

# Perception and Incidence of Crime on Public Transit in Small Systems in the Southeast

JULIAN M. BENJAMIN, DAVID T. HARTGEN, TIM W. OWENS, AND MALCOLM L. HARDIMAN

The initial report of a set of studies undertaken in small cities in the Southeast included questions to police departments and transit agencies in the region and a set of personal interviews with drivers, passengers, and nearby residents of the public transit system in Greensboro, North Carolina. The results indicate little violent crime on transit with varying perceptions of safety depending on the gender and race of the subjects, yet residents perceive the system as being unsafe. It is recommended that transit security focus on means of countering such perceptions.

The problem of crime is a key element in the decision by urban residents to use public transit. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) contains a number of provisions relating to transit security and crime. The focus of these sections is on identifying and removing situations that contribute to an unsafe or insecure transit system. The importance of security is emphasized by Section 3013 of ISTEA, which requires transit operators to "expend not less than 1 percent of funds received . . . for transit security projects." These projects are defined as "increasing lighting within or adjacent to transit systems . . . increasing camera surveillance . . . providing emergency telephone lines . . . or other projects intended to increase the security and safety of existing or planned transit systems." This paper investigates the incidence of criminal offenses on a transit system in a small Southeastern city and the perception of crime of transit users and potential users.

## PRIOR STUDIES

Concern about the relationship between crime and personal safety and the use of public transit is not a new issue. Several papers on the topic focus on fear of crime as a deterrent to use, driver safety, station design to reduce crime, legislative actions, and police and staffing issues. Most published literature deals with systems in large cities, usually subways, but there is no information on small bus systems.

## Public Opinion Studies

A number of studies examine the perceptions and opinions of urban residents toward crime and personal safety on transit. Paine

et al. found that personal security was the top item of 33 variables that influenced the use of transit in Philadelphia (1). Hartgen, in analyzing these data, concluded that personal safety and security was a key overlooked predictor of travel behavior (2). Thrasher and Schnell show that the security problem was widespread and the risk of being a crime victim was estimated to be twice as large as in a nontransit situation (3). Shellow et al. report an evaluation of a demonstration of electronic security systems for rapid transit (4). Sinha and Roemer examine perceptions of crime on the Milwaukee bus system and relate them to other factors influencing travel behavior such as travel time and fare (5). Koppelman and Pas identify "psychological comfort" as a significant predictor of mode choice (6), and Benjamin and Sen found that 9 of 23 studies identified security to be an important factor (7).

More recently, Levine and Wachs conducted a survey of households to measure the incidence of bus crime in Los Angeles (8). They report that "the incidence is 20 to 30 times greater than Southern California Rapid Transit District reports indicate." In the study they focus on three high-crime stops. Certain population segments appear to be particularly vulnerable to transit crime, including the elderly (9) and women (10).

Most recently, in an unpublished report, the Metropolitan Atlanta Rapid Transit Authority (MARTA) surveyed Atlanta transit riders and asked their opinions and perceptions about safety on the transit system. It found that 61 percent of the respondents agreed with the statement "I would ride MARTA more if I felt safer."

## Studies of Proposed Countermeasures

Many studies review countermeasures for crime. Most of the published studies examine countermeasures at subway stations (4,11). Hoel discusses countermeasures on bus transit and classifies them into measures that can be taken inside vehicles (i.e., alarms and radios) and measures that can be taken at bus stops (i.e., lighting) (12). Wachs and Pearlstein point out that countermeasures for rapid transit and inside buses are well understood, but that "the physical environment of public transportation is so extensive and varied that it cannot be made secure without meticulous attention to the larger human environment of which it is a part" (13). In their report, they recommend individual design of bus stops and nearby areas to create a setting that discourages crime. Levine et al. discuss environmental effects of bus stops on the incidence of crime and recommend specific countermeasures (14), and Balog et al. suggest a comprehensive approach (15).

J. M. Benjamin and M. L. Hardiman, Economics Department, North Carolina A&T State University, Greensboro, N.C. 27411. D. T. Hartgen and T. W. Owens, Department of Geography and Earth Sciences, University of North Carolina at Charlotte, Charlotte, N.C. 28223.

## STUDY DESIGN

To understand personal security, it is first necessary to identify criminal offenses. Most law enforcement agencies use the Uniform Crime Reporting System to define and classify offenses. The FBI divides offenses into two groups: Group A crimes are more severe and include assault, burglary, drugs and narcotics, murder, and larceny; Group B includes disorderly conduct, drunkenness, and trespassing (1).

This study was designed to estimate the incidence of criminal offenses on or related to bus transit systems in small urban areas of the Southeast. Since there was no one reliable source of information on the "true" level of criminal activity, it was decided to use a combination of sources to first find an estimate of the incidence and then compare results from the various sources. Finally, responses were obtained to assess countermeasures for serious crime problems that are identified earlier. Thus, information was gathered from five sources: local police, transit agency, drivers, passengers, and urban residents who lived near bus routes. Information from the first four sources provided an estimate of crime from different perspectives. Information from the last source was a perception of crime from people who had no direct experience with the transit system. Each study was completed with a different sample of people.

### Agency Studies

City police and transit managers were contacted to gain a perspective on what information on criminal offenses near or on transit was recorded by these agencies in their communities. The survey was conducted in two stages in 21 communities in the Southeast region (FHWA Region 4). In the first stage, the 21 community agencies were contacted to find what information (if any) was available on transit crime. In the second stage, police departments and transit agencies were contacted with specific questions on criminal offenses near or on transit.

Only the Greensboro Police Department was contacted because the other departments indicated that they did not classify the location of crimes as being near or on transit. The only other city to report crimes on or near transit was Orlando, Florida. The transit agency questionnaire consisted of detailed questions on countermeasures, on criminal offenses reported on or near the transit system, and on opinions concerning agency policies. Questionnaires were submitted to the 21 transit agencies that were contacted, and eight were returned.

### Personal Studies

Greensboro, North Carolina, was chosen because it is a typical size for a city located in the Southeast (approximately 200,000 population), it has a public transit system, and the personnel at the transit authority indicated a willingness to cooperate fully with the study. The personal studies included the studies of residents, passengers, and bus drivers.

The first step in preparing the personal studies was to conduct focus groups. Three focus groups were held, one in Charlotte and two in Greensboro. At each session residents were asked to express their feelings about and reasons for choices about traveling on transit. Focus group procedures are often open-ended, but since

the authors were unwilling to predetermine whether safety would even be an issue, the authors adopted a more guided group discussion known as nominal group process. The results of these focus group sessions were used as the basis for the development of the other individual questionnaires.

Questions for the residents, passengers, and drivers were worded to enable comparisons within sociodemographic groups and between the study groups. All of the surveys were completed during spring 1993.

### Resident Study

The study of residents of Greensboro was a telephone survey. The telephone numbers were found by random digit dialing using telephone number prefixes for areas that were along the routes of the bus system. Five hundred people answered the questionnaire.

The survey instrument consisted of questions on criminal behaviors observed by each resident, precautions taken during travel, and opinions on personal security while traveling. Major parts of the questionnaire referred to a specific list of crimes and asked if they were "a problem in your neighborhood," "a problem around bus areas," "a problem on the Greensboro buses," or criminal behaviors that "you have personally experienced." Then a list of locations in the city was presented and respondents were asked if they would feel very safe, somewhat safe, somewhat unsafe, or very unsafe. Next, respondents were presented a list of security problems while traveling and asked if they avoided them. The final set of attitudes was found by asking how often they would use the bus if each one of a list of service improvements was made. The improvements included operating characteristics such as lower bus fares and safety features such as better street lighting at bus stops.

### Passenger Study

The questions were similar to the questions that were asked of the residents. They consisted of questions about the mode of travel, frequent trip purposes, criminal offenses that were observed while traveling by different modes, attitudes toward safety while traveling, travel precautions, and recommended countermeasures. Questionnaires were administered in a personal interview format of passengers at bus stops throughout the city. There were 392 passengers who answered the questionnaires; 319 of these proved to be complete enough to use.

### Bus Driver Study

The bus driver study consisted of a questionnaire that was completed by each of 33 drivers during interviews on break. There are 40 full-time drivers and 15 part-time drivers on the system. Drivers were contacted on three separate days, and all drivers who were contacted completed the questionnaires.

The questionnaire was similar to the others and consisted of questions on criminal offenses that were witnessed by the drivers and opinions on precautions taken by people as they travel and on recommended countermeasures.

## INITIAL STUDY RESULTS

### Agency Studies

At the request of the authors, the Greensboro Police Department completed a report of offenses committed on or near public transit. There was one Group A offense reported (aggravated assault) at a bus stop and one Group B offense (misdemeanor breaking and entering). Police department personnel indicated that there was a lack of confidence in the small number of incidents reported because officers usually identify locations by intersections.

The transit agency questionnaires indicated a varying level of criminal offenses at different urban areas. The largest reported offense was assault, which was reported 21 times in one of the properties. In another property, theft was reported 18 times during the past year. For most offenses and properties there were no reported incidents of Group A crimes, and in the few instances in which crime was reported, the crimes were less than three incidents for the year. In Greensboro, no crimes were reported to the transit authority or the management firm (ATE Management). The variation in criminal offenses between the different urban areas may be a reflection of different urban environments or different crime reporting systems.

### Personal Studies

Table 1 presents a summary of the backgrounds of the three of the subjects in the three surveys. These backgrounds differed,

**TABLE 1 Comparison of Respondent Background for Three Surveys**

Background	Resident	Passenger	Driver
Sample Size	500	319	31
Percent African American	22	86	81
Percent Female	57	63	19
Mean Age	40	37	42

making it possible to contrast the perceptions and opinions of the three groups. The residents were 63 percent female and 22 percent African American, the bus passengers were 57 percent female and 86 percent African American, and the bus drivers were 19 percent female and 81 percent African American. Most household sizes ranged from 1 to 4. Eight percent of the respondents indicated that they never used transit, and only 2.6 percent indicated that they used transit more than once a week.

Of the residents who rode the bus, the most frequent answer as to why was "no other means of transportation" (45 percent). Most people said that they did not ride the bus because they owned an automobile. As expected, most of the bus passengers rode the bus to work (31.7 percent).

### Perception of Crime Near Transit

The respondents for each survey were asked about their perceptions of crime on or near transit. Results are given in Table 2. For the residents who responded when asked about offenses in bus areas, the offenses receiving a "yes" response most frequently were obscene language (27 percent), disorderly conduct (23.2 percent), panhandling and begging (23.5 percent), and drunkenness and vandalism (18.4 percent). Violent crimes were indicated in 8.1 percent of the responses. Of these respondents, 74 indicated they had experienced some offense firsthand.

The majority of bus passengers did not report any offenses as problems on the bus. The offenses that were reported most frequently were disorderly conduct (22.7 percent) and drunkenness (16.6 percent).

For the drivers, the most frequently reported offenses were obscene language and drunkenness, which were seen by 81.3 percent of the drivers. The most serious crimes were drug use or sales, which were witnessed by 25.8 percent of the drivers on their buses. No drivers reported violent crimes such as assault, murder, or robbery.

In summary, only a small percentage of residents perceived crime on transit as a problem, and the bus passengers and drivers indicated that there is little or no serious crime on transit. Despite this, the passengers and drivers say that there is a problem with Group B offenses such as obscene language and disorderly conduct.

**TABLE 2 Percentage Finding Offenses a Problem near Bus System**

Offense	Responses (%)		
	Residents	Passengers	Drivers
Obscene language or disorderly conduct	5.3	22.7	81.3
Panhandling/begging	2.4	9.4	50.0
Drunkenness	4.2	16.6	81.3
Vandalism	0.0	6.5	9.4
Verbal or physical threats	1.8	5.5	48.4
Drug use/sales	4.0	4.9	25.8
Robbery	1.7	3.9	0.0
Violent crime such as assault or murder	0.0	3.4	0.0

### Perception of Safety

The respondents for each survey were asked about their perceptions of safety on or near transit. Results are presented in Table 3. The situations that people perceived as unsafe most frequently were waiting for the bus downtown (46.8 percent), waiting at a bus stop downtown (47.7 percent), walking downtown (40.1 percent), walking in a park (37.3 percent), and transferring at the proposed bus terminal at the Depot (44.7 percent). (The Depot is the old Southern Railroad train station that has been restored as a meeting center and is located in the southeast corner of the central business district. It currently serves no function as a transportation facility but it has been proposed as a transfer terminal for all transit routes as well as a station for intercity rail and bus passengers.) There was also the feeling that suburban environments were unsafe, including shopping in a suburban mall (30.0 percent), waiting at a bus stop in the Greensboro suburbs (32.4 percent), and walking to catch the bus in the suburbs (32.2 percent). In fact, the only environment that was widely seen as safe was home (97.2 percent).

For the bus passengers, 90 percent of the respondents felt very safe waiting at a bus stop in downtown, walking in downtown Greensboro, and transferring at the proposed bus terminal at the Depot. Surprisingly, when these same respondents were asked how they felt about the suburbs, 15.1 percent thought that these areas were somewhat unsafe and 4.1 percent perceived them as very unsafe. Of these respondents, 29 indicated at least one route that was unsafe.

For the bus drivers, overall, 90 percent agreed that passengers believe that traveling by transit was very safe or somewhat safe. However, a small percentage indicated that travel in the suburbs was unsafe for their riders.

### Personal Experience with Crime

The respondents for each survey were asked about their personal experience with crime on or near transit. Results are presented in Table 4. Of the residents, 74 indicated that they had experienced some offense firsthand, and 29 of these (5.8 percent) indicated that they had experienced robbery. Only 40 of the passengers indicated experiencing any of the offenses firsthand.

### Precautions While Traveling

Each group was asked about the precautions that they take while traveling. The precautions that people used most often were avoiding strange-looking people (80.2 percent), travel after dark (56.7 percent), and groups of teenagers (54.2 percent). The precaution of avoiding people of a different race was given by 15.6 percent of the respondents. For the bus passengers, three precautions were most frequently cited: avoiding travel after dark (41 percent), strange-looking people (40.8 percent), and drunken people (33.8 percent). The precautions that most of the drivers observed their passengers taking were avoiding travel after dark and avoiding

TABLE 3 Percentage Rating Environments Unsafe

Environment	Responses (%)		
	Residents	Passengers	Drivers
Waiting at a Bus Stop in Downtown	37.7	8.0	9.3
Walking in Downtown	40.1	8.4	9.3
Transferring at the Depot	34.7	9.5	6.3
Walking in the Suburbs	32.4	19.2	18.8

TABLE 4 Offenses Experienced near Transit System and in City

Offense	Responses (%)			
	Residents		Passengers	
	Transit	Citywide	Transit	Citywide
Obscene language or disorderly conduct	0.40	2.83	1.07	5.90
Panhandling/begging	0.20	2.63	0.80	2.41
Drunkness	0.40	1.41	0.54	4.56
Vandalism	0.00	4.44	0.00	1.07
Verbal or physical threats	0.20	2.22	0.00	1.61
Drug use/sales	0.40	1.01	0.27	1.61
Robbery	0.20	6.06	0.00	1.34
Violent crime such as assault or murder	0.00	0.40	0.00	0.27

**TABLE 5** Percentage of Responses by Survey (Bus Passenger versus Residents)

Question (race or gender of respondents)	Responses (%)		
	Resident	Passenger	z statistic
Very Safe Waiting Downtown (White)	6	57	8.67
Very Safe Waiting Downtown (Black)	7	47	6.42
Precaution Travelling Alone (Females)	63	27	6.82
Precaution Travelling After Dark (Females)	70	39	5.91

travel alone. The drivers also observed that passengers avoided drunken and strange-looking people.

### *Suggested Improvements*

Improvements that would encourage more regular use of buses were mostly operational changes, but at least some additional bus use was indicated by 20.8 percent of the subjects with improved lighting at bus stops. The improvement that was most frequently recommended by the drivers was lighting at the downtown terminal, at neighborhood stops, and on neighborhood streets. Most drivers also agreed with the idea of security personnel at the downtown terminal. The idea that was most frequently suggested in an open-ended question was the addition of a public telephone at each of the downtown terminals.

### *Comparison of Responses by Gender and Race*

The responses for each question were cross-tabulated with gender and race for each question in all three studies. In general, chi-square statistics were not significant at the 5 percent level for these cross-tabulations of responses for gender and race. However, cross-tabulation by survey indicated significant differences in the proportion of answers. This is indicated in Table 5. Statistics are reported for the proportion that answered positively to the response variable by race or gender in each survey group. In each case, there is a significant difference in the proportion of respondents answering these questions who are either bus passengers or residents.

In contrast, when the survey groups are divided by race or gender, in each case the proportions of respondents answering each question were not significantly different. These results are confirmed by a more detailed analysis by of the interaction of gender and race. In almost all cross-tabulations, the relationship between the interaction term and the response variable was not significant. A significant relationship was found in only a few cases such as the sense of safety by residents while walking to catch the bus downtown (chi-square = 27.8, df = 9) and the precaution by residents of not traveling alone (chi-square = 68, df = 3).

## **CONCLUSIONS**

There are three important aspects to the research: first, a picture of the "true" level of crime on transit; second, the perception of

personal safety on transit; and third, the countermeasures that should be implemented to reduce one or both of these.

### **"True" Level of Crime**

The perceptions of the drivers and riders that there is a general lack of violent (Group A) crimes on transit is consistent with police records and reports by the transit authority. In fact, although a small percentage saw crimes in lesser categories as a problem, only a handful of riders reported personally experiencing any offenses at all in any category.

As an example, 1.7 percent of the residents perceived robbery to be a problem, but only 0.2 percent of the residents and none of the passengers or drivers reported experience with robbery near transit, and the police department and the transit agency had no record of any robbery associated with transit.

The largest number of passengers to say that they had personally experienced a crime were the four subjects who had experienced panhandling. There were fewer responses in the other categories. This is confirmed by the resident survey, where the largest frequencies to experience any crime in any category during the past 2 years related to traveling on transit were the two subjects who reported experiencing panhandling and obscene language and the person who reported personally experiencing a robbery.

Using all of the surveys together, there is close to no violent crime on transit in Greensboro. The lack of violent crime on transit compares favorably to the 0.40 percent reported in the resident survey for Greensboro overall.

### **Perception of Crime**

Despite the low level of crime of any kind reported on the transit system, almost half of the residents of the community express a fear about traveling by transit or walking in the downtown area. Those who have direct experience do not express that same fear. Perhaps even more worrisome is the overall unsafe feelings that are expressed for all settings by the residents. Within this milieu, it would be difficult to eliminate all fear just by improving transit safety.

The pictures of travel in Greensboro are drawn by the three different populations. The drivers and riders paint a safe picture of riding transit and traveling downtown with no experience with violent crime. These same subjects demonstrate the largest fear of traveling in the suburbs. The nonusers of transit appear most fearful, particularly of traveling downtown. On closer examination, these feelings are generally explained not by gender or race but

by experience traveling on transit. Those who have experienced traveling downtown on transit perceive travel to be safe.

### Countermeasures for Criminal Offenses Near Transit

The countermeasures must be threefold:

1. To create environments on or near transit that provide the perception of safety,
2. To conduct a campaign to educate people about the safety of public transit, and
3. To develop economic incentives and system performance levels that will entice people to experience the level of safety firsthand.

The physical countermeasures are a set of measures related to recommendations by Pearlstein and Wachs (13). However, since there is no crime to speak of, the measures must be aimed at creating the perception of safety. More and better lighting, police and security surveillance, and the addition of telephones at the terminals all seem appropriate.

An educational campaign should emphasize how safe the transit system already is: both the actual statistics and the feeling of safety of current riders. An additional point is that transit is much safer overall than automobiles, which are responsible for serious injuries and fatalities from accidents every day.

An additional analysis will be required to recommend specific actions that would attract people to at least try transit firsthand.

Further detailed analysis of these surveys will clarify these findings. In many ways Greensboro is a typical small city in the region, and these findings are likely to apply elsewhere.

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