.3
More than 24 hours	0
Witness' report of offense	7
On-view report of offense	1
Usable fingerprints	7
Suspect information developed -- description or name	9
Vehicle description	0.1
Other	0

Source: B. Greenberg et al., Enhancement of the Investigative Function, Vols. I and IV, Stanford Research Institute, Menlo Park, California (1972-1973).

## II. METHOD OF ANALYSIS

To understand the methods used to analyze the data the researchers prepared a glossary of terms in Section A. While many practitioners in the criminal justice fields may be familiar with the terms used in this study it was felt a glossary would be useful to clarify any overlapping or confusing terms.

Sections B, C, and D present the actual method of analysis.

### A. Glossary of Terms

For the purposes of this study, the terms below will be defined in the following manner:

burglary the unlawful breaking and entering of a structure to commit a felony or larceny.

cleared case a case in which an arrest is made; or when a case is exceptionally cleared or unfounded.

exceptionally cleared case a case in which one of the following happens and investigation is no longer required:

1. The offender commits suicide;
2. A double murder occurs (2 persons kill each other);
3. The offender dies after making a confession (dying declaration);
4. The offender is killed by a law enforcement officer;
5. The offender confesses to committing the crime while already in custody for another crime or serving a sentence;
6. The offender is prosecuted in another city for a different crime by federal, state, or local authorities, or for the same offense, and the other jurisdiction refuses to release the offender;
7. Another jurisdiction refuses to extradite the offender;

8. The victim of a crime refuses to cooperate in the prosecution;
9. The offender is prosecuted for a less serious charge than the one for which he was arrested; or
10. The offender is a juvenile who is handled by a verbal or written notice to the parents in instances involving minor offenses.

inactivation/suspension of case a case which, while remaining uncleared, is set aside by the police department and no longer actively pursued.

on-scene arrest a case in which an arrest was made at the scene of the crime by the responding officer or one in which an arrest was made through a continuous set of occurrences (as an example, a license number of a suspect's vehicle being broadcast and an arrest occurring by another officer from the vehicle description).

robbery the felonious and forcible taking of property of another against his will by violence or by putting him in fear. This includes all attempts.

unfounded case a case in which the victim withdraws the complaint or one in which the police officer finds no validity in the victim's complaints (as an example, someone claiming a burglary of a television and, upon investigation, the police officer finds the television was repossessed).

#### B. Selection of Test Sites

The present research used a statistical analysis approach in four police agencies within Minnesota. As already stated, the study's focus was on medium-sized cities (20,000 to 60,000 in population). Twenty-two cities met this criterion, 16 within the metropolitan area and six located throughout the rest of the state. The other criteria considered in the selection of the agencies were: geographic area of the state, number of cases, and number of case clearances. The number of clearances was weighted most heavily since we needed an adequate statistical base with which to work. Using the above criteria, we eliminated several cities because the number of robberies was inadequate.



for statistical purposes. In the cities selected, we had to include cases covering several years, usually 1974 through 1976, to obtain a sufficient number of cases for analysis.

After consideration of all these factors, the four cities selected for this study were Rochester, located in the southeastern area of the state; St. Cloud, in the central part; and Maplewood and Richfield, within the metropolitan area (in Ramsey and Hennepin counties respectively).

We determined that a pilot test was necessary to assess the availability of recorded data to implement case screening. In addition, we also wanted to test the sampling procedures before they were fully implemented in the study. Because of cost and time constraints, we decided to use one of the already selected agencies, Richfield, as the pilot site.

C. Data Collection

Data collection was conducted from August through November of 1977. To test the decision models, it was essential that the data sample have an adequate number of both cleared and uncleared cases. Once again, for purposes of this study, a case was considered cleared when an arrest was made and not when prosecution was agreed upon or conviction obtained.

Specific categories of cleared cases omitted from the study were those cleared through use of an informant, those which were unfounded, those classified as on-scene arrests, and those that were exceptionally cleared. Such cases were eliminated from the study because none of them needed the use of felony investigation decision models.

Because of the relatively small number of robberies which occur annually in the cities in this study, we anticipated that we would have to review all robbery cases for several years to obtain an adequate data base. In contrast, cases of burglary were sufficient in number so that a sample could be drawn from one year.

In the pilot test the following collection procedures were used: All robbery cases were reviewed for the years 1975 through the first six months of 1977 and a systematic sample of burglary cases was taken for the years 1974, 1976, and the first six months of 1977.<sup>3</sup> Data on 69 robbery cases and 130 burglaries were collected in the pilot test. After examining the collection procedures, we decided to collect data on cases from past years (1974 - 1976) rather than the current year (1977). This was done for two reasons: 1) The current-year files were still being actively used by the investigators and access to those cases was therefore hampered, and 2) several cases in the 1977 files were uncleared but still being actively investigated. Therefore, the collection procedures for the remaining sites involved review of all robbery cases for 1974 and a sample of burglaries from 1976.<sup>4</sup>

D. Data Analysis

When we reviewed a case, the following decisions were made:

1. All police work completed the first 24 hours was included in scoring the case. Anything thereafter, with

---

<sup>3</sup> The burglary cases for 1975 were unavailable from Richfield Department of Public Safety.

<sup>4</sup> There was an exception to this procedure for burglary in Rochester because an adequate number of clearances could not be found in the manual index for 1976. For further explanation, please see Appendix A.

the exception of information received from the analysis of physical evidence, was labeled as follow-up investigative effort;

2. Whenever there was a threat, real or imagined, of a firearm in the report, the incident was classified as weapon used; and
3. Use of an evidence technician (an information element in the Robbery Investigation Decision Model) was not scored unless the department being studied had a full-time person classified in this position.

Every case was scored according to the elements of information that were present in the offense reports. According to Stanford Research Institute's model a score of ten was the initial point in determining whether or not a case should be further investigated. If a case received a score of 10 or greater, it had a sufficient probability of clearance to warrant intensive investigation.

When the decision model is applied to a case, there are four possible outcomes, as represented in Figure 1 below:

	Score $\geq 10$	Score $< 10$
Case Cleared	a ✓	b
Case Not Cleared	c	d ✓

Figure 1

#### DECISION MODEL MATRIX

The cells with check marks inside (a and d) are the two cells within which the cases will fall if the decision model is discriminating correctly.

The desired degree of accuracy, i.e., the number of cases that are categorized correctly in the matrix, was set at 75

percent for the purpose of this study. The actual degree of accuracy was obtained by simply computing the percentage of cases within each cell and totalling cells a and d. This standard was applied to both the robbery and burglary decision models. Stanford's degree of accuracy achieved varied from a low of 67 percent to a high of 90 percent in validating the burglary model. Predictive accuracy for the robbery decision model, developed and tested in Oakland, was 90 percent.

Since the data involved are of a nominal level of measurement, a chi-square test was used to test the significance of the results. When the chi-square test is applied to the particular decision models in this study, it determines whether the cases observed in the four cells (Figure 1) could have occurred by chance or were the result of some other effect, i.e., application of the decision model. How much the actual results vary from the theoretical situation determines whether or not the results are significant and the degree to which they are significant.

Where samples were taken, we expanded the matrix results from the sample to estimate what the results would be given the total caseload. When this is done, there could be a certain amount of error in the estimation process owing to sampling

fluctuations. To account for this possibility, the standard error was computed and taken into account in the analysis.<sup>5</sup>

---

<sup>5</sup>The formula  $\sigma = Npq$  was used to obtain the standard error.

N = the total number of cases  
p = the cases in square c divided by N  
q = the cases in square d divided by N

One standard error represents  $\sigma$  number of cases. Essentially, this means that because of errors in the estimation process, 68 percent of the samples that could have been drawn would give estimates within plus or minus one standard deviation of the number of cases in the entire caseload projected to be in cell c (or d). (The estimates apply only to uncleared cases.) Plus or minus two standard deviations (2  $\sigma$  number of cases) would take into consideration 95 percent of the samples that could be drawn. For plus or minus two standard deviations, there is only a 5 percent chance that the particular sample drawn is outside this range. In the cases of this study, we are concerned only with the error in one direction, the possibility of cell c being larger than was found in the particular sample used, for which the possibility of error is only half as great.

### III. RESULTS

#### A. Robbery Analysis

Two hundred seventy robbery cases were reviewed. Of this figure, 210 cases involved investigation and therefore were analyzed. The other 60 cases were unfounded, exceptionally cleared, or cleared by other than the investigative process.

Figure 2 presents the aggregate results of the decision model.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 25	b 4
Cases Not Cleared	c 24	d 157

Figure 2

#### AGGREGATE ROBBERY CASES

For the decision model to be of predictive value, the research design stated that the degree of accuracy must equal at least 75 percent. Cells a and d are the two cells within which the cases would fall if the decision model is discriminating correctly. Therefore, these two cells must total a minimum

of 75 percent. Using percentages, figure 3 presents the results.

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 11.91%	b 1.90%
Cases Not Cleared	c 11.43%	d 74.76%

Figure 3  
TOTAL ROBBERY PERCENTAGES

In Figure 3 cells a and d total 87 percent. The degree of accuracy is well above the 75 percent required to be of predictive value. Using the chi-square test for significance, a score of 70.34 is obtained.<sup>6</sup> This indicates that the results for robbery are significant at the .001 level. There is only one time in every thousand that these results could have occurred by chance alone.

B. Burglary Analysis

Because of the large number of burglary cases in each of the four departments, 1,858 cases, a sample was taken from each department. The sample comprised 401 cases, or approximately 22 percent of the total caseload. However, because the number of uncleared burglary cases so greatly exceeds the number of cleared cases, we distinguished between these two kinds of cases in constructing the test sample. In all cities except St. Cloud, every cleared case in the years selected was reviewed, while random sampling was restricted to uncleared cases. In St. Cloud, samples of both cleared and uncleared cases were taken.

---

<sup>6</sup>For individual department results, see Appendix A.

From the samples we estimated the actual number of cases. Of the 211 cleared cases in the estimate, 172 were deleted because no investigative work was done to clear the case. This left 39 cases to be included in the matrix in Figure 4. All of the uncleared estimates, 1647, could be used since investigative work, either initial or follow-up, was not successful.

Figure 4 presents the burglary matrix using the estimates in each cell that were projected from the samples.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 37	b 2
Cases Not Cleared	c 147	d 1500

Figure 4

#### AGGREGATE BURGLARY CASE ESTIMATE

The degree of accuracy achieved for the burglary matrix is presented in Figure 5 below:

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 2.17%	b .12%
Cases Not Cleared	c 8.72%	d 88.99%

Figure 5

#### TOTAL BURGLARY PERCENTAGES

Cells a and d equal 91 percent, which is well above the 75 percent required to be of value.

Using the chi-square test for significance, burglary proved significant at the .001 level with a score of 277.20, well above the 10.8 needed to be significant.



When estimates are made from samples, there could be an error in the projected figures because of sampling fluctuations. To account for the possible sample error, the standard deviation was computed. But even if we assume two standard deviations error for both the cleared and uncleared cases, the chi-square test is still significant at the .001 level.

While the chi-square values for both the robbery and burglary decision models were significant at the .001 level and the predictive accuracy was nearly the same (87% for robbery and 91% for burglary), there are interesting differences when the matrices are compared. The greatest difference is in cells a and c (see Figures 3 and 5). While over 23 percent of the robbery cases appeared in cells a and c, only 11 percent of the burglary cases fell in the same cells. This striking difference can be accounted for primarily because of the difference between cell a in Figures 3 and 5, a difference of approximately 10 percent.

We feel that two possible explanations for this difference are: first, robbery is investigated more seriously than burglary because it is a violent person crime; and second, the victim has direct contact with the offender in a robbery incident. Because of these two factors, a score greater than or equal to 10 is more probable in robbery cases than in burglary cases.

#### IV. CONCLUSIONS

The decision models for both robbery and burglary proved successful and useful for prediction. Because of the very positive results achieved in this study, it is our recommendation that these decision models be adopted and implemented by police departments in the state of Minnesota. If a department decides to adopt the decision models, researchers suggest that an ongoing evaluation be done to determine, in part, if any change in clearance occurs because of the use of the decision models.

In addition, this evaluation could focus on a major difference between our findings and those of Stanford's, i.e., the meaning of the critical score ten. What Stanford stated was that a case which received a score of less than ten should not be investigated, and a case which received a score equal to or greater than ten should be investigated because the probability of clearance is high. What we found was that a case receiving a score equal to or greater than ten did not necessarily imply that the case would be cleared. Rather, a score of less than ten almost always guaranteed that a case would not be cleared.

If the decision models were instituted, more of the cases which score equal to or greater than ten would be cleared. This would result in an increasing clearance rate without a corresponding increase in the cost of police services -- a goal that all police departments are striving toward.

As an outgrowth of this study, we uncovered two other areas of concern which should be considered. The first concerns record keeping, and the second is the need for uniform interpretation of definitions of crimes.

Our researchers found a vast difference in the types of record forms maintained by each department in this study. Many offense report forms were extremely difficult to review and needed information was often not present. In addition, the records were often difficult to access from the files. The researchers recommend the following steps be taken in this area:

1. A uniform offense report should be instituted statewide with the help and assistance of the Bureau of Criminal Apprehension and the Crime Control Planning Board. Because of the positive value of the decision models tested in this study, the decision models could provide the preliminary base for such a report. (Copies of the offense reports used by the police departments in the study are included in Appendix B.)
2. Investigators should be given a separate copy of each offense report to keep in a file of their own. This file could be set up as the individual detective divisions saw fit.
3. More emphasis should be placed on reports and preliminary investigation for police in the course work needed for certification.

Looking at the need for uniform interpretation of definitions of crimes, we found that every department interpreted some crimes differently.

The BCA and Minnesota Board of Peace Officers Standards and Training (MBPOST) should place greater emphasis, when police are trained, on how to classify a crime. As an example, a break-in of a garage is a larceny if the garage is not attached to the house and a burglary when the garage is attached.

In addition, it may be necessary for the legislature to redefine some crimes to make them more uniform with national standards and to provide law enforcement with better definitions. As an example, of the four departments studied, each had a different definition of purse snatching. This difference of definitions was based on the interpretation of the term "force" used in the FBI's Uniform Crime Report. It may be necessary to legislate a definitive description for a crime such as purse snatching.

APPENDIX A:

INDIVIDUAL TEST

SITES



1. RICHFIELD

a. Description of the Richfield Police Department

The police department operates under an umbrella agency, the Richfield Department of Public Safety, which also provides fire protection, civil defense assistance, and emergency services. Until July 1, 1975 the police department functioned in a traditional manner. At that time a team policing grant awarded by LEAA, through the Minnesota Crime Control Planning Board, became operational. Cases reviewed by this research project overlapped this period; therefore, how cases were processed through the system both before and after 1975 will be discussed.

Prior to the initiation of team policing, Figure 6 reflects the basic case flow.

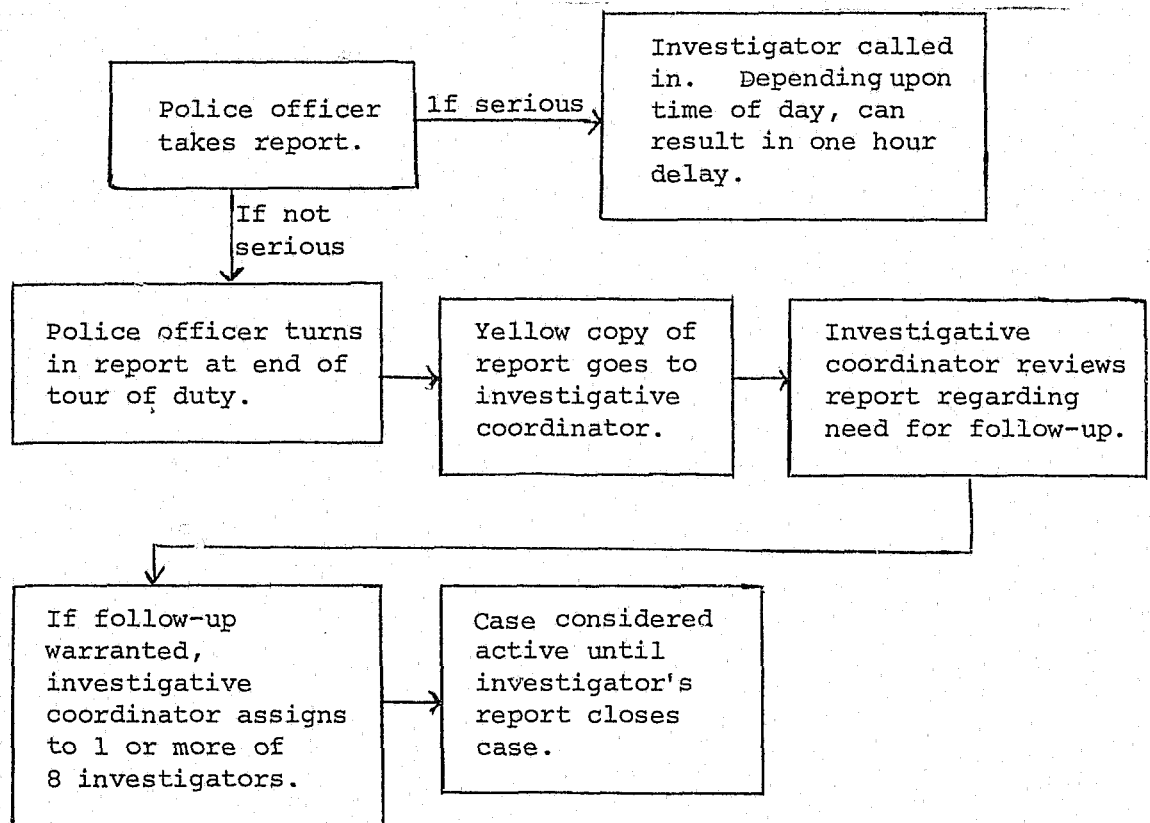


Figure 6  
RICHFIELD CASE FLOW PRIOR TO TEAM POLICING

Under team policing, an investigator is assigned to each of the teams and works the same eight-hour shifts as the police officers. For a robbery or a significant burglary, the investigator is assigned to an incident at the same time as a patrol officer. The decision to follow up on a case is almost always in the hands of the assigned investigator. An investigator may work three to four hours overtime, if necessary, to follow up on leads.

The department has no person assigned as a full-time evidence technician. However, there are approximately 12 staff



members who are experts at crime scene search. Four have attended the 80-hour course offered by the Bureau of Criminal Apprehension entitled Advanced Training in Evidence Collection, Preservation, and Transmission of Evidence. Twelve have participated in the shorter 16-hour course from the BCA called Basic Crime Scene Techniques of Preservation and Processing. At the discretion of the investigator, Richfield also uses the Hennepin County Mobile Crime Lab for evidence work.

Another change that has occurred within the Richfield Police Department is the development of new forms now being used by the department. This change was initiated in June-July of 1975. These forms are crime-specific (copies are attached in Appendix B).

Of the 42 full-time sworn officers, 39 are assigned to the field. There are six teams:

- 1) Four Police Service Teams provide around-the-clock service. Basically, the four teams work eight-hour shifts five days a week for a total of 160 hours, which leaves eight hours uncovered (7 days x 24 hours = 168 hours).
- 2) One Crime Control Team provides increased coverage during the peak crime periods, as well as covering the remaining eight hours of patrol per week.

3) One Central Investigative Unit Team includes the investigative coordinator and three other investigators. They essentially work 8:00 a.m. - midnight shifts and may handle less pressing cases, such as check fraud. They may also be called in to handle special work, for example, murder.

Viewing response times of the police to a reported robbery, in 1977 the average response time was 1.5 minutes in June and 2.5 minutes in July. For burglary, the average response time in June was 5.4 minutes, and the mode (the most frequently occurring time) was 2.0 minutes. According to the Administrative Supervisor, these response times are typical of other months.

b. Analysis of Results

Researchers reviewed all robbery offenses for the years 1975 through 1977 with the following breakdown:

10 cleared  
6 exceptionally cleared  
53 uncleared  
69 total cases

The 1975 burglary case files were unavailable; therefore, researchers reviewed all cleared cases for the years 1974, 1976 and through July of 1977. For the purpose of comparison, a sample of uncleared cases (starting randomly, every tenth case was reviewed for the years 1974 and 1976 and every fifth

case for the year 1977) was taken for the same years,  
yielding this breakdown:

36 cleared  
13 unfounded  
20 exceptionally cleared  
61 uncleared  

---

130 total cases

1) Robbery

TABLE III  
RICHFIELD ROBBERY OFFENSES

Year	Offenses <sup>a</sup>	Cleared	Exceptionally Cleared	Uncleared
1975	33	5	5	23
1976	26	4	-	22
1977	10	1	1	8

<sup>a</sup> Three purse snatches were found in Richfield's robbery caseload file. Since non-aggravated purse snatching is considered a larceny, these cases were coded as larcenies.

Figure 7 below presents the results using the decision model:

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 8 †	b 1 ‡
Cases Not Cleared	c 13 #	d 40

Figure 7  
RICHFIELD ROBBERY CASES

† There was one on-scene arrest which was excluded from analysis.

‡ This case related directly to a cleared case which had a score of greater than 10. None of the categories were appropriate to give this case a higher score.

# Two of these are 1977 cases and are still being actively investigated by the department.

In order to consider the decision model of predictive value, the research design stated that the degree of accuracy must equal at least 75 percent. Cells a and d are the two cells within which the cases will fall if the decision model is discriminating correctly; hence, these two cells must total a minimum of 75 percent.

For this test, the degree of accuracy is 77 percent (see cells a and d). Looking at Figure 8 in terms of percentages, the following breakdown occurs:

	Score $\geq$ 10	Score < 10
Cases Cleared	a 12.90 %	b 1.61 %
Cases Not Cleared	c 20.97 %	d 64.52 %

Figure 8

#### RICHFIELD ROBBERY PERCENTAGES

When testing for the significance of the above results, researchers used a chi-square test since the data are at the nominal level. Because the sample was not large and one cell was particularly small (a value of 1), a correction for continuity was made.

A chi-square of 11.5 was obtained which indicates that the results are significant at the .001 level.

2) Burglary

TABLE IV  
RICHFIELD BURGLARY OFFENSES

Year	Total Cases	Cleared	Unfounded	Exceptionally Cleared	Uncleared
1974	51	18	2	10	21*
1976	51	14	9	6	22*
1977	28	4	2	4	18†

\*Random sample of every 10th case.

†Random sample of every 5th case.

Figure 9 presents the results using the decision model:

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 18	b 0
Cases Not Cleared	c 6	d 55

Figure 9

RICHFIELD BURGLARY CASES

Of the 36 cleared cases shown in Table IV above, 15 were on-scene arrests and three were cleared through an informant. These 18 cases were deleted, thus leaving only 18 on which to test the decision model.

To estimate the total number of uncleared burglaries from the random sample, we first added the number of uncleared cases for the years 1974, 1976, and 1977. This totaled 533. The sample size of 61 represents approximately 11 percent of the total caseload of 533. Expanding the figures in cells c and d to estimate the total uncleared cases results in the following breakdown in Figure 10.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 18	b 0
Cases Not Cleared	c 52	d 481

Figure 10

#### RICHFIELD BURGLARY ESTIMATES

For a percentage breakdown see Figure 11.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 3.27%	b 0%
Cases Not Cleared	c 9.44%	d 87.30%

Figure 11

#### RICHFIELD BURGLARY PERCENTAGES

In this instance the degree of accuracy equals 91 percent (see cells a and d), well above the minimum of 75 percent cited in the research design.

Using the chi-square test of significance a result of 119.85 was obtained, tested significant at the .001 level.

There could be a certain amount of error in the estimation process owing to sampling fluctuations. To account for this possibility, the standard error was computed. It should be noted that the possibility of error applies only to the uncleared cases. No error could occur with the cleared cases because each case was reviewed. Correcting for possible sampling error, the results were still significant at the .001 level.

2. ST. CLOUD

a. Description of the St. Cloud Police Department

St. Cloud has operated in a traditional police manner: three shifts of patrol, separate investigative division, separate records and communication, etc. In 1974 the International Association of Chiefs of Police (IACP) performed a management survey at the request of the department. The results of the survey suggested several changes in the organization of the department. Many of these suggested changes were implemented in July of 1977.

The present organization is presented in Figure 12.

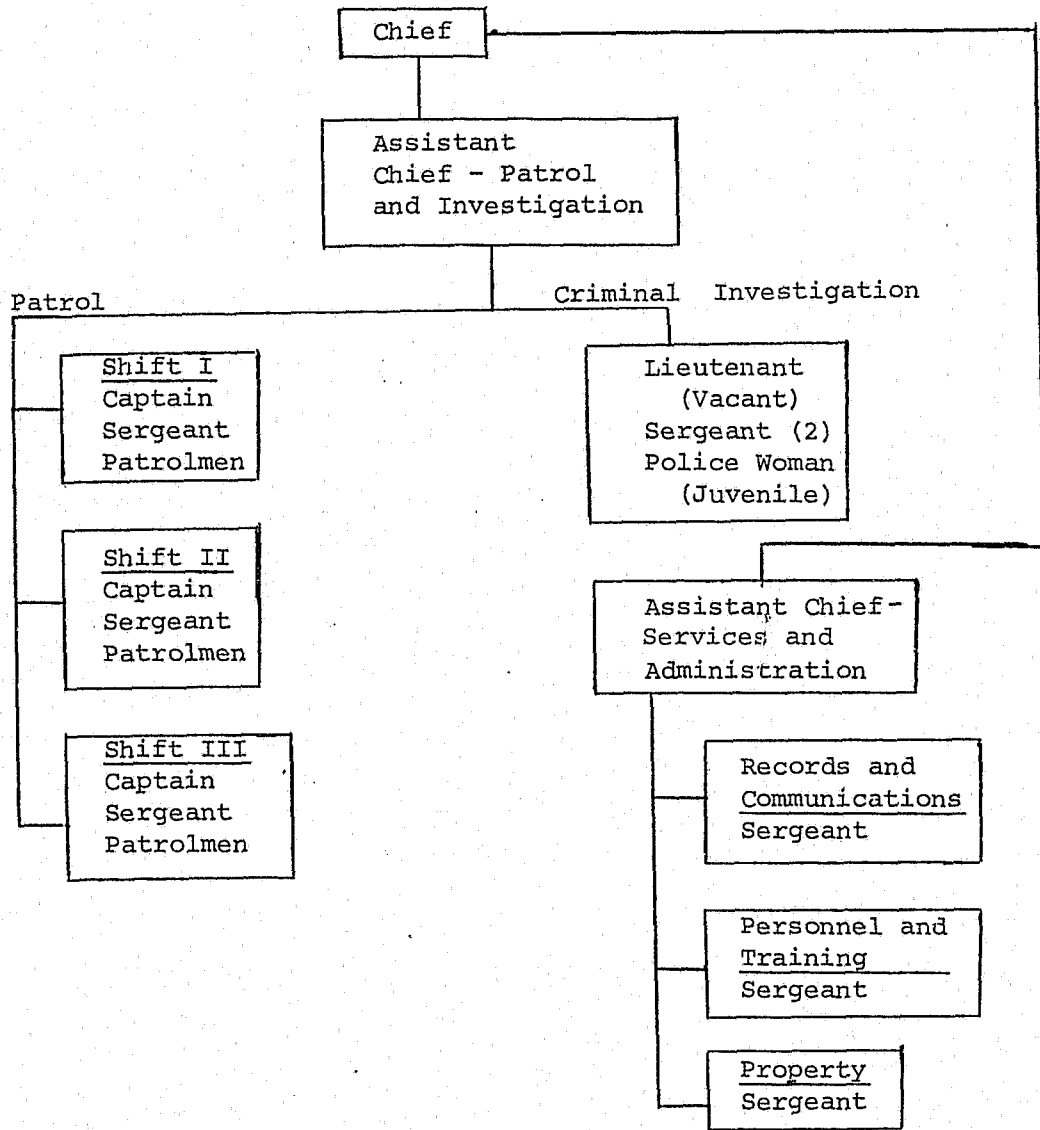


Figure 12

#### ST. CLOUD POLICE DEPARTMENT ORGANIZATIONAL CHART

Present staffing is 62 people, nine of which are civilians including secretaries, stenographer, clerks, custodian and dispatchers. The breakdown of the remaining 53 sworn officers is:

Chief of Police	1
Assistant Chief	2
Captain	3
Lieutenant	Vacant
Detective Sergeant	2
Sergeant	6
Patrol Officer	37
Police Woman	1



Another suggested change dealt with record keeping. A specific suggestion the IACP offered was that St. Cloud adopt the IACP forms for offense reporting. St. Cloud recently received grant funds to reorganize the records system. Included in the grant are funds to change to the initial complaint report suggested by the IACP.

A new system of reporting offenses was begun in July, 1977. There are presently three copies of each offense report. After the patrol officer fills out the report, the supervisor reviews it for corrections or additions. The report is then separated. The first copy is entered into the Criminal Justice Reporting System (CJRS) file. The second copy is sent to the appropriate division, patrol or investigative, for action. The third copy is reviewed by the chief of police and then placed in a book so that all patrol officers can review the day's cases before going on duty. This system should be assisted when the records reorganization is completed and the new forms are substituted.

The initial investigation of a crime is the responsibility of the police officer assigned to the case. He handles all on-scene investigation. If the offense is serious, the supervisor of the shift will also respond to the incident. If the incident occurs after regular hours, the decision is made to call in either an investigator at that time or file the report for action the following day. The two detective sergeants have attended the BCA advanced evidence technician course, but there is no one classified as an evidence technician in the Department.

All person crimes, including robbery, are treated very seriously by the department. Every person crime is followed up no matter what the chance of success is.

Prior to the implementation of some of the IACP recommendations, all detectives were on an equal level. Consequently, it was difficult to account for every case and to be able to determine the current active caseload. With the restructuring of the investigative section, such problems have been alleviated. Once the position of the lieutenant, who recently retired, is filled, more order should be possible.

Burglary follow-up investigations are made only when evidence is available or when the crime is serious enough to warrant investigation. If there are no leads, there is not an intensive follow-up. The department does not inactivate a case after a certain length of time as Richfield does with its active and tickler files.

b. Analysis of Results

The St. Cloud Police Department maintains a complete card file on all crimes. The master card file is broken down by crimes, and separate sections are maintained for cleared and uncleared cases.

As in the other cities, only a small number of robberies occurs annually. Cases were reviewed for 1974, 1975 and 1976. All cases were looked at. The breakdown on these cases was:

10	cleared
15	exceptionally cleared
7	unfounded
40	uncleared
<hr/>	
72	total cases

For burglary, we had to apply a sampling procedure to obtain the 50 cleared and 50 uncleared burglaries needed to test the decision models. The researchers found 73 cleared cases and 324 uncleared. Therefore, two out of every three cleared cases were looked at, and every sixth uncleared case was reviewed. The breakdown was:

19	cleared
35	exceptionally cleared
2	unfounded
54	uncleared
<hr/>	
110	total cases

Of the 19 cleared cases, nine were classified as on-scene.

1) Robbery

TABLE V

ST. CLOUD ROBBERY OFFENSES

Year	Offenses	Cleared	Unfounded	Exceptionally	
				Cleared	Uncleared
1974	24	3	1	9	11
1975	26	4	2	2	18
1976	22	3	4	4	11

Figure 13 below presents the results using the decision model:

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 7	b 1*
Cases Not Cleared	c 3	d 37

Figure 13

ST. CLOUD ROBBERY CASES

\*Score of 1.6 Armed robbery, weapon used (1.6) at a ticket booth. When detective heard victim's story, he felt that victim was involved. The detective contacted victim's father and while talking to the father victim came home. After talking to both of them, victim admitted to being part of the robbery.

Of the ten cleared arrests, two were on-scene and excluded from the analysis.

Using the chi-square test of significance, a score of 21.6 was obtained which indicates the results are significant to the .001 level. Figure 14 presents the percentage breakdown of each cell.

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 14.58%	b 2.08%
Cases Not Cleared	c 6.25%	d 77.08%
	14.58% + 77.08% = 91.66% or 92%	

Figure 14

#### ST. CLOUD ROBBERY PERCENTAGES

Based on the testing of the decision model on 72 robbery cases, the degree of accuracy was 92 percent.

#### 2) Burglary

TABLE VI

#### ST. CLOUD BURGLARY OFFENSES

Year	Total Cases	Cleared	Unfounded	Exceptionally Cleared	Uncleared
1976	110	17 <sup>a</sup>	2	37	54 <sup>b</sup>

<sup>a</sup> Random sample of every two cases out of three.

<sup>b</sup> Random sample of every sixth case.

Figure 15 presents the results using the decision model:

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 5	b 0
Cases Not Cleared	c 4	d 50

Figure 15

#### ST. CLOUD BURGLARY CASES

Of the 17 cleared cases shown in Table VI, nine were on-scene arrests and three were cleared through an informant. These 11 cases were deleted, thus leaving only five on which to test the decision model.

To estimate the total number of cleared and uncleared cases, the above numbers must be multiplied. The cleared cases must be multiplied by 3/2; the uncleared cases by 6 giving us the following in figure 16.

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 7.5	b 0
Cases Not Cleared	c 24	d 300

Figure 16

#### ST. CLOUD BURGLARY ESTIMATES

In testing for significance, the chi-square was computed at 62.71 which is significant at the .001 level. Figure 17 presents the percentages.

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 2.26%	b 0%
Cases Not Cleared	c 7.24%	d 90.50%

Figure 17

#### ST. CLOUD BURGLARY PERCENTAGES

When a sample is taken, an error could take place. To correct for possible error in the projected burglary figures for St. Cloud, the formula for standard deviation was used. Correcting for such an error, the results were still significant at the .001 level.

### 3. ROCHESTER

#### a. Description of the Rochester Police Department

The Rochester Police Department is housed in a law enforcement center with the Olmsted County Sheriff's Office. Certain activities records, dispatching, et cetera have been merged with the sheriff's office. The authorized force of the police department is 98 personnel and the sheriff's office is 40.

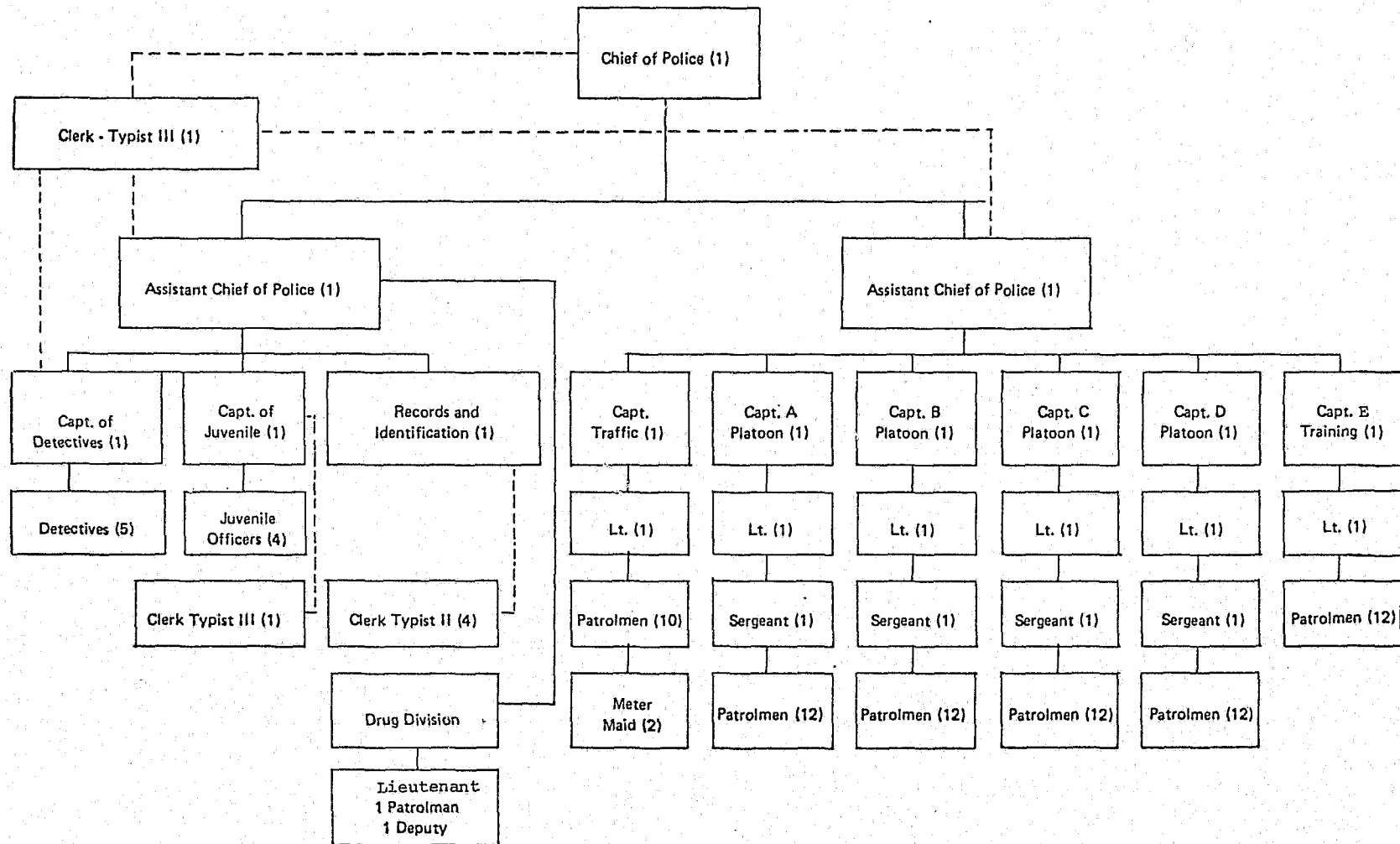
Most officers have had training in crime scene processing, and the Records and Identification Officer is a qualified evidence technician responsible for investigating crime scenes and collecting and identifying evidence when this assistance is requested by police officers or detectives.

The organizational chart for the department is shown in Figure 18. As can be seen from that figure, a captain of detectives and a captain of juveniles report directly to an assistant chief of police. These two captains are responsible for decisions regarding investigation of cases.

All Incident Call Reports are passed through the central communications center and then assigned to an on-duty officer. After the officer completes the initial investigation, he returns to the station and files the report with either the Juvenile or Investigation Divisions. During the normal working day, the captains of these divisions determine whether to assign an investigator to the case or not. If the offense

Figure 18

ROCHESTER POLICE DEPARTMENT ORGANIZATIONAL CHART







occurs after regular hours, the watch commander makes the decision on whether to call in an investigator or to hold the report until the following day for the Juvenile or Investigation Division.

Five detectives are assigned to the investigation division, and four detectives are assigned to the juvenile bureau. Detectives rotate shifts every 28 days and basically cover the hours of 7:00 A.M. to 1:30 A.M. Monday through Friday and of 12:30 P.M. to 9:00 P.M. Saturday. In addition, one detective or juvenile officer is on call on Sunday.

The captain of detectives reviews all handwritten police reports before they are typed in order to ensure completeness and accuracy of classification. Reports are then typed and one copy goes to the individual detective assigned to the case.

All cases, excluding those that are unfounded, have an initial follow-up performed. At that point, the captain of the division determines whether to investigate the case in depth or to inactivate the case. The department has no set guidelines for inactivating a case, i.e., time. Inactivating a case is at the discretion of the division captain.

In 1976, through a grant from the Crime Control Planning Board (then the Governor's Commission on Crime Prevention and Control), the Public Administration Service did a survey and analysis of the organization and management of the Rochester

Police Department. There were several recommendations with respect to investigation of cases, among them that the captain of detectives develop a more effective means of controlling cases assigned and their disposition; that the division revise its case assignment procedures in accordance with policies which recognize the relative importance and solvability of cases; that patrol officers be encouraged to devote more time than has been done in the past to conducting preliminary criminal investigations; and since the prevailing philosophy of the department with regard to juvenile offenders is toward treatment and rehabilitation, that the Juvenile Division be changed to a Youth Services Unit and placed under a Community Services Bureau. The youth services officers would follow-up on the preliminary investigative work of the Investigation Division. These recommendations are being studied by the department but have not been implemented thus far.

b. Analysis of Results

The Rochester Police Department now has an automated records system, and cases are indexed by terminal digit in the power files and later transferred to computer. It is not possible to obtain routinely a list of all cases by crime type, i.e, burglary. Because of the cost of having a program written to accomplish this, it was decided to utilize an alternative.

The Detective Bureau continues to maintain a manual index of cases by category. Basically, the index contains the following information: offense, date, officer assigned, details, and remarks. Under remarks, anyone arrested for the offense is listed.

When we began working with the manual index, we encountered some difficulties. According to Minnesota Crime Information (which is based on data received from the department itself), there were 560 burglaries in 1976 and 652 in 1975. In the manual index, only 275 burglaries in 1976 and 351 in 1975 could be accounted for. Department staff were not certain why this large a difference should occur.

Only one-third of the MCI-listed clearances were recorded in the manual index for 1976 and not quite one-half for 1975.

By the time the extent of the problem was realized, it was decided to continue with the project in Rochester but to cite these limitations and make whatever adjustments were necessary or possible.

We examined the available data to determine if any biases were in operation. First, the researchers ascertained whether there was an adequate number of both residential and business burglaries with the following results:

	<u>1976</u>	<u>1975</u>
Business	119	212
Residential	156	139

With respect to clearances, this breakdown was found:

	<u>1976</u>	<u>1975</u>
Business	10	16
Residential	6	15

Offenses occurred in all months of the year for both 1975 and 1976. With 1975 and 1976 figures combined, there was at least one clearance in each month. Looking at both of these characteristics, type of burglary and month of occurrence, the data available from the manual index did not seem to indicate that any biases were present.

1) Robbery

TABLE VII

ROCHESTER ROBBERY OFFENSES					
<u>Year</u>	<u>Offenses</u>	<u>Cleared</u>	Exceptionally		
			<u>Cleared</u>	<u>Unfounded</u>	<u>Uncleared</u>
1974	21	2	6	-	13
1975	38	6	9	2	21
1976	25	2	-	2	21

Figure 19 below presents the results using the decision model:

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 4	b 2 <sup>a</sup>
Cases Not Cleared	c 5	d 50

Figure 19

ROCHESTER ROBBERY CASES

<sup>a</sup> Score of 7.5 - Victim obtained license number of offender's vehicle (3.0) and useful information was returned (4.5); specifically, the vehicle was registered to the offender's wife. Since the offender did not cover his face during the robbery, the victim was able to identify him from a photo. Score of 1.6 - Weapon used (1.6). Investigator did not feel that he was obtaining the truth concerning the incident from the victim. Upon later questioning, the victim admitted to the robbery.

Of the ten cleared cases two were on-scene arrests and two were cleared by an informant; thus, they were excluded from the analysis.

When the chi-square test for significance is used to test the robbery model, the test proves the model significant at the .01 level,  $10.048 > 6.635$ .

Figure 20 presents the percentage of each cell. Using the percentages the breakdown is:

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 6.56%	b 3.28%
Cases Not Cleared	c 8.20%	d 81.97%

Figure 20

#### ROCHESTER ROBBERY PERCENTAGES

Based on the test of the decision model on 61 robbery cases, the degree of accuracy of the model was 89 percent.

#### 2) Burglary

TABLE VIII

#### ROCHESTER BURGLARY OFFENSES

Year	Offenses	Cleared	Exceptionally Cleared	Unfounded	Uncleared
1975	51	15	5	2	29 <sup>a</sup>
1976	40	5	9	1	25 <sup>a</sup>

<sup>a</sup>Random sample of every 11th case.

	Score $\geq$ 10	Score < 10
Cases Cleared	a 5	b 0
Cases Not Cleared	c 5	d 49*

\*One case was referred to the juvenile division, no further information was available.

Figure 21

#### ROCHESTER BURGLARY CASES

Of the 20 cleared cases, 14 were solved through on-scene arrests and one was cleared through the use of an informant. These 15 were deleted from the analysis.

Since the sample of uncleared cases was 1/11 of the total number, we multiplied the appropriate figures by 11 which gives this expanded matrix in figure 22.

	Score $\geq$ 10	Score < 10
Cases Cleared	a 5	b 0
Cases Not Cleared	c 55	d 539

N = 599

Figure 22

#### ROCHESTER BURGLARY ESTIMATES

Computing the chi-square resulted in a value of 35.787 which is significant at the .001 level.

Figure 23 presents the percentage breakdown.

	Score $\geq$ 10	Score < 10
Cases Cleared	a 0.83%	b 0%
Cases Not Cleared	c 9.18%	d 89.98%

Figure 23

ROCHESTER BURGLARY PERCENTAGES

The degree of accuracy is 91 percent. Correcting for standard error, the chi-square value is 17.912 and still significant at the .001 level.



#### 4. MAPLEWOOD

##### a. Description of the Maplewood Police Department

The Maplewood Police Department has a total size of 50 employees, 42 of whom are sworn. The organization chart is shown in Figure 24.

The department operates with 4 patrols under the following shifts:

Patrol A	7 A.M. - 3 P.M.
Patrol B	3 P.M. - 11 P.M.
Patrol C	11 P.M. - 7 A.M.
Patrol D	relieves B and C

The officers operate in 3 primary areas: South and East, West, and Central which is the biggest area. The paramedic police patrol vehicle and the sergeant's vehicle overlap the three areas they are patrolling.

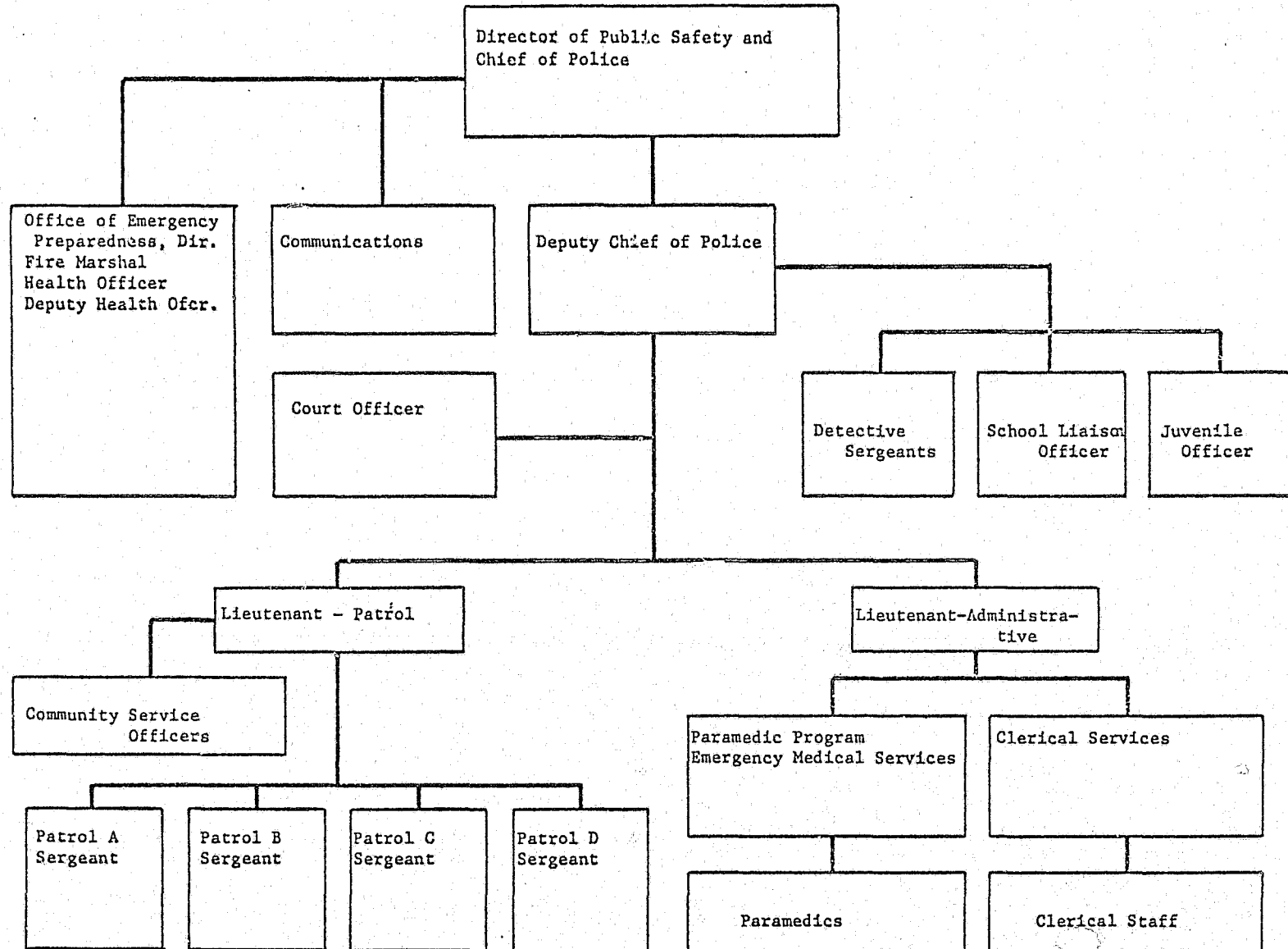
When a call is received by the department, an Incident Card is completed. If a robbery or burglary is in progress, the staff person attempts to keep the caller on the telephone to obtain additional information. The incident is broadcast to all cars, and the sergeant and nearest patrol car respond to the incident.

The investigative section consists of four investigators and the deputy chief. This section is further divided into juvenile and general investigative work with two juvenile investigators and two detectives. One juvenile investigator works 8 A.M. -



Figure 24

MAPLEWOOD POLICE DEPARTMENT ORGANIZATIONAL CHART



4 P.M. weekdays while the other works 9 A.M. - 5 P.M. 4 days a week and noon - 8 P.M. one day a week. Both general detectives are on a 10 A.M. - 6 P.M. schedule.

For serious incidents that occur while the investigators are not on duty, the day lieutenant (8 A.M. - 4 P.M.), the afternoon lieutenant (2 P.M. - 10 P.M.), or the patrol sergeant if it is after 10 P.M. are called in for assistance prior to an investigator being called. However, the sergeant or patrolman can make a decision to request an investigator's assistance.

The initial report is completed by the responding officer who usually makes a recommendation on follow-up. The responding officer is himself responsible for certain routine follow-up work, such as interviewing neighbors and other people like the postman. At the police department, the report is placed in a general basket. It is passed from the first shift supervisor to the second shift supervisor so that the incident can be reported and discussed at roll call.

Each morning, one of the first duties of the deputy chief is to read the incoming reports and make decisions on what action needs to be taken. The master report is filed and, if follow-up is needed, the detective assigned receives a copy of the report. Thereafter, when any work is done, a supplementary report is written.

The detective himself has some discretion regarding the priority of cases assigned to him. He maintains a working file on all cases with which he is concerned.

There is no full-time position of evidence technician on the Maplewood police force. However, all the detectives have completed the advanced 2-week BCA course on crime scene investigation and most officers have attended the 3-day course offered by the BCA. From 1967 through 1969, the St. Paul Police Department held a 2-week course to which the department sent 16 officers.

The form used by the department in recording robberies and burglaries is called the Miscellaneous Report (a copy can be found in Appendix B). There are separate forms for bicycle thefts, auto thefts, and worthless checks.

b. Analysis of Results

The Maplewood Police Department does not maintain an inclusive listing of incidents by specific crime. A card index is kept, however, on certain crimes, including robbery and burglary, for the primary function of recording items taken during the crime. According to staff, the only incidents which are not covered in the card index are unfounded cases and cases which resulted in an on-scene arrest, both of which were normally omitted from analysis in this project.

The researchers examined all robberies within the card index for the years 1974 through 1976. The breakdown on these cases was:

8	cleared
4	exceptionally cleared
<u>33</u>	uncleared
45	total cases

It should be noted that two cases solved through on-scene arrests were found within this indexing system.

For burglaries, additional work was entailed because the incident card did not denote whether or not the case had been cleared. Thus, the researchers first pulled all 1976 cases, dividing them between cleared and uncleared. All cleared cases were examined and a sample of uncleared cases was reviewed. For the sample, we randomly selected every fourth case for examination. This resulted in:

14	cleared
7	exceptionally cleared
<u>49</u>	uncleared
70	total

Within the card index system, 6 cases were found which were classified by the researchers as on-scene arrests.

1) Robbery

TABLE IX

MAPLEWOOD ROBBERY OFFENSES

<u>Year</u>	<u>Offenses</u>	<u>Cleared</u>	<u>Exceptionally Cleared</u>	<u>Uncleared</u>
1974	6	2	2	2
1975	19	1	-	18
1976	20	5	2	13

Of the 8 cleared cases, two were on-scene arrests and were excluded from analysis. Figure 25 presents the useable cases.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 6	b 0
Cases Not Cleared	c 3	d 30

Figure 25

MAPLEWOOD ROBBERY CASES

Using the chi-square test to look at the significance of the above results, the value was found to be 18.79 which is significant at the .001 level.

Figure 26 presents the percentage breakdown.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 15.39%	b 0%
Cases Not Cleared	c 7.69%	d 76.92%

Figure 26

MAPLEWOOD ROBBERY PERCENTAGES

Based on the testing of the decision model on these 39 robbery cases, the degree of accuracy achieved was 92 percent.

2) Burglary

TABLE X  
MAPLEWOOD BURGLARY OFFENSES

<u>Year</u>	<u>Offenses</u>	<u>Cleared</u>	<u>Unfounded</u>	<u>Exceptionally Cleared</u>	<u>Uncleared</u>
1976	70	14	-	7	49 <sup>a</sup>

<sup>a</sup>Random sample of every 4th case.

Figure 27 below presents the results using the decision model:

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 6	b 2
Cases Not Cleared	c 4	d 45

Figure 27

MAPLEWOOD BURGLARY CASES

Of the 14 cleared cases shown in Figure 27 above, six were on-scene arrests and were deleted from the analysis.



Since the sample size for uncleared cases was one-fourth of the total caseload, the appropriate figures were multiplied by 4, resulting in Figure 28.

	Score $\geq$ 10	Score $<$ 10
Cases Cleared	a 6	b 2*
Cases Not Cleared	c 16	d 180

Figure 28

#### MAPLEWOOD BURGLARY ESTIMATES

\*Explanation of the 2 cases - Score of 7 - estimated range of time occurrence was more than 24 hours (0) and witness' report of offense (7). A burglary was reported by the victim to a neighboring off-duty police officer. Two youths had reportedly seen the suspects. The police officer interviewed the juveniles. Thinking the story sounded suspicious, he talked with one of the juveniles' mothers and received her permission to question the youth. The following day, both youths admitted to the burglary.

Score of 7.3 - estimated range of time of occurrence was 12-24 hours (0.3) and usable fingerprints (7) were all the information initially available. Two weeks later, an agent in the Ramsey County Sheriff's office gave the Maplewood investigator assigned the names of two suspects. A latent print was then matched to one of the suspects which subsequently cleared the case.

Neither of the above cases applied directly to the accuracy of the decision model initially used. The first case was solved basically through an officer's intuition and in the second case, the decision model would have been rescored based on subsequent information.

In testing for significance, the chi-square was computed to be 29.08. This result is significant at the .001 level.

Figure 29 presents the percentages.

	Score $\geq 10$	Score $< 10$
Cases Cleared	a 2.94%	b .98%
Cases Not Cleared	c 7.84%	d 88.24%

Figure 29

MAPLEWOOD BURGLARY PERCENTAGES

The degree of accuracy is 91 percent as mentioned in the section regarding the Richfield Police Department, it was necessary to compute the standard error on the sample of uncleared cases.

With the new calculations, the chi-square test equals 14.159 and remains significant at the .001 level.

APPENDIX B:

OFFENSE REPORT

FORMS



RICHFIELD

OFFENSE REPORT

FORMS

1. COMPLAINANT/VICTIM

2. COMP. NO.

## 23. TYPE OF PREMISE

- |  |                                      |                                       |
|--|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> BANK            | <input type="checkbox"/> MOTEL       | <input type="checkbox"/> RESIDENCE    |
| <input type="checkbox"/> CHURCH          | <input type="checkbox"/> MULT. DWEL. | <input type="checkbox"/> RESTAURANT   |
| <input type="checkbox"/> CONST. SITE     | <input type="checkbox"/> OFFICE      | <input type="checkbox"/> RETAIL STORE |
| <input type="checkbox"/> GARAGE          | <input type="checkbox"/> PARKING LOT | <input type="checkbox"/> SCHOOL       |
| <input type="checkbox"/> GAS STA.        | <input type="checkbox"/> PUBLIC PARK | <input type="checkbox"/> TAVERN       |
| <input type="checkbox"/> LIQ. STORE      | <input type="checkbox"/> PUBLIC ST.  | <input type="checkbox"/> VEHICLE      |
| <input type="checkbox"/> OTHER (SPECIFY) |                                      |                                       |

3. RESIDENCE

CITY

4. RES. PHONE

5. PLACE OF EMPLOYMENT

CITY

6. BUS. PHONE

7. RACE/SEX/AGE

8. DATE OF BIRTH

9. HOURS EMP.

10. SOBRIETY

☐ HBD ☐ HN

11. REPORTING PERSON

RACE/SEX/AGE

12. RELATIONSHIP

13. REPORTING PERSON'S RESIDENCE

CITY

14. RES. PHONE

## 24. OFFENSE TYPE

- |  |                                       |                                      |
|--|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> MURDER          | <input type="checkbox"/> MANSLAUGHTER | <input type="checkbox"/> CRIM. NEG.  |
| <input type="checkbox"/> ROBBERY         | <input type="checkbox"/> ARMED        | <input type="checkbox"/> KIDNAPPING  |
| <input type="checkbox"/> ASSAULT         | <input type="checkbox"/> FELONY       | <input type="checkbox"/> UNARMED     |
| <input type="checkbox"/> RAPE            | <input type="checkbox"/> IND. EXP.    | <input type="checkbox"/> MISDEMEAN.  |
| <input type="checkbox"/> OTHER (SPECIFY) |                                       | <input type="checkbox"/> CHILD ABUSE |

15. OFFENSE

16. LOCATION OF OFFENSE (ADDRESS)

17. DATE/TIME OCCURRED

18. DATE/TIME REPORTED

19. REC'D. BY

20. HOW REC'D.

☐ TX ☐ IN PERSON

22. RELATED COMP. NOS.

25. NAME

CODE RESIDENCE

RES. PHONE

BUS. PHONE

26. SUSPECTS (NAME-TX-RACE-SEX-AGE-DOB-HT-WT-HAIR-EYES-CLOTHING-ETC)

ARRESTED

(1)

☐ YES ☐ NO

(2)

☐ YES ☐ NO

27. SUS. VEH.	YR.	MAKE	BODY	COLOR	LICENSE	YR.	STATE	ADD. IDENT. CHARACTERISTICS (DAMAGE ETC.)
---------------	-----	------	------	-------	---------	-----	-------	---

28. ARTICLES TAKEN

SERIAL NO.

VALUE

(1)

\$

(2)

29. METHOD USED TO COMMIT CRIME

30. WEAPON USED

(SPECIFY)

CAL/GA

COLOR ☐ OTHER☐ REV. ☐ AUTO. PISTOL ☐ RIFLE ☐ SHOT GUN ☐ KNIFE ☐ OTHER☐ BLUE ☐ CHROME

31. UNUSUAL STATEMENTS/ACTIONS OF SUSPECTS

32. EVIDENCE/LOCATION FOUND

33. NATURE OF VICTIM'S INJURIES

WHERE HOSPITALIZED

34. WHO DISCOVERED BODY (HOMICIDE-SUICIDE)

RACE/SEX  
AGE

RESIDENCE

RES. PHONE

BUS. PHONE

ITEM 35. NARRATIVE

36. AT SCENE

☐ DB ☐ IB

37. REPORTING OFFICER

38. DATE/TIME INVESTIGATION COMPLETED

39. APPROVAL

40. NOTIFIED:

☐ MINCIS ☐ OTHER DEPTS.

41. EXTRA COPIES TO:

42. COMPOSITE

☐ YES ☐ NO43. ☐ CLEAR/ARREST ☐ EX. CLR. ☐ UNF. ☐ CONT'D.☐ REF. ☐ OTH. AGCY. ☐ INACTIVE

GENERAL INCIDENT  
REPORTRICHFIELD DEPT. OF  
PUBLIC SAFETY

23. TYPE OF PREMISE		1. COMPLAINANT/VICTIM (LAST, FIRST, MN)		2. COMP. NO.	
<input type="checkbox"/> BANK	<input type="checkbox"/> MOTEL	<input type="checkbox"/> RESIDENCE		3. RESIDENCE CITY	
<input type="checkbox"/> CHURCH	<input type="checkbox"/> MULT. DWEL.	<input type="checkbox"/> RESTAURANT		4. RES. PHONE	
<input type="checkbox"/> CONST. SITE	<input type="checkbox"/> OFFICE	<input type="checkbox"/> RETAIL STORE		5. PLACE OF EMPLOYMENT CITY	
<input type="checkbox"/> GARAGE	<input type="checkbox"/> PARKING LOT	<input type="checkbox"/> SCHOOL		6. BUS. PHONE	
<input type="checkbox"/> GAS STA.	<input type="checkbox"/> PUBLIC PARK	<input type="checkbox"/> TAVERN		7. RACE/SEX/AGE	
<input type="checkbox"/> LIQ. STORE	<input type="checkbox"/> PUBLIC ST.	<input type="checkbox"/> VEHICLE		8. DATE OF BIRTH	
<input type="checkbox"/> OTHER (SPECIFY)				9. HOURS EMP.	
24. OFFENSE TYPE		11. REPORTING PERSON RACE/SEX/AGE		10. SOBRIETY <input type="checkbox"/> HBD <input type="checkbox"/> HN	
<input type="checkbox"/> DISORDERLY		<input type="checkbox"/> CIVIL		<input type="checkbox"/> HBD <input type="checkbox"/> HN	
<input type="checkbox"/> NARCOTICS		<input type="checkbox"/> POSS.		12. RELATIONSHIP	
<input type="checkbox"/> FIREARMS		<input type="checkbox"/> SUICIDE/ATT.		13. REPORTING PERSON'S ADDRESS CITY	
<input type="checkbox"/> ANNOYING TX.		<input type="checkbox"/> THREAT TX.		14. RES. PHONE	
<input type="checkbox"/> OTHER (SPECIFY)		<input type="checkbox"/> FLEE P.O.		15. OFFENSE	
		<input type="checkbox"/> PROWLER		16. LOCATION OF OFFENSE	
25. NAME		CODE		17. DATE/TIME OCCURRED	
26.		RESIDENCE		18. DATE/TIME REPORTED	
				19. REC'D. BY	
				20. HOW REC'D. <input type="checkbox"/> TX <input type="checkbox"/> IN PERSON <input type="checkbox"/> PATROL	
				22. RELATED COMP. NOS.	
27. SUSPECTS (NAME-ADDRESS-TX-RACE-SEX-AGE-DOB-HT-WT-HAIR-EYES-CLOTHING-ETC)		ARRESTED			
(1)		<input type="checkbox"/> YES <input type="checkbox"/> NO			
28.					
(2)		<input type="checkbox"/> YES <input type="checkbox"/> NO			
29. SUS. VEH.	YR.	MAKE	BODY	COLOR	LICENSE
30. PROPERTY FOUND/RECOVERED		SERIAL NUMBER		VALUE	
(1)				\$	
(2)				\$	
31. METHOD USED TO COMMIT CRIME					
32. UNUSUAL STATEMENTS/ACTIONS OF SUSPECTS					
33. EVIDENCE/LOCATION FOUND					
34. NARRATIVE					
35. AT SCENE <input type="checkbox"/> DETECTIVE					
36. REPORTING OFFICER		37. DATE/TIME INVESTIGATION COMPLETE		38. APPROVAL	
39. NOTIFIED		40. EXTRA COPIES TO:		41. <input type="checkbox"/> CLEAR/ARREST <input type="checkbox"/> EX. CLR. <input type="checkbox"/> UNF. <input type="checkbox"/> CONT'D.	
<input type="checkbox"/> MINCIS <input type="checkbox"/> OTHER DEPT.				<input type="checkbox"/> OTH. AGCY. <input type="checkbox"/> INACTIVE <input type="checkbox"/> GOA/UTL <input type="checkbox"/> ASST./ADVISE	
				42. PROPERTY REPORT <input type="checkbox"/> YES <input type="checkbox"/> NO	

CRIME AGAINST  
PROPERTY REPORT

RICHFIELD DEPT. OF  
PUBLIC SAFETY

23. TYPE OF PREMISE						1. COMPLAINANT/VICTIM (LAST, FIRST, MN)				2. COMP. NO.			
<input type="checkbox"/> BANK <input type="checkbox"/> MOTEL <input type="checkbox"/> RESIDENCE <input type="checkbox"/> CHURCH <input type="checkbox"/> MULT. DWEL. <input type="checkbox"/> RESTAURANT <input type="checkbox"/> CONST. SITE <input type="checkbox"/> OFFICE <input type="checkbox"/> RETAIL STORE <input type="checkbox"/> GARAGE <input type="checkbox"/> PARKING LOT <input type="checkbox"/> SCHOOL <input type="checkbox"/> GAS STA. <input type="checkbox"/> PUBLIC PARK <input type="checkbox"/> TAVERN <input type="checkbox"/> LIQ. STORE <input type="checkbox"/> PUBLIC ST. <input type="checkbox"/> VEHICLE <input type="checkbox"/> OTHER (SPECIFY)						3. RESIDENCE				CITY		4. RES. PHONE	
24. OFFENSE TYPE						5. PLACE OF EMPLOYMENT				CITY			
<input type="checkbox"/> BURG. <input type="checkbox"/> UNLAWFUL ENT. <input type="checkbox"/> ATTEM. <input type="checkbox"/> SAFE JOB <input type="checkbox"/> TORCH <input type="checkbox"/> PEEL <input type="checkbox"/> PUNCH <input type="checkbox"/> GRILL <input type="checkbox"/> REMOVE <input type="checkbox"/> LARCENY <input type="checkbox"/> FR. PERSON <input type="checkbox"/> FR. BUILD. <input type="checkbox"/> FR. VEHICLE <input type="checkbox"/> COIN MACHINE <input type="checkbox"/> SHOP LIFTING <input type="checkbox"/> FAIL. TO PAY <input type="checkbox"/> PROP. DEST. <input type="checkbox"/> VANDALISM <input type="checkbox"/> OTHER (SPECIFY)						7. RACE/SEX/AGE				8. DATE OF BIRTH		9. HOURS EMP.	
						11. REPORTING PERSON				RACE/SEX/AGE			
						13. REPORTING PERSON'S RESIDENCE				CITY			
						15. OFFENSE				16. LOCATION OF OFFENSE (ADDRESS)			
						17. DATE/TIME OCCURRED				18. DATE/TIME REPORTED			
						19. REC'D. BY				20. HOW REC'D. <input type="checkbox"/> TX <input type="checkbox"/> IN PERSON <input type="checkbox"/> PATROL			
						22. RELATED COMP. NOS.							
25. NAME				CODE	RESIDENCE				RES. PHONE		BUS. PHONE		
26. SUSPECTS (NAME-TX-RACE-SEX-AGE-DOB-HT-WT-HAIR-EYES-CLOTHING-ETC)										ARRESTED?			
(1)										<input type="checkbox"/> YES <input type="checkbox"/> NO			
(2)										<input type="checkbox"/> YES <input type="checkbox"/> NO			
27. BUS. VEH.	YR.	MAKE	BODY	COLOR	LICENSE	YR.	STATE	ADD. IDENT. CHARACTERISTICS (DAMAGE ETC.)					
28. ARTICLES TAKEN										SERIAL NO.		VALUE \$	
(1)												\$	
(2)												\$	
29. VEHICLE DAM. OR THEFT FROM	YR.	MAKE	BODY	COLOR	LICENSE	YR.	STATE	V.I. NUMBER					
30. PROP. DAMAGE	<input type="checkbox"/> RESIDENCE <input type="checkbox"/> WINDOWS <input type="checkbox"/> LIGHTS <input type="checkbox"/> MAILBOX <input type="checkbox"/> LANDSCAPE <input type="checkbox"/> VEHICLE <input type="checkbox"/> CONST. SITE <input type="checkbox"/> EQUIP.								<input type="checkbox"/> OTHER SPECIFY IN NARRATIVE		VALUE \$		
31. BUILDING SECURED BY (NAME)				RESIDENCE				RES. PHONE		DATE/TIME			
32. OFFENSE DISCOVERED BY (NAME)				RESIDENCE				RES. PHONE		DATE/TIME			
33. ENTRY TO BUILDING (DESCRIBE)								<input type="checkbox"/> FORCE <input type="checkbox"/> NO FORCE <input type="checkbox"/> ATTEMP. <input type="checkbox"/> UNKNOWN					
34. LOCATION OF ENTRY								35. MEASUREMENTS OF ENTRY					
_____ FEET    _____ INCHES <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/> INT. <input type="checkbox"/> EXT.    WALL													
36. TOOL OR MEANS USED						37. EXIT (DESCRIBE)							
38. OCCUPIED <input type="checkbox"/> YES <input type="checkbox"/> NO		39. ALARM <input type="checkbox"/> YES <input type="checkbox"/> NO		40. ALARM BYPASSED <input type="checkbox"/> YES <input type="checkbox"/> NO		41. EVIDENCE/LOCATION FOUND							
42. RANSACKED <input type="checkbox"/> YES <input type="checkbox"/> NO		43. CHECKS TAKEN <input type="checkbox"/> YES <input type="checkbox"/> NO		44. AT SCENE <input type="checkbox"/> YES <input type="checkbox"/> NO									
45. NARRATIVE													
46. REPORTING OFFICER						47. DATE/TIME INVESTIGATION COMPLETED				48. APPROVAL			
49. <input type="checkbox"/> MINCIS ENT. <input type="checkbox"/> MINCIS CANG. <input type="checkbox"/> PROPERTY REPORT						50. EXTRA COPIES TO		51. <input type="checkbox"/> CLEAR/ARREST <input type="checkbox"/> EX. CLR. <input type="checkbox"/> UNF. <input type="checkbox"/> CONT'D. <input type="checkbox"/> OTH. AGCY. <input type="checkbox"/> INACTIVE <input type="checkbox"/> GOA/UTL <input type="checkbox"/> ASST./ADVISE					



SUPPLEMENTAL/  
FOLLOW-UP REPORT

RICHFIELD DEPT. OF  
PUBLIC SAFETY

1. COMPLAINANT/MISSING/ARRESTEE/VICTIM

2. COMP NUMBER

3.

☐ FORM USED AS CONTINUATION OF CURRENT REPT.

PAGE NO.

☐ FORM USED TO REPORT FOLLOWUP  
INVESTIGATION OR SUPPLEMENTAL  
INFORMATION

4. DATE

5. TYPE OF REPORT

☐ ARREST ☐ CHECK VIOLATION ☐ CRIME AG. PERSON ☐ CRIME AG. PROPERTY ☐ TRAFFIC ACCIDENT ☐ VEHICLE  
☐ GENERAL INCIDENT ☐ MISSING/RUNAWAY

6. OFFENSE-CHARGE-OR INCIDENT ON ORIGINAL REPORT

7. CORRECT OFFENSE

CHANGED

8. FILE CLS.

☐ YES

9. MULTIPLE CLEAR UP

☐ YES (LIST OTHER COMP. NOS. IN NARR.) ☐ NO

10. \$ VALUE OF RECOVERED PROPERTY-DESCRIBE IN NARR.

11. DATE & LOCATION OF ORGINAL INCIDENT

12. NARRATIVE:

13. REPORTING OFFICER

14. DATE/TIME INVESTIGATION COMPLETED

15. APPROVAL

16.

☐ MINCIS ENT. ☐ MINCIS CANG. ☐ PROPERTY  
REPORT

17. EXTRA COPIES TO:

18.

☐ CLEAR/ARREST ☐ EX. CLR. ☐ UNF. ☐ CONT'D.  
☐ OTH. AGCY. ☐ INACTIVE ☐ GOA/UTL ☐ ASST./ADVISE

ST. CLOUD

OFFENSE REPORT

FORMS

Case No.

**OFFENSE REPORT**  
**POLICE DEPARTMENT**  
**ST. CLOUD, MINNESOTA**

Name of Complainant

Address

Offense as Reported

After Investigation Changed to

Business Telephone

Home Telephone

Place of Occurrence

Person Reporting Offense (if not Complainant)

Address

Officers Assigned to Case

Report received by

Time

M.

Date

Mo.

Day

Yr.

1. Person Arrested

Age

D O B

Charge(s)

Address

Cell ( )

2. Person Arrested

Age

D O B

Charge(s)

Address

Cell ( )

3. Person Arrested

Age

D O B

Charge(s)

Address

Cell ( )

DETAILS OF OFFENSE (double space)

DISPOSITION: Untounded ☐Cleared by arrest ☐Exc. Clrd. ☐Ref. other agency ☐Inactive ☐Other ☐

OFFICER'S SIGNATURE

SUPERVISOR'S SIGNATURE

Case No.

## Supplementary Offense Report

POLICE DEPARTMENT

St. Cloud, Minnesota

Offense

Complainant

Address

ADDITIONAL DETAILS OF OFFENSE, PROGRESS OF INVESTIGATION, ETC.

Please Double-Space

PAGE \_\_\_\_\_ OF SUPPLEMENT

ROCHESTER

OFFENSE REPORT

FORMS

**Rochester — Olmsted County  
Law Enforcement Center**

DATE & TIME REPORT MADE:

# OFFENSE & INCIDENT REPORT

## FOR ALL CRIMES, ATTEMPTS

## INVESTIGATIONS & INCIDENTS

OFFENSE OR INCIDENT		OPERATION I.D. <input type="checkbox"/> YES <input type="checkbox"/> NO		OPERATION I, D. NO. (List marked items below)		CASE NO.	
DATE & TIME OCCURRED				LOCATION OF OCCURRENCE (HOUSE, BLOCK NO. OR COUNTY RD.)			
VICTIM (IF FIRM, NAME OF FIRM & NAME OF PROP.)				BUSINESS ADDRESS		BUSINESS PHONE	
				HOME ADDRESS		HOME PHONE	
IF VICTIM IS A PERSON →		RACE	SEX	AGE	OCCUPATION		
PERSON REPORTING OFFENSE TO POLICE				BUSINESS ADDRESS		BUSINESS PHONE	
				HOME ADDRESS		HOME PHONE	
HOW COMPLAINT RECEIVED: (CHECK ONE)		FOUND BY POLICE [ ]		RADIO [ ]		CITIZEN [ ], TELEPHONE [ ]	
DATE/TIME COMPLAINT RECEIVED		RECEIVED BY		INITIAL INVESTIGATOR		FOLLOW-UP INVESTIGATOR	
QUANTITY	LOSS: COMPLETE & DETAILED DESCRIPTION OF PROPERTY					VALUE	
COPY		RECORDS [ ]		JUVENILE [ ]		COUNTY ATTORNEY [ ]	
OFFENSE CLEARED BY:		ARREST [ ]		EXCEPTIONALLY [ ]		CASE UNFOUNDED [ ]	
						SCORED [ ]	
						INDEXED [ ]	
						OTHER [ ]	

- ☐ Police Department  
☐ Sheriffs Office

**SUPPLEMENTARY OFFENSE REPORT**  
**LAW ENFORCEMENT CENTER**

Case No. \_\_\_\_\_

Nature of Report		Name of Subject		Complainant			
Place of Occurrence				Address		Phone	
Time of Occurrence	A.M. P.M.	Month	Day	Year	Time Reported	A.M. P.M.	Month Day Year
Report Received by		Phone		Radio	Reported by		
		In Person		Mail			
					Address		

MAPLEWOOD

OFFENSE REPORT

FORMS



**MAPLEWOOD**  
**Police Department**  
**MISCELLANEOUS REPORT**

1. Case Number\_\_\_\_\_

2. Nature of Report\_\_\_\_\_

Squad:\_\_\_\_\_

Report Received By:\_\_\_\_\_ 5. Complainant: \_\_\_\_\_ 6. Phone No.: \_\_\_\_\_  
Victim: \_\_\_\_\_

Time\_\_\_\_\_. Hrs. 8. \_\_\_\_\_ 19\_\_\_\_ 9. Place of Occurrence: \_\_\_\_\_

How Received: \_\_\_\_\_ 11. Time and Date of Occurrence: \_\_\_\_\_ Hrs. 12. \_\_\_\_\_ 19\_\_\_\_

Div. Assigned To: \_\_\_\_\_ 14. Reported By: \_\_\_\_\_ 15. Address: \_\_\_\_\_

Name \_\_\_\_\_

Name \_\_\_\_\_

Name \_\_\_\_\_

[illegible]



**END**