NATIONAL EVALUATION PROGRAM

Series A
Number 23

Phase I Report

Policing Urban Mass Transit Systems

U. S. Department of Justice
Law Enforcement Assistance Administration
National Institute of Law Enforcement and Criminal Justice

NATIONAL EVALUATION PROGRAM
Phase I Report

Policing Urban Mass Transit Systems

by
L. Siegel
M. Molof
W. Moy
J. Strack
F. Jordan, Jr.

September 1979

U. S. Department of Justice
Law Enforcement Assistance Administration
National Institute of Law Enforcement and Criminal Justice

Law Enforcement Assistance Administration
Henry S. Dogin
Administrator
Homer F. Broome, Jr.
Deputy Administrator for Administration

National Institute of Law Enforcement and Criminal Justice
Harry M. Bratt
Acting Director

This project was supported by Grant Number 76-NI-99-0111, awarded to the MITRE Corporation, METREK Division by the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, under the Omnibus Crime Control and Safe Streets Act of 1968, as amended. Research on this project was completed in 1977. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Stock Number 027-000-00858-5

ABSTRACT

This report presents an assessment of what is currently known about crime and policing responses on urban mass transit systems. The assessment consists of: (1) analyzing the interactions among the transit environment, crime and policing operations; (2) examining the effectiveness of various transit policing strategies and supportive anti-crime measures; and (3) suggesting new evaluative and experimental programs to either fill in knowledge gaps or improve policing effectiveness.

Report findings, based on a literature survey, site visits to transit authority properties and police departments and interviews with transit police/security officials, include the following. First, the crime problem in mass transit is concentrated in the nation's largest cities, is of greater magnitude on rapid rail than bus systems and generally reflects the environment of surrounding communities. Secondly, passengers accurately perceive the extent and distribution of transit crime and ridership patterns are influenced by perceptions of crime and security. Thirdly, the nature and type of law enforcement activities performed by transit police are similar to those of the general police force. Finally, evaluative research of policing activities has focused on the impact of saturation patrol in rapid rail systems. Data indicate that although saturation patrol reduces crime, its effects appear to diminish over time. Other policing activities, thus far, have not been formally evaluated in terms of their impact on transit crime.

TABLE OF CONTENTS

	Page
PREFACE	ix
ACKNOWLEDGMENTS	xi
EXECUTIVE SUMMARY	xiii
CHAPTER 1. THE PROBLEM SETTING	1
CHAPTER 2. INFORMATION SOURCES	3
A. Background Literature	3
B. Selection of Sites	6
C. Advisory Board	7
CHAPTER 3. TRANSIT POLICING OPERATIONS	8
A. Bus Systems	8
B. Subway/Elevated Lines	14
CHAPTER 4. ANALYTICAL FRAMEWORK	17
A. General Transit Environment	17
1. System Characteristics	19
2. Characteristics of the Riders	19
3. Surrounding Neighborhood Crime	19
B. Urban Mass Transit Policing Operations	19
1. Organizational Factors and Resource Allocation	19
2. Basic Assumptions	20
3. Effects of the Transit System on Policing	20
C. Outcomes of Transit Policing Activities	22
D. Planning and Evaluation Issues	22
CHAPTER 5. AN ASSESSMENT OF URBAN MASS TRANSIT SYSTEMS POLICING	24
A. Nature and Extent of Transit Crime	24
1. Where is Transit Crime of Sufficient Magnitude to be Considered a Serious Criminal Justice System Problem?	24
2. Are Transit Crime Levels Increasing, Decreasing or Remaining Fairly Constant?	25
3. What is the Risk That a Passenger Will Be Victimized?	26
4. What Are the Profiles of Typical Transit-Related Victims, Offenders and Crimes?	28

TABLE OF CONTENTS (CONTINUED)

Page

B. Influence of System Characteristics on the Selection of Policing Strategies. 32
1. Do the Operating Characteristics of a Mode of Transportation Such as Mobility, Headway and Method of Fare Collection Impact on the Selection of a Strategy?. 32
2. Do the Environmental Characteristics of a System Such as Age, Lighting and Visibility Impact on the Selection of a Strategy?. 33
C. Relationship Between Various Policing Strategies and Transit Crime 34
1. How Effective are the Various Strategies? 34
D. Impact of Mechanical and Electronic Security and Communication Devices on the Effectiveness of Transit Policing. 38
1. How Effective Are the Various Mechanical and Electronic Security and Communication Devices?. . 38
E. Effectiveness of Different Types of Policing Units. . 41
1. Is There a Need for a Dedicated Transit Police Unit?. 41
2. Should Policing of the System be the Responsibility of the Transit Company or the Local Police? 42
F. Impact of Various Policing Strategies on Passenger Perceptions of Security 43
1. Which Police Strategies/Security Measures Increase Passenger Perceptions of Security? . . . 43
2. Do Passenger Perceptions Influence Ridership Behavior? 45

CHAPTER 6. SUMMARY AND RECOMMENDATIONS 48

A. Crime-Control Oriented Recommendations. 48
1. Develop and Evaluate Projects Directed Toward Controlling Juvenile Crime 48
2. Improvement of Mechanical and Electronic Security-Related Equipment. 49
3. Improvement of Fire Prevention and Detection Capabilities. 50
B. Knowledge-Oriented Recommendations. 50
1. Evaluation of the Effects and Effectiveness of Specific Security Strategies 50
2. Develop and Implement Uniform Crime Reporting for Transit Systems 51

TABLE OF CONTENTS (CONCLUDED)

Page

3. Develop Handbook for Passenger Perceptual Measurement 52
4. Case Study of Policing the Washington Metropolitan Area Transit Authority (WMATA) 52

BIBLIOGRAPHY 53

PREFACE

The "Policing Urban Mass Transit Systems" study is one in a series of National Evaluation Program (NEP) Phase I studies initiated by the National Institute of Law Enforcement and Criminal Justice. The NEP program selects major areas of criminal justice activities that are of national importance and then funds research studies to provide a timely and an objective assessment of the effectiveness of alternative strategies of programs in each selected topic area. Some of the specific topic areas examined under the NEP program thus far have included: Pre-Trial Release, TASC (treatment of drug addicts coming into contact with the criminal justice system), Operation Identification (marking of personal properties), Juvenile Diversion, Court Information Systems, and Early Warning Robbery Reduction.

This report presents an assessment of what is currently known about policing urban mass transit systems and what additional evaluation effort is warranted. For the purposes of this study, the mass transit system of an urban area can include any of the following four systems:

- buses (self-propelled, rubber-tired vehicle with on-board fuel supply);
- trolley coaches (electrically-propelled, rubber-tired vehicle joined normally via overhead wires to a central power source);
- streetcars/trolleys (bus-type vehicle traversing city streets on tracks on semi-private or exclusive right-of-way, also referred to as light rail); and
- subway/elevated lines (railway-type transit vehicle with underground and/or at-grade and/or elevated stations using a private right-of-way, also referred to as heavy rail).

The first three of these systems share a number of common characteristics that clearly differentiate them from subways such as few terminals, numerous designated street corner stops, surface-oriented vehicles, and shared right-of-ways with the general public use of the streets. Dominated, in terms of sheer numbers, by buses, these three systems will hereafter be referred to as "bus systems." Subway/elevated lines, on the other hand, operate on grade-separated right-of-ways and passengers board and exit from well-defined station facilities.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the comments and suggestions provided by the following members of the project's advisory committee: A. C. Brasill (Metropolitan Atlanta Rapid Transit Authority); Gwen Cooper (Urban Mass Transportation Administration); Chief Sanford D. Garelik (New York City Transit Authority); Captain Michael X. Harrington (Port Authority Trans-Hudson Corporation); Chief Richard E. Kenney (Massachusetts Bay Transportation Authority); Director Angus B. MacLean (Washington Metropolitan Area Transit Authority); Captain John J. McBride (Port Authority Transit Corporation); Chief William B. Rumford (San Francisco Bay Area Rapid Transit District); John B. Schnell (Manager Research, American Public Transit Association); and Jerry V. Wilson (former Chief of Police, Metropolitan Police, Washington, D. C.). Dr. Jan Chaiken of The Rand Corporation and Dr. Robert Shellow, serving as project consultants, contributed information on past research results, helped shape the focus of the study, and reviewed this report.

EXECUTIVE SUMMARY

Mass transportation plays a vital role in the functioning of urban areas. In recent years, urban transit systems have been engulfed by a number of interrelated problems: dwindling ridership, deteriorating facilities, crime and large operating deficits. While factors such as speed, convenience, reliability, comfort and cost affect ridership levels, there also is evidence to suggest that crime, vandalism and other expressions of anti-social behavior discourage the public's use of urban mass transportation.

A broad range of strategies are being used to police transit systems:

- police operations (uniformed and plainclothes patrol, decoy, stakeout);
- electronic and mechanical communication and security devices (2-way radio, telephones, closed-circuit television);
- support activities (driver education, liaison with schools, courts and neighborhoods);
- target hardening via environmental and vehicular design (increased lighting, improved visibility, exact fare, scrip); and
- selective operating actions (skipping stops, closing stations, eliminating runs, reducing the number of cars in a train).

While transit systems may rely, for the most part, on one or another of these strategies, many systems have implemented multiple strategies in the belief that a combination of approaches will be more cost-effective in reducing transit crime.

The problems generated by crime and other forms of anti-social behavior are not new to mass transit systems. By the early 1900's several transit authorities had formed their own in-house police departments to protect passengers and safeguard company property. Today, the policing of rapid rail transit (subway or elevated lines) is performed by either a special transit police unit in the local police department or a transit authority police force, whereas the major responsibility for providing police services to surface transportation (buses and trolleys) usually rests with the general local police force. Three major characteristics further distinguish each transit police force:

- whether the force consists of sworn or non-sworn personnel;

- size of the force in terms of the number of officers; and
- scope of responsibility: the security of passengers and transit employees; the protection of transit property and revenues; emergency services (e.g., fire fighting, first aid and rescue); non-law enforcement duties (lost and found, public information).

Fundamental assumptions that guide transit police anti-crime activities are similar to those in general policing. Specific police activities such as uniformed patrol, plainclothes units and decoy operations are all directed toward controlling crime through the processes of deterrence, prevention and apprehension. Successful control of transit crime is expected to reduce the risk of victimization and will benefit both the public and the transit system in terms of: increased ridership perception of security, increased ridership volume and increased revenues.

Based on a review of relevant literature, a series of 12 site visits and continuing discussions with transit police officials, this study produces the following findings concerning the policing of urban mass transit systems, the selection of anti-crime strategies and the factors that influence decisions to implement these strategies.

Nature and extent of transit crime. The crime problem in mass transit is essentially concentrated in the nation's large cities. In many respects the problem is similar to that on the street. Transit crime generally reflects changes in the surrounding environment and increases in transit crime have paralleled increases in street crime. Both victims and offenders closely resemble their street counterparts. On the other hand, the transit environment presents less opportunity for certain types of crime such as burglary but aggravates the conditions, especially during rush-hours, conducive to committing offenses such as pocket-picking and purse-snatching. There also are significant variations in the crime pattern across rapid rail transit systems. Several subway/elevated lines are akin to commuter railroads, while several others form the nucleus of inner-city public transportation systems. The major types of crime problems associated with the suburban commuter lines (vandalism, pocket-picking, etc.) are generally not as serious as those crime problems usually associated with inner-city rapid rail systems.

Finally, certain types of transit crime are more amenable to control than others. For example, robbery of bus drivers has been virtually eliminated in systems using exact fare collection. Several transit properties also reported that assault of transit employees (particularly bus drivers) can be reduced through training programs designed to improve their inter-personal relations skills.

Influence of system characteristics on the selection of policing strategies. The operating characteristics of a mode of transportation such as mobility, headway and method of fare collection frequently impact on the selection of policing strategies. For instance, the complex network of bus routes (the mobility dimension) along with the large number of buses in-service at any given time within major metropolitan areas presents formidable obstacles to extensive police coverage. Hence, police resort to isolating problem routes, employing riding posts and other surveillance activities on a small number of buses at a time. Environmental characteristics of a system such as age, lighting and visibility also impact on the selection of strategies. In older stations, poor lighting, multiple exits and recessed areas hinder surveillance, whereas newer stations, designed to heighten visibility and improve access control, permit the use of closed-circuit television (CCTV) to increase overall surveillance capabilities.

Relationship between various policing strategies and transit crime. The few studies in this area concentrate on saturation patrol by uniformed officers. Findings indicate that substantial increases in patrol generally reduce crime; however, the magnitude of the impact often is unclear and effects appear to diminish over time. Data also suggest that saturation patrol produces some displacement. The comparative impact of specific types of uniformed patrol such as riding posts, fixed posts, and random patrol remains the subject of further research efforts.

While covert operations have not been formally evaluated, transit police consider stakeout and decoy operations effective, especially against certain types of crimes such as robbery, assault, pocket-picking, and fare evasion. Additionally, transit police are involved in a variety of support activities that include community relations, liaisons with schools, courts, and local police or transit officials, and courses on inter-personal relations for drivers. Little has been documented about the impact of these activities. Nevertheless, many transit police believe support activities contribute to controlling transit crime.

Impact of mechanical and electronic security and communication devices on the effectiveness of transit policing. In recent years, transit companies have sought to increase security by installing a variety of mechanical and electronic devices. While most of these devices have not been evaluated in terms of their crime reduction effects, there is some evidence that devices such as CCTV, silent alarms and 2-way radios have some deterrent value and bolster police surveillance and apprehension capabilities. Experience with these devices, however, suggest a number of current and potential problems. The high rate of false alarms, about 90 to 95 percent, on buses often

discourages police cooperation. Telephones in rapid rail stations are ripped from the walls or purposely taken off the hook. CCTV is not suitable for installation in older stations with poor visibility, multiple passage ways, and numerous hidden areas. Further, the continuous monitoring of images picked up by CCTV cameras presents human engineering problems. Transit systems are developing practical solutions to these difficulties. In Atlanta, radio dispatchers use a nonverbal call back signal to determine whether a radio alarm is true or false. Some public emergency telephones have anti-vandalism features and automatic locator and hangup capabilities.

Effectiveness of different types of policing units. The nature of police strategies employed is generally related to the type of police unit, i.e., whether the unit is comprised of sworn or non-sworn personnel. Units made up of sworn personnel emphasize traditional police patrol anti-crime measures. Units consisting of non-sworn personnel tend to rely on non-patrol activities such as working with bus drivers to improve inter-personal relations skills and maintaining liaisons with the community, schools, courts and local police.

While effectiveness has not been addressed through formal evaluation, evidence indicates a need for a dedicated unit consisting of sworn personnel in certain situations: large, multi-jurisdictional systems experiencing serious crime problems. Dedicated transit police units can provide uninterrupted patrol coverage, whereas a general police force may assign lower priority to transit crime and, therefore, not allocate adequate resources to patrol the transit system. Further, the special characteristics of rapid rail systems such as rush-hour crowding, hazards related to high-speed vehicles, tunnels and electrified third rails complicate policing operations and appear to call for some degree of specialization via training and continuous on-the-job learning. These requirements are better satisfied by dedicated units.

Organizational affiliation of the unit--police department or transit authority--depends on the area served by the transit system, the attitude of the local police chief, and historical precedent. The need for a transit authority police force becomes greatest when the transit system traverses a large number of jurisdictions. Usually local police prefer to provide passenger protection when the system operates within a single jurisdiction.

Impact of various policing strategies on passenger perceptions of security. Findings from a number of studies generally suggest:

- passenger ridership patterns are influenced by perceptions of crime and security, with perceptions of crime more likely to influence rapid rail than bus riders;

- passengers accurately perceive that more transit crime occurs on the rapid rail than on bus systems and within the rapid rail system itself more crime occurs at the stations than on the trains; and

- more police patrol of stations and on trains and implementation of communication capabilities to ensure rapid response by police when assistance is needed would achieve greatest positive impact on passenger perceptions of security.

C. Suggestions for Future Research

An examination of key issues in policing urban mass transit systems reveals a concentration of research in certain areas and an absence of knowledge in others. The seven following suggestions for future research efforts are oriented toward responding to current problems and acquiring knowledge. Crime control-oriented recommendations include:

- develop projects directed toward controlling juvenile crime;

- improve mechanical and electronic security-related equipment; and

- improve fire prevention and detection capabilities.

Knowledge-oriented recommendations include:

- evaluate the effects and effectiveness of specific security strategies;

- develop and implement uniform crime reporting for transit systems;

- develop a handbook for passenger perception measurement; and
- initiate a case study of policing the Washington Metropolitan Area Transit Authority.

CHAPTER 1. THE PROBLEM SETTING

Urban mass transit systems serve many important national objectives today--the preservation of our cities as vital commercial and cultural centers, control of air pollution, conservation of energy, mobility for all citizens and particularly the disadvantaged.[1] The capability of mass transit to move a large number of people efficiently is an essential component of overall national efforts to improve the quality of life in American cities. Millions of passengers are carried daily by mass transit systems to and from their places of work, and to educational, recreational, and cultural facilities within the urban areas. The use of mass transit is almost a basic necessity to the young and aged and to those who cannot afford or do not desire to use the private auto.

There are 947 operating transit systems nationally (excluding intercity and interstate carriers such as Greyhound and Continental Trailways); an overwhelming majority of these systems are comprised solely of motor buses, while a small number of systems in large and older metropolitan areas offer multiple modes of public transportation (subway/elevated lines, trolleys, and buses).[2] In 1975, these systems together moved over 5.6 billion revenue passengers annually, following three decades of steady decline in ridership.

Urban mass transit systems in this country have been beset by a multitude of problems: dwindling ridership, deteriorating facilities, crime, and large operating deficits. Transit systems in many places do not offer a sufficiently attractive alternative to the automobile to compete successfully for passengers. Many transit systems answered ridership decreases and the loss of revenue by raising fares and reducing transit services during low usage hours or along unprofitable routes. But these measures in turn led to additional ridership decreases and revenue losses, and the cycle has undermined the viability of urban mass transit systems.

Massive highway construction, widespread auto ownership, the lack of capital funds to improve transit services, the movement of city populations, industries and retail businesses to the suburbs--these are some of the well known factors contributing to the decline

---

[1] Secretary of Transportation, A Statement of National Transportation Policy, September 1975, Washington, D. C.

[2] Transit Fact Book, American Public Transit Association, 1975-1976 Edition, March 1976, p. 23.

in transit ridership. There also is evidence to indicate that crime, disruptive behavior and acts of vandalism on mass transit systems exert some influence on passenger decisions concerning the use of mass transit. The fear of victimization, whether real or perceived, may adversely affect usage patterns. Consequently, public perceptions of security may be as important as the other factors of speed, convenience, reliability, comfort and cost in attracting people to use urban mass transit systems.[3]

Until the 1950's transit crime was directed primarily against property and provided little reason for public concern over personal security. This situation changed, however, during the 1950's and 1960's: as crime rates surged in the cities, transit systems, similarly, experienced more crime. Further, "this crime was increasingly directed against persons...and was violent rather than non-violent."[4]

The implications of transit crime and of the public perception of that crime for mass transit systems are numerous. At the very least and without reference to social costs, crime means an increased financial burden to transit systems through vandalism, lost patronage, and the need for increased security. As has been the case in the past two decades, this increased burden can be detrimental to the survival of mass transit networks.

Policing is the strategy most often relied upon by mass transit systems to fight transit crime. The cost of police manpower constitutes the largest portion of most transit security budgets. Given the financial pressures on public transit operators and a strong national interest in promoting greater use of mass transit, it becomes important to examine the effectiveness of various transit policing methods in controlling crime and alleviating the public's fear of insecurity. The values of electronic and mechanical devices as means of enhancing police effectiveness or minimizing the cost of providing security must also be examined.

---

[3] Thrasher, Edward J., and John B. Schnell, "Studies of Public Attitudes Toward Transit Crime and Vandalism," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974, pages 32-33.

[4] Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems, Carnegie-Mellon University, 1975, p. 2.

CHAPTER 2. INFORMATION SOURCES

Information for this study has been gathered from a number of sources including:

- background literature,
  - project descriptions and evaluation reports,
  - research studies covering topic areas such as public perceptions of security and victim, offender and environmental profiles,
  - papers presented at various meetings and conferences, and
  - newspaper and magazine articles; and
- site visits to transit properties.

A. Background Literature

While much research has been performed in the general field of crime and police operations, comparatively little has been conducted in the specialized area of transit crime and policing. Formal studies of transit crime and policing are few in number and narrow in scope. The research community involved with the subject of transit policing/security is relatively small (a few authors wrote most of the existing literature). Most of the studies were done in the late 1960's and early 1970's. Generally, literature dealing with transit crime and policing may be grouped into the four following categories:

- planning;
- evaluation;
- citizen perceptions; and
- summary reports.

Planning studies basically focus on the Chicago, Oakland, and Washington, D. C. rapid rail transit systems. The Chicago study[5]

[5] Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago, Transportation Research Institute and Urban Systems Institute, Carnegie-Mellon University, June 30, 1973.

investigates the transit crime situation (detailing environmental-, offender-, and victim-related characteristics), describes existing policing responsibilities and recommends installation and evaluation of closed-circuit television on an experimental basis. The Oakland[6] and Washington[7] studies address important issues facing a new, multi-jurisdictional system, and both deal with concerns related to organizing an in-house police department and developing a working relationship with local police.

Current evaluative literature consists of three basic studies (and a number of derivative articles). These studies concentrate on a few systems (either Philadelphia's[8] or New York City's[9] rapid rail system or half-a-dozen or so bus systems[10]) and examine particular police activities and types of crimes: large increases in manpower, robbery and assault of bus drivers, robbery of passengers and token booth attendants. The studies are specific in nature, addressing few of the many topic areas key to a broad understanding of transit crime and policing. The potential impact of environmental characteristics, transit operations and transit police characteristics on a particular crime problem have not been taken into account in most of these studies. For these reasons, it is difficult to make meaningful across-system comparisons.

---

[6] Arthur Young and Company, Development and Implementation of an Interim and Long Range BART Police Services Program--Quarterly Reports, October 10, 1972 - July 6, 1973.

[7] Arthur Young and Company, A Report on the Requirement for Establishing a Metro Security Program, Washington, D. C., December 1972.

[8] Reagon, Michael V., et al., Final Report, Public Transit Crime Reduction--Philadelphia Police Department, prepared for Governor's Justice Commission, Evaluation Management Unit, January 1975.

[9] Chaiken, Jan, et al., The Impact of Police Activity on Crime: Robberies on New York City Subway System, The Rand Corporation, R-1424-NYC, January 1974.

[10] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume I: Summary and Conclusions, April 1970.

There are several studies which explore citizen perceptions of transit security.[11] Some of the studies examine rider response to a well publicized transit-related criminal incident. Other studies either investigate public perceptions of the relative insecurity of various areas of the transit environment, or survey citizens to determine which policing measures are most likely to bolster passenger confidence in transit security.

An overview of transit crime and security is provided by two major reports.[12] One focuses on vandalism and suggests countermeasures, while the other summarizes most of the transit crime and policing research conducted during the late 1960's and early 1970's.[13] Additionally, there are a number of newspaper and magazine articles as well as papers presented at conferences and meetings. Some of these reports focus on specific problems and activities such as fare evasion or decisions to have policemen ride buses. Other articles and papers are somewhat broader, discussing transit crime and policing in very general terms.

---

[11] Broad and Columbia Subway Development Study, Final Report, Broad and Columbia Subway Study Group, Temple University, prepared for U.S. Department of Transportation, Assistant Secretary for Environmental and Urban Systems, August, 1971. Also see: Ferrari, Neal D., and Michael F. Trentacoste, "Personal Security on Public Transit," Transportation Research Forum, 15th Annual Meeting, Vol. XV, No. 1, 1974. Also see: Reagen, Michael V., et al., Final Report, Public Transit Crime Reduction - Philadelphia Police Department. Also see: Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago. Also see: Shellow, Robert, James P. Romualdi, and Eugene W. Bartel, "Crime and Rapid Transit Systems: An Analysis and Recommended Security and Surveillance System," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974. Also see: Thrasher, Edward J. and John B. Schnell, "Studies of Public Attitudes Toward Transit Crime and Vandalism," Crime and Vandalism in Public Transportation. Also see: Transportation Research Board, National Research Council, Newsline, Current Research in Public Transportation Development, Vol. 2, No. 7, August 1976.

[12] Schnell, John B., et al., Vandalism and Passenger Security: A Study of Crime and Vandalism on Urban Mass Transit Systems in the United States and Canada, American Transit Association, September 1973.

[13] Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems.

B. Selection of Sites

In the early stage of this study, it was learned that:

- subway/elevated rapid rail lines generally have a more extensive and serious crime problem than bus systems;
- most transit-related crime takes place on systems serving major metropolitan areas; and
- formal policing efforts usually target subway/elevated lines.

Accordingly, transit properties were stratified into two groups for the purpose of selecting candidates for site visits:

- subway/elevated lines (or rapid rail); and
- bus systems.

Of the nine subway/elevated lines in the country, eight are policed on a regular basis. MITRE selected these eight,[14] listed below, for field visits:

- Chicago Transit Authority (CTA);
- Massachusetts Bay Transportation Authority (MBTA);
- New York City Transit Authority (NYCTA);
- Port Authority Trans-Hudson Corporation (PATH);
- Port Authority Transit Corporation of Pennsylvania and New Jersey (PATCO);
- San Francisco Bay Area Rapid Transit District (BART);
- Southeastern Pennsylvania Transportation Authority (SEPTA); and
- Washington Metropolitan Area Transit Authority (WMATA).

[14] The ninth subway/elevated line, Greater Cleveland Regional Transit Authority, was not policed on a regular basis at the time of site selection.

The selection of bus systems for on-site visits was based on the existence of a formal transit policing program and the advice of experts. The following five sites were chosen and visited:

- Mass Transit Administration of Maryl (MTA) (Baltimore);
- Metropolitan Atlanta Rapid Transit Authority (MARTA);
- San Francisco Municipal Railway (MUNI);
- Southern California Rapid Transit District (SCRTD); and
- Southeastern Pennsylvania Transportation Authority (SEPTA) [also included in rapid rail transit group].

C. Advisory Board

Additionally, at the outset of this project, an advisory board consisting of transit police chiefs and other persons belonging to organizations with broad interests in urban mass transit systems was formed. (See acknowledgements for a complete list of advisory board members.) Their experience and insights in identifying and solving security problems contributed to the information gathering process and filled many gaps where knowledge/data has not yet been documented.

CHAPTER 3. TRANSIT POLICING OPERATIONS

Information gathered during the site visits suggests that a plethora of factors play a role in shaping and limiting the operations of transit police units. Many of these factors can be grouped into three categories:

- System characteristics;
- Crime characteristics; and
- Police characteristics.

Table I shows the factors comprising each of the three categories. The list, while not exhaustive, attempts to present the key factors. The table also presents the typical strategies used by police to counter crime in each of the systems visited.

The type and range of policing strategies implemented in a given system generally can be linked to one or more of the characteristics prevailing in that system. For example, subway stations designed to heighten visibility allow police to integrate closed-circuit television surveillance with manned patrol patterns. Auto theft and larceny from cars are problems limited to those transit systems with unattended "park 'n' ride" facilities with cars left for lengthy periods (10 to 12 hours). Motorized patrol and stakeouts are the typical transit police response to these types of crime.

Available evidence indicates that there are major differences between modes of transportation (bus/street cars versus subway/elevated) in the types of crime problems and policing operations.

The two following sections of this chapter explore separately and in more detail the impact of environmental, police and crime variables on the selection and operation of anti-crime strategies for bus systems and for subway/elevated lines.

A. Bus Systems

Buses, while traversing predetermined surface routes, represent a highly mobile form of urban mass transportation. In large urban areas, 1000 to 2000 or more buses operate during rush hours, criss-crossing city streets. Passengers usually embark and exit from designated open-air street corner stops; terminals and/or stations are relatively rare. Most systems require passengers to pay exact fare and many buses are equipped with electronic devices such as two-way radios and silent alarms.

TABLE I

OVERVIEW OF TRANSIT SYSTEMS AND POLICING

SYSTEM	SYSTEM CHARACTERISTICS	CRIME PROBLEMS	POLICE CHARACTERISTICS	ANTI-CRIME STRATEGIES
CHICAGO TRANSIT AUTHORITY (CTA) SUBWAY/ELEVATED BUS	HIGH-SPEED, SEMI-AUTOMATIC RAPID RAIL AROUND THE CLOCK SERVICE LARGE, 90 MILES OF PASSENGER REVENUE LINE MIXTURE OF OLD AND NEW STATIONS - TOTAL 142 FARE COLLECTION - AUTOMATED AND BY CONDUCTORS--COIN OPERATED TURNSTILES BUSES - LARGE INNER CITY SYSTEM - 2500 VEHICLES EXACT FARE	ROBBERY BATTERY ASSAULT INDECENT EXPOSURE CIVIL LAW VIOLATIONS (SMOKING, TRUANCY, AND CURFEW)	CHICAGO POLICE DEPARTMENT'S MASS TRANSIT UNIT 239 OFFICERS FOCUS ON SUBWAY CTA SECURITY DIVISION 60 MEN FOCUS ON COMPANY PROPERTY CHICAGO POLICE DEPARTMENT'S DISTRICT COMMANDS HANDLE BUSES	SATURATION - PLAINCLOTHES AND UNIFORMED OFFICERS FIXED POSTS MOBILE POSTS TACTICAL UNDERCOVER TEAMS K-9 CORPS
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (MBTA) SUBWAY (TROLLEY) BUS	LARGE, PRIMARILY INNER CITY SYSTEM MEDIUM-TO-HIGH SPEED SUBWAY AND TROLLEY LINES LIMITED SERVICE 5:55 AM - 12:45 AM WEEKDAYS 5:55 AM - 1:45 AM WEEKENDS OLD STATIONS - TOTAL 51 FARE COLLECTION - CHANGE BOOTHS AND QUARTER COIN MACHINES BUSES - ABOUT 1200 VEHICLES	POCKET-PICKING VANDALISM INTERNAL THEFT LARCENY	DEDICATED, IN-HOUSE, SWORN POLICE 51 OFFICERS	FLEXIBLE DEPLOYMENT IN PATROL CARS, STATIONS, AND ON TRAINS PLAINCLOTHES STAKEOUTS COMMUNITY RELATIONS
NEW YORK CITY TRANSIT AUTHORITY (NYCTA) SUBWAY/ELEVATED BUS	4-BOROUGH SYSTEM OF 230 ROUTE MILES - LARGEST IN UNITED STATES AROUND THE CLOCK SERVICE MOSTLY OLD STATIONS - TOTAL 461 FARE COLLECTION - TOKENS SOLD BY STATION ATTENDANTS--TOKEN OPERATED TURNSTILES BUSES - 4,256 VEHICLES	ROBBERY PURSE-SNATCHING FARE EVASION VANDALISM	DEDICATED, IN-HOUSE, SWORN POLICE APPROXIMATELY 3000 OFFICERS CITY POLICE HANDLE BUSES	FLEXIBLE DEPLOYMENT IN STATIONS AND CARS PLAINCLOTHES STAKEOUTS DECOYS LIAISON WITH PROSECUTORS TARGET HARDENING (BULLET-PROOF ENCLOSURES AND SECURITY SHIELDS)

TABLE 7 (CONTINUED)

OVERVIEW OF TRANSIT SYSTEMS AND POLICING

SYSTEM	SYSTEM CHARACTERISTICS	CRIME PROBLEMS	POLICE CHARACTERISTICS	ANTI-CRIME STRATEGIES
SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY (SEPTA) SUBWAY/ELEVATED BUS	PRIMARILY INNER-CITY SUBWAY - 24.1 MILES 2150 BUSES AROUND THE CLOCK SERVICE OLD SUBWAY STATIONS - TOTAL 50 SUBWAY ATTENDED BY CASHIER BUSES - EXACT FARE/SCRIP	ROBBERY LARCENY VANDALISM ROWDYISM INTERNAL SECURITY	PHILADELPHIA POLICE DEPARTMENT DEDICATED TRANSIT UNIT - SUBWAY 160 OFFICERS (PLUS 50 DOGS) TRANSIT COMPANY SECURITY DEPARTMENT - 22 MEN INTERNAL AND PROPERTY SECURITY CITY POLICE DEPARTMENT DISTRICT PATROLMEN HANDLE BUSES	FIXED POSTS, MOBILE FOOT PATROLS AND RIDING POSTS STAKEOUT, DECOY AND PLAIN-CLOTHES TACTICS ON AN "AS THE SITUATION DICTATES" BASIS MONITORING (BY TRANSIT COMPANY SECURITY DEPARTMENT)
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA)	SUBWAY - UNDER CONSTRUCTION 24 STATIONS CURRENTLY OPERATING DOWNTOWN LIMITED SERVICE: 6 AM TO 8 PM WEEKDAYS EXACT FARE AND STATION ATTENDANTS PARKING LOTS BUSES - LARGE INNER CITY/SUBURBAN SYSTEM 2,930 VEHICLES EXACT FARE	SUBWAY - VERY LITTLE CRIME REPORTED SO FAR	DEDICATED, IN-HOUSE SWORN POLICE PLUS SPECIAL POLICE: ABOUT 100 SWORN POLICE AND 67 SPECIAL POLICE LOCAL POLICE DEPARTMENTS HANDLE BUSES	FIXED AND MOBILE PATROLS ON TRAINS, IN STATIONS, PARKING LOTS AND CONSTRUCTION AREAS DEPLOYMENT BASED ON TRANSIT CRIME DATA AND CRIME DATA OF AREAS SURROUNDING STATIONS PLAINCLOTHES USED IF NECESSARY
MASS TRANSIT ADMINISTRATION OF MARYLAND (MTA) (BALTIMORE) BUS	MAXIMUM SIZE - 1021 VEHICLES PRIMARILY INNER CITY - SOME SUBURBAN AROUND THE CLOCK SERVICE EXACT FARE PARKING LOTS	ASSAULT THEFT ROBBERY POCKET-PICKING VANDALISM DISORDERLY CONDUCT	MTA SECURITY FORCE SWORN POLICE 36 MEN CITY AND COUNTY POLICE DEPARTMENTS FOR BALTIMORE AND ANN ARUNDEL COUNTIES AND MARYLAND STATE POLICE ON AN AS NEEDED BASIS	GENERAL PATROL OF BUSES IN UNIFORM STAKEOUTS - PLAINCLOTHES PATROL BY CARS OFFICERS ASSIGNED DAILY TO RIDE SCHOOL TRIPPERS LIAISON WITH LOCAL POLICE AND SCHOOL AUTHORITIES BUSES EQUIPPED WITH SILENT ALARMS AND 2-WAY RADIOS

TABLE 1 (CONTINUED)

OVERVIEW OF TRANSIT SYSTEMS AND POLICING

SYSTEM	SYSTEM CHARACTERISTICS	CRIME PROBLEMS	POLICE CHARACTERISTICS	ANTI-CRIME STRATEGIES
PORT AUTHORITY TRANS-HUDSON CORPORATION (PATH) SUBWAY/SURFACE SEPARATE GRADE	HIGH-SPEED RAPID RAIL SUBURBAN COMMUTER LINE SMALL - 13.9 MILES; 13 STATIONS AROUND THE CLOCK SERVICE MIXTURE OF OLD AND NEW STATIONS AUTOMATIC FARE COLLECTION--COIN OPERATED TURNSTILES	ROBBERY ASSAULT THEFT OF COIN CHANGE MACHINES MINOR JUVENILE OFFENSES/VANDALISM	DEDICATED, IN-HOUSE SWORN POLICE 53 PATROL OFFICERS 11 SUPERVISORY OFFICERS 4 DETECTIVES (PART OF A LARGE PORT AUTHORITY POLICE FORCE WITH 1200 MEN)	FLEXIBLE DEPLOYMENT (IN CARS, ON FOOT, ON TRAINS) COMMUNITY EDUCATION PROGRAMS CLOSED-CIRCUIT TELEVISION
PORT AUTHORITY TRANSIT CORPORATION OF PENNSYLVANIA AND NEW JERSEY, (PATCO) SUBWAY/ELEVATED	HIGH-SPEED, SEMI-AUTOMATIC RAPID RAIL SUBURBAN COMMUTER LINE SMALL - 14.5 MILES; 13 STATIONS AROUND THE CLOCK SERVICE MIXTURE OF OLD AND NEW STATIONS AUTOMATED FARE COLLECTION--GATES OPERATED BY MAGNETIC CARD PARKING LOTS	THEFT OF AND LARCENY FROM CARS FARE EVASION VANDALISM	DEDICATED, IN-HOUSE SWORN POLICE 21 MEN PLUS 4 DOGS	FLEXIBLE DEPLOYMENT (IN CARS, ON FOOT, ON TRAINS) STAKEOUTS COMMUNITY RELATIONS CLOSED-CIRCUIT TELEVISION
SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT (BART) SUBWAY/ELEVATED	HIGH-SPEED, SEMI-AUTOMATIC RAPID RAIL SUBURBAN COMMUTER LINE LARGE - 77 MILES LIMITED SERVICE: 6 AM TO MIDNIGHT WEEKDAYS NEW STATIONS - MIXTURE OF ARCHITECTURAL DESIGNS - TOTAL 34 AUTOMATED FARE COLLECTION --GATES OPERATED BY MAGNETIC CARD PARKING LOTS	THEFT OF AND LARCENY FROM CARS FARE EVASION/TICKET FRAUD VANDALISM INTERNAL THEFT	DEDICATED, IN-HOUSE SWORN POLICE 77 SWORN PEACE OFFICERS PLUS 19 CIVILIANS	FLEXIBLE DEPLOYMENT WITHIN ZONES (IN CARS, ON TRAINS) BASED ON PIN MAPS STAKEOUTS SATURATION - MIXTURE OF PLAINCLOTHES AND UNIFORMED OFFICERS COMMUNITY RELATIONS

TABLE I (CONCLUDED)

OVERVIEW OF TRANSIT SYSTEMS AND POLICING

SYSTEM	SYSTEM CHARACTERISTICS	CRIME PROBLEMS	POLICE CHARACTERISTICS	ANTI-CRIME STRATEGIES
METROPOLITAN ATLANTA RAPID TRANSIT AUTHORITY (MARTA) BUS	MEDIUM SIZE - 735 VEHICLES AROUND THE CLOCK SERVICE PRIMARILY INNER CITY, SOME SUBURBAN SPECIAL SCHOOL TRIPPERS EXACT FARE PARKING LOTS	ROBBERY VANDALISM ASSAULT	IN-HOUSE SECURITY UNIT - 5 MEN	LIAISON PROGRAMS WITH COMMUNITY, SCHOOLS, COURT, PRESS, AND POLICE AGGRESSIVE PROSECUTION REWARDS FOR IDENTIFICATION OF CRIMINALS INTER-PERSONAL RELATIONS COURSE FOR DRIVERS ALARMS, 2-WAY RADIOS, EXACT FARE CONTRACTING WITH OUTSIDE SECURITY FIRM HIRING OFF-DUTY POLICE
SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) BU	MEDIUM SIZE - 1074 VEHICLES AROUND THE CLOCK SERVICE INNER-CITY LINES USED BY STUDENTS TO GO TO AND FROM SCHOOL EXACT FARE	ROBBERY ASSAULT POCKET-PICKING PURSE-SNATCHING VANDALISM	SAN FRANCISCO POLICE DEPARTMENT TRANSIT FORCE 9 OFFICERS IN-HOUSE SECURITY SERVICES SECTION 11 MEN FOR SECURITY OF PROPERTY AND LIAISON WITH POLICE, SCHOOLS, AND COURTS	TARGET PROBLEM ROUTES RIDE BUSES - PLAINCLOTHES TRAIL BUSES ON MOTORCYCLES SUPERVISE CETA PROGRAM PARTICIPANTS (WHO ARE TRAINED AS TRANSIT SECURITY PERSONNEL)
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT (SCRTD) BUS	LARGE - 2,243 VEHICLES AROUND THE CLOCK SERVICE INNER CITY AND SUBURBAN EXACT FARE PARKING LOTS	ASSAULT ROBBERY VANDALISM DRUNK AND DISORDERLY CONDUCT	IN-HOUSE SECURITY DEPARTMENT 46 MEN - PROTECT PROPERTY AND PATROL BUSES	LIAISON WITH POLICE, SCHOOLS AND COMMUNITY OPERATION TEAMWORK - MOVIE STARRING L. A. RAMS SHOWN TO SCHOOL STUDENTS DRIVER-PASSENGER RELATIONS PROGRAM MARKER LIGHTS, NUMBERS PAINTED ON ROOFS, 2-WAY RADIOS, SILENT ALARMS POLICE DEPARTMENT RIDE-ALONG PROGRAM

NOTE: CRIME PROBLEMS LISTED ARE: (1) THOSE STATED BY AGENCY REPRESENTATIVES DURING INTERVIEWS, AND (2) THOSE DEDUCED FROM EXAMINATION OF TRANSIT-RELATED CRIME DATA FURNISHED BY TRANSIT PROPERTIES AND/OR LOCAL POLICE DEPARTMENTS.

ANTI-CRIME STRATEGIES LISTED ARE: THOSE STATED BY AGENCY REPRESENTATIVES DURING INTERVIEWS. IT IS POSSIBLE THAT OTHER IMPORTANT ACTIVITIES IN RELATION TO RESOURCE ALLOCATION (IN TERMS OF MAN-HOURS, FOR EXAMPLE) WERE NOT MENTIONED.

Currently there are a number of policing strategies employed to counter bus-related crime:

- Targeting problem lines via analysis of crime data;
- Police, both in plainclothes and uniform, riding buses;
- Police trailing buses on motorcycles or in marked or unmarked cars;
- Liaison with schools, communities, courts and local police;
- Courses on inter-personal relations for drivers; and
- Hiring off-duty policemen to occasionally ride buses.

Additionally, many transit companies have or are in the process of equipping their buses with electronic devices such as two-way radios and silent alarms. These are crime control measures and are adjuncts to policing strategies. They are intended to aid in protection of drivers and passengers and deterrence and apprehension of criminals by providing a means of rapid communications to police. Silent alarms and two-way radios are not, however, policing strategies per se. Therefore, they are not further explored in this section.

Each police unit uses several strategies simultaneously to counter bus-related crime. The nature of the strategies is, at least in part, related to the type of police unit, i.e., whether the unit is comprised of sworn or non-sworn personnel. Baltimore (MTA) and San Francisco (MUNI) are examples of units consisting of sworn personnel. The Baltimore unit operates under the jurisdiction of the transit company, whereas the San Francisco unit is part of the city police department. Both units tend to rely on traditional police measures such as targeting problem routes, posting uniformed and plainclothes patrols on buses, and following buses in cars or on motorcycles. Atlanta (MARTA) and Los Angeles (SCRTD), on the other hand, are examples of units comprised of non-sworn personnel operating as departments within the transit company. Of significance, these two departments refer to themselves as security units. Both emphasize non-patrol oriented activities; for example, liaisons with the police, community and courts, and designing and presenting on-the-job training courses for drivers dealing with inter-personal relations. Patrolling buses is performed either by local police on an as-needed basis or by off-duty police hired intermittently when serious problems arise.

It should further be noted that police/security units operating under the jurisdiction of transit companies have, in addition to passenger and driver security, other primary responsibilities. In each case examined, the units allocate considerable resources to protect company properties such as garage facilities, bus depots, and other corporate property. Several of the departments also assign men to monitor various phases of revenue collection.

The type of crime and its related characteristics also influence the selection of policing or other forms of anti-crime strategies. Vandalism is usually associated with teenagers riding buses to and from school and is somewhat restricted in terms of time of occurrence and routes. The typical response across systems is to institute non-policing measures such as school trippers to further isolate the problem, maintain liaison with school officials, and present programs to students describing transit operations and the benefits the system provides to the community.

Robbery of passengers is considered a serious problem in Baltimore, San Francisco, and Los Angeles. The typical robbery is carried out in a matter of a minute or two and most offenders quickly exit the bus to escape on foot. Of the three transit properties, only Baltimore maintains an internal police unit consisting of sworn personnel. San Francisco and Los Angeles maintain security departments comprised of non-sworn personnel. To counter passenger robbery, Baltimore relies on random patrol with transit officers riding buses. San Francisco and Los Angeles, on the other hand, request assistance from local police.

These cases are not intended to show that all bus systems face the same problems or that they implement similar counter measures. San Francisco (MUNI), for example, is the only bus system visited where purse snatching and pocket-picking are deemed major crime problems. Similarly, in response to assault, Los Angeles (SCRTD) relies on liaison with city police while Atlanta (MARTA) emphasizes an inter-personal relations course for drivers and hiring off-duty police to ride problem-route buses on an as-needed basis.

B. Subway/Elevated Lines

Subway/elevated lines operate on grade-separated right-of-ways and fixed routes. Scheduling is geared toward passenger density with the number of vehicles in each train and the headway changing throughout the day, being highest during rush hours and lowest during the late night/early morning hours. In addition to the vehicles, the subway system includes the stations. Characteristics of stations such as the type of platform (island or sidewall), location of token/

ticket booth, light level, visual obstructions, and access points differ from one system to the next and are generally related to the age of the stations.

In order to control subway-related crime, transit police units utilized a number of strategies. Basic among these anti-crime strategies are:

- Flexible patrol utilizing fixed posts and riding posts with officers deployed both in uniform and plainclothes;
- Saturation of specific areas with officers both in uniform and plainclothes;
- Decoys and stakeouts; and
- Community relations including liaison with neighborhood groups, schools, courts and transit companies.

Several transit properties, in addition, have or are currently installing closed-circuit television (CCTV) as a means to monitor activities in station areas. Like silent alarms and two-way radios installed on buses, CCTV is a crime control measure and an adjunct to manned patrol. Its constant surveillance capabilities are intended to deter potential offenders, aid police in detecting crimes and apprehending criminals, and provide patrons with a sense of security. However, CCTV has not, as yet, been well integrated into police day-to-day operations; the cameras are monitored by transit operations personnel.

To deter crime on subway/elevated lines and protect passengers, transit police units usually employ several strategies concurrently. With minor exceptions, strategies used to police subway/elevated lines emphasize the standard range of patrol-type operations such as fixed and mobile posts, stakeouts and decoys.

Rapid rail systems are always policed by units consisting of sworn officers. In two instances--Chicago (CTA) and Philadelphia (SEPTA)--the units are part of the city police department, while other systems are policed by units under the management control of the transit authorities. While this difference may impact on effectiveness (via personnel selection and assignments, areas of responsibility outside the transit system, and jurisdictional limitations), it seems to have very little bearing on strategy selection. Other factors such as the size of the transit police force relative to the number of stations and passenger route miles may have greater impact on the deployment of manpower and the selection of strategies.

Additionally, decisions concerning selection of strategies take into account crime-related characteristics. Fare evasion, a crime carried out in a matter of seconds and hundreds of times each day, offers an interesting example. Surveillance by uniformed patrolmen, who have many other areas to cover besides fare gates, has a deterrent effect but only when an officer is visible. Apprehensions are minimal. Several transit police units in New York City, Philadelphia/New Jersey and Oakland/San Francisco (NYCTA, PATCO, and BART) target specific fare collection areas with plainclothes stakeout teams. Transit police chiefs indicate that this tactic increases apprehensions and, when combined with aggressive prosecution, increases deterrence.

Robbery, unlike fare evasion, is not limited to a well defined area and may occur at any place in the system; although it is more likely to take place on station platforms than on trains. To counter this problem, transit police employ random or saturation patrol in an attempt to create an image of omnipresence. When a particular modus operandi or pattern emerges, transit police then target specific locations, using plainclothes personnel in stakeout or decoy operations.

Variables such as the crime level in the neighborhoods surrounding subway stations and the transit company's operating policies frequently impact on the selection of policing strategies. For example, around the clock, fixed patrol posts are established only in stations located in high crime neighborhoods. Similarly, a company decision to install CCTV in a number of subway stations may influence a transit police chief to redeploy his men, concentrating on stations not covered by electronic surveillance.

Once again, these examples are not intended to show that all rapid rail transit systems face the same problems or institute similar anti-crime measures. Differences, in some instances barely perceptible and others very noticeable, do exist and influence policing responses.

CHAPTER 4. ANALYTICAL FRAMEWORK

A general framework for analyzing transit crime and policing response is depicted diagramatically in Figure 1. The framework consists of three major elements that are assumed to be related to each other causally as well as through feedback loops.

The first element consists of what may be termed as "inputs" into transit policing and consists of the general transit environment and the current transit crime situation. The transit environment factors are shown to impact on the current crime situation. Both the transit environment and the current crime situation are expected to influence policing operations which is the second major element (i.e., the process element). The third element in the framework comprises outcomes assumed to be the result of policing operations: crime reduction and other benefits such as increases in rider perceptions of security, in rider volume and in transit revenues. One outcome, crime reduction, is shown as influencing the other outcomes. These outcomes, in turn, modify future transit crime characteristics, rider characteristics, and rider volume in a continual cycle. Crime reduction as an outcome will likely cause changes in the crime situation confronting a mass transit system, although there will be a time lag. Similarly, rider perceptions of security, rider volume and transit revenues will introduce changes into the transit environment. The basic assumptions are that each of the major elements and the various factors are interrelated, in terms of influence, in a manner depicted by the direction of the arrows in Figure 1. More detailed explanations of these assumptions are presented next.

A. General Transit Environment

For the purpose of this study, the transit system environment is defined by: system characteristics, ridership characteristics and crime in the areas surrounding the system. There is evidence that the transit environment influences where, when, and under what circumstances transit-related crimes are committed, the preponderance of crime types and the kinds of opportunities crime perpetrators act upon, as well as the types of individuals most likely to be victims and offenders, although the precise relationships are not known. It is believed that the mass transit environment operates in a limiting as well as enhancing manner with regard to crime and policing activities. Among other things, this means that a number of crimes, e.g., burglary and assault within a family, which are commonplace outside the boundaries of the transit system, are much less likely to be committed within the system. Conversely, certain crimes such as pocket-picking and purse-snatching might be more prevalent on a mass transit system than on the streets because of a greater opportunity created by large crowds during rush hours. The relatively closed

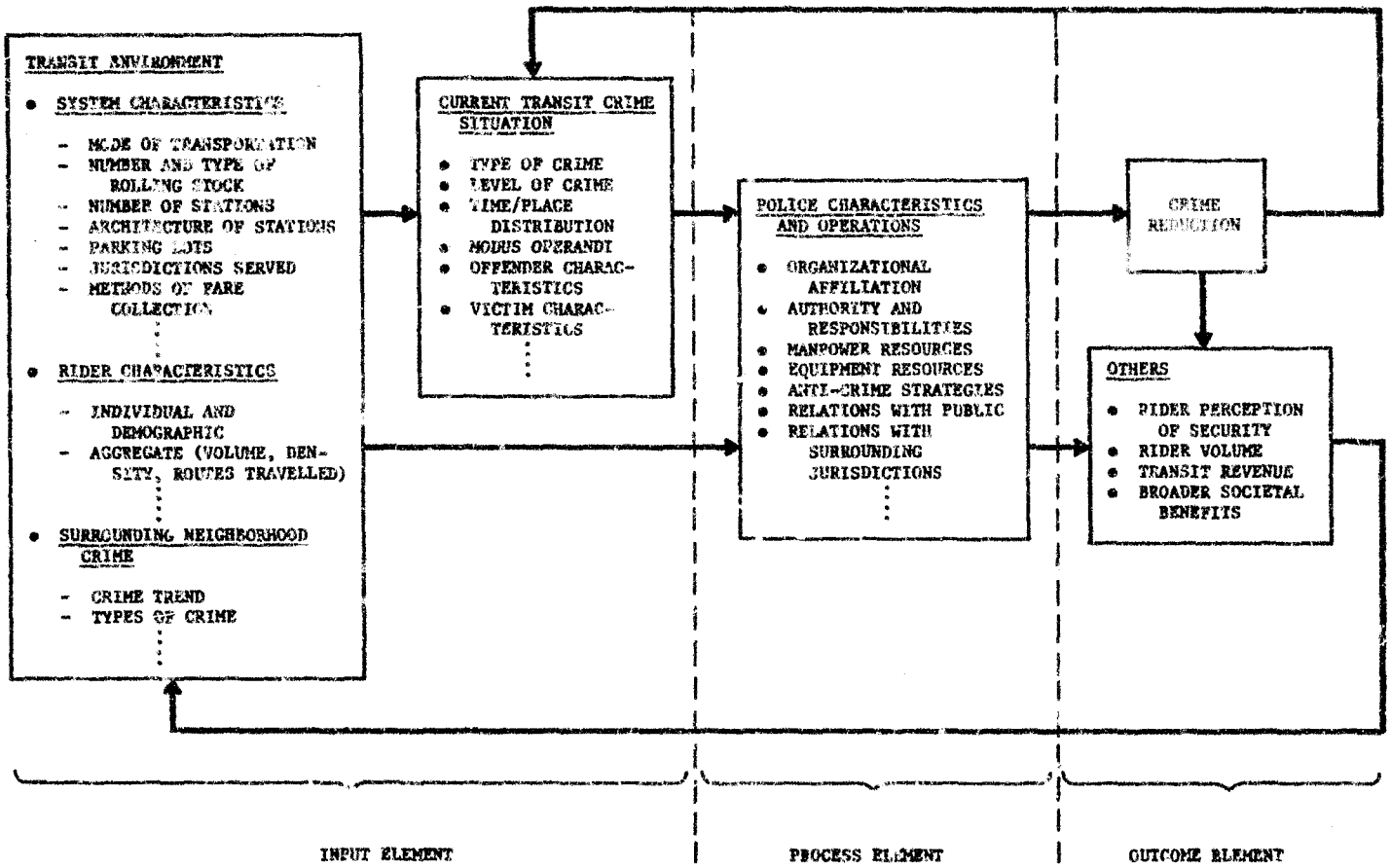

FIGURE 1
ELEMENTS OF THE ANALYTICAL FRAMEWORK

nature of a rapid rail system can also be a significant environmental factor with regard to policing and other security operations.

1. System Characteristics. System characteristics refer to structural and operational features of the transit system. Among the major characteristics which have been shown or are assumed to influence both crime and policing operations are: mode of transportation (bus, subway, elevated rail line, etc.); station characteristics; method of fare collection; hours of operation; and attended or unattended stations.

2. Characteristics of the Riders. A significant part of the transit environment is the characteristics of those who ride the system. There are two classes of rider characteristics:

- Demographic and socio-economic characteristics of individuals which may be related to crime (as offenders and/or victims); and

- Variables dealing with individuals as groups of riders which may be related to the level and type of crimes found in a system as well as the risk of victimization and the perception of security; these include: frequency of use of the system, length of trips, purpose of trips, captive vs. non-captive riders, and riding alone or together with others.

3. Surrounding Neighborhood Crime. Urban mass transit facilities such as stations, street-corner stops, and segments of bus and subway/elevated line routes are part of their surrounding neighborhood. As such, transit system components are expected to mirror the crime problems evident in the immediate community.

B. Urban Mass Transit Policing Operations

All transit police units operate on a common principle: controlling crime via deterrence, prevention and apprehension. While the selection of strategies and allocation of resources are, in part, determined by organizational factors, the transit environment also plays a key role. Being a relatively closed system, the transit environment enhances the effectiveness of some activities and limits others.

1. Organizational Factors and Resource Allocation. A number of factors such as organizational affiliation (transit company or local police department), type of department (sworn or non-sworn personnel), size of force (number of men, rank, organizational structure), position in the parent organization (hierarchy and lines of communication)

and areas of responsibility (company property, passengers, revenue) may influence the operations and effectiveness of transit police units.

2. Basic Assumptions. There are certain fundamental assumptions underlying transit police attempts to counter criminal activity. Specific police activities such as uniformed patrol, specialized plainclothes units, and decoys are all directed toward controlling crime through the processes of deterrence, prevention and apprehension (Figure 2).

It is also assumed that transit policing activities will, in the long-run, affect ridership perceptions of security, ridership volume and revenue. Activities aimed at heightening police visibility such as fixed posts, saturation patrol, or reducing response time are assumed to have deterrent effects discouraging criminal activity. Prevention measures such as security checks of facilities, physical barriers, improved lighting and exact fare are intended to decrease the opportunity for crime. By making the environment less conducive to criminal activities, some preventive activities have a deterrent effect by making crime more difficult to carry out successfully.[15] Other preventive activities include community relations and school programs aimed at limiting transit crime by influencing social and psychological factors that may have a restraining effect on crime. Apprehension refers to the arrest of suspects by police when a crime is in progress or while a suspect is fleeing from the crime scene, victimizing a decoy officer, or subsequently caught through investigations. It is also conceivable that potential criminals, when aware of intensified apprehension-oriented police activities such as stakeouts, decoys, and plainclothes patrols, will be deterred from committing crimes. The three process assumptions discussed above may act independently or in combination with one another.

3. Effects of the Transit System on Policing. Although transit system policing is based on the same basic assumptions as almost any type of policing (deterrence, prevention and apprehension) and employs similar activities to produce visibility, surveillance, fast response and investigation, the transit system does have features which differ from the environment in which general policing occurs. For example, entrances and exits to and from the system are limited (especially in rapid rail systems) as are those into and out of the rolling stock. Transit vehicles are closed off during movement and most

---

[15] Schnell, T. H., D. H. Overly, S. Schack, and L. L. Stabile, National Evaluation Program Phase I Summary Report, Traditional Preventive Patrol, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, June 1976.

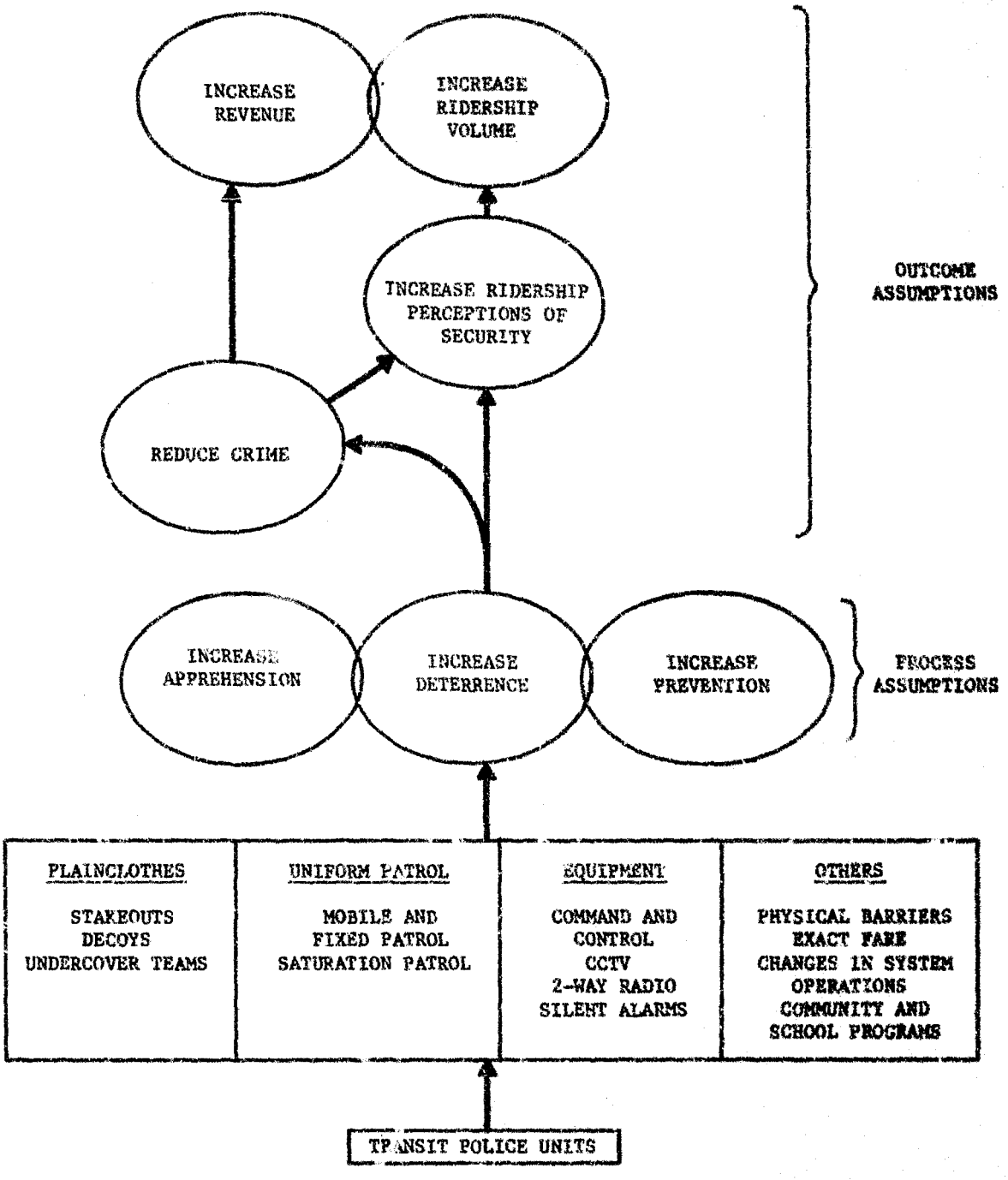

FIGURE 2
TRANSIT POLICE ANTI-CRIME ACTIVITIES AND BASIC UNDERLYING ASSUMPTIONS AND OUTCOMES

crimes, whether on moving vehicles or in station areas, take place within possible public view. On the other hand, the rapid flow of many people into and out of the system and the limited jurisdiction of some transit police may be detrimental to deterrence and apprehension.

C. Outcomes of Transit Policing Activities

Increased prevention, apprehension, and deterrence of crimes are expected to produce certain outcomes within the context of the urban mass transit environment. As displayed in Figures 1 and 2, the major outcome objectives are:

- to control and/or reduce crime;
- to increase riders' perceptions of security;
- to increase ridership volume; and
- to increase transit revenue.

These objectives are interrelated. Changes in crime levels impact on riders' perceptions of security within the transit system. Changes in perception of security, in turn, should lead to changes in ridership volume and transit revenues. Additionally, changes in crime levels (e.g., vandalism, fare evasion, and employee theft) may impact directly on revenues without affecting either public perception or ridership volume.

D. Planning and Evaluation Issues

Several types of issues, or questions, can arise in examining transit crime and planning and evaluating countermeasures. The criminal justice decision-makers need to know the magnitude of the mass transit crime problem in the light of other problems competing for attention in order to determine an equitable allocation of increasingly scarce public resources. The managers and police/security officials concerned with the day-to-day provision of transit services are interested in the near-term as well as longer range effects of crime on operations, cost of service, and revenue. They need information on changes in transit crime patterns and on the comparative effectiveness of different policing/security options either in response to a particular crime situation or to achieve some general objectives of improving the security of passengers and the transit system.

Analysis of these concerns in light of mass transit system operations and mass transit crime gives rise to a series of issue-oriented questions whose answers can provide the basis for determining which strategies are most effective and under what conditions they should be employed:

- What is the nature and extent of transit crime?
- What is the influence of system characteristics on the selection of a policing strategy?
- What are the relationships between various policing strategies and transit crime?
- What is the impact of mechanical and electronic security and communication devices on the effectiveness of transit policing?
- How effective are the different types of policing units?
- What is the impact of various policing strategies on passenger perceptions of security?

Chapter V assess existing information, culled from the literature and gathered during site visits, bearing on each of the issue areas. Transit policing activities are examined in terms of their effectiveness in achieving primary objectives. The assessment also identifies data- and methodological-related problems and delineates important gaps in current knowledge.

CHAPTER 5. AN ASSESSMENT OF URBAN MASS TRANSIT SYSTEMS POLICING

Present knowledge about transit crime and policing responses are brought into focus in this section in a question-answer form. Two general types of questions are included. The first type is of a descriptive nature concerning "What is happening?," "Who is involved?," and "What is being done?," in respect to transit crime. The second type consists of evaluative questions such as "Is transit crime considered a serious problem?," "What factors appear to influence transit crime and policing responses?," and "How effective are the various strategies?" As each question is discussed, the reliability of information used in developing the answers and important gaps in knowledge are noted.

A. Nature and Extent of Transit Crime

1. Where is Transit Crime of Sufficient Magnitude to be Considered a Serious Criminal Justice System Problem? Information gathered from several sources indicate that transit crime is concentrated in the nation's large cities. Crime data for 1968-1971 collected from 37 United States transit systems by Thrasher and Schnell[16] show that cities with populations exceeding one million account for approximately 86 percent of the reported transit-related crime against revenue passengers, while less than one percent is associated with cities having populations under 250,000.

Representatives of two major transit companies that manage about 30 bus transit systems (National City Management Company and ATE Management and Services Company, Inc.) stated via telephone interviews that transit crime was indeed a problem confined to major metropolitan areas (loosely defined as cities with populations greater that 250,000). Members of the American Public Transit Association Committee on Transit Security generally concurred in this assessment.

In answer to MITRE inquiries, criminal justice state planning agencies, regional offices of the Law Enforcement Assistance Administration (LEAA), and regional offices of the Urban Mass Transportation Administration further confirm this observation. According to the responses, transit crime is a serious problem thus far limited to major metropolitan areas. Areas without major population centers (cities

---

[16] Thrasher, Edward J. and John B. Schnell, "Scope of Crime and Vandalism on Urban Transit Systems," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974.

with less than 250,000 persons) report that transit-related crime is a minor problem and relatively non-existent in many sparsely populated regions.

2. Are Transit Crime Levels Increasing, Decreasing or Remaining Fairly Constant? The most recent data available are crime statistics gathered during visits to transit properties. The data are not conducive to aggregation and/or generalization across systems. Therefore, assessments of crime levels and associated trends must be system specific and comparisons between systems must be made cautiously.

For two rapid rail systems: BART (Oakland) and SEPTA (Philadelphia), and three bus systems: MTA (Baltimore), MARTA (Atlanta), and SCRTD (Los Angeles), crime data are available for 1973 through 1975. There are distinct differences among systems. For example, SEPTA exhibits a steady increase totalling 34 percent over the three years, mostly due to a substantial rise in reported larcenies. MARTA, on the other hand, shows a continual, across-the-board decrease in transit crime of approximately 30 percent. The three remaining systems exhibit overall increases in crime ranging from 14.3 percent for SCRTD to 48.5 percent for BART. However, there were year-to-year fluctuations with crime levels rising one year and dropping the next (BART and MTA) or vice versa (SCRTD).

Crime data for 1969-1971 gathered by Thrasher and Schnell via interviews and mail questionnaires for 37 transit properties in the United States suggest several overall trends.[17] For transit systems included in their survey, violent crime against revenue passengers decreased by about 23 percent, but non-violent crime rose sharply--by approximately 50 percent, resulting in a net increase of total crime against passengers by about 40 percent.

In at least two cities, San Francisco and Detroit, the transit crime problem recently reached sufficiently alarming levels, forcing city officials to implement forceful countermeasures. The mayor in San Francisco "promised action to protect riders of city buses and trolleys who have been subjected in broad daylight to random attacks and robberies by youths." The Mayor's plan involved assigning 55 patrol teams to ride buses and trolleys during the high crime hours

[17] Thrasher, Edward J. and John B. Schnell, "Scope of Crime and Vandalism on Urban Transit Systems," Crime and Vandalism in Public Transportation.

of 11 p.m. to 7 a.m.[18] In Detroit, the Police Chief "ordered the return to duty of 48 laid-off policemen to ride shotgun on city buses" in response to rising incidents of purse-snatching, fighting and general harassment of citizens using public transportation.[19]

3. What is the Risk That a Passenger Will Be Victimized? The number of serious crimes on a transit system is far less than the number found in the neighborhoods served by the system, but there are conflicting findings on the comparative risk of victimization between transit systems and the streets. There is no commonly accepted method for calculating victimization risk on rapid transit systems.

A survey by the American Public Transit Association of 37 transit properties in the United States led to the conclusions that the risk of victimization on transit systems, based on exposure time where the average trip is assumed to be 15 minutes, was approximately twice that on the streets.[20] A study of the Chicago system, using rider population as a basis for measuring risk, came to a diametrically opposed conclusion, stating that the relative risk of victimization on the transit system was about one-half that on the streets.[21] However, in a later publication the authors of the Chicago study state that it may not be meaningful to "compare the index used in the Chicago study (robberies/ridership) with the FBI crime index," since ridership alone does not provide a valid basis for estimating risk on a transit system. They further concluded that a better measure is 'robberies per year' (or crimes per passenger-year). This measure is defined in such a way as to capture the number of trips and how long the average passenger stays in the transit system during a trip. Calculations utilizing this revised index produce a

---

[18] "San Francisco Cracks Down on Street Crime," Washington Post, November 25, 1976.

[19] "Reinstated Detroit Police Put on Buses," Washington Post, October 15, 1976.

[20] Schnell, John B., et al., Vandalism and Passenger Security: A Study of Crime and Vandalism on Urban Mass Transit Systems in the United States and Canada, pp. III-1 to III-36.

[21] Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago, pp. 195-200.

victimization risk in close agreement with that estimated by the American Public Transit Association and indicate subways, at least, are much less safe than the streets.[22]

The debate over the proper denominator for calculating risk of victimization obscures the larger issue dealing with whether it is meaningful to compare victimization risk between transit systems and the streets. It would be more meaningful, especially from the operational perspective of transit officials and police, to be able to calculate and compare risk of victimization for different times and parts of the transit systems.

A report based on the Chicago study compares victimization risk on subways vs. buses and concludes that "risk on (subway) system is ten times greater than on the bus system."[23] However, it is important to note that bus-related crimes tend to be underreported because crimes at bus stops are usually included in street crime statistics and not separately compiled as transit crime.

The risk of being a victim of serious crimes also differs across rapid rail transit systems. Several subway/elevated lines are akin to commuter railroads, while several others form the nucleus of inner-city public transportation systems. The major types of crime associated with the suburban commuter lines (vandalism, pocket-picking, etc.) are generally not as serious as those crime problems usually associated with inner-city rapid rail systems (robbery, assault, etc.).

Within a given transit system, the risk is not uniform throughout the system but dependent on location. A study of the New York subway system indicated that "subway robbery tends to be highest in areas having a high surface crime rate."[24] As far as crime on the rapid transit system is concerned, the Chicago study agrees with the one done in New York; however, it further suggests that the correlation is conditional on mode of transportation.[25] Bus crime does not seem

---

[22] Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems, pp. 6, 9-12, Appendix I, pp. 51-53.

[23] Johnson, Ronald C., "Mass Transit Security in Chicago," Transportation Research Forum, 15th Annual Meeting, 1974, pp. 227-228.

[24] Chaiken, Jan et al., The Impact of Police Activities on Crime: Robberies on the New York City Subway System, pp. 44-48.

[25] Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems, pp. 12, 35.

to be correlated with robbery levels in surrounding neighborhoods.[26] Since robbery represents a small percentage of total street crime, it may not be indicative of the magnitude of street crimes in a given neighborhood.[27]

Transit police officials interviewed during site visits generally agreed that there is a correspondence between transit and street crime, with routes and stations located in high crime neighborhoods experiencing a higher percentage of transit crime than those situated in low crime areas. In short, the risk of victimization is not uniform throughout systems. It is possible to identify high risk routes, stations or segments of the various transit systems.

Further, the vulnerability of rapid transit systems to acts of terrorism (e.g., bombing and hostage taking) and arson has not received any attention in the literature, although such acts pose enormous threats to the safety of large numbers of passengers and to transit properties. One rapid rail system reported an average of two bomb threats a month; fortunately they turned out to be false alarms. In 1976, a fire set on board a subway train causes two to three million dollars damage in the Toronto system; a similar incident occurred in BART, resulting in $200,000 to $300,000 worth of damage to subway cars. Preventive and early detection capabilities need to be developed for subway systems to guard against arson.

4. What Are the Profiles of Typical Transit-Related Victims, Offenders and Crimes? Most of the currently available information detailing victim, offender and environmental characteristics come from three studies of urban mass transit systems. The New York[28] and Chicago[29] studies look at subway/elevated systems. The former study focuses on robbery and its attendant characteristics, while the latter examines a cross-section of criminal activities. The Stanford

---

[26] Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago, pp. 50-56, 83-85.

[27] Ibid., p. 83.

[28] Chaiken, Jan, et al., The Impact of Police Activity on Crime: Robberies on the New York City Subway System.

[29] Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago.

Research Institute-University of California[30] study provides most of the information on bus robberies and assaults.

The three following sections provide summaries of victim, offender and crime characteristics.

a. Who Are the Typical Victims? Most serious rapid transit crimes are perpetrated against single passengers. Rarely are persons in groups of three or more victimized. Over one-half of the robberies of bus drivers occur when no passengers are on board. On buses, the driver is usually the sole target of the offenders. (Most of the information concerning bus systems was collected before exact fare was introduced nation-wide and, therefore, may no longer be accurate.)

On rail rapid transit, most robberies are directed against male passengers. Race varies with sex: approximately 67 percent of the male victims are white, while 67 percent of the female victims are black. Information detailing age is somewhat less precise, indicating that over 60 percent of the victims are between the ages of 21 to 50. A further breakdown shows that black, female victims tend to be somewhat younger than their white counterparts.

As with robbery, white males comprise the majority of battery victims. On the average, however, they are somewhat younger than robbery victims.

Women are the victims of about 75 percent of a broad class of crimes categorized as "crimes against persons," a miscellaney of offenses including homicide, rape, indecent exposure, purse-snatching, etc.

The transit system and its employees form a distinctive group of targets of criminal activity. Employees handling money, especially fare collectors, are frequent targets of robbery. The system is the direct victim of various forms of vandalism and theft of service.

---

[30] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume I: Summary and Conclusions.

b. Who Are the Typical Offenders? The data indicate that the large majority of transit crimes are perpetrated by young, black males. Other offender characteristics such as modus operandi and number of associates tend to vary by type of crime.

For example, the overwhelming majority of bus robbers are male (about 95 percent) and black (90 percent). About half of the offenders are between 16 and 20 years old and very few are over 30. Typically bus robbers are armed--usually with a gun--and work singly or in pairs. In most instances, the offender(s) enters the bus, commits the robbery and immediately exits on foot.

Robbers who work the rapid rail systems prey on passengers and token booth attendants. Passenger robbers are generally male (95 percent), black (90 percent), comparatively young (averaging 17 years of age with few older than 30), operating in groups of two or three, and usually not armed. Token booth robbers also tend to be male and black, although a greater proportion of token booth robbers are white compared to passenger robbers. Additionally, token booth robbers are usually armed, average 22 years in age and operate singly or in pairs.

Approximately half of the transit-related batteries are committed by single individuals, but a substantial minority are perpetrated by groups of four or more offenders. As is the case with other types of transit-related crime, most offenders are male, black and young--over 50 percent are less than 21 years old and 90 percent under 31. In most instances weapons are not used; victims are either threatened, hit, or kicked. Upon completion of the crime, offenders usually escape from the system on foot.

Finally, almost all "crimes against persons" (indecent exposure, homicide, rape, etc.) are committed by single individuals. While a significant majority of these offenders are black, a sizeable minority (about 20 percent) are white. Although weapons are rarely used, those situations involving a gun or knife usually result in serious injury to the victim.

During site interviews, representatives of transit police units and security departments indicated that their profiles of offenders generally matched the descriptions presented in the literature. In cities such as Baltimore, Philadelphia and San Francisco, where public transportation is used by junior and senior high school students for school trips, a sizeable proportion of

transit-related crime is committed by juveniles. Transit police chiefs in Boston and New York emphasized that a small number of people are responsible for most of the crime in the subways. According to the Chief of New York City transit police, "three hundred to four hundred people are responsible for up to half of the crimes committed in the subway."[31]

c. Where and When are Most Transit Crimes Committed? The data show a positive correlation between the location of surface crime and transit crime. This is especially the case with subway lines. In discussing the New York rapid transit system, the Carnegie-Mellon University Workshop summarized the Rand Study (The Impact of Police Activity on Crime: Robberies on the New York City Subway System) and concluded:[32]

> The geographical locations of subway crimes are not evenly spread throughout the system but are focused on a small number of stations and the portions of train routes that run between those stations. The high-crime locations can be easily identified from historical data and tend to be where surface crime rates are also high.

Further analyses reveal notable interactions among other environmental variables and specific types of crimes. Several examples, taken from studies of rapid rail systems, are presented below.

Robberies occur primarily at night between 6 p.m. and midnight when passenger levels drop after the evening rush hour. About 70 percent of the passenger robberies take place on the platform and 30 percent inside trains either between stations or as the trains pull into stations. Passenger robbery is much more frequent during weekdays. Token booth robbery increases toward the end of the week and peaks on Sundays.

Incidents of battery are fairly evenly distributed throughout the week. About half are committed between 4 p.m. and 10 p.m.:

---

[31] Bird, David, "One-Man Subway Crime Wave," New York Times, January 21, 1977, p. A14.

[32] Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems, p. 35.

the highest frequency occurs during the evening rush hour. As with transit robberies, most batteries take place on station platforms.

"Crimes against persons" exhibit a bimodal frequency distribution, peaking during the morning rush hour and again between 5 p.m. and 10 p.m. Approximately half of these crimes occur on subway vehicles, usually between stations with the offender exiting at the first stop. The remaining 50 percent take place in the station--a majority in the platform area, though a significant minority occur in the station lobby.

Currently available data detailing victim, offender and environmental characteristics are, at best, somewhat fragmentary and imprecise. Nevertheless, some profiles and patterns do emerge. In some cases the profiles are system specific and, in others, the patterns exhibit similarities from one transit system to the next. The data suggest that transit crime victims and offenders closely resemble their counterparts in the surrounding community.

B. Influence of System Characteristics on the Selection of Policing Strategies

1. Do the Operating Characteristics of a Mode of Transportation Such as Mobility, Headway and Method of Fare Collection Impact on the Selection of a Strategy? The operational characteristics of a transit system often have a bearing on the selection of policing strategies. For example, automatic fare collection effectively reduces robbery and assault of rapid rail transit token/change booth attendants because the need for these attendants has been eliminated. However, automatic fare collection systems have produced several unintended effects: fare evasion (especially in unmanned stations) and counterfeit tickets, tokens or coins. In response, transit police have instituted various forms of covert surveillance such as stakeouts to catch violators. New York City Transit Authority Police Department currently maintains a 200-man Fare Evasion Unit to deter and apprehend fare evaders. Turnstiles in target areas are temporarily modified to detect slugs and sound an alarm to alert stakeout teams positioned in nearby hiding places.[33]

Similarly, many bus systems employ exact fare to counter robbery. A "survey of fifteen properties employing the exact fare plan showed a 98 percent reduction in the number of robberies experienced by the

[33] Parendt, John, "Turnstile Justice: Nabbing the Slug-Users," New York, February 7, 1977, pp. 39-42.

respondents during the initial months of operation."[34] However, study findings show that exact fare does not diminish the problem of assaults on drivers.[35] Some other strategy such as inter-personal relations training is needed to reduce incidents of assault.

The mobility dimension of buses combined with the large number of buses normally in-service at any given time in major metropolitan areas makes continuous police coverage extremely difficult. Consequently, transit police target specific routes for patrolling activities. Crimes occurring on other routes are responded to by district patrols as they are reported.

Decisions concerning system operations such as changes in headway, number of vehicles per train, skipping stops, and closing stations of the entire system for certain hours often impact on police activity. To illustrate, BART closes and locks stations on weekends and midnight to 6:00 a.m. during weekdays. When the system is operating, BART police concentrate on both safeguarding passengers and property. However, during down time responsibilities are limited to property protection. The allocation of manpower clearly reflects these shifts in responsibilities. Manpower levels are greatest during weekday business and early evening hours but significantly reduced late at night and on weekends.

As evident, operating characteristics are one of several groups of factors influencing decisions dealing with the deployment of manpower and the selection of specific transit police activities. Findings suggest that operating characteristics can be manipulated to enhance transit police effectiveness in countering crime.

2. Do the Environmental Characteristics of a System Such as Age, Lighting and Visibility Impact on the Selection of a Strategy? Many researchers and transit police officials feel that the environmental characteristics of a transit system have an influence on opportunities for crime as well as on police response. Further, crime prevention features can be built into the architectural design of transit stations.

Transit police have been able to use many of the architectural features of newer stations to their advantage. In some instances, station design increases the surveillance capabilities of manned

---

[34] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume 1: Summary and Conclusions, p. 14.

[35] Ibid.

patrol and, in other instances, provides an opportunity to install and utilize security and communication devices to supplement manned patrol. For example, heightened visibility permits use of CCTV, which may deter potential offenders and increase surveillance capabilities, thereby reducing the need for frequent preventive patrol.

Some systems provide large parking lots for the use of passengers. The design, location and method of operation of these lots may also impact on the nature and extent of the crime problem and police responses. Parking lots that are wide-open and unattended, with cars left for 10 to 12 hours, may required periodic police surveillance such as stakeout or undercover activity to control auto-related crimes.

The environmental characteristics of bus systems generally are indistinguishable from the street environment. Therefore, it is reasonable to assume that policing strategies directed to controlling street crime are equally applicable to crimes committed at designated bus stops. In fact, bus stops are normally incorporated into the patrol patterns of district-level police.

C. Relationship Between Various Policing Strategies and Transit Crime

1. How Effective are the Various Strategies? Police use a number of patrol activities and covert tactics to counter crime in transit systems:

- Fixed posts: (assignment of patrol officers to a given station).
- Riding posts: (train patrol).
- Mobile, random patrol: (coverage of multiple stations).
- K-9 teams: (patrolman - dog team).
- Saturation patrol: (substantial increase in manpower at a given location to maximize visibility).
- Decoys: (officers posing as potential crime victims).
- Stakeouts: (covert surveillance).

Fixed posts, riding posts and mobile patrol are the most frequently employed strategies. Only two systems (PATCO and SEPTA) use K-9 teams. Saturation patrol, decoys and stakeouts are instituted as

responses to specific problems such as a series of robberies exhibiting a similar pattern or fare evasion.

In the course of normal transit policing operations, several strategies are employed simultaneously. This makes evaluation of specific strategies difficult and compounds problems concerning attribution of outcomes to activities. To date, few evaluations have been performed for specific strategies and those that have mainly focus on the impact of saturation patrol on crime levels and citizen perceptions of security in urban mass transit systems. Fixed posts, riding posts, random patrol and K-9 teams have not been evaluated. Similarly, little research has been directed toward assessing stakeout and decoy activities. The lack of documented evidence does not imply that the strategies are ineffective. Several studies on the effect of transit policing on crime concluded that various strategies might reduce crime, at least for a short time interval or within a limited geographic area.

A study of the Chicago system during 1971 and 1972 shows that visible patrol deters crime.[36] However, the deterrent effect may be limited to the areas where the patrols were deployed since "Officers temporarily present in mezzanine or turnstile areas may be totally unaware of crimes occurring out of their view on platforms or stairwells."[37] This study also observes that riding posts had little impact on the crime level on problem routes.[38]

The Philadelphia Police Department received a one million dollar grant from The Law Enforcement Assistance Administration in 1973 to expand its transit unit. The size of the unit was increased from 165 to 195 plainclothes and regular patrol officers and the number of K-9 teams in the unit was more than doubled from 20 teams to 50 K-9 teams. The police department anticipated that the increase in manpower would:[39]

- reduce the incidence of Part I and Part II crimes on the public transit system;

---

[36] Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago, pp. xxxi, 204-205.

[37] Ibid., p. 205.

[38] Ibid., p. 204.

[39] Reagon, Michael V., et al., Final Report, Public Transit Crime Reduction Program Philadelphia Police Department.

- increase the clearance rates of crimes that do occur; and
- reduce citizens' fear of being involved in a criminal incident when using the system.

An evaluation[40] of the program showed that the crime reduction goal was not achieved. Part I crimes increased by 5 percent and Part II crimes by 154 percent for comparable time fram (April through September 30) during 1973 and 1974. A pre-test ost-test questionnaire of transit users and non-users showed that

- more people felt crime in the subway had increased;
- more people felt unsafe; and
- more people (a very small increase) said they saw police while using the system.

The effectiveness of the program in relation to clearance rates was not addressed by the evaluation report. The evaluation has several serious methodological problems. First, no firm statistical bases exist upon which to draw comparisons. It is conceivable that some percentage of crimes are either unreported or reported to authorities other than the transit unit. Second, the number of crimes reported during the evaluation period could be an artifact of increased police presence. In this situation possible reduction in the actual number of incidents could have been obfuscated by increases in reporting. Third, the method of selecting a sample ("judgment random") for the survey part of the study is not sufficiently explained. Details provided by the text of the Philadelphia study suggest inherent biases concerning the representatives of the sample. Fourth, the statistical analysis is incomplete. There is no attempt to control responses by mode, test levels of association, or determine if before-and-after differences are significant.

Two other studies also examine the effectiveness of increased police visibility to deter potential criminals and control crime. During the 1960's, the Chicago Police implemented two projects designed to increase surveillance and visibility. One project created riding posts on subway/elevated lines, while another project deployed uniformed patrolmen in marked cars to periodically stop buses and check with drivers. The Chicago Police Department reported a decrease in robberies, but due to other demands on police manpower, both

---

[40] Reagen, Michael V., et al., Final Report, Public Transit Crime Reduction Program Philadelphia Police Department.

projects were short lived. An assessment of these projects, as part of a much larger research effort focusing primarily on assaults and robberies of bus drivers, concluded that police surveillance strategies are costly. Further, such approaches to deter transit crime "can...probably only be considered practical for short periods of time in concentrated programs."[41]

A study of the New York subway system from the mid-1960's through the early 1970's focused on the impact of police activity--primarily saturation patrol--on transit-related robberies. The evaluation concluded that saturation patrol of the subway system led to a reduction in felonies during the times of intensive deployment, although the magnitude was not established.[42]

Saturation patrol also has been employed by the Chicago Police Department's Transit Unit. "Operation Saturation," inaugurated December 26, 1974, flooded the subway system with police; the net effect was that arrests during an eight-and-one-half month period rose from 16,000 to 29,000, robberies declined by 52 percent, and major crimes were down 26 percent.[43]

With regard to covert operations, transit police officials consider stakeout operations effective, especially when implemented to target specific crimes such as pocket-picking and fare evasion. Decoy operations also are credited as being successful. The New York City Transit Authority Police Department reports that its decoy squad, implemented during the fall of 1975, "made more than 250 arrests, mainly for felonies such as assaults and robberies," during its first three months of operation. According to the Department's Chief, "the decoys have been a significant factor in the 13 percent decline

---

[41] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers--Volume I: Summary and Conclusions, p. 8, 24-25.

[42] Chaiken, Jan. et al., The Impact of Police Activity on Crime: Robberies on the New York City Subway System, p. 63.

[43] Planning Division, Metropolitan Atlanta Rapid Transit Authority (MARTA) Proceedings of the MARTA Security Seminar, October 9-10, 1975, p. 3. Also see: Porep, Ronald E., "Chicago Police Cut Crime 52% on Public Train Service," Police Times, May 1975.

in serious crime in the subways" during 1975.[44] Some transit police chiefs are quick to point out that this tactic may encounter the legal issue of entrapment possibly resulting in the dismissal of charges against defendants by courts.

In addition to traditional patrol activities, transit police often engage in other support activities. These activities are directed primarily toward controlling crime through prevention and include:

- community relations;
- liaison with schools, courts, and local police/transit authority; and,
- courses on inter-personal relations for drivers.

In many cases, several support activities are used concurrently, frequently in conjunction with patrol oriented activities. Transit police generally believe that support activities are effective and help control transit-related crime. However, the various activities have not been evaluated; hence, very little is known about their actual impact on transit crime and security.

D. Impact of Mechanical and Electronic Security and Communication Devices on the Effectiveness of Transit Policing

1. How Effective Are the Various Mechanical and Electronic Security and Communication Devices? Increasingly, transit police have turned to mechanical and electronic support capabilities to counter crime and improve the effectiveness of manned patrol. Some devices; for example, bullet-proof token booth enclosures and protective shields for bus drivers, seek to prevent crime by hardening the environment. Other devices such as 2-way radios, silent alarms, emergency telephones, closed-circuit television (CCTV), and helicopters are used to aid detection and apprehension by means of surveillance, recording evidence of a crime, or facilitating crime reporting and police response. Electronic surveillance such as CCTV as well as alarms may also produce deterrence if potential offenders are aware of their presence.

---

[44] Treaster, Joseph B., "Police Decoy-Victim Strategy Takes to Subways," New York Times, January 7, 1976, p. 48.

Frequently, these mechanical and electronic devices are used for purposes unrelated to security. For example, BART uses CCTV primarily to monitor elevators for the handicapped and only incidently for security. Similarly, PATCO employs CCTV, a public address system, and direct-line emergency telephone to lend assistance to patrons having problems with the automatic fare collection system as well as to monitor, deter and apprehend fare evaders. Communication devices have been installed for a variety of reasons including security against robberies and assaults. Other equally important reasons are to answer riders' questions and to provide a means for passengers to "obtain emergency assistance in the case of accidents and breakdowns."[45] Decisions concerning the purchase and implementation of equipment are usually made by top management of the operational side of the transit companies. Reasons unrelated to policing often are given as much weight as potential security-related benefits.

Target hardening devices such as protective shields for drivers and bullet-proof token booth enclosures have not been evaluated in terms of effectiveness. Research in this area has only addressed the relative acceptability of various equipment by transit management and employees.

Most major bus systems are equipped with 2-way radios. As a countermeasure, 2-way radios seem to impact on general disturbances usually created by groups of teenagers, but have little effect on robbery or assault. Bus drivers often are warned by robbers against using 2-way radios, thereby reducing their effectiveness. "As a crime countermeasure, there is no available evidence to indicate that installation of 2-way radios has resulted in major reductions of robbery or has had significant effects on tracing or apprehension of the offenders."[46] Nevertheless, drivers support the use of the 2-way radio by citing its benefits in reducing feelings of "aloneness" and increasing feelings of security.

The use of silent alarms as a security device began to spread among bus systems during the early 1970's. Evaluative findings generally suggest that silent alarms do not, by themselves, have a significant impact on transit crime. Most offenders escape before police arrive in response to an alarm. "Of 73 holdups in five cities

---

[45] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume I: Summary and Conclusions, p. 35.

[46] Ibid., p. 36.

in which alarms were sounded, only three resulted in on-site captures."[47] Further, about 90 to 95 percent of the alarms are false. This high rate of false alarms often discourages police cooperation. In Atlanta, MARTA officials are attempting to counter the false alarm problem by implementing a nonverbal call back verification between bus drivers and the communication center.

Transit police universally use personal portable 2-way radios (walkie talkies) to maintain constant communication between officers in the field and headquarters. With the transit police force distributed throughout the system, this communication link is essential for coordination and control. It is also expected that better communication will improve response time. An evaluation of a demonstration project conducted in New York during the mid-1960's concluded that "message delay...was reduced 99 percent to fractions of a second."[48] However, impact on crime was much less clear. A large increase in police coverage of all subway lines may have masked or distorted any impact.[49]

Rapid rail systems make extensive use of telephones. They are placed on trains (in the operator's booth), in station attendants' booths, in station lobbies and on station platforms. Intended to facilitate communication in emergency situations, telephones usually are linked directly to transit police or transit communication centers. While telephones have not been evaluated in terms of their effectiveness in reducing crime, transit police cite two major problems with telephones accessible to the public: (a) vandals ripping the telephone out of the walls; and (b) persons purposely taking the receivers off the hook or forgetting to hangup after using the telephones. Both of these problems impact on potential effectiveness. As a consequence, telephone systems are now incorporating anti-vandalism features and automatic locator and hangup capabilities.

CCTV is the most elaborate electronic security device used to counter crime in transit systems. Operational in several rapid rail systems, CCTV is currently being installed on an experimental

---

[47] Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume I: Summary and Conclusions, p. 23.

[48] New York City Transit Authority, Two-Way Radio Communication Mass Transportation Demonstration Project, p. 3.

[49] Ibid, p. 2-3.

basis on two other subway/elevated lines. CCTV systems often are designed to integrate with other security devices such as public address systems, alarms, telephones and videotaping capabilities. (The latter may provide valuable evidence aiding investigation leading to apprehension). To date CCTV has not been evaluated to determine its impact on transit-related crime.

Other devices designed to augment manned patrol include equipping buses with four-way flashers and painting numbers on top of buses to permit surveillance by helicopter patrols. Some transit police believe these devices may aid manned patrol to counter transit-related crime; however, evaluations have not been conducted.

E. Effectiveness of Different Types of Policing Units

1. Is There a Need for a Dedicated Transit Police Unit? Need may be defined in terms of the scope of the transit crime problems and the special characteristics of transit systems that differentiate them from other areas covered by police patrols.

In jurisdictions where transit crime problems are serious and persistent, a dedicated unit can provide continuous patrol-type coverage not often afforded by non-dedicated units faced with other crime-related priorities.[50] This is true whether the transit system is comprised of buses, subway/elevated lines or both. To what extent this continuity of service and sole responsibility of patrolling the system lead to more effective crime control on transit systems has not been evaluated, however.

The advantages of a dedicated unit are further amplified in conjunction with rapid rail lines. A number of system characteristics such as the following complicate the performance of police functions.

- isolation of the system from the rest of the community;
- rush-hour crowding;

---

[50] Arthur Young and Co., A Report on the Requirement for Establishing a Metro Security Program, Washington, D. C., December 1972. Also see: Comparative Evaluation of Public Safety Services in Selected Metropolitan Areas with Rapid Transit Systems, Department of Public Safety, Metropolitan Washington Council of Governments, February 1973. Also see: Planning Division, MARTA, Proceedings of the MARTA Security Seminar.

- high personal mobility for both offenders and victims;
- hazards associated with high-speed vehicles, tunnels, and third rails;
- possible calls to provide emergency assistance to large numbers of victims; and
- difficulties involved with enforcing the law on systems that cross political boundaries.

These complications appear to call for specialization via training and continuous on-the-job experience normally associated with dedicated units.

2. Should Policing of the System be the Responsibility of the Transit Company or the Local Police? A number of factors including politics, economics, historical precedent and jurisdictional boundaries must be taken into consideration when addressing this issue. The need for a transit authority police force appears to be greatest when a transit system serves multiple jurisdictions. An inter-jurisdictional mandate provides continuity between political boundaries. Further, it may defuse or circumvent potential rivalaries between neighboring city- or county-level police departments. This is often of paramount importance, especially where transit systems cross major political boundaries; for example, the Washington Metropolitan Area Transit Authority (WMATA) is equivalent to a tri-state system, the Port Authority Trans-Hudson (PATH) and the Port Authority Transit Corporation of Pennsylvania and New Jersey (PATCO) are bi-state systems, the Massachusetts Bay Transportation Authority (MBTA) provides service to Boston and 78 surrounding communities and the San Francisco Bay Area Rapid Transic District (BART) traverses four counties including Alameda (Oakland) and San Francisco.

When transit systems operate within a single jurisdiction, local police usually prefer to provide passenger security services. Historical precedent and city ownership of a large portion of the subway/elevated facilities in Philadelphia provide the basis for the city police department to be responsible for policing the Southeastern Pennsylvania Transit Authority (SEPTA). In San Francisco, the city police contend that the most effective and efficient way to control crime in the streets and on the transit system is a via a unified police force. They maintain a special transit unit to protect Municipal Railway (MUNI) passengers and are strongly against MUNI inaugurating and operating an in-house transit police unit consisting of sworn personnel. The San Francisco police stance also carries over to BART facilities. For those BART stations located in San Francisco, BART and the San Francisco police share responsibility for protecting

patrons and safeguarding property. The BART police handle the area inside the entrance/exit fare gates and the San Francisco police cover the free area as part of their routine patrol beat.

The situation is much less clear-cut for systems such as the Chicago Transit Authority (CTA), the Mass Transit Administration--Baltimore (MTA), and the Southern California Rapid Transit District (SCRTD) serving large metropolitan areas encompassing several counties. On the one hand, MTA maintains an in-house police unit consisting of sworn personnel while, on the other hand, the CTA and SCRTD depend on city police to control crime problems.

If the city police are vested with the responsibility to protect the transit system, safeguards should be built into the arrangements to insure adequate coverage. During the 1960's, several police department transit units were understaffed and given low priority, gaining a negative reputation as the last stop for malcontents and less able personnel. Recent public pressure, resulting from increased concern over transit-related crime, has led to a re-ordering of police departments' priorities and an upgrading of the transit units.

In jurisdictions where the city police operate transit units, transit companies usually maintain parallel liaison units. These units provide a regular channel for coordination between the police and transit authority. Often, liaison units also are charged with safeguarding revenue, protecting company property, providing assistance in the event of an accident, fire, or other emergency, and maintaining contact with the surrounding community, schools, courts, and media.

F. Impact of Various Policing Strategies on Passenger Perceptions of Security

1. Which Police Strategies/Security Measures Increase Passenger Perceptions of Security? There is a general belief that selected police strategies and/or security measures can influence positively the public's perception of security in mass transit systems. Perhaps the best method for determining which strategies are most likely to bolster passenger confidence in mass transit systems is the public attitude survey. The results of surveys treating this subject suggest that more police patrol of stations and on trains would achieve the greatest positive impact on passenger perceptions of security in urban mass transit systems.

One fairly recent survey concluded that the presence of additional police on trains and at stations gave passengers at least "a sense of

feeling safer."[51] In another survey,[52] looking at personal security on the mass transit system in Chicago, more definitive conclusions appear to have been reached. The survey instrument, containing a list of eight items focused on improvements that could bolster public confidence in the security of the system. Survey results show that the most important factors for achieving the desired improvements in security levels would be increases in the number of police at stations and on transit vehicles. The next most desired improvements were related to the initiation of a communications network and an alarm system on vehicles and at stations. Items concerned with improving the station and system lighting, increasing the frequency of trains, improving the neighborhood surrounding the station and increasing the number of passengers per car received lower rankings.

A third study[53] of public attitudes also found that survey respondents equated a heightened sense of security with sizable increases in police patrols at stations and on trains. The study further concluded that the central theme underlying passenger perceptions of security is the assurance that police assistance can be obtained rapidly. Most survey respondents believed that the best hope for increasing passenger confidence in the level of security lay in "the deployment of more police (including K-9 patrols) to the station platforms and on trains or in the knowledge that quick assistance could be obtained in any emergency."[54] Thus, any public transit system which could convince its ridership that its police force responds rapidly is likely to increase the level of confidence in its system.

A fourth survey[55] of passenger choices for improvements in mass transit provides additional support for these findings. A full-time security guard received the highest mean rating, followed by a

---

[51] Transportation Research Board, National Research Council, Newsline.

[52] Ferrari, Neal D. and Michael F. Trentacoste, "Personal Security on Public Transit," Transportation Research Forum.

[53] Shellow, Robert, et al., "Crime in Rapid Transit Systems: An Analysis and a Recommended Security and Surveillance System," Crime and Vandalism in Public Transportation.

[54] Ibid.

[55] Broad and Columbia Subway Development Study: Final Report.

platform-level alarm system, with the third highest rating being accorded closed-circuit television monitoring of the platform area. Passenger density per area was the variable viewed as adding the least to overall passenger perceptions of security.

In sum, those strategies which appear to most bolster passenger confidence in mass transit systems are sizable increases in police patrol of stations and on vehicles and the implementation of communication capabilities to ensure rapid response by security or police personnel when assistance is needed.

2. Do Passenger Perceptions Influence Ridership Behavior? Research exploring the relationship between passenger perceptions and ridership behavior presents conflicting conclusions. Studies in Chicago, Philadelphia, Washington, D. C., and Cleveland indicate that passenger ridership patterns are influenced by perceptions of personal security. By contrast, studies in Milwaukee, Baltimore, and Chicago suggest that passenger perceptions of security have minimal, if any, impact on ridership behavior: unfortunately the findings of these later three studies are undermined by serious methodological flaws.

The Carnegie-Mellon attitude survey of the Chicago system found "a pervasive lack of public confidence in transit security. Furthermore, this perception of insecurity has significantly affected ridership."[56] The study reported that a large portion of the riding public cited the apparent lack of security as a rationale for not using some or all of the mass transit system. "About one-fifth of those who do not use transit and 16 percent of rapid-transit-only riders cited the lack of security from harassment and crime while riding or waiting for the bus as reasons for not using the bus system."[57] Additionally, 25 percent of non-transit riders and 30 percent of bus-only riders also cited lack of security as their reasons for not riding the El-subway system.

Other effects noted include behavioral changes where individuals tended to avoid the transit system altogether during time periods when crime was perceived as being high. Over 80 percent of all respondents indicated a reluctance to ride the system between 6 p.m. and 6 a.m. and cited personal security as the predominant reason. All but four respondents out of a total of 713 stated they would not ride the system after midnight.

---

[56] Shellow, Robert, et al., "Crime in Rapid Transit Systems: An Analysis and A Recommended Security and Surveillance System," Crime and Vandalism in Public Transportation, p. 3.

[57] Ibid.

In another study of passenger perceptions completed for the Philadelphia system, it was found that 48 percent (2876 out of a sample of 5904) of the respondents perceived themselves as unsafe when riding the transit system. Significantly, the unsafe responses were appreciably higher for non-users than for users of the system, thus suggesting that passenger perceptions of security influence ridership behavior.[58]

Similarly, findings from a questionnaire survey of riders of one bus route in Washington, D. C. lend further support to the hypothesis that perception of crime and security affects ridership. Approximately "30 percent of the respondents said there are times when they prefer not to ride the bus for reasons of personal security."[59]

An internal study conducted by the Cleveland Transit System attempted to determine the effect of a homicide at one of the rapid transit stations on ridership levels. The study concluded that the murder had a negative, short-term impact, but that ridership returned to normal within several weeks.[60]

In sum, when greater weights are given to those studies employing more methodologically sound data gathering and analyses techniques, it seems reasonable to draw at least the following tentative conclusions regarding passenger perceptions of security and ridership behavior:

- Transit crime appears to influence passenger perceptions and decisions concerning use of mass transit systems.

- Perceptions seem to vary with volume of crime in the area served by the route, availability of alternative modes of transportation and time of day.

---

[58] Reagen, Michael V., et al., Final Report, Public Transit Crime Reduction Program Philadelphia Police Department.

[59] Thrasher, Edward J. and John B. Schnell, "Studies of Public Attitudes Toward Transit Crime and Vandalism," Crime and Vandalism in Public Transportation, pp. 28-29.

[60] Ibid., pp. 30-31.

- Perceptions of transit crime are more likely to influence rapid rail than bus riders.

- Negative perceptions of security are sometimes greater for individuals who do not or infrequently use the system; however, all riders' concern for security intensify when they personally are victimized or are witnesses to the victimization of others.

CHAPTER 6. SUMMARY AND RECOMMENDATIONS

A review of the state of knowledge concerning crime and policing of urban mass transit systems reveals the existence of important knowledge gaps. To date research efforts have been uneven, clustering around several topic areas while ignoring many others. Much of the research concentrates on evaluating the impact of a sizable increase in police patrol, assessing the effectiveness of exact fare and investigating citizen perceptions of transit crime and security and their related riding behavior. Comparatively little, if any, research has been done to assess the impact of specific police activities (e.g., stakeouts, decoys, random versus fixed patrol) or evaluate the effectiveness of surveillance and communication devices (e.g., CCTV, two-way radio, silent alarms). Information dealing with the effects of these activities is limited to observations by and beliefs of transit police personnel and occasional informal assessments conducted by transit police units. Further, available findings often are beset by data reliability and validity problems inherent in weak methodological designs.

Given the present state of knowledge (or lack of it), the most promising approach for filling information gaps appears to be research and evaluation efforts targeting sharply focused topic areas. In this context, the seven following topic areas are recommended in response to current transit crime problems and acquiring more and better knowledge. Findings from these activities and studies will be useful for government administrators, transit authority management, transit police and, in the long run, the riding public.

A. Crime-Control Oriented Recommendations

1. Develop and Evaluate Projects Directed Toward Controlling Juvenile Crime. Profiles of mass transit criminals indicate that a significant number of offenders are juveniles. Transit police in a number of cities including Baltimore, Los Angeles, Philadelphia and San Francisco state that juveniles are a major, if not the primary, source of transit-related criminal incidents. A few transit systems have had some success with school trippers (specifically designated buses for transporting students to and from school), school programs emphasizing the vital service provided to the community by mass transit, and increased police patrol. However, juvenile-related crime remains a serious transit problem.

This suggests a need to develop and evaluate projects directed toward controlling juvenile crime on transit systems. One project could consist of implementing and evaluating presently used strategies in a number of cities to assess effectiveness and determine potential transferability. Another possible project could involve the creation of a juvenile unit staffed with civilian specialists including counselors and youth workers. Such a unit could be based on similar units operational in a number of city police departments. Still another possible project could be based on the concept of restitution and on close cooperation between the courts and transit police. Juveniles convicted of transit-related crimes would be referred by the court to the juvenile unit. In turn, the juvenile unit would supervise offenders, providing counseling and overseeing work oriented toward cleaning up the transit environment, removing graffiti and other signs of vandalism.

2. Improvement of Mechanical and Electronic Security-Related Equipment. A number of problems have surfaced in this area. The use of counterfeit coins and tokens to gain access to rapid rail transit is growing in the large and older systems. Closed-circuit television (CCTV) often is poorly integrated with other security activities. Automatic coin-change and ticket vending machines frequently are unreliable and vulnerable to vandalism and theft.

In this context, transit company officials, police and researchers see a need for the following types of improvements:

- developing fare collection equipment to detect the use of slugs;
- hardening automatic coin-change and ticket vending machines;
- improving the capability of CCTV surveillance equipment and integrating the use of this equipment with transit police operational requirements; and
- improving multiple-channel radio communication capability in subways to facilitate the coordination and control of operations involving general city police, transit police, fire and rescue units.

Equipment-oriented research also should be directed toward improving reliability while reducing maintenance and cost. Design and operational factors must incorporate features to facilitate public acceptance (e.g., automatic fare collection equipment that is easy to use) and accommodate a wide variety of environmental conditions such as dampness and ambient noise.

There are a host of practical benefits that may be gained from these research efforts. Improvement of CCTV capabilities could, in many instances, reduce the need for fixed patrol posts and lead to collection of better evidence resulting in clearer identification of criminal suspects. Similarly, improvement of multiple-channel radio communication capabilities could contain disasters, thus saving lives and reducing financial lose.

Additionally, research is needed to analyze human engineering problems associated with extensive use of CCTV equipment. For example, transit crime exhibits a biomodal frequency distribution, peaking during morning and evening rush hours; if people monitoring CCTV cameras finish their eight-hour shift at the end of the evening rush hour, fatigue may reduce potential surveillance and anti-crime capabilities of CCTV. Research would provide information concerning the scheduling of monitor shifts (e.g., shifts starting at the beginning of rush hours or limiting shifts to four hours) and possibly enhance the effectiveness of CCTV.

3. Improvement of Fire Prevention and Detection Capabilities. Acts of arson pose serious threats to passengers and transit properties, although only isolated incidents have been reported thus far. In 1976, a fire set on board a subway train caused two to three million dollars in damage in the Toronto system. A similar incident occurred in Oakland (BART), resulting in $200,000 to $300,000 worth of damage to subway cars. Prevention and early detection capabilities need to be developed for subway trains to fight against arson.

Like other security-related equipment, fire prevention and detection devices must be designed with reliability, maintenance and cost in mind. The equipment should be thoroughly tested in an experimental environment to ensure sufficiently high levels of reliability and low levels of maintenance. Further, the equipment must be designed to function in all types of environmental conditions. Potential benefits include averting major disasters, saving lives and eliminating financial loses.

B. Knowledge-Oriented Recommendations

1. Evaluation of the Effects and Effectiveness of Specific Security Strategies. Transit police often employ different strategies to counter similar crime problems. For example, several police chiefs rely on preventive patrol to deter potential robbers. Other transit police chiefs believe that preventive patrol merely pushes crime away from targeted areas and, for that reason, apprehension-oriented police activities are essential to reduce crime; hence, they have combined preventive patrol with decoy activities. Similarly, some

bus systems depend on police riding patrols to protect drivers and passengers from robberies and assaults, while other systems rely on silent alarms and 2-way radios.

Other strategies commonly used by transit police but thus far not evaluated in terms of effectiveness and cost include mobile patrols, fixed posts, stakeouts, and decoys. An examination of any of these strategies should be conducted within the context of a quasi-experimental or experimental design. Analyses and comparisons across several transit systems would provide a basis for determining generalizability of findings.

Formal evaluations of specific security activities can provide decision-makers with valuable information concerning the effectiveness of various strategies. Examined within the perspective of the nature and extent of the problem and resources available, evaluations can address key questions such as the long-term allocation of scarce resources, the short-term selection of tactical responses to changes in criminal activity, and the potential transferability of specific strategies as well as the need to modify current activities and develop innovative approaches to transit policing.

2. Develop and Implement Uniform Crime Reporting for Transit Systems. There are a variety of crime classification schemes in use. Some police departments group criminal incidents into the three following categories:

- violent crimes against persons;
- offenses against personal property; and
- offenses against system property.

Other transit police units classify crime according to "who," "when," and "where." Moreover, definitions of what constitutes various criminal acts vary among departments.

These differences complicate comparisons between systems in terms of crime levels and problems and also preclude aggregation of data (at several points in time) needed to determine national transit-related crime trends. Development and implementation of a uniform crime reporting format for transit systems would normalize definitions, standardize information collected for each crime type and provide a meaningful data base for across-system evaluations.

3. Develop Handbook for Passenger Perception Measurement. Passenger perceptions of transit crime and security provide important outcome measures of policing operations. To date, passenger perceptions have been the primary subject of about half-a-dozen studies and a secondary concern of several other research efforts. Unfortunately, these studies differ significantly in the populations tapped, sampling strategies, type of questions, methods of data collection and analyses techniques. Further, many of the studies are poorly designed. Such methodological problems undermine confidence in the findings and inhibit meaningful comparisons across these studies.

Development of a passenger perception measurement handbook for transit authorities would go a long way toward solving these problems. The handbook should contain guidelines for the administration and interpretation of passenger perception surveys, sampling strategies, sample data collection forms, and appropriate analyses frameworks. Such a handbook would provide transit systems with a methodology for systematically assessing passenger perceptions of transit crime and security and a means of evaluating security activities. Widespread use of the handbook also would promote comparability of findings among transit systems.

4. Case Study of Policing the Washington Metropolitan Area Transit Authority (WMATA). The Washington, D. C. rapid rail transit system provides a unique opportunity for a case study. WMATA, which initiated passenger services at the end of March 1976 on a limited basis, will expand operations in planned phases over the next several years. This presents a situation where the rapid rail transit system will continue to expand while the police force will remain relatively constant in terms of manpower and equipment. A case study of WMATA over the next several years can provide information concerning the effects of substantial changes in system parameters on policing operations and effectiveness. Data collected during the case study also can be used to discern the development of crime patterns, assess the responses of the police unit, document the relations between WMATA and local police departments in terms of cooperation and conflict, and investigate the impact of both crime and policing on passenger perceptions of security and the use of the transit system. Information gained from this study would be valuable for new rapid rail transit systems currently in the planning/building stages.

BIBLIOGRAPHY

Arthur Young and Co., A Report on the Requirement for Establishing a Metro Security Program, Washington, D. C., December 1972.

Arthur Young and Co., Development and Implementation of an Interim and Long Range BART Police Services Program--Quarterly Reports, October 10, 1972 - July 6, 1973.

Berendt, John, "Turnstile Justice: Nabbing the Slug Users," New York, February 7, 1977.

Bird, David, "One-Man Subway Crime Wave," New York Times, January 21, 1977.

Broad and Columbia Subway Development Study: Final Report, Broad and Columbia Subway Study Group, Temple University, prepared for U. S. Department of Transportation, Assistant Secretary for Environmental and Urban Systems, August 1971.

Chaiken, Jan M., Michael W. Lawless, and Keith A. Stevenson, The Impact of Police Activity on Crime: Robberies on New York City Subway System, The Rand Corporation, R-1424-NYC, January 1974.

Chaiken, Jan M., What's Known About Deterrent Effects of Police Activities, P-5735, The Rand Corporation, November 1976.

Comparative Evaluation of Public Safety Services in Selected Metropolitan Areas with Rapid Transit Systems, Department of Public Safety, Metropolitan Washington Council of Governments, February 1973.

Ferrari, Neal D. and Michael F. Trentacoste, "Personal Security on Public Transit," Transportation Research Forum, 15th Annual Meeting, Vol. XV, No. 1, 1974.

Gray, Paul, "Robbery and Assault of Bus Drivers," Operations Research, March-April 1971.

Hoover, John Edgar, Crime in the United States - 1969 Uniform Crime Reports, U. S. Department of Justice, 1970.

Johnson, Ronald C., "Mass Transit Security in Chicago," Transportation Research Forum, 15th Annual Meeting, 1974.

Kelling, George, Tony Pate, Duane Dieckman, and Charles E. Brown, The Kansas City Preventive Patrol Experiment: A Summary Report, Police Foundation, 1974.

National Advisory Commission on Criminal Justice Standards and Goals, Police, 1973.

New York City Transit Authority, Two-Way Radio Communication Mass Transportation Demonstration Project, Project NY-MTD-8.

Planning Division, Metropolitan Atlanta Rapid Transit Authority (MARTA), Proceedings of the MARTA Security Seminar, October 9-10, 1975.

Porep, Ronald E., "Chicago Police Cut Crime 52% on Public Train Service," Police Times, May 1975.

Reagen, Michael V., et al., Final Report, Public Transit Crime Reduction-Philadelphia Police Department, prepared for Governor's Justice Commission. Evaluation Management Unit, January 1975.

"Reinstated Detroit Police [illegible] on Buses," Washington Post, October 15, 1976.

"San Francisco Cracks Down on Street Crime," Washington Post, November 25 1976.

Schell, T. H., D. H. Overly, F. Schack, and L. L. Stabile, National Evaluation Program Phase I Summary Report, Traditional Preventive Patrol, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, June 1976.

Schnell, John B., Arthur [illegible] Smith, Karen R. Dimsdale, and Edward J. Trasher, Vandalism and Passenger Security: A Study of Crime and Vandalism on Urban Mass Transit Systems in the United States and Canada, American Transit Association, September 1973.

Secretary of Transportation, A Statement of National Transportation Policy, September 1975, Washington, D. C.

Shellow, Robert, et al., Improvement of Mass Transit Security in Chicago, Transportation Research Institute and Urban Systems Institute, Carnegie-Mellon University, June 30, 1973.

Shellow, Robert, James P. Romualdi, and Eugene W. Bartel, "Crime in Rapid Transit Systems: An Analysis and Recommended Security and Surveillance System," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 437, 1974.

Southern California Association of Governments, Transit Safety and Security - A Design Framework, April 1976.

Stanford Research Institute and the University of California, Reduction of Robberies and Assaults of Bus Drivers - Volume I: Summary and Conclusions, April 1970.

Thrasher, Edward J. and John B. Schnell, "Scope of Crime and Vandalism on Urban Transit Systems," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974.

Thrasher, Edward J. and John B. Schnell, "Studies of Public Attitudes Toward Transit Crime and Vandalism," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974.

Thrasher, Edward J. and John B. Schnell, "Summary Report on Vandalism and Passenger Security in the Transit Industry," Crime and Vandalism in Public Transportation, Transportation Research Board, No. 487, 1974.

Transit Fact Book, American Public Transit Association, 1975-1976 Edition, March 1976.

Transportation Research Board, National Research Council, Newsline, Current Research in Public Transportation Development, Vol. 2, No. 7, August 1976.

Transportation Research Institute, Security of Patrons on Urban Public Transportation Systems, Carnegie-Mellon University, 1975.

Treaster, Joseph B., "Police Decoy-Victim Strategy Takes to Subways," New York Times, January 7, 1976.

Williams, E. M. et al., Control of Mass Transit Vandalism and Other Crime, prepared for the Fifth International Conference on Urban Transportation, Pittsburgh, September 8-10, 1971.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1979 O—311-170 (1967)

END