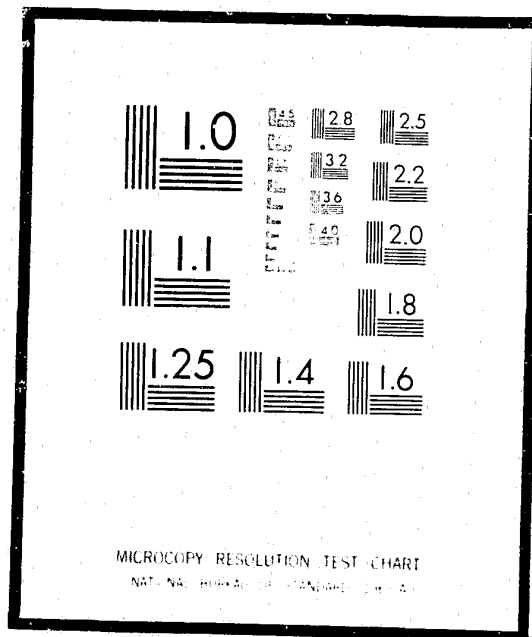


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## ARSON, VANDALISM AND VIOLENCE: LAW ENFORCEMENT PROBLEMS AFFECTING FIRE DEPARTMENTS

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March 1974

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## FOREWORD

Any violation of the law in conjunction with a fire is not simply a fire department problem, but a law enforcement problem as well.

In this study the Stanford Research Institute assessed five such problem areas: arson, group violence and civil disorders, individual acts of harrassment, bombings and false alarms. While the incidence of dramatic confrontations between fire fighters and hostile mobs has diminished from the peak reached in the 1960's, the study found that individual, surreptitious types of behavior--particularly arson and false alarms--have risen dramatically.

Arson rates are the most ominous--rising faster than most types of crime. The National Fire Protection Association estimated that 72,000 incendiary fires were set in 1971--more than 13 times as many as in 1950. Arson losses in 1971 reached \$233 million, and now account for 10 to 30 percent or more of all building fire losses.

While the researchers believe that losses of this magnitude make arson a major property crime, they consider current enforcement efforts "severely inadequate in comparison with enforcement efforts for other types of crime." One cause, they suggest, is that "both police and fire departments tend to feel the other should assume responsibility." Increased coordination, joint planning between police and fire agencies and specialized investigation units are considered essential to cope effectively with the problem.

While the authors conclude that "except for arson, violence behavior is not an unmanageable burden for fire departments at the present time," the report offers planning suggestions to alleviate each of the problems discussed. It contends that effective solutions require cooperation at the agency, municipal and state level and recommends a Federal role in sponsoring training and information clearinghouses.

This study is the first national analysis of the extent of violence behavior against public safety agencies since 1968. The Institute believes it raises law enforcement issues of importance to criminal justice administrators.

Gerald M. Caplan  
Director  
National Institute of Law Enforcement  
and Criminal Justice

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The number and distinction of those people who have contributed to this project is unusually great; we hope that this fact shows in the quality of our product.

At the working level, there have been three project leaders. Thomas L. Lalley initiated the project, designed the questionnaire, and supervised its pretest and final distribution, in addition to making a great many of the field contacts and collecting vast quantities of literature. He left the project and SRI in May 1972 to join the Center for Studies on Crime and Delinquency of the National Institute of Mental Health. Dr. Irving Wallach succeeded him, supervising the collection, coding, and key punching of the questionnaire results before leaving SRI in July to join the New York Criminal Justice Planning Commission. The author of this report, Dr. Kendall Moll, formulated the computer outputs and other aspects of the analysis, and participated in several of the project field visits.

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Portland, Oregon, Fire Department: Chief James Riopelle, Asst.  
Chief Peter Leineweber, Chief Investigator John Farber.

San Francisco Fire Department: Chief Keith P. Calden, Deputy Chief  
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Takoma Park, Maryland, Fire Department: Chief Stephen Lascola.

Torrance, California, Fire Department: Fire Investigator Kenneth  
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Seattle Fire Department: Chief Gordon F. Vickery, Asst. Chief Frank  
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York, Pennsylvania, Fire Department: Chief Robert W. Little, Jr.,  
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## I INTRODUCTION AND CONCLUSIONS

### Background

In 1968 the National Advisory Commission on Civil Disorders noted that for effective control of civil disorders, planning must include the three basic agencies of police, fire, and the courts. Since that time, police and fire departments have developed a variety of working arrangements, but the attention of law enforcement planners has necessarily centered on police as the agency with the greatest operational responsibility for civil disturbances.

Law enforcement planners have now reached the point where they can use improved knowledge of how violence affects fire departments. These violence problems are of concern to law enforcement planners in that they not only involve criminal violations of the law but also may pose serious difficulties for police and firemen in the future. In addition, knowledge of various ways in which fire departments have been coping with these violence problems can yield information on patterns of interaction between police and fire departments that are needed for violence prevention and management programs. Since 1968 no report of national scope has analyzed the experiences and extent of police and fire department programs responding to civil disorders. This study is the first to do so.

### Objectives

This report describes results that pertain to the following project areas:

- (1) A comprehensive statistical data base on the national incidence of violence problems as they have affected fire departments in the period from 1968 through 1971. The report covers (a) acts of physical violence against fire departments during riots and civil disorders; (b) isolated acts of harassment directed against fire department personnel, equipment, and facilities; (c) bomb threats and bomb incidents; and (d) building fires attributed to arson and suspected arson. After the project was started, false alarms (a fifth problem related to violence behavior) were added because of their increasing prominence. These problems are discussed individually in the following five chapters.



- (2) Additional data on policies, programs, methods, and techniques developed by fire departments in response to the five violence problems.
- (3) Operational findings from project visits to those cities in which it is evident that fire departments and police have achieved an unusually high degree of effectiveness and cooperation in coping with violence problems.
- (4) Implications of the data and other findings for violence prevention and management programs, including systems for the protection of firemen.
- (5) Implications of data and other findings to improve police equipment and techniques for assisting and protecting firemen in violence situations.

The intent of the study is not to suggest general changes in the criminal justice system or to participate in the development of such changes. Its purpose is rather to find specific needs for changes in local, state, or federal government programs that deal with violence problems affecting fire departments.

#### Approach

This study is based primarily on the results of a survey of fire departments located mainly in metropolitan areas throughout the United States. The methodology and accuracy of the survey are discussed in Appendix A.

Initially, questions were formulated about the nature and frequency of violence problems, and about programs of the local fire and police departments for dealing with them. The questions were pretested in mid-1971 and, after revision and approval, a revised final questionnaire was distributed in March 1972 to a selected list of approximately 1,000 fire departments that had encountered violence problems or that were considered representative of various types of fire districts. The final questionnaire is reproduced in Appendix B. Responses to the questionnaire were received from over 80 percent of the sample cities with over 100,000 population and from about 40 percent of the cities with under 100,000--a total return of approximately 500.

Upon their return, the questionnaire data were processed on a computer and a large number of tables were generated showing results

classified by district population, metropolitan area size, central city versus suburban character, and geographical location. These operations are described in Appendix C, and condensed versions of the tables themselves are shown in Appendix D. In addition, the project staff and consultants carried out field visits throughout the course of the study in order to obtain firsthand opinions of fire officials and other experts concerned with the violence problem. Numerous documents collected by the staff or returned with questionnaires by many of the fire departments were also used as information sources. All of these inputs were analyzed to derive the conclusions that are reported below.

#### Conclusions

A study of violence problems involves a cross section of nearly all the social influences affecting fire and police departments today. The data make clear, for example, that while group violence such as civil disorders, open harassment, and organized bombings have reached their peaks, the more individual, surreptitious types of behavior such as arson and false alarms are still rising. The central cities remain the most intense trouble spots, but rates are generally rising more rapidly in outlying suburbs.

Except for arson, violence behavior is not an unmanageable burden to fire departments at the present time. When measured in terms of property losses (i.e., the percentage of total building fire losses due to violence behavior), the burden is greater than when measured in terms of human losses (the percentage of total fire department injuries caused by violence behavior), but neither measure is very large. This study estimates that the combined losses of public disorders and harassment were only about five percent of all building fire losses in 1967, and that such losses have declined substantially since. The combined fire and nonfire costs of bomb incidents are approximately one percent of all building fire losses. False alarm costs are on the order of five percent of the costs of building fires, and could be substantially reduced if the necessary policy decisions and equipment investments were made. The costs of bomb threats were not calculated, but since their frequency is only one-tenth to one-fiftieth as great as that of false alarms, their costs are unlikely to be as great as one percent of all building fire costs.

Arson losses, in contrast, account for at least ten percent, and possibly 30 percent or more, of all building fire losses--greater than all the other costs of violence combined. Furthermore, arson rates are rising faster than other types of fires, and faster even than most types

of crime. Current enforcement efforts are severely inadequate in comparison with enforcement efforts for other types of crime.

The frequency of violence behavior is quite volatile and variable from urban to suburban areas, indicating that the major factors in violence trends are social and demographic in nature, rather than the result of public safety policies. As such, they can flare up to serious levels at unpredictable times and places. Several policies--some technical, some operational and some social--do have noticeable influences on violence behavior. Over time, successful implementation of these policies should aid greatly in making the violence problems studied more manageable.

#### Fire Department Policies

The pervading conclusion concerning fire departments is that they have been more successful in adapting their internal operations to violence problems than they have in coordinating their activities with the police and other civic agencies. This conclusion applies to civil disorder operations, to bomb incident situations, to arson investigation, and to false alarm enforcement. In all of these areas, a more systematic approach by fire services to their own responsibilities, better inter-service agreement on roles and missions, and improved day-to-day communications are needed.

The need is not only to establish goodwill and to work more closely with other organizations; it is, perhaps, even more fundamental that fire departments be adaptive to changing functional demands brought on by changing social conditions. The fire services need to define their roles more effectively within the overall public safety system, recognizing that to adequately control disorders, respond to bomb situations, and enforce arson and false alarm laws will require that existing organizational gaps be filled. Failure to fill these gaps (whether by fire, police, or other agency) can only result in a degradation of the fire service's traditional role of preventing and suppressing fires.

Also, violence behavior directed against fire departments is only one symptom of social changes that are bringing a widespread breakdown of the historically close bonds between fire services and the general public. This problem was emphasized in the report of the 1970 Williamsburg Conference of National Fire Service Organizations, but the fundamental causes and solutions remain controversial. The present study indicates that community relations programs, which are most common in the bigger cities, can help somewhat but are no cure-all. Racial integration of personnel in the fire services will help, particularly in the central

cities, where the problem is most extreme. The need for integration has not yet been met in practice by most departments, even though it is most probably a factor in harassment as well as in public indifference, and is rapidly becoming more serious.

The potential benefits of various technical and operational solutions to specific violence problems, such as covering vehicle cabs to guard against harassment or curtailing vehicle responses to reduce false alarms, are generally well recognized by the specialists concerned. Failures to adopt technical and operational innovations are based partly on operational requirements, cost constraints, and other local considerations. In other cases, however, delays in adoption seem due either to a lack of receptivity to required innovations or to a lack of awareness of innovations, such as scientific detection and analytical methods that are not closely related to traditional fire department functions.

#### Police Department Policies

The main conclusion of this study for police departments is exactly the same as that for fire departments: interservice coordination is lacking in those violence problems such as disorders and bombings where special operational relationships have to be established, and in enforcement problems such as arson and false alarms, where both services have an obligation to participate in the solution. Even in operational and technical questions, such as procedures to use in bomb incidents and the "911" telephone alarm system, coordination seems to present a major difficulty.

Police are equally responsible with fire departments in seeing that any gaps in coverage of these functions be filled, or (more rarely), that overlaps be eliminated.

#### Local and State Government Policies

Higher officials of state and local government who oversee both police and fire functions are sometimes the people best able to promote inter-service cooperation. Special efforts by individuals such as city managers can be highly useful in monitoring and encouraging fire and police coordination. The task of providing adequate resources and coordination for improving arson investigations is of special importance. And investigation, nationwide, is grossly deficient in applied effort, whether measured in terms of fire prevention results or in crime convictions. State fire marshals can take a leading role in improving this

function. Judicial attention also seems deficient in spite of the rapid rise in arson crimes and their very low conviction record; closer coordination between fire and judicial officials will be needed.

#### Federal Government Policies

The Federal Government has been and could be of further value to local officials concerned with violence by providing specialized training courses, such as for bomb disposal and arson investigation techniques. Statistical information and other intelligence data on such questions as fire safety and fire investigation are also widely recommended for federal support.

Appendix A of this report suggests an additional useful technical information function that could be performed at minimal cost. Much fire information, such as that gathered for this report, is most suitable for collection by sample survey. However, the existing methodology for survey sampling has not yet been effectively applied in general to fire service problems. The surveys that have been made suffer from duplication as well as unreliability. A central clearing house for survey as well as statistical information could be of great help to those planners concerned with fire service data. Such a facility could particularly improve the quality of information on violence and other types of phenomena that overlap between the interests of fire and other services such as police.

## II INCENDIARY FIRES

### Problems

Only a small shading separates incendiary fires from incendiary bombings in the scale of violence, but incendiary fires are orders of magnitude more serious in the scale of frequency. These differences can be seen by comparing the incidence of incendiary fires with those of bombings and total fires.

### Incendiary Statistics

Whereas the National Bomb Data Center reported less than 1,000 incendiary bombings (and even fewer explosive bombings) in the one year period from July 1970 to June 1971, the National Fire Protection Association estimates that there were 72,000 incendiary fires in 1971. This represents over seven percent of the total number of fires in the United States, and damage from incendiary fires--\$233 million--represents over ten percent of the total fire damage. The magnitude of incendiary fire losses makes them one of the major property crimes; more serious for example, than all robberies or the net losses from all auto theft (Ref. 44, Tables 19 and 20)\*.

Even more ominous is the fact that incendiary fires are consistently increasing much more rapidly than total fires, and also more rapidly than the average increase of major crimes (Ref. 44, Table 26). NFPA data indicate that in 1971 there were three times as many incendiary fires as in 1960, and more than 13 times as many as in 1950 (Ref. 45). Inasmuch as the population in 1971 was only a multiple of 1.4 times the 1950 and 1.15 times the 1960 populations, population gains can account for only a small part of the increase in incendiary fires. Roughly, incendiary rates based on population are up by a factor of three since 1960, and by a factor of ten since 1950.

Changes of this magnitude are not likely to be due simply to statistical improvements resulting from modified investigation techniques and increased reporting of incendiary fires, as is sometimes suggested. In fact, other factors are working in the opposite direction. For example, some authorities have found that schools no longer report all student-set fires because of administrative accommodations to disciplinary problems.

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\*References are listed at the end of this report.

Overall, reporting conditions are probably fairly consistent over time. To illustrate, the San Francisco Fire Investigation Bureau has observed that its incendiary fires are up by a factor of ten during the past 16 years at a time when the population has been declining slightly and the same size investigation squad (including mostly the same individuals) was operating with generally consistent techniques.

Figure 1 shows the rates of rise since 1968 of incendiary fires and of all building fires, as derived from SRI and NFPA data. It shows the rate of incendiary fires rising with a fairly steady trend of about ten percent per year in the United States as a whole and in suburbs of metropolitan areas. Central city rates, although almost twice as high as the other two, are rising at only about three percent per year. However, the gains in all three incendiary rates are considerably higher than increases in the rates for total fires, which declined slightly in the United States as a whole and in central cities, and rose at only about two percent per year in the suburbs.

The SRI data were taken from Tables 5, 16, and 17. Calculated rates were adjusted for the percentage response to each question. However, the indicated rates of increase in suburbs are probably too high by one and one-half percent or more per year, because the 1970 Census population data from Table 5 does not account for growth over the four-year period. (This overestimate also applies to Figures 2, 4, and 5). Central city rates were also calculated from the 1970 population base, but the resultant errors will be negligible since population of the central cities has remained almost constant in recent years. For the total United States, separate population estimates of 197.0 million in 1968, 200.0 million in 1969, 203.2 million in 1970, and 206.7 million in 1971 were used.

In any event, incendiary fire statistics are more uncertain than most other fire statistics. The true incendiary rate is unknown, but indirect evidence indicates that it is probably much larger than shown. For example, an analysis of monthly fire losses in Boston several years ago showed that business depressions of only three to four percent were correlated with increases in fire losses of from 40 to 180 percent (Ref. 11, p. 272). Some experts believe that incendiary fires represent from 20 to 25 percent of all fires and from 30 to 50 percent of all losses; that is, about three times as high as the published statistics show (Ref. 46). A large fraction of fires of unknown cause may be incendiary, and the causes of other fires are misidentified in many cases.

Fires of unknown cause in the United States accounted for a frequency of 805 fires per million population in 1971, according to NFPA data. If all of these incidents are added to the frequency of known incendiary

\* All tables referred to in this report may be found in Appendix D. The questions on which the tables are based appear in Appendix B and have corresponding numbers.

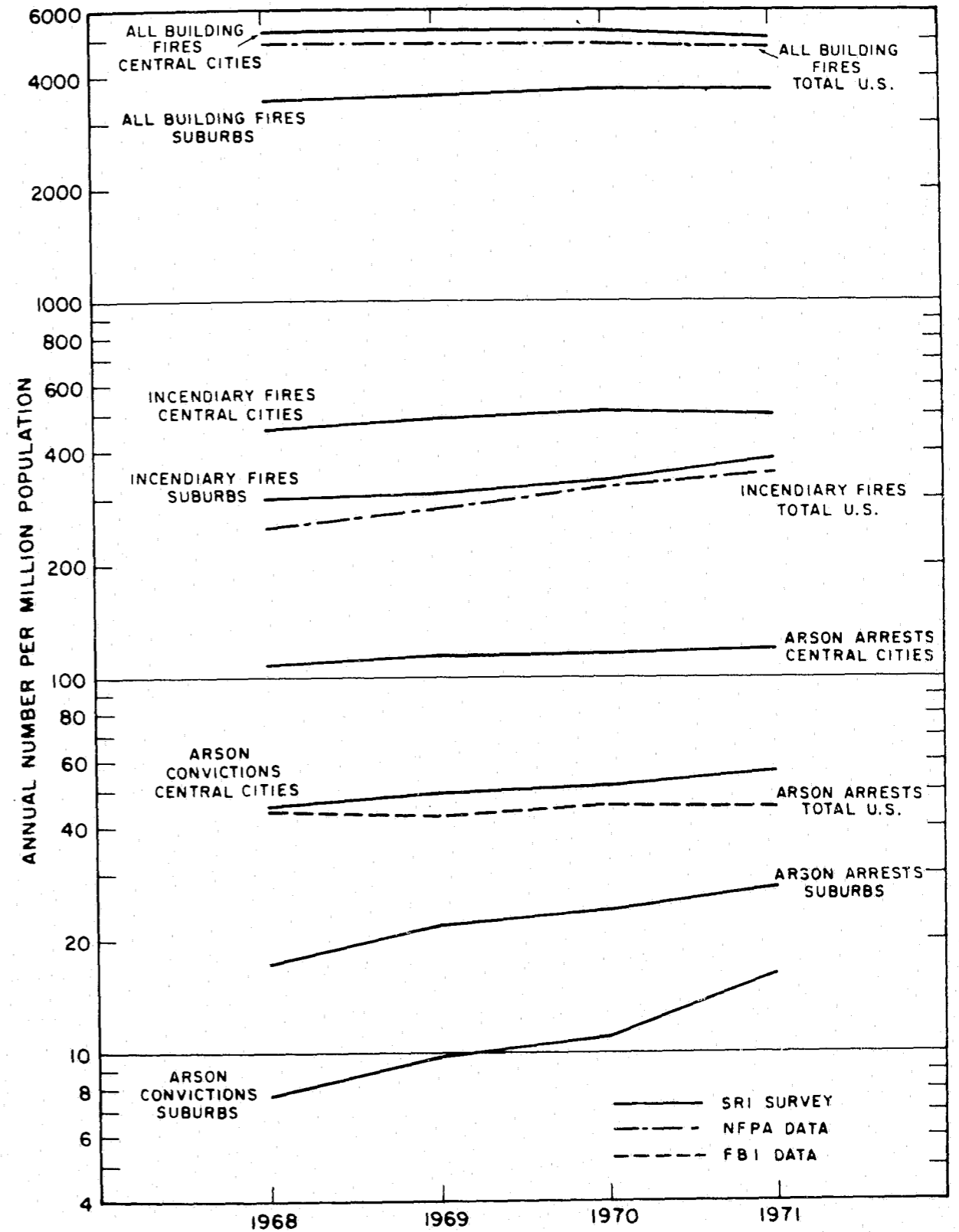


FIGURE 1 RATES OF BUILDING FIRES, INCENDIARY FIRES, ARSON ARRESTS, AND ARSON CONVICTIONS

fires the total frequency, 1,155 per million, accounts for almost 25 percent of all building fires. Table 18 of the SRI survey provides data on fires of unknown or undetermined origin. When the derived unknown-cause 1971 fire rates of 410 per million in central cities and 660 per million in suburbs are added to the corresponding incendiary rates, the totals amount to 18 percent and 28 percent of all 1971 building fires in central cities and in suburbs, respectively.

Smaller rates of unknown fires that are observed in the larger central cities might imply that fire investigations are more carefully conducted. However, mere designation of the cause of a fire does not guarantee accuracy. Many incendiary fires are mistakenly designated as due to "electrical," "smoking and matches," and other common causes. Careful investigations of fire causes usually result in higher frequencies for incendiary fires and lower frequencies for the more commonly attributed causes. Some authorities believe that as many as 60 percent of all fires are incorrectly identified as to cause.

#### Incendiary Categories

As a result of inaccurate reporting and other uncertainties, and the recognition that loss of life from incendiary fires is quite low, the public at large (and even most elements of the public safety services) have not become very concerned about the incendiary problem. One mental obstacle to recognizing the problem lies in the inherent difficulty of classifying fire causes according to motive. Defining and standardizing the boundary line between "incendiary" and "children and matches" has never been precisely done, for example.

The usual distinction between incendiary and other types of fires is based on whether the fire was started with malicious intent. The term "arson," which originally in common law was restricted to the crime of burning someone else's building, is now used interchangeably with "incendiary" (Ref. 11, p. 272).

Various subcategories of arson of incendiary motivation have been identified, but no standard terminology and few data seem to exist at this level of detail. One fairly complete listing, modified from one used by the Los Angeles Fire Department, is presented roughly in order of the estimates of damage caused by each type:

- (1) Fraud fires usually are to collect insurance, either for quick cash or for profit because the value of the insured structure and/or contents is less than the value of the

insurance. This type of arson is not violence-related. It is not, according to several authorities, increasing currently at a very rapid rate.

- (2) Political fires are premeditated and set to dramatize an issue, embarrass authorities or political opponents, or intimidate or extort for political reasons. Fires that are set to protest the Vietnam War and other military activities are in this group, as are most "bank burnings," some fires associated with racial protest, and some generalized antiestablishment fires. Sometimes these fires have been carefully planned by revolutionary groups who attack responding units, open fire hydrants to deplete water supplies, place bombs on the premises, and set diversionary fires (Ref. 47). This type of fire has increased greatly in recent years in close correlation with the rise in civil disturbances and bombings (Ref. 48). Political fires may constitute the largest single type of incendiary fire, although, like disorders and bombings, they may now be declining. Some fires that are commonly viewed as political may be actually motivated for crime cover-up, vandalism, or other reasons (see below).
- (3) "Pyro" fires have a common psycho-analytical pattern in that the sights and sounds of fire bring emotional relief or sexual gratification to the pyromaniac. The individual with this behavior pattern is usually youthful and has a tendency to set fires for no rational motive. Recent evidence indicates that pyromania is sometimes associated with sex chromosome abnormalities (Refs. 49 and 50). The psychiatric abnormalities associated with this syndrome may be aggravated by adverse social conditions, although no evidence of an unusual rise in "pyro" type fires has been noted in recent years. Slomich discusses the social aspects in his paper (Ref. 40) as follows:

The central, indeed archetypal, characteristics of fire in relation to human perception and emotion are natural. Fire is a basic tool of civilization, emerging very early, when man was differentiating himself from the other animals. Early scientific explanations of nature and the cosmos, like those of the Greeks, divided reality into earth, air, water, and fire. Among them only fire was created or could be created by man (Ref. 51).

Fire is indissolubly linked with man's awareness of self, his civilization, and his technology; its purely pleasurable potentials need no explicating. Otto Fenichel, whom we may consider an authoritative codifier of the essential meaning of Freud's thought, went so far as to say that "sexual excitement at the sight of a fire is a normal occurrence in children" (Ref. 52, p. 371). However, when conditions or personalities prevent adequate sublimation of libido drive, this normal sexual excitement may become perverse. In the next breath Fenichel, referring to pyromania as distinct from normal pleasure in fire (the fireside, candles, and so on), notes pyromania accompanies "sadistic drives which aim to destroy the object." He notes that: "In an incendiary perversion, intense sadistic strivings govern the sexual life, the destructive form of the fires serving as a symbol for the intensity of the sexual urge. The patients are full of vindictive impulses" (Ref. 52).

- (4) Crime cover-up fires are set to destroy evidence that would show that another crime has been committed or that could help to establish guilt for a known crime. Such fires are often set to destroy signs of illegal entry, inventories of missing merchandise, identification or extent of injuries of murder victims, and finger prints. This type of fire has grown as crime in general has grown. For example, burning of stolen automobiles has increased greatly in some cities in recent years. A common feature in civil disorders has been for black rioters to loot white-owned stores and then to burn them, thus combining this motive with that of spite (Ref. 16, p. 3.34). Some school fires are set to destroy evidence of a student's poor academic record.
- (5) Spite fires are started to get even with someone because of a feeling of revenge, jealousy, or anger. Romantic, religious, and racial implications are often present. In one study of 138 paroled arsonists, revenge accounted for 58 percent of the motivating behavior (Ref. 53). Many of these fires seem related to alcohol consumption, which is regarded by psychologists as a major factor in arson crimes (Refs. 54, 55, and 56). Spite fires started by frustrated individuals, who find this one of the easiest ways to get back at the establishment, seem to be rapidly rising. Some

spite fires have apparently been started after verbal encounters between firemen and youths at the scenes of fires.

- (6) Vanity fires are set so that the arsonist can appear as a hero in taking countermeasures, such as discovering or fighting the blaze, or rescuing those in danger. Firemen and night watchmen sometimes commit this type of arson. This type of fire shows no noticeable increase in frequency.
- (7) "Psycho" fires are those committed without any rational motive, but without the symptoms of pyromania. Typical cases would include those fires committed by individuals under the influence of alcohol or drugs (where no other motive is evident). For example, fires have been set by individuals who wanted to watch the pattern of the flames, and in other cases by individuals who were under the paranoid influence of "speed" (amphetamines). A moderate increase in this type of fire has been noted.

Young children playing with matches display an irrational behavior similar to that of this category, and the dividing line is hard to establish. But young children are not setting fires at increasing rates; the older ones whose rates are increasing generally follow the more group oriented and faddish behavior characteristic of political, spite, and vandalism types of motivations.

To this list another increasingly common violence related type of arson should be added:

- (8) Vandalism fires are set by individuals or groups who are mainly looking for excitement without any other immediate or premeditated motive. Many of the fires in vacant buildings, which have become so common in recent years, can be ascribed to this motive. (Others are caused by vagrants who start cooking or heating fires.) Vandalism is also a prominent cause of fires in abandoned cars, garbage cans, and so on; another cause of junk fires is as a protest to local conditions and a desire for "instant urban renewal." Sometimes such fires are started simply to protest against the presence of white firemen (Ref. 57). Other vandalism fires can be associated with the presence of vagrants and drug users. Vandalism fires do seem to be increasing rapidly like political fires, and may be viewed as another symptom of alienation and antiestablishment feelings.

Incendiary fires tend to be located in low income nonwhite areas, as might be expected from the above information. Questions 19, 20, and 21 of the SRI survey obtained estimates of the percentage frequency of building fires in various types of neighborhoods. Question 19 dealt with the total number of fires, question 20 with incendiary and suspicious fires, and question 21 with fires of unknown cause.

The highest median estimate of percentages of incendiary fires was 35 percent in low income nonwhite residential neighborhoods of metropolitan cities. The median was even higher--45 percent--in nonwhite neighborhoods of central cities in large metropolitan areas of more than 500,000 population.

Within ghetto areas, the favorite targets for arson--at least during periods of civil disorders--were white owned stores that could be easily looted of consumable products such as liquor, drugs, and groceries (Ref. 13, p. 3.23). In quieter times the most frequent targets seem to be vacant buildings in ghettos, and recently, as noted earlier, stolen autos that have been stripped of accessories.

Generally, the rapid increase in incendiary rates that is noticeable for at least the past 20 years seems to be related to rises in the political, spite, and vandalism types of fires. These, in turn, are all correlated with an increasing popular antiestablishment mood, looser personal behavior such as alcohol consumption, and disrespect for authority. Arson hazards are most marked in inner city minority ghettos, although suburbs and other areas also show the trend. In fact, arson rates in outlying areas now seem to be rising more rapidly than those in the inner cities.

Daniel Moynihan, in a celebrated White House memo, stated that fires are a "leading indicator" of social pathology and that crime and other societal problems follow (Ref. 58). He predicted that American cities were confronting a genuinely serious problem from set fires. The trends shown in this study confirm that the Moynihan prediction is still valid. Whether the continually rising arson rates are due to socio-psychological stresses in American culture, as Moynihan and Slomich suggest (see Ref. 40), or due to the leadership of organized revolutionary groups as others have suggested is a significant, but, to fire departments, a secondary issue. To the fire services, the main issue is to find and implement measures that can reduce the number and severity of incendiary fires to more manageable levels.

## Measures

### Arrests and Convictions

In Figure 1 the 1968-71 fire trend can be compared with arrest and conviction trends in the central cities, the suburbs, and the total United States. The figure shows that arrests and convictions do differ significantly among the three groupings. The SRI survey data on arrests and convictions come from Table 22, and national arrest data come from the Uniform Crime reports.

The rates of incendiary fires, arson arrests, and convictions are all highest for the central cities. But the rate of arrests there is not increasing any faster than the incendiary rate, indicating that no relative improvement is being made in identifying and charging arsonists. Over the years covered, the arrest percentage has remained about 26 percent in the central cities. The percentage of arrests leading to conviction is improving slightly--from 38 to 44 percent--and the ultimate measure, the percentage of incendiary fire cases closed by conviction, has risen steadily from about ten percent to more than 11 percent.

The suburbs have an arrest percentage less than one-third that of the central cities--about seven percent over the past three years. However, the percentage of arrests leading to conviction is slightly higher, and has improved from 45 percent in 1968 to 58 percent in 1971. Overall, the conviction rate is much lower than in central cities, but it is growing significantly. From less than three percent in 1968, the conviction as a fraction of identified incendiary fires has increased steadily to more than four percent in 1971.

The total U.S. data shows that arrests have remained around 4.5 percent of estimated incendiary fires over the past four years. This is a lower fraction than in either central cities or suburbs of metropolitan areas. The national data were obtained from different sources (NFPA and the FBI) and may not be precisely comparable to the SRI data, but they do indicate that arson arrest rates are considerably lower in the nation as a whole than they are in the metropolitan areas.

The FBI arrest data also show that the percentage of estimated incendiary crimes cleared by arrest is much lower than the clearance rates for other major crimes. Clearance rates by arrest for crimes against persons--crimes such as murder, negligent manslaughter, forcible rape, and aggravated assault--were all greater than 50 percent. The rate for auto theft, lowest of the four crimes against property (not including arson) documented by the FBI, was 16 percent (Ref. 44, Chart 17).

No statistics for overall national conviction rates were available, since the FBI data does not include juvenile convictions. But estimates were derived based on a nationwide average ratio of adult convictions to arrests. This ratio remained about 59 percent over the four years analyzed; about the same as SRI showed for 1971 rates in the suburbs. If this conviction rate can be applied to juveniles as well as adults, the overall nationwide conviction rate will be less than three percent of estimated incendiary fires. And if the true number of incendiary fires is as high as expected--three times the published estimates--then the rate of conviction for this crime is less than one percent.

#### Police and Fire Responsibilities

The high rate of incendiary fires and the very low rate of conviction present a problem of the first magnitude facing both fire and police departments; but, the division of interest and responsibility for arson poses a problem in itself. Neither fire departments nor police departments are inclined to focus their full attention on incendiary fires, even though both claim a legitimate concern for the subject.

Fire departments often look on incendiary and arson investigations as a specialty that they are not trained for and a diversion from their main duty of fire fighting. In addition, it has the nature of law enforcement work which many firemen prefer to avoid. It is true that firemen are seldom trained in investigation skills such as fingerprinting and investigative techniques, and they seldom keep up-to-date on rules of evidence, judicial procedures, and other law enforcement topics. Fire Departments seldom are equipped to perform such enforcement functions as obtaining and using intelligence information, arresting, booking, interviewing and jailing suspects, and carrying out crime laboratory work.

On the other hand, police have been overburdened in recent years with a great many other law enforcement problems, and look upon arson as primarily of interest to the fire service. They recognize that the fire department is nearly always responsible for determining the causes of fires, and therefore that it rather than the police department must make the initial investigation of every fire incident. Police seldom maintain close contact with the fire units that respond to fires and that are the best sources and preservers of evidence concerning the initial circumstances of the blaze. Police lack experience in fire work and they do not generally consider themselves at all expert in technical aspects of fires, such as ignition processes, chemical and physical effects of combustion and temperature on various types of materials, and alterations of structures and contents caused by water applications and other suppression measures.

Yet both services have a claim that incendiary and arson investigation is their responsibility. Firemen point out that fire investigation is closely related to fire prevention work, which is clearly a fire service function, and 46 states have fire marshals whose responsibilities generally include fire prevention and inspection, enforcement of fire regulations, and fire investigations. Two-thirds of the state fire marshals confer a large part of their investigative and regulatory powers on local fire service officials (Ref. 11, p. 264). Fire experts believe that detection and prosecution of arsonists, as well as investigation of fires, is properly the function of the fire department (Ref. 11, p. 273). For example, Deputy Fire Chief Arthur Newman, of St. Louis, found in a survey that 20 of 23 cities with fire department arson squads had conferred police powers on the squad members (Ref. 59).

Police authorities maintain, and the joint arson committee of the IAFC and IACP agrees, that "the fire service role is one of fire investigation and arson detection, and not that of arson investigation.... Arson investigation is criminal investigation and in a category beyond a noncriminal investigation...except for a few special laws and ordinances in certain jurisdictions, the crime of arson is included in statutory criminal codes and is therefore a responsibility of law enforcement authorities" (Ref. 60, pp. 215-223).

These contradictory attitudes and capabilities create situations in which efficient and consistent arson enforcement is quite difficult. Functional responsibilities within and among local communities are often unclear, and the commitment of those concerned is reduced accordingly.

Most practitioners agree that, however responsibilities are allocated, arson investigation should ideally be a joint endeavor between the police and fire departments. Table 23 of the SRI survey shows that 60 percent of the fire departments reported joint police and fire department responsibility for arson investigation, nine percent reported joint responsibility with a third party (usually the fire marshal) involved, and two percent reported fire and other nonpolice agency responsibilities. Twenty-four percent reported that the fire department is solely responsible, four percent reported sole police responsibility, and one percent reported some other arrangement.

Actual conduct of arson investigation (Table 24) showed an even higher percentage of joint efforts: 70 percent police and fire departments together; 11 percent police and fire departments and a third agency; and three percent a fire department plus a third agency. The percentage of sole fire department responsibility was only 14 percent, and sole police responsibility was only one percent.



Cooperation is less evident in the large cities. Of the seven cities with over one million population that were surveyed, the fire department in four (57 percent) was solely responsible for the conduct of arson investigations, fire departments and police jointly shared responsibilities in two (29 percent), and police had sole responsibility in one (14 percent). This greater specialization is probably because coordination is more difficult in larger cities and also because fire departments in larger cities have the resources necessary to support an arson squad (Ref. 61).

A smaller survey of police attitudes toward arson responsibility several years ago disclosed that 14 of 43 responding agencies (33 percent) felt that responsibility should be shared between the police and fire departments, but 32 (75 percent) felt that in practice both should participate in investigations. Almost half (47 percent) advocated that the fire department take sole responsibility, but only 16 percent believed the fire department should carry through the entire investigation alone. Considerably fewer police agencies felt that the police themselves should be solely responsible (21 percent) or handle all the investigation (9 percent) (Ref. 60, p. 213).

From these responses, it appears that one means to improving incendiary fire investigations is to establish better coordination between police and fire departments in arson work. Many of the more successful efforts are based on cooperation. In Los Angeles, the police and fire department arson sections are in contact an average of four times a day. Interviews during this project with many fire officials disclosed that police coordination in arson work is a matter of high priority.

In many cities the most effective arson teams have consisted of a police detective and a fire department investigation officer, plus perhaps a prosecuting attorney. In these ways the three necessary fields of specialized knowledge (crime investigation, fire, and law) can be brought together (Ref. 11, p. 273).

#### Arson Specialization

Better arson investigation is an even more important factor than better coordination. In the big cities, where arson arrest and conviction rates are much higher than in small towns, arson responsibilities and investigations tend to be specialized rather than cooperative. It is at least equally important to assign specialists to arson, and to commit the level of effort required to do the job.

Less than half of the police departments provide arson detection training to their patrolmen (Ref. 60, p. 223). Fire departments, most of whom provide less than 50 hours of classroom training of all kinds to their recruits (Ref. 62), cannot be significantly better in this respect. Furthermore, few fire departments give any training to their arson specialists in such skills as investigation techniques and finger printing. However, most arson units do require some prior training and/or experience for their personnel. For example, the Los Angeles County Sheriff's arson squad requires one year investigative experience of its candidates.

Training efforts are especially difficult when they cross service lines. The answer is again effective coordination, as in Philadelphia where every newly promoted police detective takes a special fire department training session.

One other problem that was often mentioned in our interviews was the difficulty in getting district attorneys to agree to prosecute arson cases. Arson prosecutions are considered difficult because of their notoriously low conviction rate (and consequent law school reputations), their relative rarity, and their unique rules of evidence. Consequently, arson squads frequently find that considerable effort is needed to work with, persuade, and assist the district attorney's staff in preparing cases. This requirement in itself demands that the investigator be at least moderately familiar with fire laws and regulations and legal procedures.

Most small police and fire departments require their arson investigators to carry out additional duties. One police department designated its duties alphabetically, and assigned one investigator to cover the following unrelated specialties: Arson, Auto Theft, and Abortions.

#### Level of Investigation Effort

The level of effort devoted to arson work is undoubtedly inefficient in most places, particularly in small towns and rural areas. The statistics developed earlier in the chapter indicate this clearly. Unfortunately, arson investigation efforts are declining while arson rates are going up. The American Insurance Association, which formerly maintained a 30-man arson bureau to assist in investigations throughout the country, discontinued this service in 1971. Some states, such as California, are proposing or have already formed teams to help local investigators, but at present the gap in the effort needed is quite large.

Calculations were made during the course of this project to compare present efforts with those required for more reasonable levels of fire

investigation and arson prosecution. These calculations, based on conservative estimates of the work to be done, indicate that needed efforts are more than 3-1/2 times as great as can be carried out by the existing forces of fire and police department arson investigators.

From this, the reason seems quite clear why national arson arrest and conviction rates are only one-third the rates in large cities. There are only one-third the personnel, on the average, necessary to do the job the way that it is being conducted in the more advanced larger cities. If suburbs and rural areas devote the necessary efforts to arson investigation, their incendiary fire frequencies may, like those of the large cities, begin to stabilize instead of continuing their seemingly inexorable rise.

#### Discussion

Incendiary crimes probably account for several times as many fires in dollar losses as all the other types of violence that fire departments have had to face; furthermore, the hazard, unlike that from civil disorders, harassment, and bombs, is growing rapidly rather than stabilizing or declining. Available statistics indicate that incendiary ignitions now account for seven percent of all fires, and ten percent of all fire losses, but the true number may be closer to three times those fractions if unknown and mistakenly attributed causes were actually diagnosed correctly. With this large uncertainty, overall trends are difficult to detect. However, the direct evidence of higher rates in large central cities seems very plausible in view of similar concentrations of harassment and bombings in the cities. Indications that the rates are rising much more slowly there than in outlying areas are supported by indirect and nonquantitative evidence, such as the greater concern over harassment problems that fire authorities in smaller cities have expressed. (See discussion of their opinions in Chapter V, Harassment.)

The rise in incendiary fires appears closely coupled to the same social stresses that have given rise to alienation and antiestablishment behavior, both organized and unorganized, that is characteristic of American society in recent years. Evidence for this can be seen in trends of the FBI's percentage breakout of arson arrests, which show that the largest rise in recent years is in the over-21 age category rather than in the younger age groups. Also, the FBI data showed that Negro rates rose to a sharp peak in 1968 and declined somewhat since, and that the increasing activism of women in recent years is accompanied by a rise in the percentage of female arson arrests. The overall increase in arson has been going on for at least 20 years and is destined under present

trends to become one of the most serious problems of fire services within the next few years.

The broader social problems of the United States are beyond the control or responsibility of the fire services, but the arson control problem is of traditional concern since it is a complement of the first objective of the fire services: fire prevention. Arson control unfortunately suffers from two handicaps. Arson is an inherently difficult crime to detect and prosecute, and it falls in a governmental gap between police and fire department responsibilities that is too often not effectively covered.

Both the police and fire services can legitimately claim authority in arson cases, but each service may rationalize that the responsibility belongs to the other. Neither is prepared in most jurisdictions to devote the resources needed to achieve identification, arrest, and conviction rates at all commensurate with those of other crimes. Arson investigators need cooperation and better training to make more effective use of the skills that both services have to offer. Administrative officials also need to help, but in order to help they need to give the problem a greater share of their attention. Probably the most urgent step for getting arson rates under control is for not only the top levels of fire and police services, but for other officials in local, state, and national governments who are concerned and responsible with public safety to give due recognition to the magnitude of the problem.

A modest statistical analysis can easily show that the efforts currently being devoted to arson investigation are entirely inadequate to the needs, and that the areas of greatest deficiency, the suburbs and rural areas, are the very ones with the poorest conviction records and the most rapidly rising incendiary rates. Nationwide, at least a three-fold increase in arson squads is needed just to provide services that the larger cities are already providing, and the expansion must be proportionately much greater in many outlying areas where arson investigation hardly exists at all. Unless these increases are achieved, all areas of the nation will soon be facing an arson problem as serious as the inner cities have confronted during the past five years.

### III FALSE ALARMS

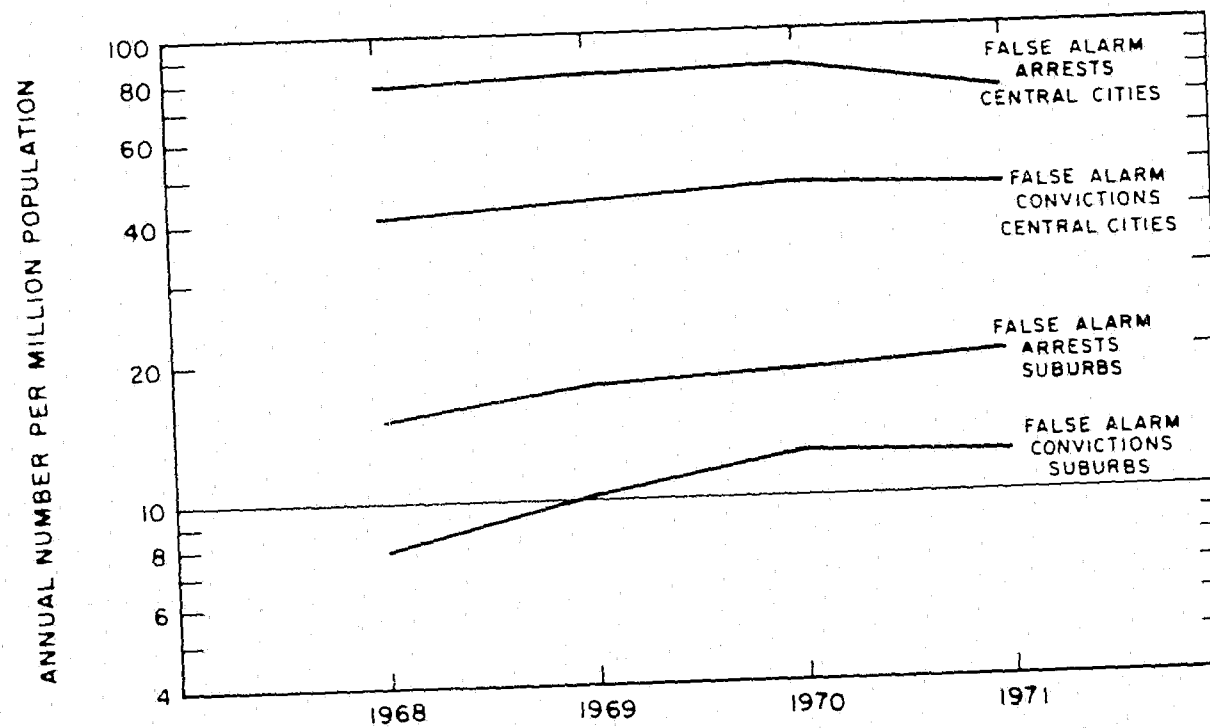
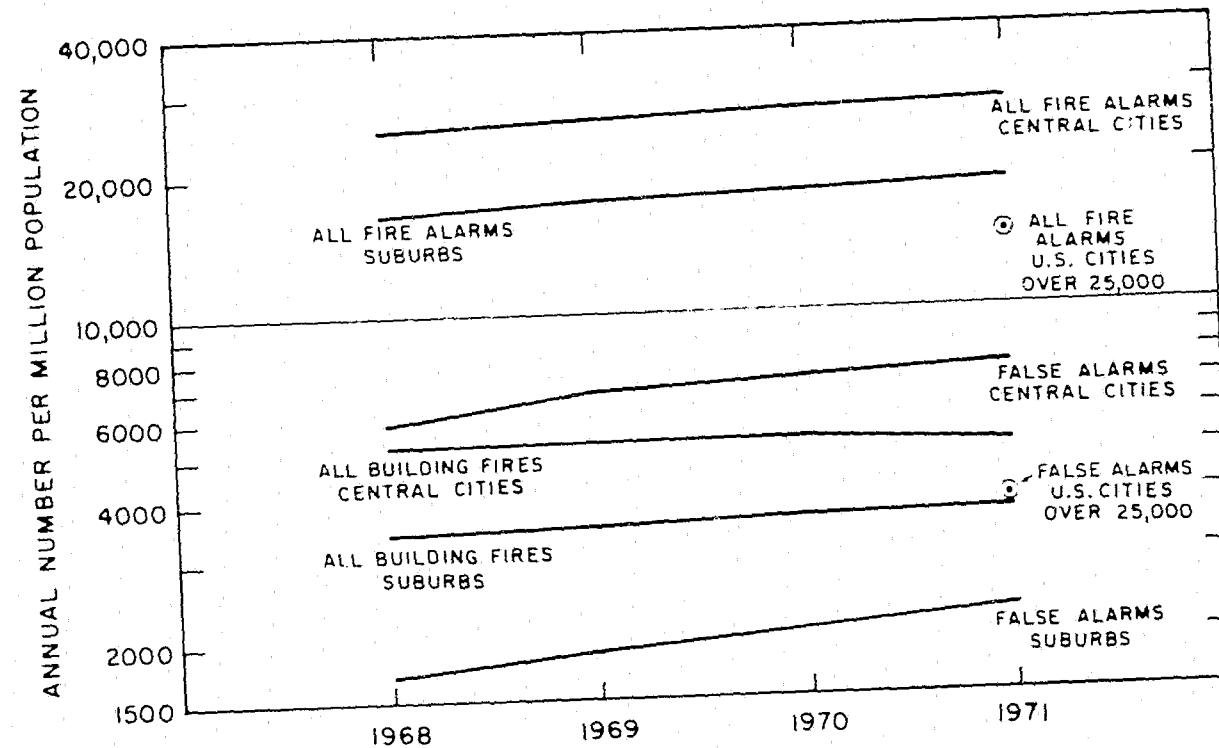
#### Problems

False alarms were added to the original scope of this project because they are destructive and dangerous to fire department personnel and equipment, because they reflect the type of vandalism that is observed in other acts of violence, and because fire authorities are quite concerned about them. Furthermore, their frequency is rapidly rising. According to the SRI survey, false alarm rates are increasing much more rapidly than total fire alarms, and even more rapidly than incendiary fires. Between 1968 and 1971, false alarm rates in central cities increased, on the average, at eight percent per year, and rates in the suburbs increased at 11 percent per year (as derived from Table 10). During this period, the fraction of false alarms increased from 24 percent to 28 percent of all fire alarms in the central cities, and from 10 percent to 12 percent of all fire alarms in the suburbs.

Although proportional increases are greater in the suburbs, central cities face by far the bigger problem with an overall false alarm rate that is more than three times that of the suburbs. Figure 2 shows that false alarm rates in central cities are now 7,600 per year per million people, half again as large as rates of all building fires in central cities. (Those rates were calculated by dividing the Table 10 data by the percentage of fire departments that recorded answers, and dividing again by the population data from Table 5.)

We found no other source that provided comparable nationwide data on false alarm trends, although just this year the NFPA began publishing the estimates of fire alarm and false alarm rates that are shown in Figure 2 (Ref. 41). It is known that U.S. false alarm (and all fire) rates are considerably higher than in other countries. Canadian false alarms in cities over 25,000 in 1971 were 1,770 per million--less than half the comparable U.S. rates (Ref. 41). Overall British rates in 1967 were only 725 per million; that is less than half the U.S. suburban rate and less than one-eighth the U.S. central city rate in 1968 (Ref. 63). (Interestingly, the British found their 1967 level of false alarm rates "disturbing" because that rate was an increase of over three times from the rate ten years earlier.)

Authorities generally agree that the false alarm problem is, like other violence problems, concentrated in the ghetto areas of the large



SOURCES: SRI and NFPA

FIGURE 2 RATES OF (a) ALL ALARMS, ALL BUILDING FIRES, AND FALSE ALARMS AND (b) FALSE ALARM ARRESTS AND FALSE ALARM CONVICTIONS

central cities. Among age groups, it is concentrated ever more strongly among juveniles than is arson, with the greatest concentration found in the 9 to 13 year age group. False alarm levels and trends in the United States do vary considerably from city to city. New York has one of the most serious problems, with a false alarm rate equal to 38 percent of all alarms and rising this year by about 20 percent (Ref. 64). Los Angeles, on the other hand, has a false alarm rate that is only about 24 percent of all fire alarms, and the rate has been declining by more than two percent per year for the last two years. Because of this uncertainty and variability within the overall context of a rapidly rising public nuisance, and the widespread concern reflected in a proclamation by President Nixon calling for efforts to reduce false alarms, the present study can serve a useful purpose by evaluating the false alarm problem in comparison with other problems facing the fire service.

The true burden of false alarms can be more clearly seen by operational analyses of the various costs involved. The prorated cost in terms of wear and tear on equipment and time spent in man-hours can add up rapidly when false alarms are frequent. For example, New York City officials claim that increases in false alarms are the prime reason for a recent drop in vehicle life expectancy from 20 to 10 years (Ref. 65). Prorated costs have been estimated by the District of Columbia Fire Department at about \$15 for each fire unit responding on an average three-minute false alarm. If four or five units respond to a false alarm, the total operating cost will be about \$60 to \$75 (Ref. 66). Mayor Lindsay of New York has estimated false alarms cost his city an average of \$100 per call (Ref. 67).

However, in comparison with other fire department costs, false alarm costs seem quite modest. Assuming the highest estimate of \$100 as a current average, one can compute that the 15,000 annual false alarms (40 percent of all alarms) in Washington, D.C. cost about \$1.5 million, or five percent of the total fire department budget. Nationwide, comparing the assumed \$100 average false alarm cost with NFPA's estimate of \$1,800 to \$2,000 average 1971 building fire loss, and using NFPA's 1971 fire and alarm rates, one can derive a false alarm cost of \$0.39 against a building fire cost of \$6.59 per capita per year in cities of over 25,000 population, and a false alarm cost of \$0.14 against a building fire cost of \$9.09 per capita per year in cities of under 25,000. On this basis, overall false alarms costs are certainly less than five percent of total building fire losses.

False alarm costs do not seem high enough to be of overwhelming concern to fire officials, but other considerations make the problem more pressing. Most fundamental from the standpoint of the fire department's mission, a company on response to a false alarm is not really as ready to respond to other calls as if it were waiting in the fire station. Each call involves a commitment to respond that is only erased by verification that the alarm was false--an exercise that takes perhaps three to ten minutes. Thus, each fire company on a false alarm is out of service for other calls for a significant amount of time. And the loss in average readiness is more than proportional to the amount of time loss because, being random in nature, it requires an extra margin of safety to provide for coincidences and overload periods. If the daily false alarm rate is as much as a dozen calls per day (Ref. 68) in the busiest large city stations, the loss of readiness can become quite serious.

The increasing demands of false alarms are also difficult and dangerous, as well as time consuming, for the firemen. About 15 percent of all traffic injuries to firemen responding on apparatus occurred while on false alarms. (It should be noted that such false alarm traffic injuries, while often serious, account for only about one-half percent of all on-duty injuries--Ref. 69). The physical and emotional stress of responding so often to false alarms has been damaging to firemen's morale, and has definitely been a contributing factor in recent years to union demands for better pay and working conditions.

#### Measures

##### Curtailed Response

One of the simplest ways to reduce the costs of false alarms is to curtail responses to suspected false alarms. This can be done on a blanket basis, or by a more selective plan to curtail responses to sources (such as street telegraph boxes) in certain locations (ghetto areas and schools) or at certain times (after school hours, on Saturday nights) that statistically are most likely to be false. One measure of the concentration of false alarms is shown in the estimates of false alarm percentage by neighborhood given in Table 14. Median estimates of street box false alarms in low income nonwhite neighborhoods by fire departments in large cities amounted to about 45 percent. With information about false alarm concentrations, cost/benefit techniques or rules of thumb can then be used to modify policy; by the foregoing cost calculations, for example, a fifty

percent saving can be realized if only two instead of a normal four units can be sent in response to a suspected alarm.

Not too many departments follow the practice of curtailing responses on a blanket basis. The survey data for Table 15(a) show that only about one-third of the cities over 100,000 population, and only about one-fourth of the smaller cities that have street boxes have curtailed responses to all their street boxes.

A larger number follow some type of selective response system. More than one-third of the cities over 100,000 and more than one-quarter of the smaller cities (the differences between Table 15(b) and Table 15(a) data) practice curtailed response for some part, but not all, of their street boxes. Curtailed responses might take the form of dispatching fewer units to the scene--perhaps only a battalion chief's car or a nearby police patrol unit--or of dispatching the regular response team to run without alarm lights or sirens. All of these variations tend to reduce the "reward" of excitement obtained by false alarm perpetrators. Full responses might be maintained at high-risk locations; for example, to places of public assembly and high-value industrial facilities.

Some departments use statistical and operations analyses to establish selective response procedures. San Francisco plots the locations of false alarms (and other incidents of concern to the fire department) on maps of the city. From these maps and other visual aids prepared from data processing printouts, members of the department have been able to analyze patterns and relationships that would probably not otherwise be noticeable. Using these methods, they were particularly successful in adapting their responses to the alarms triggered by school students and school truants. However, few departments have as yet applied such sophisticated analytical methods to the false alarm problem.

##### Street Box Removal and Relocation

Street boxes present a special problem because their false alarm rates are very high and are rising rapidly. False alarm percentages in central city street boxes (Table 11) rose from 64 percent in 1968 to 69 percent in 1971; in suburbs street box false alarms rose from 35 percent of all alarms in 1968 to 38 percent in 1971. (Rates are adjusted for the variable fraction of departments reporting all alarms and false alarms.) These street box false alarm rates are two to three times as high as total false alarm rates.

Of course, most small and moderate sized cities do not have street boxes, so removal is not a universal policy alternative. Table 9 shows that only 44 percent of central cities and 23 percent of suburbs have

any telegraph boxes; only 30 percent of central cities and 17 percent of suburbs have telephone boxes; and only 24 percent of central cities and 16 percent of suburbs have any other type of box. (The percentages of different types are not cumulative because many cities have more than one type.)

Some of the cities that had street boxes in the past have removed or relocated them. Table 15(c) shows that three percent of the cities with street boxes have removed them all, without replacement. This number is quite low because the cost and other considerations may dictate against removal of all boxes. San Francisco, for instance, wants to retain its telegraph boxes because through this means it can receive warnings from the large fraction of the population who do not speak English. A less drastic step for many cities is to remove certain street boxes that statistical analysis or other information indicates have a disproportionate number of false alarms. Table 15(d) shows that 55 percent of the cities of over 100,000 population have removed some of their street boxes without replacement, as have 29 percent of the smaller cities.

Other possible changes that might be made include moving the box to a better lighted or otherwise more secure location, providing better lighting at the box's present location, changing the height of the box to discourage small children, and smearing the box with fluorescent or sticky paint. None of these changes have been evaluated here.

#### Replace Telegraph Boxes with Telephone Boxes

Many departments are replacing their telegraph boxes with telephone boxes. Telephone boxes have been found much less susceptible to false alarms--probably because culprits are intimidated by the thought of having their words and voice recorded. In a 1971 test in Washington, D.C., false alarms at telephone boxes declined 95 percent from the levels at the telegraph boxes they replaced (Ref. 70). A similar 1971 test in New York City indicated a 90 percent reduction (Ref. 71).

Our survey found that 26 percent of the large cities and 12 percent of the smaller cities had replaced all of their telegraph boxes with telephone boxes--Table 15(e), and that 19 percent of the large cities and eight percent of the smaller cities had replaced some of their telegraph boxes with telephone boxes--Table 15(f).

Unfortunately, fire departments that have removed or replaced telegraph boxes with telephone types are now finding that false alarms are rising again (although as yet much less seriously) as people discover the

relatively low risks of apprehension from telephone calls. Whether this trend will undercut the advantages of more complete information and better reliability in telephone alarm boxes remains to be seen.

#### Install "911" Telephone System

The better information content and reliability of the telephone is particularly important to the concept of the "911" universal emergency telephone number. The President's Advisory Commission on Law Enforcement recommended such a number in 1967 as a means of allowing citizens to gain immediate contact with any one of several local emergency services. AT&T designated the number 911, three easily remembered digits, as a nationwide uniform telephone number in 1968.

More than 150 communities across the country have now implemented the 911 system. They are mainly organized around four types of networks: a county-run system for all fire, police, and other emergency services within the county; a central city-run system for all services in the county; a central city-run system for all suburbs and all county services within the urbanized area; and a multiple number system where several cities in a telephone exchange area each maintain their own call center (Ref. 72).

The 911 system was developed as an alarm technique to provide speedier and more reliable access to emergency services and, secondarily, to facilitate interservice and interjurisdictional coordination in general. It apparently proved quite popular with the general public, to the extent of imposing considerably greater demands on public safety services, such as police (Ref. 73).

However, as Fire Chief Edward C. Boyle, of Springfield, Massachusetts, has said, the key to success with 911 is cooperation between the police and fire departments (Ref. 74). Fire authorities have been less than enthusiastic about breakdowns that have occasionally occurred in the 911 communication procedures. The recent National League of Cities Survey of Fire Chiefs found that 35 percent of them were "not at all satisfied" with the quality and effectiveness of the 911 system. This dissatisfaction rating was second only to that of police-fire department communication centers among 13 different equipment categories that were evaluated (Ref. 6, p. 27). Although the 911 system is a highly sophisticated and potentially reliable means of reducing false alarms through its voice recording and telephone tracing features, it so far appears to be suffering from the same type of police-fire department and interjurisdictional coordination difficulties that have been noted in other contexts in Chapters IV and VI.

### Improved Community Relations Efforts

Some fire officials believe that their community relations programs generally help in reducing false alarms by providing alternative activities, such as sponsoring boys' athletic teams, providing counselors to individual youths with behavior problems and to groups at public summer camps, and conducting school fire drills (Ref. 66). Many officials, however, believe that campaigns directed specifically against false alarms are counterproductive in that, by diverting attention to the alarm system, they increase the number of false alarms that are triggered (Ref. 75). As far as we could determine, no specific analysis has been conducted to resolve the issue of whether and how community relations programs can successfully reduce false alarms.

### Enforce Laws more Rigorously

The respondents to the SRI survey agreed, by a substantial but not overwhelming majority, that legal penalties against false alarms should be more severe. About 56 percent of officials of both large and small communities answered yes to this issue (Table 13). The only exceptions were that fire officials in the northeast felt more strongly (74 percent) that the penalties should be increased, whereas western officials favoring increased penalties were in the minority (41 percent). These opinions seem consistent with the expressed opinions of many fire service officials that false alarm laws (false alarms are generally classified as misdemeanors) are haphazardly enforced by the police and the courts. Police are said to be interested in enforcing such laws only when the perpetrator is caught in the act. Courts are felt to be excessively lenient in too many cases.

As evidence of police reluctance to enforce false alarm ordinances, firemen cite that "stakeouts" of boxes with a high frequency of false alarms seem to be generally left to the initiative of fire department personnel, as are unofficial follow-ups of false alarm incidents with local community leaders and other interested parties. On the other hand, the benefit of enforcement efforts has been questioned by results from a 1967 surveillance experiment in Chicago, which found any deterrent effects of stronger enforcement to be both small and fleeting (Ref. 76).

In view of the comparative rarity of false alarm prosecutions, the lack of visible losses, and the usual youthfulness of the defendants, the fire services see a need to justify existing false alarm laws and to establish better understanding with the courts. Officials of some fire departments have written letters and visited judges concerning the

technical aspects of pending false alarm cases. Nationally, a group of interested officials of fire, police, and other governmental associations have formed a Special Committee on a Uniform False Alarm Ordinance to encourage more standardized and relatively stiffer penalties in local jurisdictions.

The SRI study obtained the only summarized data known to us concerning rates of arrest and convictions for false alarms in U.S. cities (Table 12). When incidents per million population are derived, they as well as absolute numbers of arrests and convictions are seen to be rising. But arrest and conviction rates are not consistently rising in proportion to the rising rates of false alarms. In metropolitan cities, the conviction rate drifted erratically downward from 0.69 percent of false alarms in 1968 to 0.61 percent in 1971. The conviction rate in suburbs, after rising in 1969 and 1970 from a 1968 rate of 0.47 percent of false alarms, dropped again in 1971 to its 1968 value. Figure 2 shows how trends in arrest and conviction rates compare to false alarm rates.

These data indicate that false alarm conviction rates (as a percentage of crimes) are even lower than arson conviction rates. They are so low, and penalties when convicted are reputedly so light, that present enforcement of the false alarm laws can hardly form any deterrent. Given the present state of enforcement, fire departments must either look to other methods of reducing the number and operational impact of false alarms or, as many departments now do, look on them as obviously out of control but for the present still within the "toleration level."

### Discussion

The steep and continuing rise of false alarms has primarily caused concern to those fire department officials and operating personnel who must respond to the increasing alarms, and to a few mayors and other municipal officials who are connected with fire department costs. Other officials and the general public tend to view the problem as a typical but rather inconsequential reflection of our times. In the overall context of public safety problems, false alarms are relatively inconsequential. Using liberal cost estimating factors, one can hardly show that false alarms create more than five percent of the direct costs of operating a fire department, or that they are responsible for more than one-half percent of all work-related injuries to firemen. But indirectly, false alarms are a source of increased wear and tear on equipment and of considerable irritation to fire department personnel.

False alarms are of further interest because they reflect the violence problems that fire departments must face now and in the future. They seem to have no motive except for excitement, vandalism, or a very generalized form of protest; but in this they typify the acts of violence, such as harassment and arson, that are committed out of similar impulses. And, significantly, they are overwhelmingly committed by juvenile age groups whose attitudes and behavior patterns can carry over into more serious activities in the future.

The fact that these juvenile-caused false alarm rates are increasing indicates that the violence problem in general is not yet over. The fact that the rates in suburbs, while much lower than rates in the central cities, are increasing more steadily means that suburbs will be more heavily affected by this and possibly other violence problems in the future.

As Gratz has noted, most of the countermeasures attempted by fire departments have been defensive in character and only partially successful (Ref. 77). Many departments have not adopted some of the measures that have been reasonably successful, such as curtailing responses and removing street boxes. Some areas have tried community relations programs with success, but other areas have found them counterproductive.

The measures that seem least successful are those that require cooperative endeavors between the fire department and other agencies such as the police. For example, implementation of the 911 telephone system has been hindered in some areas by firemen's reluctance to work through police switchboards. At the same time, fire departments have not generally succeeded in obtaining the cooperation needed from the police and the courts to adopt measures to improve the currently negligible arrest and conviction rates for false alarms.

Altogether, false alarms and other violence problems are presenting fire departments with situations that they cannot deal with very successfully, either alone or through traditional coordination procedures. New channels of cooperation, and new receptivity within the fire department (and their associated agencies) must be developed in order to successfully respond to the violence problems that are threatening their day-to-day operations.

#### IV PUBLIC AND CAMPUS DISORDERS

##### The Problem

Beginning with the Watts riots in Los Angeles in August 1965, fire departments found themselves with an image problem they were not accustomed to. As representatives of the establishment, they suddenly were faced with vicious personal attacks and verbal harassment. Up to this time they had traditionally held the support and friendship of the people they were protecting, and were popularly viewed as public servants always ready to help in saving life and property.

The violence and disorders of 1965 spread in 1966, and in 1967 major riots in eleven cities killed four firemen and injured 419 others. Property losses of \$61 million were estimated by a congressional investigating committee. These losses--most of which were from fire--represented about five percent of the losses from all fires in the United States that year. Almost any feasible effort to reduce the losses seemed worthwhile. Fortunately, 1967 proved in some ways to be the highwater mark of civil disorders. Figure 3 shows that although total disorders continued to increase to a peak in 1969, the type of incidents that had killed and injured most firemen in 1967--race riots during the summer--never again approached 1967 in frequency. Physical hazards to fire departments also proved less in subsequent years than had been feared from 1967 experiences. Data obtained in our survey of 500 cities and reproduced in Table 26 show that no firemen died in those cities during the four years from 1968 to 1971.

Nevertheless, the civil disorder problem continued to be one for grave concern. The problem, which had initially been concentrated in core cities of metropolitan areas and on campuses, threatened to spread to other areas in an unpredictable fashion and overwhelm local public security capabilities. School disorders were of particular concern because they continued to rise, first in colleges and later in high schools, until about 1970. The nature of the problem there was unclear because school populations were young, relatively isolated from the rest of



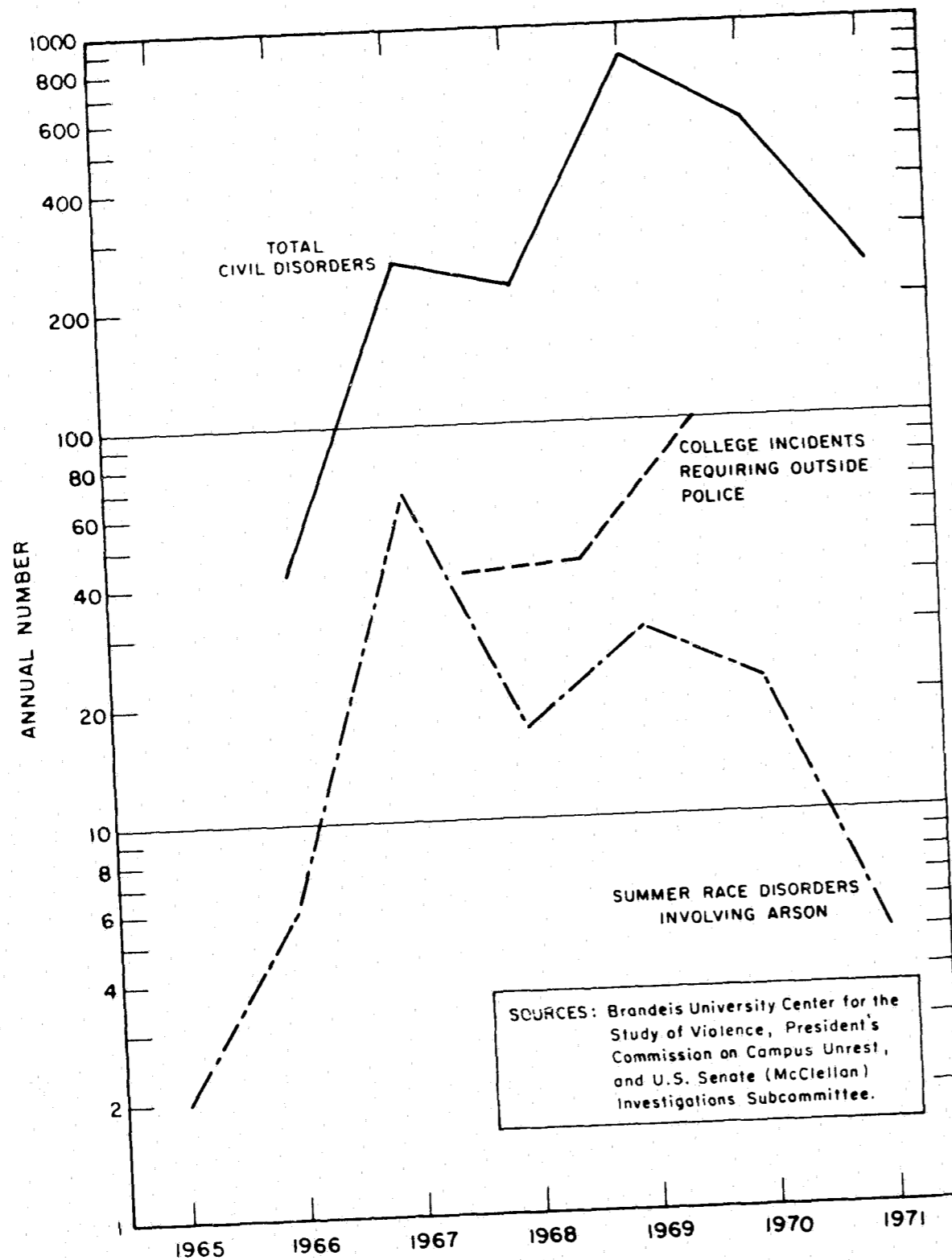


FIGURE 3 RACIAL, COLLEGE, AND OTHER DISORDERS

society, and increasingly unstable. Figure 3 shows that one indicator, college disorders where outside police had to be summoned, rose during the three-year period 1968-70 by a factor of more than two.

The responses to question 56 of the survey show that 171 colleges required assistance from the fire departments that answered the survey. (The survey covered one-third of the total U.S. population as shown in Table 5). Although the requirements were not subdivided by year, the total needs of colleges for fire department assistance seem comparable to the needs for police department assistance that are shown in Figure 3.

As shown in Table 56, among both the central cities and the suburbs less than half of the fire departments were ever called on to assist in campus disorders. Assistance by suburban departments in college disorders appeared to be higher than the suburban proportion of the population would indicate; this may be explained by the fact that some of the cities in our survey were selected on the basis of records of college disorders rather than on the basis of size, so that our results might be expected to show a higher than random frequency of returns from suburban college towns.

However, campus violence against fire departments was less serious in suburbs. Although 32 percent of the fire department responses to campus disorders were in the suburbs, only 21 percent of the violent incidents were so located (Table 57). (Twenty-two percent of the sample population in our survey was located in the suburbs--see Table 5.)

Measures Taken

Self-defense is the normal reaction against violence. But defensiveness violates both a traditional role of fire departments and also the singleminded attention to fire suppression and rescue that is needed in the firefighter's task. Table 30 shows that fire departments in 78 percent of all cities surveyed have issued general orders on actions to take in violence situations. Ninety-one percent of cities with over 100,000 population have issued general orders, as have 89 percent of all metropolitan central areas. Most of the many fire department general orders reviewed during the course of this project were similar to each other, taking the positions listed below.

- Guns. A few cities have armed their fire services, but the general consensus of most fire authorities is that gun bearing is both inefficient in diverting capabilities of firemen from their true function to one they are not skilled in, and provocative in establishing fire departments in an adversary

role against the local population. Both the International Association of Fire Chiefs and the International Association of Fire Fighters have issued statements opposing the use of guns by firemen (Ref. 1, p. 34, and Ref. 2, p. 4). Most jurisdictions even prohibit their firemen from arming themselves. Legally, firemen may be liable for any injuries they inflict, or perhaps even for carrying weapons, since they generally lack police powers (Ref. 3). Only about five percent of fire departments authorize their personnel to carry firearms while on duty, according to Table 30(b) of our survey. Various types of cities and metropolitan areas show little policy difference in this regard, except that eight percent of the fire departments in the southern United States authorize firearm use--twice as high as in any other region.

- Use of Water Hose for Crowd Control. Most departments also decline to use water hoses for civil disturbances, probably for reasons similar to those prohibiting the use of guns. A pumper and water hose does not serve as an efficient crowd control unit; it is not very mobile, it is quite vulnerable to counterattack, and in many cases (in hot weather at least) it is more provocative than discouraging to the crowd. The responses from our questionnaire in Table 30(c) show that only seven percent of the surveyed fire departments authorize the use of water hose for crowd control, and that this percentage varies little between large and small cities, between metropolitan central cities and suburbs, or by region (again except for the South, which is higher than average). Comparison of these results with an earlier study shows that authorized use of water hoses in disorders is declining. In 1966, 18 percent of the cities over 100,000 population used hoses, and 16 percent used them in 1969 (Ref. 4, p. 327).

- Evacuation in the Face of Violence. When faced by physical harassment, many fire departments authorize their crews to evacuate the area, abandoning hoses and equipment if necessary. This policy accepts the probability that fires will remain out of control anyway if the crews must turn from fire fighting to self-defense. Table 31 shows that 87 percent of all fire departments surveyed are authorized--if threatened by violence--to neglect small fires that have a low risk of spreading. This high rate is quite consistent for different city sizes and urban-surburban categories, although it is somewhat lower for fire departments in the Northeast and North Central areas, and is higher in the South and West

On many occasions during civil disorders, fire departments are unable to operate without outside assistance. Police coordination, which is useful for crowd control, clearing traffic, and maintaining order even during normal times, becomes essential during times of disorder. One recent study of fire department operations during six civil disturbances found that the greatest operational problem during these periods was related to interorganizational communications and coordination between the police and fire departments (Ref. 5).

Partly, the coordination problem is a matter of equipment. It is notable that another recent survey found fire chiefs had greater dissatisfaction over their police-fire department communication centers than they had over any other equipment system (Ref. 6, p. 20). The complaints registered in that survey applied to normal operations, but the deficiency can only be exaggerated in emergency conditions. Coordination tends to break down during emergencies because each service begins by forming its own organization and control system independent of others. In the Watts Riot, two fire departments and several police departments each had their own command control center operating in the same general area. This resulted in a loss of effectiveness, because in riot situations police support for firemen is needed on a "man-to-man" basis rather than simply on the basis of patrols operating in the same general area (Ref. 7).

Partly, police and fire department coordination is a matter of advanced planning and establishment of standard operating procedures. Table 33 shows that 85 percent of the fire departments surveyed are provided protection under police general orders. Ninety-one percent of all cities over 100,000 population had such police general orders. This situation is a considerable improvement over the one reflected in an earlier survey which showed that only 83 percent of the over-100,000 cities had police department disorder plans in 1969, and only 65 percent had such plans in 1966 (Ref. 4, p. 321).

Effective emergency coordination is also a matter of close and continuing personal contact between personnel of the two departments (Ref. 8). Where good relations exist, many fire department operating problems are easier. Chief Quinlan of Detroit listed good police and fire department coordination as an "exceptionally favorable factor" in the operating capabilities of his department during the riots in his city (Ref. 9).

At the operational level, even more frequent contact is desirable--Miami emphasizes this to the point of having daily contacts between police department and fire department operations officers. But this seems to be unusual; coordination is more typically a major problem. When police protection is lacking, most fire departments are authorized to hold up

their response; 93 percent reported such authorization in our Table 32. But a withheld response is obviously not an effective procedure from a fire fighting standpoint.

When protection needs exceed police department capabilities, another option is to call for National Guard assistance; but, such calls take time and also require preparedness on the part of both city and National Guard. In the Watts Riot, where such preparedness was lacking, it took about 48 hours to get the National Guard into the riot scene (Ref. 10, p. 17). Even where advanced preparations have been made, it is nearly always difficult to call in the National Guard because of political factors as well as operational difficulties. However, the role of the National Guard in civil disorders has been considerably clarified as a result of the riots in recent years. Local government agencies, such as street and water departments, and independent organizations such as utilities and transport services, must also cooperate with fire departments in disasters. Fire department organization manuals sometimes specifically suggest that departments coordinate on a systematic basis with other branches of local government (such as schools, health, water, building inspection, and city planning), and that the heads of those departments should meet on a regular basis (Ref. 11, p. 42). However, this organizational suggestion is frequently not followed. In the Watts riot, fire department personnel were endangered by a lack of public utility services, especially of electrical crews who could have assisted in controlling high voltage systems that were sometimes involved in the fire.

Mutual aid from surrounding communities and county, state, and federal government agencies can often multiply local resources manyfold; but, in practice, mutual aid usually falls short of its potential. Most state laws are now established to permit mutual aid on a legal basis rather than simply by gentleman's agreement between fire chiefs or other authorities, but few of the communities have adapted their procedures to utilize the law in their planning and exchange of information. Mutual aid requires considerable planning in order to provide for quick response, which is sometimes essential. In the Detroit Riot, during eight hours that elapsed before mutual aid could be brought from surrounding communities, all except four of 157 local fire units had to be called into action (Ref. 1, p. 41).

The formal organization in a mutual aid operation is usually primitive compared to the internal organization of each fire department participating. Joint planning, training, or maintenance staffs for mutual aid groups are rare, and in mutual aid, as in police and fire department coordination, the communication link is generally the weakest link in the

operation. Control of mutual aid, which often depends on telephone communications, is almost invariably grossly deficient in its capabilities compared to control of a single department's forces.

Because of these and other difficulties in mutual aid operations, they are used much less than they could be. The study of six civil disturbances mentioned above in connection with difficulties in police-fire department coordination also found that mutual aid forces were used in only one of the six disturbances. Responses to our questions 25 and 29 show that only 18 of more than 7,000 total reported incidents of violence (one quarter of one percent) were encountered while rendering mutual aid. At present, the biggest service that mutual aid gives during emergencies is to provide backup crews in outlying fire stations to free the home town companies for duty at the emergency scene. However, with a relatively modest improvement in organization and coordination, mutual aid could prove to be a much more effective reserve force.

Another area where coordination is needed is with independent jurisdictions and organizations whose interest overlap in the local district. Such jurisdictions include neighboring communities as well as higher levels of government; for example, county (sheriff), state (fire marshal, civil defense, highways), and the Federal Government (transportation, government property). Intergovernmental coordination has recently become more popular, but fire department participation in such joint government groups is still much lower than police participation. Extensive police participation is largely due to the planning support established under the 1968 Omnibus Crime bill. Of 85 local Councils of Government around the nation, 73 percent entailed police participation, but only 16 percent had fire department participation, (Ref. 12). Coordination of those agencies suffers from the same difficulties as coordination in mutual aid pacts.

Coordination with local colleges and universities is of particular concern, because they are involved in campus and other disorders. Our survey shows that 46 percent of fire departments and 47 percent of police departments that have colleges in the locality have developed documented plans for operations in disorders (see Tables 59 and 61). Furthermore, 37 percent of those local fire departments have developed special programs of a planning, training, or operational nature for dealing with campus disorders (Table 60). Forty-five percent of the fire departments have actually been involved in campus disorders since 1964, and 11 percent have compiled written reports on incidents in which they have been involved (see Tables 56 and 58). Coordination in the reverse direction is less; only 25 percent of fire departments with colleges in their communities have received plans from the colleges for dealing with campus disorders (see Table 55).

With or without outside assistance, most fire services found it more feasible to rely on reserves in their own organization and to modify their procedures as needed rather than to attempt cooperative arrangements. Streamlined operations were achieved by:

- (1) Putting all available personnel on fire fighting activities. Fire prevention staffs were assigned to operational units, vacations of all personnel were canceled, and off-duty crews were called in for additional duty in many cases. In this way, the number of on-duty personnel of regular staffs was increased by 50 percent or more.
- (2) Ignoring call box alarms. Normally, a high percentage of telegraph call box alarms are false. In times of disorder the false alarm rate can become completely unmanageable; most cities find it easier to have available police units check out the box, and to curtail or eliminate the fire department response. Instead, they rely on receipt of fire alarms by telephone or other means. This subject is covered in more detail in Chapter III.
- (3) Variation in response. The number of companies responding to minor fires, such as automobiles, ash boxes, incinerators, and so on during a disturbance period may be increased in order to discourage harassment. If disturbances are intense or widespread, such fires may be neglected.

Because of crowd threats, most departments have used special procedures during heavy civil disturbances. These procedures generally include

- (1) Organization of response groups into "task forces." Task forces consist of several companies operating together under a task force commander. This concept has been described as "the most important tool the fire department can use to cover riot situations" (Philadelphia Fire Commissioner Joseph Rizzo, letter in response to SRI survey, 1972). The task force grouping reduces the likelihood of attack rioters, and reduces general confusion in dispatching, response, radio communications, and operational control. In effect, it decentralizes decision making into numerous field units under task force commanders, rather than relying on one or two senior commanders to control all operations in a disaster area.

When police or National Guard forces are assigned to the area, the task force can be convoyed by a protective unit under a single guard commander, which improves coordination. The

disadvantages of a task force (increased response time and possible overresponse to small fires) are of much less consequence in disorder periods than during normal periods.

- (2) "Hit and run" tactics. During disorders, fires are attacked intensively with large volume hose streams to attempt a quick knockdown, followed by little or no cleanup before the task force leaves to attack other fires.

#### Discussion

Data from various sources indicate that the number of civil disorders occurring in the United States has begun to decline after reaching a peak during the period 1967 to 1970. Fire departments seem generally to have adopted several successful operational procedures for meeting the fire threats accompanying civil disorders. However, the fact that these disorders occurred in such an unpredictable fashion points to a continuing hazard. There are indications that the nature of the threat is changing from one of open group confrontations to more surreptitious individual activities, as will be discussed in more details in later chapters. These threats point to a continuing need for preparedness and responsiveness in meeting violence situations on the part of fire services.

While fire departments (and police departments for that matter) seem to have been generally successful in modifying their internal procedures to meet civil disorder problems, they have been less successful in adapting their external relationships. Police and fire department coordination is still inadequate, and the fire service finds its major operational problems lie in that area. The difficulty is becoming noticeable as the nature of urban life and government organization becomes more complex, and will require increasing attention. Insofar as civil disorders are concerned, the greatest need is for fire departments to work out closer operational controls with police and other organizations.

Fire authorities generally resist modifying their traditional independent courses of action. In an earlier survey of civil disorder problems, most fire authorities felt that the fire service role "should not be changed in any way" (Ref. 13, p. 3.34). This attitude, although largely justified for efficiency of operations in the historical role of pure firefighting, is not consistent with the experience of past civil disorders, which demonstrate a need for responsive interactions with other organizations.

Cooperation of the fire department with police and other organizations does not imply organizational and functional integration. As a feasible alternative, the fire service can adapt to overlapping needs by maintaining its separate historical functions while improving the degree of interdepartmental coordination. The concept of police and fire department consolidation has never really spread beyond very limited applications (Ref. 14, p. 27), but pressures for increased coordination remain. The most acceptable means of obtaining such coordination--which will tend to alleviate pressures for comprehensive reorganization--appears to be by increased efforts on both sides to work out joint control mechanisms within the framework of existing organization. As will be discussed in later chapters, this approach can enhance the ability of both police and fire services to meet their respective responsibilities toward many violence problems in the changing American social environment.

## V HARASSMENT

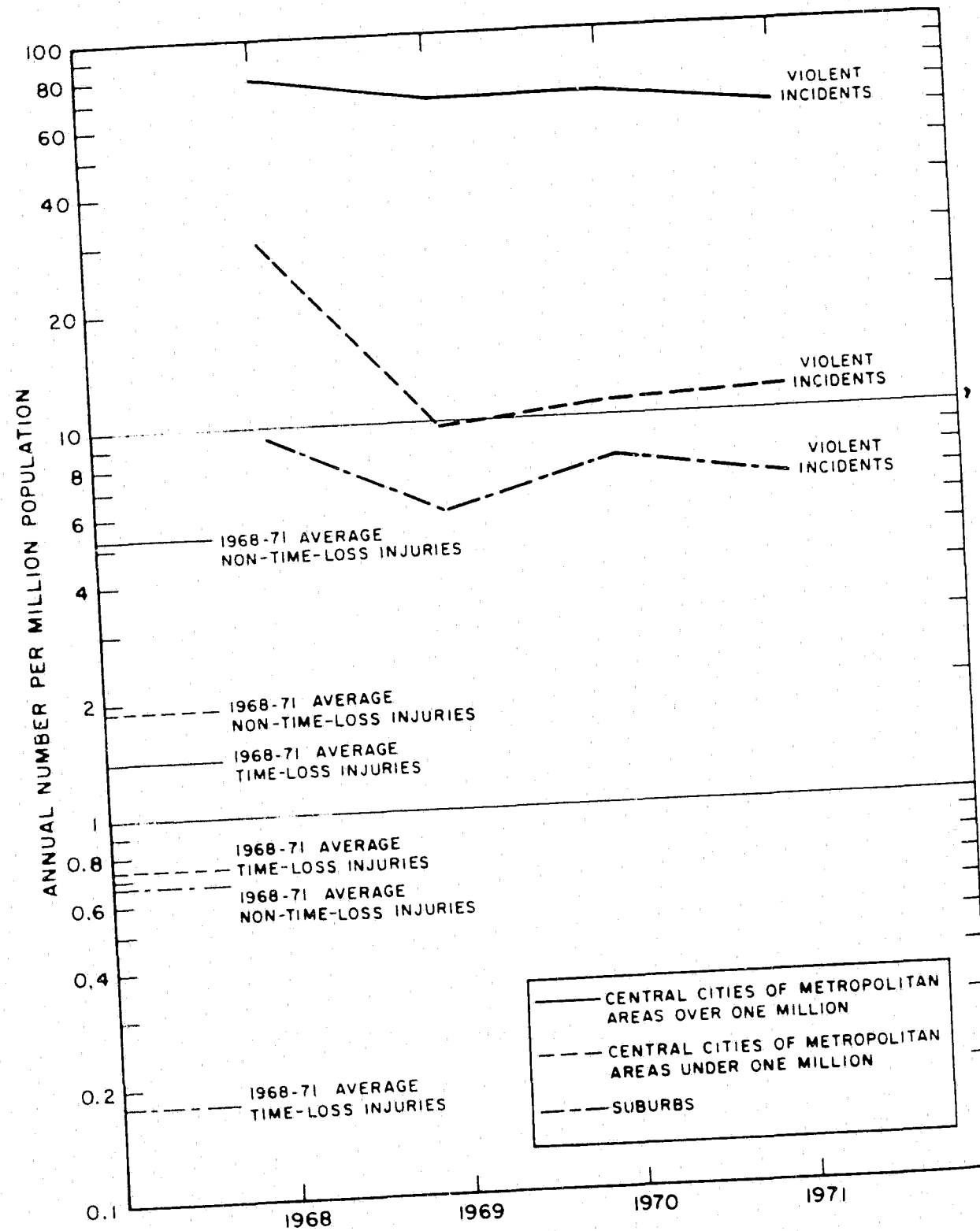
### The Problem

Violent harassment of firemen in other than riot situations has become a problem in recent years. The antisocial behavior involved and the countermeasures needed in harassment are obviously different from the behavior and countermeasures in civil disorders. Some data distinguishing between riots and harassment were obtained in our survey, but a complete breakdown was not attempted. Two other types of problems, theft of items from fire stations and name calling directed at firemen on duty, are also often associated with harassment. For all of this kind of behavior, the main concern in this chapter is how the behavior interacts with fire department policies and procedures.

Figure 3 and other data given in Chapter IV above indicate that the severity if not the total number of disorders in cities and campuses seems to have peaked out. However, indications are that the harassment problem has only peaked recently, if at all. Many fire departments have attempted to minimize publicity about their harassment problems in order not to aggravate their difficulties, but violence was reportedly getting worse and shifting in nature from group to individual actions in New York City as late as 1971 (Ref. 15).

Harassment coincides with the pattern of rise in "microviolence" and "minor disorders" reported by the Brandeis University Center for the Study of Violence (Ref. 16) and reflected in increased police killings, arson fires (see Chapter II), false alarms (see Chapter III), and other isolated acts of violence and aggression against society. In 1970, injury statistics of hostile acts against firemen indicated that about two-thirds were incurred during civil disorders and one-third were caused by isolated acts of violence (Ref. 17).

Figure 4 gives rates of violent incidents against fire departments. It indicates that although the total number of incidents is declining, central cities of the largest metropolitan areas have a much higher rate than either central cities of smaller metropolitan areas or suburbs. Also, the rates in the largest central cities are declining less rapidly than in smaller cities. The results confirm statistically what headlines have indicated for a number of years--that the large central cities have been and remain the focus of the violence problem.



SOURCE: SRI

FIGURE 4 RATES OF VIOLENCE AGAINST FIRE DEPARTMENTS

The incident estimates of Figure 4 were obtained by dividing the raw data for each type of city given in Table 25 of Appendix D by the percentage of responses from that type of city, and then dividing again by the populations given in Table 5. The time-loss injury and non-time-loss injury rates were obtained in a similar manner after dividing the four-year totals given in Table 26 by four to obtain annual averages. Note that only about one in every ten reported incidents results in a non-time-loss injury, and only one in every forty incidents results in a time-loss injury.

Figure 4 is given in number per million population in order to make the data commensurate with the other figures in this report, but from the fire service viewpoint injury statistics might be more meaningful when expressed relative to the number of active firemen. If the number of annual average injuries is divided by the number of full-time paid firemen, as given in Table 7, the calculated average annual rate of non-time-loss injuries is 4.5 per thousand firemen in the central cities of Standard Metropolitan Statistical Areas (SMSAs) over one million, 1.3 per thousand in central cities of SMSAs less than one million, and only 0.5 per thousand in suburbs. The average annual frequency of time-loss injuries is smaller yet: 0.9 per thousand firemen in central cities of SMSAs over one million, 0.5 per thousand in central cities of SMSAs less than one million, and 0.1 per thousand in suburbs.

Although these incidents and injuries are a matter for serious concern, they represent only a small fraction of the total hazards faced by firemen. National statistics for 1970 indicate an average rate of 3.1 injuries per thousand firemen due to hostile acts of violence; but, in the same year, the total injury rate for firemen was 380 per thousand, of which 110 resulted in lost work time. Also, Table 26 shows no fireman deaths from hostile acts of violence between 1968 and 1971, yet the overall fireman on duty death rate of 1.1 per thousand is the highest of all occupations (Ref. 18).

The harassment problem thus accounts for less than one percent of the total hazards that firemen face each day. Yet there is no question that harassment is regarded as a major problem by many fire departments. Particularly in the central cities, where fire problems are at their worst, the harassment problem is significant, and some fire departments have even been forced to operate below authorized strength because of recruiting difficulties caused by harassment (Ref. 19).

Preliminary results of the survey by the National Commission on Fire Prevention and Control indicated that "physical harassment of fire fighters" is considered the number 2 problem by fire chiefs in cities under

100,000 population. (They identified the number 1 problem as "lack of effective public education on fire safety.") The reasons why fire chiefs of smaller cities considered their harassment problem so serious were not given. Their concern is puzzling, since fire chiefs of cities with populations over 100,000 ranked harassment only number 7 in their list of concerns, and our survey shows that the frequency of harassment incidents is ten times greater in cities over 100,000 population as in smaller cities (comparative data derived from Tables 7 and 25).

Aside from misunderstandings over the definition (such as interpreting false alarms as part of the harassment problem), the most plausible explanation of this discrepancy is that fire chiefs of the larger cities, who have experienced harassment for several years, have learned to adapt to it and consider it a minor problem in the context of their work. Chief Whyte, Director of Community Relations Service, New York City Fire Department, for example, indicated that harassments in New York City are relatively not as serious as publicized (Ref. 20). Firemen from smaller towns, however, consider the problem not from the perspective of their own limited experience but rather on the basis of the publicity they have heard about riots, snipings, and general harassment of fire fighters.

The objective nature of harassment is also rather difficult to separate from subject impressions, but estimates have been made. In one city, about one-half of the reported harassment cases were verbal abuse and the other half were thrown objects. Verbal abuse and equipment theft are more common at fire scenes, whereas thrown objects are generally encountered while en route to or from calls (Ref. 21). Actual attempts to impede operations at the scene of a fire are infrequent, and these generally occur in the summer. Verbal abuse of fire crews and fire inspectors is not seemingly addressed personally to the firemen--other workers entering ghetto areas, such as meter readers, insurance men, laundry men, and so on, receive similar treatment. (Firemen claim this makes them feel like the character in the "Godfather" who was told not to take his assassination personally.)

Of the total incidents of physical violence reported, 40 percent were thrown objects, 17 percent were tool or hose theft or damage, 12 percent were shots, 9 percent were beatings or stabbings, 2 percent were explosives, 2 percent were booby traps, and 6 percent were other acts of violence (Table 27).

Most violence against fire departments seems to occur in ghetto areas in large cities. Table 28 shows that half of the fire departments in central cities of metropolitan areas larger than one million population

estimated that at least 75 percent of their violence originated in low income nonwhite areas.

Census data on nonwhite population compiled by the SRI staff to supplement question 5 were used to check the assertion that violence against fire departments is correlated with racial problems. We found that nonwhite racial composition was indeed ranked in the same order as violence against fire departments. Central cities of the largest metropolitan areas surveyed in this study have an average 22 percent nonwhite composition, central cities of smaller metropolitan areas 14 percent, and suburbs only 9 percent--Table 5(d).

Incidents of violence seem exponentially rather than directly related to racial composition. The 1971 violence rate in the large central cities was five times as high as in small central cities, yet the nonwhite racial percentage was only about one and one-half times as high.

Many of the people contacted and other authorities--both black and white--have indicated that the motivation for harassment is not necessarily racial. Generalized aggression against the establishment seems evident, since black firemen are attacked along with whites. There seem to be strong and continuing reasons why inner cities are centers for riots and violence:

- Rioters are mainly youths from the lower classes whose natural meeting ground is the inner city. Because of high birth rates in the decade after World War II, young people of all classes are much more numerous today than they were ten and more years ago.
- The lower classes in every ethnic and racial group are very violent compared to middle and upper class groups.
- The population of the inner city is cut off from most institutions that formerly served as stabilizing elements. For example, the volunteer fire departments of past times are now gone from the inner city, the old political precinct organization has now been replaced by nonparticipatory welfare systems, and even crime is now too highly organized to include the nonskilled. These changes reduce the leavening influence of the establishment (Ref. 22).
- Negro lower class values seem particularly unstable in that they find excitement, aggression, and belief in blind fate among the highest of the values in their belief system. These values are compatible with riots and unstable social conditions (Ref. 23).

Firemen have generally reacted to aggression inoffensively, and they emphatically deny the few charges of "firemen brutality" that have been leveled against them. However, there can be little doubt that some of the basis of the attacks on firemen is racial. Most encounters occur with black youths in age groups 12 to 20. (Incidents among Mexican-American and Puerto Rican youths have also been rising in many cities--Ref. 24.) Some firemen have apparently provoked resentment by the prominent display of political and other emblems viewed as antiminority.

Direct evidence of the relationship between harassment and integration of fire service manpower is difficult to find. One of the few specific indicators we found was the experience of Martin Grimes who, while fire chief in Bermuda during the period around 1960, found that harassment of his all white force ceased after he integrated the department (Ref. 25).

Most U.S. fire departments have barely begun to integrate their personnel. In 1960, U.S. fire departments had only 2.5 percent nonwhite employment--the lowest of any of the service occupations. Although, as indicated above, the large central cities have an average of 22 percent nonwhite population, nonwhite fire department membership remains very low in nearly all of them. Portland, Oregon, reportedly has no black uniformed employees. Miami and San Francisco have less than one percent. Boston and Buffalo have only one percent, Los Angeles two percent, Detroit and Cleveland four percent (Ref. 26), and New York City six percent. Washington, D.C. has perhaps a larger percentage than many major metropolitan cities: 23 percent. But even this number seems meager in comparison with the city's 69 percent black population (Ref. 27).

#### Measures Taken

Fire departments have recently taken several kinds of measures that at least partially serve to reduce harassment. These can be classified as (1) better passive protection, (2) additional services to the community, (3) community relations programs, and (4) special recruiting programs among minority groups.

#### Passive Protection

Many ideas for passive protection of men and equipment against harassment have been proposed in recent years. Both the International Association of Fire Chiefs and the International Association of Fire Fighters recommend that the cabs of all fire equipment be covered to protect

personnel from thrown missiles (Ref. 1, p. 35, and Ref. 2). The IAFC further recommends equipment modifications, such as covering hose beds with canvas to protect them from molotov cocktails, acids, and other debris. Also, many items of personal equipment--such as redesigned helmets, face shields, turnout coats, and flak vests--have been proposed and developed for defense against violence and harassment. However, some of these concepts have proven too expensive or impractical for normal use. For example, face masks tend to trap heat and smoke, and flak vests are too heavy to be feasible in many operational situations.

Table 30 shows that about two-thirds of the cities over 100,000 population and one-half of the cities under 100,000 now use closed cabs on their apparatus. About the same number have issued special face shields to personnel. More than one-half of all cities surveyed, especially the central cities of metropolitan areas, have placed covers on their hose beds. However, only about 20 percent have provided protective enclosures for crewmen riding outside the cab, and only three percent have issued flak vests.

The relative severity of thefts from station houses can be seen in the fact that 77 percent of the central cities in areas of over a million have taken measures to improve station house security, while only 51 percent of the central cities in smaller metropolitan areas, and only 50 percent of the suburbs have done so (Table 30).

#### Supplementary Services

Extra services represent a more positive method by which fire departments are attempting to gain the cooperation of their communities and thereby reduce the frequency of hostile behavior. One emergency service traditionally provided by fire departments is that of rescue; specialized equipment and crews are used for freeing victims of automobile and other accidents, involving physical dislocation and/or structural deformation. Oxygen and inhalator service, another traditional function of the fire department, requires a minimum of equipment that can be carried by a fire department battalion chief's car, by police cars, or by other general purpose or even specialized vehicles, such as rescue units and ambulances. Fire departments also sometimes provide emergency ambulance and ambulance transportation services.

A 1970 survey of cities over 10,000 population found that 91 percent obtained rescue service from their fire department, four percent from their police department, three percent from other public agencies, and only two percent from private organizations. Eighty-three percent



of the cities obtain inhalator service from the fire department, eight percent from the police department, three percent from other public agencies, and six percent from private organizations. Thirty-one percent of their emergency ambulance services (requiring prompt first aid or medical attention en route) were provided by fire departments, 10 percent by police, 12 percent by public hospitals and other public agencies, and 38 percent by private organizations. Fire departments provided nonemergency ambulance transportation in 14 percent of the cities, police in six percent, other public agencies in 15 percent, and private organizations in 67 percent (Ref. 28).

Our own later survey showed that fire departments provide emergency ambulances in 38 percent of the cities (Table 8). Our survey confirmed the earlier study's findings that suburbs in small towns are more likely to provide such services than all except the very largest (over one million) cities.

#### Community Relations

Many fire departments have provided neighborhood oriented community relations programs to win support from local residents. Our survey shows that fire departments in 37 percent of the cities over 100,000 population, and 23 percent of the cities under 100,000 population, have a formally organized community relations office or program (Table 8). Perhaps the largest of these efforts is in New York City, where a staff of about 20 men work full time on community relations activities; yet, this effort only requires one fireman on full time duty for each one thousand men in the total fire department.

In Los Angeles about 1,200 firemen act as volunteer counselors to help provide informal guidance in lieu of probation for youths who have encountered problems with the police. Other fire departments, such as New Haven, Connecticut, have developed a variety of programs including hydrant spray systems, teenage street dances, fire prevention lectures to civic groups and clubs, ethnic community interaction visits, and media presentations. Fire stations have been designated as drop-in "Community Information Centers" in a number of localities, using on-duty personnel to provide information and to distribute literature. But in at least some of these areas, the Centers have not been particularly successful.

Some departments have found that more active interaction with the general community is more effective, as when firemen pay informal visits to troublesome spots during daylight hours and explain to residents the nature of the fire department problem, and the fact that the residents' own fire protection is being endangered by harassing types of behavior.

#### Minority Recruitment

Fire officials recognize that many of their problems--including harassment--would be less if their forces were more integrated, but fire service progress toward integration is inhibited by several circumstances. In the first place, fire departments generally have low turnover. The Philadelphia turnover rate five years ago was reported to be an incredible one percent per year (implying a 100-year duty tour) and the Detroit rate was reported at about 3-1/3 percent per year (Ref. 29). These low rates severely limit the accession of new personnel. Secondly, fire departments usually have little difficulty in obtaining well-qualified applicants, and recruitment efforts have not been pushed. Because of the ease in obtaining recruits, most departments are reluctant to either modify their entrance standards or undertake special recruiting efforts. Third, firemen have very close interactions due both to the nature and to the schedule of their work. This close interaction carries over into their personal and family lives (Ref. 30) and tends to reinforce preexisting feelings of clannishness and prejudice. Fourth, a fire department by the nature of its noncontroversial function is not as sensitive a target for civil rights proponents as is, for example, a police department.

These inhibitors have kept fire services among the last of all occupations to fully integrate. But counter forces have been building in recent years. In addition to the harassment threat, there is a second force acting. Fire departments are increasingly under pressure from federal authorities to accelerate integration efforts, as indicated by justice department warnings to the fire departments of Chicago, Los Angeles, and Montgomery, Alabama (Ref. 31). A third force pushing toward integration, political pressure from the local community, is likely to ultimately be even stronger than the first two. Fire departments must be responsible (and responsive) to their own citizens. Consequently, fire officials generally indicate that they are now facing the need for integration.

A basic step to a positive program is to eliminate discrimination in the hiring process. All of the officials interviewed on this subject expressed a desire to equally accept or actively encourage minority applicants. The limited evidence we observed, such as their recruiting literature, descriptions of their admission procedures, and (in one case) unplanned observation of a minority recruitment interview, was consistent with these expressions. The recent, and as yet unpublished, poll of fire chiefs by the National Commission on Fire Protection and Control found that 87 percent of the chiefs agreed that "all minority groups in my community have adequate opportunities for employment in the fire service." Only five percent disagreed. At the same time however, most of the

respondents to that poll felt that further steps should be taken. Fifty-five percent felt that "fire departments should undertake programs to recruit, train, and employ minorities in their community." Twenty-three percent disagreed with that statement.

Many fire departments (such as New York, Cleveland, Los Angeles County, Miami, San Francisco, Oakland, California, and others with large minority populations) have already instituted programs to actively recruit racial and ethnic groups. The SRI survey found that 86 percent of the fire departments in cities of over one million population claim to "make a special effort to recruit minority group applicants" (Table 8). The minority recruitment program rates of departments in smaller cities were considerably less: 55 percent of the cities of 100,000 to one million population and 25 percent of the cities under 100,000.

Unfortunately, such efforts in themselves generally prove unsuccessful. According to a number of fire officials in various cities, recruitment failures are mainly due to a lack of applicants. Several reasons are given: blacks and other minorities have an image of fire departments as aloof and unattractive "white" institutions, they do not identify with the family patterns and family traditions characteristic of the fire service, they prefer police or other types of jobs, and generally "do not like fire department work." These reasons clearly point to a personal and family reluctance toward entering the fire service, rather than to the lack of knowledge of the existence of job openings. Therefore, the most successful campaigns rely on word-of-mouth and on personal selling (Ref. 27, p. 56). Departments that have relied exclusively on television and other media campaigns have had little success.

Other methods that are being used to encourage minority recruitment are to revise standards and testing procedures in such areas as written examinations, credit and arrest checks, family background interviews, and character and psychological investigations. Changes in these types of qualification requirements are quite controversial (Ref. 80), but are being advocated because traditional procedures reject a higher percentage of black than white candidates. Even straightforward procedures for mailing announcements and notifications appear to discriminate statistically against black applicants (Ref. 37, p. 45).

#### Discussion

Harassment is not a major problem to most fire departments, as indicated by evidence that all violence-caused injuries to firemen account for only about one percent of total on-duty injuries, and that the number of violence-caused injuries is declining. Harassment amounts to only

perhaps one-third of the violence-caused injuries; the rest are caused by civil disorders. The harassment rate is peaking out as violence in general declines, even though harassment may well represent a rising fraction of total violence-caused injuries.

However, harassment remains a serious hazard in minority ghetto districts of central cities in large metropolitan areas. Furthermore, the entire phenomenon of violence against fire departments is quite volatile, and its origins and controllability remain imperfectly understood. As Ray Perry of the IAFF said in a workshop meeting for this project on 24 October 1972, "Harassment is a social symptom and could rise again if social disorders and confrontation politics reappear." Part of the fire department harassment seems to be due to the demographic features of the inner city, such as the high proportion of youths and the poverty value system; part to the general antiestablishment mood of the nation at present; and part to the racial unrest against predominantly white fire department personnel. Fire departments have taken measures to reduce, if not to eliminate, the contributions of all three causes. Since they are powerless to correct the demographic problems of the cities, which may continue severe for at least another decade or two, they have adopted a number of protective measures such as enclosing the cabs of equipment, issuing face masks, and improving station house security. However, some of the protective measures advocated during the peak of concern over violence and harassment have not been widely adopted because of either cost or operational difficulties; for example, flak vests and protective crew enclosures outside the cabs of equipment have not been widely adopted. The sporadic nature of the harassment is such that protected equipment and other protective measures often adversely affect performance in fire fighting and other operational functions. For this reason, protective solutions cannot fully answer the problem.

Antiestablishment attitudes are being addressed by providing new special services, such as emergency ambulances to meet widely recognized resident needs, and by establishing community relations programs. These actions are helping the fire department to be more responsive and therefore more acceptable to residents.

However, special services do not aid directly in the basic fire prevention and fire control objectives of the fire services. Therefore, they seem to be only of marginal assistance in dealing with problems that interfere with these central objectives. It is noteworthy, as was pointed out by Battalion Chief Landis, of Yakima, Washington (Ref. 32), that Los Angeles for years had one of the most advanced community relations programs, yet was hit by the nation's first civil disruption.

Many of the policy problems associated with harassment are larger than the fire department can handle. As was suggested during one of our visits, the fire services need to better understand the problems of the ghetto, but political leaders also need to better appreciate the fire department's community relations problems. Unfortunately, fire departments are less likely than formerly to obtain such appreciation. Fire departments have not found the integration problem easy to deal with, and, while conclusive evidence is not available, clues indicate that some part of their civil disorder and harassment problems are racial. Generally, they have integrated their personnel more slowly than almost any other type of local government agency or service occupation. They are now being motivated to integrate their forces not only because of the harassment threat, but also because of federal equal rights enforcement activities and prospective political pressures of local minority interests.

Because of their historical autonomy in personnel matters as well as their unique traditions and working conditions, fire departments have not yet worked out very effective policies for actually achieving integration. They are going to confront this problem as an increasingly prominent policy issue until the time when they are able, like other institutions in American life, to meet these new social demands.

## VI BOMB THREATS AND BOMB INCIDENTS

### Problems

The use of bombs for violence has been known since the revolutionary days in Czarist Russia, but in the United States their use has only become widespread since the rise of civil disorders in the late 1960s. The historical association of bombs with revolutions has led many people to associate the increased bombing frequency with the breakdown of society (Ref. 33). For this reason, as well as for the intrinsic terroristic nature of bombings, their impact on the public consciousness has greatly surpassed their level of physical destruction and loss of life.

### Bombing Trends

Figure 5 shows bombing trend estimates from the SRI survey and from other available data. The SRI estimates were obtained from Table 34 and Table 36; those values were divided by the percentage of the sample response to the question (53 percent for central cities and 75 percent for suburbs), and then divided again by the populations shown in Table 5.

Nationwide bombing incident totals for 1969 and the first half of 1970 were collected by the Senate Subcommittee on Investigations (McClellan Committee) and published by the National Bomb Data Center (Ref. 34). Data for the second half of 1970 and the first half of 1971 were collected by the Center and published in a later document (Ref. 35). Data for the second half of 1971 were collected and published by the Center in their Summary Reports for each month of that period. We compiled the nationwide incidents by years and divided each by the 203.2 million 1970 U.S. Census population to obtain annual rates.

The various curves that are shown in Figure 5 are reasonably consistent in magnitude but somewhat inconsistent in trend indications. The SRI data show that the large central cities (all of them are over 50,000 population) have higher rates than the smaller suburbs. These values conform both in order and in general magnitude with the rates by population size category that were calculated by the National Bomb Data Center (Ref. 35, Figure 14). However, the National Bomb Center shows a continually rising rate through 1971, while the SRI survey shows that the number of incidents actually peaked in 1970.

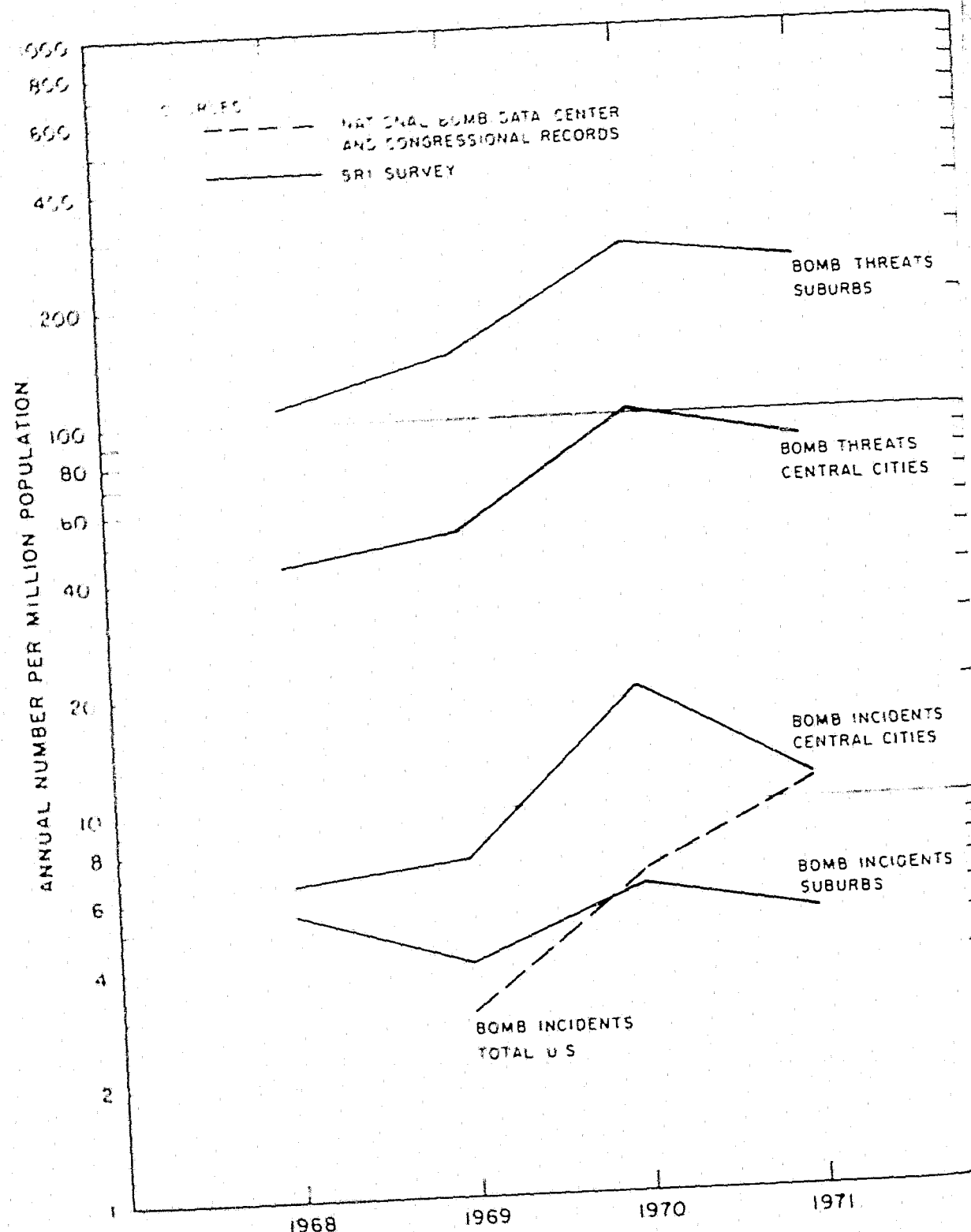


FIGURE 5 RATES OF BOMB THREATS AND BOMB INCIDENTS

The SRI findings are partially confirmed by the California Bomb Data Analysis Section that claims that bomb incidents peaked in California in the early half of 1971 (Ref. 36, p. 1). Los Angeles City authorities also find that bombings in their jurisdiction have declined, but Los Angeles County authorities report that their bombings are rapidly rising from approximately 75 in 1969 to 100 in 1970, 160 in 1971, and 300 in 1972.

These discrepancies are not yet resolved, and may eventually be explained by incompatibilities in reporting methods, such as differences in the definition of what constitutes an "incident" and changes over time in data collection procedures. But at least rates seem to be stabilizing in some of the most critical areas, such as in central cities and in California (the leading state in bombings, with 21 percent of the national total, according to the National Bomb Data Center).

Motivations for Bombings

A definite motive can be ascribed in only about one-half of all bombings. Of those motives that can be inferred, the largest single cause, racial protest, accounts for 28 percent. Another 26 percent are caused by political, antiwar, and other protests. About 20 percent are caused by juvenile vandalism, ten percent by attempts to harass or trap public safety personnel, six percent by criminally motivated acts, and ten percent by such miscellaneous causes as revenge, labor disputes, jealousy, and experimenting (see Ref. 41, p. 36). Thus, at least one-quarter and perhaps one-half or more of all incidents can be considered to be social protests of an anarchistic nature.

How many of these incidents were created by organized revolutionary groups as distinguished from casual college or other protestors is not known. One newspaper account of an interview with the California Bomb Data Analysis Section stated that "only about five percent of the 1,084 attacks reported were committed by revolutionaries" (Ref 37), but this conclusion is not repeated or implied anywhere in the Section's own publication. Another publication estimates that 56 percent of the known bombing perpetrators are campus revolutionaries, 19 percent are black extremists, 14 percent are white extremists, 8 percent are criminals, and the remaining 3 percent are labor and religious fanatics (Ref. 38).

Knowledge of motivations can help greatly in determining the direction of prospective trends and the effectiveness of control measures. For example, some authorities have speculated that recent declines in bombings have been due to a quieting of campus activism resulting in

decreased U.S. involvement in the Vietnam War and reductions in the military draft. Others believe that bombings by militants have been counterproductive through alienation of potential supporters (Ref. 39). Still others have felt that new state and federal laws have been effective in deterring bombings. None of these reasons, however, are likely to discourage internally motivated, frequently aimless types of antiestablishment activity. Explanations of internal motivations are offered by Freudian psychology. Slomich, in a working paper for this project (Ref. 40), has characterized this as follows:

The Freudian scheme can be associated in medicine and psychoanalysis with the work of Paul Schilder, Karl Menninger, and Otto Fenichel; in psychology and psychoanalysis with Erich Fromm, Harry Stack Sullivan, and Rollo May; in classics and psychoanalysis with N. O. Brown; and in politics with Harold Lasswell. We do not suggest identity of views among the above. Common to them, however, are the following:

- (1) Civilization is not possible without a high degree of libidinal repression, along with possibilities for its sublimation in creative work, love, and social interrelationships.
- (2) This repression of libidinous drive involves, essentially, repression of sexual drive. There are no differences among what we call "drive," "love," "sex," "aspiration" and so on, though their manifestations may be varied.
- (3) Particular social orders are successful or adaptive to the extent that they reconcile to a high degree needs for continuity and order, with possibilities for sublimation of repressed libido, in love, work, and social interrelationships.
- (4) In the best of circumstances there always have been significant degrees of undesirable repressions. None has done away with deprivation.
- (5) Repression (and perversions) are more likely in time of rapid social change and trauma, like the present.
- (6) Incidence increases with conditions that inhibit the sublimating libidinal drive. Incidence tends to be high among individuals and groups that are badly adjusted, maladaptive, or deprived.

Since only about two percent of all bombers are apprehended, information about the motives of instigators cannot easily be obtained from

direct questioning (Ref. 36, p. 3). However, the problem of motives seems significant enough to call for further analysis and statistical resolution.

#### Targets, Casualties, and Damage

Targets of bombings reported by the National Bomb Data Center (Ref. 35, p. 24) included 30 percent commercial and manufacturing facilities, 17 percent residential, and 13 percent educational. Nonpolice governmental facilities accounted for six percent, of which one percent were facilities of local government. Fire stations and other fire service facilities were presumably part of this small latter group but were not separately classified. Police facilities were targets in five percent of the cases.

Total casualties in the one-year National Bomb Data Center analysis were 17 killed and 178 injured. The number killed is only a little more than 0.1 percent of the 12,000 people killed in the United States each year by fire. This small percentage, which is only one-half the percentage of all fires represented by bomb incidents (Ref. 41), indicates that bombings are usually aimed at property rather than people.

The nature and type of property damage from bombings has not been reported completely; damage was estimated for about half the 1,550 functioning bomb incidents in the National Bomb Data Center analysis of a 12-month period in 1970 and 1971. The total damage in that sample was \$15 million, or about \$20,000 per incident. Fifty-seven percent of the incidents with damage were caused by incendiary rather than explosive bombs, but the fraction of damage caused by fire rather than explosions is not known.

Even if all the incidents and all the damage reported were proved to involve fire, the total would have amounted to hardly 0.2 percent of the number of fires and one percent of the estimated fire losses in the United States in 1971. But the nature of bombing attacks and the highly sensitive situation of many of the targets make bomb incidents a problem of serious concern to fire departments.

#### Bomb Threats

The problem of bomb threats is commonly associated with actual bombings, but the motivational and operational natures of the two acts appear quite distinct. Records of bomb threats are even more fragmentary and

less reliable than those of bomb incidents. But threats are many times more numerous than actual bombings. The California Bomb Data Analysis Section reported more than six times as many bomb threats as bomb incidents in California in 1971 (Ref. 36, p. 3).

Responses to question 34 of the SRI survey showed that the absolute number of bomb threats reached its peak in 1970, both in central cities and in suburbs. The ratio of bomb threats to bomb incidents was quite constant in central cities over the four years covered by the survey, and was about the same in magnitude (6:1) as the ratio reported by the California study. However, the ratio in suburbs was very much higher and was rapidly rising throughout the survey period. We found that in suburbs the threat ratio rose from 15 times the number of incidents in 1968 to an amazing 37 times the number of incidents in 1971. Inasmuch as the National Bomb Data Center study found that only three percent of all actual or attempted bombings are preceded by warnings, the fraction of threats accompanied by bombs is infinitesimal. If a ratio of six threats to every bomb is accepted, then the fraction of threats accompanied by a bomb is only one in every 200. If we further correct for the fact that some of the warnings are for incendiary rather than the more hazardous explosive bombs, that some bombs are inoperable, and that in suburban areas the ratio of threats to bombs is much higher than six, then the risk of imminent hazard presented by a bomb threat can be less than one in a thousand in many situations.

Since the number of bomb threats is several orders of magnitude larger than the number of threats actually consummated, the motives involved can be quite different also. Although no study has been found of the motivations for bomb threats, they clearly seem associated to a considerable extent with schools and other facilities frequented by young people. Both from this indication and from the nature of the act and its consequences, bomb threats can be associated predominantly with juvenile vandalism. The bomb threat phenomenon appears to be a more dramatic and faddish variant of the false alarm phenomenon, which is discussed in Section III.

#### Measures Taken

The large increases in the frequency of both bomb threats and bomb incidents in recent years have caused fire departments to change their response, operational, and training policies, and to reexamine the scope of their responsibilities. They have tended to increase their rate of response to actual bomb incidents, but they have decreased their rate of response to bomb threats. In general, they seem somewhat reluctant to

take on additional operational or training responsibilities for bomb situations.

#### Response Policies

Table 37 of the SRI survey deals with the number of responses to bomb incidents. When the raw data are adjusted for the percentage of fire departments that reported the numbers of responses, and then compared with the data from Table 36 on actual incidents (similarly adjusted), the rate of response can be estimated. Such estimates indicate that in metropolitan central cities the rate of response rose from 78 percent of all bomb incidents in 1968 to 82 percent of all incidents in 1971; in suburbs the rate rose from only 38 percent in 1968 to 97 percent in 1971.

In contrast, the data from Table 35 on numbers of responses to bomb threats show a decline relative to the number of threats shown in the data from Table 34. For central cities the rate declined from 81 percent to 72 percent, and for suburbs it declined from 84 percent to 61 percent.

These data are consistent with the data in Table 38 and Table 39 concerning fire department response policies toward bomb incidents and bomb threats. Those tables show that 68 percent of the central cities and 80 percent of the suburbs will routinely send equipment to the scene of a bomb incident, but only 47 percent of the central cities and 51 percent of the suburbs will send equipment for a bomb threat.

#### Operating Policies

Standard procedures at the scene of bomb threats also differ from those at the scene of actual incidents. Almost 84 percent of fire departments have issued general orders or instructions on bomb threats and bomb incidents, according to the data in Table 42. Tables 40 and 41 show that a majority of fire departments in metropolitan central cities will order evacuation of the location if necessary at the scene of a bomb incident, but a majority will not do so at the scene of a bomb threat. While a majority of suburban fire departments will order evacuation if necessary in either case, the majority is about 11 percent higher when dealing with bomb incidents.

Experts recommend that fire departments maintain as much of a hands-off posture as possible in evacuating scenes of bomb threats, in order

to avoid dramatizing the occasion. They prefer, if possible, not to evacuate and, if evacuation is carried out, they prefer that it be ordered by the building management rather than by the fire or police authorities (Ref. 42). However, legal and safety constraints frequently dictate evacuation anyway.

For other types of control measures in bomb threats, a slight majority of both central cities and suburbs will help to determine procedures and carry out bomb searches (Table 40). Some departments go to considerable lengths to avoid this duty. One battalion chief was reportedly excused by police from participation in a bomb search after ordering, "Captains: axes and pike poles!" for use in the search. A majority of both central cities and suburbs will order any necessary physical damage control measures (Table 40).

For bomb incidents, a somewhat larger majority of fire departments will order physical damage control measures if necessary; but only a minority of departments in both central cities and suburbs will order or implement procedures for bomb disposal (Table 41).

#### Training Policies

Although response and on-scene policies are similar for central cities and suburbs, the levels of training for bomb situations differ considerably. About 19 percent of central city personnel have received training equivalent to a four-hour course in evacuation, search, damage control, and bomb recognition. About one percent have received training equivalent to a 24-hour course (derived from data in Tables 43 and 7). But in suburbs, only about seven percent have received the four-hour course equivalent and two percent the 24-hour course equivalent. Less than one-half percent of all firemen have received either investigation training (equivalent to 24 hours) or lengthy bomb disposal training (equivalent to 120 hours).

Expressed interest by the fire departments in such courses was much higher than actual participation. Over half of all the departments surveyed expressed interest in the two short bomb scene courses and in the bombing investigator course (Table 44). Less than one-third of the departments expressed interest in the 120-hour bomb disposal course. It should hardly be necessary to add that expressed interest in surveys is not a reliable indicator of eventual participation, but the results at least give indications of the relative appeal of the proposed courses.

#### Police and Fire Department Relationships

A basic policy question that deals with governmental responsibility for bomb situations has to be resolved before decisions about training, operations, or response can be standardized. Police departments are the proper organizations to take responsibility for bomb situations, according to a 1970 resolution of the New England Association of Fire Chiefs (Ref. 43). The American Federation of Police also teaches in its training classes that police should be responsible for investigating incidents and if feasible for disarming devices, while the fire departments should stand by to handle the results of any explosion. This allocation of responsibility seems to be the most general pattern around the country.

The SRI study found that almost exactly half of the fire departments reported that their police had responsibility for handling both bomb discoveries and bomb threats (Tables 45 and 47). A slightly lower fraction reported joint police and fire department responsibilities: 40 percent for discoveries and 45 percent for threats. Fire departments had primary responsibility for bomb discoveries in only eight percent and for bomb threats in only six percent of the jurisdictions. Responsibility allocations were reasonably similar for all types of cities, although a somewhat higher percentage of cities with more than 100,000 population--over 60 percent--did report police responsibility. Also, the West reported a higher percentage of police responsibility than other regions.

Preferences of fire departments in our survey about allocation of responsibility for bomb situations were roughly in the same proportion as actual responsibilities are divided at present. But slightly more fire departments preferred that the police handle bomb situations, and slightly fewer preferred that the fire department alone handle bomb situations (Tables 46 and 48).

Operational procedures also seem to follow this pattern of primary police responsibility. For example, our survey showed that 68 percent of local jurisdictions had police bomb investigation squads, but only 27 percent had fire department bomb investigation squads (Tables 52 and 53). As might be expected, a somewhat larger percentage of both police departments and fire departments in the largest cities had bomb investigation squads.

Bomb disposal squads were considerably more rare for both services: 31 percent of police departments and only five percent of fire departments had such squads (Tables 50 and 51). However, most bomb squads of both police departments and fire departments are quite new, and many are still being organized.

Again, however, the state of police and fire department coordination seems unsatisfactory in many jurisdictions. The above percentage totals show that some cities have neither police nor fire bomb investigation and bomb disposal squads. Other cities are known to have duplicate squads maintained by both the police and fire services, who in some cases do not attempt to cooperate with each other.

Only slightly more than half of the localities surveyed by SRI had written agreements between the police and fire departments covering their respective responsibilities, authority, and standard procedures for bomb threats and bomb discoveries (Table 49). This low rate of agreement seems related to organizational problems rather than to resource limitations, since about as large a percentage of small towns as of large cities had such agreements. Slightly less than half of the jurisdictions admitted to the presumably standard pattern of police assuming responsibility for explosive bomb incidents and fire departments assuming responsibility for incendiary bomb incidents (Table 54).

#### Discussion

The bomb problem is a serious one both because of its intrinsically terroristic nature and because it has been increasing rapidly in recent years. However, evidence from our survey and from some (but not all) other sources indicate that the rise has peaked and is now declining slightly. Also, bomb damage amounts to less than one percent of damage from all fires in the United States, and bombing deaths amount to an even smaller percentage of all deaths from fire.

Although many of the bombing incidents appear revolutionary or anarchistic, we do not have full evidence as to the extent and cohesion of the organized groups fomenting them. One could speculate that most bombings are caused by young people acting either alone or in small groups while in alienated moods, rather than while pursuing widely organized long term objectives. But this is a question that requires further analysis.

Because of their antisocial implications, bombings represent a significant concern for both fire departments and police departments. The problem will prove more manageable if approached with the objective of establishing realistic controls rather than with extreme countermeasures. It has been complicated by its involvement with the more frequent but less risky bomb threat problem.

Bomb threats have approached epidemic proportions in some localities, and they represent a difficult problem for coordination of the fire and police services with each other and with the threatened parties. They are more of an annoyance than a hazard, since less than one-half percent of all threats are accompanied by bombs. Questions of proper response and ultimate responsibility loom larger than protective measures or bomb disposal questions in most situations. Like bomb incidents, bomb threats require rational control and coordination rather than over-response.

Useful procedures for handling bomb incidents and bomb threats, based on organization, training, and coordination, have been worked out in many cities. But in others, deficiencies in one or another of these ingredients prevent full effectiveness. In some cities, bomb squads have not been established; in others training has been insufficient; and most frequently the various agencies concerned have not agreed on thorough and logical policies.

Fire departments tend most often to disavow primary or coequal responsibility either for bomb discoveries or for bomb threats, on the rationale that these are law enforcement problems for which fire departments are by function and charter not concerned. However, almost half of all bombings are incendiary rather than explosive, and fire departments in nearly all jurisdictions do have primary responsibilities for preventing, extinguishing, and investigating fires resulting from any kind of bomb.

In dealing with these problems, fire departments must adapt more effectively to needs for coordination with police and other agencies. In this respect, bomb incidents resemble civil disorders (Chapter IV) and arson (Chapter II), while bomb threats resemble false alarms (Chapter III). In all of these types of violent behavior, the fire department must proceed in concert with the police and others, rather than in its traditionally independent role.



Appendix A

ANALYSIS OF SURVEY METHODS

## Appendix A

### ANALYSIS OF SURVEY METHODS

Although the number of fire departments contacted in the survey for this study was reasonably large and the data collected were quite extensive, considerable attention was paid to verifying that the information collected was reasonable and accurate. This proved difficult because of the fact, as reported in a recent study by the U.S. Census, that "no central comprehensive data collection system for the fire service exists on a national level" (Ref. 78).

Where possible, the project team attempted to compare our results with existing data from other sources. As described in the text of this report, our results were generally consistent with those of the other sources, but some discrepancies were observed. To resolve these discrepancies, we considered five potential pitfalls that often have hindered statistical analyses of fire problems while evaluating the questionnaire data. Our experience in dealing with these pitfalls is described below for the benefit of future survey efforts of a similar nature.

#### Imprecise or Overly Long Questionnaire Formulation

Professional pollsters point out that great care is needed in designing questions to avoid biasing the responses. Even seemingly innocuous variations, such as leading or negatively phrased questions, have been shown to strongly influence the responses. Also, if questions do not deal with topics in a manner that the respondents are familiar with the responses will not be replicable (i.e., the responses are likely to be different if asked under different circumstances). Finally, if the questionnaire is too long the responders may fill out the form carelessly or incompletely or fail to fill it out at all.

All of these problems were addressed during formulation of the questionnaire, and actions were taken to guard against them. The original questionnaire, which was 42 pages and 125 questions long, proved too long when pretested on six fire departments in July and August of 1971. The revised final questionnaire was cut back to 17 pages and 61 questions. This length was recognized as still probably too long for optimum reception

by respondents, but was retained in order to cover the large number of topics in the analysis.

Modifications to the questionnaire were also made to simplify the wording, to clarify questions, and to reduce ambiguity. These changes were made after visits with each of the fire departments surveyed in the previous test, and after comments by LEAA officials and other reviewers had been received. Later, returns from the final questionnaire distributions showed that some questions were still unclear. For example, some respondents read the entry "no street boxes" as an entry calling for the number of street boxes.

#### Inadequate or Unrepresentative Survey Sample

Acceptable survey results can be obtained from a sample that is quite small in absolute numbers provided that the sample is carefully structured to be representative of the population as a whole. (The Gallop Poll typically uses only 1,500 interviews in conducting nationwide voter surveys.)

For the present analysis, we were interested in obtaining representative data on those fire departments that have had the most significant violence problems. Those departments are generally in the larger metropolitan cities and in college towns. Therefore, we distributed the questionnaire to 100 percent of the fire departments in U.S. cities of over 100,000 population. To this we added a special list of college towns, suburbs in the largest Standard Metropolitan Statistical Areas (SMSAs) and central cities in smaller SMSAs. Surveys of small town and rural departments were intentionally minimized in order to limit the sample size to approximately 1,000. While this selection biased the results against the large number of independent smaller fire departments, it did give complete coverage of those departments that were most likely to encounter violence problems. A total of 1,042 questionnaires were mailed; Table A-1 shows the types of community to which they were sent.

Table A-1

#### QUESTIONNAIRE DISTRIBUTION

<u>Urban Category</u>	<u>Number of Questionnaires Mailed</u>
All U.S. cities of over 100,000 population in the 1970 census	158
All other "central cities" in SMSA's of over 200,000 population	72
All other "central cities" in SMSA's of less than 200,000 population	115
Suburban cities and townships in the 25 largest SMSA's and five other SMSA's selected because of reported incidence of violence against fire departments	468
Small cities and towns that have been the scenes of publicized campus disorders	36
Cities of 30,000 to 100,000 population not included in the above	<u>193</u>
Total	1,042

#### Biased Sample Response

By experience, survey researchers have learned to take precautions against low return percentages. Most public opinion pollsters are now quite scrupulous in obtaining responses from almost all their selected sample. For questionnaire surveys, a 75-percent response is considered minimal for reliable estimation of the surveyed sample, and responses below 50 percent are considered likely to be so misleading as to be practically worthless.

Unfortunately, many surveys of fire departments obtain very low rates of return, and their representativeness is therefore suspect. One reason for the typically low rates of return is the lack of a comprehensive nationwide data collection system and the consequent need for

numerous duplicating survey efforts. Urban fire chiefs report that they receive a great many questionnaires--as many as one per week or more--and are unable to respond adequately to them.

Even the present questionnaire, which contained a covering letter by the President of the International Association of Fire Chiefs (see Appendix B) and which was sponsored by the federal government (seeking potential guidance on future assistance in a field of high topical interest to the fire community), received a disappointing response. The initial response rate to the questionnaire in the most significant group of those cities of over 100,000 population was only 55 percent in the two months following mailing in March 1972. The response was improved by a telephone follow-up campaign that required as many as two or three calls to some of the cities that had not yet responded, thereby increasing the rate to 82 percent for the large cities. Responses from departments in cities with populations of less than 100,000 people numbered 40 percent of the sample. Because of funding limitations and the lesser significance of smaller departments, follow-up calls were not attempted for this group.

The net representations of the sample, in terms of district population, are compared with the total number of fire departments of comparable size in the United States in the tabulation below. (Note that because of overlapping jurisdictions, the number of fire departments in each category is different from the number of cities.)

<u>District Population</u>	<u>Total Fire Departments in the United States (Ref. 79)</u>	<u>Fire Departments in Survey Sample (from Table 5)</u>
Over 100,000	173	133
25,000-100,000	744	280
10,000-24,999	570*	60
Under 10,000	22,600*	9

From these comparisons, one can see that the SRI survey is not representative of fire departments as a whole. Rather it is a sample in which both selection methods and responses are biased toward those

\* Approximate.

departments most likely to have encountered violence problems and to have taken measures in response to those problems. Therefore, while it represents the frequency of violent incidents in cities of over 100,000 population very fully, it is not representative of incidents in smaller towns and rural areas where incidents are undoubtedly less frequent.

#### Unreliable Collection of Data in the Field

The reliability of field reports by many fire departments is known to be low because of inadequate training for reporting personnel and inadequate monitoring of the data that are reported (see Chapter V, Incendiary Fires). We found no way to evaluate or control the extent of this problem in this project, but note it as a pervasive and continuing one for most analyses of fire data. Much of the inconsistency between our survey data and comparable data from other sources must be ascribed to weakness in record collection. Hopefully, new efforts toward data standardization, such as those under the National Fire Protection Association's Standard No. 901 "Coding System for Fire Reporting" and the Uniform Fire Incident Reporting System (UFIRS) project will help to alleviate this problem.

#### Erratic Reporting of Data

Although survey researchers and users usually assume that results returned on questionnaires are reasonably consistent with records or other data available to the department reporting, we found that this assumption is not a safe one. Frequently, misunderstanding or carelessness on the part of the respondent creates wide variability in the data returned. This variability can be a significant source of error to the survey results, as we found by testing a small sample of returns for replicability.

We compared responses from five fire departments to both the pretest and final test surveys, which contained many questions that were essentially the same. In each of the five departments, the individual fireman who answered the forms was different for the pretest than for the final. Therefore, differences in responses by the same department yield an impression of the random variability of responses. This check on variability does not provide a full test of accuracy, since systematic biases either in gathering the original data or in the later reporting procedures may have existed. However, the check does give a reasonable test of the replicability of responses.

The questions for which responses could be compared were of three types. One type, questions asking for quantitative factual statistics, dealt with quantities such as the "actual number of uniformed personnel." A second type of question asked for nonquantitative factual (not opinion) information, such as yes-no and multiple choice answers. A third type of question asked for quantitative opinions, such as "percentage of total false alarms received from street boxes" in different types of neighborhoods.

Type one, the quantitative data questions, provided a total of 163 cases in which a pretest response from a fire department could be compared with a final test response from the same department. In each case, the ratio of the difference in the two responses to the larger of the responses was calculated. This ratio was less than 0.01 (i.e., the two responses were essentially the same) in only 84 (51 percent) of the cases. A frequency distribution of the observed ratios is shown in Table A-2.

Table A-2

OBSERVED DIFFERENCES IN 163 REPEATED RESPONSES TO QUANTITATIVE QUESTIONNAIRE ITEMS

Differences in the Two Responses (as a ratio of the larger response)	Number of Observations
Less than 0.01	84
0.01 to 0.09	21
0.10 to 0.19	12
0.20 to 0.49	18
0.50 or more	<u>28</u>
Total	163

Analysis of these differences can provide some indication of the variability of the data. A method was derived to compare the observed differences with those that would be expected if the responses were generated completely at random. If the responses were a uniform random distribution, then the expected value of the ratio would be 0.50. If

the responses were replicated exactly, the differences would of course be zero. Replicability can be measured on a linear scale of quality in which complete replicability is represented as 1.0 and complete randomness as 0. Since the observed differences between responses averaged approximately 0.18, the replicability index of this type of observations can be expressed as follows:

$$\begin{aligned}
 \text{Quality scale of replicability} &= 1 - \frac{\text{observed inconsistencies}}{\text{random inconsistencies}} \\
 &= 1 - \frac{0.18}{0.50} \\
 &= 1 - 0.36 \\
 &= 0.64
 \end{aligned}$$

Type two questions, the nonquantitative fill-in (mostly yes-no) type, provided a total of 133 comparable cases for comparison of the pretest and final test responses. Inconsistencies in responses amounted to 29 (22 percent of the total). This compares to a 50 percent inconsistency for a completely randomized response, assuming that the 133 cases had consisted completely of yes-no questions. Thus, the replicability index for the second type of question can be expressed as follows:

$$\begin{aligned}
 \text{Quality scale of replicability} &= 1 - \frac{\text{observed inconsistencies}}{\text{random inconsistencies}} \\
 &= 1 - \frac{0.22}{0.50} \\
 &= 1 - 0.44 \\
 &= 0.56
 \end{aligned}$$

Type three questions asked for estimates of the percentage distribution of event categories into eight subcategories in the samples examined. The sample consisted of a total of 40 comparable percentage estimates. The sum of the differences in percentages in these 40 comparable estimates was 244--an average difference of about 6 percent for each estimate and an average sum of differences of about 49 percent for the eight estimates in each question. It can be shown that if the subcategory percentage estimates were made completely at random the expected sum of the differences between two responses for any one question would be 50 percent. Thus, the replicability of results for these estimates was very low.

$$\begin{aligned}
\text{Quality scale of replicability} &= 1 - \frac{\text{observed inconsistencies}}{\text{random inconsistencies}} \\
&= 1 - \frac{0.49}{0.50} \\
&= 1 - 0.98 \\
&= 0.02
\end{aligned}$$

Comparisons of these replicability results with each other and with the ideal of perfect information shows that answers to the different types of questions differed significantly in quality. The statistical data were far from perfectly replicable, although their general quality level (about 60 percent of exact replicability in the scales applied above) was adequate as a basis for observing the dominant factors at work. On the other hand, the estimates of percentage distributions of incidents among different types of neighborhoods were so variable (only 2 percent better than random) as to be essentially meaningless. (Fortunately, the small sample may have been unusually deviant, since empirical evidence from the tables in Appendix D indicates that the percentage estimates appear reasonable, and that most of the observed differences among groups are consistent with expectations.)

These variable results can be explained by the nature of the survey process. Statistical data (such as the number of false alarms) are normally recorded and respondents in fire departments are used to dealing with them both conceptually and administratively. Even so, the returns show considerable variation because fire departments seldom receive any feedback from their efforts.

In contrast, the requested percentage estimates required information that was not normally considered by the respondents. The responses would certainly be expected to reflect varying understandings of the types of neighborhood categories, as well as differing subjective judgments of the percentage frequencies involved in each. The special nature of the questionnaire and the voluntary conditions of response probably discouraged any attempt by most respondents to use what records may have been available to verify their estimates.

The results of this (and presumably of other) surveys must be viewed with these limitations in mind if the resulting analytical conclusions are to be realistic. Conclusions about those fire departments serving over 100,000 people, where the sample response was 80 percent, are bound to be considerably more reliable than those about smaller departments, where the sample response was only 50 percent. The data based on statistics can be used with much greater confidence than data based on unofficial estimates of the respondents.

Appendix B  
SURVEY QUESTIONNAIRE

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS • INCORPORATED

1725 K STREET, N.W., SUITE 1100 • WASHINGTON, D. C. 20006



AREA CODE 202  
833-3420

Dear Chief:

I am writing to inform you of a development that can have beneficial results for the future of the entire Fire Service in this nation--and to ask your cooperation in the success of this important venture.

For the first time in its history, the Law Enforcement Assistance Administration of the U.S. Department of Justice has awarded a research grant for the purpose of assisting the Fire Service. The purpose of the research grant is to study the crime and violence problems that have become increasingly serious for many of our Fire Departments. The study will be conducted by the Stanford Research Institute.

The IAFC has pledged its support in assisting the Stanford researchers' efforts to collect important data that will develop a comprehensive national picture of law violations that are affecting Fire Department operations and safety.

The enclosed questionnaire is being sent to part of our active IAFC membership. Once the information requested has been received and analyzed, both LEAA and the Fire Service will have a clearer picture of the role which our Fire Service ought to have in LEAA regional assistance programs.

I strongly urge that you take the time to review the enclosed questionnaire, fill it out as completely as possible, and mail it back to the address listed on the enclosed postage-paid return envelope. In previous years, we in the IAFC have worked hard and not always successfully to impress Federal officials with the seriousness of the crime and violence problems that our Fire Service has often had to face unaided. Your response to the enclosed questionnaire will help us to carry these efforts to a successful conclusion.

Please also pay particular attention to the final page of the questionnaire in which you are asked to submit additional information of any kind on crime and violence problems your Fire Department has had to face and on the programs you have developed and implemented to meet such problems within the limits of your available resources. I hope that every Fire Department will take advantage of this opportunity. It's time the Federal Government and the American public knew more about our problems, our achievements, our needs, and our plans and objectives for the future. Let's start getting the word out now!

Sincerely,

*Curtis W. Volkamer*  
CURTIS W. VOLKAMER  
President

Enclosure

QUESTIONNAIRE TO FIRE CHIEFS CONCERNING CRIME  
AND VIOLENCE PROBLEMS ENCOUNTERED BY  
FIRE DEPARTMENTS

by

Stanford Research Institute  
1611 N. Kent Street  
Arlington, Virginia 22209

This questionnaire is being sent to active members of the International Association of Fire Chiefs (IAFC) as part of a study which is being conducted by the Arlington, Virginia, office of the Stanford Research Institute under a grant from the Law Enforcement Assistance Administration of the U. S. Department of Justice. The study concerns several types of crime and violence problems which have recently affected Fire Departments in various parts of the nation and are of concern to law enforcement planners. The support given to the study by the IAFC is gratefully acknowledged.

On the following pages you will find a series of questions concerning your Fire Department, different types of crime and violence problems it may have encountered, and related matters. By answering these questions as fully and as completely as possible, you and your Department will be providing important data that can be the basis for improved law enforcement strategies in the future.

Please note also that additional space is provided at the rear of the questionnaire for suggestions, comments, and special explanations. When mailing back the questionnaire in the pre-addressed envelope provided, you are also urged to enclose (or send by separate cover) additional materials that would contribute to further understanding of crime and violence problems encountered by your Department. Additional information is particularly desired on programs which your Department has developed in response to such problems and in such areas as planning, training, operations, and community relations.

Your cooperation in answering and returning this questionnaire at an early date is deeply appreciated. Please mail back the questionnaire no later than May 1, 1972.

Bureau of the Budget Number 43-S71010  
Expires 30 June 1972

PRELIMINARY DATA

1. Name of Fire Department  
\_\_\_\_\_
2. Name of Fire Chief  
\_\_\_\_\_
3. Mailing Address of Fire Department Headquarters  
\_\_\_\_\_  
Street City County State Zip
4. Name and Title of Person Completing Form  
\_\_\_\_\_
5. Population according to 1970 U. S. Census of city, town, county, or other jurisdiction serviced by your Fire Department (leave blank if 1970 census data are not available to you)  
\_\_\_\_\_
6. Type of Fire Department (check one)  
 Paid employees  
 Volunteer  
 Combination paid employees and volunteers
7. Actual number of uniformed personnel in your Fire Department as of January 1, 1972  
\_\_\_\_\_  
 Paid (full-time employees)  
 Volunteers (no financial remuneration)  
 Volunteers paid on call



8. Does your Fire Department

<u>Yes</u>	<u>No</u>	
_____	_____	Provide emergency ambulance service
_____	_____	Make a special effort to recruit minority group applicants
_____	_____	Have a formally organized Community Relations office or program

**FIRE ALARMS**

9. Enter below the total numbers of telegraph, telephone, and other types of street boxes operative as of January 1, 1972, in the city, town, county, or other jurisdiction serviced by your Fire Department:

_____	Telegraph
_____	Telephone
_____	All other
_____	No street boxes
_____	No record kept

10. Enter below the total numbers of fire alarms and false alarms from all sources (telephone, telegraph, radio, automatic systems, etc.):

<u>Period</u>	<u>All Fire Alarms</u>	<u>No Record Kept</u>	<u>False Alarms</u>	<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

11. Enter below the total numbers of fire alarms and false alarms from street boxes only:

<u>Period</u>	<u>All Fire Alarms</u>	<u>No Record Kept</u>	<u>False Alarms</u>	<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

**CONTINUED**

**1 OF 2**

8. Does your Fire Department

Yes No

Provide emergency ambulance service

Make a special effort to recruit minority group applicants

Have a formally organized Community Relations office or program

**FIRE ALARMS**

9. Enter below the total numbers of telegraph, telephone, and other types of street boxes operative as of January 1, 1972, in the city, town, county, or other jurisdiction serviced by your Fire Department:

\_\_\_\_ Telegraph  
 \_\_\_\_ Telephone  
 \_\_\_\_ All other  
 \_\_\_\_ No street boxes  
 \_\_\_\_ No record kept

10. Enter below the total numbers of fire alarms and false alarms from all sources (telephone, telegraph, radio, automatic systems, etc.):

Period	All Fire Alarms	No Record Kept	False Alarms	No Record Kept
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

11. Enter below the total numbers of fire alarms and false alarms from street boxes only:

Period	All Fire Alarms	No Record Kept	False Alarms	No Record Kept
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

12. Enter below the total number of persons (including juveniles) arrested or issued summons on charges of placing false fire alarms and the number convicted or found delinquent:

Period	No. Arrested or Issued Summons	No Record Kept	No. Convicted or Found Delinquent	No Record Kept
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

13. Yes No Do you consider that the legal penalties for placing false fire alarms in the city, town, county, or other jurisdiction serviced by your Department are sufficiently severe?

14. Estimate percentages of total false fire alarms received from street boxes located in the following types of neighborhoods during the period Jan. 1, 1970 through Dec. 31, 1971 (percentages should add to 100%)

Jan. 1, 1970 through Dec. 31, 1971 (%)	Type of Neighborhood
_____	Business, commercial, industrial, with low density residential population
_____	Low income residential with predominantly white population
_____	Low income residential with predominantly nonwhite population
_____	Middle-income residential with predominantly white population
_____	Middle-income residential with predominantly nonwhite population
_____	High-income residential
_____	Farming and other rural
_____	Other
100%	

15. Has your Fire Department taken any of the following actions for the purpose of reducing the number of false fire alarms received from street boxes? Check all that apply.

<u>Yes</u>	<u>No</u>	
—	—	Instituted special response procedures for <u>all</u> boxes
—	—	Instituted special response procedures for <u>some</u> boxes
—	—	Removed <u>all</u> boxes completely without replacements
—	—	Removed <u>some</u> boxes completely without replacements
—	—	Removed <u>all</u> telegraph boxes and replaced with telephone boxes
—	—	Removed <u>some</u> telegraph boxes and replaced with telephone boxes

**BUILDING FIRES**

16. Total number of building fires from all causes during the following periods:

	No Record Kept
Jan. 1 - Dec. 31, 1968	_____
" " 1969	_____
" " 1970	_____
Jan. 1 - Dec. 31, 1971	_____

17. Total number of "incendiary" and "suspicious" building fires during the following periods:

	No Record Kept
Jan. 1 - Dec. 31, 1968	_____
" " 1969	_____
" " 1970	_____
Jan 1 - Dec. 31, 1971	_____

18. Total number of building fires from "cause unknown or undetermined" during the following periods:

	No Record Kept
Jan. 1 - Dec. 31, 1968	_____
" " 1969	_____
" " 1970	_____
Jan. 1 - Dec. 31, 1971	_____

19. Estimate percentages of total numbers of all building fires in the period January 1, 1970 through Dec. 31, 1971 which occurred in the following types of neighborhoods (percentages should add vertically to 100%)

Jan. 1, 1970 through Dec. 31, 1971 (%)	Type of Neighborhood
_____	Business, commercial, industrial, with low density residential population
_____	Low income residential with predominantly white population
_____	Low income residential with predominantly nonwhite population
_____	Middle-income residential with predominantly white population
_____	Middle-income residential with predominantly nonwhite population
_____	High-income residential
_____	Farming and other rural
_____	Other
100%	

20. Estimate percentages of total numbers of all "incendiary" and "suspicious" building fires in the period January 1, 1970 through Dec. 31, 1971 which occurred in the following types of neighborhoods (percentages should add vertically to 100%)

Jan. 1, 1970 through Dec. 31, 1971 (%)	Type of Neighborhood
_____	Business, commercial, industrial, with low density residential population
_____	Low income residential with predominantly white population
_____	Low income residential with predominantly nonwhite population
_____	Middle-income residential with predominantly white population
_____	Middle-income residential with predominantly nonwhite population
_____	High-income residential
_____	Farming and other rural
_____	Other
100%	

21. Estimate percentages of total numbers of all "cause unknown or undetermined" building fires in the period January 1, 1970 through Dec. 31, 1971 which occurred in the following types of neighborhoods (percentages should add vertically to 100%)

Jan. 1, 1970 through Dec. 31, 1971 (%)	Type of Neighborhood
_____	Business, commercial, industrial, with low density residential population
_____	Low income residential with predominantly white population
_____	Low income residential with predominantly nonwhite population
_____	Middle-income residential with predominantly white population
_____	Middle-income residential with predominantly nonwhite population
_____	High-income residential
_____	Farming and other rural
_____	Other
100%	

22. Enter below the total number of persons (including juveniles) arrested or issued summons on charges of actual or attempted building arson and the number convicted or found delinquent:

Period	No. Arrested or Issued Summons	No Record Kept	No. Convicted or Found Delinquent	No Record Kept
Jan. 1 - Dec. 31, 1968	_____	_____	_____	_____
" " 1969	_____	_____	_____	_____
" " 1970	_____	_____	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____	_____	_____

23. What agency is responsible for arson investigation in the city, town, county, or other jurisdiction(s) serviced by your Fire Department?

\_\_\_\_\_ Police                      \_\_\_\_\_ Police and Fire Department  
 \_\_\_\_\_ Fire Department        \_\_\_\_\_ Other

24. What method of arson investigation is actually employed?

\_\_\_\_\_ Police conduct all arson investigations  
 \_\_\_\_\_ Fire Department conducts all arson investigations  
 \_\_\_\_\_ Police and Fire Department work jointly on arson investigations  
 \_\_\_\_\_ Other

VIOLENCE AGAINST FIRE DEPARTMENTS

25. How many (if any) incidents of violence against personnel, equipment, and structures of your Fire Department were experienced during the following periods within the city, town, county, or other jurisdiction serviced by your Department.

	<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968 _____	_____
" " 1969 _____	_____
" " 1970 _____	_____
Jan. 1 - Dec. 31, 1971 _____	_____

26. How many (if any) personnel of your Fire Department were killed or injured as the result of these incidents of violence encountered in the period January 1, 1968 through Dec. 31, 1971

	<u>Check if No Record Kept</u>
_____ Total number killed	_____
_____ Total number who received loss-time injuries	_____
_____ Total number who received injuries but did not lose time from work	_____

27. How many (if any) of these incidents of violence against your Fire Department in the period January 1, 1968 through Dec. 31, 1971 involved use of the following types of weapons or hostile activities against personnel, equipment, and structures

<u>No. of Incidents</u>	<u>Types of Weapons or Activities</u>
_____	Throwing of bricks, stones, bottles, and similar objects
_____	Molotov cocktails and other incendiaries
_____	Explosives
_____	Shots from firearms
_____	Beating, slugging, kicking, grappling, stabbing of firemen
_____	Damage to or theft of fire-fighting tools and hose
_____	Booby traps
_____	Other
_____	No record Kept

28. Estimate percentages of total number of these incidents of violence during period January 1, 1968 through Dec. 31, 1971 which occurred in following types of neighborhoods (percentages should add vertically to 100%)

Jan. 1, 1968 through Dec. 31, 1971 (%)	Type of Neighborhood
_____	Business, commercial, industrial, with low density residential population
_____	Low income residential with predominantly white population
_____	Low income residential with predominantly nonwhite population
_____	Middle-income residential with predominantly white population
_____	Middle-income residential with predominantly nonwhite population
_____	High-income residential
_____	Farming and other rural
_____	Other

100%

29. How many incidents of violence during the period January 1, 1968 through Dec. 31, 1971 were encountered by your Fire Department while rendering "mutual aid" or "outside aid". (If none, write "none".)

\_\_\_\_\_

30. The following queries relate to actions your Fire Department may have taken as a result of incidents of violence that have been encountered by your Department or by other Fire Departments in various parts of the country

Yes	No	
_____	_____	Have you changed from open cab to closed cab apparatus
_____	_____	Have you provided protective enclosures on apparatus for personnel who ride outside driver's cab
_____	_____	Have you placed covers on hose beds
_____	_____	Have you issued special face shields to personnel
_____	_____	Have you issued flak vests to personnel
_____	_____	Have you authorized any personnel to carry firearms while on duty
_____	_____	Have you increased the security of station houses against potential acts of violence
_____	_____	Have you issued general orders or other document(s) to personnel on procedures to be followed when violence is encountered
_____	_____	Have you authorized any use of water hose for crowd control in violence situations

31. If there is violence or a clear risk of violence against personnel and/or apparatus, are your Fire Department personnel authorized to allow trash and other outdoor fires to burn out in lieu of engaging in fire-fighting operations when no danger to life or significant property loss is involved.

\_\_\_\_\_ Yes \_\_\_\_\_ No

32. If apparatus responding to a fire alarm in a built up area comes under heavy missile throwing or other serious violence, is the official in charge authorized to interrupt the response pending arrival of police or other protection

\_\_\_\_\_ Yes \_\_\_\_\_ No

33. Have the police issued general orders or other documents to their personnel instructing them on procedures to be followed for the protection of personnel and apparatus of your Fire Department in violence situations

\_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know

**BOMB INCIDENTS**

The next four items request historical data related to involvement of your Fire Department with bomb incidents.

34. How many (if any) bomb threats were reported to your Fire Department during the following periods

		<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____
" " 1969	_____	_____
" " 1970	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____

35. How many times did apparatus of your Fire Department respond to scenes of such bomb threats

		<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____
" " 1969	_____	_____
" " 1970	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____

36. How many incidents involving discovery of an unexploded bomb or suspicious bomb-like object were reported to your Fire Department during the following periods

		<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____
" " 1969	_____	_____
" " 1970	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____

37. How many times did apparatus of your Fire Department respond to scenes of such discoveries

		<u>No Record Kept</u>
Jan. 1 - Dec. 31, 1968	_____	_____
" " 1969	_____	_____
" " 1970	_____	_____
Jan. 1 - Dec. 31, 1971	_____	_____

The next five items request information on current operational policies of your Fire Department with respect to bomb incidents

38. When a bomb threat is received, will your Fire Department routinely send apparatus to the threatened location

\_\_\_\_\_ Yes \_\_\_\_\_ No

39. When a report is received that an explosive bomb or suspicious bomb-like object has been found, will your Fire Department routinely send apparatus to the threatened location

\_\_\_\_\_ Yes \_\_\_\_\_ No

40. At the scene of a bomb threat, will your Fire Department

Yes No

\_\_\_\_\_ Determine whether complete or partial evacuation of the location is required, and so order

\_\_\_\_\_ Determine whether and how a search for a bomb is to proceed, and direct or participate in such search

\_\_\_\_\_ Determine whether and what physical damage control measures are required, and so order

41. At a scene where an explosive bomb or suspicious bomb-like object has been found, will your Fire Department

Yes No

\_\_\_\_\_ Determine whether complete or partial evacuation of the location is required, and so order

\_\_\_\_\_ Determine whether and what physical damage control measures are required, and so order

\_\_\_\_\_ Determine appropriate procedures for processing and disposal of bomb or bomb-like object, and so order or implement

42. Has your Fire Department issued general orders or other document(s) to personnel of your Department instructing them in the above policies and procedures

\_\_\_\_\_ Yes \_\_\_\_\_ No



The National Bomb Data Center, which is funded by the Law Enforcement Assistance Administration (LEAA), has issued a draft document in which an attempt is made to identify four basic skill levels needed to handle all aspects of bomb assignments and the minimum training period required to reach each skill level. Items 43 and 44 request information on numbers of personnel in your Fire Department who have completed equivalent training, and whether your Department would be interested in having personnel attend such training in the future.

43. How many personnel of your Fire Department have received training in bomb incident skills equivalent to the following levels:

<u>No. of Personnel</u>	<u>Skill Level</u>
_____	Public Safety Officer: basic evacuation, search, damage control, and bomb recognition techniques (4 hours)
_____	Bomb Scene Officer: advanced evacuation, search, damage control, and bomb recognition techniques (24 hours)
_____	Bomb Disposal Technician: bomb evaluation, disarming, transportation, detonation, ignition, processing of evidence, disposal of explosive materials (120 hours)
_____	Investigator: criminal investigation, including processing of evidence, follow-up of leads, searches and arrests, case preparation (24 hours)

44. Would your Fire Department be interested in having personnel attend future bomb incident training courses equivalent to the following levels:

<u>Yes</u>	<u>No</u>	
_____	_____	Public Safety Officer (4 hours)
_____	_____	Bomb Scene Officer (24 hours)
_____	_____	Bomb Disposal Technician (120 hours)
_____	_____	Investigator (24 hours)

Items 45 through 54 concern relationships between your Fire Department and the police on problems related to bomb incidents.

45. Which agency in the city, town, county, or other jurisdiction serviced by your Fire Department is actually responsible for handling situations involving bomb threats

\_\_\_\_\_ Police                      \_\_\_\_\_ Police and Fire Department  
 \_\_\_\_\_ Fire Department                      \_\_\_\_\_ Undetermined

46. In your opinion, which agency should be responsible for handling situations involving bomb threats

\_\_\_\_\_ Police                      \_\_\_\_\_ Police and Fire Department  
 \_\_\_\_\_ Fire Department

47. Which agency in the city, town, county, or other jurisdiction serviced by your Fire Department is actually responsible for handling situations involving discoveries of unexploded bombs or suspicious bomb-like objects

\_\_\_\_\_ Police                      \_\_\_\_\_ Police and Fire Department  
 \_\_\_\_\_ Fire Department                      \_\_\_\_\_ Undetermined

48. In your opinion, which agency should be responsible for handling situations involving such discoveries

\_\_\_\_\_ Police                      \_\_\_\_\_ Police and Fire Department  
 \_\_\_\_\_ Fire Department

49. Has your Fire Department reached any written agreements with the police on procedures to be followed in the handling of situations involving bomb threats and bomb discoveries, including designations of agencies and persons with responsibility and authority for making key decisions

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

50. Do the police have a bomb disposal squad or other unit performing this function

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

51. Does your Fire Department have a bomb disposal squad or other unit performing this function

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

52. Do the police have a bomb squad or other unit which performs criminal investigations in bombing cases
- \_\_\_\_\_ Yes \_\_\_\_\_ No
53. Does your Fire Department have a bomb squad or other unit which performs criminal investigations in bombing cases
- \_\_\_\_\_ Yes \_\_\_\_\_ No
54. A recent publication states that whereas police departments have traditionally assumed responsibility for explosive bomb incidents, the fire service in major cities and many smaller communities has assumed the responsibility for incendiary bombings. Has this pattern developed in the case of your Fire Department and the local police
- \_\_\_\_\_ Yes \_\_\_\_\_ No

CAMPUS DISORDERS

Items 55 through 61 concern civil and criminal disorders on campuses of colleges and universities, including bomb incidents and fires.

If no colleges and universities are located in the city, town, county, or other jurisdiction serviced by your Fire Department, check here

and proceed to the next section of this questionnaire.

Other Fire Departments please answer items 55 through 61.

55. Enter names of colleges and universities which have provided your Fire Department with copies of written plans or other guidelines for the handling of possible future disorders involving their campuses, including bomb incidents and fires (if none, write "none")
- \_\_\_\_\_
- \_\_\_\_\_
56. Enter names of colleges and universities which have been scenes of campus disorders since January 1, 1964 that involved fires, bomb incidents, or disturbances to which apparatus of your Fire Department responded (if none, write "none")
- \_\_\_\_\_
- \_\_\_\_\_

57. Enter names of colleges and universities (if any) that have been scenes since January 1, 1964 of physical violence against personnel and apparatus of your Fire Department responding to fires, bomb incidents, or disturbances
- \_\_\_\_\_
- \_\_\_\_\_
58. Has your Fire Department compiled any written report on campus disorders in which your own Department or other Fire Departments have been involved, with a view to identifying operational lessons, problems, and needs
- \_\_\_\_\_ Yes \_\_\_\_\_ No
59. Has your Fire Department issued general orders or other document(s) to personnel of your Department on procedures to be followed in campus disorder situations
- \_\_\_\_\_ Yes \_\_\_\_\_ No
60. Has your Fire Department developed any special programs in the areas of planning, training, or operations with respect to possible future interventions of your Department in campus disorder situations
- \_\_\_\_\_ Yes \_\_\_\_\_ No
61. Have the police developed written plans or other documents with respect to protection of personnel and apparatus of your Fire Department in campus disorder situations
- \_\_\_\_\_ Yes \_\_\_\_\_ No

ADDITIONAL INFORMATION

In addition to completing and mailing back this questionnaire in the pre-addressed envelope provided, your Fire Department is requested to send additional information in this envelope (or by separate cover) that would contribute to understanding of crime and violence problems encountered by your Department and the programs which your Department has developed in response to such problems in such areas as planning, training, operations, and community relations. Such information could be in the form of pages from annual reports of your Fire Department, copies of special studies or analyses performed by or for your Department, newspaper or magazine articles, and speeches by the Fire Chief and other officials.

Of particular interest and value would be the following:

1. Texts of orders or other guidelines of your Fire Department instructing personnel on policies and procedures to be followed with respect to crime and violence problems.
2. Information on special programs, methods, and techniques devised by your Fire Department for crime and violence problems, and in such areas as planning, training, and operations.
3. Information on new programs, methods, and techniques utilized by police to assist your Fire Department with crime and violence problems.
4. After-action reports on campus disorders and other specific violence situations encountered by your Fire Department, especially situations involving physical attacks on personnel, apparatus, and stationhouses.

COMMENTS, SUGGESTIONS, SPECIAL EXPLANATIONS

Appendix C

DESCRIPTION OF SURVEY DATA

## Appendix C

### DESCRIPTION OF SURVEY DATA

Fire and law enforcement data from conventional sources do not generally deal with the recently emerging interactions between violence problems and fire department operations. Therefore, the special survey used in this study was taken in order to find such data.

#### Questionnaire Information

The questionnaire was directed to fire departments in order to elicit available information on the subjects of malicious attacks against fire departments and on fire department activities in dealing with campus disorders, bomb threats and bomb incidents, arson, and false alarms. The questionnaire obtained organizational and demographic data about the fire departments polled, as well as information on policies, programs, methods, and techniques developed by fire departments and police departments in response to violence problems.

A copy of the questionnaire and a detailed set of tables of responses to each question are contained in Appendices B and D. Comments added by fire departments to individual questions and to the questionnaire as a whole were compiled and noted, when relevant, in the text of this report. Other materials that were returned by individual departments, such as annual reports, statistical data, and plans for procedures to use in disorders, were also quoted as appropriate in the text. However, to preserve the confidential nature of the survey, questionnaire data and other materials returned were not identified by city unless through prior publication they could clearly be considered to be in the public domain.

In addition to the questionnaire inputs, information was compiled by the SRI staff from Census data to show nonwhite percentages for each city, and to show total population where that information was not recorded by the respondent (these data are tabulated in Table 5d).

#### Tabulated Information

The questionnaires when returned were coded and key punched onto cards. The data were then processed at the George Washington University Computer Center, using its IBM System 370 Model 145 computer. Two programs were used:

- (1) A standard program provided "frequency distribution" outputs showing the distribution of returns according to several pre-selected categories. Tables 8 and 9 are examples of this type of output.
- (2) A specially designed program provided "sum" outputs showing subtotal and total sums for quantitative entries. Tables 7 and 10 are examples of this output. To accurately show trends from year to year in entries calling for annual data such as in Question 10, we included only those responses that reported on all four years, and tabulated partial answers as "unknown."

The results of the tabulation were summarized according to three separate categories, and aggregated at several levels of detail. The tables reproduced in Appendix D give only aggregated portions of the detailed data. The three categories that are summarized (all categories are not tabulated for some questions) are as follows:

- (1) Population of District Served contains population data classified according to the responses to Question 5 (or from Census data where the entry was missing). In most cases the population is the same as that of the political jurisdiction represented, but in a number of cases it differs because the fire department covers a somewhat different area and population. The three levels of population detail compiled for the tables are a nine-cell detailed breakdown, a two-cell breakdown of districts over and under 100,000 population, and a total.
- (2) Metropolitan Size and Urbanization classifies the fire districts in two dimensions. One is by the size of the Standard Metropolitan Statistical Area (SMSA), as defined by the 1970 Census, in which each district is located. (Nearly all districts are in a SMSA; the few that are not were classified as independent cities and grouped in a catchall category with suburbs of SMSAs of under 100,000 population.) The other dimension is whether the district belongs in a central city or a suburb. Any city named in the Census title of a SMSA (e.g., "Los Angeles-Long Beach") was considered a central city; all others were considered suburbs. The ten-cell detailed breakdown thus shows five metropolitan size categories, each divided into central cities and suburbs. The two-cell breakdown shows the sums of all central cities and of all suburbs.

- (3) Regions and Combined Areas group the returns according to geographic location. The 50 states plus the District of Columbia (not all of which were represented in the returned questionnaires) are divided into ten regions and four combined areas, according to Table C-1.

Table C-1

## REGIONS AND COMBINED AREAS

Region	Combined Area	States
New England (NE)	Northeast (NEA)	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Middle Atlantic (MA)	Northeast (NEA)	New York, New Jersey, Pennsylvania
East North Central (ENC)	North Central (NC)	Ohio, Indiana, Illinois, Michigan, Wisconsin
West North Central (WNC)	North Central (NC)	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South Atlantic (SA)	South (S)	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
East South Central (ESC)	South (S)	Kentucky, Tennessee, Alabama, Mississippi
West South Central (WSC)	South (S)	Arkansas, Louisiana, Oklahoma, Texas
Mountain (M)	West (W)	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
Pacific (P)	West (W)	Washington, Oregon, California, Alaska, Hawaii

## Appendix D

## TABLES OF SURVEY RESULTS

The tables are numbered to correspond to the questions in Appendix B on which they are based.

Table 5

## 1970 POPULATION

(a) Numbers of People and Fire Departments

	<u>Population (thousands)</u>	<u>Number of Fire Departments</u>
Population of district served (in thousands)		
Over 1,000	20,722	7
500-1,000	11,259	17
250-499	10,291	29
100-249	<u>11,673</u>	<u>80</u>
Subtotal (over 100)	53,945	133
50-99	8,252	118
25-49	5,866	162
10-24	1,019	60
5-9	27	4
Under 5	<u>18</u>	<u>5</u>
Subtotal (under 100)	15,182	349
Total	69,127	482
Metropolitan size (in thousands) and urbanization		
Over 1,000		
Central cities	32,252	39
Suburbs	11,270	187
500-1,000		
Central cities	8,651	33
Suburbs	1,109	22
250-499		
Central cities	7,391	51
Suburbs	315	7
100-249		
Central cities	4,773	59
Suburbs	269	7
Under 100		
Central cities	728	13
Subs. + independent	2,368	64
All central cities	53,795	195
All suburbs	<u>15,332</u>	<u>287</u>
Total	69,127	482

Table 5 (Continued)

(b) Number of Fire Departments by District Population versus Region

Population of District Served (thousands)	Regions*										Combined Areas				Total
	NE	MA	ENC	WNC	SA	ESC	WSC	M	P	NEA	NC	S	W		
	Over 1,000	0	2	2	0	0	0	1	0	2	2	2	1	2	
500-1,000	1	0	2	1	3	1	3	2	4	1	3	7	6	17	
250-499	0	4	2	4	5	3	5	1	5	4	6	13	6	29	
100-249	7	7	14	6	17	5	6	4	14	14	20	28	18	80	
Subtotal (over 100)	8	13	20	11	25	9	15	7	25	21	31	49	32	133	
50-99	11	15	29	8	8	1	10	5	31	26	37	19	36	118	
25-49	16	15	50	14	16	3	18	9	21	31	64	37	30	162	
10-24	0	9	24	5	2	0	3	1	16	9	29	5	17	60	
5-9	0	0	2	0	1	0	0	0	1	0	2	1	1	4	
Under 5	0	2	3	0	0	0	0	0	0	2	3	0	0	5	
Subtotal (under 100)	27	41	108	27	27	4	31	15	69	68	135	62	84	349	
Total	35	54	128	38	52	13	46	22	94	89	168	111	116	482	

(c) Number of Fire Departments by District Population versus Metropolitan Size

Population of District Served (thousands)	Metropolitan Size and Urbanization										Total	
	Over 1,000		500-1,000		250-499		100-249		Under 100			
	City	Sub-urb	City	Sub-urb	City	Sub-urb	City	Sub-urb	City	Sub-urb		
Over 1,000	6	1	0	0	0	0	0	0	0	6	1	7
500-1,000	12	1	4	0	0	0	0	0	0	16	1	17
250-499	10	1	11	0	7	0	0	0	0	28	1	29
100-249	6	14	15	1	29	0	15	0	0	65	15	80
Subtotal (over 100)	34	17	30	1	36	0	15	0	0	115	18	133
50-99	4	48	2	5	12	4	30	1	9	57	61	118
25-49	1	64	1	13	3	3	12	6	3	56	20	162
10-24	0	50	0	3	0	0	2	0	1	4	3	60
5-9	0	4	0	0	0	0	0	0	0	0	4	4
Under 5	0	4	0	0	0	0	0	0	1	0	5	5
Subtotal (under 100)	5	170	3	21	15	7	44	7	13	64	80	269
Total	39	187	33	22	51	7	59	7	13	64	195	287

\* Abbreviations in column headings are defined at the end of Appendix C.

Table 5 (Concluded)

(d) Nonwhite Percentage of Population (Estimated from 1970 Census Data)

Population of district served (in thousands)	Number of Fire Departments with Indicated Percentage										Total	Unknown
	0%	1-10%	11-20%	21-30%	31-40%	41-50%	51-60%	61-70%	71-80%			
Over 1,000	0	0	1	3	2	1	0	0	0	7	0	
500-1,000	0	3	6	2	1	3	1	0	1	17	0	
250-499	0	8	8	7	2	3	1	0	0	29	0	
100-249	1	35	18	12	11	2	1	0	0	80	0	
Subtotal (over 100)	1	46	33	24	16	9	3	0	1	133	0	
50-99	5	76	23	5	2	2	2	0	1	116	2	
25-49	15	107	22	11	3	2	2	0	0	162	0	
10-24	7	44	3	3	0	1	0	0	0	58	2	
5-9	1	2	0	0	1	0	0	0	0	4	0	
Under 5	0	1	0	1	0	0	0	0	0	2	3	
Subtotal (under 100)	28	230	48	20	6	5	4	0	1	342	7	
Total	29	276	81	44	22	14	7	0	2	475	7	
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	0	12	9	9	2	5	1	0	1	39	6	
Suburbs	20	129	20	3	3	4	2	0	1	182	5	
500-1,000												
Central cities	0	7	10	8	3	3	2	0	0	33	0	
Suburbs	2	15	1	2	1	0	0	0	0	21	1	
250-499												
Central cities	0	21	14	9	6	1	0	0	0	51	0	
Suburbs	0	5	0	1	0	0	1	0	0	7	0	
100-249												
Central cities	1	32	14	5	5	1	1	0	0	59	0	
Suburbs	1	4	2	0	0	0	0	0	0	7	0	
Under 100												
Central cities	2	9	1	1	0	0	0	0	0	13	0	
Subs. + independent	3	42	10	6	2	0	0	0	0	63	1	
All central cities	3	81	48	32	16	10	4	0	1	195	0	
All suburbs	26	195	33	12	6	4	3	0	1	280	7	
Total	29	276	81	44	22	14	7	0	2	475	7	
Regions and combined areas												
(1) New England	4	24	5	2	0	0	0	0	0	35	6	
(2) Middle Atlantic	2	28	9	6	3	2	1	0	0	51	3	
(3) East N. Central	19	70	23	7	3	3	2	0	0	127	1	
(4) West N. Central	2	32	2	0	1	0	0	0	0	37	1	
(5) South Atlantic	1	12	9	15	6	5	2	0	1	51	1	
(6) East S. Central	0	2	4	1	4	1	1	0	0	13	0	
(7) West S. Central	1	22	9	8	5	1	0	0	0	46	0	
(8) Mountain	0	19	2	1	0	0	0	0	0	22	0	
(9) Pacific	0	67	18	4	1	1	1	0	1	93	1	
(1+2) Northeast	6	52	14	8	3	2	1	0	0	86	3	
(3+4) North Central	21	102	25	7	3	4	2	0	0	164	2	
(5+6+7) South	2	36	22	24	15	7	3	0	1	110	1	
(8+9) West	0	86	20	5	1	1	1	0	1	115	1	
Total	29	276	81	44	22	14	7	0	2	475	7	



Table 7

UNIFORMED PERSONNEL OF FIRE DEPARTMENTS

Population of district served (in thousands)	Number of Personnel by Type of Pay (actual number as of January 1, 1972)			Number of Fire Departments		
	Paid Fulltime	Without Pay	Paid on Call	Total	Recorded	Unknown
	Over 1,000	31,333	57	101	31,491	7
500-1,000	19,546	1,559	0	21,105	17	0
250-499	16,939	0	0	16,939	29	0
100-249	19,731	1,584	12	21,327	79	1
Subtotal (over 100)	87,549	3,200	113	90,862	132	1
50-99	12,250	2,127	255	14,632	117	1
25-49	8,841	2,379	877	12,097	162	0
10-24	958	525	681	2,164	59	1
5-9	44	51	14	109	4	0
Under 5	46	95	0	141	4	1
Subtotal (under 100)	22,139	5,177	1,827	29,143	346	3
Total	109,688	8,377	1,940	120,005	478	4
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	53,107	116	34	53,257	39	
Suburbs	14,277	4,077	1,183	19,537	185	2
500-1,000						
Central cities	14,849	0	12	14,861	33	
Suburbs	1,261	881	219	2,361	21	1
250-499						
Central cities	12,595	766	0	13,361	51	
Suburbs	517	330	0	847	7	
100-249						
Central cities	7,803	611	104	8,518	58	1
Suburbs	297	500	191	988	7	
Under 100						
Central cities	1,191	38	28	1,257	13	
Subs. + independent	3,791	1,058	169	5,018	64	
All central cities	89,545	1,531	178	91,254	194	1
All suburbs	20,143	6,846	1,762	28,751	284	3
Total	109,688	8,377	1,940	120,005	478	4

Table 8

COMMUNITY SERVICES OF FIRE DEPARTMENTS

Population of district served (in thousands)	Number of Fire Departments with Program for:								
	Emergency Ambulance			Minority Recruiting			Community Relations		
	Yes	No	Unknown	Yes	No	Unknown	Yes	No	Unknown
Over 1,000	6	1	0	6	1	0	6	1	0
500-1,000	7	10	0	11	4	2	9	6	2
250-499	4	24	1	21	7	1	12	15	2
100-249	24	55	1	31	41	8	22	52	6
Subtotal (over 100)	41	90	2	69	53	11	49	74	10
50-99	38	79	1	34	75	9	22	85	11
25-49	67	94	1	36	108	18	34	109	19
10-24	31	29	0	10	49	1	11	48	1
5-9	2	2	0	0	3	1	1	2	1
Under 5	3	2	0	0	4	1	0	4	1
Subtotal (under 100)	141	206	2	80	239	30	68	248	33
Total	182	296	4	149	292	41	117	322	43
Metropolitan size (in thousands) and urbanization									
Over 1,000									
Central cities	15	23	1	29	9	1	23	13	3
Suburbs	85	101	1	40	133	14	40	134	13
500-1,000									
Central cities	8	25	0	17	12	4	11	19	3
Suburbs	9	13	0	1	16	5	1	16	5
250-499									
Central cities	15	35	1	22	26	3	12	35	4
Suburbs	1	6	0	2	5	0	0	7	0
100-249									
Central cities	16	42	1	15	40	4	10	45	4
Suburbs	4	3	0	3	4	0	2	5	0
Under 100									
Central cities	3	10	0	3	10	0	2	11	0
Subs. + independent	26	38	0	17	37	10	16	37	11
All central cities	57	135	3	86	97	12	58	123	14
All suburbs	125	161	1	63	195	29	59	199	29
Total	182	296	4	149	292	41	117	322	43
Regions and combined areas									
(1) New England	12	22	1	10	23	2	11	21	3
(2) Middle Atlantic	16	38	0	15	37	2	15	38	1
(3) East N. Central	87	40	1	27	86	15	27	85	16
(4) West N. Central	9	28	1	10	24	4	8	26	4
(5) South Atlantic	19	33	0	16	30	6	11	35	6
(6) East S. Central	5	7	1	6	4	3	7	5	1
(7) West S. Central	12	34	0	17	26	3	7	33	6
(8) Mountain	4	18	0	6	13	3	6	14	2
(9) Pacific	8	76	0	42	49	3	25	65	4
(1+2) Northeast	28	60	1	25	60	4	26	59	4
(3+4) North Central	96	68	2	37	110	19	35	111	20
(5+6+7) South	36	74	1	39	60	12	25	73	13
(8+9) West	22	94	0	48	62	6	31	79	6
Total	182	296	4	149	292	41	117	322	43

Table 9  
ALARM BOXES OPERATIVE ON JANUARY 1, 1972

Metropolitan Size (in thousands) and Urbanization	Number of Boxes										Number of Fire Departments	
											Recorded	Unknown
	0	1-5	6-10	11-25	26-50	51-100	101-250	251-500	501-1,000	Over 1,000		
(a) Telegraph Boxes												
Over 1,000												
Central cities	15	0	0	0	0	2	2	5	2	13	39	0
Suburbs	151	0	1	0	3	8	15	6	1	0	185	2
500-1,000												
Central cities	20	0	0	0	0	1	2	2	7	1	33	0
Suburbs	17	0	0	0	0	2	3	0	0	0	22	0
250-499												
Central cities	31	0	0	0	0	0	10	7	3	0	51	0
Suburbs	1	0	0	0	0	0	3	0	0	0	7	0
100-249												
Central cities	34	0	0	1	1	4	16	2	0	0	58	1
Suburbs	1	0	0	0	2	0	0	1	0	0	7	0
Under 100												
Central cities	8	0	1	0	0	1	2	1	0	0	13	0
Subs. + independent	13	3	0	1	2	1	8	1	0	1	63	1
All central cities	108	0	1	1	1	8	32	17	12	14	194	1
All suburbs	219	3	1	1	7	14	29	8	1	1	284	3
Total	327	3	2	2	8	22	61	25	13	15	478	4
(b) Telephone Boxes												
Over 1,000												
Central cities	23	1	1	0	2	2	4	1	5	0	39	0
Suburbs	150	4	3	4	5	10	6	1	1	1	185	2
500-1,000												
Central cities	19	0	0	1	0	3	5	4	1	0	33	0
Suburbs	21	0	0	0	0	1	0	0	0	0	22	0
250-499												
Central cities	41	1	0	0	0	4	3	2	0	0	51	0
Suburb	7	0	0	0	0	0	0	0	0	0	7	0
100-249												
Central cities	44	0	1	1	0	4	7	2	0	0	59	0
Suburbs	6	0	0	0	0	0	1	0	0	0	7	0
Under 100												
Central cities	10	1	0	0	2	0	0	0	0	0	13	0
Subs. + independent	52	1	1	1	1	4	2	0	0	0	62	2
All central cities	137	3	2	2	4	13	19	9	6	0	195	0
All suburbs	236	5	4	5	6	15	9	1	1	1	283	4
Total	373	8	6	7	10	28	28	10	7	1	478	4
(c) All Other Boxes												
Over 1,000												
Central cities	30	0	0	1	0	0	4	0	1	3	39	0
Suburbs	164	1	1	1	1	5	6	3	3	0	185	2
500-1,000												
Central cities	21	0	0	0	2	0	2	1	4	0	33	0
Suburbs	19	0	0	0	0	1	1	1	0	0	22	0
250-499												
Central cities	37	0	0	0	0	2	6	4	2	0	51	0
Suburbs	6	0	0	0	0	0	0	1	0	0	7	0
100-249												
Central cities	46	0	0	1	1	2	6	3	0	0	59	0
Suburbs	6	0	0	0	1	0	0	0	0	0	7	0
Less than 100												
Central cities	11	0	0	0	0	1	1	0	0	0	13	0
Subs. + independent	12	1	0	1	5	2	11	0	0	0	62	2
All central cities	148	0	0	2	3	5	19	8	7	3	195	0
All suburbs	237	2	1	2	7	8	18	5	3	0	283	4
Total	385	2	1	4	10	13	37	13	10	3	478	4

Table 10  
FIRE ALARMS: 1968-1971

	Number of Alarms				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
	(a) All Fire Alarms					
Population of district served (in thousands)						
Over 1,000	531,825	560,165	588,524	596,600	6	1
500-1,000	293,758	318,158	299,466	323,977	17	0
250-499	186,411	201,589	214,707	211,601	26	3
100-249	233,896	243,466	259,488	261,242	78	2
Subtotal (over 100)	1,245,890	1,323,378	1,362,185	1,393,420	127	6
50-99	142,158	150,471	153,888	160,280	111	7
25-49	93,640	95,522	100,577	104,425	150	12
10-24	14,396	14,484	15,475	16,071	54	6
5-9	647	835	756	804	4	0
Under 5	720	779	686	697	5	0
Subtotal (under 100)	251,561	262,091	271,382	282,277	324	25
Total	1,497,451	1,585,469	1,633,567	1,675,697	451	31
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	862,963	923,117	935,343	961,638	37	2
Suburbs	177,883	186,315	190,799	199,826	173	14
500-1,000						
Central cities	167,578	176,859	191,182	196,081	30	3
Suburbs	17,196	18,133	19,975	22,751	22	
250-499						
Central cities	137,002	143,475	152,309	151,931	50	1
Suburbs	6,732	7,078	7,273	7,328	7	
100-249						
Central cities	77,629	80,370	85,112	85,848	55	4
Suburbs	4,694	4,675	4,653	4,521	7	
Under 100						
Central cities	12,400	11,738	11,829	11,253	11	2
Subs. + independent	33,374	33,709	35,092	34,520	57	7
All central cities	1,257,572	1,335,559	1,375,775	1,406,751	183	12
All suburbs	239,879	249,910	257,792	268,946	266	21
Total	1,497,451	1,585,469	1,633,567	1,675,697	431	51

Table 10 (Concluded)

## (b) False Alarms

	Number of Alarms				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	153,795	175,603	193,679	205,844	6	1
500-1,000	69,864	82,074	73,462	80,648	16	1
250-499	38,567	45,240	49,280	48,660	26	3
100-249	31,926	38,192	41,336	51,190	75	5
Subtotal (over 100)	294,152	341,109	357,757	386,342	123	10
50-99	15,414	17,921	18,762	20,374	108	10
25-49	8,770	9,843	11,187	12,643	143	19
10-24	616	676	849	839	49	11
5-9	30	51	47	18	4	0
Under 5	47	81	66	44	4	1
Subtotal (under 100)	24,877	28,572	30,911	33,918	308	41
Total	319,029	369,681	388,668	420,260	431	51
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	238,225	277,033	286,446	303,607	37	2
Suburbs	16,397	19,516	21,031	22,488	160	27
500-1,000						
Central cities	29,709	33,427	37,661	39,586	30	3
Suburbs	1,540	1,853	2,150	2,557	21	1
250-499						
Central cities	18,707	21,921	23,961	33,682	49	2
Suburbs	494	445	610	698	5	2
100-249						
Central Cities	9,557	10,352	11,516	12,266	55	4
Suburbs	310	514	384	399	7	0
Under 100						
Central cities	1,004	1,300	1,248	1,202	12	1
Subs. + independent	3,086	3,320	3,661	3,775	55	9
All central cities	297,202	344,033	360,832	390,343	183	12
All suburbs	21,827	25,648	27,836	29,917	248	39
Total	319,029	369,681	388,668	420,260	431	51

Table 11

## ALARMS FROM STREET BOXES: 1968-1971

## (a) All Fire Alarms

	Number of Alarms				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	No Boxes and Unknown
Population of district served (in thousands)						
Over 1,000	212,417	230,677	242,112	247,935	5	2
500-1,000	106,884	112,701	101,154	108,905	15	2
250-499	51,579	59,551	63,606	62,234	22	7
100-249	46,850	50,981	60,539	61,637	53	27
Subtotal (over 100)	417,730	453,910	467,411	480,711	95	38
50-99	17,828	20,476	20,633	21,964	69	49
25-49	11,583	12,357	12,739	13,535	64	98
10-24	915	1,027	1,043	1,120	9	51
5-9	0	0	0	0	1	3
Under 5	66	88	60	56	1	4
Subtotal (under 100)	30,392	33,948	34,475	36,675	144	205
Total	448,122	487,858	501,886	517,386	239	243
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	325,829	353,694	352,284	361,245	32	7
Suburbs	24,005	25,561	26,847	27,402	58	129
500-1,000						
Central cities	54,473	59,003	66,811	71,053	25	8
Suburbs	1,788	2,174	2,200	2,587	8	14
250-499						
Central cities	26,218	30,114	36,215	36,537	38	13
Suburbs	1,545	1,568	1,783	1,775	3	4
100-249						
Central cities	7,832	8,638	8,865	9,744	39	20
Suburbs	382	462	392	443	3	4
Under 100						
Central cities	494	568	704	769	4	9
Subs. + independent	5,556	6,076	5,785	5,831	29	35
All central cities	414,846	452,017	464,879	479,348	138	57
All suburbs	33,276	35,841	37,007	38,038	101	186
Total	448,122	487,858	501,886	517,386	239	243

Table 11 (Concluded)

## (b) False Alarms

	Number of Alarms				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	No Boxes and Unknown
	Population of district served (in thousands)					
Over 1,000	126,529	144,875	156,046	164,261	5	2
500-1,000	57,736	69,155	59,682	64,815	14	3
250-499	26,725	33,046	35,044	34,808	17	12
100-249	23,352	29,624	26,685	30,434	45	35
Subtotal (over 100)	236,342	276,700	277,457	294,318	81	52
50-99	8,485	10,261	10,034	11,287	64	54
25-49	4,468	5,288	5,837	6,769	63	99
10-24	192	164	210	172	12	48
5-9	0	0	0	0	1	3
Under 5	30	63	41	33	1	4
Subtotal (under 100)	13,175	15,776	16,122	18,261	141	208
Total	249,517	292,476	293,579	312,579	222	260
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	199,834	232,266	233,091	244,773	27	12
Suburbs	8,679	10,311	10,088	10,248	55	132
500-1,000						
Central cities	17,588	20,820	25,263	27,830	21	12
Suburbs	783	933	1,023	1,278	7	15
250-499						
Central cities	15,315	19,743	14,894	18,554	34	17
Suburbs	341	337	436	514	4	3
100-249						
Central cities	5,070	5,743	6,316	6,785	38	21
Suburbs	139	251	196	219	4	3
Under 100						
Central cities	341	468	487	527	5	8
Subs. + independent	1,427	1,604	1,785	1,851	27	37
All central cities	238,148	279,040	280,051	298,469	125	70
All suburbs	11,369	13,436	13,528	14,110	97	190
Total	249,517	292,476	293,579	312,579	222	260

Table 12

## ARRESTS AND CONVICTIONS FOR FALSE ALARMS: 1968-1971

## (a) Arrested or Issued Summonses

	Number of Persons Including Juveniles				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
	Population of district served (in thousands)					
Over 1,000	679	683	618	461	3	4
500-1,000	298	314	326	275	7	10
250-499	698	687	724	698	12	17
100-249	286	338	430	406	30	50
Subtotal (over 100)	1,961	2,022	2,098	1,840	52	81
50-99	148	170	123	121	69	49
25-49	107	138	146	149	101	61
10-24	8	12	24	13	42	18
5-9	0	0	0	0	3	1
Under 5	0	0	0	1	4	1
Subtotal (under 100)	263	320	293	284	219	130
Total	2,224	2,342	2,391	2,124	271	211
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	1,422	1,462	1,406	1,115	18	21
Suburbs	71	80	79	87	110	77
500-1,000						
Central cities	396	335	403	469	16	17
Suburbs	12	21	29	21	15	7
250-499						
Central cities	116	143	128	127	21	30
Suburbs	1	0	0	2	3	4
100-249						
Central cities	147	229	268	223	31	28
Suburbs	0	2	2	0	6	1
Under 100						
Central cities	6	7	7	5	10	3
Subs. + independent	53	63	69	75	41	23
All central cities	2,087	2,176	2,212	1,939	96	99
All suburbs	137	166	179	185	175	112
Total	2,224	2,342	2,391	2,124	271	211

Table 12 (Concluded)

(b) Convicted or Found Delinquent

	Number of Persons Including Juveniles				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	306	324	362	316	3	4
500-1,000	216	197	209	175	7	10
250-499	207	211	222	255	9	20
100-249	179	244	275	266	24	56
Subtotal (over 100)	908	976	1,068	1,012	43	90
50-99	73	87	79	95	69	49
25-49	51	70	78	75	98	64
10-24	3	3	13	4	42	18
5-9	0	0	0	0	3	1
Under 5	0	0	0	1	4	1
Subtotal (under 100)	127	160	170	175	216	133
Total	1,035	1,136	1,238	1,187	259	223
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	673	661	703	631	16	23
Suburbs	37	49	51	49	110	77
500-1,000						
Central cities	170	163	179	217	13	20
Suburbs	6	8	17	17	16	6
250-499						
Central cities	36	43	40	50	19	32
Suburbs	0	0	0	0	2	5
100-249						
Central cities	79	168	212	186	28	31
Suburbs	6	5	5	1	6	1
Under 100						
Central cities	4	6	6	5	9	4
Subs. + independent	24	33	25	31	40	24
All central cities	962	1,041	1,140	1,089	85	110
All suburbs	73	95	98	98	174	113
Total	1,035	1,136	1,238	1,187	259	223

Table 13

LEGAL PENALTIES FOR FALSE ALARMS

"Do you consider that the legal penalties for placing false fire alarms in the city, town, county, or other jurisdiction serviced by your department are sufficiently severe?"

	Yes	No	Total	Unknown
Population of district served (in thousands)				
Over 1,000	3	4	7	0
500-1,000	10	6	16	1
250-499	15	11	26	3
100-249	30	43	73	7
Subtotal (over 100)	58	64	122	11
50-99	50	61	111	7
25-49	68	77	145	17
10-24	17	37	54	6
5-9	3	0	3	1
Under 5	2	3	5	0
Subtotal (under 100)	140	178	318	31
Total	198	242	440	42
Metropolitan size (in thousands) and urbanization				
Over 1,000				
Central cities	21	15	36	3
Suburbs	79	86	165	22
500-1,000				
Central cities	14	17	31	2
Suburbs	4	17	21	1
250-499				
Central cities	15	32	47	4
Suburbs	3	4	7	0
100-249				
Central cities	25	30	55	4
Suburbs	4	2	6	1
Under 100				
Central cities	5	8	13	0
Suburbs + independent	28	31	59	5
All central cities	80	102	182	13
All suburbs	118	140	258	29
Total	198	242	440	42
Regions and combined areas				
(1) New England	16	18	34	1
(2) Middle Atlantic	5	43	48	6
(3) East N. Central	54	66	120	8
(4) West N. Central	17	18	35	3
(5) South Atlantic	22	26	48	4
(6) East S. Central	5	8	13	0
(7) West S. Central	20	22	42	4
(8) Mountain	9	10	19	3
(9) Pacific	50	31	81	13
(1+2) Northeast	21	61	82	7
(3+4) North Central	72	83	155	11
(5+6+7) South	48	55	103	8
(8+9) West	59	41	100	16
Total	198	242	440	42

Table 14

## STREET BOX FALSE ALARM PERCENTAGES, BY NEIGHBORHOOD

Median Estimates of Percentage of False Alarms Received from Street Boxes in 1970 and 1971  
(Medians were calculated independently for each entry; therefore, column totals show median of sums rather than sum of medians and rows do not add to 100 percent.)

	Type of Neighborhood							Number of	
	Commercial, Industrial (%)	Low Income Residential		Middle Income Residential		High Income Residential (%)	Farming, Rural, and Other	Recorded	Unknown
		White (%)	Non- white (%)	White (%)	Non- white (%)				
Population of District served (in thousands)									
Over 1,000	5%	15%	55%	5%	5%	5%	0%	6	1
500-1,000	5	15	55	5	5	0	0	13	4
250-499	5	15	45	5	5	5	0	25	1
100-249	5	5	35	5	5	0	0	65	15
Subtotal (over 100)	5	5	45	5	5	0	0	109	21
50-99	5	0	0	5	0	0	0	98	20
25-49	0	0	0	0	0	0	0	153	9
10-24	0	0	0	0	0	0	0	58	2
5-9	0	0	0	0	0	0	0	4	0
Under 5	0	0	0	0	0	0	0	5	0
Subtotal (under 100)	0	0	0	0	0	0	0	318	31
Total	5	0	0	0	0	0	0	427	55
Metropolitan size (in thousands) and urbanization									
Over 1,000									
Central cities	5	15	45	5	5	0	0	34	5
Suburbs	0	0	0	0	0	0	0	173	14
500-1,000									
Central cities	5	5	55	5	5	5	0	25	8
Suburbs	0	0	0	0	0	0	0	20	2
250-499									
Central cities	5	5	25	5	5	0	0	45	6
Suburbs	5	0	0	0	0	5	0	7	0
100-249									
Central cities	5	5	5	5	0	0	0	47	12
Suburbs	0	0	0	0	0	0	0	7	0
Under 100									
Central cities	15	5	0	5	0	0	0	12	1
Subs. + independent	5	0	0	0	0	0	0	57	7
All central cities	5	5	35	5	5	0	0	163	32
All suburbs	0	0	0	0	0	0	0	264	23
Total	5	0	0	0	0	0	0	427	55

Table 15

## FIRE DEPARTMENT ACTIONS TO REDUCE FALSE ALARMS

(a) Institute Special Response Procedures for All Street Boxes

	Yes	No	Total	Unknown	No Boxes
Population of district served (in thousands)					
Over 1,000	1	5	6	1	0
500-1,000	4	11	15	2	0
250-499	6	19	25	3	1
100-249	20	32	52	17	11
Subtotal (over 100)	31	67	98	23	12
50-99	14	46	60	26	32
25-49	19	54	73	15	74
10-24	3	9	12	3	45
5-9	0	0	0	0	4
Under 5	0	1	1	0	4
Subtotal (under 100)	36	110	146	44	139
Total	67	177	244	67	171
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	12	24	36	2	1
Suburbs	21	41	62	16	109
500-1,000					
Central cities	6	18	24	8	1
Suburbs	1	7	8	2	12
250-499					
Central cities	9	25	34	11	6
Suburbs	0	2	2	2	3
100-249					
Central cities	8	30	38	12	9
Suburbs	2	2	4	0	3
Under 100					
Central cities	0	5	5	3	5
Subs. + independent	8	23	31	11	22
All central cities	35	102	137	36	22
All suburbs	32	75	107	31	149
Total	67	177	244	67	171

Table 15 (Continued)

## (b) Institute Special Response Procedures for Some Street Boxes

	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Unknown</u>	<u>No Boxes</u>
Population of district served (in thousands)					
Over 1,000	6	1	7	0	0
500-1,000	8	6	14	3	0
250-499	18	7	25	3	1
100-249	<u>40</u>	<u>17</u>	<u>57</u>	<u>12</u>	<u>11</u>
Subtotal (over 100)	72	31	103	18	12
50-99	38	32	70	16	32
25-49	47	34	81	7	74
10-24	5	7	12	3	45
5-9	0	0	0	0	4
Under 5	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>4</u>
Subtotal (under 100)	90	74	164	26	159
Total	162	105	267	44	171
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	22	13	35	3	1
Suburbs	36	33	69	9	109
500-1,000					
Central cities	19	8	27	5	1
Suburbs	5	4	9	1	12
250-499					
Central cities	27	11	38	7	6
Suburbs	3	1	4	0	3
100-249					
Central cities	28	13	41	9	9
Suburbs	1	3	4	0	3
Under 100					
Central cities	1	4	5	3	5
Subs. + independent	20	15	35	7	22
All central cities	97	49	146	27	22
All suburbs	<u>65</u>	<u>56</u>	<u>121</u>	<u>17</u>	<u>149</u>
Total	162	105	267	44	171

Table 15 (Continued)

## (c) Remove All Street Boxes Without Replacement

	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Unknown</u>	<u>No Boxes</u>
Population of district served (in thousands)					
Over 1,000	0	7	7	0	0
500-1,000	0	12	12	5	0
250-499	1	24	25	3	1
100-249	<u>2</u>	<u>45</u>	<u>47</u>	<u>22</u>	<u>11</u>
Subtotal (over 100)	3	88	91	30	12
50-99	1	53	54	32	32
25-49	2	65	67	21	74
10-24	1	10	11	4	45
5-9	0	0	0	0	4
Under 5	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>4</u>
Subtotal (under 100)	4	129	133	57	159
Total	7	217	224	87	171
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	1	31	32	6	1
Suburbs	0	51	51	27	109
500-1,000					
Central cities	0	23	23	9	1
Suburbs	1	8	9	1	12
250-499					
Central cities	2	31	33	12	6
Suburbs	0	2	2	2	3
100-249					
Central cities	2	34	36	14	9
Suburbs	0	4	4	0	3
Under 100					
Central cities	0	5	5	3	5
Subs. + independent	1	28	29	13	22
All central cities	5	124	129	44	22
All suburbs	<u>2</u>	<u>93</u>	<u>95</u>	<u>43</u>	<u>149</u>
Total	7	217	224	87	171

Table 15 (Continued)

## (d) Remove Some Street Boxes Without Replacement

	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Unknown</u>	<u>No Boxes</u>
Population of district served (in thousands)					
Over 1,000	5	2	7	0	0
500-1,000	9	5	14	3	0
250-499	15	12	27	1	1
100-249	<u>28</u>	<u>27</u>	<u>55</u>	<u>14</u>	<u>11</u>
Subtotal (over 100)	57	46	103	18	12
50-99	22	43	65	21	32
25-49	18	52	70	18	74
10-24	3	8	11	4	45
5-9	0	0	0	0	4
Under 5	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>4</u>
Subtotal (under 100)	43	104	147	43	159
Total	100	150	250	61	171
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	19	15	34	4	1
Suburbs	17	40	57	21	109
500-1,000					
Central cities	10	15	25	7	1
Suburbs	2	7	9	1	12
250-499					
Central cities	19	19	38	7	6
Suburbs	3	0	3	1	3
100-249					
Central cities	21	21	42	8	9
Suburbs	0	4	4	0	3
Under 100					
Central cities	2	5	7	1	5
Subs. + independent	7	24	31	11	22
All central cities	71	75	146	27	22
All suburbs	<u>29</u>	<u>75</u>	<u>104</u>	<u>34</u>	<u>149</u>
Total	100	150	250	61	171

Table 15 (Continued)

## (e) Replace All Telegraph Boxes with Telephone Boxes

	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Unknown</u>	<u>No Boxes</u>
Population of district served (in thousands)					
Over 1,000	0	7	7	0	0
500-1,000	5	10	15	2	0
250-499	3	22	25	3	1
100-249	<u>17</u>	<u>32</u>	<u>49</u>	<u>19</u>	<u>12</u>
Subtotal (over 100)	25	71	96	24	13
50-99	8	46	54	32	32
25-49	5	58	63	25	74
10-24	3	8	11	4	45
5-9	0	0	0	0	4
Under 5	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>4</u>
Subtotal (under 100)	16	113	129	61	159
Total	41	184	225	85	172
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	6	29	35	3	1
Suburbs	7	42	49	28	110
500-1,000					
Central cities	9	15	24	8	1
Suburbs	0	8	8	2	12
250-499					
Central cities	8	24	32	13	6
Suburbs	0	2	2	2	3
100-249					
Central cities	7	29	36	14	9
Suburbs	0	4	4	0	3
Under 100					
Central cities	1	5	6	2	5
Subs. + independent	3	26	29	13	22
All central cities	31	102	133	40	22
All suburbs	<u>10</u>	<u>82</u>	<u>92</u>	<u>45</u>	<u>150</u>
Total	41	184	225	85	172



Table 15 (Concluded)

(f) Replace Some Telegraph Boxes with Telephone Boxes

	<u>Yes</u>	<u>No</u>	<u>Total</u>	<u>Unknown</u>	<u>No Boxes</u>
Population of district served (in thousands)					
Over 1,000	3	4	7	0	0
500-1,000	4	9	13	4	0
250-499	2	22	24	4	1
100-249	8	37	45	23	12
Subtotal (over 100)	17	72	89	31	13
50-99	5	48	53	33	32
25-49	3	59	62	26	74
10-24	2	9	11	4	45
5-9	0	0	0	0	4
Under 5	0	1	1	0	4
Subtotal (under 100)	10	117	127	63	159
Total	27	189	216	94	172
Metropolitan size (in thousands) and urbanization					
Over 1,000					
Central cities	9	25	34	4	1
Suburbs	7	41	48	29	110
500-1,000					
Central cities	2	19	21	11	1
Suburbs	0	8	8	2	12
250-499					
Central cities	2	28	30	15	6
Suburbs	0	2	2	2	3
100-249					
Central cities	4	32	36	14	9
Suburbs	0	4	4	0	3
Under 100					
Central cities	0	5	5	3	5
Subs. + independent	3	25	28	14	22
All central cities	17	109	126	47	22
All suburbs	10	80	90	47	150
Total	27	189	216	94	172

Table 16

BUILDING FIRES FROM ALL CAUSES: 1968-1971

	Number of Fires				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	123,924	128,086	128,692	117,638	7	0
500-1,000	47,047	47,684	49,247	48,210	17	0
250-499	38,418	37,119	38,071	38,790	25	4
100-249	45,489	44,915	46,868	45,891	74	6
Subtotal (over 100)	254,878	257,804	262,878	250,529	123	10
50-99	28,040	27,459	28,806	28,737	106	12
25-49	18,936	19,387	19,453	19,836	142	20
10-24	3,028	2,931	3,106	3,190	48	12
5-9	104	103	127	121	4	0
Under 5	163	197	177	186	4	1
Subtotal (under 100)	50,271	50,077	51,669	52,070	304	45
Total	305,149	307,881	314,547	302,599	427	55
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	176,314	180,110	180,971	170,233	37	2
Suburbs	32,654	33,585	35,606	35,204	160	27
500-1,000						
Central cities	35,599	34,836	35,674	35,726	30	3
Suburbs	3,387	3,339	3,657	3,815	20	2
250-499						
Central cities	26,824	26,215	28,032	27,363	47	4
Suburbs	807	834	824	869	6	1
100-249						
Central cities	18,129	17,769	18,996	18,445	54	5
Suburbs	973	942	942	955	7	0
Under 100						
Central cities	2,256	2,081	1,955	1,934	11	2
Subs. + independent	8,206	8,170	7,890	8,055	55	9
All central cities	259,122	261,011	265,628	253,701	179	16
All suburbs	46,027	46,870	48,919	48,898	248	39
Total	305,149	307,881	314,547	302,599	427	55

Table 17

## INCENDIARY AND SUSPICIOUS BUILDING FIRES: 1968-1971

	Number of Fires				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	5,192	5,555	5,444	5,170	5	2
500-1,000	6,408	6,191	6,132	6,225	16	1
250-499	4,647	4,546	5,406	5,205	23	6
100-249	3,610	4,066	4,407	4,919	57	23
Subtotal (over 100)	19,857	20,358	21,839	21,519	101	32
50-99	1,549	1,836	2,010	2,109	81	37
25-49	1,245	1,338	1,351	1,498	128	34
10-24	196	208	324	303	43	17
5-9	0	0	0	0	1	3
Under 5	5	2	4	3	3	2
Subtotal (under 100)	2,995	3,384	3,689	3,913	256	93
Total	22,852	23,742	25,078	25,432	357	125
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	12,881	13,749	13,819	13,254	33	6
Suburbs	2,513	2,634	2,843	3,222	123	64
500-1,000						
Central cities	3,470	3,280	3,926	4,486	27	6
Suburbs	127	133	150	183	16	6
250-499						
Central cities	2,025	2,103	2,243	1,961	40	11
Suburbs	97	70	94	101	5	2
100-249						
Central cities	1,101	1,150	1,333	1,478	43	16
Suburbs	54	101	56	51	7	0
Under 100						
Central cities	93	86	109	96	11	2
Subs. + independent	491	436	505	600	52	12
All central cities	19,570	20,368	21,430	21,275	154	41
All suburbs	3,282	3,374	3,648	4,157	203	84
Total	22,852	23,742	25,078	25,432	357	125

Table 18

## BUILDING FIRES OF UNKNOWN CAUSE: 1968-1971

	Number of Fires				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	4,948	4,814	4,452	3,333	4	3
500-1,000	4,386	4,528	4,979	4,508	14	3
250-499	3,633	3,610	3,479	3,836	20	9
100-249	4,043	4,166	4,218	4,086	53	27
Subtotal (over 100)	17,010	17,118	17,128	15,763	91	42
50-99	3,672	3,702	4,041	4,178	86	32
25-49	3,549	3,861	3,695	3,748	126	36
10-24	364	313	345	353	48	12
5-9	19	11	21	9	2	2
Under 5	1	1	3	8	3	2
Subtotal (under 100)	7,605	7,888	8,105	8,296	265	84
Total	24,615	25,006	25,233	24,059	356	126
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	11,245	11,118	11,094	9,396	28	11
Suburbs	4,103	4,492	4,596	4,430	126	61
500-1,000						
Central cities	2,216	2,282	2,352	2,969	25	8
Suburbs	453	447	387	494	15	7
250-499						
Central cities	2,681	2,469	2,621	2,478	40	11
Suburbs	339	308	392	480	3	4
100-249						
Central cities	1,611	1,786	1,782	1,780	45	14
Suburbs	498	450	278	395	7	0
Under 100						
Central cities	149	144	156	154	11	2
Subs. + independent	1,320	1,510	1,575	1,483	56	8
All central cities	17,902	17,799	18,005	16,777	149	46
All suburbs	6,713	7,207	7,228	7,282	207	80
Total	24,615	25,006	25,233	24,059	356	126

Table 19

## BUILDING FIRE PERCENTAGES, BY NEIGHBORHOOD

Median Estimates of Percentage of all Building Fires in 1970 and 1971  
(Medians were calculated independently for each entry; therefore, column totals show median of sums rather than sum of medians and rows do not add to 100 percent.)

	Type of Neighborhood								Number of Fire Departments Recorded Unknown		
	Commercial, Industrial (%)	Low Income Residential		Middle Income Residential		High Income Residential (%)	Farming, Rural, and Other				
		White (%)	Non- white (%)	White (%)	Non- white (%)						
Population of district served (in thousands)											
Over 1,000	15%	15%	45%	5%	5%	5%	5%	5	2		
500-1,000	5	15	45	5	5	5	0	10	7		
250-499	5	15	35	5	5	5	0	20	9		
100-249	15	15	25	15	5	5	0	62	18		
Subtotal (over 100)	15	15	35	15	5	5	0	97	36		
50-99	15	15	5	25	0	5	0	98	20		
25-49	15	15	0	25	0	5	0	134	28		
10-24	5	0	0	35	0	5	0	52	8		
5-9	5	0	5	0	0	85	0	1	3		
Under 5	15	0	0	0	0	0	0	4	1		
Subtotal (under 100)	15	5	0	25	0	5	0	289	60		
Total	15	15	5	15	0	5	0	386	96		
Metropolitan size (in thousands) and urbanization											
Over 1,000											
Central cities	15	15	35	5	5	5	0	30	9		
Suburbs	15	5	0	35	0	5	0	150	37		
500-1,000											
Central cities	15	15	45	5	5	5	0	22	11		
Suburbs	15	5	5	25	0	5	0	17	5		
250-499											
Central cities	15	15	25	15	5	5	0	39	12		
Suburbs	5	5	15	25	0	5	5	5	2		
100-249											
Central cities	15	15	25	15	5	5	0	52	7		
Suburbs	5	5	0	25	0	0	5	6	1		
Under 100											
Central cities	25	25	0	15	0	5	0	12	1		
Subs. + independent	15	15	5	25	5	5	0	53	11		
All central cities	15	15	25	15	5	5	0	155	40		
All suburbs	15	5	0	35	0	5	0	231	56		
Total	15	15	5	25	5	5	0	386	96		

Table 20

## INCENDIARY AND SUSPICIOUS BUILDING FIRE PERCENTAGE, BY NEIGHBORHOOD

Median Estimates of Percentage of all Incendiary and Suspicious Building Fires in 1970 and 1971  
(Medians were calculated independently for each entry; therefore, column totals show median of sums rather than sum of medians and rows do not add to 100 percent.)

	Type of Neighborhood								Number of Fire Departments Recorded Unknown		
	Commercial, Industrial (%)	Low Income Residential		Middle Income Residential		High Income Residential (%)	Farming, Rural, and Other				
		White (%)	Non- white (%)	White (%)	Non- white (%)						
Population of District served (in thousands)											
Over 1,000	15%	15%	25%	5%	5%	5%	5%	5	2		
500-1,000	5	5	45	5	5	5	0	11	6		
250-499	5	15	35	5	5	5	0	20	9		
100-249	15	15	35	5	5	0	0	55	25		
Subtotal (over 100)	15	15	35	5	5	5	0	91	42		
50-99	15	5	5	15	0	0	0	84	34		
25-49	15	5	0	15	0	0	0	121	41		
10-24	5	0	0	15	0	0	0	46	14		
5-9	0	0	0	0	0	95	0	1	3		
Under 5	95	0	0	0	0	0	0	3	2		
Subtotal (under 100)	15	5	0	15	0	0	0	255	94		
Total	15	5	5	15	0	0	0	346	136		
Metropolitan size (in thousands) and urbanization											
Over 1,000											
Central cities	5	5	45	5	5	5	0	30	9		
Suburbs	15	0	0	15	0	0	0	125	62		
500-1,000											
Central cities	15	5	45	5	5	5	0	22	11		
Suburbs	5	5	15	15	0	0	0	15	7		
250-499											
Central cities	15	15	35	5	5	5	0	36	15		
Suburbs	5	25	15	5	0	0	0	5	2		
100-249											
Central cities	15	15	25	5	5	0	0	45	14		
Suburbs	5	0	0	75	0	0	5	4	3		
Under 100											
Central cities	25	5	0	15	0	0	0	11	2		
Subs. + independent	15	15	5	15	0	0	0	53	11		
All central cities	15	15	35	5	5	0	0	144	51		
All suburbs	15	5	0	15	0	0	0	202	85		
Total	15	5	5	15	0	0	0	346	136		

Table 21

## PERCENTAGES OF BUILDING FIRES OF UNKNOWN CAUSE, BY NEIGHBORHOOD

Median Estimates of Percentage of all "Cause Unknown" Building Fires in 1970 and 1971  
(Medians were calculated independently for each entry; therefore, column totals show median of sums rather than sum of medians and rows do not add to 100 percent.)

Population of District served (in thousands)	Type of Neighborhood							Number of Fire Departments	
	Commercial, Industrial (%)	Low Income Residential		Middle Income Residential		High Income Residential (%)	Farming, Rural, and Other (%)	Recorded	Unknown
		White (%)	Non-white (%)	White (%)	Non-white (%)				
Over 1,000	15%	15%	25%	5%	15%	5%	5%	5	2
500-1,000	15	5	25	15	15	5	0	9	8
250-499	5	15	25	15	5	5	0	20	9
100-249	15	15	25	5	5	5	0	46	32
Subtotal (over 100)	15	15	25	15	5	5	0	82	51
50-99	15	5	5	15	0	0	0	80	38
25-49	15	15	0	25	0	0	0	113	49
10-24	15	0	0	25	0	0	0	44	16
5-9	0	0	0	0	0	95	5	1	3
Under 5	15	0	0	0	0	0	0	4	1
Subtotal (under 100)	15	5	0	15	0	0	0	242	107
Total	15	5	5	15	0	0	0	342	158
Metropolitan size (in thousands) and urbanization									
Over 1,000									
Central cities	15	5	25	15	5	5	0	25	14
Suburbs	15	0	0	25	0	0	0	116	71
500-1,000									
Central cities	15	15	25	5	5	5	0	20	13
Suburbs	25	5	0	15	5	0	0	14	8
250-499									
Central cities	15	15	15	15	5	0	0	36	15
Suburbs	5	15	0	5	0	0	0	4	3
100-249									
Central cities	15	15	15	15	5	5	0	43	16
Suburbs	5	0	0	45	0	0	5	5	2
Under 100									
Central cities	15	25	0	5	0	0	0	10	3
Subs. + independent	15	15	5	15	0	0	0	51	13
All central cities	15	15	15	15	5	5	0	134	61
All suburbs	15	5	0	25	0	0	0	190	97
Total	15	5	5	15	0	0	0	324	158

Table 22

## BUILDING ARSON, ACTUAL OR ATTEMPTED: 1968-1971

(a) Arrested or Issued Summonses

Population of district served (in thousands)	Number of Persons Including Juveniles				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Over 1,000	1,234	1,286	1,261	1,339	4	3
500-1,000	921	1,012	956	960	10	7
250-499	830	759	887	805	14	15
100-249	364	442	363	401	38	42
Subtotal (over 100)	3,349	3,499	3,467	3,505	66	67
50-99	145	176	229	275	64	54
25-49	109	123	106	139	91	71
10-24	23	47	45	80	45	15
5-9	0	0	0	0	2	2
Under 5	0	0	0	0	3	2
Subtotal (under 100)	277	346	380	494	205	144
Total	3,626	3,845	3,847	3,999	271	211
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	2,743	2,815	2,850	2,878	24	15
Suburbs	90	130	132	159	109	78
500-1,000						
Central cities	277	354	333	341	16	17
Suburbs	19	20	25	38	13	9
250-499						
Central cities	262	261	233	210	28	23
Suburbs	0	0	0	0	2	5
100-249						
Central cities	188	217	242	325	30	29
Suburbs	1	0	0	0	3	4
Under 100						
Central cities	4	5	6	2	8	5
Subs. + independent	42	43	26	46	38	26
All central cities	3,474	3,652	3,664	3,756	106	89
All suburbs	152	193	183	243	165	122
Total	3,626	3,845	3,847	3,999	271	211

Table 22 (Concluded)

## (b) Convicted or Found Delinquent

	Number of Persons Including Juveniles				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	363	400	424	486	3	4
500-1,000	267	261	295	295	9	8
250-499	358	359	391	348	13	16
100-249	150	197	143	207	33	47
Subtotal (over 100)	1,138	1,217	1,253	1,336	58	75
50-99	78	102	143	192	62	56
25-49	73	91	84	96	88	74
10-24	2	10	9	18	40	20
5-9	0	0	0	0	2	2
Under 5	0	0	0	22	3	2
Subtotal (under 100)	153	203	236	328	195	154
Total	1,291	1,420	1,489	1,664	253	229
Metropolitan size (in thousands and urbanization)						
Over 1,000						
Central cities	845	912	974	1,026	21	18
Suburbs	26	40	51	79	103	84
500-1,000						
Central cities	133	157	144	150	15	18
Suburbs	17	16	23	28	11	11
250-499						
Central cities	124	121	104	133	25	26
Suburbs	0	0	0	0	2	5
100-249						
Central cities	123	149	172	219	30	29
Suburbs	0	0	0	0	3	4
Under 100						
Central cities	2	1	4	2	7	6
Subs. + independent	21	24	17	27	36	28
All central cities	1,227	1,340	1,398	1,530	98	97
All suburbs	64	80	91	134	155	132
Total	1,291	1,420	1,489	1,664	253	229

Table 23

## LOCAL AGENCY RESPONSIBLE FOR ARSON INVESTIGATIONS

(Number of Departments Reporting)

	Fire	Police	Fire and Police	Fire, Police and Other	Fire and Other	Other	Unknown
Population of district served (in thousands)							
Over 1,000	4	1	2	0	0	0	0
500-1,000	5	0	11	0	1	0	0
250-499	14	0	15	0	0	0	0
100-249	22	3	48	5	0	2	0
Subtotal (over 100)	45	4	76	5	1	2	0
50-99	23	5	77	9	4	0	0
25-49	34	2	96	24	5	1	0
10-24	11	5	35	4	1	1	3
5-9	0	0	4	0	0	0	0
Under 5	1	1	2	0	0	0	1
Subtotal (under 100)	69	13	214	37	10	2	4
Total	114	17	290	42	11	4	4
Metropolitan size (in thousands) and urbanization							
Over 1,000							
Central cities	17	0	21	0	1	0	0
Suburbs	36	10	116	12	6	3	4
500-1,000							
Central cities	10	0	20	3	0	0	0
Suburbs	6	0	16	0	0	0	0
250-499							
Central cities	11	1	34	5	0	0	0
Suburbs	2	1	4	0	0	0	0
100-249							
Central cities	16	2	36	3	1	1	0
Suburbs	1	0	4	2	0	0	0
Under 100							
Central cities	1	1	4	2	2	0	0
Subs. + independent	11	2	35	15	1	0	0
All central cities	58	4	115	13	4	1	0
All suburbs	56	13	175	29	7	3	4
Total	114	17	290	42	11	4	4
Regions and combined areas							
(1) New England	4	1	16	9	5	0	0
(2) Middle Atlantic	4	7	39	3	0	1	0
(3) East N. Central	22	2	89	13	0	0	2
(4) West N. Central	8	2	18	7	1	0	2
(5) South Atlantic	20	0	25	5	1	1	0
(6) East S. Central	7	0	5	0	0	1	0
(7) West S. Central	18	1	23	2	1	1	0
(8) Mountain	6	0	12	3	1	0	0
(9) Pacific	25	4	63	0	2	0	0
(1+2) Northeast	8	8	55	12	5	1	0
(3+4) North Central	30	4	107	20	1	0	4
(5+6+7) South	45	1	53	7	2	3	0
(8+9) West	31	4	75	3	3	0	0
Total	114	17	290	42	11	4	4

Table 24

## LOCAL AGENCY THAT ACTUALLY CONDUCTS ARSON INVESTIGATIONS

(Number of Departments Reporting)

	Fire	Police	Fire and Police	Fire, Police and Other	Fire and Other	Other	Unknown
Population of district served (in thousands)							
Over 1,000	4	1	2	0	0	0	0
500-1,000	6	0	10	0	1	0	0
250-499	11	0	18	0	0	0	0
100-249	14	0	57	6	3	0	0
Subtotal (over 100)	35	1	87	6	4	0	0
50-99	11	4	81	15	4	2	1
25-49	13	0	119	24	6	0	0
10-24	5	1	44	6	1	1	2
5-9	1	0	3	0	0	0	0
Under 5	1	0	3	0	0	0	1
Subtotal (under 100)	31	5	250	45	11	3	4
Total	66	6	337	51	15	3	4
Metropolitan size (in thousands) and urbanization							
Over 1,000							
Central cities	16	0	21	0	2	0	0
Suburbs	19	3	136	20	5	1	3
500-1,000							
Central cities	9	0	20	4	0	0	0
Suburbs	2	0	19	0	1	0	0
250-499							
Central cities	6	0	39	4	1	1	0
Suburbs	0	0	7	0	0	0	0
100-249							
Central cities	8	2	41	4	2	1	1
Suburbs	0	0	5	2	0	0	0
Under 100							
Central cities	3	1	5	2	2	0	0
Subs. + independent	3	0	44	15	2	0	0
All central cities	42	3	126	14	7	2	1
All suburbs	24	3	211	37	8	1	3
Total	66	6	337	51	15	3	4
Regions and combined areas							
(1) New England	1	0	20	10	4	0	0
(2) Middle Atlantic	2	1	44	5	0	2	0
(3) East N. Central	13	0	93	18	2	0	2
(4) West N. Central	2	2	25	6	2	0	1
(5) South Atlantic	12	0	31	7	2	0	0
(6) East S. Central	3	0	9	0	1	0	0
(7) West S. Central	16	1	24	2	2	1	0
(8) Mountain	2	1	17	1	1	0	0
(9) Pacific	15	1	74	2	1	0	1
(1+2) Northeast	3	1	64	15	4	2	0
(3+4) North Central	15	2	118	24	4	0	3
(5+6+7) South	31	1	64	9	5	1	0
(8+9) West	17	2	91	3	2	0	1
Total	66	6	337	51	15	3	4

Table 25

INCIDENTS OF VIOLENCE AGAINST FIRE DEPARTMENT  
PERSONNEL, EQUIPMENT, AND STRUCTURES: 1968-1971

	Number of Incidents				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	1,203	919	982	748	6	1
500-1,000	378	374	305	347	11	6
250-499	88	45	77	135	13	16
100-249	485	149	180	201	52	28
Subtotal (over 100)	2,154	1,487	1,544	1,431	82	51
50-99	50	105	71	62	102	16
25-49	12	26	36	31	146	16
10-24	2	11	33	17	55	5
5-9	0	0	0	0	3	1
Under 5	0	0	0	0	4	1
Subtotal (under 100)	64	142	140	110	310	39
Total	2,218	1,629	1,684	1,541	392	90
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	1,625	1,401	1,418	1,273	25	14
Suburbs	116	55	86	63	160	27
500-1,000						
Central cities	398	71	69	69	19	14
Suburbs	3	0	8	5	20	2
250-499						
Central cities	44	46	57	44	36	15
Suburbs	2	6	1	2	7	0
100-249						
Central cities	22	24	26	57	48	11
Suburbs	1	1	0	0	6	1
Under 100						
Central cities	3	8	9	8	12	1
Subs. + independent	4	17	10	20	59	5
All central cities	2,092	1,550	1,579	1,451	140	55
All suburbs	126	79	105	90	252	35
Total	2,218	1,629	1,684	1,541	392	90

Table 26 (Including Table 29)

PERSONNEL INJURED IN INCIDENTS OF VIOLENCE  
AND IN INCIDENTS WHILE RENDERING MUTUAL AID: 1968-1971

Population of district served (in thousands)	Numbers Reported				Number of Fire Departments Reporting Data on:			
	Personnel Injured			Mutual Aid Incidents	Time Killed	No Time Loss	No Time Loss	Mutual Aid
	Personnel Killed	Time Loss	No Time Loss					
Over 1,000	0	78	373	1	7	6	5	7
500-1,000	0	22	67	0	16	13	14	17
250-499	0	15	64	1	24	20	21	27
100-249	0	54	154	3	74	64	61	74
Subtotal (over 100)	0	169	658	5	121	103	101	125
50-99	0	7	53	5	114	113	110	113
25-49	0	34	174	2	156	155	155	151
10-24	0	0	6	4	59	59	59	55
5-9	0	0	0	1	4	4	4	3
Under 5	0	0	0	1	5	5	5	5
Subtotal (under 100)	0	41	233	13	338	336	333	327
Total	0	210	891	18	459	439	434	452
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	0	144	688	1	35	31	28	38
Suburbs	0	10	30	8	180	176	174	169
500-1,000								
Central cities	0	7	64	1	30	24	25	31
Suburbs	0	0	2	0	21	21	21	22
250-499								
Central cities	0	45	76	0	48	46	45	49
Suburbs	0	0	3	0	7	7	7	7
100-249								
Central cities	0	4	21	0	56	53	53	58
Suburbs	0	0	0	0	7	7	7	6
Under 100								
Central cities	0	0	1	0	13	13	13	13
Subs. + independent	0	0	6	8	62	61	61	59
All central cities	0	200	850	2	182	167	164	189
All suburbs	0	10	41	16	277	272	270	263
Total	0	210	891	18	459	439	434	452

Table 27

TYPES OF VIOLENCE AGAINST FIRE DEPARTMENTS: 1968-1971  
(Number of Fire Departments Reporting)

Population of district served (in thousands)	Objects Thrown	Incen- diaries	Explo- sions	Shots	Assaults	Tool Thefts	Booby Traps	Other	None	Recorded	Unknown
	Over 1,000	5	3	0	4	4	5	1	4	1	6
500-1,000	10	8	2	9	5	10	4	4	2	13	4
250-499	12	2	1	5	5	8	0	3	6	23	6
100-249	37	10	4	16	5	15	2	5	24	62	18
Subtotal (over 100)	64	23	7	34	19	38	7	16	33	104	29
50-99	38	7	0	4	6	15	1	1	72	112	6
25-49	35	11	1	5	6	6	0	4	116	155	7
10-24	7	2	0	1	0	1	0	0	51	58	2
5-9	1	0	0	0	0	0	0	0	3	4	0
Under 5	0	0	0	0	0	0	0	0	4	4	1
Subtotal (under 100)	81	20	1	10	12	22	1	5	246	333	16
Total	145	43	8	44	31	60	8	21	279	437	45
Metropolitan size (in thousands) and urbanization											
Over 1,000											
Central cities	19	15	4	15	11	17	4	7	7	30	9
Suburbs	32	5	0	2	7	8	1	3	138	170	17
500-1,000											
Central cities	17	5	0	7	4	7	1	6	8	26	7
Suburbs	3	0	1	1	0	0	0	0	18	21	1
250-499											
Central cities	30	6	2	10	4	15	1	2	12	45	6
Suburbs	3	0	0	0	0	0	0	0	4	7	0
100-249											
Central cities	23	3	1	6	4	8	1	1	32	56	3
Suburbs	2	1	0	0	0	0	0	0	5	7	0
Under 100											
Central cities	3	0	0	0	0	1	0	0	10	13	0
Suburbs and independent	13	8	0	3	1	4	0	2	47	62	2
All central cities	92	29	7	38	23	48	7	16	69	170	25
All suburbs	53	14	1	6	8	12	1	5	212	267	20
Total	145	43	8	44	31	60	8	21	281	437	45

Table 28

VIOLENT INCIDENT PERCENTAGES, BY NEIGHBORHOOD

Median Estimates of Percentage of All Incidents of Violence from 1968 through 1971  
(Medians were calculated independently for each entry; therefore, column totals show median of sums rather than sum of medians and rows do not add to 100 percent.)

Population of district served (in thousands)	Type of Neighborhood								Number of Fire Departments Recorded Unknown		
	Commercial, Industrial (%)	Low Income Residential		Middle Income Residential		High Income Residential (%)	Farming, Rural, and Other (%)	Recorded			Unknown
		White (%)	Non-white (%)	White (%)	Non-white (%)						
Over 1,000	0	0	45	5	5	0	0	5	2		
500-1,000	0	0	85	0	0	0	0	13	4		
250-499	0	0	65	0	0	0	0	20	9		
100-249	0	0	65	0	0	0	0	62	18		
Subtotal (over 100)	0	0	65	0	0	0	0	100	33		
50-99	0	0	0	0	0	0	0	106	12		
25-49	0	0	0	0	0	0	0	149	13		
10-24	0	0	0	0	0	0	0	58	2		
5-9	0	0	0	0	0	0	0	4	0		
Under 5	0	0	0	0	0	0	0	4	1		
Subtotal (under 100)	0	0	0	0	0	0	0	321	28		
Total	0	0	0	0	0	0	0	421	61		
Metropolitan size (in thousands) and urbanization											
Over 1,000											
Central cities	0	0	75	0	0	0	0	28	11		
Suburbs	0	0	0	0	0	0	0	165	22		
500-1,000											
Central cities	0	0	35	0	0	0	0	26	7		
Suburbs	0	0	0	0	0	0	0	21	1		
250-499											
Central cities	0	0	75	0	0	0	0	41	10		
Suburbs	0	0	0	0	0	0	0	7	0		
100-249											
Central cities	0	0	0	0	0	0	0	55	4		
Suburbs	0	0	0	0	0	0	0	5	2		
Under 100											
Central cities	0	0	0	0	0	0	0	12	1		
Subs. + independent	0	0	0	0	0	0	0	61	3		
All central cities											
All suburbs	0	0	0	0	0	0	0	162	33		
All central cities	0	0	15	0	0	0	0	259	28		
All suburbs	0	0	0	0	0	0	0	259	28		
Total	0	0	0	0	0	0	0	421	61		

Table 29

INCIDENTS OF VIOLENCE ENCOUNTERED WHILE RENDERING MUTUAL AID

The results of question 29 are presented in Table 26.

Table 30

ACTIONS BY FIRE DEPARTMENTS TO MEET THREATS OF VIOLENCE

(a) Vehicle Modifications

Population of district served (in thousands)	Change from Open to Closed Apparatus				Provide Protective Enclosures Outside Cabs				Place Covers on Hose Beds			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
	Over 1,000	3	3	6	1	3	2	5	2	4	2	6
500-1,000	14	3	17	0	7	10	17	0	8	9	17	0
250-499	20	8	28	1	9	18	27	2	15	11	26	3
100-249	52	26	78	2	15	63	78	2	36	41	77	3
Subtotal (over 100)	89	40	129	4	34	93	127	6	63	63	126	7
50-99	56	53	109	9	16	90	106	12	63	46	109	9
25-49	69	78	147	15	25	122	147	15	73	74	147	15
10-24	27	27	54	6	6	48	54	6	34	21	55	5
5-9	1	2	3	1	0	3	3	1	1	2	3	1
Under 5	3	2	5	0	1	4	5	0	4	1	5	0
Subtotal (under 100)	156	162	318	31	48	267	315	34	175	144	319	30
Total	245	202	447	35	82	360	442	40	238	207	445	37
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	30	9	39	0	16	21	37	2	20	17	37	2
Suburbs	88	81	169	18	26	138	164	23	91	78	169	18
500-1,000												
Central cities	19	13	32	1	6	26	32	1	14	17	31	2
Suburbs	9	12	21	1	3	18	21	1	6	15	21	1
250-499												
Central cities	37	12	49	2	7	42	49	2	30	17	47	4
Suburbs	2	2	4	3	1	5	6	1	2	4	6	1
100-249												
Central cities	30	27	57	2	9	48	57	2	34	23	57	2
Suburbs	2	4	6	1	0	6	6	1	2	4	6	1
Under 100												
Central cities	4	9	13	0	0	13	13	0	8	5	13	0
Subs. + independent	24	33	57	7	14	43	57	7	31	27	58	6
All central cities	120	70	190	5	38	150	188	7	106	79	185	10
All suburbs	125	132	257	30	44	210	254	33	132	128	260	27
Total	245	202	447	35	82	360	442	40	238	207	445	37
Regions and combined areas												
(1) New England	14	17	31	4	6	24	30	5	18	13	31	4
(2) Middle Atlantic	42	10	52	2	21	31	52	2	35	16	51	3
(3) East N. Central	54	62	116	12	18	98	116	12	61	58	119	9
(4) West N. Central	12	21	33	5	5	27	32	6	13	18	31	7
(5) South Atlantic	25	22	47	5	10	36	46	6	22	24	46	6
(6) East S. Central	10	3	13	0	0	13	13	0	7	6	13	0
(7) West S. Central	24	20	44	2	8	36	44	2	25	19	44	2
(8) Mountain	9	11	20	2	0	20	20	2	8	12	20	2
(9) Pacific	55	36	91	3	14	75	89	5	49	41	90	4
(1+2) Northeast	56	27	83	6	27	55	82	7	53	29	82	7
(3+4) North Central	66	83	149	17	23	125	148	18	74	76	150	16
(5+6+7) South	59	45	104	7	18	85	103	8	54	49	103	8
(8+9) West	64	47	111	5	14	95	109	7	57	53	110	6
Total	245	202	447	35	82	360	442	40	238	207	445	37



Table 30 (Continued)

(b) Personnel Protective Equipment

Population of district served (in thousands)	Issue Special Face Shields				Issue Flak Vests				Authorize Carrying Firearms on Duty			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Over 1,000	7	0	7	0	1	6	7	0	1	6	7	0
500-1,000	11	6	17	0	1	16	17	0	1	15	16	1
250-499	21	7	28	1	0	29	29	0	2	27	29	0
100-249	45	33	78	2	5	73	78	2	4	74	78	2
Subtotal (over 100)	81	46	130	3	7	124	131	2	8	122	130	3
50-99	65	48	113	5	2	108	110	8	4	106	110	8
25-49	68	80	148	14	3	144	147	15	6	140	146	16
10-24	21	34	55	5	2	52	54	6	3	52	55	5
5-9	2	1	3	1	0	3	3	1	0	3	3	1
Under 5	5	0	5	0	0	5	5	0	0	5	5	0
Subtotal (under 100)	161	163	324	25	7	312	319	30	13	306	319	30
Total	245	209	454	28	14	436	450	32	21	428	449	33
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	31	7	38	1	3	36	39	0	3	34	37	2
Suburbs	96	75	171	16	5	162	167	20	7	162	169	18
500-1,000												
Central cities	20	12	32	1	0	32	32	1	4	28	32	1
Suburbs	7	15	22	0	1	21	22	0	0	22	22	0
250-499												
Central cities	31	19	50	1	2	48	50	1	0	50	50	1
Suburbs	5	2	7	0	0	6	6	1	1	5	6	1
100-249												
Central cities	30	27	57	2	2	55	57	2	3	54	57	2
Suburbs	2	4	6	1	0	6	6	1	0	5	5	2
Under 100												
Central cities	4	9	13	0	0	13	13	0	0	13	13	0
Subs. + independent	19	39	58	6	1	57	58	6	3	55	58	6
All central cities	116	74	190	5	7	184	191	4	10	179	189	6
All suburbs	129	135	264	23	7	252	259	28	11	249	260	27
Total	245	209	454	28	14	436	450	32	21	428	449	33
Regions and combined areas												
(1) New England	22	10	32	3	1	29	30	5	0	30	30	5
(2) Middle Atlantic	40	12	52	2	7	45	52	2	2	50	52	2
(3) East N. Central	68	52	120	8	3	114	117	11	6	113	119	9
(4) West N. Central	15	18	33	5	0	33	33	5	0	33	33	5
(5) South Atlantic	29	19	48	4	1	48	49	3	5	44	49	3
(6) East S. Central	3	10	13	0	0	13	13	0	3	10	13	0
(7) West S. Central	15	29	44	2	0	44	44	2	1	43	44	2
(8) Mountain	9	11	20	2	0	20	20	2	0	19	19	3
(9) Pacific	44	48	92	2	2	90	92	2	4	86	90	4
(1+2) Northeast	62	22	84	5	8	74	82	7	2	80	82	7
(3+4) North Central	83	70	153	13	3	147	150	16	6	146	152	14
(5+6+7) South	47	58	105	6	1	105	106	5	9	97	106	5
(8+9) West	53	59	112	4	2	110	112	4	4	105	109	7
Total	245	209	454	28	14	436	450	32	21	428	449	33

Table 30 (Concluded)

(c) Procedural Changes

Population of district served (in thousands)	Increase Station House Security				Issue General Orders on Violence Actions				Authorize Water Hose Use in Crowd Control			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Over 1,000	5	2	7	0	6	1	7	0	1	6	7	0
500-1,000	14	3	17	0	17	0	17	0	0	17	17	0
250-499	20	9	29	0	29	0	29	0	2	27	29	0
100-249	40	38	78	2	68	11	79	1	5	73	78	2
Subtotal (over 100)	79	52	131	2	120	12	132	1	8	123	131	2
50-99	67	47	114	4	92	21	113	5	9	105	114	4
25-49	68	80	148	14	108	41	149	13	9	138	147	15
10-24	23	31	54	6	34	22	56	4	4	52	56	4
5-9	1	3	4	0	1	2	3	1	0	3	3	1
Under 5	2	3	5	0	4	1	5	0	1	4	5	0
Subtotal (under 100)	161	164	325	24	239	87	326	23	23	302	325	24
Total	240	216	456	26	359	99	458	24	31	425	456	26
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	30	9	39	0	38	1	39	0	2	36	38	1
Suburbs	92	80	172	15	126	48	174	13	11	161	172	15
500-1,000												
Central cities	20	12	32	1	33	0	33	0	2	30	32	1
Suburbs	7	15	22	0	14	8	22	0	0	22	22	0
250-499												
Central cities	27	23	50	1	43	6	49	2	3	47	50	1
Suburbs	4	2	6	1	4	2	6	1	2	4	6	1
100-249												
Central cities	26	31	57	2	47	9	56	3	5	53	58	1
Suburbs	3	4	7	0	4	3	7	0	1	6	7	0
Under 100												
Central cities	4	9	13	0	9	4	13	0	0	13	13	0
Subs. + independent	27	31	58	6	41	18	59	5	5	53	58	6
All central cities	107	84	191	4	170	20	190	5	12	179	191	4
All suburbs	133	132	265	22	189	79	268	19	19	246	265	22
Total	240	216	456	26	359	99	458	24	31	425	456	26
Regions and combined areas												
(1) New England	19	13	32	3	24	7	31	4	1	31	32	3
(2) Middle Atlantic	29	23	52	2	43	7	50	4	4	46	50	4
(3) East N. Central	67	52	119	9	91	28	119	9	6	115	121	7
(4) West N. Central	19	13	32	6	26	10	36	2	1	33	34	4
(5) South Atlantic	27	22	49	3	44	6	50	2	4	45	49	3
(6) East S. Central	3	10	13	0	10	2	12	1	4	9	13	0
(7) West S. Central	14	30	44	2	35	9	44	2	3	40	43	3
(8) Mountain	11	11	22	0	14	8	22	0	0	22	22	0
(9) Pacific	51	42	93	1	72	22	94	0	8	84	92	2
(1+2) Northeast	48	36	84	5	67	14	81	8	5	77	82	7
(3+4) North Central	86	65	151	15	117	38	155	11	7	148	155	11
(5+6+7) South	44	62	106	5	89	17	106	5	11	94	105	6
(8+9) West	62	53	115	1	86	30	116	0	8	106	114	2
Total	240	216	456	26	359	99	458	24	31	425	456	26

Table 31, Table 32, and Table 33

ACTIONS BY FIRE AND POLICE TO MEET THREATS OF VIOLENCE: RESPONSE POLICIES

	Can Fire Units Neglect Low-Risk Fires When Endangered by Violence?				Can Fire Units Wait For Police When Encountering Violence?				Do Police General Orders Provide for Fire Unit Protection?			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
	Population of district served (in thousands)											
Over 1,000	7	0	7	0	5	2	7	0	7	0	7	0
500-1,000	16	1	17	0	17	0	17	0	13	2	15	2
250-499	25	1	26	3	27	0	27	2	24	3	27	2
100-249	66	12	78	2	76	3	79	1	51	4	55	25
Subtotal (over 100)	114	14	128	5	125	5	130	3	95	9	104	29
50-99	96	14	110	8	110	3	113	5	62	17	79	39
25-49	132	22	154	8	138	18	156	6	82	18	100	62
10-24	49	7	56	4	53	4	57	3	33	5	38	22
5-9	4	0	4	0	4	0	4	0	2	0	2	2
Under 5	2	3	5	0	5	0	5	0	2	0	2	3
Subtotal (under 100)	283	46	329	20	310	25	335	14	181	40	221	128
Total	397	60	457	25	435	30	465	17	276	49	325	157
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	34	2	36	3	35	2	37	2	32	4	36	3
Suburbs	151	22	173	14	167	10	177	10	90	20	110	77
500-1,000												
Central cities	31	2	33	0	33	0	33	0	26	2	28	5
Suburbs	18	3	21	1	21	0	21	1	11	1	12	10
250-499												
Central cities	45	5	50	1	48	3	51	0	33	6	39	12
Suburbs	6	1	7	0	6	1	7	0	3	2	5	2
100-249												
Central cities	48	9	57	2	55	2	57	2	37	2	39	20
Suburbs	4	3	7	0	6	1	7	0	3	1	4	3
Under 100												
Central cities	9	3	12	1	12	0	12	1	6	1	7	6
Subs. + independent	51	10	61	3	52	11	63	1	35	10	45	19
All central cities	167	21	188	7	183	7	190	5	134	15	149	46
All suburbs	230	39	269	18	252	23	275	12	142	34	176	111
Total	397	60	457	25	435	30	465	17	276	49	325	157
Regions and combined areas												
(1) New England	25	8	33	2	30	4	34	1	14	5	19	16
(2) Middle Atlantic	42	9	51	3	49	3	52	2	33	7	40	14
(3) East N. Central	102	17	119	9	113	9	122	6	71	11	82	46
(4) West N. Central	26	7	33	5	29	6	35	3	18	8	26	12
(5) South Atlantic	45	6	51	1	51	0	51	1	39	2	41	11
(6) East S. Central	11	2	13	0	11	2	13	0	8	2	10	3
(7) West S. Central	42	4	46	0	45	0	45	1	29	2	31	15
(8) Mountain	18	1	19	3	19	1	20	2	10	3	13	9
(9) Pacific	86	6	92	2	88	5	93	1	54	9	63	31
(1+2) Northeast	67	17	84	5	79	7	86	3	47	12	59	30
(3+4) North Central	128	24	152	14	142	15	157	9	89	19	108	58
(5+6+7) South	98	12	110	1	107	2	109	2	76	6	82	29
(8+9) West	104	7	111	5	107	6	113	3	64	12	76	40
Total	397	60	457	25	435	30	465	17	276	49	325	157

Table 34

BOMB THREATS REPORTED TO FIRE DEPARTMENT: 1968-1971

	Number of Threats				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	71	49	183	105	1	6
500-1,000	395	386	624	272	6	11
250-499	157	181	358	325	7	22
100-249	418	500	1,058	1,203	40	40
Subtotal (over 100)	1,041	1,116	2,223	1,905	54	79
50-99	368	583	1,300	974	68	50
25-49	672	895	1,502	1,456	100	62
10-24	77	93	223	213	42	18
5-9	3	4	4	4	2	2
Under 5	0	2	19	15	4	1
Subtotal (under 100)	1,120	1,577	3,048	2,662	216	133
Total	2,161	2,693	5,271	4,567	270	212
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	362	453	891	445	15	24
Suburbs	544	762	1,743	1,509	101	86
500-1,000						
Central cities	336	310	413	422	12	21
Suburbs	59	85	207	273	16	6
250-499						
Central cities	175	269	794	850	28	23
Suburbs	13	16	42	29	4	3
100-249						
Central cities	254	337	646	579	35	24
Suburbs	3	5	19	11	5	2
Under 100						
Central cities	47	62	126	112	12	1
Subs. + independent	348	394	390	337	42	22
All central cities	1,194	1,431	2,870	2,408	102	93
All suburbs	967	1,262	2,401	2,159	168	119
Total	2,161	2,693	5,271	4,567	270	212

Table 35

## FIRE DEPARTMENT RESPONSES TO BOMB THREATS: 1968-1971

	Number of Responses				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	71	49	183	105	1	6
500-1,000	393	376	619	267	7	10
250-499	92	116	293	251	7	22
100-249	333	378	760	792	46	34
Subtotal (over 100)	889	919	1,855	1,415	61	72
50-99	357	531	1,141	883	72	46
25-49	615	678	902	835	107	55
10-24	75	84	167	176	44	16
5-9	3	4	4	4	3	1
Under 5	0	2	9	1	4	1
Subtotal (under 100)	1,050	1,299	2,223	1,899	230	119
Total	1,939	2,218	4,078	3,314	291	191
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	355	441	874	427	16	23
Suburbs	500	545	1,227	921	112	75
500-1,000						
Central cities	252	210	292	309	15	18
Suburbs	50	87	188	215	15	7
250-499						
Central cities	158	230	528	616	32	19
Suburbs	13	16	21	14	4	3
100-249						
Central cities	233	289	549	462	35	24
Suburbs	1	4	17	11	5	2
Under 100						
Central cities	38	22	41	54	11	2
Subs. + independent	339	374	341	285	46	18
All central cities	1,036	1,192	2,284	1,868	109	86
All suburbs	903	1,026	1,794	1,446	182	105
Total	1,939	2,218	4,078	3,314	291	191

Table 36

## BOMB DISCOVERIES REPORTED TO FIRE DEPARTMENT: 1968-1971

	Number of Reports				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	71	49	183	105	1	6
500-1,000	42	87	337	102	6	11
250-499	29	27	29	30	5	24
100-249	42	50	56	58	37	43
Subtotal (over 100)	184	213	605	295	49	84
50-99	8	16	41	48	84	34
25-49	55	31	36	32	131	31
10-24	5	8	11	2	48	12
5-9	0	0	0	0	2	2
Under 5	0	0	0	2	5	0
Subtotal (under 100)	68	55	88	84	270	79
Total	252	268	693	379	319	163
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	122	150	535	214	13	26
Suburbs	17	19	49	37	130	57
500-1,000						
Central cities	30	32	33	40	9	24
Suburbs	0	5	5	5	19	3
250-499						
Central cities	8	9	27	23	29	22
Suburbs	0	0	2	1	6	1
100-249						
Central cities	29	29	24	40	40	19
Suburbs	1	0	2	1	6	1
Under 100						
Central cities	0	2	3	3	12	1
Subs. + independent	45	22	13	15	55	9
All central cities	189	222	622	320	103	92
All suburbs	63	46	71	59	216	71
Total	252	268	693	379	319	163

Table 37

## FIRE DEPARTMENT RESPONSES TO BOMB DISCOVERIES: 1968-1971

	Number of Responses				Number of Fire Departments	
	1968	1969	1970	1971	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	71	49	183	105	1	6
500-1,000	42	87	337	102	7	10
250-499	2	0	2	3	6	23
100-249	33	36	36	47	42	38
Subtotal (over 100)	148	172	558	257	56	77
50-99	8	14	56	54	86	32
25-49	21	14	32	26	132	30
10-24	5	5	5	2	47	13
5-9	0	0	0	0	3	1
Under 5	0	0	5	0	5	0
Subtotal	34	33	98	82	273	76
Total	182	205	656	339	329	153
Metropolitan size (in thousands) and urbanization						
Over 1,000	119	146	528	212	15	24
Central cities	17	14	48	36	129	58
Suburbs	0	0	0	4	11	22
500-1,000	0	5	15	9	19	3
Central cities	0	0	0	0	0	0
Suburbs	5	4	22	22	31	20
250-499	0	0	2	1	6	1
Central cities	0	0	0	0	0	0
Suburbs	34	30	29	41	43	16
100-249	0	0	2	0	6	1
Central cities	0	0	0	0	0	0
Suburbs	0	1	3	3	12	1
Under 100	0	5	7	11	57	7
Central cities	7	5	7	11	57	7
Subs. + independent	0	0	0	0	0	0
All central cities	158	181	582	282	112	83
All suburbs	24	24	74	57	217	70
Total	182	205	656	339	329	153

Table 38 and Table 39

## ROUTINE RESPONSE OF FIRE APPARATUS TO BOMB THREAT AND BOMB DISCOVERY LOCATIONS

	Department Responds to Bomb Threat				Department Responds to Bomb Discovery			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Population of district served (in thousands)								
Over 1,000	4	3	7	0	6	1	7	0
500-1,000	5	12	17	0	10	7	17	0
250-499	15	11	26	3	15	12	27	2
100-249	30	48	78	2	46	29	75	5
Subtotal (over 100)	54	74	128	5	77	49	126	7
50-99	60	56	116	2	88	28	116	2
25-49	82	77	159	3	134	24	158	4
10-24	30	28	58	2	46	13	59	1
5-9	2	2	4	0	3	1	4	0
Under 5	4	1	5	0	4	1	5	0
Subtotal (under 100)	178	164	342	7	275	67	342	7
Total	232	238	470	12	352	116	468	14
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	14	23	37	2	25	13	38	1
Suburbs	91	91	182	5	146	36	182	5
500-1,000								
Central cities	14	18	32	1	19	13	32	1
Suburbs	13	9	22	0	16	5	21	1
250-499								
Central cities	19	31	50	1	28	20	48	3
Suburbs	5	1	6	1	6	0	6	1
100-249								
Central cities	35	24	59	0	45	13	58	1
Suburbs	2	5	7	0	5	2	7	0
Under 100								
Central cities	8	5	13	0	11	2	13	0
Subs. + independent	31	31	62	2	51	12	63	1
All central cities	90	101	191	4	128	61	189	6
All suburbs	142	137	279	8	224	44	279	8
Total	232	238	470	12	352	116	468	14

Table 40

## PROCEDURES BY FIRE DEPARTMENT AT SCENE OF A BOMB THREAT

	Order Evacuation if Required				Direct or Aid in Bomb Search				Order Physical Damage Control			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Population of district served (in thousands)												
Over 1,000	3	4	7	0	3	4	7	0	4	3	7	0
500-1,000	3	13	16	1	3	12	15	2	4	11	15	2
250-499	9	19	28	1	9	19	28	1	11	17	28	1
100-249	30	46	76	4	35	41	76	4	37	38	75	5
Subtotal (over 100)	45	82	127	6	50	76	126	7	56	69	125	8
50-99	63	54	117	1	66	49	115	3	65	48	113	5
25-49	90	65	155	7	90	63	153	9	95	55	150	12
10-24	38	22	60	0	32	25	57	3	39	19	58	2
5-9	2	0	2	2	1	1	2	2	3	0	3	1
Under 5	2	3	5	0	2	3	5	0	3	2	5	0
Subtotal (under 100)	195	144	339	10	191	141	332	17	205	124	329	20
Total	240	226	466	16	241	217	458	24	261	193	454	28
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	14	24	38	1	14	24	38	1	14	24	38	1
Suburbs	98	81	179	8	89	86	175	12	108	66	174	13
500-1,000												
Central cities	11	20	31	2	11	19	30	3	12	17	29	4
Suburbs	15	7	22	0	13	7	20	2	14	6	20	2
250-499												
Central cities	15	35	50	1	25	25	50	1	24	26	50	1
Suburbs	3	3	6	1	4	2	6	1	4	2	6	1
100-249												
Central cities	36	21	57	2	36	21	57	2	36	20	56	3
Suburbs	5	2	7	0	4	3	7	0	5	2	7	0
Under 100												
Central cities	8	5	13	0	10	3	13	0	8	5	13	0
Subs. + independent	35	28	63	1	35	27	62	2	36	25	61	3
All central cities	84	105	189	6	96	92	188	7	94	92	186	9
All suburbs	156	121	277	10	145	125	270	17	167	101	268	19
Total	240	226	466	16	241	217	458	24	261	193	454	28

Table 41

## PROCEDURES BY FIRE DEPARTMENT AT THE SCENE OF A BOMB DISCOVERY

	Order Evacuation if Required				Order Physical Damage Control				Order or Implement Bomb Disposal			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Population of district served (in thousands)												
Over 1,000	3	4	7	0	4	3	7	0	2	5	7	0
500-1,000	5	11	16	1	8	8	16	1	4	12	16	1
250-499	12	16	28	1	10	18	28	1	10	18	28	1
100-249	42	35	77	3	44	32	76	4	29	47	76	4
Subtotal (over 100)	62	66	128	5	66	61	127	6	45	82	127	6
50-99	79	39	118	0	80	38	118	0	54	63	117	1
25-49	111	45	156	6	108	42	150	12	78	74	152	10
10-24	42	17	59	1	40	16	56	4	27	29	56	4
5-9	3	1	4	0	2	1	3	1	2	2	4	0
Under 5	2	3	5	0	3	2	5	0	2	3	5	0
Subtotal (under 100)	237	105	342	7	233	99	332	17	163	171	334	15
Total	299	171	470	12	299	160	459	23	208	253	461	21
Metropolitan size (in thousands) and urbanization												
Over 1,000												
Central cities	18	20	38	1	19	19	38	1	15	24	39	0
Suburbs	121	60	181	6	125	52	177	10	82	96	178	9
500-1,000												
Central cities	15	16	31	2	15	16	31	2	10	21	31	2
Suburbs	15	7	22	0	14	7	21	1	13	9	22	0
250-499												
Central cities	27	24	51	0	28	23	51	0	16	35	51	0
Suburbs	4	2	6	1	4	2	6	1	2	4	6	1
100-249												
Central cities	39	19	58	1	39	18	57	2	29	28	57	2
Suburbs	5	2	7	0	5	2	7	0	1	5	6	1
Under 100												
Central cities	12	1	13	0	12	1	13	0	11	2	13	0
Subs. + independent	43	20	63	1	38	20	58	6	29	29	58	6
All central cities	111	80	191	4	113	77	190	5	81	110	191	4
All suburbs	188	91	279	8	186	83	269	18	127	143	270	17
Total	299	171	470	12	299	160	459	23	208	253	461	21

Table 42

ISSUANCE OF GENERAL ORDERS  
FOR BOMB THREATS AND BOMB DISCOVERIES

	Fire Department Has Issued Orders			
	Yes	No	Total	Unknown
Population of district served (in thousands)				
Over 1,000	7	0	7	0
500-1,000	12	4	16	1
250-499	25	2	27	2
100-249	58	18	76	4
Subtotal (over 100)	102	24	126	7
50-99	101	15	116	2
25-49	131	26	157	5
10-24	50	9	59	1
5-9	3	1	4	0
Under 5	5	0	5	0
Subtotal (under 100)	290	51	341	8
Total	392	75	467	15
Metropolitan size (in thousands) and urbanization				
Over 1,000				
Central cities	33	3	36	3
Suburbs	157	26	183	4
500-1,000				
Central cities	26	5	31	2
Suburbs	20	2	22	0
250-499				
Central cities	35	15	50	1
Suburbs	4	2	6	1
100-249				
Central cities	49	9	58	1
Suburbs	6	1	7	0
Under 100				
Central cities	12	1	13	0
Subs. + independent	50	11	61	3
All central cities	155	33	188	7
All suburbs	237	42	279	8
Total	392	75	467	15

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Table 43

TRAINING OF FIRE DEPARTMENT PERSONNEL  
IN BOMB INCIDENT SKILLS

	Number of Personnel Trained				Number of Fire Departments	
	Public Safety 4 Hours	Bomb Scene 24 Hours	Bomb Disposal 120 Hours	Investigation 24 Hours	Recorded	Unknown
Population of district served (in thousands)						
Over 1,000	14,008	31	28	77	7	0
500-1,000	174	60	10	35	17	0
250-499	545	54	6	42	27	2
100-249	1,293	195	47	92	74	6
Subtotal (over 100)	16,020	340	91	246	125	8
50-99	1,124	363	63	49	116	2
25-49	1,271	222	42	79	155	7
10-24	175	39	15	18	58	2
5-9	6	4	1	0	3	1
Under 5	3	3	0	6	5	0
Subtotal (under 100)	2,579	631	121	152	337	12
Total	18,599	971	212	398	462	20
Metropolitan size (in thousands) and urbanization						
Over 1,000						
Central cities	14,724	96	37	125	38	1
Suburbs	920	207	24	93	181	6
500-1,000						
Central cities	584	66	9	59	31	2
Suburbs	78	35	0	7	22	0
250-499						
Central cities	618	63	0	33	46	5
Suburbs	48	0	0	0	7	0
100-249						
Central cities	822	345	41	43	56	3
Suburbs	8	2	0	2	6	1
Under 100						
Central cities	364	75	61	15	13	0
Subs. + independent	433	82	40	21	62	2
All central cities	17,112	645	148	275	184	11
All suburbs	1,487	326	64	123	278	9
Total	18,599	971	212	398	462	20

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Table 44

INTEREST IN BOMB INCIDENT TRAINING COURSES  
IF PROVIDED FOR FIRE DEPARTMENT

	Public Safety 4 Hours				Bomb Scene 24 Hours				Bomb Disposal 120 Hours				Investigation 24 Hours					
	Yes	No	Sum	Un-	Yes	No	Sum	Un-	Yes	No	Sum	Un-	Yes	No	Sum	Un-		
				known				known				known				known		
Population of district served (in thousands)																		
Over 1,000	4	2	6	1	4	3	7	0	2	4	6	1	1	5	6	1		
500-1,000	10	6	16	1	9	6	15	2	6	9	15	2	9	6	15	2		
250-499	15	7	22	7	14	9	23	6	9	12	21	8	11	10	21	8		
100-249	52	15	67	13	44	19	63	17	26	35	61	19	43	23	66	14		
Subtotal (over 100)	81	30	111	22	71	37	108	25	43	60	103	30	64	44	108	25		
50-99	76	22	98	20	80	25	105	13	46	45	91	27	68	30	98	20		
25-49	118	20	138	24	106	30	136	26	49	72	121	41	88	45	133	29		
10-24	43	9	52	8	35	17	52	8	14	32	46	14	29	21	50	10		
5-9	1	1	2	2	1	2	3	1	0	2	2	2	0	2	2	2		
Under 5	4	1	5	0	3	1	4	1	2	2	4	1	2	2	4	1		
Subtotal (under 100)	242	53	295	54	225	75	300	49	111	153	264	85	187	100	287	62		
Total	323	83	406	76	296	112	408	74	154	213	367	115	251	144	395	87		
Metropolitan size (in thousands) and urbanization																		
Over 1,000																		
Central cities	23	9	32	7	22	13	35	4	11	21	32	7	18	15	33	6		
Suburbs	127	33	160	27	110	50	160	27	47	94	141	46	91	61	152	35		
500-1,000																		
Central cities	19	6	25	8	18	6	24	9	14	11	25	8	17	10	27	6		
Suburbs	18	2	20	2	18	2	20	2	9	11	20	2	14	6	20	2		
250-499																		
Central cities	28	16	44	7	30	15	45	6	17	23	40	11	25	16	41	10		
Suburbs	4	2	6	1	4	2	6	1	2	3	5	2	3	3	6	1		
100-249																		
Central cities	44	5	49	10	39	7	46	13	24	16	40	19	38	11	49	10		
Suburbs	4	2	6	1	5	2	7	0	4	2	6	1	4	3	7	0		
Under 100																		
Central cities	9	1	10	3	12	1	13	0	8	3	11	2	9	1	10	3		
Subs. + independent	47	7	54	10	38	14	52	12	18	29	47	17	32	18	50	14		
All central cities	123	37	160	35	121	42	163	32	74	74	148	47	107	53	160	35		
All suburbs	200	46	246	41	175	70	245	42	80	139	219	68	144	91	235	52		
Total	323	83	406	76	296	112	408	74	154	213	367	115	251	144	395	87		

Table 45

ACTUAL LOCAL AGENCY RESPONSIBILITY FOR BOMB THREAT SITUATIONS

	Number of Fire Departments Reporting							
	Fire	Police	Fire and Police	Fire, Police, and Other		Fire and Other	Other	Unknown
				Other	Other			
Population of district served (in thousands)								
Over 1,000	0	4	3	0	0	0	0	
500-1,000	1	14	2	0	0	0	0	
250-499	2	18	8	0	0	0	1	
100-249	3	46	29	0	0	0	2	
Subtotal (over 100)	6	82	42	0	0	0	3	
50-99	7	54	53	0	0	1	3	
25-49	7	65	85	0	0	0	5	
10-24	5	22	27	0	0	0	6	
5-9	1	3	0	0	0	0	0	
Under 5	0	3	2	0	0	0	0	
Subtotal (under 100)	20	147	167	0	0	1	14	
Total	26	229	209	0	0	1	17	
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	2	25	11	0	0	0	1	
Suburbs	14	88	77	0	0	0	8	
500-1,000								
Central cities	2	21	10	0	0	0	0	
Suburbs	1	7	13	0	0	0	1	
250-499								
Central cities	1	31	17	0	0	0	2	
Suburbs	1	3	2	0	0	1	0	
100-249								
Central cities	3	19	34	0	0	0	3	
Suburbs	1	3	3	0	0	0	0	
Under 100								
Central cities	1	5	7	0	0	0	0	
Subs. + independent	0	27	35	0	0	0	2	
All central cities	9	101	79	0	0	0	6	
All suburbs	17	128	130	0	0	1	11	
Total	26	229	209	0	0	1	17	
Regions and combined areas								
(1) New England	5	10	20	0	0	0	0	
(2) Middle Atlantic	2	35	15	0	0	0	2	
(3) East N. Central	8	49	66	0	0	0	5	
(4) West N. Central	2	18	15	0	0	0	3	
(5) South Atlantic	4	18	29	0	0	0	1	
(6) East S. Central	0	6	5	0	0	1	1	
(7) West S. Central	4	14	25	0	0	0	3	
(8) Mountain	0	11	10	0	0	0	1	
(9) Pacific	1	68	24	0	0	0	1	
(1+2) Northeast	7	45	35	0	0	0	2	
(3+4) North Central	10	67	81	0	0	0	8	
(5+6+7) South	8	38	59	0	0	1	5	
(8+9) West	1	79	34	0	0	0	2	
Total	26	229	209	0	0	1	17	

Table 46

## PREFERRED LOCAL AGENCY RESPONSIBILITY FOR BOMB THREAT SITUATIONS

	Number of Fire Departments Expressing Preference for:						
	Fire	Police	Fire and Police	Fire, Police, and Other	Fire and Other	Other	Unknown
Population of district served (in thousands)							
Over 1,000	0	5	2	0	0	0	0
500-1,000	2	14	1	0	0	0	0
250-499	2	16	10	0	0	0	1
100-249	1	46	33	0	0	0	0
Subtotal (over 100)	5	81	46	0	0	0	1
50-99	6	64	48	0	0	0	0
25-49	8	89	63	0	0	0	2
10-24	3	26	31	0	0	0	0
5-9	0	4	0	0	0	0	0
Under 5	0	3	2	0	0	0	0
Subtotal (under 100)	17	186	144	0	0	0	2
Total	22	267	190	0	0	0	3
Metropolitan size (in thousands) and urbanization							
Over 1,000							
Central cities	3	24	11	0	0	0	1
Suburbs	10	108	68	0	0	0	1
500-1,000							
Central cities	2	21	10	0	0	0	0
Suburbs	0	9	13	0	0	0	0
250-499							
Central cities	1	29	21	0	0	0	0
Suburbs	0	3	3	0	0	0	1
100-249							
Central cities	1	29	29	0	0	0	0
Suburbs	1	4	2	0	0	0	0
Under 100							
Central cities	2	6	5	0	0	0	0
Subs. + independent	2	34	28	0	0	0	0
All central cities	9	109	76	0	0	0	1
All suburbs	13	158	114	0	0	0	2
Total	22	267	190	0	0	0	3
Regions and combined areas							
(1) New England	3	20	12	0	0	0	0
(2) Middle Atlantic	2	37	15	0	0	0	0
(3) East N. Central	8	55	64	0	0	0	1
(4) West N. Central	2	21	15	0	0	0	0
(5) South Atlantic	1	28	22	0	0	0	1
(6) East S. Central	0	6	7	0	0	0	0
(7) West S. Central	4	20	22	0	0	0	0
(8) Mountain	1	12	8	0	0	0	1
(9) Pacific	1	68	25	0	0	0	0
(1+2) Northeast	5	57	27	0	0	0	0
(3+4) North Central	10	76	79	0	0	0	1
(5+6+7) South	5	54	51	0	0	0	1
(8+9) West	2	80	33	0	0	0	1
Total	22	267	190	0	0	0	3

Table 47

## ACTUAL LOCAL AGENCY RESPONSIBILITY FOR BOMB DISCOVERY SITUATIONS

	Number of Fire Departments Reporting						
	Fire	Police	Fire and Police	Fire, Police, and Other	Fire and Other	Other	Unknown
Population of district served (in thousands)							
Over 1,000							
500-1,000	0	5	2	0	0	0	0
250-499	1	13	3	0	0	0	0
100-249	3	18	6	0	0	0	2
Subtotal (over 100)	5	44	26	0	0	2	3
50-99	9	80	37	0	0	2	5
25-49	8	60	42	0	0	3	5
10-24	12	66	70	0	0	6	8
5-9	5	20	26	0	0	2	7
Under 5	1	2	1	0	0	0	0
Subtotal (under 100)	0	3	2	0	0	0	0
Total	26	151	141	0	0	11	20
Metropolitan size (in thousands) and urbanization							
Over 1,000							
Central cities	3	27	8	0	0	0	1
Suburbs	14	88	71	0	0	5	9
500-1,000							
Central cities	3	21	9	0	0	0	0
Suburbs	2	7	12	0	0	0	1
250-499							
Central cities	1	31	13	0	0	1	5
Suburbs	0	3	1	0	0	2	1
100-249							
Central cities	5	22	26	0	0	2	4
Suburbs	1	2	3	0	0	0	1
Under 100							
Central cities	3	2	8	0	0	0	0
Subs. + independent	3	28	27	0	0	3	3
All central cities	15	103	64	0	0	3	10
All suburbs	20	128	114	0	0	10	15
Total	35	231	178	0	0	13	25
Regions and combined areas							
(1) New England	4	9	13	0	0	5	4
(2) Middle Atlantic	3	35	12	0	0	1	3
(3) East N. Central	10	53	58	0	0	3	4
(4) West N. Central	3	17	12	0	0	1	5
(5) South Atlantic	3	21	25	0	0	2	1
(6) East S. Central	0	6	6	0	0	0	1
(7) West S. Central	7	13	21	0	0	1	4
(8) Mountain	2	10	9	0	0	0	1
(9) Pacific	3	67	22	0	0	0	2
(1+2) Northeast	7	44	25	0	0	6	7
(3+4) North Central	13	70	70	0	0	4	9
(5+6+7) South	10	40	52	0	0	3	6
(8+9) West	5	77	31	0	0	0	3
Total	35	231	178	0	0	13	25



Table 48

## PREFERRED LOCAL AGENCY RESPONSIBILITY FOR BOMB DISCOVERY SITUATIONS

	Number of Fire Departments Expressing Preference for:						Unknown
	Fire	Police	Fire and Police	Fire, Police, and Other	Fire and Other	Other	
Population of district served (in thousands)							
Over 1,000	0	4	3	0	0	0	0
500-1,000	2	14	1	0	0	0	0
250-499	2	19	7	0	0	0	1
100-249	4	44	29	0	0	2	1
Subtotal (over 100)	8	81	40	0	0	2	2
50-99	5	63	47	0	0	2	1
25-49	13	77	65	0	0	5	2
10-24	3	24	31	0	0	2	0
5-9	0	3	1	0	0	0	0
Under 5	0	3	2	0	0	0	0
Subtotal (under 100)	21	170	146	0	0	9	3
Total	29	251	186	0	0	11	5
Metropolitan size (in thousands) and urbanization							
Over 1,000							
Central cities	3	25	9	0	0	0	2
Suburbs	11	96	74	0	0	5	1
500-1,000							
Central cities	2	20	11	0	0	0	0
Suburbs	1	9	12	0	0	0	0
250-499							
Central cities	2	33	15	0	0	1	0
Suburbs	0	3	2	0	0	1	1
100-249							
Central cities	4	28	24	0	0	2	1
Suburbs	1	3	3	0	0	0	0
Under 100							
Central cities	1	5	7	0	0	0	0
Subs. + independent	4	29	29	0	0	2	0
All central cities	12	111	66	0	0	3	3
All suburbs	17	140	120	0	0	8	2
Total	29	251	186	0	0	11	5
Regions and combined areas							
(1) New England	2	14	14	0	0	4	1
(2) Middle Atlantic	2	37	14	0	0	1	0
(3) East N. Central	10	56	58	0	0	4	0
(4) West N. Central	3	22	12	0	0	1	0
(5) South Atlantic	1	27	23	0	0	0	1
(6) East S. Central	0	6	7	0	0	0	0
(7) West S. Central	5	14	26	0	0	1	0
(8) Mountain	3	10	7	0	0	0	2
(9) Pacific	3	65	25	0	0	0	1
(1+2) Northeast	4	51	28	0	0	5	1
(3+4) North Central	13	78	70	0	0	5	0
(5+6+7) South	6	47	56	0	0	1	1
(8+9) West	6	75	32	0	0	0	3
Total	29	251	186	0	0	11	5

Table 49 (Including Table 54)

## COORDINATION BETWEEN POLICE AND FIRE DEPARTMENTS IN BOMB THREAT AND BOMB DISCOVERY INCIDENTS

	Have Agreements Between Police and Fire Departments Been Written on Incident Procedures?				Are Police Responsible for Explosives and Fire Departments for Incendiaries?			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown
Population of district served (in thousands)								
Over 1,000	4	3	7	0	3	4	7	0
500-1,000	11	6	17	0	10	6	16	1
250-499	18	9	27	2	17	11	28	1
100-249	36	43	79	1	45	29	74	6
Subtotal (over 100)	69	61	130	3	75	50	125	8
50-99	65	32	117	1	49	67	116	2
25-49	87	73	160	2	70	85	155	7
10-24	29	29	58	2	29	30	59	1
5-9	1	3	4	0	1	2	3	1
Under 5	2	3	5	0	4	1	5	0
Subtotal (under 100)	184	160	344	5	153	185	338	11
Total	253	221	474	8	228	235	463	19
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	28	9	37	2	22	16	38	1
Suburbs	105	78	183	4	84	97	181	6
500-1,000								
Central cities	16	17	33	0	23	8	31	2
Suburbs	10	12	22	0	9	12	21	1
250-499								
Central cities	21	30	51	0	29	20	49	2
Suburbs	3	4	7	0	1	6	7	0
100-249								
Central cities	29	29	58	1	22	35	57	2
Suburbs	3	4	7	0	3	4	7	0
Under 100								
Central cities	7	6	13	0	6	7	13	0
Subs. + independent	31	32	63	1	29	30	59	5
All central cities	101	91	192	3	102	86	188	7
All suburbs	152	130	282	5	126	149	275	12
Total	253	221	474	8	228	235	463	19

Table 50 and Table 51

POLICE AND FIRE DEPARTMENT BOMB DISPOSAL SQUADS

Population of district served (in thousands)	Police Department Has a Bomb Disposal Squad				Fire Department Has A Bomb Disposal Squad			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown
	Over 1,000	7	0	7	0	1	6	7
500-1,000	13	4	17	0	2	15	17	0
250-499	22	6	28	1	3	24	27	2
100-249	29	46	75	5	7	72	79	1
Subtotal (over 100)	71	56	127	6	13	117	130	3
50-99	35	80	115	3	5	113	118	0
25-49	29	125	154	8	8	153	161	1
10-24	8	52	60	0	0	60	60	0
5-9	1	3	4	0	0	4	4	0
Under 5	1	4	5	0	0	5	5	0
Subtotal (under 100)	74	264	338	11	13	335	348	1
Total	145	320	465	17	26	452	478	4
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	32	6	38	1	5	33	38	1
Suburbs	32	148	180	7	4	182	186	1
500-1,000								
Central cities	19	14	33	0	3	29	32	1
Suburbs	6	16	22	0	2	20	22	0
250-499								
Central cities	23	25	48	3	3	48	51	0
Suburbs	1	6	7	0	0	7	7	0
100-249								
Central cities	14	43	57	2	5	54	59	0
Suburbs	0	7	7	0	0	7	7	0
Under 100								
Central cities	2	11	13	0	1	12	13	0
Subs. + independent	16	44	60	4	3	60	63	1
All central cities	90	99	189	6	17	176	193	2
All suburbs	55	221	276	11	9	276	285	2
Total	145	320	465	17	26	452	478	4

Table 52 and Table 53

POLICE AND FIRE DEPARTMENT BOMB INVESTIGATION SQUADS

Population of district served (in thousands)	Police Department Has a Bomb Investigation Squad				Fire Department Has a Bomb Investigation Squad			
	Yes	No	Total	Unknown	Yes	No	Total	Unknown
	Over 1,000	6	1	7	0	3	4	7
500-1,000	16	0	16	1	8	9	17	0
250-499	27	1	28	1	12	16	28	1
100-249	60	18	78	2	25	54	79	1
Subtotal (over 100)	109	20	129	4	48	83	131	2
50-99	76	40	116	2	27	91	118	0
25-49	98	57	155	7	43	119	162	0
10-24	31	27	58	2	10	49	59	1
5-9	1	3	4	0	1	3	4	0
Under 5	2	3	5	0	1	4	5	0
Subtotal (under 100)	208	130	338	11	82	266	348	1
Total	317	150	467	15	130	349	479	3
Metropolitan size (in thousands) and urbanization								
Over 1,000								
Central cities	35	3	38	1	16	22	38	1
Suburbs	102	79	181	6	31	155	186	1
500-1,000								
Central cities	28	4	32	1	14	19	33	0
Suburbs	13	9	22	0	5	17	22	0
250-499								
Central cities	38	11	49	2	17	33	50	1
Suburbs	4	3	7	0	2	5	7	0
100-249								
Central cities	41	16	57	2	18	41	59	0
Suburbs	4	3	7	0	2	5	7	0
Under 100								
Central cities	8	5	13	0	4	9	13	0
Subs. + independent	44	17	61	3	21	43	64	0
All central cities	150	39	189	6	69	124	193	2
All suburbs	167	111	278	9	61	225	286	1
Total	317	150	467	15	130	349	479	3

Table 54

## RESPONSIBILITY FOR EXPLOSIVE VERSUS INCENDIARY BOMBINGS

The results of Question 54  
are presented in Table 49.

Table 55

COLLEGES THAT HAVE PROVIDED FIRE DEPARTMENTS WITH  
PLANS FOR HANDLING CAMPUS DISORDERS

	Number of Colleges Providing Plans	Number of Fire Departments*			
		With Plans	Without Plans	Total	Unknown
Population of district served (in thousands)					
Over 1,000	0	0	7	7	0
500-1,000	11	3	14	17	0
250-499	7	5	21	26	1
100-249	<u>11</u>	<u>9</u>	<u>54</u>	<u>63</u>	<u>2</u>
Subtotal (over 100)	29	17	96	113	3
50-99	24	20	47	67	2
25-49	31	27	50	77	1
10-24	3	3	7	10	0
5-9	0	0	0	0	0
Under 5	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal (under 100)	58	50	104	154	3
Total	87	67	200	267	6
Metropolitan size (in thou- sands) and urbanization					
Over 1,000					
Central cities	6	2	28	30	2
Suburbs	17	13	38	51	1
500-1,000					
Central cities	10	4	25	29	0
Suburbs	3	3	5	8	0
250-499					
Central cities	11	11	32	43	1
Suburbs	1	1	1	2	0
100-249					
Central cities	14	12	34	46	1
Suburbs	0	0	2	2	0
Under 100					
Central cities	3	3	6	9	1
Subs. + independent	22	18	29	47	0
All central cities	44	32	125	157	5
All suburbs	<u>43</u>	<u>35</u>	<u>75</u>	<u>110</u>	<u>1</u>
Total	87	67	200	267	6

\* Two-hundred-seventy-three fire departments have colleges in their areas.

Table 56

COLLEGE DISORDERS INVOLVING FIRES, BOMBS, OR DISTURBANCES  
DURING 1964-1971 TO WHICH FIRE DEPARTMENTS RESPONDED

	Number of Colleges with Disorders	Number of Fire Departments*			
		With Disorders	Without Disorders	Total	Unknown
Population of district served (in thousands)					
Over 1,000	15	4	3	7	0
500-1,000	26	12	4	16	1
250-499	29	16	10	26	1
100-249	34	29	36	65	0
Subtotal (over 100)	104	61	53	114	2
50-99	29	25	44	69	0
25-49	30	28	50	78	0
10-24	8	7	2	9	1
5-9	0	0	0	0	0
Under 5	0	0	0	0	0
Subtotal (under 100)	67	60	96	156	1
Total	171	121	149	270	3
Metropolitan size (in thou- sands) and urbanization					
Over 1,000					
Central cities	50	21	9	30	2
Suburbs	27	24	27	51	1
500-1,000					
Central cities	22	14	15	29	0
Suburbs	4	4	4	8	0
250-499					
Central cities	24	18	26	44	0
Suburbs	2	2	0	2	0
100-249					
Central cities	17	16	31	47	0
Suburbs	1	1	1	2	0
Under 100					
Central cities	3	2	8	10	0
Subs. + independent	21	19	28	47	0
All central cities	116	71	89	160	2
All suburbs	55	50	60	110	1
Total	171	121	149	270	3

\* Two-hundred-seventy-three fire departments have colleges in their areas.

Table 57

INCIDENTS OF VIOLENCE AGAINST FIRE DEPARTMENTS  
RESPONDING TO COLLEGE DISORDERS

Metropolitan Size (in thousands) and Urbanization	Number of Colleges with Incidents	Number of Fire Departments*			
		With Incidents	Without Incidents	Total	Unknown
Over 1,000					
Central cities	21	12	18	30	2
Suburbs	5	5	46	51	1
500-1,000					
Central cities	5	4	25	29	0
Suburbs	1	1	7	8	0
250-499					
Central cities	5	5	39	44	0
Suburbs	0	0	2	2	0
100-249					
Central cities	3	3	44	47	0
Suburbs	0	0	2	2	0
Under 100					
Central cities	0	0	10	10	0
Subs. + independent	3	3	44	47	0
All central cities	34	24	136	160	2
All suburbs	9	9	101	110	1
Total	43	33	237	270	3

\* Two-hundred-seventy-three fire departments have colleges in their areas.

Table 58, Table 59, Table 60, and Table 61

PLANS AND PROGRAMS FOR FIRE DEPARTMENT ACTIONS IN CAMPUS DISORDERS  
(273 Departments)

	Number of Fire Departments That Have:															
	Written Reports on Operational Problems				General Orders on Disorder Procedures				Programs for Planning, Training, or Operations				Police Plans for Fire Department Protection			
	Un-known				Un-known				Un-known				Un-known			
	Yes	No	Sum	known	Yes	No	Sum	known	Yes	No	Sum	known	Yes	No	Sum	known
<b>Population of district served (in thousands)</b>																
Over 1,000	2	5	7	0	5	2	7	0	4	3	7	0	6	1	7	0
500-1,000	2	15	17	0	9	8	17	0	4	13	17	0	9	8	17	0
250-499	4	22	26	1	13	13	26	1	13	13	26	1	10	9	19	8
100-249	7	57	64	1	25	38	63	2	19	45	64	1	24	32	56	9
Subtotal (over 100)	15	99	114	2	52	61	113	3	40	74	114	2	49	50	99	17
50-99	4	63	67	2	24	44	68	1	26	41	67	2	27	30	57	12
25-49	10	65	75	3	40	35	75	3	27	48	75	3	28	37	65	13
10-24	1	9	10	0	6	4	10	0	5	5	10	0	4	5	9	1
5-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Under 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal (under 100)	15	137	152	5	70	83	153	4	58	94	152	5	59	72	131	26
Total	30	236	266	7	122	144	266	7	98	168	266	7	108	122	230	43
<b>Metropolitan size (in thousands) and urbanization</b>																
Over 1,000																
Central cities	6	25	31	1	14	17	31	1	13	18	31	1	17	10	27	5
Suburbs	4	47	51	1	20	30	50	2	14	35	49	3	17	26	43	9
500-1,000																
Central cities	3	26	29	0	14	15	29	0	10	19	29	0	12	13	25	4
Suburbs	1	7	8	0	6	2	8	0	4	4	8	0	3	4	7	1
250-499																
Central cities	4	39	43	1	18	26	44	0	15	29	44	0	14	24	38	6
Suburbs	0	2	2	0	2	0	2	0	0	2	2	0	2	0	2	0
100-249																
Central cities	6	38	44	3	16	28	44	3	16	29	45	2	16	23	39	8
Suburbs	0	1	1	1	1	0	1	1	1	0	1	1	0	1	1	1
Under 100																
Central cities	0	10	10	0	4	6	10	0	5	5	10	0	3	4	7	3
Subs. + independent	6	41	47	0	27	20	47	0	20	27	47	0	24	17	41	6
All central cities	19	138	157	5	66	92	158	4	59	100	159	3	62	74	136	26
All suburbs	11	98	109	2	56	52	108	3	39	68	107	4	46	48	94	17
Total	30	236	266	7	122	144	266	7	98	168	266	7	108	122	230	43
<b>Regions and combined areas</b>																
(1) New England	2	16	18	1	10	8	18	1	5	12	17	2	7	9	16	3
(2) Middle Atlantic	2	25	27	0	9	18	27	0	9	18	27	0	12	10	22	5
(3) East N. Central	7	52	59	0	25	34	59	0	21	38	59	0	21	29	50	9
(4) West N. Central	0	26	26	1	8	18	26	1	6	21	27	0	6	15	21	6
(5) South Atlantic	6	26	32	1	16	15	31	2	12	19	31	2	18	11	29	4
(6) East S. Central	1	10	11	0	6	5	11	0	5	6	11	0	5	2	7	4
(7) West S. Central	3	31	34	0	18	16	34	0	14	20	34	0	13	19	32	2
(8) Mountain	3	13	16	0	10	6	16	0	9	7	16	0	7	7	14	2
(9) Pacific	6	37	43	4	20	24	44	3	17	27	44	3	19	20	39	8
(1+2) Northeast	4	41	45	1	19	26	45	1	14	30	44	2	19	19	38	8
(3+4) North Central	7	78	85	1	33	52	85	1	27	59	86	0	27	44	71	15
(5+6+7) South	10	67	77	1	40	36	76	2	31	45	76	2	36	32	68	10
(8+9) West	9	50	59	4	30	30	60	3	26	34	60	3	25	27	52	10
Total	30	236	266	7	122	144	266	7	98	168	266	7	108	122	230	43

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