

**A Survey
of Arson
and Arson
Response
Capabilities
in
Selected
Jurisdictions**

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



A Survey of Arson and Arson Response Capabilities in Selected Jurisdictions

by

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FOREWORD

Easy to commit, hard to solve, arson poses unique problems for public safety officials. Rarely are there witnesses to the crime, and much of the evidence literally goes up in smoke. Compounding these inherent difficulties is the information vacuum that has long existed about arson. Few reliable statistics have been gathered at either the local or national level about the magnitude of the crime and efforts to contain it.

This survey, conducted for LEAA's National Institute of Law Enforcement and Criminal Justice, is intended to help fill that void. It updates statistics collected under an earlier Institute project, which reported a 325 percent increase in incendiary building fires during the period 1965-1975.

Far from abating, arson continues to be a deadly growth industry in many of the nation's cities. According to this survey, arson fires per capita almost doubled between 1971 and 1977. On a more encouraging note, arrests and convictions for arson increased slightly over the previous survey: 11 percent of fires classified as incendiary or suspicious were cleared by an arrest. Nearly half of those arrested (5.4 percent) were convicted. Perhaps more interesting, the arrest rate for only those fires confirmed as arson-related was 18.5 percent which nearly parallels the 18.3 percent national arrest rate for Part I property crimes.

Perhaps contributing to the modest improvements in enforcement is the growing number of arson task forces and special training efforts for arson investigators. Fifty-one percent of the responding jurisdictions said they had instituted special task forces and 75 percent offer staff training. Survey respondents, however, said more training was a high priority.

As the financial and human toll exacted by arson continues to mount, the Law Enforcement Assistance Administration is joining forces with all levels of government and the private sector in a concerted effort to halt the spread of this pernicious crime. With the support of the Attorney General, LEAA has designated arson as a priority area for the Department of Justice. Steps are being taken to coordinate law enforcement arson prevention and control efforts and to develop a viable strategy for combatting this crime. All parts of the agency are committed to this goal. The information reported here represents an effective and immediate contribution by the NILECJ, through its research efforts, to the success of this undertaking.


Henry S. Dogin
Acting Administrator
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1.0 INTRODUCTION

In October 1978, LEAA's National Institute of Law Enforcement and Criminal Justice requested Abt Associates to conduct a survey of all arson units in fire departments of cities with 50,000 or more population. The survey was intended to produce background data to aid in the development of program models for the investigation, prevention, and control of arson in local communities.

Four hundred thirty-five questionnaires (see Appendix B) were mailed to fire chiefs in the respective cities. One hundred and seventy-four of the questionnaires (40 percent) were completed and returned. For cities over 300,000 (total 50) the return rate was 80 percent. Sixty percent of cities between 150,000 and 300,000 (total 50) completed and returned the questionnaire. For cities between 50,000 and 150,000 (total 335) the return rate was 31 percent.

The questionnaire covered four aspects of arson-related activity. First, statistics were requested to assist in characterizing the nature of the problem and magnitude of effort applied in the jurisdiction: population, fire department budget, the classification of fires-in-buildings, classification of motives for incendiary fires, the disposition of arson cases, the scope of arson losses, and the number of arson unit staff. Second, the questionnaire asked for a description of the administration, personnel resources, equipment, program operations, training, and prevention techniques. Third, it asked for uses of support systems such as data processing programs, task forces, the legal environment, and outside investigative resources. Finally, it asked for recommendations regarding future legislative actions and funding priorities. The Questionnaire Data Sheets in Appendix A provide a summary of each city's response.

The responses revealed the following trends:

- Many cities, particularly those with high arson, have implemented task forces to coordinate city resources against arson.
- Cities with declining population have substantially more fires-in-buildings and arson fires per capita than those with stabilized or expanding population.
- A comparison of present results with those of previous surveys reveals that reported arson fires per capita have almost doubled in the six years between 1971 and 1977 from 55 per 100,000 to 98 per 100,000.
- According to Fire Department officials, motives for all arson fires are distributed as follows:

1. Vandalism	42%
2. Spite	23%
3. Pyromania	14%
4. For profit	14%
5. Crime cover	7%

- According to the survey, 18.5 percent of fires classified as incendiary were cleared by an arrest. (For further explanation of rate see Section 2.4) More than half of those arrested are convicted. This is roughly equivalent to the police record of arrests and convictions for Part I property crimes.
- On average, fire departments assign only one staff member to their arson unit for every \$2.5 million in the department's budget.
- Fire departments that investigate a high percentage of all fires uncover relatively more arson fires and make relatively more arrests than those departments investigating a lower percentage of fires. This is particularly true of those fire departments that investigate more fires than the firefighters at the scene suspect to be arson.
- The primary legal barrier to sharing investigative information is privacy laws which are perceived to prohibit communication between the fire department and insurance companies.
- Data systems are mostly used for record keeping only, not for aiding in the investigation or arson prevention processes.
- New techniques for investigation include changes in criteria for what fires should be investigated. This leads to investigating more fires, more promptly.
- 51 percent of all cities responding to the survey have instituted task forces usually triggered by an increased rate of arson fires and, independently, increased total dollar losses.
- 58 percent of those cities with task forces feel results have been good, none believe the outcomes were detrimental.
- Even though 75 percent of all cities surveyed are offering staff training in all the major aspects of investigation, training is one of the areas of need most frequently mentioned for additional funding.

2.0 STATISTICS ON FIRES, ARSON, ARRESTS AND LOSSES

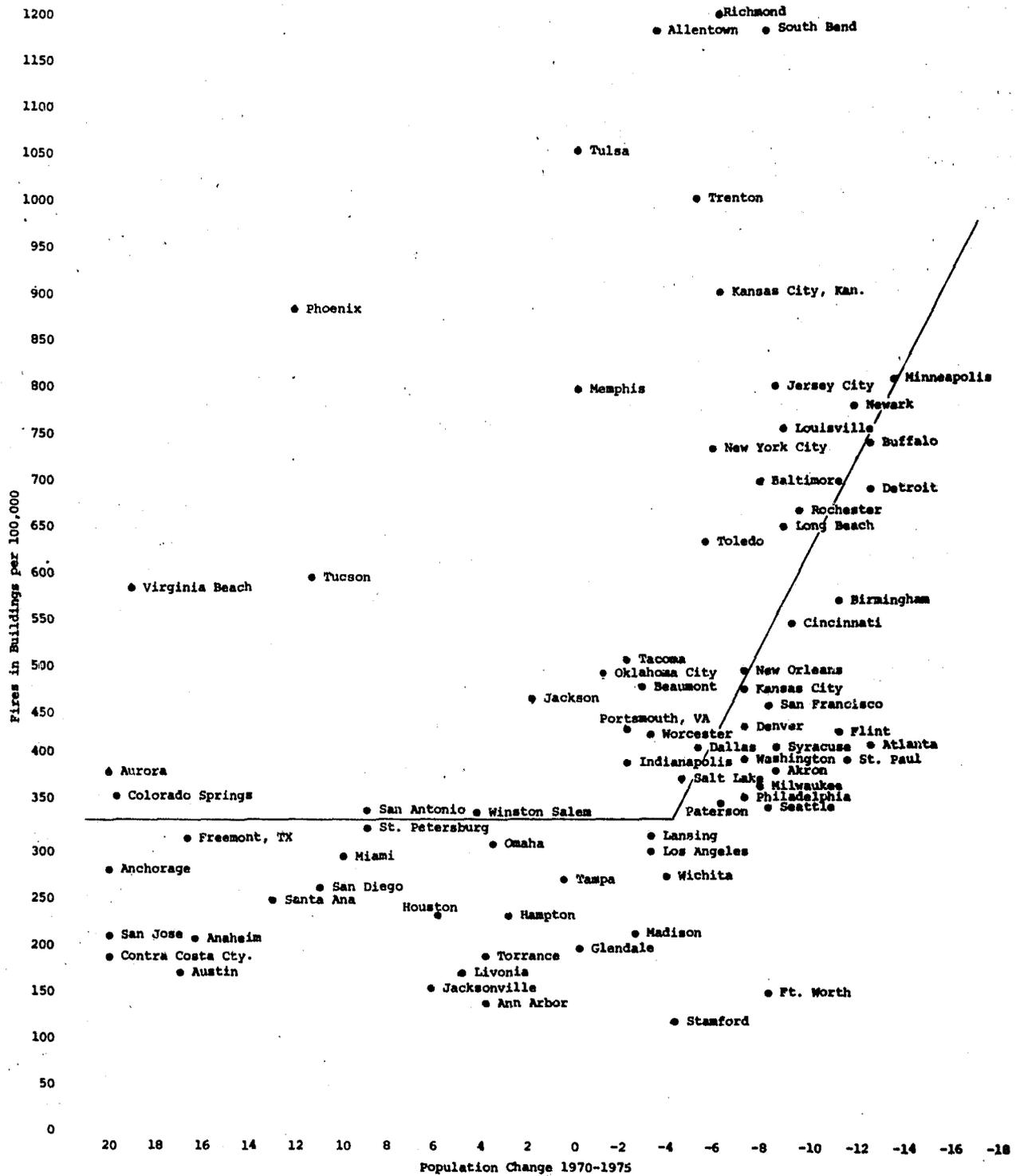
2.1 Fires-in-Buildings

The survey indicated, as expected, that the number of fires-in-buildings varied with the size of the population within a city. An average of 504 fires occurred in buildings for every 100,000 population. However, there was wide variation among cities in the rate of fires per 100,000, e.g. the lowest city reported about 158 per 100,000 and the highest 1345. Using available census data, a search was made for standard indicators that would help explain these discrepancies. It was hypothesized that cities with a greater degree of urban decay would have the higher rates of fire. To test this hypothesis correlation coefficients were calculated for the following potentially relevant data: (1) Residential housing vacancy rates, (2) population per square mile, (3) change in the number of manufacturing establishments, (4) the change in population from 1960 to 1970, and (5) the change in population from 1970 to 1975. (These data points are the best indicators of urban decay that are readily available.) Of these the highest correlation with fires-in-buildings was the population change from 1970 to 1975. High population density and a decline in the number of manufacturing establishments also correlated with the fires, but, even using multiple regression analysis, these factors did not explain any more of the variation than the population change from 1970 to 1975 alone.

The chart attached (Chart A) indicates the relative position of all cities over 100,000 which responded to the questionnaire. As the chart shows, those cities which have an increasing population or a decline of no more than 4 percent have a median of 320 fires per hundred thousand. On the other hand, those cities with population declines greater than 4 percent had a median of 560 fires. This means that cities with declining populations can expect 240 more fires per hundred thousand than cities without declining populations. In a city of 500,000 this could be a total of 1200 more building fires.

By plotting a curve for the best fit (Chart A), it appears that for each percentage point in population decline below 4 percent there is an increase of 50 fires per 100,000 population. For example, a city with 12 percent population decline might be expected to have 200 more fires per hundred thousand than a city with only an 8 percent population decline. Chart B shows the distribution of cities over and under 350 fires per 100,000

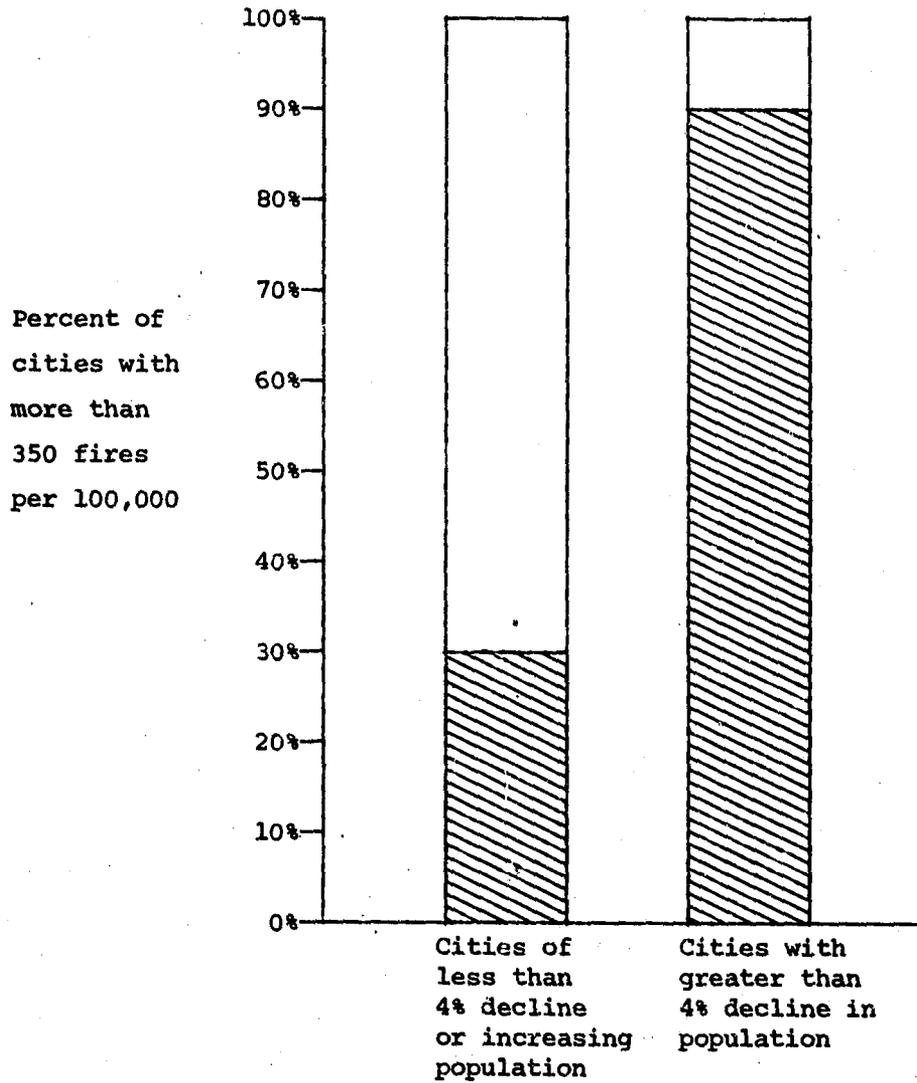
CHART A



Fires in Buildings per 100,000 versus Population Change

74 Cities 1977-78
Over 100,000 Population

Population Change 1970-1975
Versus Fires in Buildings per
100,000



and above and below a population change of -4 percent. Only thirty percent of cities above -4 percent population change had more than 350 fires per 100,000, while 89 percent of cities below -4 percent had more than 350 fires.

Initially it was felt that fires-in-buildings would be a very reliable statistic for making intercity comparisons. Cities for the most part categorize building fires in the same way, but there may be some differences. In some cities the statistic given for building fires was from the call register, the initial alarm or call listed in a daily log. If this log is not reconciled with the fire incident report, it may include false alarms, and misclassifications of the type of fire. Therefore, for some cities the total number of building fires may be overstated.

2.2 Arson Fires

For the purpose of this report "arson fires" are the total fires given a final classification of either "incendiary" or "suspicious." In some jurisdictions "suspicious" is the initial classification given to all fires which are to be investigated by the arson unit. After investigation fires are reclassified as either "incendiary," "undetermined" or "accidental." In other cities "incendiary" is the term used initially to classify a fire that is obviously deliberately set. Other fires that are not proven to be accidental are put into the suspicious or undetermined categories.

There does not seem to be a definitional problem between the terms "arson" and "incendiary." Incendiary is a deliberately set fire. Arson is setting a fire with malicious intent. In reported statistics there is virtually no difference. There are, however, other difficulties in making intercity comparisons.

The cities were asked to break down building fires into four categories: incendiary, suspicious, undetermined, and accidental. Only 43 percent were able to give these figures directly. Thirty percent gave a breakdown of only the fires that were investigated by the arson unit. Eleven percent gave a breakdown for all fires, being unable to separate building fires. Finally, 16 percent did not respond to the question at all.

There was wide variation in the proportion of fires that were allocated among the four categories by each city. A few cities categorized 95 percent of all non-accidental fires as incendiary while other cities classified only 20 percent of non-accidental fires as incendiary with the rest being suspicious or undetermined. The term "suspicious" has no definition that can be consistently

applied. Classification varies with each investigator, battalion chief, or whoever makes the final determination. Furthermore, there is likely to be great variation in the ability of the battalion chiefs to determine that a fire is "incendiary." That ability to detect fires may vary even more greatly from one city jurisdiction to another. Since the "Incendiary" and "Suspicious" statistics are totaled in this report and defined as arson fires, the use of the data to compare any two specific cities is certainly suspect. However, in the aggregate, the data do reveal some interesting trends.

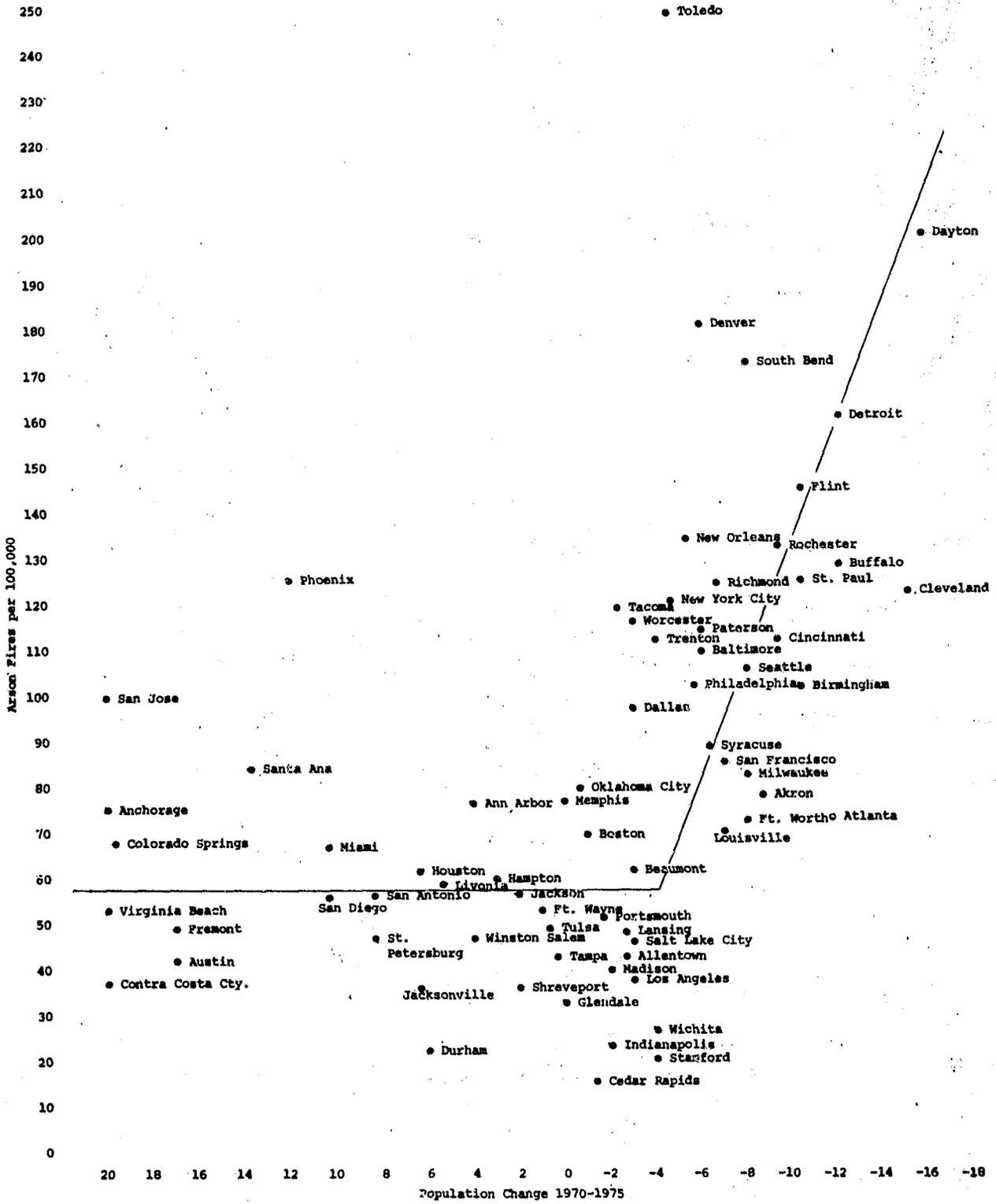
There is some correlation between arson fires per hundred thousand population and the urban decay factors mentioned in the fires-in-buildings section. The results are very similar to fires-in-buildings when compared to the change in population from 1970 to 1975 (see Chart C). Cities with an increasing population or a net decline of no more than 4 percent experienced median arson rates of 58 arson fires per 100,000 population. Cities with a population decline of more than 4 percent, had a median of 108 arson fires per 100,000. Therefore, a city with declining population could expect 50 more arson fires per 100,000 than a city which was not declining. In a city of 500,000 this could mean 250 more arson fires.

Chart D shows the distribution of cities over and under 70 arson fires per 100,000, and above and below a population change of -4 percent. Seventy-five percent of cities above -4 percent population had less than 70 arson fires per 100,000, while 100 percent of cities below -4 percent had more than 70 fires.

On average, the cities reported about 20 percent of fires in buildings as arson (incendiary and suspicious). However, as with most of the statistics reported there was a wide variation among individual cities with some cities reporting 53 percent of total fires as arson and others reporting only 5 percent. This fact, together with the inconsistencies in reporting among the categories of incendiary, suspicious, and undetermined, casts some doubt on the accuracy with which many jurisdictions are determining the amount of arson that is actually occurring.

Intuitively, it was felt that arson fires as a percentage of fires-in-buildings would rise with the urban decay factors. In other words, a declining city would have not only a higher absolute number of arson fires, but also would have a higher percentage of total fires classified as arson. This did not turn out to be the case. Cities with an increasing population or a

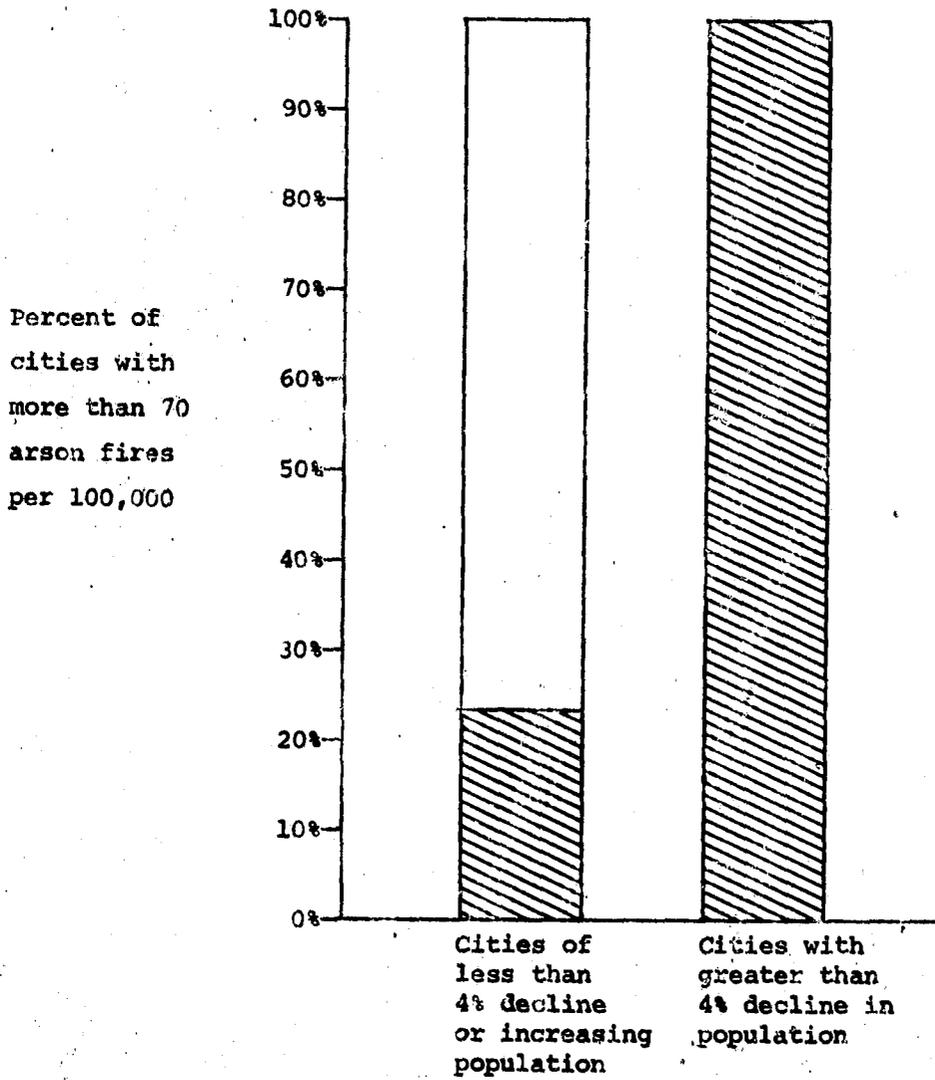
CHART C



Arson Fires per 100,000 versus Population Change

70 Cities 1977-78
Over 100,000 Population

Population Change 1970-1975
Versus Arson Fires Per
100,000



declining population of no more than 4 percent reported 19 percent of their fires as arson, while cities declining more than 4 percent report 21 percent arson fires. This is not a significant difference. Thus, it is only possible to conclude that, as a city declines, all types of fires-in-buildings increase in about equal proportion.

The total magnitude of the arson problem in this country can only be roughly estimated. The average rate of arson for all cities sampled was 98.2 incendiary and suspicious fires per 100,000. Since there is virtually no difference by city size in the arson rate (cities of more than 500,000 had an average arson rate of 96.4 per 100,000; cities of 50,000 to 80,000 had a rate of 100.5), it is reasonable to estimate that the total arson fires in buildings based on 216 million population to be about 212,000.

2.3 Motives for Arson

Three studies¹ have been conducted over the last fifteen years on the motives for individual arson fires. All of the studies obtained data by interviewing convicted arsonists or examining their case records. The consensus of these studies is that between 3 percent and 19 percent of all arson fires are for insurance fraud, 35 to 50 percent for vandalism, 15 to 25 percent due to pyromania, 18 to 30 percent for spite or revenge, and 7 to 10 percent for crime concealment.

The survey produced similar answers on a less rigorous basis. Sixteen cities responded to the questions on motive: Los Angeles, Detroit, Dallas, Indianapolis, Cleveland, Boston, New Orleans, Denver, Memphis, Omaha, Louisville, Long Beach, Tulsa, Rochester, Madison and Jackson. Only two gave case counts from conviction records. The rest gave impressions in percent or rank order from their overall experience. The results were as follows:

- | | |
|----------------------|-----|
| 1) Vandalism | 42% |
| 2) Spite | 23% |
| 3) Pyromania | 14% |
| 4) Insurance Fraud | 14% |
| 5) Crime Concealment | 7% |

The types of motives and relative contribution of each to the arson problem have been quite similar in study after study. The question that still remains is that: by only studying convictions does a true picture emerge of all arsonists, including those who are not caught? Is it possible

that an underlying economic motive affects more non-accidental fires than is presently known, but that such arsonists are more clever in concealing their crime? It would be helpful if further studies investigated the economic factors involved in all fires, not just arson fires that are cleared by conviction.

2.4 Arrests and Convictions

Comparing arrests to incendiary fires yields an 18.5 percent arrest rate, almost identical to that for property crimes (see Chart E). A previous study² using 1972 California disposition data contended that about nine persons are arrested and two convicted for each 100 fires classified as incendiary or suspicious. When compared with arrest rates for all index crimes, 21 cases per 100 crimes cleared by arrest, the arson arrests seem low. However, there are three factors which should be taken into account when making the comparison. First, our respondents reported an arrest rate for incendiary and suspicious fires of 11.0 percent, 2 percent higher than previous surveys. Second, arson is a property crime. Even though there may be more injuries and deaths associated with arson than most other property crimes, there are seldom victims/witnesses who assist in the arrest and prosecution process. A more meaningful comparison would be to use the property crime arrest figure of 18.3 percent. Third, using the total of incendiary and suspicious as the number of arson fires for comparison with arrests is like adding a factor for unreported crime onto, for example, larceny-theft. Only for incendiary fires is there real certainty that a crime was committed.

On a nationwide basis there are about 23,300 arrests according to our survey (126,000 incendiary fires at an 18.5 percent arrest rate). The FBI Uniform Crime Reports estimates 18,700 arrests for arson. Some of the discrepancy may be explained by the fact that our survey obtained its information from fire departments and the Crime Reports obtained information from police departments. Many fire departments arrest and dispose of some juvenile arson cases outside the police/prosecution/court system. Thus, these juvenile arson statistics never get into police reports which may in turn underreport cases actually cleared.

Convictions in the survey were half of arrest rate (5.4 percent of all incendiary/suspicious fires). The survey did not differentiate between

arrests and convictions for juvenile and adult offenders which is a weakness in the conviction data collected. The Uniform Crime Reports indicates that 58 percent of adult arsonists are convicted compared to 73 percent for all other property crime. This shows some weakness in the prosecution process for arson. It should be noted that there is little difference in conviction rates by size of jurisdiction. Cities over 500,000 are convicting 49.3 percent of those that are being arrested while cities between 50,000 and 80,000 are convicting 50.5 of those arrested (see Chart E). At the same time 50 percent of arson is attributed to juveniles while only 40 percent of property crimes are so attributed. In fact, 31 percent of those arrested for arson are under 15 compared to 15 percent for property crimes. This fact may affect the programmatic response to the arson problem and the emphasis placed on prosecution.

2.5 Arson Losses

Estimates of arson losses by cities in the survey yielded an average fire loss of \$6,533 per arson fire. Using 212,000 for arson fires, losses would total \$1,283,996,000. This compares with 1977 estimates by the American Insurance Association of 242,000 arson fires and \$6549 per fire for a total of \$1,583,929,000.

2.6 Arson Investigation Workload

Attempts were made in our analysis to determine optimum workload, i.e., number of fires investigated per investigator. Reported investigation workloads varied widely. In 43 percent of the cities over 500,000 population the arson units investigated over 120 fires per investigator per year while in the other 57 percent of the cities less than 85 fires per investigator were investigated.

The median number of investigations per investigator for cities with the higher workload was 153. Arrests per investigator for this group were 12.9. For the cities with the lower workload the median number of investigations was 62 and the arrests were 8.8. Therefore, a workload level 150 percent higher yielded, on average, an arrest rate 47 percent higher.

Similar results are obtained when viewing the work performance of the arson units as a whole. As arson units investigate a higher proportion of total fires, the proportion of fires identified as arson goes up and arrest rates go up. It is difficult to determine, however, whether this is due to

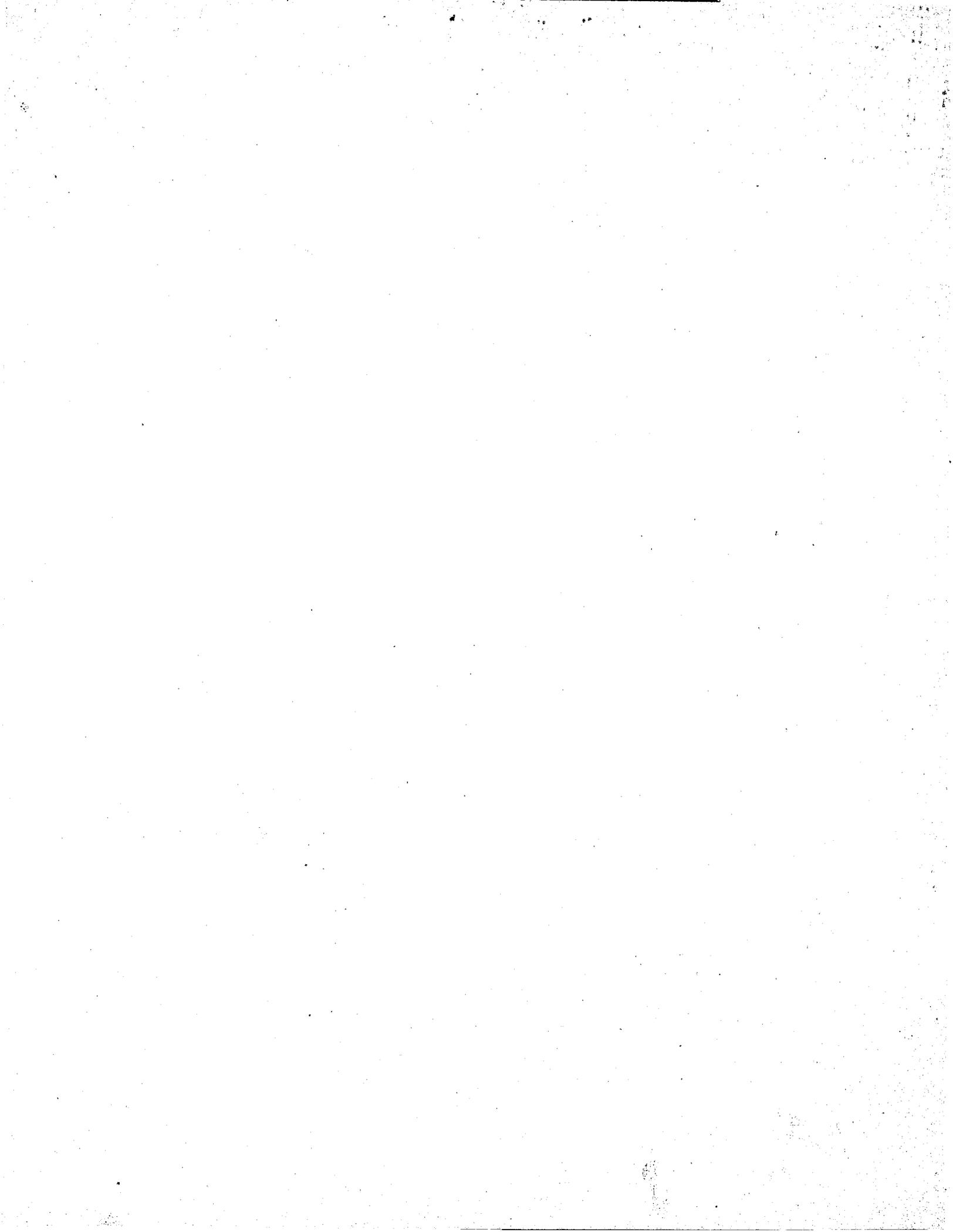


Chart E

	<u>Average Number of Convictions</u>	<u>Percent of* Arrests</u>	<u>Average # of Arrests</u>	<u>Percent of* Incendiary</u>	<u>Average # of Incendiary</u>
Cities over 500,000	85	49.3	172	18.5	928
300,000 to 500,000	42	64.6	65	27.9	233
150,000 to 300,000	13	49.9	25	13.2	193
80,000 to 150,000	8	58.7	14	19.6	73
50,000 to 80,000	3	<u>50.5</u>	7	<u>16.9</u>	39
Totals		52.6		18.5	

*Percents may not compute due to rounding

the level of investigation or the number of arsons actually committed in these jurisdictions.

The stated policy of eighteen out of the twenty cities responding to the questionnaire which had populations over 450,000 was that investigations were triggered by the battalion chief at the fire. If arson were suspected, reports were called in for a next-day investigation by the arson unit. Under this policy a city's arson investigation rate, number of arson fires discovered and number of arrests is limited by its battalion chief's judgement in establishing "probable cause" at the scene of each fire.

In the other two cities different policies were in effect for determining whether fires were investigated. In Dallas, all fires regardless of suspected cause are investigated. In Denver all fires are investigated in the event of:

- 1) Multiple alarms;
- 2) Expected loss more than \$1,000;
- 3) Incendiary devices or explosions;
- 4) Death or serious injury;
- 5) Cause not readily determined

It is not possible to validate the results, but there was a great difference between these two cities and the other eighteen in terms of arrests as a percentage of total fires. The cities which investigated fires that were considered suspicious by the battalion chief investigated 33 percent of the fires-in-buildings, discovered arson in 19 percent of the building fires and arrested 3.3 persons for every 100 building fires. The city investigating 100 percent of its fires identified 25 percent as arson and arrested 15.0 persons for each 100 fires. The city that adopted the policy of investigating all fires with the criteria listed above, investigated 69 percent of its fires, uncovered arson in 43 percent of all fires in buildings and made 17.5 arrests for every 100 building fires.

3.0 RESOURCES AND ADMINISTRATION OF ARSON UNITS (Personnel, Equipment, Training, Investigative Responsibilities, Programmatic Actions)

3.1 Personnel

Arson units are universally allocated a very small number of staff. On average about one staff member for every \$2.5 million in a fire department's budget is assigned to the arson unit. For example, the cities of 50,000 to 80,000 population average less than \$2.2 million for the budget of the whole

fire department, and the anti-arson effort by the fire departments of those communities is the equivalent of less than one full-time person. Only 25 percent of these fire departments have one or more full-time staff. Cities with populations over 150,000 had a proportionate number of full-time staff (i.e., one for every \$2.5 million), while those cities under 150,000 mostly operated with part-time staff.

Arson staff tend to be recruited from among the rank-and-file fire fighter staff. Usually the staff have a great deal of fire fighting experience prior to joining the arson unit, but little prior investigative experience. Assignment to the arson unit is generally viewed as a promotional opportunity by those selected.

3.2 Equipment

Most arson units survive on very little equipment, although the types of equipment owned or borrowed by some arson units is quite varied. A shopping list of equipment, each used by at least one city's arson unit, reads as follows:

1. Incendiary Detection

Hydrocarbon indicator	Explosiometer
Gas chromatograph	IR spectrophotometer

2. Surveillance

Intrusion detection equipment	Ultraviolet light
Photo surveillance equipment	Binoculars

3. Vehicles

Van for interviews, investigation	Patrol cars with two-way radios
Mobile laboratory	

4. Regular Law Enforcement Equipment

Polygraph	Tape recorders
Fingerprinting devices	

5. Evidence Gathering Equipment

Cameras	Pick and shovel
Core drills	Sifting screen
Collection cans	Sealer tape

The surveillance and police equipment are only owned by the units in larger cities. In small cities such equipment is borrowed, when needed, from the police department.

Twenty-five percent of all of the cities claimed to have no equipment at all. Just about all of the rest had some kind of hydrocarbon detector. The cities under 150,000 had little else. Half of the cities over 150,000 had some type of van and other more sophisticated equipment.

3.3 Training

The survey instrument asked if training was held for investigative staff on the following topics: cause of fire, witness interviews, collection and preservation of evidence, use of a forensic laboratory, arrest procedures, filing of charges, crime scene investigation, testifying in court, and Federal, state and local laws and regulations. Seventy-five percent of all cities, regardless of size, stated that training was received on at least eight of the nine topics. The use of forensic laboratories was the topic most omitted. Only twelve of the cities did not train staff at all; of these only one city had more than two full-time staff devoted to arson investigation and in all cases only the police department had the power to arrest.

3.4 Investigative Responsibilities

In the larger cities the majority of the investigative and arrest responsibility rests with the fire departments. In 51 percent of the cities over 150,000 the fire department has sole responsibility for investigating arson and making arrests. In 46 percent of those cities arson is the joint responsibility of the police and fire departments. In 5 percent the police department is solely responsible.

Of the smaller cities, under 150,000, only 24 percent give the fire department full responsibility. Joint responsibility was held in 74 percent of these cities and police responsibility in 2 percent.

Of the cities that had joint responsibility for arson, 67 percent gave the power to arrest suspects to the police department only. This proportion existed regardless of city size.

3.5 Programmatic Actions

In addition to regular investigatory functions, arson units frequently engage in activities designed to encourage informants to give information on perpetrators of arson fires or to discourage perpetrators from setting fires in vulnerable buildings in high arson neighborhoods.

3.5.1 Encouraging Informants

The techniques for encouraging informants include: 1) posting buildings which have been burned with an incendiary fire with signs that ask

informants to phone in information; 2) offering rewards for information leading to the arrest and/or conviction of arsonists; and 3) running a media campaign aimed at citizens who may call in tips on past or future incendiary fires. The attached chart (Chart F) shows the most frequently used of these techniques is offering rewards. Forty-five percent of all cities offer rewards with only a slight decline in percentage with decreasing population. Thirty-three percent of all cities run some sort of media campaign, but there is a sharp drop off for cities between 50,000 and 80,000; only fifteen percent are involved in such campaigns. Posting buildings is the least popular technique; only nineteen percent of cities overall and four percent of cities between 50,000 and 80,000 participate.

3.5.2 Discouraging Perpetrators

Arson units try to reduce the incidence of arson fires by increasing the perception by possible perpetrators that they will be caught. This is done by sending out highly visible fire patrol cars to high arson neighborhoods at times when arson is most likely to occur, and by publicly discussing a neighborhood's arson problem with community groups in order to organize block patrols and describe investigative techniques. The units also try to discourage vandalism fires by boarding up abandoned buildings.

The attached chart shows that the most popular of these techniques is boarding up abandoned buildings. Fully 75 percent of all cities regardless of size participate in this activity. More than 33 percent of cities over 150,000 use arson patrols to discourage arsonists, but less than 10 percent of the cities under 150,000 do so. Fifty-six percent of all cities speak to citizen groups to encourage them to watch for arsonists in their neighborhood.

CHART F

Anti-Arson Program Activities

	Posting Buildings		Offering Rewards		Media Campaign		Arson Patrols		Citizen Groups		Board up Buildings	
	N	%	N	%	N	%	N	%	N	%	N	%
Cities 300,000+ (40)	13	33	20	50	20	50	17	43	29	73	29	73
Cities 150,000 to 300,000 (29)	7	24	13	45	11	38	9	31	14	48	20	69
Cities 80,000 to 150,000 (38)	7	18	18	47	13	34	3	8	22	57	31	82
Cities 50,000 to 80,000 (46)	2	4	18	39	7	15	5	11	21	46	35	76
Total 153 cities over 50,000	29	19	69	45	51	33	34	22	86	56	115	75

4.0 LEGAL ENVIRONMENT

The survey included two questions about the ability of arson investigators and insurance companies to share information. The first question asked whether there were any legal barriers preventing insurance companies from sharing evidential information with arson investigators. This was answered yes by 41 (27 percent) of the 151 jurisdictions responding to the question. The most frequent barrier mentioned was privacy legislation (41 percent or 17 out of 41 reasons given), followed by requirements for subpoena or court orders (17 percent). Fear of liability or law suits was third most frequently mentioned (15 percent). See Chart G for all barriers noted by respondents.

The second question asked whether there were any legal barriers preventing city arson investigators from sharing information with insurance companies. This was answered yes by 51 (33 percent) of the 152 jurisdictions that answered the question. As in the preceding question, the two most frequently mentioned barriers were privacy legislation (41 percent) and requirement for subpoena or court order (19 percent). The third most frequent response was juvenile code restrictions to releasing a youth's name (10 percent) and investigations or prosecution pending (10 percent). See Chart G for all barriers noted by respondents.

Chart G

Legal Barriers	Number of Responding Jurisdictions that cited legal barrier in response to:**	
	Question 1	Question 2
Privacy legislation (state or Federal)	17 (41%)	24 (41%)
Require Court Order, subpoena	7 (17%)	11 (19%)
Liability fears	6 (15%)	1 (2%)
Pending Investigation, prosecution	1 (2%)	6 (10%)
Juvenile code restrictions	2 (5%)	6 (10%)
Insurance Company Policy, reluctance	2 (5%)	1 (2%)
Suspects rights	0 (0%)	2 (3%)
Local code, district attorney	0 (0%)	2 (3%)
Fire department policy	0 (0%)	1 (2%)
Other*	6 (15%)	4 (7%)

*Other includes all responses that occurred once and only once in response to a question.

**43 jurisdictions responded yes to question 1 and 41 cited specific barriers; 51 jurisdictions responded yes to question 2 and cited 58 specific barriers.

A comparison of 12 states with 5 or more responding jurisdictions found that approximately 25 percent of the individual jurisdictions disagreed with the majority opinion regarding whether there were legal barriers to exchange of information. This percentage held true for both questions.

A comparison of the top 20 per capita arson cities with the bottom 20 per capita arson cities found no significant difference in the extent to which legal barriers existed. In isolation, the perceived ability to legally

Arson Per capita Cities	Number of cities answering "yes" to:			
	Question 1	Question 2	Both Questions	1 of the 2 Questions
Highest (n=20)	8	9	5	12
Lowest (n= 20)	7	5	2	10

share information does not appear to be related to per capita arson. This conclusion assumes that the detected per capita arson figures are reliable and represent the actual incidence rate.

5.0 USE OF DATA SYSTEM

A series of questions regarding data systems and their use were asked to determine the extent of data collection and the level of analysis in relation to arson. The responses indicate that the vast majority of jurisdictions, 107 or 70.4 percent of the total, have manual data systems. Twenty-five jurisdictions (16.4 percent) indicated that they used a combination manual-computer data system and only 15 (9.7 percent) reported a completely computerized system.

Uses of the data system were identified as: (a) identification of similar modus operandi (MO); (b) prediction of future hits or vulnerable locations (VL); (c) identification of both MO and VL; and (d) no use reported. Responding jurisdictions stated their use to be:

USE	N	%
Identification of similar MOs	13	8.6%
Prediction of future hits, vulnerable locations	2	1.3%
Identification of MOs, vulnerable locations	22	14.4%
No stated use	115	75.6%

Based on these responses, it would appear that fire data could be better utilized for investigative; or planning uses.

6.0 NEW TECHNIQUES

The survey included one open-ended question which asked departments to describe any newly instituted investigation or prevention activities that seemed to be successful. To organize responses received, the techniques were grouped according to whether the techniques were aimed inside or outside the fire department, and divided into the categories of training, procedures or policy, pre-fire deterrence and post-fire investigation.

Within fire departments, the most frequent (26 of 46 reported, 56.5 percent) type of new technique involved changes in procedures or policy. For the most part, these changes involve when or how fires are investigated. For techniques used outside normal fire department operations, the most frequent (27 of 56 reported, 48.2 percent) was training or educational efforts. In general, these were aimed at the general public with some of the techniques focusing on youth. All responses are summarized below.

(1) Within Fire Department

<u>Number</u>	<u>Training activities</u>
3	Arson training for firefighters (to detect)
<u>3</u>	
3 (6.5%)	
<u>Number</u>	<u>Change in procedures, policy</u>
1	Portable radio for every firefighter
5	More arson investigation, investigate all fires, or more time investigating
5	Dual investigation of arson with police
1	Second investigator dispatched if multiple alarm
3	Creation of arson unit, or reorganization
4	24-hour shifts for arson investigators, earlier response of fire investigation unit
2	Change in who performs normal fire inspections
1	Tape record all calls--to determine if fire victim can recognize voice of caller
1	Investigate fires with loss in excess of \$1000
1	Full investigation and prosecution regardless of suspect age
1	Enforce fire codes
<u>1</u>	Use of police computer reporting system
26 (56.5%)	

<u>Number</u>	<u>Prior to fire occurrence</u>
2	Electronic or other surveillance
1	Undercover agents to learn of politically motivated fires
3	Patrol, increased visibility (some based on tract, time data)
1	Frequent investigation of arson hazards
3	Board up or demolish vacant buildings
<u>10</u>	
	(21.7%)

<u>Number</u>	<u>After fire occurrence</u>
1	Work with insurance federation to investigate possible arson
1	Computer tracking of multiple incidents over 3 years
1	Indexing fires by owner, occupant, address
1	Core drill of floor material
1	Map charting of offender's home location
1	Investigate with police and state fire marshall
1	Investigate suspect background, family and business ties, and financial status
<u>7</u>	
	(15.2%)

(2) Outside Fire Department

<u>Number</u>	<u>Training activities</u>
2	Posters
1	Arson detection for insurance adjustors
5	Media campaign
7	Public education of actions they can take
5	Juvenile prevention for school age children (in one case, social service, church involvement)
5	Training and coordination with police
1	Training and adjacent jurisdictions fire and police services
1	Canvas high arson neighborhoods, discuss arson, distribute handouts
<u>27</u>	
	(48.2%)

<u>Number</u>	<u>Change in procedures, policy</u>
7	Arson task force
1	Information shared within jurisdictions
1	Insurance companies involved in investigations
1	Police act as arson investigators
1	Assistance from state, District Attorney
1	Fire and police coordinated within 8 cities
<u>12</u>	
	(21.4%)

<u>Number</u>	<u>Prior to fire occurrence</u>
2	Arson hotline
1	Neighborhood participation
1	Increased number of citizens in prevention program
<u>4 (7.1%)</u>	
<u>Number</u>	<u>After fire occurrence</u>
8	Offer rewards
1	Use of grand jury
3	Informants
1	Posters for burned out buildings
<u>13 (23.2%)</u>	

7.0 SPECIAL ARSON EFFORTS

The survey requested information on the extent arson had been studied, official and community perception of the problem, and various responses to that perception. In cases of new efforts, respondents were asked to judge the success of these new arson responses.

When asked whether any special studies been conducted on arson in their community, 32 (24.3 percent) answered yes. The sources of the special studies were quite variable, ranging from a community college professor, a library sponsored seminar, the national news media, to examination of existing fire data.

In response to the question of whether their arson program had been evaluated, 24 (15.8 percent) said yes. Of these, 11 had been performed by fire and/or police personnel, 8 by city or state officials, and 6 by consultants, citizens groups, or insurance groups (some programs were evaluated by more than one group).

The surveyed departments answered that while 72 percent of the fire officials considered arson to be a large problem in their community, this was shared by only 35 percent of the political leaders and 26 percent of the general populace.

Of those answering the question, "Have you in the last five years initiated a special arson program or task force which has raised the anti-arson effort above what it was previously?" 50.7 percent of the jurisdictions answered yes. Of the 47 jurisdictions giving the year of task force formation, the number and percentage between 1973 and the present were:

Year of Task Force Formation	Number of Jurisdictions	% of Jurisdictions
1973	3	6.4
1974	6	12.8
1975	6	12.8
1976	9	19.1
1977	12	25.5
1978	11	23.4
Total	47	100.0

Within the 77 jurisdictions with arson task forces, 74 were initiated by city officials, 5 by county officials, 4 by regional officials, and 9 by state officials (the sum is greater than 77 because of multiple initiating groups in some cases). The event(s) that triggered the effort were given as:

Jurisdictions	Triggering events (some jurisdictions reported more than one event)
33	Increased arson, incendiary, or suspicious fires
17	Recognition of total loss or number of arson fires
8	Necessity to increase effectiveness, gain cooperation
4	Fatalities, injuries to firefighters and civilians
3	In response to organized crime, arson ring involvement
2	Recommendation from outside the jurisdiction
12	Other (events occurring only once within all reporting jurisdictions)

The task force efforts when compared with previous efforts, resulted in the following changes:

New Efforts	Jurisdiction (n=77)	
	Number	%
New personnel	45	58.4
New laws or ordinances	13	16.9
New investigative methods	39	50.6
New equipment	25	32.5
New organizational structure	43	55.8
Other	21	27.3

In response to the question on the results of the task force, 17 jurisdictions stated that it was too soon to measure results. Of the sixty cities that reported results 51 (85 percent) claimed increased identification of arson fires, 56 (93 percent) increased arrests, 50 (83 percent) increased convictions, 27 (45 percent) decreased arson, and 54 (90 percent) improved statistical reporting.

8.0 FEDERAL AND STATE ASSISTANCE

A large number of responses were given to the open-ended question, "What new legislation is needed?". However, there was fairly consistent support for two topics. The most frequent response, 42 (27.6 percent), was to designate arson as a Part I crime. The second most frequent response, 34 (22.3 percent), was to revise, strengthen, or make uniform the existing arson code. Additional responses were:

<u>Number</u>	<u>% of Total Respondents</u>	<u>Suggested Legislation</u>
42	27.6	Arson as a Part I crime
34	22.3	Revised, strengthened, model arson code
24	15.8	Revise insurance law or practice (revise law; make insurance company more responsible in writing policies, settling, sharing information; restrictions on maximum value of insurance; insurance money use)
16	10.5	Increased, mandatory, or more "fit" penalty
12	7.9	Fire investigators be given police (arrest) powers
5	3.3	Regional, national data base with fire, insurance data
5	3.3	More arson education for, or more rules on discretion of judges and prosecutors
4	2.6	Mandatory reporting system
2	1.3	Provisions for handling juveniles
2	1.3	Increased funding for training and equipment
2	1.3	LEAA funding for arson units
2	1.3	Increased fire education, prevention
2	1.3	Take profit out of fire
2	1.3	State immunity laws for sharing fire, insurance information
13	8.6	Other

A second question concerning potential federal or state assistance asked "What additional funding is required and for what purposes?". This was usually answered with an expressed need without a cost estimate. The two most frequent needs mentioned were equipment of an unspecified type

(71 responding jurisdictions or 46.7 percent) and additional or formal training (70 jurisdictions, 46.1 percent). Third in frequency, 54 jurisdictions (35.5 percent) identified a desire for additional personnel. Finally, 37 jurisdictions (24.3 percent) identified specific equipment needs such as hydrocarbon detectors, gas chromatographs, flash point testors, photographic equipment, and tape recorders. (In many cases, jurisdictions indicated both specific and unspecific equipment needs.)

Fire departments' desire for additional training as expressed in this section is somewhat inconsistent with answers given in other sections. As mentioned in section 3.3, 75 percent of the cities stated that training was received on at least 8 of 9 arson related topics. However, this inconsistency may reflect the desire to extend to all firefighters what is presently given only to arson investigators.

Additional stated needs were:

<u>Number</u>	<u>% of Total Respondents</u>	<u>Funding Needs</u>
71	46.7	Equipment of an unspecified nature
70	46.1	Additional or formal training for all firefighters
54	35.5	Additional personnel
37	24.3	Specific equipment (e.g., hydrocarbon detectors, gas chromatograph, flash point testors, cameras, tape recorders, etc.)
15	9.9	Arson van, mobile crime lab
12	7.9	Modern record keeping, data processing system
11	7.2	Newer or more vehicles
10	6.6	Improved communications (radio and telephone)
10	6.6	Public information efforts
10	6.6	Reward or informant money
9	5.9	Surveillance equipment
9	5.9	Arson squad, unit, division, or task force
6	3.9	National or regional data base on fires and persons who have been victims, witnesses, or suspects in fires
5	3.3	Overtime funds
4	2.6	Arson training for prosecutors or insurance adjustors
3	1.9	Clerical help
3	1.9	Arson lab
3	1.9	More investigation
2	1.3	Office space
2	1.3	Polygraph unit
2	1.3	Computer monitoring system to identify arson
19	12.5	Other

REFERENCES

1. J. A. Inciardi, "The adult firesetter, a typology," Criminology, August 1970, pp. 145-155.

E. Robbins and L. Robbins, "Arson with special reference to pyromania," New York State Journal of Medicine, March 15, 1967, pp. 795-798.

R. C. Steinmetz, "Current arson problems, Part I," Fire Journal, September 1966, p. 25.
2. Boudreau, Kwan, Farogher, and Denault, "Survey and Assessment of Arson and Arson Investigations," LEAA's National Institute of Law Enforcement and Criminal Justice, (1976), p. 30.

APPENDIX A

QUESTIONNAIRE DATA SHEETS

	Population (1975 Census)	Budget	Fires in Buildings	Not Accidental	Incendary & Suspicious	Incendary	Investigated	Arrested	Arson Fatalities	Number of Arson Personnel	Responsible for Investigation	Data System	Uses of Data	Training	Task Force	Post Buildings Show of Force Offer Rewards Publish Phone No. Citizen Groups Board up Buildings
New York City	7,428,000	\$388M	54,486	13,178	8,810	4,576	5,427	424	42	163FD	FD	M	N/A	All	Yes '77	X X X X X X
Chicago	3,099,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	(Police Department Only)			N/A	N/A	N/A		
Los Angeles	2,727,000	98M	8,176	1,634	1,060	817	1,499	201	4	24FD	FD	Bo	MO,VL	All	Yes '78	
Philadelphia	1,815,000	57M	6,834	2,443	1,869	N/A	N/A	324	19	19FD/4PD	FD/PD*	M	N/A	All	Yes '74	X X X
Detroit	1,335,000	65M	9,024	5,029	2,153	2,153	3,591	359	10	24FD/6PD	FD*/PD	Bo	MO,VL	All	Yes '74	X X X X X X
Houston	1,326,000	64M	3,186	1,314	1,227	1,227	1,227	262	3	47FD	FD	M	N/A	All	Yes '78	X X X
Baltimore	851,000	52M	5,882	1,013	934	855	285	236	N/A	11FD	FD/PD*	H	N/A	Most	No	X X X X X
Dallas	812,000	34M	3,212	835	799	799	3,451	487	4	18FD	FD	M	N/A	All	Yes	X X X X X
Indianapolis	782,000	20M	3,000	614	186	153	638	121	1	9FD	FD	Bo	MO	All	No	X X X
San Diego	774,000	19M	2,020	695	608	608	618	81	1	8FD	FD	M	N/A	Some	Yes '75	
San Antonio	773,000	18M	2,577	798	430	430	916	63	N/A	6FD	FD	Bo	N/A	All	Yes	X X
Washington, D.C.	711,000	51M	2,700	N/A	N/A	N/A	N/A	N/A	N/A	4PD/4FD	FD/PD*	Bo	MO,VL	All	Yes '74	
Milwaukee	665,000	32M	2,474	N/A	547	547	N/A	N/A	N/A	None	PD	N/A	N/A	None	No	
Phoenix	664,000	22M	5,887	931	840	840	1,520	96	0	8FD/5PD	FD/PD*	Bo	MO	All	Yes '78	
San Francisco	664,000	63M	2,823	595	570	570	N/A	33	4	9FD	FD	Bo	N/A	All	Yes '77	X X X X X X
Memphis	661,000	33M	5,400	N/A	519	380	4,606	81	3	4FD/2PD	FD/PD	M	N/A	All	Yes '73	X X X X X
Cleveland	638,000	24M	N/A	N/A	779	535	779	89	N/A	10FD	FD/PD	M	N/A	All	Yes '75	X X X
Boston	636,000	N/A	N/A	746	431	186	1,700	103	N/A	20FD	FD/PD*	M	MO,VL	Most	Yes '77	X X X X X X
Jacksonville	562,000	18M	949	269	210	175	499	39	0	9FD	FD	M	N/A	All	No	X X
New Orleans	559,000	20M	2,863	1,256	756	283	756	10	0	2FD/PD	FD/PD*	M	N/A	None	No	X
San Jose	555,000	15M	1,273	858	550	289	615	86	3	5FD	FD	Bo	MO,VL	All	No	X X X X
Seattle	487,000	25M	1,712	N/A	518	518	448	69	N/A	9FD/2PD	FD/PD	C	MO,VL	All	Yes '75	X X X X X X
Denver	484,000	N/A	2,024	949	866	N/A	1,398	351	0	12FD	FD	Bo	MO,VL	All	Yes '78	X X X X
Kansas City, MO	472,000	23M	2,182	N/A	N/A	N/A	155	40	3	6FD	FD/PD	Bo	MO,VL			
Atlanta	436,000	N/A	1,740	544	301	291	544	35	N/A	5FD	FD	M	N/A	Some	Yes '78	X
Cincinnati	412,000	16M	2,295	454	451	441	488	228	4	8FD	FD	M	N/A	All	Yes '76	X X X X X
Buffalo	407,000	16M	2,971	683	506	N/A	506	87	27	N/A	FD/PD*	M	N/A	All	Yes '78	X X X X X
Minneapolis	378,000	12M	3,099	N/A	N/A	N/A	N/A	N/A	2	7FD	FD	M	N/A	All	No	X X X X X
Omaha	371,000	12M	1,149	N/A	N/A	N/A	540	58	N/A	3FD	FD/PD*	H	N/A	All	Yes '77	X
Toledo	367,000	10M	2,365	N/A	607	607	N/A	N/A	2	2FD/2PD	FD/PD*	H	N/A	All	Yes '78	X X X X
Oklahoma City	366,000	13M	1,872	N/A	290	290	439	43	6	8FD	FD	M	N/A	All	Yes '77	X X X X X X
Miami	365,000	21M	1,100	N/A	246	246	281	12	N/A	6FD	FD	M	N/A	All	Yes	X X
Fort Worth	358,000	14M	559	289	253	253	253	27	0	6FD	FD	Bo	N/A	All	No	X X X
Newark	340,000	19M	2,642	N/A	N/A	N/A	1,870	182	4	14FD	FD	M	N/A	All	Yes '76	X X X
Louisville	336,000	N/A	2,460	N/A	232	N/A	663	172	N/A	13FD	FD	M	N/A	All	No	X X X X
Long Beach	336,000	22M	2,167	N/A	N/A	N/A	400	54	1	3FD	FD	Bo	N/A	All	Yes '75	X X
Tulsa	332,000	10M	3,415	242	165	124	545	35	N/A	17FD	FD	M	N/A	All	Yes '77	X X
Oakland	331,000	18M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3FD	FD/PD	C	N/A	All	Yes '77	X X
Austin	301,000	8M	555	151	126	95	95	70	0	4FD	FD	M	N/A	All	No	X X
Tucson	296,000	N/A	1,788	N/A	N/A	N/A	1,010	51	N/A	3FD/2PD	FD/PD*	C	MO	All	No	X
Contra Costa Co.	300,000	10M	589	162	112	112	125	6	0	1FD/6(Pt)	FD	H	N/A	All	No	

Key: N/A = Not Available
 FD = Fire Department
 PD = Police Department
 * = Lead responsibility
 M = Manual Data System
 C = Computer Data System
 Bo = Both Manual and Computer Data Systems
 MO = Modus Operandi
 VL = Vulnerable Location
 VB = Vulnerable Building
 (Pt) = Part-time

	Population (1975 Census)	Budget	Fires in Buildings	Not Accidental	Incendary & Suspicious	Incendary	Investigated	Arrested	Arson Fatalities	Number of Arson Personnel	Responsible for Investigation	Data System	Uses of Data	Training	Task Force	Post Buildings Show of Force	Offer Rewards	Publish Phone No. Citizen Groups	Board up Buildings
Tampa	280,000	14.8M	753	148	123	71	71	N/A	3	5(Pt)	FD	M	N/A	A11	No		X	X	
St. Paul	279,535	9.9M	1,046	380	342	204	204	N/A	42	3FD	FD/PD*	M	MO/VL	A11	Yes	'76	X	X X X X	
Albuquerque	279,000	11.7M	2,631	N/A	N/A	1,287	474	33	1	9	FD	Bo	VB	A11	Yes		X X X X		
Birmingham	276,000	N/A	1,602	436	281	281	224	8	0	7	FD	M	N/A	A11	No		X	X	
Rochester	267,000	12.9M	1,725	515	357	357	1,120	67	0	6	FD	M	MO	A11	No			X X	
Wichita	264,000	5.1M	718	75	73	52	206	19	N/A	N/A	FD/PD	C	MO,VB	A11	No				
Akron	251,000	7.2M	949	325	196	122	196	28	0	4	FD	M	N/A	A11	Yes				X
Jersey City	243,000	N/A	2,027	305	99	35	588	40	N/A	10FD	FD/PD*	Bo	MO,VL	A11	No		X	X X	
St. Petersburg	234,000	N/A	761	126	110	41	41	N/A	0	N/A	FD/PD*	M	MO,VB	A11	No				X
Richmond	232,000	9.0M	3,121	286	286	71	N/A	N/A	N/A	N/A	PD	C	N/A	Some	N/A				
Virginia Beach	213,000	3.9M	1,235	N/A	113	113	343	29	0	4	FD	M	N/A	A11	No		S	X X X	
Dayton	205,000	12.5M	N/A	N/A	409	409	409	27	0	6	FD/PD*	C	N/A	A11	Yes		X X X X X X		
Anaheim	193,000	8.4M	414	N/A	N/A	N/A	N/A	N/A	N/A	N/A	FD	Bo	MO,VL	A11	No		X	X X	
Shreveport	185,000	6.4M	1,940	432	66	66	94	18	N/A	N/A	FD	M	N/A	A11	No		X X	X X	
Fort Wayne	185,000	4.1M	1,112	123	100	91	91	5	0	9	FD/PD	M	MO,VL	A11	Yes		X X X X X X		
Syracuse	182,000	8.8M	707	241	163	105	181	29	1	5	FD/PD	Bo	N/A	A11	Yes			X X	
Colorado Springs	179,000	4.6M	650	N/A	120	N/A	N/A	N/A	N/A	3	FD	M	MO,VL	A11	Yes		X X X X		
Santa Ana	177,000	7.9M	446	162	158	147	239	23	N/A	3	FD	M	N/A	A11	No				
Fresno	176,000	9.0M	N/A	367	N/A	83	97	19	0	6	FD/PD	C	MO	A11	No				X
Flint	174,000	10.0M	702	N/A	255	255	601	128	N/A	2	FD/PD	M	N/A	None	Yes		X		
Worcester	171,000	N/A	704	197	197	N/A	N/A	N/A	N/A	6PD/3(Pt)	FD/PD*	M	N/A	Most	Yes		S	X X X	
Salt Lake City	169,000	8.6M	4,330	1,694	76	43	181	13	N/A	4	FD/PD*	M	N/A	A11	No			X X	
Madison	168,000	8.1M	341	123	71	71	43	20	0	N/A	FD/PD*	M	MO	A11	Yes		X	X X X X	
Kansas City, KS	168,000	7.2M	1,560	N/A	N/A	N/A	210	18	0	2	FD/PD*	M	N/A	None	No				
Arlington, VA	166,000	N/A	N/A	N/A	N/A	N/A	964	N/A	0	N/A,7(Pt)	Co. FD	M	N/A	A11	No		X S	X X	
Jackson, MS	166,000	5.2M	777	N/A	98	94	N/A	11	0	4	FD	M	N/A	A11	Yes				X
Anchorage	161,000	15.8M	451	142	126	N/A	126	44	0	3	FD	Bo	N/A	A11	Yes		X	X X	
Montgomery	153,000	4.4M	622	180	154	100	155	9	3	6	FD	M	MO	A11	Yes		X	X X X	
Tacoma	151,000	8.5M	790	N/A	179	104	264	23	1	9(Pt)	PD/FD	Bo	N/A	A11	Yes				

Key: N/A = Not Available
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* = Lead responsibility
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C = Computer Data System
Bo = Both Computer and Manual Data Systems
MO = Modus Operandi
VL = Vulnerable Location
VB = Vulnerable Building
(Pt) = Part-time
S = Sometimes

	Population (1975 Census)	Budget	Fires in Buildings	Not Accidental	Incendiary & Suspicious	Incendiary	Investigated	Arrested	Arson Fatalities	Number of Arson Personnel	Responsible for Investigation	Data System	Uses of Data	Training	Task Force	Post Buildings Show of Force	Offer Rewards	Publish Phone No. Citizen Groups	Board up Buildings
Winston-Salem	141,000	3.7M	489	82	65	39	164	68	0	1PD/1FD	FD/PD	C	N/A	All	Yes '74	S		X	
Torrance, CA	139,000	5.9M	257	N/A	N/A	N/A	189	8	0	1FD/4(Pt)	FD	Bo	N/A	All	No				
Paterson, NJ	136,000	7.3M	490	213	153	116	274	N/A	N/A	N/A	FD/PD*	M	N/A	Most	Yes '77			X X	
Glendale, CA	132,000	6.0M	259	268	47	47	47	1	0	3FD/2PD(Pt)	FD/PD*	C	N/A	None	No	X	X X X X		
Lansing, MI	126,000	5.4M	373	N/A	67	65	253	45	0	6FD/2PD(Pt)	FD/PD*	M	N/A	Some	Yes '76	X	X X X X		
Peoria	126,000	4.7M	543	108	72	24	372	N/A	0	4FD	FD/PD*	M	N/A	None	Yes			X	
Hamilton, VA	125,000	2.6M	298	N/A	78	N/A	78	10	1	1FD	FD/PD*	M	N/A	All	Yes				X
Aurora, CO	118,000	4.5M	464	N/A	N/A	N/A	N/A	N/A	4FD	FD	M	N/A	N/A	All	Yes '78			X	
Fremont, CA	117,000	3.4M	378	N/A	58	N/A	58	N/A	0	5FD(Pt)	FD/PD	H	N/A	Most	No				X
Stockton, CA	117,000	N/A	507	N/A	N/A	324	324	25	1	1FD/1PD	FD/PD	M	MO	All	Yes	X	S X X X		
South Bend, IN	117,000	3.8M	1,427	N/A	202	202	202	25	0	2FD/2PD(Pt)	FD/PD	{M-PD C-PD}	VL	Some	Yes	X	X X X X		
Livonia, MI	114,000	2.9M	194	113	71	40	35	3	0	2FD/1PD(Pt)	FD/PD*	M	N/A	All	No			X X X X	
Beaumont, TX	113,000	4.0M	567	89	55	51	603	30	7	4FD/2PD(Pt)	FD	C	N/A	All	No			X X X	
Arlington, TX	110,000	3.1M	366	249	N/A	98	386	7	0	3FP(Pt)	FD/PD*	M	N/A	All	No			X X X X	
Cedar Rapids, IA	109,000	2.4M	815	N/A	17	17	17	2	0	5FD(Pt)	FD/PD*	M	N/A	Most	No				X
Portsmouth, VA	108,000	3.3M	448	244	55	24	55	8	0	4FD(Pt)	FD	Bo	N/A	All	No	X	X X X		
Allentown, PA	106,000	2.5M	1,317	N/A	52	52	A11	0	N/A	1FD(Pt)	FD/PD*	M	N/A	All	N/A				
Stamford, CT	105,000	4.7M	121	53	23	14	35	0	N/A	N/A	FD/PD*	M	N/A	None	No				X X
Ann Arbor, MI	103,000	2.9M	145	N/A	80	80	183	22	N/A	4FD(Pt)	FD/PD	M	MO	Most	Yes				X
Trenton, NJ	101,000	5.2M	1,013	121	114	114	114	15	0	2FD(Pt)	FD/PD*	M	N/A	None	No				X
Durham, NC	101,000	1.8M	509	N/A	23	23	90	N/A	N/A	3PD/FD(Pt)	FD/PD*	M	N/A	Most	Yes '78	X	X X		
Fall River, MA	100,000	4.9M	390	224	N/A	83	214	37	0	3FD/2PD	FD/PD*	M	N/A	Most	Yes '77			X X	
Davenport, IA	99,999	3.2M	842	N/A	74	32	74	10	2	3FP	FD	Bo	N/A	All	Yes '76				X
Prockton, MA	95,878	N/A	279	78	57	35	N/A	N/A	N/A	1PD(Pt)	FD/PD*	M	N/A	Some	No				X
Racine, WI	94,000	3.1M	163	N/A	32	N/A	443	30	0	1FD/1PD	FD/PD*	M	MO, VL	All	No			X X X X	
Duluth, MN	94,000	3.2M	436	101	72	69	115	4	0	N/A	FD	M	N/P	All	No	X	X X X X		
Fullerton, CA	93,000	2.2M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Eugene, OR	92,000	5.0M	340	102	83	83	83	14	0	6FD/2PD(Pt)	FD/PD	C	N/A	All	No			X X	
Quincy, MA	91,000	6.5M	432	56	34	25	N/A	N/A	N/A	3FD(Pt)	FD/PD*	N/A	N/A	Most	No				X
Decatur, IL	89,000	2.4M	690	N/A	71	71	71	N/A	N/A	3FD(Pt)	FD/PD*	M	MO	Most	No				X
Springfield, IL	87,000	4.1M	850	N/A	134	N/A	134	6	0	4FD(Pt)	FD/PD	M	MO	All	Yes				X
Sterling, MI	87,000	3.0M	251	375	115	115	N/A	N/A	N/A	2FD(Pt)	FD/PD*	N/A	N/A	Some	No	X	X X X		
Saginaw, MI	86,000	2.9M	475	193	162	162	162	12	0	3FD(Pt)	FD/PD*	M	N/A	Most	No	X	X X X X		
Burbank, CA	86,000	4.2M	353	N/A	80	80	N/A	N/A	0	3FD	FD	C	N/A	Most	No	X	X X X X		
Downey, CA	85,000	2.9M	331	352	N/A	61	413	3	0	2FD(Pt)	FD	C	N/A	Some	Yes '76	X	X X X		
Odessa, TX	84,000	2.4M	279	N/A	19	19	19	0	N/A	7FP(Pt)	FD	M	N/A	All	No			X X	
Tempe, AR	84,000	1.8M	181	N/A	47	N/A	47	0	N/A	FD(Pt)	FD/PD*	M	N/A	Most	Yes '77				X
Kenosha, WI	80,000	2.9M	N/A	N/A	N/A	N/A	N/A	N/A	3FD	FD	FD/PD	M	N/A	All	No				X
Kalamazoo, MI	79,000	3.1M	503	183	138	80	138	4	0	2FD(Pt)	FD	M	N/A	All	No			X X X	

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 C = Computer Data System
 Bo = Both Manual and Computer Data Systems
 MO = Modus Operandi
 VL = Vulnerable Location
 (Pt) = Part-time
 S = Sometimes

	Population (1975 Census)	Budget	Fires in Buildings	Not Accidental	Incendary & Suspicious	Incendary	Investigated	Arrested	Arson Fatalities	Number of Arson Personnel	Responsible for Investigation	Data System	Uses of Data	Training	Task Force	Post Buildings Show of Force	Offer Rewards	Publish Phone No.	Citizen Groups	Board up Buildings
Somerville, MA	81,000	4.3M	278	112	81	26	N/A	N/A	N/A	1FD/1PD	FD/PD*	M	MO,VL	All	Yes '78	X		X	X	
Salem, OR	78,000	N/A	228	N/A	49	49	N/A	N/A	0	(Pt)	FD/PD*	M	N/A	All	Yes '76				X	
Laredo, TX	77,000	2.3M	115	95	20	9	11	0	0	2FD	FD	M	N/A	All	Yes	X	X	X	X	
Taylor, MI	77,000	1.8M	792	677	386	39	N/A	10	N/A	4FD	FD/PD*	Bo	MO	All	Yes '75		X	X	X	
Lawton, OK	76,000	1.9M	516	117	31	36	51	6	0	3FD(Pt)	FD/PD	M	MO,VL	Most	No				X	X
Wilmington, DE	76,000	5.0M	1,493	353	277	108	353	24	0	(Pt)	FD/PD*	Bo	MO,VL	All	No			X	X	X
Pontiac, MI	76,000	4.7M	400	N/A	N/A	N/A	N/A	0	0	4FD(Pt)	FD/PD*	M	N/A	Most	Yes					
Cranston, RI	74,000	2.1M	271	60	60	40	22	4	0	N/A	FD/PD*	M	N/A	Some	Yes '74	X		X	X	
Sioux Falls, SD	74,000	1.9M	689	N/A	32	32	6	2	3	3FD(Pt)	FD/PD*	M	N/A	Most	No				X	
Daly City, CA	73,000	1.8M	187	N/A	40	40	46	N/A	N/A	3FD/2PD(Pt)	FD/PD	M	N/A	All	Yes '77					X
Pawtucket, RI	72,000	3.0M	113	36	36	1	N/A	N/A	N/A	(Pt)	FD/PD*	M	N/A	All	No					X
Alameda, CA	72,000	2.4M	136	48	38	32	38	6	0	3FD(Pt)	FD/PD	M	N/A	All	Yes '76	X	X	X	X	X
Vallejo, CA	71,000	2.9M	347	N/A	26	26	N/A	N/A	N/A	3FD(Pt)	FD/PD	M	N/A	All	No			X	X	X
Salinas, CA	70,000	2.3M	236	N/A	113	113	N/A	5	1	2FD(Pt)	FDorPD	N/A	N/A	All	N/A					X
Arlington Hts, IL	70,000	2.2M	291	173	55	44	N/A	N/A	N/A	4FD	FD/PD*	M	MO,VL	All	Yes '73					
Anderson, IN	69,000	2.3M	780	63	56	25	56	4	N/A	5(Pt)	FD/PD	M	N/A	All	No					X
Tuscaloosa, AL	69,000	2.5M	578	N/A	N/A	N/A	102	8	0	3FD(Pt)	FD	M	N/A	All	Yes		X	X	X	
Billings, MT	69,000	N/A	626	45	43	29	85	6	0	3FD	FD	C	MO,VL	All	Yes					X
Mount Vernon, NY	68,000	2.0M	245	N/A	99	89	N/A	N/A	N/A	(Pt)	FD/PD*	M	N/A	Some	Yes	X	X	X	X	
Lawrence, MA	67,000	3.9M	315	127	87	52	120	12	10	2PD/2FD	FD/PD	M	N/A	All	Yes					
Clearwater, FL	67,000	3.4M	201	55	53	45	45	18	0	7FD(Pt)	FD/PD	M	MO,VL	All	Yes '73	X	X	X		
Waukegan, IL	65,000	3.5M	334	N/A	51	51	N/A	N/A	N/A	(Pt)	FD/PD*	M	N/A	Some	No		X	X	X	
Pensacola, FL	64,000	3.2M	322	47	20	8	86	3	2	3FD(Pt)	FD/PD*	M	N/A	Some	Yes					X
Ventura, CA	63,000	2.3M	219	42	13	8	42	1	1	3FD(Pt)	FD/PD*	M	N/A	Most	No					X
Ontario, CA	63,000	2.9M	270	148	139	46	352	31	N/A	4FD(Pt)	FD/PD	Bo	N/A	All	Yes '75	X	X	X	X	X
Midland, TX	63,000	1.6M	165	N/A	8	8	216	3	0	7FD(Pt)	FD	M	N/A	All	No		X	X	X	
Oak Lawn, IL	62,000	2.3M	N/A	N/A	N/A	N/A	57	0	0	3FD(Pt)	FD/PD*	M	N/A	Some	No					
Buena Park, CA	62,000	2.2M	155	138	N/A	67	N/A	0	N/A	N/A	FD/PD*	M	N/A	None	No					X
Dubuque, IA	62,000	2.5M	139	N/A	N/A	N/A	N/A	N/A	N/A	(Pt)	FD/PD*	M	N/A	All	No					
Tyler, TX	61,000	1.5M	434	36	33	27	27	10	0	3FD(Pt)	FD	M	N/A	All	No		X	X	X	
Monroe, LA	61,000	1.8M	54	26	5	2	25	2	0	3FD	FDorPD	M	N/A	All	No					
Medford, MA	61,000	2.5M	121	N/A	N/A	N/A	N/A	N/A	N/A	1FD(Pt)	FD/PD*	M	N/A	All	No					X
Galveston, TX	60,000	1.9M	104	35	25	25	25	11	0	3FD(Pt)	FP	M	N/A	All	No	X	X	X		
Portland, ME	60,000	2.6M	429	99	71	51	N/A	N/A	N/A	N/A	PD	M	N/A	Some	Yes '74					X
Richardson, TX	59,000	1.8M	164	22	17	15	164	5	0	22FD(Pt)	FD	M	N/A	All	No	X	X	X		
Champaign, IL	58,000	1.7M	366	245	125	50	265	10	0	3FD	FD/PD*	M	MO	All	Yes	X	X	X	X	
Harrisburg, PA	58,000	1.6M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1FD	FD/PD	M	N/A	All	No					X
Irvington, NJ	58,000	2.6M	446	233	96	96	32	1	0	1FD/1PD	FD/PD*	M	N/A	All	No					X
Grand Prairie, TX	57,000	1.2M	212	52	40	16	212	2	0	4FD(Pt)	FD	M	N/A	All	No		X			
Lancaster, PA	57,000	2.0M	393	61	47	37	66	9	0	4FD(Pt)	FD/PD*	M	N/A	All	Yes '78					X
Rochester, MN	56,000	2.0M	158	19	17	7	7	1	0	3FD(Pt)	FD/PD*	M	N/A	None	No		X			X
Oceanside, CA	56,000	2.6M	154	N/A	N/A	N/A	63	0	N/A	3FD/2PD(Pt)	FD/PD*	M	N/A	All	Yes '76					X
Des Plains, IL	56,000	2.1M	83	N/A	23	N/A	23	0	0	5FD(Pt)	FD/PD*	M	N/A	None	No					
Provo, UT	56,000	.7M	N/A	N/A	N/A	N/A	10	0	0	1FD/1PD(Pt)	FD/PD*	Bo	N/A	Some	No		X	X		
Troy, MI	55,000	.8M	104	N/A	24	24	24	0	0	N/A	FD/PD*	Bo	N/A	Most	No		X	X		
Vineland, NJ	54,000	.5M	301	N/A	N/A	N/A	63	8	0	4FD/1PD(Pt)	FD/PD*	M	MO,VL	All	Yes '77	X	X	X		

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 Bo = Both Manual and Computer Data Systems
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 VL = Vulnerable Locations
 (Pt) = Part-time

Arson Unit Survey

Name of Organization: _____

Person completing form (or to be contacted, if further questions arise):

Name: _____ Phone #: _____

Title: _____

Date: _____

I. Background Information

- 1. Population of city: _____
- 2. Area of city in square miles: _____
- 3. Paid, full-time firemen (#): _____
- 4. Paid, part-time firemen (#): _____
- 5. Volunteer firemen: _____
- 6. Fire companies (#): _____
- 7. Annual fire department budget: \$ _____ Year Ending _____
(last three years) \$ _____ Year Ending _____
\$ _____ Year Ending _____

II. Fire Data

[(Supply information for latest fiscal year, if available. If not available please indicate if data could be obtained by searching the file (FILE) or if it is not collected (N.C.)]

- 1. Fires in buildings _____
Firemen hours spent at scene _____

- 2. Scope of fire losses
Fire losses \$ _____
Fatalities _____
Injuries _____

- 3. Classification of fires in buildings
Incendiary _____
Suspicious _____
Undetermined _____
Accidental _____

3A. Describe how arson is defined if different from incendiary fires.

- 4. Classification of incendiary fires by motive
Crime cover _____
Vandalism/mischief _____
Psychotic/pyromaniac _____
Spite _____
"For profit" _____
Not established _____

5. Disposition of arson cases

Fires investigated _____
Arrests _____
Prosecutions _____
Convictions _____

6. Scope of arson losses

Arson fire losses \$ _____
Fatalities _____
Injuries _____

III. Arson Division Characteristics

1. Does the fire department have a separate arson component?

Yes _____ No _____

1A. If no, who is responsible for investigating arson fires?

1B. If yes, how long has the component been in existence?

2. What is the rank and title of the head of the arson division?

3. To what fire official does head of arson division report?
(rank and title) _____

4. From what agency(ies) are personnel obtained?

Regular Fire Dept: _____

Police Dept: _____

Other (name) _____

5. Mean number of years of experience _____

6. Personnel Description

<u>Number</u>	<u>Title</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

7. Are arson investigators all full-time? Yes _____ No _____
- 7A. If no, what percent of the arson investigator's time is spent on arson? _____
- 7B. If no, what other responsibilities does the arson investigator have?

8. Are personnel assigned in teams?

Yes _____ No _____

If "Yes":

How many teams? _____

How many in each team? _____

9. What equipment is available for use by division?

Hydro carbon detection Yes _____ No _____

Electronic surveillance Yes _____ No _____

Van for interviews & surveillance Yes _____ No _____

Mobile lab Yes _____ No _____

Other (describe) _____

10. Laboratory facilities used: Fire Dept. _____ Police _____
State _____ ATF _____ FBI _____
Other (describe) _____

11. Annual Operating Budget for Arson Division: (last three years)

Amount: \$ _____ Year ending _____

\$ _____ Year ending _____

\$ _____ Year ending _____

12. Funds expended by arson division from other than City general fund.

Amount \$ _____

Source: LEAA _____

\$ _____

Insurance Companies _____

\$ _____

\$ _____

IV. Operations

1. Check off the statement below which applies to your organization.
 - a. This organization automatically investigates all fires. _____
 - b. This organization investigates fires only in situations where fire department suspects arson. _____
2. Describe notification procedure utilized in 1.a. or 1.b., as applicable. _____

3. Identify by department, division and title the individual responsible for the various activities of an arson investigation (determination of who set fire, why fire set, human loss, property damage).

<u>Activity</u>	<u>Individual</u>
Prepare fire incident report	_____
Conduct interviews (including owner, tenants, witnesses, suspects)	_____
Collect financial data (including market, tax, financing and insurance information)	_____
Investigate other surrounding circumstances (motive factors)	_____
Estimate property loss	_____
Determine cause of injury and death	_____
Arrest suspects	_____
File arson charges	_____
Testify in court	_____

V. Legal Environment

1. Are there any legal barriers to prevent insurance companies from sharing evidential information with arson investigators?

Yes _____ No _____

If yes, describe _____

2. Are there any legal barriers to prevent city arson investigators from sharing information with insurance companies?

Yes _____ No _____

If yes, describe _____

3. Have any new laws been passed recently which discourage "arson for profit?"

Yes _____ No _____

If yes, describe _____

4. What is the criminal code for arson?

Type of Arson	Criminal Classification (Felony/misdemeanor)	Statutory Sentence
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

VI. Use of Data System

1. Filing system is (check one): manual _____ computerized _____
combination (describe) _____

1A. How long has filing system been in existence? _____

2. Is information from incident and property reports coded?

Yes _____ No _____

3. Are profiles assembled for:

a. similar modus operandi? Yes _____ No _____

b. prediction of future hits? Yes _____ No _____

3A. How long have such profiles been assembled? _____

4. Does division track final disposition of insurance claims and record dollar amounts?

Yes _____ No _____

VII. Training

1. Is formal training provided? Yes _____ No _____

If "Yes," complete 2.

2. Does formal training cover the following areas?

	Yes	No
Cause of fire	_____	_____
Witness interviews	_____	_____
Collection & preservation of evidence	_____	_____
Use of forensic laboratory	_____	_____
Arrest Procedures	_____	_____
Filing of charges	_____	_____
Crime scene investigation	_____	_____
Testifying in court	_____	_____
Federal, state and local laws and regulations	_____	_____

VIII. Arson Prevention and Citizen Participation

	Yes	No
1. Are buildings posted "This is an arson fire, please call fire dept. with information"?	_____	_____
2. Does Dept. use "show of force" (arson patrols) in areas that have high arson rates?	_____	_____
3. Are rewards offered for arrest and/or conviction of arsonists?	_____	_____
4. Is phone number printed on signs or published in the media for citizens to call in tips on arson fires?	_____	_____
5. Are citizens groups encouraged to watch for arsonists in their neighborhood?	_____	_____
6. Is there a program for boarding up or tearing down vacant buildings that are subject to arson?	_____	_____

IX. New Techniques

1. Describe any newly instituted investigation or prevention activities that seem to be successful.

X. Special Arson Efforts

1. Have any special studies been conducted on arson in your community?

Yes _____ No _____

1A. If yes, please identify. _____

2. Has your arson program been evaluated? Yes _____ No _____

2A. If so, by whom? _____

3. Is arson considered to be a large problem in your community by:

	Yes	No
Fire officials	_____	_____
Political leaders	_____	_____
General populace	_____	_____

4. Have you in the last five years initiated a special arson program or task force which has raised the anti-arson effort above what it was previously?

Yes _____ No _____

(If no, skip to section XI.)

- 4A. When? _____ 4B. Was it initiated by (check one):

City officials _____
County officials _____
Regional officials _____
State officials _____

- 4C. Identify the event or events that triggered the effort.

4D. To what city official does the special effort report?

4E. List the agencies represented.

4F. In what respects does this effort differ from what went on before?
(Check and describe)

New personnel? _____

New laws or
ordinances?

New investigation
methods?

New equipment?

New organizational
structure?

Other?

4G. Since the beginning of this effort have you:

	Yes	No
Increased the identification of arson fires?	_____	_____
Increased the apprehension of suspects?	_____	_____
Increased convictions?	_____	_____
Decreased arson frequency?	_____	_____
Improved statistics?	_____	_____
Other (describe)	_____	

XI. Federal and State Assistance

1. What new legislation is needed? _____

2. What additional funding is required and for what purposes? _____



END