COMMUNITY REACTIONS TO SONIC BOOMS

by

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FOREWORD

This study was initiated by the Federal Aviation Agency and the National Aeronautics and Space Administration in cooperation with the Bio-Acoustics Branch, 6570th Aerospace Medical Research Laboratories, Wright-Patterson Air Force Base, Ohio.

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ABSTRACT

To determine the extent to which sonic booms of different magnitudes cause community disturbance, annoyance and complaint potential, this research was undertaken. Following a regular SAC public information campaign and over 40 introductory booms, the St. Louis area was exposed to experimental sonic booms. Personal interviews were then held with a cross-section of residents to learn about reactions to the test booms. Following another series of more intense test booms, the same respondents were re-interviewed. Sonic booms caused by planes flying at 41,000 feet creat widespread disturbances over a 32 mile wide path, with only the nearest residents, 0-4 miles from ground zero, slightly more disturbed than the distant residents 12-16 miles away. House vibrations are most frequently reported as a disturbance, followed by startle, interruption of sleep, rest, conversation and radio and TV listening. Occassional low flights at 31,000 - 35,000 feet do not cause any more disturbance than the higher test flights. Damages are reported by about 13% of all residents, equally throughout the 32 mile corridor. Annoyance and readiness to complain are very low in the St. Louis area largely as a result of a combination of favorable attitdues that maximize acceptance of sonic booms. It would be misleading, however, to project the St. Louis level of annoyance and complaining to any other area without first evaluating the status of at least 10 variables in that area that influence the level of annoyance and the complaint potential. Residents are much more willing to accept military booms than they are to put up with civilian booms. If not annoyed by military booms and if commercial super sonic travel is believed important, 80% say they themselves might be able to live with civilion booms, but only 67% say others might do so. In contrast, only a fourth of those who are greatly annoyed by booms and feel commercial supersonic travel is not important say they might accept civilian booms. Further research is needed to validate these findings and to test the importance of higher altitudes, varying frequency of flights and time of day of booms. Data must also be secured about the prevalence of favorable or unfavorable attitudes towards booms in other major airport areas before, annoyances and complaint potentials can be estimated in these areas.

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I. Introduction

A. Statement of Research Problem

Aircraft in supersonic flight generate pressure waves that are perceived along the ground as sonic booms. These explosive-like noises sometimes startle and annoy persons whose usual activities are disturbed or whose homes and property are damaged by the pressure waves. The purpose of this study is to ascertain the extent to which sonic booms of varying magnitudes actually cause human disturbances, feelings of annoyance, readiness to complain and reports of property damage. The relationships between socio-psychological variables and the reduction or intensification of human reactions to the booms will also be evaluated.

B. Background Information

The U.S. Air Force, now flying supersonic fighter and bomber aircraft, is presently receiving complaints of annoyance and reports of damage resulting from sonic booms. In order to utilize the first-hand experiences of government personnel actually attempting to cope with the problems arising from sonic booms, a preliminary survey was made of various Air Force installations. Discussions were held with legal, public information and flight operations officers regarding their impressions and experiences with complaints about sonic booms. Actual letters of complaint and claims of damage were read to help develop a picture of the kinds of things people are attributing to sonic booms.

Table 1 indicates that the number and amount of actual claims for sonic boom damages have been increasing over the years.

TABLE 1

CLAIMS FOR DAMAGES BY SONIC BOOMS
REPORTED BY THE U.S. AIR FORCE
1956 - 1961

Fiscal Year	Action	Number	Amount
1956	Claims received	36	$12,220
	Claims approved	21	1,913
1957	Claims received	372	157,100
	Claims approved	286	18,907
1958	Claims received	522	196,000
	Claims approved	235	39,519
1959	Claims received	327	228,000
	Claims approved	91	7,790
1960	Claims received	681	107,768
	Claims approved	227	20,263
1961	Claims received	1146	703,175
	Claims approved	527	57,274

The first general finding to emerge from this preliminary survey was the importance of the novelty and startle effect when the boom first occurs unexpectedly in a community. The experience at Atlanta, Ga., illustrates this principle. Without any advance notice, a B-58 bomb scoring competition was held at Atlanta. At about 11:30 P.M. the first bombing run was made, causing a loud boom. The next day two additional booms were heard. Unaware of the nature and source of the loud explosive noises, police and fire department switchboards were swamped with anxious inquiries. Press and public statements reflected an angry and aroused community.

Learning from such early experiences, the Strategic Air Command and Convair Aircraft officials, producers of the B-58, developed a detailed public information program which is used to alert and inform communities about the sonic boom before any local booms actually occur. Meetings are held with public officials and civic leaders. Air Force officers explain the importance to the national defense program of realistic training programs of SAC. The selection of the local area as a practice target area is explained in terms of the similarity of local radar configurations to an enemy target area. The nature of supersonic flights and sonic boom effects are also given. A movie is shown dramatizing a typical practice B-58 mission and local Air Force officers describe their concern about ground effects of booms and procedures for handling any claims that may arise from the Air Force activity. The same movie, Tall Man-55, is shown the community on local TV. Interviews with Air Force personnel are scheduled on local radio programs, and news and feature articles are encouraged in local newspapers. Speakers are sent to local civic and fraternal organizations to further acquaint the community with the Air Force program. Then a schedule of expected booms is announced daily by the local press, radio and TV stations in advance of the actual occurrence to minimize surprise and startle. These elaborate indoctrination measures inform the public of the sonic boom, so that its initial occurrence comes as no surprise.

Most damage claims reviewed in Air Force legal offices involved glass and plaster damage. Other claims involved such items as bathroom tile movement, cracked foundations, beams shifting, dishes and TV tubes cracked, appliances malfunctioning, cracked flue, putty loosening around windows, stampeding animals, and bric-a-brac falling off shelves.

In general, letters of complaint mention lack of recognition of boom, fear of possible effects and a feeling that the boom isn't really necessary. Some illustrative comments are: "The booms are loud explosions that shake and rock homes--causing sudden terror and fear of a bomb falling in the yard, Insane bombing of our own country, Young pilots taking sadistic delight, Planes make the whole house shake all over like earthquake, Scares the daylights out of you. . ." These specific comments were helpful in designing the detailed questions used in the later interviews.

Discussions with SAC operations officers revealed the flight corridors being used and the typical flight profiles of supersonic bombing runs. This information was used in planning the special design for this study.

C. Study Design

1. Selection of Areas to be Studied

Limitations of time and money dictated that the interview survey be limited to one large urban center. Criteria for the selection of such a population center were as follows:

a. The area should be a metropolitan center large enough to contain a diversity of populations and structures.

b. The area should have already experienced a sufficient number of booms prior to interviewing so that the novelty and startle effects are minimized.

c. The area should have a substantial civilian air transportation volume, so that attitudes toward commercial air travel would be realistic.

d. The area's topography should be relatively flat, without any sharp or irregular features. Such irregularities would complicate the measurement of sound propogation.

e. The area should have moderate winter climate, since the tight schedule contemplated interviewing during the winter months.

f. The area should be accessible to Edwards Air Force Base, from which the B-58 supersonic test flights would originate.

g. The area should be a regular SAC test bombing area, so that public relations cover could be obtained for the special test flights.

With so many restrictive criteria, it is not surprising that there was little real choice in the area available for study. The St.Louis Metropolitan area met most of the requirements and was selected as the test site.

2. Stimulus Design

Between July and November 1961, Air Force officials at nearby Scott Air Force Base report that there were 43 confirmed sonic booms in the St.Louis area. These booms, it is believed, generally removed the novelty effects of of sonic booms for most persons residing in the area. Most SAC B-58 flights are reported to occur regularly at about 41,000 feet altitude, over a special corridor, proceeding from Southeast to Northwest.

Just prior to NORC interviewing, a series of special test flights were scheduled over the same ground tract and some altitude as the regular SAC flights. Thirteen supersonic flights were made at various times of day and night during a six-day period beginning November 6, 1961. No other supersonic activity occurred in the area during this time except for a single sonic boom on one afternoon from an undetermined source. Each of these test

flights was carefully tracked and measured by acoustic engineers so that estimated intensities of sonic booms could be assigned to each primary sampling area in which personal interviews were conducted.

Table 2 indicates the actual schedule of test flights during this first phase of the study.

TABLE 2

SCHEDULE OF INITIAL TEST FLIGHTS

Date	Type of Flight	Time (CST)
6 Nov. '61	F-106	11:04 P.M.
6 Nov. '61	F-106	11:16 P.M.
8 Nov. '61	B-58	11:05 A.M.
8 Nov. '61	B-58	11:28 A.M.
9 Nov. '61	F-106	12:58 P.M.
9 Nov. '61	F-106	1:13 P.M.
10 Nov. '61	F-106	5:59 P.M.
11 Nov. '61	B-58	12:27 A.M.
11 Nov. '61	B-58	12:50 A.M.
12 Nov. '61	F-106	5:01 A.M.
12 Nov. '61	F-106	5:18 A.M.
12 Nov. '61	F-106	10:16 A.M.
12 Nov. '61	F-106	10:41 A.M.

Personal interviews began on November 13, 1961, following these test flights and were 98% completed by December 10, four weeks later. Reports from NORC field supervisors indicated that the number of spontaneous mentions of sonic booms was falling off as the time interval increased between the test flights and the personal interview. Consequently, four more test flights by F-106 planes were scheduled between November 29 and December 5, 1961, during early afternoon hours.

Following the New Year Day holiday, a third and final series of test flights were flown at lower altitudes than usual, but over the same flight corridor. On the 3rd of January, 1962, at 10:08 P.M. and 10:31 P.M., a B-58 crossed the area supersonically at 35,000 feet altitude. Three days later on January 6,1962, at 10:09 P.M. and 10:28 P.M., a B-58 crossed the area at 31,000 feet altitude. Between January 8 and January 21, practically all persons originally interviewed were reinterviewed regarding their reactions to the third series of flights. Table 3 presents the number of confirmed supersonic booms reported by Scott Air Force Base officials for each month starting July 1961 through June 1962. The sharp fall off of sonic booms during December should be noted, as it unexpectedly affected the responses on the second wave of interviews.

TABLE 3

SONIC BOOMS CONFIRMED BY SCOTT AIR FORCE BASE
1961 - 1962

Year	Month	Number of Booms	Cumulative Number of Booms
1961	July	3	3
	August	15	18
	September	17	35
	October	8	43
	November	19	62
	December	6	68
1962	January	25	93
	February	15	108
	March	22	130
	April	20	150
	May	0	150
	June	0	150

Before concluding the description of the stimulus design, it should be noted that a number of supersonic flights, believed to total fewer than 10, criss-crossed the primary sampling areas on a different flight corridor. Consequently, all but three of the 72 primary sampling areas which were supposed to be 8-16 miles from the main ground tract, were under 8 miles from the second flight corridor. Since few of these criss-crossing flights are believed to have occurred prior to the first interview, they are not believed to have influenced interview responses greatly.

3. Sampling Area Design

Four variables were considered in designing the primary sampling areas in which personal interviews would be scheduled:

a. Distance from Ground Tract Zero

The actual ground tract over which supersonic bombing runs are made by SAC training planes was obtained and plotted on a map of the St. Louis Metropolitan area. From preliminary data on expected intensities of sonic booms as the distance from ground zero increases, the metropolitan area was divided into two parts, communities 0-8 miles from ground tract zero, and all others 8-16 miles distant.

b. Age of Housing

Since the age of housing is believed to be relevant to the amount of possible damage caused by booms, all areas were further subdivided into localities with mostly pre-World War II housing, and those with mostly post-World War II developments.

c. Exposure to Commerical Aviation Noise

All areas were further subdivided in terms of their exposure to regular commerical aviation flights. Areas close to landing and takeoff paths from Lambert Field were classified as "Jet path"; all others were grouped as "Non-jet path" areas.

d. Broad Social Class

Since a sample of only about 1100 interviews was planned for the survey, it was necessary to stratify further all areas according to the broad social class of their populations. In this way, a sufficient representation of each social class would be included in the overall sample.

Within each of the 24 primary sampling strata approximately equal numbers of primary sampling units were selected. The inequalities obtained in the actual selection were due to the lack of availability of some types of areas.

Table 4 presents a schematic picture of the 144 primary sampling areas by the above characteristics.

TABLE 4

SURVEY DESIGN OF PRIMARY SAMPLING AREAS
ST. LOUIS METROPOLITAN AREA

Miles from Ground Zero	Social Class	Type of Housing: Pre-World War II Jet Path	Pre-World War II Non-Jet Path	Post-World War II Jet Path	Post-World War II Non-Jet Path	Total
0-8	Upper	7	6	3	5	21
	Middle	7	7	7	6	27
	Lower	6	13	2	3	24
	Sub-total	20	26	12	14	72
8-16	Upper	0	9	6	7	22
	Middle	6	13	6	11	36
	Lower	6	8	-	-	14
	Sub-total	12	30	12	18	72
Total	Upper	7	15	9	12	43
	Middle	13	20	13	17	63
	Lower	12	21	2	3	38
	Total	32	56	14	32	144

4. Interviewing Design

A local NORC field supervisor was used to direct the actual interviewing in the study. Approximately 50 local interviewers were hired and trained on the actual questionnaire used in the study. Subsequent to formal training, practice interviews were conducted in designated areas. These trial interviews were reviewed in detail and met quality standards before an interviewer was given his first real assignment.

Using a strictly random procedure, each interviewer was instructed to contact every other house on a designated block and complete eight interviews. Four of the interviews must be with men and four with women. Half of the men and women must also be under 40 years of age and half over 40 years of age. If there was no one at home to meet the age and sex quota requirements, the interviewer was told to proceed to the next randomly selected house until the quota was filled.

In addition, all respondents were required to meet the following qualifications before being interviewed:

a. All respondents must be 21 years of age or over, unless she is a married woman who is 18 years old.

b. All respondents must have their permanent residence on the assigned block. Visitors and house guests are not elligible.

c. All respondents must have a sufficient comprehension and command of the English language to permit an intelligent interview. Hard of hearing and people too ill to comprehend the meaning of questions were excluded.

d. Only one interview was obtained from each household.

Although it was not always feasible, an effort was made to minimize any possible effects of interviewer differences, by assigning each interviewer to at least two or more different types of primary sampling areas. Likewise, to avoid prior discussions about the interview among neighbors, teams of interviewers were assigned to each Primary Sampling Unit so as to complete all assignments in an area as quickly as possible. That the scheme was successful is revealed by the fact that only 25 or 2% of all respondents said they had heard anything about the survey before the interview.

Table 5 indicates that 1145 interviews were completed in the first wave of interviewing and that 1011 useable reinterviews were completed during the second phase. Of the 98 initial respondents who were not reinterviewed, 11 were never reassigned due to administrative difficulties. In addition 36 respondents were away from the area during the January 3-6 test flights or said they hadn't heard any recent booms and, therefore, could not respond to questions about these flights. This left 1011 useable reinterviews.

TABLE 5

COMPLETED INTERVIEWS BY DISTANCE FROM GROUND TRACT ZERO

Miles from Ground Zero	Number of Primary Sampling Units	Completed Interviews			
		Phase 1		Phase 2	
		Number	Percent	Number	Percent
Total	144	1145	100%	1011	100%
0-4	24	192	17	164	16
4-8	45	360	31	322	32
8-12	21	168	15	154	15
12-16	54	425	37	371	37

Table 6 indicates the weeks in which the above interviews were completed.

TABLE 6

WEEK IN WHICH INTERVIEW WAS COMPLETED

First Interview	Number	Percent	Cummulative Percent
Total	1145	100%	- %
Nov. 13-19	479	41.8	41.8
Nov. 20-26	313	27.3	69.1
Nov. 27-Dec. 3	249	21.8	90.9
Dec. 4-10	76	6.6	97.5
Dec. 11-17	18	1.6	99.1
Dec. 18-24	10	.9	100.0
Second Interview	1047		
Jan. 8-14	857	81.9%	81.9%
Jan. 15-21	159	15.1	97.0
Jan. 22-28	28	2.7	99.7
Jan. 29-Feb. 4	3	.3	100.0

The first interview was conducted face-to-face and required an average of 1½ hours per interview. The second reinterview was conducted largely by telephone and averaged about 15 minutes per interview. Only 58 of the 1047 second interviews required a personal visit and face-to-face interview. To control for possible effects of the first interview on responses to the second interview, an independent representative sample of 200 telephone interviews and 100 personal interviews was selected. These separate samples were interviewed during the first three weeks of January 1962, and their responses compared with the reinterviews. No significant differences were found between the regular reinterviews and the control samples, indicating negligible biases by the first interview.

5. Questionnaire Design

Interviewers were not told the real sponsorship or purpose of the study. To do so might have impaired their approach to respondents. They were told to inform respondents that "this is a community survey of how different people feel about living in different areas. It attempts to record systematically the kinds of things people like or dislike about their residential environments." The interviewer was further advised that, "This is part of the regular NORC social survey program and is supported by a number of Funds." If in the course of the interview the respondent asked why there were so many questions about airplanes and sonic booms, the interviewer was told to reply, "In some areas, schools, roads or transportation are major problems and we ask detailed questions about them. In this area, the study director found in preliminary interviews that noise of airplanes and booms are key local issues, so he included questions about them in the questionnaire." Reports from interviewers indicated that very few respondents were suspicious of the nature or purpose of the interview.

The interview was carefully designed to mask the questions on sonic booms. This was done to avoid biased responses about the booms. If the respondent was aware of the purposes of the study, he might have exaggerated his responses in order to influence administrative action. Consequently, the interview was divided into seven major sections. The first three concerned the respondent's own overall likes and dislikes about the area. Only after 15-20 minutes of general items were specific probes used about civilian planes or sonic booms. Table 7 presents the general design of the questionnaire.

TABLE 7

GENERAL DESIGN OF THE INITIAL QUESTIONNAIRE

Section	Questions Asked	Item
1	1-5	General likes and dislikes and overall ratings on various aspects of area.
2	6	General readiness to complain about a major dislike
3	7-8	General feeling about noise in area
4	9	Direct questions on civilian plane noise
5	10-20	Direct questions on sonic boom
6	21-27	Projective type comparisons between ability to adjust to military and civilian sonic booms
7	28-40	Personal characteristics.

The reinterview began with a direct question about hearing booms during the last week or so. Rapport had already been established during the first interview and the respondent had been prepared for the telephone callback by being told that a callback might be necessary if the interview was found incomplete in any way. Consequently no masking of questions was found necessary in the callback. If the respondent hadn't heard any booms, the interview was terminated (There were 36 such terminations). If he had heard booms, he was asked to compare the recent booms with past booms. Then, he was asked about effects of the recent booms on his activities, annoyance, and complaint behavior. The brief reinterview was completed by a repetition of questions about projected ability to live with civilian booms.

II. Report of Findings

A. Reported Disturbance by Sonic Booms

Reports from respondents during the first series of interviews indicates that only 7 percent of all persons reported that booms caused no disturbances at all. The disturbance most frequently reported is the shaking or vibrating of the house followed by the startling or frightening effect of the sudden boom, the disturbance of sleep, rest or relaxation, conversation and radio or TV listening. As Table 8 indicates, respondents living closest to ground zero, 0-4 miles distant, generally report somewhat more disturbance than the most distant residents living 12-16 miles away. Little differences, however, are noted among the residents living within 0-12 miles of ground zero. It should also be noted that the closest residents (0-4 miles) report shaking of their houses and being startled more often than the distant residents (12-16 miles). Most persons usually report the disturbances are occasional occurrences, and only in the closest areas (0-4 miles) do more than half report the shaking of their houses as occurring often.

Five of these disturbances rank order in a Guttman scale of disturbance, so that a summary measure of intensity of disturbance can be obtained. This means that if a person reports his house rattles and vibrates, he also generally reports being startled and disturbed in the other three activities. If he reports being startled, he also is likely to be disturbed by the other three disturbances, etc. For statistical purposes, the disturbance scale has been reduced to the following three categories:

Great disturbance - Conversation or rest disturbed.
Moderate disturbance - Sleep disturbed or person startled.
Little or No disturbance - House rattles or no disturbance reported.

Figure 1 presents the summary scale of disturbance by geographic areas. This confirms our previous evaluation of the individual items that only the closest group is slightly more disturbed than the distant group. Likewise, it should be noted that only about one out of every four persons report "great disturbance," and one out of five report little or no disturbance. More than half report only moderate disturbance.

TABLE 8

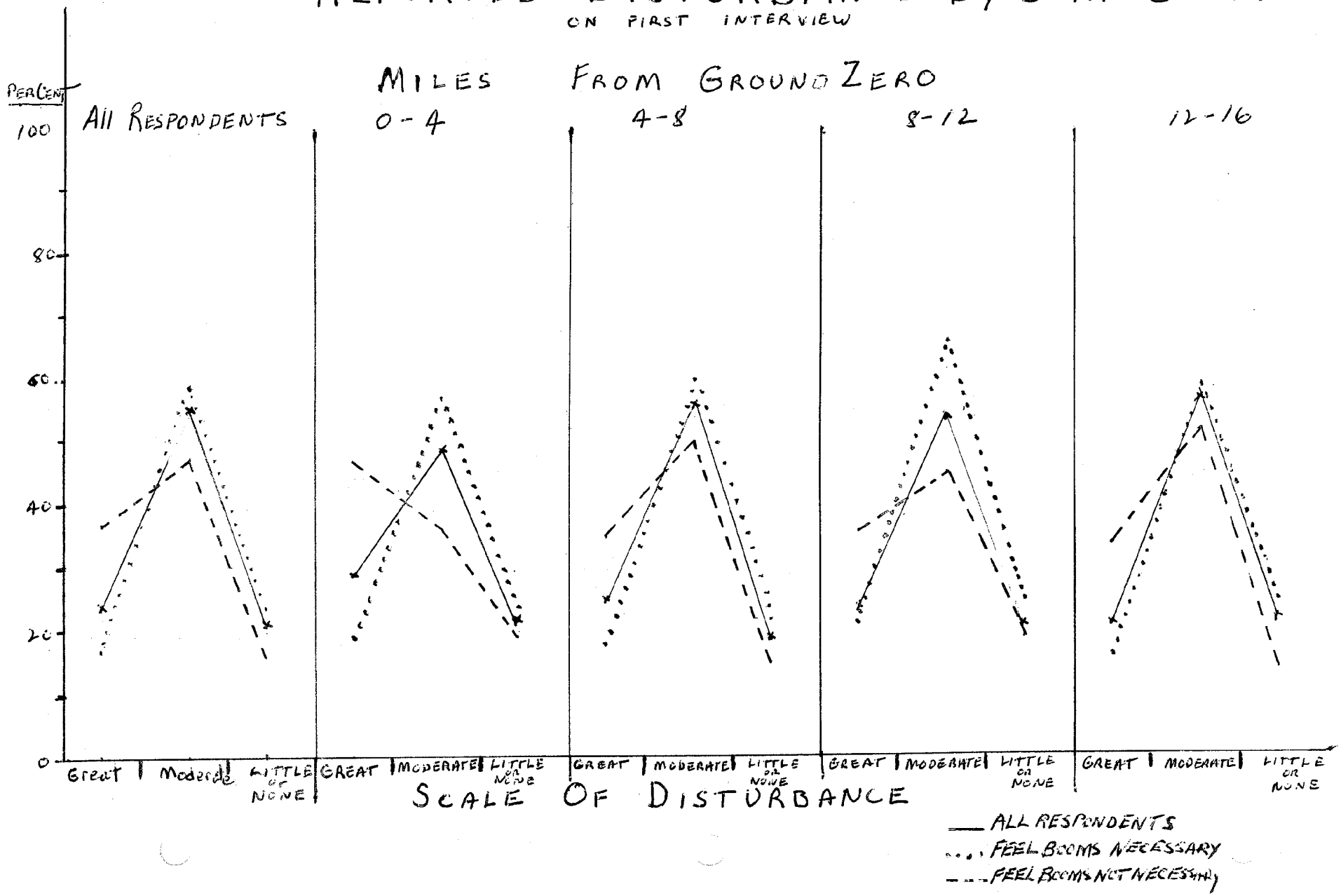
REPORTED TYPES OF DISTURBANCES BY SONIC BOOMS ON FIRST INTERVIEW

Type of Disturbance	Total	Miles from Ground Zero 0-4	4-8	8-12	12-16
(Number Respondents)	(1145)	(192)	(360)	(168)	(425)
A. Shake House	93%	89%	92%	94%	94%
Very often	21	31	17	21	19
Fairly often	27	25	33	25	24
Occasionally	45	33	42	48	51
B. Startle or Frighten	74%	72%	76%	74%	74%
Very often	13	17	12	11	14
Fairly often	23	31	23	25	18
Occasionally	58	24	41	38	42
C. Disturb Sleep	42%	52%	39%	42%	42%
Very often	5	7	6	4	5
Fairly often	10	17	9	7	7
Occasionally	27	28	24	32	30
D. Disturb Rest or Relaxation	24%	28%	26%	26%	20%
Very often	5	3	8	3	3
Fairly often	7	11	8	8	6
Occasionally	12	14	10	15	11
E. Interrupt Conversation	22%	26%	27%	22%	17%
Very often	2	2	4	3	2
Fairly often	5	7	6	2	4
Occasionally	15	17	17	17	11
F. Interrupt Radio and TV	14%	18%	18%	11%	11%
Very often	2	2	2	2	2
Fairly often	3	5	4	3	2
Occasionally	9	11	12	6	7

Figure 1

REPORTED DISTURBANCE BY SONIC BOOMS

ON FIRST INTERVIEW



Not all peopel who report disturbances can be assumed to be annoyed by the interference of the sudden sonic boom. As the next section of the report will elaborate, the report of a disturbance is largely an objective phenomenon, but the reaction of annoyance or non-annoyance is a subjective one, and depends on the interaction of a number of socio-psychological variables. As Table 9 indicates, however, annoyance is directly related to the intensity of disturbance. Two out of every three people who report a great disturbance also report great annoyance, but 15% of those with great disturbance report no annoyance at all. In contrast, almost 9 out of every 10 people with little or no disturbance also report no annoyance. Those with moderate disturbance fall in between with 57% reporting no annoyance.

It should be noted that only among the great disturbance group does annoyance also seem to vary with distance from ground zero. The closest greatly disturbed residents (0-4 miles) are significantly more annoyed than the most distant group. Although the differences are not great; 16% more of the distant group report no annoyance at all. The closest moderately disturbed and little or no disturbance groups generally report fewer people with no annoyance, but the differences among the different disturbance groups are too small to be statistically significant.

TABLE 9

REPORTED DISTURBANCE BY SONIC BOOMS
BY ANNOYANCE AND GEOGRAPHIC LOCATION

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
All Respondents					
Great disturbance	24%	29%	25%	24%	21%
Moderate disturbance	55	49	56	56	57
Little or no disturb.	21	22	19	21	22
All Great Disturbance	(274)	(55)	(88)	(41)	(90)
Great annoyance	67%	71%	73%	54%	64%
Moderate annoyance	18	24	12	32	15
No annoyance	15	5	15	14	21
All Moderate Disturbance	(628)	(94)	(202)	(91)	(241)
Great annoyance	8%	5%	8%	9%	8%
Moderate annoyance	35	44	33	34	33
No annoyance	57	51	59	57	59
All Little or No Disturbance	(243)	(43)	(70)	(36)	(94)
Great annoyance	-	-	-	-	-
Moderate annoyance	12%	19%	10%	8%	12%
No annoyance	88	81	90	92	88

B. Reported Annoyance with Sonic Booms

1. Overall Annoyance

As discussed in the previous section, annoyance with booms is not synonymous with disturbance by booms. Annoyance is a subjective reaction to the disturbance, which is an objective reality. Whether a given disturbance creates an annoyance reaction depends on a number of attitudinal variables which will be discussed below. The extent of overall annoyance with different disturbances will be evaluated first.

As Table 10 shows, the reported disturbances result in relatively little annoyance in the St. Louis Metropolitan area. Later discussion will evaluate this finding in terms of the special circumstances existing in the St. Louis area which moderates annoyance reactions.

The highest annoyance is reported where the house shakes and vibrates, with 38% saying they are more than slightly annoyed when this happens. More than a little annoyance with the other disturbances rank orders as follows: 31% more than a little annoyed with being startled, 22% with being disturbed in sleep, 16% with rest disturbed, 10% with conversation interrupted, and 6% with radio and TV disturbed. As can be seen, only the closest group (0-4 miles) is a little more annoyed than the distant group. This tendency is noted in all types of disturbances, but the differences are too small to be significant in the case of startle, interrupted conversation and radio and TV listening.

Because the different disturbances rank order by degree of reported annoyance, it was possible to develop a Guttman scale of intensity of annoyance as a summary measure of annoyance. Only responses of more than slight annoyance are considered annoyance reactions. For statistical purposes, the scale is grouped as follows:

Great annoyance - More than slight annoyance with disturbance of conversation, rest, or sleep.

Little or Moderate Annoyance - More than slight annoyance with startle or house rattle.

No annoyance - No more than slight annoyance with any disturbance.

Figure 2 presents the summary scale of annoyance by geographic location. More than half of all persons express no substantial annoyance with any disturbance. Only one out of five express great annoyance. As in the case of reported disturbances, only the closest areas (0-4 miles) report somewhat greater annoyance than the other groups. The differences in reported annoyance for the 4-16 mile groups are too small to be considered significant.

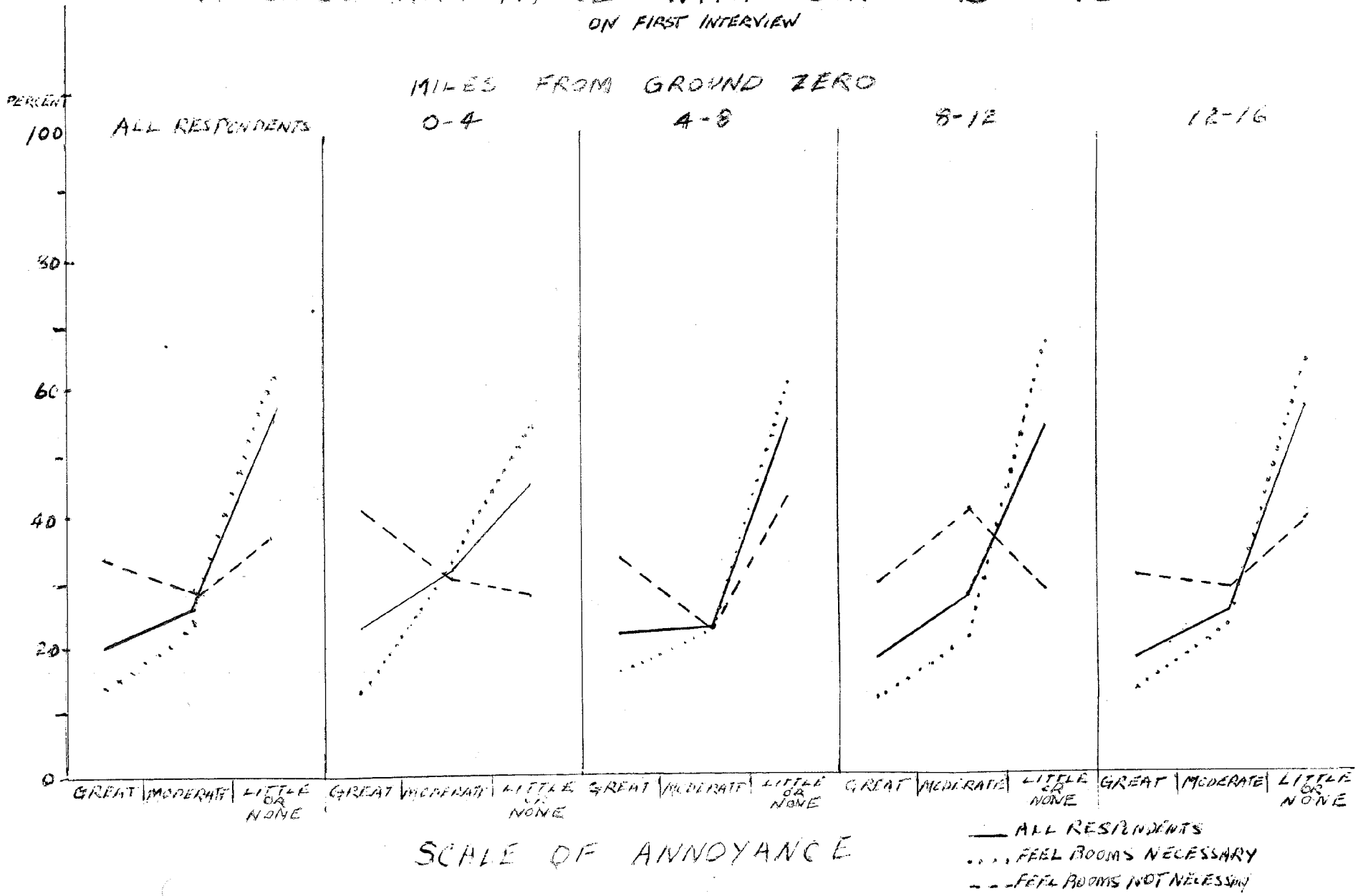
TABLE 10

REPORTED ANNOYANCE BY TYPE OF DISTURBANCE AND GEOGRAPHIC LOCATION

Type of Disturbance	Total	Miles from Ground Zero 0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
A. Shake House	100%	100%	100%	100%	100%
Very annoying	19	28	17	18	17
Fairly annoying	19	18	17	20	20
Slight or not annoying	55	43	58	56	57
No disturbance	7	11	8	6	6
B. Startle or Frighten	100%	100%	100%	100%	100%
Very annoying	15	19	15	12	14
Fairly annoying	16	13	18	17	17
Slight or not annoying	43	40	43	45	43
No disturbance	26	28	24	26	26
C. Disturb Sleep	100%	100%	100%	100%	100%
Very annoying	12	16	14	8	10
Fairly annoying	10	11	10	10	9
Slight or not annoying	20	25	15	24	23
No disturbance	58	48	61	58	58
D. Disturb Rest or Relaxation	100%	100%	100%	100%	100%
Very annoying	9	13	12	6	7
Fairly annoying	7	6	7	8	5
Slight or not annoying	8	9	7	12	8
No disturbance	76	72	74	74	80
E. Interrupt Conversation	100%	100%	100%	100%	100%
Very annoying	4	2	4	3	2
Fairly annoying	6	7	6	2	4
Slight or not annoying	12	17	17	17	11
No disturbance	78	74	73	78	83
F. Interrupt Radio or TV	100%	100%	100%	100%	100%
Very annoying	3	6	3	1	3
Fairly annoying	3	4	5	2	2
Slight or not annoying	8	8	10	8	6
No disturbance	86	82	82	89	89

FIGURE 2

REPORTED ANNOYANCE WITH SONIC BOOMS
ON FIRST INTERVIEW



2. Factors Affecting Annoyance with Sonic Booms

It has already been shown in Table 9 that annoyance is directly related to the degree of disturbance, and in Figure 2 that to some extent it is related to the distance of the residence from ground zero, or the physical intensity of the boom. In this section, it will be shown that annoyance is also related to feelings about the necessity of having sonic booms locally, of feelings about the considerateness of the Air Force and pilots, of the occurrence of property damage by the booms, of whether civilian jet noise bothers and annoys, and even whether people believe complaining about the booms would do any good or not.

a. Amount of Disturbance and Annoyance

By combining the scales of disturbance and annoyance in the following combinations a more sensitive index is provided of intensity of annoyance:

Index Type		Meaning: Number Activities	
Disturbance	Annoyance	Disturbed	More than Slight Annoyance
Many	Little	4	0-3
		5	0-4
	Much	4	4
		5	5
Moderate	Little	2	0
		3	0-1
	Much	2	1-2
		3	2-3
Few	Little	0-1	0
	Much	1	1

Table 11 presents this refined six point index of annoyance. Only 11% are much annoyed with many disturbances, with the closest areas again reporting the most annoyance. The relationships between the six point scale of annoyance and the three point scale used in Figure 2 are also shown in Table 11, because the smaller three point scale will be used in the remainder of the analysis. The six point scale divides the number of interviews into very small sub-groups when other variables are cross-tabulated and makes tests of significant relationships most difficult. Consequently by necessity, the less refined three point scale will be utilized in most analyses.

As seen in Table 11, more than half of the "great annoyance" group are much annoyed with many disturbances, and only 21% are much annoyed with a moderate number of disturbances. In contrast the "little or moderate annoyance" group reports 56% much annoyed with moderate disturbances. The "no annoyance" group reports only little annoyance with disturbances. Even these three annoyance groups are clearly qualitatively distinctly different.

TABLE 11

DISTURBANCE AND ANNOYANCE WITH BOOM I

		Miles from Ground Zero				
		Total	0-4	4-8	8-12	12-16
I. All Respondents		(1145)	(192)	(360)	(168)	(425)
Disturbances-Annoyances						
Many	Much	11%	15%	12%	8%	9%
	Little	13	14	13	16	12
Moderate	Much	19	18	19	19	19
	Little	36	31	37	35	37
Few	Much	2	4	2	2	3
	Little	19	18	17	20	20
A. All Great Annoyance		(232)	(44)	(80)	(30)	(78)
Many	Much	53%	64%	52%	46%	50%
	Little	26	25	28	27	24
Moderate	Much	21	11	20	27	26
	Little	-	-	-	-	-
Few	Much	-	-	-	-	-
	Little	-	-	-	-	-
B. All Little or Moderate Annoyance		(297)	(62)	(84)	(47)	(104)
Many	Much	-%	-%	-%	-%	-%
	Little	17	21	13	28	12
Moderate	Much	56	47	62	51	61
	Little	17	19	17	15	16
Few	Much	10	13	8	6	11
	Little	-	-	-	-	-
C. All No Annoyance		(616)	(86)	(196)	(91)	(243)
Many	Much	-%	-%	-%	-%	-%
	Little	7	3	7	7	8
Moderate	Much	-	-	-	-	-
	Little	58	56	61	57	58
Few	Much	-	-	-	-	-
	Little	35	41	32	36	34

The six part scale sharpens the differences among the distance groups. About two-thirds of the closest "great annoyance" group are much annoyed with many disturbances in comparison with only half of the most distant group. Likewise, in comparing the "little or moderate" annoyance groups, 21% of the closest group is little annoyed with many disturbances compared to only 12% of the most distant group. In contrast, there are no differences among the "no annoyance" groups.

b. Knowledge of Causes and Occurrences of Sonic Booms

All respondents were asked, "Have you heard or read anything about the booms from military jets?" Over 8 out of 10 answered they had heard or read about the booms indicating the remarkable success of the public information program. The closest areas (0-4 miles) reported the lowest awareness with 72% answering affirmatively compared to 87% for the most distant areas. Newspapers are the favorite source of information, followed by neighbors and friends, TV and radio. The closest area residents use all media less than the distant area. The free answer mentions are unprompted reports in answer to a general question, "Where did you hear about it?" The probed replies were in answer to a direct question, "Did you read about it in a newspaper?", etc. Table 12 presents these findings.

TABLE 12

REPORT HEARING OR READING ABOUT SONIC BOOMS
BY SOURCE OF INFORMATION

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
All Heard or Read	82%	72%	80%	85%	87%
In Newspapers	72%	62%	65%	77%	79%
Mention free answer	62	53	56	63	69
Mention probed	10	9	9	14	10
By Neighbors or Friends	51%	47%	49%	56%	53%
Mention free answer	14	15	13	15	13
Mention probed	37	32	36	41	40
By TV Programs	46%	46%	44%	50%	47%
Mention free answer	21	20	20	25	20
Mention probed	25	26	24	25	27
By Radio Programs	45%	39%	44%	44%	50%
Mention free answer	21	19	22	20	21
Mention probed	24	20	22	24	29
By Other Source					
Magazine	9%	4%	9%	10%	12%
Family	3%	3%	2%	2%	3%
At work	2%	1%	1%	7%	1%

All respondents were also asked, "Could you tell me why the military jets make the boom?", and "Can you always tell its (boom) from a jet or do you sometimes wonder what the boom is?"

The widespread familiarity and knowledge about the causes of the boom are truly remarkable. Almost three out of four say they always recognize the boom

as resulting from a jet flight, and over 9 out of 10 have "all right" or "partly right" explanations of the cause of the boom. Most of the partly right answers involved a notion that breaking the sound barrier involved physical breakage. The closest areas consistently report less knowledge than the distant areas. Table 13 presents the answers to these questions.

TABLE 13

REPORTED REASONS WHY MILITARY JETS MAKE SONIC BOOMS

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
Reasons	(1145)	(192)	(360)	(168)	(425)
Break sound barrier	65%	64%	60%	66%	68%
Create pressure waves	17	17	13	20	19
High altitude of flight	2	2	2	1	2
Pull away from gravity	*	-	*	-	*
Sound bounces off atmosphere	1	-	2	1	1
Hit air pockets	1	1	2	2	1
Create electrical charge	1	1	1	1	1
Vacuum explodes	4	2	4	4	5
Re-enter atmosphere	1	2	1	1	*
Physically break sound	2	1	3	3	2
Miscellaneous incorrect	1	-	2	1	2
Don't know, vague answers	21	29	25	13	17

* Less than 0.5 per cent.

Table 14 summarizes the above questions about knowledge of booms and further analyzes the answers by annoyance group. As can be seen, the great annoyance group is only slightly less knowledgeable about the causes of booms.

TABLE 14

RECOGNITION AND KNOWLEDGE OF CAUSE OF SONIC BOOMS
BY ANNOYANCE GROUPS

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
I. All Respondents					
Always recognize	72%	66%	83%	70%	74%
Sometimes wonder	27	32	16	28	26
Don't know	1	2	1	2	-
Answers All - right	66%	64%	59%	76%	69%
Answers Part- right	27	30	34	19	23
Answers All - wrong	7	6	7	5	8
A. All Great Annoyance	(232)	(44)	(80)	(30)	(78)
Always recognize	66%	66%	66%	90%	58%
Sometimes wonder	33	34	33	10	41
Don't know	1	-	1	-	1
Answers All - right	61%	64%	54%	80%	60%
Answers Part- right	32	29	41	13	31
Answers All - wrong	7	7	5	7	9
B. All Little or Moderate	(297)	(62)	(84)	(47)	(104)
Always recognize	68%	66%	72%	81%	61%
Sometimes wonder	29	31	26	17	37
Don't know	3	3	2	2	2
Answers All - right	68%	63%	57%	77%	75%
Answers Part- right	27	32	38	17	20
Answers All - wrong	5	5	5	6	5
C. All No Annoyance	(616)	(86)	(196)	(91)	(243)
Always recognize	76%	65%	74%	82%	77%
Sometimes wonder	23	31	25	17	21
Don't know	1	4	1	1	2
Answers All - right	68%	66%	63%	75%	70%
Answers Part- right	25	29	29	22	22
Answers All - wrong	7	5	8	3	8

Respondents were asked, "Do you happen to know why the jets making booms fly around here?" Two out of three said that they knew the reason, but only half of them (32%) actually gave a valid reason. The nearest group (0-4 miles), as can be seen in Table 15, was again the least informed with only 22% giving valid reasons why the jets must make booms locally.

TABLE 15

REASONS GIVEN FOR MILITARY JETS FLYING LOCALLY[1]

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
Say know reasons	65%	57%	61%	66%	72%
Reasons Given:					
Area like enemy target	7	5	8	6	7
Area practice target area	10	6	8	8	14
On Air Force path to target	11	9	9	10	15
Special geographic advantages	4	2	3	4	5
Total valid reasons given	32	22	28	28	41
Just testing	12	7	13	15	13
Defense practice	6	6	5	8	7
Near military base	8	13	5	7	9
Near commercial base	6	8	6	6	6
Near civilian airport	4	2	8	5	2
Get civilians used to boom	2	4	1	2	2
Miscellaneous	1	1	1	-	1
Say don't know	35	43	39	34	28

[1]Totals do not add to 100% because more than one reason can be given.

As is often typical, failure to know precisely why the planes making booms must fly locally does not alter feelings about the necessity of having these flights. When asked, "Do you feel it is absolutely necessary for the military to have the booms around here or not?" the high proportion of two-thirds answered, "Yes" it is absolutely necessary. As Table 16 indicates, the closest areas were somewhat less convinced of the necessity of the booms. To test the respondent's reluctance to appear unpatriotic, another question was asked referring to other people's views. This is a standard projective technique to make it easier sometimes for the respondent to attribute critical views to others. The question was, "From what you've heard or read, how do most other people around here feel -- do you think they generally feel the booms are absolutely necessary or not?" Revealing the possibility that respondents are not really as convinced about the necessity of the booms as the previous direct question indicated only 44%, less than half, answered <u>others</u> feel it is absolutely necessary. It should be noted that only 16% would actually say "No", while the large number of 40% said they don't know other people's views. This possibility of an unstable attitude on this important question will be cited later to explain a sharp rise in public criticism when leaders in the community became critical and made public criticism socially acceptable.

TABLE 16

REPORTED FEELINGS ABOUT THE NECESSITY OF HAVING SONIC BOOMS LOCALLY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
Own Views:					
Absolutely necessary	67%	65%	64%	67%	71%
Not necessary	16	18	18	17	12
Don't know	17	17	18	16	17
Reported Other People's Views:					
Absolutely necessary	44%	41%	39%	39%	52%
Not necessary	16	17	18	19	13
Don't know	40	42	43	42	35

c. Feelings About Booms Being Necessary Locally

As we have just seen in Table 16, two-thirds of all residents say they feel it is absolutely necessary to have the sonic booms near their homes. Only 16% have openly hostile views, while 17% are undecided or reluctant to express their feelings. When asked why it was necessary, about one-third said because St. Louis was a target area or peculiarly suited for testing, one-third because it was for national defense, and the others because it was near an Air Force base, planes were patrolling, or planes have to practice somewhere. Clearly the relationship to national defense is the key reason for feeling the booms are necessary. When asked directly, "How important do you feel these jet (training) flights are to our national welfare?", almost 9 out of 10 said "Very important."

This attitude of the importance and necessity of the boom, as can be seen in Table 17 and others to follow, is one of the basic attitudinal variables in optimizing acceptance or rejection of the disturbance. Table 17 indicates that if a respondent feels the booms are necessary he generally will report less disturbance than if he feels the booms are not necessary. Only 17% report great disturbance if they feel the boom is necessary, while 37% report great disturbance if they feel the boom is not necessary. While there are no differences in reported intensity of disturbance among distance groups when people feel the booms are necessary, the closest areas still report somewhat more disturbance when people feel the booms are not necessary.

As can be seen, feelings of annoyance are an even more potent discriminator of reported disturbance than feelings of the necessity of the booms. A combination of the two psychological factors, however, provides a very sharp distinction. Almost 90% of those who feel the boom is not necessary and who are greatly annoyed say they have great disturbance. In contrast, only 7% of those who feel the boom is necessary and have no annoyance say they experience great disturbance -- an 83% spread in reported disturbance. When the location of the respondent is also combined with the above psychological

variables, the differential in reported disturbance is further increased. A total of 93% with the most negative attitudes who live 0-4 miles from ground zero say they experience great disturbance, compared to 85% with similar attitudes who live 12-16 miles distant.

TABLE 17

REPORTED DISTURBANCE BY BOOMS BY GEOGRAPHIC LOCATION
ANNOYANCE WITH BOOMS AND FEELINGS ABOUT NECESSITY OF HAVING BOOMS LOCALLY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Great disturbance	24%	29%	25%	24%	21%
Moderate disturbance	55	49	56	55	57
Low disturbance	21	22	19	21	22
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Great disturbance	79%	89%	80%	73%	74%
Moderate disturbance	21	11	20	27	26
Low disturbance	-	-	-	-	-
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Great disturbance	17%	21%	13%	28%	12
Moderate disturbance	73	66	79	66	77
Low disturbance	10	13	8	6	11
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Great disturbance	7%	3%	7%	7%	8%
Moderate disturbance	58	56	61	57	58
Low disturbance	35	41	32	36	34
II. All Respondents who Feel Booms Necessary Locally:	(767)	(124)	(230)	(112)	(301)
Great disturbance	17%	19%	18%	19%	16%
Moderate disturbance	59	57	60	59	59
Low disturbance	24	24	22	22	25
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Great disturbance	69%	81%	69%	69%	64%
Moderate disturbance	31	19	31	31	36
Low disturbance	-	-	-	-	-
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Great disturbance	15%	20%	13%	25%	10%
Moderate disturbance	76	71	83	67	78
Low disturbance	9	9	4	8	12
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Great disturbance	7%	3%	7%	8%	8%
Moderate disturbance	58	58	58	61	57
Low disturbance	35	39	35	31	35

TABLE 17 CONTINUED

III. All Respondents Who Feel Booms Not Necessary Locally:	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(378)	(68)	(130)	(56)	(124)
Great disturbance	37%	47%	35%	36%	34%
Moderate disturbance	47	34	50	45	52
Low disturbance	16	19	15	19	14
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Great disturbance	87%	93%	89%	76%	85%
Moderate disturbance	13	7	11	24	15
Low disturbance	-	-	-	-	-
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Great disturbance	20%	24%	13%	30%	17%
Moderate disturbance	68	57	70	65	75
Low disturbance	12	19	17	5	8
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Great disturbance	5%	5%	5%	-%	6%
Moderate disturbance	61	47	70	38	64
Low disturbance	34	48	25	62	30

Since it has already been found that not all people who experience great disturbance always feel great anncyance, it would also be useful to see the direct influence of the attitude about the necessity of the boom on feelings of annoyance. As Table 18 shows, feelings about the necessity of the booms account for a 20% spread in great annoyance and a 25% spread in reports of no annoyance. Comparing extreme groups, almost two-thirds of the most distant residents who feel the booms are necessary report no annoyance, while only 28% of those who live closest and feel the booms are not necessary report no annoyanve. Overall, only 20% express great annoyance with booms and more than half express no annoyance.

TABLE 18

REPORTED ANNOYANCE BY GEOGRAPHIC LOCATION
AND FEELINGS ABOUT NECESSITY OF HAVING BOOMS LOCALLY

	Miles from Ground Zero				
	Total	0-4	-48	8-12	12-16
A. All Respondents	(1145)	(192)	(360)	(168)	(425)
Great annoyance	20%	23%	22%	18%	18%
Little or Moderate annoyance	26	32	23	28	25
No annoyance	54	45	55	54	57
B. Feel Booms Necessary	(767)	(124)	(230)	(112)	(301)
Great annoyance	14%	13%	16%	12%	13%
Little or moderate annoyance	24	33	23	21	23
No annoyance	62	54	61	67	64
C. Feel Booms Not Necessary	(378)	(68)	(130)	(56)	(124)
Great annoyance	34%	41%	34%	30%	31%
Little or moderate annoyance	29	31	23	41	29
No annoyance	37	28	43	29	40

d. Feelings About the Considerateness of the Air Force

Another important psychological attitude that influences feelings of annoyance is the extent to which a person feels the Air Force and Air Force pilots are doing all they can to minimize any disturbance. As Table 19 indicates 70% of all people feel the Air Force is very or moderately considerate of their feelings. This high regard for the Air Force exists throughout the entire area, with no significant differences among the different geographic areas.

TABLE 19

REPORTED FEELINGS ABOUT THE CONSIDERATENESS OF THE AIR FORCE

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
Air Force Is:					
Very considerate	37%	39%	36%	38%	38%
Moderately considerate	33	30	32	36	33
Only a little considerate	13	14	14	13	13
Not at all considerate	10	13	10	7	10
Don't know	7	4	8	6	6

Likewise, when asked whether Air Force pilots could perform their missions and still avoid the booms if they wanted to, almost 80% said "No", the pilots could not avoid the booms. If a person feels the boom is necessary

and is unavoidable, i.e. the Air Force has done all it can to minimize it, he is more likely to report less annoyance with the boom. Fully two-thirds of such persons say they have no annoyance compared to only one-third of those who have opposite attitudes about the necessity of booms and Air Force considerateness. Table 20 shows these interrelationships and how the high regard for the Air Force and its missions have combined to reduce annoyance by booms in the St. Louis area.

TABLE 20

REPORTED FEELINGS ABOUT CONSIDERATENESS OF THE AIR FORCE AND NECESSITY OF HAVING BOOMS LOCALLY BY ANNOYANCE GROUP

	Total	Air Force Very Considerate	Air Force Not Very Considerate
All Respondents	(1145)	(426)	(719)
Great annoyance	20%	13%	25%
Little or moderate	26	23	28
No annoyance	54	64	47
Feel Booms Necessary	(767)	(364)	(403)
Great annoyance	14%	12%	15%
Little or moderate	24	21	27
No annoyance	62	67	58
Feel Booms Not Necessary	(378)	(62)	(316)
Great annoyance	34%	19 12%	37%
Little or moderate	29	31 19	29
No annoyance	37	50 62	34

e. Influence of Damages to Property on Annoyance

Contrary to some expectations, the distant areas report as much damage as the closest areas. As Table 21 indicates, the 12-16 mile areas report 15% with some damage believed attributable to sonic booms, compared to 11% in the closest areas. This small difference, however, could be due to sampling error. Other differences among geographic areas shown in Table 21 may also be due to chance.

The direct influence of reported damage on annoyance is also seen in Table 22. Of those reporting some damage, 37% report great annoyance compared to only 18% who report no damage. Of those who feel booms are not necessary and also experience damage, 52% report great annoyance compared to only 11% of the opposite type who feel the booms are necessary and have no damage experience.

TABLE 21

REPORTED DAMAGE BY SONIC BOOMS
BY ANNOYANCE, FEELINGS ABOUT NECESSITY OF BOOMS AND GEOGRAPHIC LOCATION

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Report damage	13%	11%	12%	11%	15%
Report no damage	87	89	88	89	85
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Report damage	23%	20%	24%	10%	29%
Report no damage	77	80	76	90	71
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Report damage	14%	10%	10%	19%	18%
Report no damage	86	90	90	81	82
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Report damage	8%	7%	9%	8%	8%
Report no damage	92	93	91	92	92
II. Feel Boom Necessary	(767)	(124)	(230)	(112)	(301)
Report damage	12%	11%	11%	10%	14%
Report no damage	88	89	89	90	86
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Report damage	26%	25%	22%	-%	38%
Report no damage	74	75	78	100	62
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Report damage	15%	15%	11%	17%	18%
Report no damage	85	85	89	83	82
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Report damage	8%	6%	9%	9%	8%
Report no damage	92	94	91	91	92
III. Feel Boom Not Necessary	(378)	(68)	(130)	(56)	(124)
Report damage	14%	10%	14%	15%	15%
Report no damage	86	90	86	85	85
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Report damage	21%	18%	25%	18%	21%
Report no damage	79	82	75	82	79
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Report damage	13%	-%	7%	22%	19%
Report no damage	87	100	93	78	81
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Report damage	8%	11%	9%	-%	8%
Report no damage	92	89	91	100	92

TABLE 22

REPORTED ANNOYANCE BY CLAIMS OF DAMAGE AND FEELINGS ABOUT THE NECESSITY OF BOOMS

	Total	Booms Necessary	Booms Not Necessary
All Respondents	(1145)	(767)	(378)
Great annoyance	20%	14%	34%
Little or moderate	26	24	29
No annoyance	54	62	37
Report Damages	(146)	(94)	(52)
Great annoyance	37%	29%	52%
Little or moderate	29	30	27
No annoyance	34	41	21
Report No Damage	(999)	(673)	(326)
Great annoyance	18%	11%	31%
Little or moderate	25	24	29
No annoyance	57	65	40

The kinds of damage reported are presented in Table 23. Cracked walls and ceilings represent almost two-thirds of the damage claims; broken windows represent 18% of the claims. The differences among geographic areas are not significant because of the relative size of the differences in relation to the small samples involved.

TABLE 23

KINDS OF DAMAGE ATTRIBUTED TO SONIC BOOMS[1]

	Total	Miles from Ground Zero 0-4	4-8	8-12	12-16
	(146)	(21)	(44)	(19)	(62)
Damage to structures	14%	14%	9%	26%	15%
Cracked walls and ceiling	62	76	70	68	50
Broken windows	18	10	16	16	23
Broken fixtures	3	-	-	5	6
Broken moveable objects such as furniture	3	5	2	11	2
Knocked down objects	8	5	11	5	8
Damage appliances	1	-	2	-	2
Miscellaneous	1	-	-	-	3

[1] Percentages do not add to 100% because more than one answer is possible.

f. Influence of Civilian Jet Noise on Annoyance with Sonic Booms

Part of the reduction in differences in disturbance and annoyance in the booms between close and distant areas may also be due to the effects of civil jet noise. As Table 24 shows, while 57% of the residents in the closest areas say they do not hear civil jet noise only 20% in the 4-8 mile group and 31% in the 8-12 mile group are free from jet noise. Likewise, 41% of the 4-8 mile group and 36% of the 8-12 mile group are more than a little disturbed by civil jet noise.

In order to test the possible transference of civil jet noise bother to reactions to sonic booms, sonic boom reactions of those disturbed by civil jet noise are compared with those not disturbed by civil jets. As can be seen in Table 24, respondents disturbed by civil jets, in practically all cases, are more disturbed and annoyed by sonic booms.

TABLE 24

DISTURBANCE AND ANNOYANCE BY BOOMS

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
A. All Respondents	(1145)	(192)	(360)	(168)	(425)
Great disturbance jet noise	5%	2%	9%	6%	2%
Moderate disturbance	20	14	32	30	9
Little or no disturbance	36	27	39	33	40
Do not hear jet noise	39	57	20	31	49
B. Disturbance by Booms					
1)Respondents More Than A Little Disturbed by Jet Noise:	(284)	(31)	(149)	(60)	(44)
Greatly disturbed by boom	30%	45%	31%	27%	18%
Moderately disturbed	55	48	56	48	68
Little or no disturbance	15	7	13	25	14
2)Respondents only a Little or Not Disturbed by Jet Noise:	(861)	(161)	(211)	(108)	(381)
Greatly disturbed by boom	22%	25%	20%	23%	22%
Moderately disturbed	55	49	56	57	55
Little or no disturbance	23	26	24	20	23
C. Annoyance With Booms					
1) Respondents More Than A Little Disturbed by Jet Noise:	(284)	(31)	(149)	(60)	(44)
Greatly annoyed by boom	28%	39%	29%	20%	25%
Moderately annoyed	25	29	25	23	27
Little or no annoyance	47	32	46	57	48
2) Respondents only a Little or Not Disturbed by Jet Noise:	(861)	(161)	(211)	(108)	(381)
Greatly annoyed by boom	18%	20%	18%	17%	18%
Moderately annoyed	26	33	22	30	24
Little or no annoyance	56	47	60	53	58

Especially in the case of the 4-8 mile group where 41% are more than a little disturbed by civil jets is the influence of jet disturbance marked; 54% of those so disturbed by jets are more than a little disturbed by booms compared to only 40% with no jet noise disturbance.

An inconclusive note, however, is made by the lack of sharper differences in sonic boom reactions among those persons with little or no jet noise disturbance. Theoretically, the geographic differences in boom reactions should have been greater, but it may be that some of the other variables are confounding the comparisons.

g. Overall Attachment to Area

Residents in the St. Louis Metropolitan area generally have a very high attachment to their communities. Only 1 out of 5 describe their neighborhood as "fair or poor", and almost 7 out of 10 say they like many things about their area.

TABLE 25

REPORTS OF OVERALL ATTACHMENT TO AREA

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
1. In general, Rate Area:	(1145)	(192)	(360)	(168)	(425)
Excellent	41%	39%	29%	44%	51%
Good	38	34	43	41	34
Fair	18	20	26	10	14
Poor	3	7	2	3	1
Very poor	*	-	*	2	*
2. Number things liked:					
Many	68%	65%	60%	66%	76%
Few	27	28	36	28	20
Hardly any	4	6	4	5	3
Don't know	1	1	-	1	1
3. Number things disliked:					
Many	5%	10%	5%	7%	3%
Few	67	56	67	71	69
Nothing	27	32	28	22	27
Don't know	1	2	-	-	1
4. Ever felt like moving:					
Yes	36%	40%	37%	34%	34%
No	64	60	63	66	66
5. Have taken steps to find another place:					
Yes	10%	12%	11%	8%	9%
No	26	28	26	26	25

* Less than 0.5%.

Conversely, only 5% say they dislike many things and only 10% have taken any steps to move from their present locality. It may be significant that the most distant areas from ground zero have the highest attachment to their largely suburban communities. The closest areas, which are largely old central city, have the least attachment to their neighborhoods. About 40% of the 0-4 mile group have felt like moving, but only 12% have actually taken any steps to find another location.

This high attachment and reluctance to criticize their communities may also be a moderating influence on reported annoyance with booms.

At an early stage of the first interview, all persons were asked, "If you could change just one of the things you don't like about living around here, which would you choose?" Replies to this question provide a context for viewing the sonic boom problem. Only 8 out of 1145 respondents voluntarily mentioned sonic booms, or only 0.7 percent. Most frequently mentioned is traffic danger, followed by inadequate facilities, and poor transportation facilities. It may be that the very few mentions of sonic booms are partly a result that attention was focussed on neighborhood problems and sonic booms may not be considered a strictly neighborhood problem. In any case, it is safe to say that sonic booms were not considered the primary problem in any geographic area.

TABLE 26

THE ONE THING RESPONDENT MOST DESIRES CHANGED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1145)	(192)	(360)	(168)	(425)
Traffic dangers	10%	10%	10%	14%	10%
Other dangers	4	2	4	3	6
Poor transportation	6	1	4	10	9
Poor sanitation	6	3	3	5	10
Poor schools	2	1	2	2	2
Other facilities	6	6	8	5	6
Roads inadequate	5	4	7	7	4
Appearance of area	4	6	3	4	3
Social aspects	4	5	5	2	3
Economic problems	3	2	3	1	3
Poor local government	2	1	2	1	2
Poor zoning	1	2	2	1	1
Congestion	1	2	1	1	1
Child, dog nuisance	1	1	*	1	2
Sonic booms	1	1	-	1	1
Airplane noise	1	-	4	1	-
Traffic noise	1	2	1	-	*
Other noise	1	3	1	1	1
Nothing	37	45	38	37	33

Another measure of the relative importance of sonic booms is provided by answers to the third free answer question in the interview, "Would you tell me some of the things you don't like -- things you may feel are nuisances, or are unpleasant and bothersome conditions?" About 8 out of 100 voluntarily mentioned sonic boom, but 11% of the closest residents compared to only 5% of the most distant areas mentioned booms.

h. Belief in the Chances of Reducing Disturbances of Booms

This psychological attitude is most important in encouraging or inhibiting complaint action and will be described more fully in the next section of the report. It is introduced as another factor modifying even feelings of annoyance, because it appears to have a feedback effect on such underlying annoyance feelings. All respondents were asked, "On the whole, how would you rate the chances of doing anything about the booms? Would you say there was a very good chance, a good chance, only a fair chance, or hardly any chance at all to imporve the situation?" As Table 27 indicates, only 26% believe there is any chance to reduce the disturbance, of which only 8% feel the chances are "good or very good" and 18% feel the chances are only "fair." The closest areas are most pessimistic, with only 17% believing there is any chance at all.

TABLE 27

RESPONDENT'S BELIEF IN THE CHANCES OF REDUCING SONIC BOOM DISTURBANCES

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
All Respondents	(1145)	(192)	(360)	(168)	(425)
Some chance	26%	17%	28%	30%	26%
Very good chance	1%	*%	2%	4%	*%
Good chance	7	4	6	11	7
Fair chance	18	13	20	15	19
Hardly any chance	60	64	56	63	61
Don't know	14	19	16	7	13

As Table 28 shows, this pessimism about the possibilities of doing anything about the booms has a regressive effect on even reported annoyance feelings. While those who believe there is even a fair chance of reducing the disturbance report 30% with great annoyance, only 17% report great annoyance when they feel there is no hope of doing anything about the booms.

TABLE 28

RELATIONSHIP BETWEEN BELIEF
IN THE CHANCES OF REDUCING DISTURBANCES OF SONIC BOOMS
AND FEELINGS OF ANNOYANCE

	Total	Some Chance	No Chance
All Respondents	(1145)	(292)	(853)
Great annoyance	20%	30%	17%
Little or moderate	26	29	25
No annoyance	54	41	58

One of the reasons why there is so much pessimism may be the reported belief by 55% of all respondents that only the government in Washington can reduce the booms; only 22% felt the local Air Force had any control over the situation. Washington officials are frequently felt to be quite distant and impersonal and not easily influenced, so this attitude may contribute to the overall pessimism.

i. Personal Characteristics

There are some differences in personal characteristics among close and distant areas and among annoyance groups. In general, the differences are not great, but they tend to increase the amount of great annoyance in the close areas. The close areas have more younger and older residents, with younger persons expressing somewhat more annoyance than older respondents. More Negroes are included in the close areas and they more often are greatly annoyed. Close area residents also have less education and such persons likewise tend to be more annoyed. Finally, close areas report residents with less commercial flying experiences and this also appears to be related to greater boom annoyance. The only factor working to reduce annoyance in the close areas is reported noise sensitivity. More close area residents express less noise sensitivity and this is generally associated with less boom annoyance. Close area residents also report longer residence and lower income, but these factors don't appear to be closely related to annoyance.

TABLE 29

SELECTED PERSONAL CHARACTERISTICS BY ANNOYANCE WITH SONIC BOOMS

	Miles from Ground Zero		
	Total	0-8	8-16
1. Sex			
A. All Respondents:	(1145)	(552)	(593)
Male	50%	51%	49%
Female	50	49	51
B. With Great Annoyance:	(232)	(124)	(108)
Male	42%	44%	41%
Female	58	56	59
C. With Little or Moderate Annoyance:	(297	(146)	(151)
Male	45%	41%	50%
Female	55	59	50
D. With No Annoyance:	(616)	(282)	(334)
Male	55%	56%	54%
Female	45	44	46
2. Age			
A. All Respondents:	(1145)	(552)	(593)
18-29	16%	19%	13%
30-39	33	30	35
40-45	30	28	33
55-64	11	10	11
65 +	10	13	8
B. With Great Annoyance:	(232)	(124)	(108)
18-29	22%	28%	16%
30-39	32	32	33
40-45	30	25	34
55-64	10	7	12
65 +	6	8	5
C. With Little or Moderate Annoyance:	(297)	(146)	(151)
18-29	11%	14%	9%
30-39	38	31	45
40-54	29	30	27
55-64	10	11	9
65 +	12	14	10
D. With No Anncyance:	(616)	(282)	(334)
18-29	16%	17%	15%
30-39	30	28	31
40-54	32	29	34
55-64	11	12	11
65 +	11	14	9

TABLE 29 CONTINUED

	Miles from Ground Zero		
	Total	0-8	8-16
3. Race			
A. All Respondents:	(1145)	(552)	(593)
White	84%	76%	92%
Non-white	13	22	4
Don't know	3	2	4
B. With Great Annoyance:	(232)	(124)	(108)
White	80%	67%	93%
Non-white	19	31	7
Don't know	1	2	-
C. With Little or Moderate Annoyance:	(297)	(146)	(151)
White	84%	75%	92%
Non-white	14	22	5
Don't know	2	3	3
D. With No Annoyance	(616)	(282)	(334)
White	87%	82%	92%
Non-white	10	17	3
Don't know	3	1	5
4. Length of Residence			
A. All respondents:	(1145)	(552)	(593)
Less than 3 year	23%	19%	28%
3-5 years	14	14	14
5-10 years	25	26	23
10-15 years	14	13	15
15+ years	24	28	20
B. With Great Annoyance	(232)	(124)	(108)
Less than 3 years	28%	21%	35%
3-5 years	14	12	16
5-10 years	21	24	19
10-15 years	9	9	8
15 + years	28	34	22
C. With Little or Moderate Anncyance:	(297)	(146)	(151)
Less than 3 years	20%	14%	26%
3-5 years	14	14	13
5-10 years	31	35	28
10-15 years	15	12	17
15+ years	20	25	16
D. With No Annoyance:	(616)	(282)	(334)
Less than 3 years	23%	21%	25%
3-5 years	15	15	14
5-10 years	22	22	23
10-15 years	16	16	17
15+ years	24	26	21

TABLE 29 CONTINUED

5. Family Composition and Size		Miles from Ground Zero: Total	0-8	8-16
A. All Respondents:		(1145)	(552)	(593)
Composition:	Self alone	3%	5%	2%
	Adults only	30	30	29
	Children over 6	28	26	30
	Children under 6	39	39	39
Size:	Self alone	3%	5%	2%
	2	21	20	21
	3	19	18	20
	4	24	23	25
	5	15	15	16
	6+	18	19	16
B. With Great Annoyance:		(232)	(124)	(108)
Composition:	Self alone	4%	6%	3%
	Adults only	27	23	31
	Children over 6	27	27	27
	Children under 6	42	44	39
Size:	Self alone	4%	6%	3%
	2	17	10	25
	3	23	26	19
	4	25	23	26
	5	12	13	11
	6+	19	22	16
C. With Little or Moderate Annoyance:		(297)	(146)	(151)
Composition:	Self alone	2%	3%	2%
	Adults only	28	30	26
	Children over 6	30	29	30
	Children under 6	40	38	42
Size:	Self alone	2%	3%	2%
	2	20	22	18
	3	19	17	21
	4	25	23	27
	5	15	16	13
	6+	19	19	19
D. With No Annoyance:		(616)	(282)	(334)
Composition:	Self alone	4%	5%	2%
	Adults only	31	33	30
	Children over 6	27	23	31
	Children under 6	38	39	37
Size:	Self alone	4%	5%	2%
	2	22	23	22
	3	17	15	19
	4	23	23	24
	5	17	15	18
	6+	17	19	15

TABLE 29 CONTINUED

	Miles from Ground Zero		
	Total	0-8	8-16
6. Education			
A. All Respondents:	(1145)	(552)	(593)
Elementary	24%	28%	19%
High School	48	50	47
College	28	22	34
B. With Great Annoyance:	(232)	(124)	(108)
Elementary	21%	27%	14%
High School	55	51	60
College	24	22	26
C. With Little or Moderate Annoyance:	(297)	(146)	(151)
Elementary	26%	34%	19%
High School	51	52	50
College	23	14	31
D. With No Annoyance:	(616)	(282)	(334)
Elementary	24%	27%	21%
High School	44	48	40
College	32	25	39
7. Income			
A. All Respondents:	(1145)	(552)	(593)
- $6000	34%	42%	26%
$6 - 8	22	21	24
$8 - 10	14	12	16
$10 - 15	11	9	12
$15 +	11	8	14
Refusal or Not asked	8	8	8
B. With Great Annoyance:	(232)	(124)	(108)
- $6000	37%	43%	30%
$6 - 8	22	21	23
$8 - 10	14	15	13
$10 - 15	12	7	16
$15 +	8	8	9
Refusal or Not asked	7	6	9
C. With Little or Moderate Annoyance:	(297)	(146)	(151)
- $6000	37%	48%	25%
$6 - 8	21	17	26
$8 - 10	14	11	17
$10 - 15	8	4	11
$15 +	11	7	15
Refusal or Not asked	9	13	6
D. With No Annoyance:	(616)	(282)	(334)
- $6000	33%	39%	26%
$6 - 8	23	23	22
$8 - 10	14	12	16
$10 - 15	12	13	11
$15 +	11	8	15
Refusal or Not asked	7	5	10

TABLE 29 CONTINUED

		Miles from Ground Zero		
		Total	0-8	8-16
8. Noise Sensitivity				
A. All Respondents:		(1145)	(552)	(593)
Number noises bother:	None	10%	15%	6%
	1	11	12	9
	2	15	17	13
	3	17	17	18
	4	17	13	21
	5	14	13	14
	6	9	8	10
	7	6	4	7
	8	1	1	2
B. With Great Annoyance:		(232)	(124)	(108)
Number Noises Bother:	None	5%	5%	5%
	1	7	8	7
	2	8	10	7
	3	18	15	22
	4	21	19	22
	5	17	18	15
	6	14	14	13
	7	8	7	9
	8	2	4	-
C. Little or Moderate Annoyance:		(297)	(146)	(151)
Number noises bother:	None	9%	12%	5%
	1	13	16	9
	2	17	20	13
	3	17	17	18
	4	16	11	22
	5	11	10	12
	6	10	9	11
	7	5	4	7
	8	2	1	3
D. With No Annoyance:		(616)	(282)	(334)
Number noises bother:	None	15%	22%	7%
	1	12	12	11
	2	17	19	14
	3	17	17	17
	4	16	11	20
	5	13	11	15
	6	6	4	8
	7	3	3	6
	8	1	1	2

TABLE 29 CONTINUED

9. Number of times Flown in an Airplane	Miles from Ground Zero Total	0-8	8-16
A. All Respondents:	(1145)	(552)	(593)
Never	38%	46%	32%
1-2	21	20	21
3-4	8	6	9
5 +	31	24	37
Don't know	2	4	1
B. With Great Annoyance:	(232)	(124)	(108)
Never	46%	54%	37%
1-2	21	19	23
3-4	6	6	7
5 +	25	18	31
Don't know	2	3	2
C. With Little or Moderate Annoyance:	(297)	(146)	(151)
Never	44%	53%	35%
1-2	19	20	18
3-4	8	7	8
5 +	28	18	38
Don't know	1	2	1
D. With No Annoyance:	(616)	(282)	(334)
Never	34%	39%	28%
1-2	21	20	22
3-4	8	6	10
5 +	35	31	39
Don't know	2	4	1

C. Complaint Potential

From the point of view of some administrators, the volume of complaints and the threats of organized community action are the significant indicators of community reaction to a disturbance. While complaint behavior is the net result of community annoyance with a disturbance, a low or high volume of complaints at any given time is an unstable indicator of a potentially explosive disturbance. Many social-psychological factors encourage or diminish the potential volume of complaints. Some of these factors which will be examined in this section of the report clearly explain the relatively low complaint potential in the St. Louis Metropolitan area.

1. General Complaint Potential

As shown in Table 26 every respondent was asked to name the one disturbance he would most like to change. Over a third said they had no major problem with somewhat more residents in the closest area reporting no problem. All persons who did mention a problem were then asked the following series of questions:

"Have you ever felt like doing something about this? Have you ever felt like: 1) Writing or telephoning an official? 2) Visiting an official? 3) Signing a petition? 4) helping to set up a citizens' committee? 5) Doing something else?" Answers to these questions indicate the general underlying action potential in the St. Louis area, because it indicates the extent of action proneness on the disturbances regarded as most serious by the respondents.

As Table 30 indicates, petition signing and writing or telephoning are the most popular forms of complaint. Visiting or setting up an action committee requires more personal effort and is less often contemplated. The category "doing something else" involved primarily appealing to other existing community groups for action or taking direct action oneself, like cleaning up rubbish in a vacant lot. It is interesting to note that while 45% thought of signing a petition, only about one out of every three with the inclination actually ever signed a petition. It is also of interest to note that residents in the closest area (0-4 miles) more often felt like signing a petition or setting up a committee, but didn't actually follow through with action anymore often than the other distance groups. In general, there are no great differences among the four distance groups in general action proneness.

Not shown in Table 30 is the finding that only 22% of all persons interviewed ever actually did any of the things shown in Table 30. If only those persons with a major problem are considered, only 35% actually did anything about their problem. The variations among the different distance groups are not sifnificant.

TABLE 30

GENERAL READINESS TO COMPLAIN ABOUT MAJOR DISTURBANCE

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
With no major problem	37%	45%	38%	37%	33%
With major problem	63	55	62	63	67
All With Major Problem Who:	(717)	(104)	(223)	(106)	(284)
A. 1)Felt like signing petition	45%	54%	40%	47%	46%
2) Actually did	16	15	16	16	17
B. 1)Felt like writing or telephoning	41%	41%	39%	52%	38%
2)Actually did	17	14	13	25	19
C. 1)Felt like visiting official	27%	31%	24%	32%	27%
2)Actually did	12	11	10	15	14
D. 1)Felt like setting up citizens' committee	25%	34%	20%	23%	25%
2)Actually did	7	10	4	5	8
E. 1)Felt like doing something else	12%	7%	14%	15%	13%
2)Actually did	9	5	8	11	11

Four of the complaint actions can be arranged in a Guttman Scale of general complaint potential as follows:

Scale Description	Items
High general complaint potential	Felt like setting up committee or visiting official
Moderate general complaint potential	Felt like writing, calling or signing a petition
Low general complaint potential	Felt like doing nothing

As Table 31 indicates, only 16% of all St. Louis residents indicated a high overall general complaint potential, with no significant differences among geographic areas. The closest area, as noted before, more often reports no major problem, but when this category is combined with "low" complaint potential, the differences disappear. The overall low complaint potential in the St. Louis area provides a frame of reference against which sonic boom complaints will be judged.

When annoyance with booms is compared with the general complaint potential, it is apparent that the greater the boom annoyance, the greater the complaint potential. While the differences are not dramatic, they could occur by chance in only 1 out of 100 samples. It is also significant to note that the group expressing great annoyance with booms also more often reports another major problem, and less often indicates no complaint potential. This combination would tend to encourage readiness to complain about booms.

When geographic groups are analyzed in relation to annoyance and the general complaint potential, the greatly annoyed living in the closest area (0-4 miles) has a significantly lower general complaint potential than the other distance groups. About two-thirds of the closest greatly annoyed group report no complaint potential or no major problem while, the same annoyance group living 4-8 miles away reports only 47% and the most distant, 12-16 mile group, reports that only 46% feel so passive. There are no other significant geographic differences among the other annoyance groups.

The consideration of still another factor, whether or not a respondent feels the booms are necessary, indicates no substantial difference in the general complaint potential. It is interesting to note, however, that the passivity of the greatly annoyed 0-4 mile group is largely concentrated in the respondents who feel the boom is necessary, with 75% of them reporting no problem or no general complaint potential, compared to 60% of the comparable group who feel the booms are not necessary. It should also be noted that very small samples of only 16 and 28 respondents are involved in these comparisons and that firm conclusions are not possible with so few observations. In general it can be stated that there is a low overall complaint potential in the St. Louis area, with no big significant differences among the four geographic areas, but with greater complaint potential among persons who are greatly or moderately annoyed with booms.

TABLE 31

GENERAL COMPLAINT POTENTIAL BY GEOGRAPHIC LOCATION, REPORTED ANNOYANCE WITH SONIC BOOMS AND FEELINGS ABOUT NECESSITY OF HAVING BOOMS LOCALLY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
High general complaints	16%	17%	12%	19%	16%
Moderate general complaints	22	18	24	21	23
Low general complaints	25	19	26	23	28
No major problems	37	46	38	37	33
A. With Great Annoyance with Booms:	(232)	(44)	(80)	(30)	(78)
High general complaints	22%	23%	21%	10%	26%
Moderate general complaints	26	11	32	30	28
Low general complaints	22	18	21	27	24
No major problems	30	48	26	33	22
B. With Little or Moderate Annoyance with Booms:	(297)	(62)	(84)	(47)	(104)
High general complaints	16%	11%	8%	25%	21%
Moderate general complaints	22	23	22	26	20
Low general complaints	25	21	25	21	28
No major problems	37	45	45	28	31
C. With No Annoyance with Booms:	(616)	(86)	(196)	(91)	(243)
High general complaints	13%	19%	11%	19%	11%
Moderate general complaints	20	17	22	15	22
Low general complaints	27	19	27	23	29
No major problems	40	45	40	43	38
II. All Respondents Feel Booms are Necessary Locally:	(767)	(124)	(230)	(112)	(301)
High general complaints	16%	19%	13%	22%	15%
Moderate general complaints	22	19	23	20	24
Low general complaints	25	18	28	19	29
No major problems	37	44	36	39	32
A. With Great Annoyance with Booms:	(104)	(16)	(36)	(13)	(39)
High general complaints	21%	12%	22%	8%	28%
Moderate general complaints	25	13	31	23	26
Low general complaints	22	25	19	15	25
No major problems	32	50	28	54	21

TABLE 31 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B. With Little or Moderate Annoyance with Booms:	(187)	(41)	(54)	(24)	(68)
High general complaints	18%	17%	9%	29%	22%
Moderate general complaints	24	24	22	29	24
Low general complaints	24	15	26	21	29
No major problems	34	44	43	21	25
C. With no Annoyance with Booms:	(476)	(67)	(140)	(75)	(194)
High general complaints	14%	22%	11%	23%	10%
Moderate general complaints	21	18	21	16	23
Low general complaints	27	18	31	19	30
No major problems	38	42	37	42	37
III. Respondents Feel Booms Are Not Necessary Locally:	(378)	(68)	(130)	(56)	(124)
High general complaints	15%	13%	12%	13%	19%
Moderate general complaints	21	15	25	23	20
Low general complaints	25	22	22	32	26
No major problems	39	50	41	32	35
A. With Great Annoyance with Booms:	(128)	(28)	(44)	(17)	(39)
High general complaints	22%	29%	20%	12%	23%
Moderate general complaints	27	11	32	35	31
Low general complaints	23	14	23	35	23
No major problems	28	46	25	18	23
B. With Little or Moderate Annoyance with Booms	(110)	(21)	(30)	(23)	(36)
High general complaints	13%	-%	7%	22%	19%
Moderate general complaints	18	19	20	22	14
Low general complaints	25	33	23	22	25
No major problems	44	48	50	34	42
C. With No Annoyance with Booms:	(140)	(19)	(56)	(16)	(49)
High general complaints	9%	5%	9%	-%	14%
Moderate general complaints	19	16	23	12	16
Low general complaints	26	21	20	44	29
No major problems	46	58	48	44	41

2. Complaint Potential with Sonic Booms

A set of questions comparable to those asked about the general complaint potential was asked of all respondents regarding their contemplation and actual complaining about sonic booms. As Table 32 indicates, only 9% even felt like telephoning or writing, 7% like signign a petition and only 3% visiting officials or setting up a committee. This very low readiness to complain about booms is only one-sixth to one-ninth the general level of readiness to complain (see Table 30) about major problems. Even more striking is

the fact that only one in every 15 who contemplated telephoning or writing actually did this. Only seven of the 1145 respondents reported actually writing or telephoning a complaint.

Although petition signing is the favorite method for expressing local complaints, it is significant that only 7 percent even felt like signing a petition. Even more revealing is the fact that no petition has ever been circulated and consequently no one has signed one. This failure to follow the local custom and circulate a petition indicates a lack of popular support for complaining about booms. Reflecting this belief of lack of popular support, only 4% of the respondents said that they believed other people around here feel there is a good chance to improve the (boom) situation.

It should be noted in passing, however, that this extreme passivity has signs of underlying instability, which will be further discussed below. Table 32 indicates, however, that, if respondents are asked by a local organization to complain, 29% said they might support a local petition and 25% said they might write or telephone. Likewise, only 14% said they, themselves, felt that the favorite method of petition signing would do any good in the case of sonic booms. As will be seen, this feeling of futility in complaining undoubtedly depresses the complaint potential. There are no marked differences among the geographic areas in readiness to complain.

TABLE 32

READINESS TO COMPLAIN ABOUT SONIC BOOMS

	Miles from Ground Zero				
Type of Complaint:	Total	0-4	4-8	8-12	12-16
A. Telephoning or writing	(1145)	(192)	(360)	(168)	(425)
Felt like it	9%	12%	9%	7%	8%
Actually did	0.6	-	0.8	-	0.9
Might if local organization asked	25	28	28	22	23
Would do some good	12	9	14	15	12
B. Sign petition					
Felt like it	7%	12%	6%	4%	6%
Actually did	-	-	-	-	-
Might if local organization asked	29	37	30	27	25
Would do some good	14	14	13	17	15
C. Visit officials					
Felt like it	3%	6%	3%	4%	3%
Actually did	0.2	-	0.3	0.6	-
Might if local organization asked	21	25	22	18	19
Would do some good	12	9	13	13	11
D. Set up Citizens' Committee					
Felt like it	3%	5%	3%	3%	2%
Actually did	-.2	-	0.6	-	-
Might if local organization asked	21	24	24	16	19
Would do some good	13	13	13	13	13

The items in Table 32 form a Guttman Scale which summarizes the complaint potential as follows:

Scale Description	Items
High complaint potential	Felt like setting up a committee or visiting official
Moderate complaint potential	Felt like telephoning, writing or signing a petition
Low complaint potential	Felt like doing nothing.

As Table 33 and Figure 3 show, 89% felt like doing nothing about sonic booms, with only 5% fewer respondents in the closest areas reporting no desire to complain than in the distant areas. This very low complaint potential existed in St. Louis at the time of our interviews, but in order to understand this finding the special circumstances existing in St.Louis must be understood.

The following favorable factors tending to minimize annoyance in St.Louis have already been discussed:

a) 75% say they always recognize a sonic boom.
b) 90% actually know what causes a boom.
c) 90% feel the supersonic flights which cause the booms are very important to our national defense.
d) 67% feel the booms are absolutely necessary in the St.Louis area.
e) 70% feel the Air Force is very or moderately considerate of local feelings.
f) 80% feel Air Force pilots cannot avoid making booms.
g) 13% only have reported any damage.
h) 80% express a very high attachment to their local area, describing it as excellent or good.
i) 8% only feel there is a good or very good chance to reduce the disturbance, and only 4% feel others feel this way.
j) 16% only normally express a high complaint potential on the problem considered most serious.
k) 20% only express great annoyance with booms and another 26% only moderate annoyance.

If these factors were reversed, which could happen in an area with poor public relations or with a short-sighted local leadership which opposed the booms and encouraged complaints, the complaint potential could increase from 11% to 90% of all respondents, without any change in the number or intensity of the booms. This is also shown in Table 33 and Figure 4.

First, if only annoyance with booms is considered, the complaint potential varies from 33% of the greatly annoyed to only 3% of the No annoyance group expressing any complaint potential. If geographic area is also examined, the complaint potential increases to 50% for the greatly annoyed in the closest areas.

If feelings of the booms being necessary in St.Louis are also considered, area differences disappear but differences in complaint potential persist by annoyance groups. Only 2% of the no annoyance group who feel the boom is necessary express any complaint potential. In contrast, 68% express some complaint potential if they feel great annoyance, think the booms are not necessary and live closest to ground zero.

The last variable which is included in Table 33 is the belief that complaining offers some prospect for success in reducing the disturbance. In practically all comparisons, persons who feel there is some possibility of success in complaining have a higher complaint potential. In the most extreme case, 90% of the closest residents who are greatly annoyed, feel the boom is not necessary and feel complaining may be successful express some complaint potential; 40% a high potential and 50% a moderate potential. In contrast, none of the closest residents with opposite views (no annoyance, booms are necessary, complaining is useless) have any complaint potential. In this favorable attitude group as a whole, only 2% have only a moderate complaint potential. Figure 4 shows these relationships.

In projecting these findings to other localities, other than St.Louis, the presence or absence of the favorable factors discussed above must be considered. At a minimum, location, feelings of annoyance, necessity of booms and possible success of complaints must be considered. Unless all these factors exist in another area, the very low total complaint potential found in St.Louis cannot be projected to any other area. At best, it can be concluded that under ideal conditions such as existed in St.Louis, a very low complaint potential can be expected.

TABLE 33

COMPLAINT POTENTIAL FOR BOOMS BY GEOGRAPHIC LOCATION, FEELINGS ABOUT NECESSITY OF HAVING BOOMS LOCALLY, ANNOYANCE WITH BOOMS, AND FEELINGS ABOUT POTENTIAL SUCCESS OF COMPLAINT

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
High complaints	3%	6%	3%	2%	2%
Moderate complaints	8	9	8	7	8
Low complaints	89	85	89	91	90
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
High complaints	11%	20%	10%	7%	8%
Moderate complaints	22	30	22	26	17
Low complaints	67	50	68	67	75
B. With Little or Moderate Annoyance.	(297)	(62)	(84)	(47)	(104)
High complaints	3%	2%	2%	4%	3%
Moderate complaints	7	5	5	2	12
Low complaints	90	93	93	94	85

TABLE 33 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
High complaints	*%	1%	1%	-%	-%
Moderate complaints	3	1	3	2	3
Low complaints	97	98	96	98	97
II. All Respondents Feel Booms Necessary Locally	(767)	(124)	(230)	(112)	(301)
High complaints	1%	1%	1%	1%	*%
Moderate complaints	4	4	2	4	6
Low complaints	95	95	97	95	94
A_1 With Great Annoyance	(104)	(16)	(36)	(13)	(39)
High complaints	4%	-%	6%	8%	3%
Moderate complaints	13	19	6	15	18
Low complaints	83	81	88	77	79
A_2 And Feelings Complaints Successful	(32)	(3)	(15)	(3)	(11)
High complaints	3%	-%	7%	-%	-%
Moderate complaints	22	33	7	-	45
Low complaints	75	67	86	100	55
A_3 And Feelings Complaints Not Successful	(72)	(13)	(21)	(10)	(28)
High complaints	4%	-%	5%	10%	4%
Moderate complaints	10	15	5	20	7
Low complaints	86	85	90	70	89
B_1 With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
High complaints	1%	-%	2%	-%	-%
Moderate complaints	4	5	-	4	7
Low complaints	95	95	98	96	93
B_2 And with Feelings Complaints Successful	(47)	(3)	(11)	(9)	(24)
High complaints	2%	-%	9%	-%	-%
Moderate complaints	9	-	-	11	12
Low complaints	89	100	91	89	88
B_3 And Feelings Complaints Not Successful	(140)	(38)	(43)	(15)	(44)
High complaints	-%	-%	-%	-%	-%
Moderate complaints	3	5	-	-	5
Low complaints	97	95	100	100	95
C_1 With No Annoyance	(476)	(67)	(140)	(75)	(194)
High complaints	-%	1%	-%	-%	-%
Moderate complaints	2	-	1	1	3
Low complaints	98	99	99	99	97

TABLE 33 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C_2 And Feelings Complaints Successful	(85)	(7)	(23)	(16)	(39)
High complaints	1%	14%	-%	-%	-%
Moderate complaints	2	-	4	6	-
Low complaints	97	86	96	94	100
C_3 And Feelings Complaints Not Successful	(391)	(60)	(117)	(59)	(155)
High complaints	-%	-%	-%	-%	-%
Moderate complaints	2	-	1	-	4
Low complaints	98	100	99	100	96
III. All Respondents Feel Booms are Not Necessary Locally	(378)	(68)	(130)	(56)	(124)
High complaints	8%	15%	7%	5%	6%
Moderate complaints	16	17	18	13	13
Low complaints	76	68	75	82	81
A_1 With Great Annoyance	(128)	(28)	(44)	(17)	(39)
High complaints	16%	32%	14%	6%	13%
Moderate complaints	30	36	36	35	15
Low complaints	54	32	50	59	72
A_2 And Feelings Complaints Successful	(55)	(10)	(24)	(10)	(11)
High complaints	18%	40%	17%	10%	9%
Moderate complaints	44	50	46	40	36
Low complaints	38	10	37	50	55
A_3 And Feelings Complaints Not Successful	(73)	(18)	(20)	(7)	(28)
High complaints	15%	28%	10%	-%	14%
Moderate complaints	19	28	25	29	7
Low complaints	66	44	65	71	79
B_1 With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
High complaints	6%	5%	3%	9%	8%
Moderate complaints	12	5	13	-	22
Low complaints	82	90	84	91	70
B_2 And With Feelings Complaints Successful	(38)	(7)	(10)	(8)	(13)
High complaints	8%	-%	10%	12%	8%
Moderate complaints	24	14	30	-	38
Low complaints	68	86	60	88	54
B_3 And Feelings Complaints Not Successful	(72)	(14)	(20)	(15)	(23)
High complaints	6%	7%	-%	7%	9%
Moderate compalints	6	-	5	-	13
Low complaints	88	93	95	93	78

TABLE 33 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C_1 With Little or Moderate Annoyance	(140)	(19)	(56)	(16)	(49)
High complaints	1%	-%	4%	-%	-%
Moderate complaints	6	5	7	6	4
Low complaints	93	95	89	94	96
C_2 And With Feelings Complaints Successful	(35)	(3)	(16)	(4)	(12)
High complaints	6%	-%	13%	-%	-%
Moderate complaints	6	-	6	25	-
Low complaints	88	100	81	75	100
C_3 And Feelings Complaints Not Successful	(105)	(16)	(40)	(12)	(37)
High complaints	-%	-%	-%	-%	-%
Moderate compalints	6	6	8	-	5
Low complaints	94	94	92	100	95

FIGURE 3

COMPLAINT POTENTIAL FOR SONIC BOOMS

ON FIRST INTERVIEW

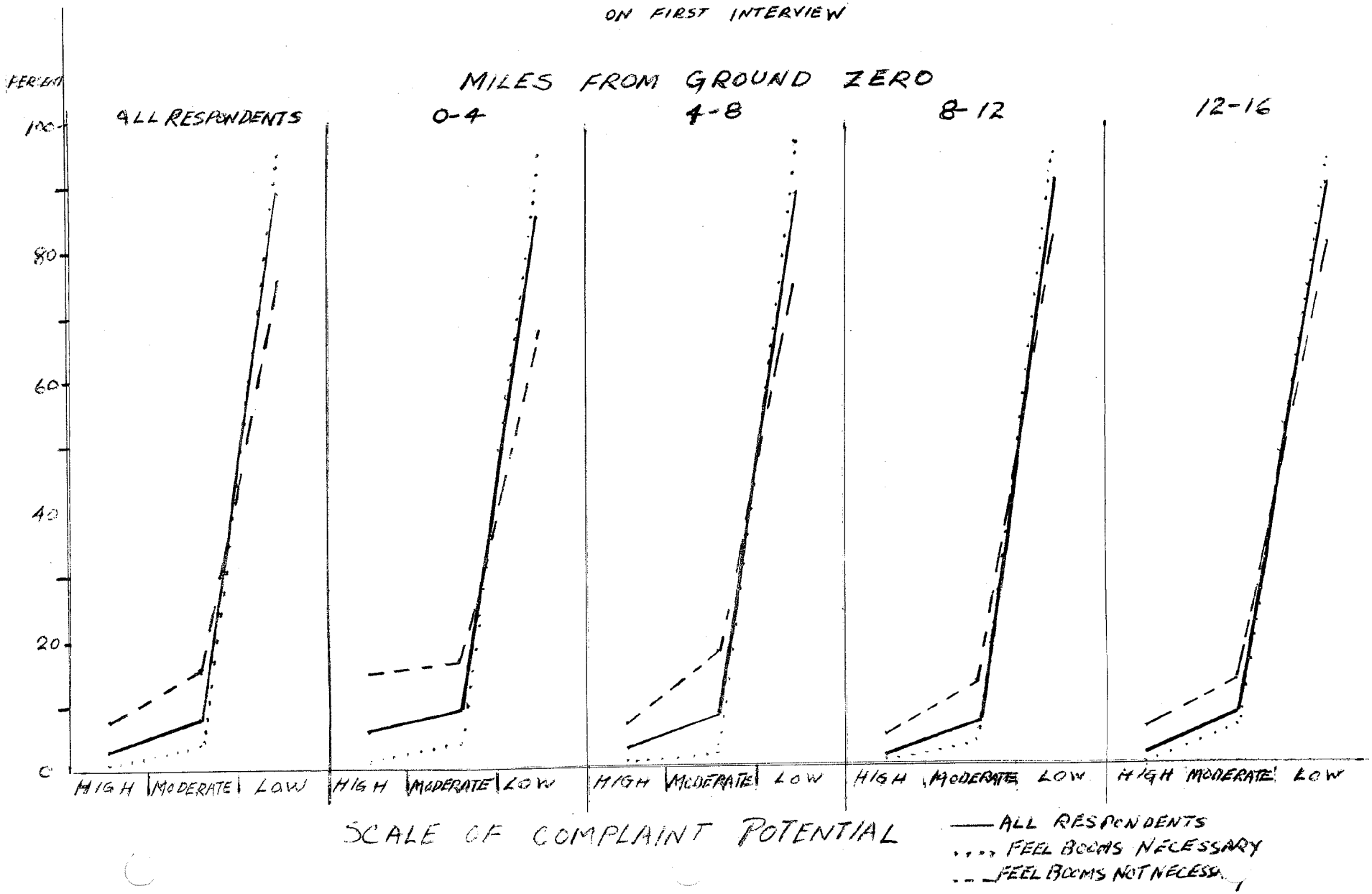
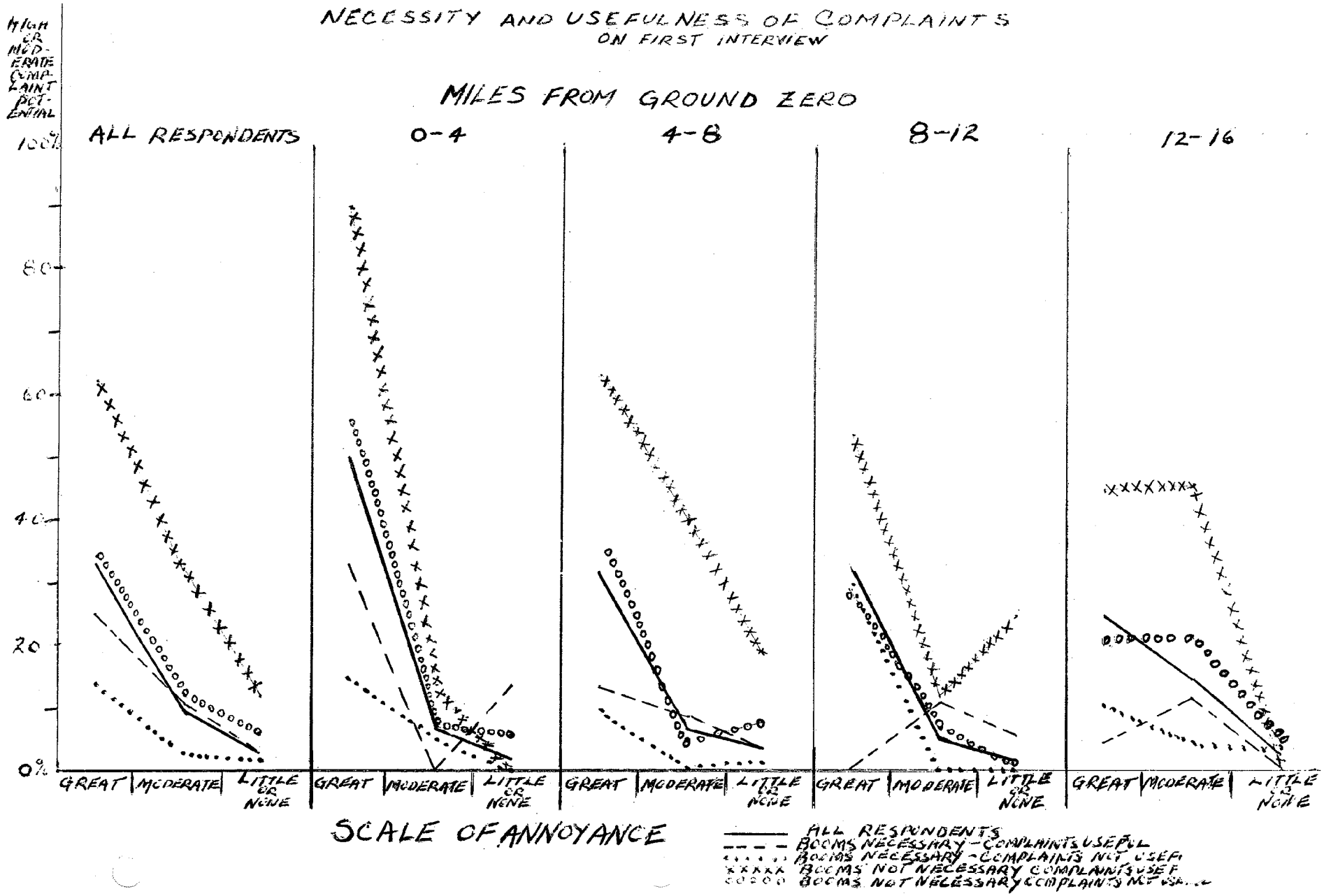


FIGURE 4

COMPLAINT POTENTIAL FOR SONIC BOOMS

BY

NECESSITY AND USEFULNESS OF COMPLAINTS ON FIRST INTERVIEW



3. Complaint Potential with Sonic Booms if Stimulated by a Local Organization

In Table 32 it was shown that a larger number of respondents expressed willingness to complain if they were asked to do so by a local organization. This phenomenon has been widely experienced in that some people will be reluctant to say "No" if approached by a local organization to complain. Likewise, some people will be reluctant to complain, even if they feel like it, unless stimulated by an organized campaign. To measure the influence of an organized drive for complaints, the following question was asked about each form of complaint: "If a local organization asked you, do you think you would very likely, that you might but you're not sure, or that you probably wouldn't (write or telephone, etc)?" The answers shown in Table 32 have been combined into a summary Guttman Scale of complaint potential as follows:

Scale Description	Items
High complaint potential	Would very likely sign a petition or might help set up committee
Moderate complaint potential	Might visit official or very likely would write or telephone
Low complaint potential	Would do nothing.

As Table 34 and Figure 5 indicate, the overall complaint potential rises to 27%, if complaints are sponsored by a local organization. The closest respondents report 10% more complaint potential than the most distant residents. Other areas report about the same readiness to complain. When annoyance is considered as a variable, the complaint potential rises further, to 56%, for the greatly annoyed compared to only 33% when there is no organized campaign. When the necessity of the boom is also included, differences by geographic area disappear but variations due to annoyance persist. The same is true for those who feel the boom is not necessary, although the closest residents with great annoyance who feel the boom is not necessary report an 86% complaint potential compared to only 65% for the comparable distant residents. Due to the small samples involved, however, such a difference could have occurred by chance in 10 out of 100 cases. Further considering the last factor included in Table 34, belief in the possible success of complaining, the closest area with greatly annoyed who feel the boom is not necessary and who feel complaining can be successful report 100% complaint potential. Again the small size of the sample must be considered, but the range among the different geographic areas is from a low of 82% for 11 residents most distant to 100% for 10 residents closest to ground zero. Quite clearly the combination of negative variables under an organized campaign can produce an extremely high complaint potential.

TABLE 34

COMPLAINT POTENTIAL FOR BOOMS WHEN LOCAL ORGANIZATION ASKS TO COMPLAIN BY GEOGRAPHIC LOCATION, ANNOYANCE, FEELINGS ABOUT NECESSITY OF HAVING BOOM LOCALLY, AND FEELINGS ABOUT POTENTIAL SUCCESS OF COMPLAINTS

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
High complaints	9%	9%	10%	7%	8%
Moderate complaints	18	24	19	16	15
Low complaints	73	67	71	77	77
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
High complaints	27%	27%	29%	27%	26%
Moderate complaints	29	37	30	30	22
Low complaints	44	36	41	43	52
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
High complaints	7%	3%	7%	8%	7%
Moderate complaints	21	26	20	15	22
Low complaints	72	71	73	77	71
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
High complaints	3%	4%	4%	-%	3%
Moderate complaints	12	17	14	12	9
Low complaints	85	79	82	88	88
II. All Respondents Feel Booms Necessary Locally	(767)	(124)	(230)	(112)	(301)
High complaints	3%	2%	5%	3%	3%
Moderate complaints	13	17	15	11	10
Low complaints	84	81	80	86	87
A_1 With Great Annoyance	(104)	(16)	(36)	(13)	(39)
High complaints	10%	-%	17%	-%	10%
Moderate complaints	24	25	25	31	21
Low complaints	66	75	58	69	69
A_2 And Feelings Complaints Successful	(32)	(3)	(15)	(3)	(11)
High complaints	16%	-%	27%	-%	9%
Moderate complaints	22	33	20	33	18
Low complaints	62	67	53	67	73
A_3 And Feelings Complaints Not Successful	(72)	(13)	(21)	(10)	(28)
High complaints	7%	-%	9%	-%	11%
Moderate complaints	25	23	29	30	21
Low complaints	68	77	62	70	68

TABLE 34 CONTINUED

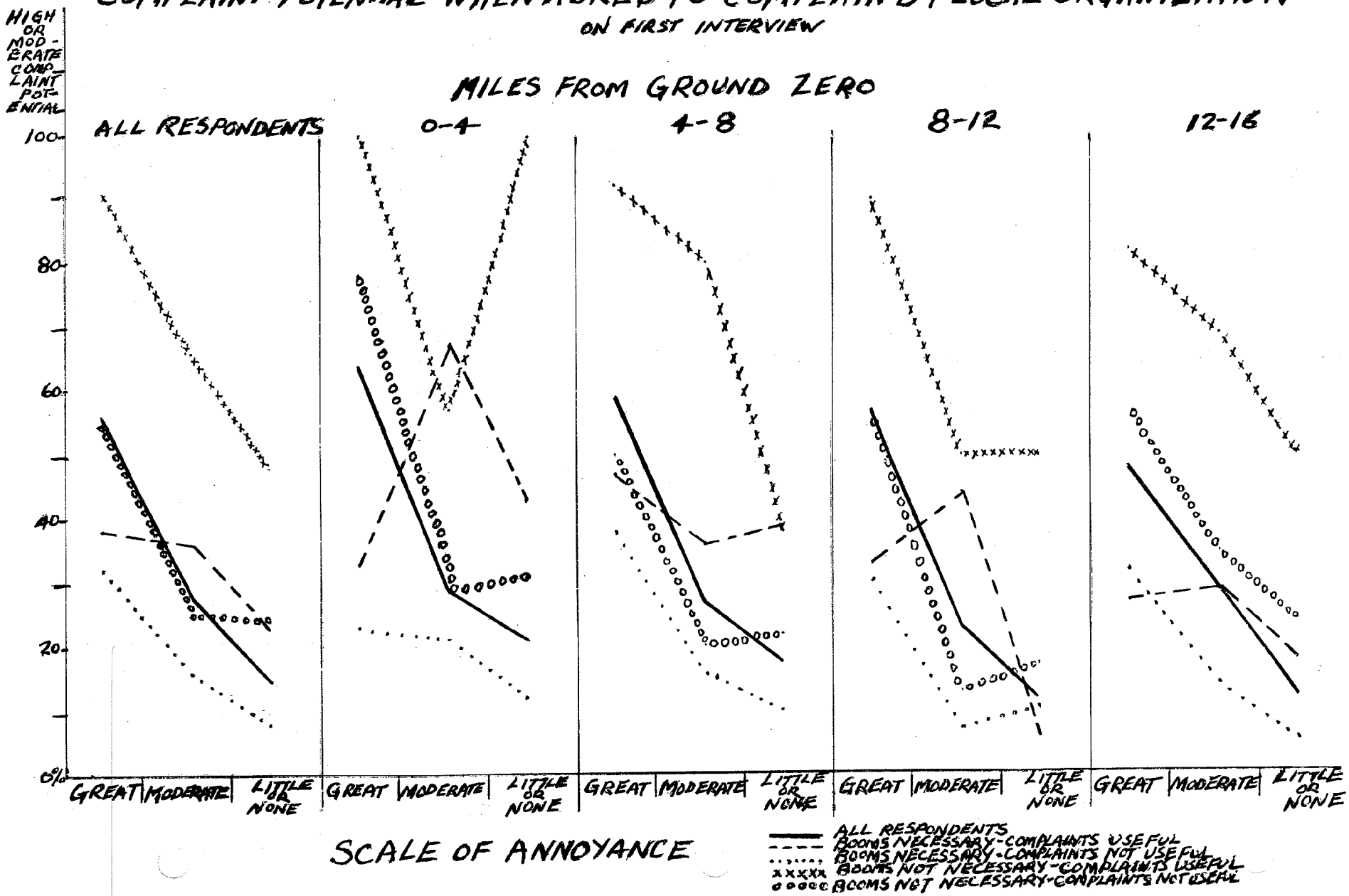
	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B_1 With Little or Moderate Annoyance	(137)	(41)	(54)	(24)	(68)
High complaints	5%	5%	4%	13%	4%
Moderate complaints	16	20	17	8	15
Low complaints	79	75	79	79	81
B_2 And Feelings Complaints Successful	(47)	(3)	(11)	(9)	(24)
High complaints	13%	-%	9%	22%	12%
Moderate complaints	23	67	27	22	17
Low complaints	64	33	64	56	71
B_3 And Feelings Complaints Not Successful	(140)	(38)	(43)	(15)	(44)
High complaints	3%	5%	2%	7%	-%
Moderate complaints	13	16	14	-	14
Low complaints	84	79	84	93	86
C_1 With No Annoyance	(476)	(67)	(140)	(75)	(194)
High complaints	1%	2%	2%	-%	1%
Moderate complaints	10	13	12	9	6
Low complaints	89	85	86	91	93
C_2 And With Feelings Complaints Successful	(85)	(7)	(23)	(16)	(39)
High complaints	2%	-%	4%	-%	3%
Moderate complaints	21	43	35	6	15
Low complaints	77	57	61	94	82
C_3 And Feelings Complaints Not Successful	(391)	(60)	(117)	(59)	(155)
High complaints	1%	2%	2%	-%	1%
Moderate complaints	7	10	8	10	4
Low complaints	92	88	90	90	95
III. All Respondents Feel Booms Not Necessary Locally	(378)	(68)	(130)	(56)	(124)
High complaints	20%	21%	20%	16%	20%
Moderate complaints	28	38	25	25	26
Low complaints	52	41	55	59	54
A_1 With Great Annoyance	(128)	(28)	(44)	(17)	(39)
High complaints	41%	43%	39%	47%	41%
Moderate complaints	32	43	34	29	23
Low complaints	27	14	27	24	36
A_2 And Feelings Complaints Successful	(55)	(10)	(24)	(10)	(11)
High complaints	42%	40%	42%	50%	36%
Moderate complaints	49	60	50	40	46
Low complaints	9	-	8	10	18

TABLE 34 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
A_3 And Feelings Complaints Not Successful	(73)	(18)	(20)	(7)	(28)
High complaints	36%	45%	35%	43%	43%
Moderate complaints	19	33	15	14	14
Low complaints	45	22	50	43	43
B_1 With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
High complaints	8%	-%	13%	4%	11%
Moderate complaints	31	38	27	22	36
Low complaints	61	62	60	74	53
B_2 And With Feelings Complaints Successful	(38)	(7)	(10)	(8)	(13)
High complaints	18%	-%	30%	12%	23%
Moderate complaints	48	57	50	38	46
Low complaints	34	43	20	50	31
B_3 And Feelings Complaints Not Successful	(72)	(14)	(20)	(15)	(23)
High complaints	3%	-%	5%	-%	4%
Moderate complaints	22	29	15	13	31
Low complaints	75	71	80	87	65
C_1 With No Annoyance	(140)	(19)	(56)	(16)	(49)
High complaints	9%	11%	9%	-%	10%
Moderate complaints	21	31	18	25	21
Low complaints	70	58	73	75	69
C_2 And With Feelings Complaints Successful	(35)	(3)	(16)	(4)	(12)
High complaints	14%	-%	19%	-%	17%
Moderate complaints	34	100	19	50	33
Low complaints	52	-	62	50	50
C_3 And Feelings Complaints Not Successful	(105)	(16)	(40)	(12)	(37)
High complaints	7%	12%	5%	-%	8%
Moderate complaints	17	19	17	17	16
Low complaints	76	69	78	83	76

FIGURE 5

COMPLAINT POTENTIAL WHEN ASKED TO COMPLAIN BY LOCAL ORGANIZATION ON FIRST INTERVIEW



4. Analysis of Complaints Received by Local Air Force Base

As mentioned in the Introduction, as part of the advance public relations information program, local residents were advised that they could call nearby Scott Air Force Base if they felt the sonic booms caused any damage. It should be noted that the Air Base is located near Belleville, Ill., and involved a long distance telephone call to register a complaint. Likewise, with a limited number of trunk lines, it often required repeated calls to get through to the complaint operators. These factors undoubtedly reduce the number of complaints received by the Air Base. Table 35 indicates the number of complaints and formal claims for damages received by the Air Base. As can be seen, almost 3000 complaints were received by the end of January, when NORC interviewing ceased. The sharp increase in complaints received in April will be discussed a little later. An analysis of complaints received up to the time NORC interviewing ceased will serve as an independent check on the validity of interview responses.

TABLE 35

COMPLAINTS AND CLAIMS RECEIVED BY SCOTT AIR FORCE BASE
July 1961 - June 1962

Year	Month	Complaints		Claims	
		Number	Cumulative Number	Number	Cumulative Number
1961	July	224	224	60	60
	August	344	568	47	107
	September	672	1240	75	182
	October	575	1815	91	273
	November	302	2117	60	333
	December	273	2390	65	398
1962	January	569	2959	85	483
	February	287	3246	80	563
	March	342	3588	104	667
	April	1177	4765	100	767
	May	211	4976	78	845
	June	41	5017	137	982

According to the 1960 Census, there were 530,912 families in the St.Louis metropolitan area. Not all of these families were subjected to the booms, and since 1960 there was some additional growth. For purposes of making a rough calculation of the number of complaints that could have been expected by the Air Force on the basis of NORC interview responses, it will be assumed that 500,000 families were subjected to the boom. As Table 32 indicates, 0.6% of all people said they actually telephoned or wrote to officials complaining about the booms, and 9% said they felt like doing so. Multiplying the 500,000 base by 0.6%, a total of 3000 estimated complaints is derived, compared to the actual total of 2959 shown in Table 34. This tends to validate the responses of the NORC interviews. Further using the 9% factor, it can be estimated that 45,000 persons actually felt like contacting the Air Base, but for a variety of reasons failed to do so. In an area as large as

St. Louis, even a small percentage often results in a large number of complaints. The Air Force Judge Advocate General's office at Scott Air Force Base collected systematic information on each complaint received. With their cooperation, 3114 of the complaints received through early February 1962 have been analyzed. Table 36 indicates that more complaints are received from residents living 4-8 miles from ground zero than from any other distance group. A total of 62% of all complainers live within 8 miles of ground zero and 85% within 12 miles of the flight tract. Only 6% of the complaints are received from persons living more than 16 miles distant. The similarity in numbers of complaints in the 0-12 miles and the greater number in the 0-4 mile group compared to the 12-16 mile group, also confirms the general pattern found in the NORC interviews. The geographic cut-off point in complaints, however, appears to be somewhere beyond the 16 mile point.

TABLE 36

COMPLAINTS RECEIVED BY SCOTT AIR FORCE BASE BY DISTANCE FROM GROUND ZERO

Miles from Ground Zero	Complaints Received		
	Number	Percent	Cumulative Percent
Total	3114	100%	-
0-4	705	24	24%
4-8	1078	38	62
8-12	791	23	85
12-16	318	9	94
16+	222	6	100

About two-thirds of all complaints were made by telephone and one-third by letter. As Table 37 shows, over 40% of all complaints were received within 24 hours of an offending boom, two-thirds within 3 days and 85% within a week of the time the boom is supposed to have occurred. The time pattern for the 0-16 mile group is similar, but the areas over 16 miles away file their complaints somewhat more slowly, with 31% of all complaints received after one week.

TABLE 37

TIME LAG BETWEEN BOOM DISTURBANCE AND RECEIPT OF COMPLAINT BY SCOTT AIR FORCE BASE

Days Lag	Percent	Cumulative Percent
Within 1	41%	41%
2	16	57
3	10	67
4	8	75
5	4	79
6	4	83
7	2	85
More than 7	15	100

Tye type of damage claimed is shown in Table 38. It is interesting to note that only 19 out of the 3114 complaints, or only 0.6% mentioned no damage claimed. In over 99% of the complaints, a damage claim was involved. Annoyance alone did not produce enough incentive to take the time and trouble to file a complaint. As Table 38 indicates, the rank ordering of types of damages claimed is similar to those shown in Table 23, as reported in the NORC interviews. The amount of plaster damage shown in these complaints, however, is less than the interview reports and the amount of glass damage is somewhat greater.

TABLE 38

TYPES OF DAMAGE CLAIMED IN COMPLAINTS TO SCOTT AIR FORCE BASE

Type of Damage	Total (3114)	Cases Examined by Engineers (85)
Cracked, damaged structures	16%	7
Cracked walls and plaster	43	45
Cracked storm windows	6	9
Cracked large plate glass (more than 3')	9	8
Cracked small glass windows	19	24
Broken tiles and fixed objects	8	5
Broken moveable objects	3	5
Knocked down objects	3	9
Damaged appliances	4	4
Damage to people	1	-
Type of damage not specified	5	-

Representatives of Clark, Buhr and Nexsen, a firm of architectural and structural engineers examined 85 claims of damage within a few days of the alleged occurrence. A brief summary of their findings is shown in Table 39. As Table 38 indicates the small sample of 85 cases was fairly representative of all damage claims. Of special interest is the evaluation of validity of claims. Only 18% of all claims personally inspected were judged probably valid; 35 % were considered probably false, and 47% questionable.

TABLE 39

SUMMARY OF FINDINGS BY ENGINEERS ON DAMAGES CLAIMED

	Percent
1 - Type Structure	(85)
Commercial - frame	2%
masonry	13
Residential -frame	37
masonry	48
2 - Age of Structure	(85)
- 10 years	26%
10-20 years	4
20 + years	69
Don't know	1
3 - Basement in Structure	(85)
Yes	48%
No	24
Don't know	28
4 - Number Stories in Structure	(85)
One	38%
Two	55
Three or more	7
5 - Condition of Structure	(85)
Excellent	25%
Fair	45
Poor	30
6 - Evidence of Settlement	(85)
Yes	60%
No	19
Don't know	21
7 - Validity of Claims	(85)
All probably legitimate	14%
Part legitimate, part questionable	1
Part legitimate, part probably false	3
All questionable	43
Part questionable, part false	4
All probably false	35

Events in the St.Louis area subsequent to January 1962 are of particular significance to the interpretation of the survey findings. A brief evaluation will be suggested and, then, a detailed account of events made by Lt.Col. Almon A. Tucker, Staff Judge Advocate at Scott Air Force Base, will be presented.

As Table 4 previously showed, there were 19 confirmed booms in November 1961 while the initial interview took place, of which 13 were special test flights concentrated within a week's time, and 8 of which occurred about 11 P.M. or later. During December there was a sharp drop in booms to only 6. In January, prior to the second wave of interviews there were only four test flights, all before 11 P.M. This sharp fall-off in boom exposure will be discussed in a later section in connection with a discussion of second wave interviews. During the rest of January there were 21 additional booms (total of 25), and during February there were 15. During March, there were 22 booms and during April there were 20, of which 15 occurred within the five days April 2-6, 1962. In addition to the unusually heavy concentration of booms during this period, it is believed the intensity of some of the booms was unusually severe due to unusual operational maneuvers by the particular aircraft.

The observations of Lt.Col. Tucker about a "cumulative saturation point" may have some merit and should be further investigated. Certainly the importance of frequency and time of boom should be further studied. It should also be recalled that less than half of all respondents were convinced that others believed the booms were absolutely necessary, suggesting their own doubts about the unavoidability of the booms. The fact that a low complaint level may suddenly increase sharply if sponsored by local authorities and organizations has already been discussed in Table 34. If the full potential of 10-27% were to contact the Air Base, on the basis of 500,000 families, the total number of calls could have been 50,000-130,000. Obviously the announcement on April 6 that flights were being discontinued prevented the potential buildup in complaints. The entire experience underscores the danger of relying on unanalyzed overall complaint levels.

Lt.Col. Tucker's report follows:

> General public reaction to sonic boom phenomena was one of tolerance and forbearance through the period 5 July 1961 - 31 January 1962. Complaints and claims were received, of course, but the tenor of the letters generally was that of acceptance and understanding of the need for the training exercises. Since the first part of February, however, letters and telephone calls from complainants became noticeably more hostile and irate. The questions were invariably pressed, "How long are these booms to continue?" and "Why can't the runs be made somewhere else?". This rather smoldering public resentment was seized upon by the newspapers, especially the Editor of the Globe-Democrat, the only morning newspaper in St.Louis, and utilized as the backdrop for a series of articles which appeared in the paper during the period 2 - 8 April 1962 demanding the discontinuance of the bomb runs. Because it was within this relatively short period of time that the continuation of the booms became intolerable to the general populace in the vicinity of St.Louis, the following chronology of sonic boom events is given in detail:
>
> <u>Monday, 2 April</u>
>
> On Monday, there were three booms of moderate intensity at the following times and altitudes:

Time	Altitude
6:45 P.M.	45,600 feet
7:48 P.M.	42,000 feet
11:52 P.M.	45,000 feet

Tuesday, 3 April

On Tuesday evening, there were three booms of very great intensity. The night switchboard operators were deluged with calls of complaint, and one man insisted on speaking with the Base Commander. Instead, he was referred to Lieutenant Callahan, Assistant Base Claims Officer, of whom he demanded that the flights be stopped. This man was articulate, sober, and not the typical crank complainant, yet he was in a state of what may be termed frustrated indignity. This call is considered significant because later in the week this attitude was very prevalent in many complainants who were obviously in a state of great emotional disturbance and almost tearfully were demanding that the flights be stopped. The complainant on this night stated his intention of calling General Powers at SAC Headquarters or Bunker Hill Air Force Base, as soon as he finished talking to Lieutenant Callahan. The times and altitudes of the booms this day were as follows:

Time	Altitude
9:50 P.M.	48,000 feet
10:40 P.M.	47,300 feet
11:04 P.M.	48,000 feet

Wednesday, 4 April

The morning radio newscasts carried bulletins regarding a wall which had collapsed as a result of a sonic boom. A team of investigators from Scott visited the scene of the damage early in the morning and discovered that a section of weakened wall had fallen and that four witnesses who were playing cards in the house when the boom occurred actually felt and observed the collapse of the wall. The evening newspaper carried a front page story about the wall collapse, and evening television newscasts carried pictures of it. Two additional booms occurred this day in the early evening, as follows:

Time	Altitude
4:32 P.M.	46,000 feet
6:46 P.M.	46,000 feet

Thursday, 5 April

On Thursday, the morning newspaper carried a frong page picture and story of the collapse of the wall and various other items of alleged sonic boom damage in the St.Louis

area. In addition, an editorial appeared in which the Globe-Democrat retreated from its earlier stand that the booms were necessary and should be borne patiently by the populace. The paper now said that the flights were being overdone. Over 75 telephone complaints were received this day at the Claims Office, Scott, including calls from three almost hysterical people. One woman claimed that the aircraft creating a boom nearly struck her roof. Another woman stated that her sick husband was on the verge of hysteria, and a minister stated that he was flying to Washington immediately to see that the flights were stopped. On this evening, Lt.Colonel Tucker, Staff Judge Advocate at Scott, was interviewed on several television newscasts, in an attempt to place the effects of sonic booms back into proper perspective. However, the late newscasts this same evening stated that officials at Scott had requested the Air Force to curtail the flights in an effort to restore better public relations between the base and the city. Two more booms occurred on this day as follows:

Time	Altitude
9:51 P.M.	43,500 feet
11:30 P.M.	44,000 feet

Friday, April 6

Both morning and evening newspapers again gave front page attention to the booms, this time carrying statements that the booms caused the death of two rare antelopes at the zoo, which had panicked at the sound and run into the concrete wall of their cages. The papers also noted that the Air Force had been requested to curtail the flights. Once again over 75 telephone complaints were received. Five more booms occurred on this day, at the following times and altitudes:

Time	Altitude
6:50 P.M.	45,000 feet
7:44 P.M.	48,000 feet
10:30 P.M.	40,000 feet
11:31 P.M.	46,000 feet
11:40 P.M.	46,000 feet

On the late television newscasts this evening both the CBS and NBC outlets announced that they had talked to the Pentagon and were informed that the B-58 flights would be stopped by May 1 because St.Louis was now so familiar to the flight crews that the city was no longer of any training value. This information was later verified through official channels.

Saturday and Sunday, 7-8 April

The weekend edition of the Globe-Democrat carried, as its front page headline, the announcement that as of 1 May the sonic boom flights over St. Louis would be discontinued.

From our experience with the sonic booms for the past ten months, those of us who have been connected with them feel that "the exposure" was just too long. Acceptance and toleration seemed to last for a period of roughly seven months. Thereafter, in February and March, the complaints became marked by their open hostility and undoubtedly portended the events which followed in April. In our opinion, a sort of "cumulative saturation point" was reached because the public was continuously subjected to sonic booms for such a long period of time.

D. Beliefs in Ability to Adjust to Military and Commercial Sonic Booms

1. Military Sonic Booms

The last series of questions in the initial interview asked the respondent to project himself into the future and predict his ability and what he believed to be the ability of others to get along with different types of boom situations. The actual format of the question was as follows: "If you heard only one of these military jet booms a day, do you think you could learn to live with it, or that you might but you're not sure, or that you probably couldn't learn to live with it?" Table 40 indicates that practically all respondents (96%) say they might be able to live with only one military boom a day. The nearest residents (0-4 miles) are only a little less agreeable than the most distant. The relationship can clearly be seen between acceptance and annoyance. Only 69% of the greatly annoyed vs. 94% of the not annoyed say they very likely would accept one boom a day. The further influence, an acceptance of feelings of necessity of having the boom locally, is seen, with 100% of the closest residents who have no annoyance and feel the boom is necessary saying they very likely would accept it, in comparison to only 54% of the most distant residents with opposite feelings of annoyance and attitudes toward the necessity of the boom. It should be noted that only 18% of the later most hostile group flatly say they probably couldn't live with one boom a day.

TABLE 40

REPORTED ABILITY TO ACCEPT ONE MILITARY BOOM PER DAY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	87%	81%	88%	88%	88%
Might accept	9	12	9	10	9
Couldn't accept	3	4	3	2	3
Don't know	1	3	-	-	-
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	69%	62%	74%	73%	68%
Might accept	19	25	17	17	18
Couldn't accept	11	11	9	10	14
Don't know	1	2	-	-	-
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	86%	79%	91%	83%	87%
Might accept	12	15	8	15	12
Couldn't accept	1	3	1	2	1
Don't know	1	3	-	-	-
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	94%	93%	92%	96%	95%
Might accept	5	2	6	4	4
Couldn't accept	*	-	1	-	1
Don't know	1	5	1	-	*
II. All Respondents Feel Booms Necessary	(767)	(124)	(230)	(112)	(301)
Very likely accept	93%	91%	94%	93%	93%
Might accept	6	5	6	6	6
Couldn't accept	1	2	*	1	1
Don't know	-	2	-	-	-
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	81%	69%	86%	77%	82%
Might accept	10	6	14	15	8
Couldn't accept	8	19	-	8	10
Don't know	1	6	-	-	-
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	90%	85%	94%	92%	90%
Might accept	9	12	6	8	10
Couldn't accept	-	-	-	-	-
Dont' know	1	3	-	-	-

TABLE 40 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	96%	100%	95%	96%	96%
Might accept	4	-	4	4	4
Couldn't accept	*	-	1	-	-
Don't know	-	-	-	-	-
III. All Respondents Feel Booms Not Necessary	(378)	(68)	(130)	(56)	(124)
Very likely accept	75%	63%	78%	79%	77%
Might accept	16	24	14	16	15
Couldn't accept	7	6	7	5	7
Don't know	2	7	1	-	1
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	60%	57%	64%	71%	54%
Might accept	26	36	20	17	28
Couldn't accept	14	7	16	12	18
Don't know	-	-	-	-	-
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	78%	67%	83%	74%	83%
Might accept	16	19	13	22	14
Couldn't accept	5	9	4	4	3
Don't know	1	5	-	-	-
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	87%	68%	86%	94%	92%
Might accept	8	11	11	6	4
Couldn't accept	1	-	2	-	2
Don't know	4	21	1	-	2

In Table 41 we see the responses when the projected condition is one military boom every hour during the day. From 87% who very likely would accept one military boom per day, the number falls to only 47% who very likely could live with one military boom per hour. Only 24%, however, flatly state they probably couldn't live with it, or couldn't say. The pattern of answers by distance, annoyance and feelings of necessity of boom is similar to the answers respecting one military boom per day.

None (0%) of the most hostile closest residents say they very likely could live with one military boom every hour, and only 29% of them even say they might be able to accept this frequency. In contrast 64% of the farthest residents with the most favorable views say they very likely could accept one boom per hour and only 8% say they couldn't.

TABLE 41

REPORTED ABILITY TO ACCEPT
ONE MILITARY BOOM PER HOUR DURING DAYTIME

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	47%	42%	44%	52%	49%
Might accept	29	25	34	26	27
Couldn't accept	21	26	20	18	22
Don't know	3	7	2	4	2
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	19%	7%	19%	33%	22%
Might accept	32	29	41	34	22
Couldn't accept	46	57	40	33	51
Don't know	3	7	-	-	5
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	41%	44%	42%	45%	37%
Might accept	31	21	32	32	35
Couldn't accept	25	27	24	19	26
Don't know	3	8	2	4	2
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	60%	58%	55%	63%	63%
Might accept	27	26	32	21	26
Couldn't accept	10	9	10	12	10
Don't know	3	7	3	4	1
II. All Respondents Feel Booms Necessary	(767)	(124)	(230)	(112)	(301)
Very likely accept	54%	51%	53%	61%	53%
Might accept	29	24	32	24	30
Couldn't accept	15	19	14	12	16
Don't know	2	6	1	3	1
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	26%	19%	31%	31%	23%
Might accept	33	31	42	39	23
Couldn't accept	39	50	27	30	49
Don't know	2	-	-	-	5
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	45%	46%	45%	59%	41%
Might accept	32	24	33	25	38
Couldn't accept	20	22	22	8	21
Don't know	3	8	-	8	-

TABLE 41 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	63%	61%	62%	67%	64%
Might accept	27	22	29	21	28
Couldn't accept	8	11	7	9	8
Don't know	2	6	2	3	-

Acceptance is even slightly less for the condition, "several military booms during the night." While 49% of the greatly annoyed said "No" to one per hour during the day, 57% said "No" to several during the night -- the differences between Tables 41 and 42, however, are generally small and not significant. It is clear that fewer nighttime booms are equated with more daytime ones. Figure 6 summarizes the relationships of annoyance and acceptance of military booms.

TABLE 42

REPORTED ABILITY TO ACCEPT
SEVERAL MILITARY BOOMS DURING THE NIGHT

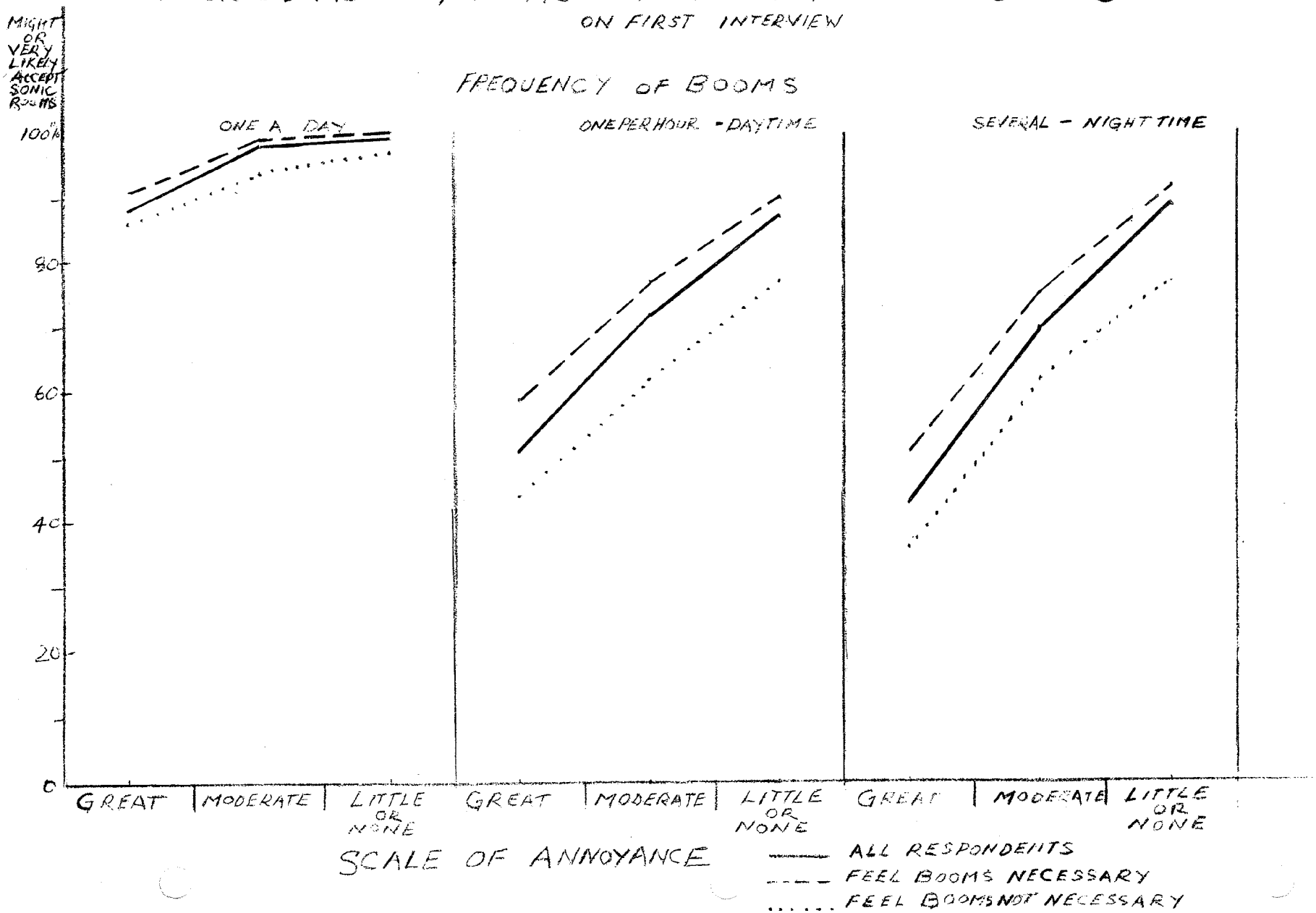
	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	49%	47%	48%	51%	51%
Might accept	26	17	29	28	26
Couldn't accept	22	28	21	19	21
Don't know	3	8	2	2	2
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	19%	14%	19%	23%	19%
Might accept	24	11	25	37	26
Couldn't accept	55	66	56	40	54
Don't know	2	9	-	-	1
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	40%	48%	42%	36%	35%
Might accept	30	18	33	36	33
Couldn't accept	26	26	24	26	28
Don't know	4	8	1	2	4
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	65%	64%	62%	68%	68%
Might accept	24	20	29	21	22
Couldn't accept	7	9	6	8	8
Don't know	4	7	3	3	2

TABLE 42 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
II. All Respondents Feel Booms Necessary	(767)	(124)	(230)	(112)	(301)
Very likely accept	57%	58%	57%	60%	56%
Might accept	26	19	28	29	26
Couldn't accept	15	19	14	10	17
Don't know	2	4	1	1	1
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	24%	25%	28%	15%	23%
Might accept	27	19	22	54	26
Couldn't accept	48	50	50	31	51
Don't know	1	6	-	-	-
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	43%	56%	39%	50%	37%
Might accept	32	17	37	33	37
Couldn't accept	22	22	24	13	23
Don't know	3	5	-	4	3
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	69%	67%	70%	71%	68%
Might accept	23	19	26	23	23
Couldn't accept	6	9	2	5	8
Don't know	2	5	2	1	1
III. All Respondents Feel Booms Not Necessary	(378)	(68)	(130)	(56)	(124)
Very likely accept	34%	28%	32%	34%	40%
Might accept	25	15	32	27	23
Couldn't accept	35	44	33	36	32
Don't know	6	13	3	3	5
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	14%	7%	12%	29%	15%
Might accept	22	7	27	24	26
Couldn't accept	61	75	61	47	56
Don't know	3	11	-	-	3
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	35%	33%	47%	22%	33%
Might accept	27	19	27	39	25
Couldn't accept	33	33	23	39	36
Don't know	5	15	3	-	6
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	51%	52%	39%	56%	63%
Might accept	26	21	38	12	21
Couldn't accept	14	11	16	19	10
Don't know	9	16	7	13	6

FIGURE 6

REPORTED ABILITY TO ACCEPT MILITARY SONIC BOOMS
ON FIRST INTERVIEW



2. Commercial Sonic Booms

The ultimate objective of this research is to assess acceptability of commercial supersonic booms. In the absence of commercial supersonic planes, military jets had to be used in this study design. Acceptability of military booms, however, are recognized as possibly different from acceptability of future commercial transport booms. To get some approximation of the differences in attitudes toward military and civilian operations a special series of questions was asked.

Respondents were first asked to rate the importance of commercial aircraft and the general air transportation industry. As Table 43 indicates almost 3 out of 4 feel it is very important to our national welfare, with the closest areas only slightly less enthusiastic in their support of civilian air transportation.

TABLE 43

REPORTED IMPORTANCE OF CIVIL AIR TRANSPORTATION TO OUR NATIONAL WELFARE

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
Feelings of Importance	(1145)	(192)	(360)	(168)	(425)
Very	74%	66%	74%	79%	76%
Moderately	16	17	14	14	17
Little	4	8	3	5	3
Not important	3	5	5	1	2
Don't know	3	4	4	1	2

Since McDonnell Aircraft is located in St.Louis at the civil airport, all respondents were also asked, "Do you feel the civilian air transportation industry has any special importance to the St.Louis area besides its national importance?" Over 80% said it had special local importance, with all distance groups answering about the same.

As a final evaluation question, respondents were asked, "As you may have read, engineers are now developing a civilian supersonic airplane that may make a loud boom as it flies across the country. How important do you feel it is for us to have supersonic airplanes that fly faster than the speed of sound?" Answers to this question, shown in Table 44, indicate that only 1 out of 4 feel supersonic aircraft are very important, and less than half feel it is even moderately important; 46% said it is not important or couldn't say. Strangely enough, slightly more of the closest residents feel civilian supersonic flights are very important. Also surprising is the only slightly greater acceptance of civilian supersonic planes by the persons not annoyed by military booms; 41% of the not annoyed flatly reject such civilian planes compared to 52% of the greatly annoyed. Likewise, feelings about the necessity of military booms has no appreciable influence on rating the importance of civilian supersonic aircraft. Such sharp differentiation between military and civilian operations, with almost half of all persons downgrading civilian operations suggests serious problems in gaining acceptance of civilian booms.

TABLE 44

REPORTED IMPORTANCE OF SUPERSONIC CIVILIAN AIRCRAFT

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very important	25%	32%	28%	20%	21%
Moderate	17	12	13	20	22
Little importance	12	9	10	19	13
Not important	41	40	45	37	39
Don't know	5	7	4	4	5
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very important	22%	36%	19%	17%	21%
Moderate	14	18	12	7	15
Little importance	12	5	13	13	14
Not important	49	36	52	60	47
Don't know	3	5	4	3	3
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very important	22%	26%	26%	11%	21%
Moderate	14	6	11	28	16
Little importance	14	6	12	23	15
Not important	45	55	46	34	42
Don't know	5	7	5	4	6
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very important	28%	34%	33%	26%	22%
Moderate	19	13	14	20	25
Little importance	12	14	8	19	12
Not important	36	31	40	32	35
Don't know	5	8	5	3	6
II. All Respondents Feel Booms Necessary	(767)	(124)	(230)	(112)	(301)
Very important	25%	33%	30%	21%	20%
Moderate	19	15	14	21	24
Little importance	13	12	11	18	13
Not important	40	38	43	35	40
Don't know	3	2	2	5	3
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very important	22%	31%	25%	15%	18%
Moderate	19	31	19	8	18
Little importance	14	6	11	15	18
Not important	42	32	42	54	44
Don't know	3	-	3	8	2

TABLE 44 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very important	24%	32%	26%	8%	24%
Moderate	16	7	9	33	19
Little importance	13	7	15	21	13
Not important	45	51	48	34	44
Don't know	2	3	2	4	-
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very important	27%	34%	33%	27%	20%
Moderate	20	16	15	20	26
Little importance	13	17	9	17	12
Not important	37	31	41	32	38
Don't know	3	2	2	4	4
III. All Respondents Feel Booms Not Necessary	(378)	(68)	(130)	(56)	(124)
Very important	24%	30%	25%	18%	23%
Moderate	12	6	10	16	15
Little importance	11	4	8	21	14
Not important	43	44	48	43	37
Don't know	10	16	9	2	11
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very important	23%	39%	14%	17%	23%
Moderate	9	11	7	6	13
Little importance	10	4	14	12	10
Not important	54	39	61	65	51
Don't know	4	7	4	-	3
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very important	18%	14%	27%	13%	17%
Moderate	13	5	13	22	11
Little importance	14	5	7	26	17
Not important	43	62	43	35	39
Don't know	12	14	10	4	16
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very important	31%	32%	34%	25%	29%
Moderate	13	-	11	19	18
Little importance	11	5	5	25	14
Not important	32	32	39	31	25
Don't know	13	31	11	-	14

Following the above questions on importance of civilian air transportation, direct questions were asked about projected acceptability of commerical sonic booms. Answers were requested for the respondent's own feelings and those of others as seen by the respondent. This projective technique has already been discussed as a useful way to measure possibly hidden feelings of the respondent. The actual question was as follows: "If this area

received a loud boom from a civilian supersonic airplane every hour or so during the daytime, do you think most people around here would very likely get used to it, that they might but you're not sure or do you think they probably would not get used to it? -- How about yourself. . .?"

Tables 45 and 46 present answers regarding daytime flights, while Tables 47 and 48 reflect answers to night flights. In general respondents more often say they themselves are very likely able to live with civilian booms than they believe others are able to. The number who say flatly they are not able to adjust to civilian booms, also usually attribute equal inability to accept them to others. As Table 45 indicates only 19% feel others are very likely to accept daytime booms, compared to 31% who say they, themselves would very likely accept them. Likewise 51% say others couldn't accept daytime civilian booms or they don't know the feelings of others, compared to 44% who themselves reject civilian daytime booms. There are only slight differences in acceptability by feelings of annoyance and the necessity of military booms.

TABLE 45

REPORTED ABILITY OF OTHERS
TO ACCEPT ONE CIVILIAN BOOM PER HOUR DURING THE DAY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	19%	19%	19%	18%	17%
Might accept	30	32	34	29	27
Couldn't accept	41	35	36	46	47
Don't know	10	14	11	7	9
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	11%	9%	11%	10%	11%
Might accept	28	21	40	20	22
Couldn't accept	52	52	41	63	59
Don't know	9	18	8	7	8
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	15%	18%	17%	19%	12%
Might accept	32	35	37	34	24
Couldn't accept	44	34	40	43	52
Don't know	9	13	6	4	12
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	23%	25%	24%	21%	22%
Might accept	31	36	30	29	30
Couldn't accept	36	27	31	42	40
Don't know	10	12	15	8	8

TABLE 45 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
II. All Respondents Feel Boom Necessary Locally	(767)	(124)	(230)	(112)	(301)
Very likely accept	21%	24%	24%	21%	18%
Might accept	29	32	31	29	28
Couldn't accept	41	33	34	45	48
Don't know	9	11	11	5	6
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	12%	19%	14%	8%	8%
Might accept	28	19	39	23	23
Couldn't accept	49	50	36	61	56
Don't know	11	12	11	8	13
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	17%	17%	19%	25%	12%
Might accept	30	37	31	25	27
Couldn't accept	46	32	48	46	54
Don't know	7	14	2	4	7
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	25%	30%	28%	23%	21%
Might accept	29	31	29	31	29
Couldn't accept	37	30	29	41	44
Don't know	9	9	14	5	6
III. All Respondents Feel Boom Not Necessary Locally	(378)	(68)	(130)	(56)	(124)
Very likely accept	13%	10%	12%	13%	16%
Might accept	33	34	38	30	26
Couldn't accept	41	38	38	48	44
Don't know	13	18	12	9	14
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	10%	4%	9%	12%	15%
Might accept	27	21	41	18	20
Couldn't accept	55	54	45	64	62
Don't know	8	21	5	6	3
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	14%	19%	13%	13%	11%
Might accept	34	33	47	44	20
Couldn't accept	38	38	27	39	47
Don't know	14	10	13	4	22
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	16%	10%	14%	12%	20%
Might accept	35	53	32	25	35
Couldn't accept	31	16	38	44	27
Don't know	18	21	16	19	18

TABLE 46

REPORTED OWN ABILITY
TO ACCEPT ONE CIVILIAN BOOM PER HOUR DURING THE DAY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	31%	34%	33%	29%	28%
Might accept	25	24	26	25	25
Couldn't accept	41	37	39	44	44
Don't know	3	5	2	2	3
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	15%	16%	16%	10%	15%
Might accept	22	14	28	20	21
Couldn't accept	60	66	51	67	64
Don't know	3	4	5	3	-
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	27%	32%	28%	32%	19%
Might accept	25	27	23	28	25
Couldn't accept	45	34	49	40	52
Don't know	3	7	-	-	4
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	38%	45%	42%	34%	35%
Might accept	27	27	27	25	27
Couldn't accept	32	24	29	39	35
Don't know	3	4	2	2	3
II. All Respondents Feel Boom Necessary	(767)	(124)	(230)	(112)	(301)
Very likely accept	34%	41%	38%	33%	28%
Might accept	24	24	25	24	24
Couldn't accept	40	32	36	41	47
Don't know	2	3	1	2	1
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	19%	38%	22%	8%	13%
Might accept	20	6	25	23	20
Couldn't accept	58	56	47	61	67
Don't know	3	-	6	8	-
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	26%	34%	24%	42%	18%
Might accept	24	29	20	21	25
Couldn't accept	47	29	56	37	54
Don't know	3	8	-	-	3

TABLE 46 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	40%	45%	47%	35%	35%
Might accept	25	25	26	25	25
Couldn't accept	34	28	25	39	40
Don't know	1	2	2	1	-
III. All Respondents Feel Boom Not Necessary	(378)	(68)	(130)	(56)	(124)
Very likely accept	25%	24%	25%	21%	27%
Might accept	27	24	28	27	28
Couldn't accept	44	45	45	50	39
Don't know	4	7	2	2	6
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	12%	4%	11%	12%	18%
Might accept	23	18	29	18	20
Couldn't accept	62	71	55	70	62
Don't know	3	7	5	-	-
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	27%	28%	37%	22%	22%
Might accept	27	24	27	35	25
Couldn't accept	43	43	36	43	47
Don't know	3	5	-	-	6
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	34%	47%	29%	31%	37%
Might accept	32	31	28	25	37
Couldn't accept	27	11	41	38	14
Don't know	7	11	2	6	12

Acceptability of nighttime civilian booms is even lower than daytime reports. Only 17% feel others are very likely to accept nighttime booms compared to 29% who say they, themselves would very likely accept them. This compares to 49% who say they can very likely accept military booms. Almost 60% say others will reject night booms and almost half (48%) reject it for themselves. The differences in acceptance of nighttime civilian booms is more closely related to annoyance with military booms and feelings about necessity of military booms, but even 36% of those with the most favorable attitudes reject nighttime civilian booms compared to only 8% who reject comparable military booms. Figure 7 summarizes the relationship between annoyance and acceptance of civilian booms.

TABLE 47

REPORTED ABILITY OF OTHERS
TO ACCEPT SEVERAL CIVILIAN BOOMS DURING THE NIGHT

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	17%	17%	18%	18%	15%
Might accept	26	28	27	26	24
Couldn't accept	47	42	44	51	51
Don't know	10	13	11	5	10
A.With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	8%	5%	11%	-%	9%
Might accept	17	18	20	17	14
Couldn't accept	67	66	65	77	65
Don't know	8	11	4	6	12
B.With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	13%	18%	14%	15%	9%
Might accept	27	26	29	32	25
Couldn't accept	50	42	49	51	55
Don't know	10	14	8	2	11
C.With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	22%	23%	22%	25%	19%
Might accept	29%	35%	29%	26%	28%
Couldn't accept	38	29	33	43	44
Don't know	11	13	16	6	9
II.All Respondents Feel Boom Necessary Locally	(767)	(124)	(230)	(112)	(301)
Very likely accept	19%	21%	21%	23%	16%
Might accept	26	31	26	23	25
Couldn't accept	45	37	41	48	51
Don't know	10	11	12	6	8
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	8%	12%	8%	-%	8%
Might accept	17	19	25	8	13
Couldn't accept	63	50	61	84	61
Don't know	12	19	6	8	18
B. With Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	15%	17%	17%	21%	10%
Might accept	25	29	18	29	25
Couldn't accept	52	42	59	46	56
Don't know	8	12	6	4	9
C. With No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	24%	26%	26%	28%	19%
Might accept	28	34	29	24	27
Couldn't accept	39	31	29	43	47
Don't know	9	9	16	5	7

TABLE 47 CONTINUED

	Miles from Ground Zero				
III. All Respondents Feel Booms Not Necessary Locally	Total	0-4	4-8	8-12	12-16
	(378)	(68)	(130)	(56)	(124)
Very likely accept	11%	10%	12%	7%	12%
Might accept	26	24	28	32	23
Couldn't accept	51	50	48	57	51
Don't know	12	16	12	4	14
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	9%	-%	14%	-%	10%
Might accept	17	18	16	23	16
Couldn't accept	70	75	68	71	69
Don't know	4	7	2	6	5
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	10%	19%	10%	9%	5%
Might accept	32	19	47	35	25
Couldn't accept	45	43	30	56	53
Don't know	13	19	13	-	17
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	14%	16%	11%	12%	18%
Might accept	31	37	28	38	29
Couldn't accept	37	21	43	44	35
Don't know	18	26	18	6	18

TABLE 48

REPORTED OWN ABILITY TO ACCEPT
SEVERAL CIVILIAN BOOMS DURING THE NIGHT

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1145)	(192)	(360)	(168)	(425)
Very likely accept	29%	34%	31%	27%	26%
Might accept	23	27	22	22	21
Couldn't accept	46	34	45	49	51
Don't know	2	5	2	2	2
A. With Great Annoyance	(232)	(44)	(80)	(30)	(78)
Very likely accept	11%	14%	14%	3%	10%
Might accept	15	16	12	13	17
Couldn't accept	72	64	74	77	73
Don't know	2	6	-	7	-
B. With Little or Moderate Annoyance	(297)	(62)	(84)	(47)	(104)
Very likely accept	24%	32%	27%	23%	17%
Might accept	24	29	18	32	22
Couldn't accept	49	34	50	45	58
Don't know	3	5	5	-	3

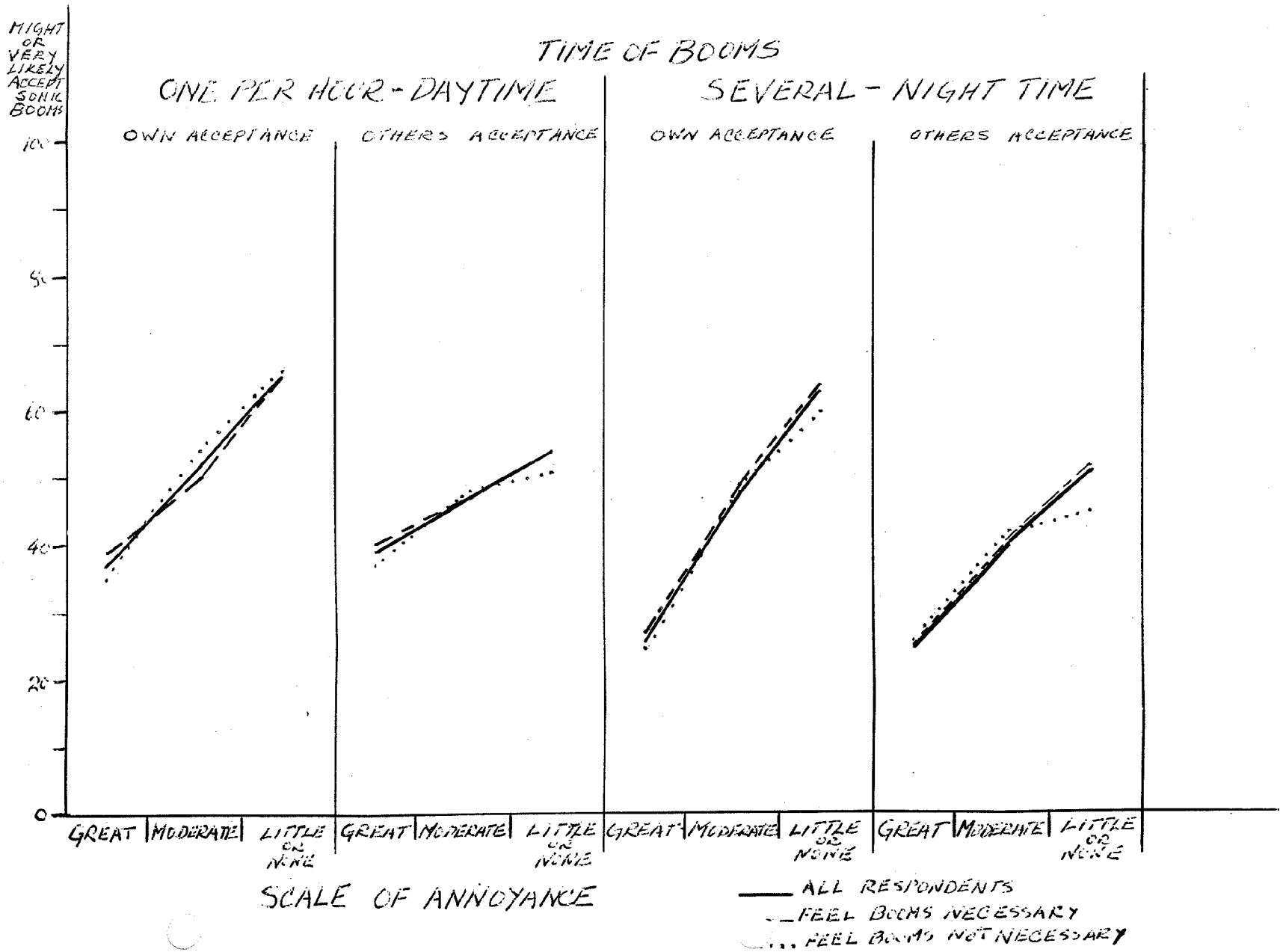
TABLE 48 CONTINUED

	Miles from Ground Zero				
	Total	0-4	-48	8-12	12-16
C. With No Annoyance	(616)	(86)	(196)	(91)	(243)
Very likely accept	38%	47%	40%	37%	34%
Might accept	25	30	28	19	23
Couldn't accept	35	20	30	42	40
Don't know	2	3	2	2	3
II. All Respondents Feel Booms Are Necessary Locally	(767)	(124)	(230)	(112)	(301)
Very likely accept	32%	40%	36%	32%	26%
Might accept	23	27	23	19	23
Couldn't accept	43	30	40	46	50
Don't know	2	3	1	3	1
A. With Great Annoyance	(104)	(16)	(36)	(13)	(39)
Very likely accept	12%	25%	11%	-%	10%
Might accept	15	12	17	-	21
Couldn't accept	69	50	72	85	69
Don't know	4	13	-	15	-
B. All Little or Moderate Annoyance	(187)	(41)	(54)	(24)	(68)
Very likely accept	25%	34%	26%	29%	16%
Might accept	24	32	13	33	24
Couldn't accept	50	32	58	38	59
Don't know	1	2	3	-	1
C. All No Annoyance	(476)	(67)	(140)	(75)	(194)
Very likely accept	40%	48%	46%	39%	32%
Might accept	24	27	28	17	24
Couldn't accept	35	24	25	41	43
Don't know	1	1	1	3	1
III. All Respondents Feel Booms Not Necessary	(378)	(68)	(130)	(56)	(124)
Very likely accept	23%	24%	22%	18%	25%
Might accept	22	26	22	27	18
Couldn't accept	51	43	52	55	52
Don't know	4	7	4	-	5
A. With Great Annoyance	(128)	(28)	(44)	(17)	(39)
Very likely accept	11%	7%	16%	6%	10%
Might accept	14	18	9	23	13
Couldn't accept	74	71	75	71	77
Don't know	1	4	-	-	-
B. With Little or Moderate Annoyance	(110)	(21)	(30)	(23)	(36)
Very likely accept	24%	29%	30%	17%	19%
Might accept	25	24	27	31	19
Couldn't accept	46	38	37	52	56
Don't know	5	9	6	-	6
C. With No Annoyance	(140)	(19)	(56)	(16)	(49)
Very likely accept	33%	42%	23%	31%	41%
Might accept	27	42	29	25	20
Couldn't accept	34	5	43	44	31
Don't know	6	11	5	-	8

FIGURE 7

REPORTED ABILITY TO ACCEPT CIVILIAN SONIC BOOMS

ON FIRST INTERVIEW



To test the relationship between acceptance of civilian booms and feelings that supersonic civilian aircraft are very or moderately important, Table 49 was prepared. As can be seen, those who feel supersonic civilian air transportation is important are more favorable to accepting the civilian booms, and those not annoyed with military booms are most likely to accept them. About two-thirds of the not annoyed who believe such fast travel is important say others will probably accept civilian daytime booms, and 80% say they, themselves are prepared to accept it. In contrast, only 30% of the greatly annoyed who feel supersonic travel is not important say others will accept it, and only 44% of them say they will accept it. These responses underscore the importance of convincing the public of the importance and unavoidability of civilian sonic booms, if greater acceptance is to be achieved. Figure 8 summarizes the relationship between the attitude of importance of civil booms and their acceptance.

TABLE 49

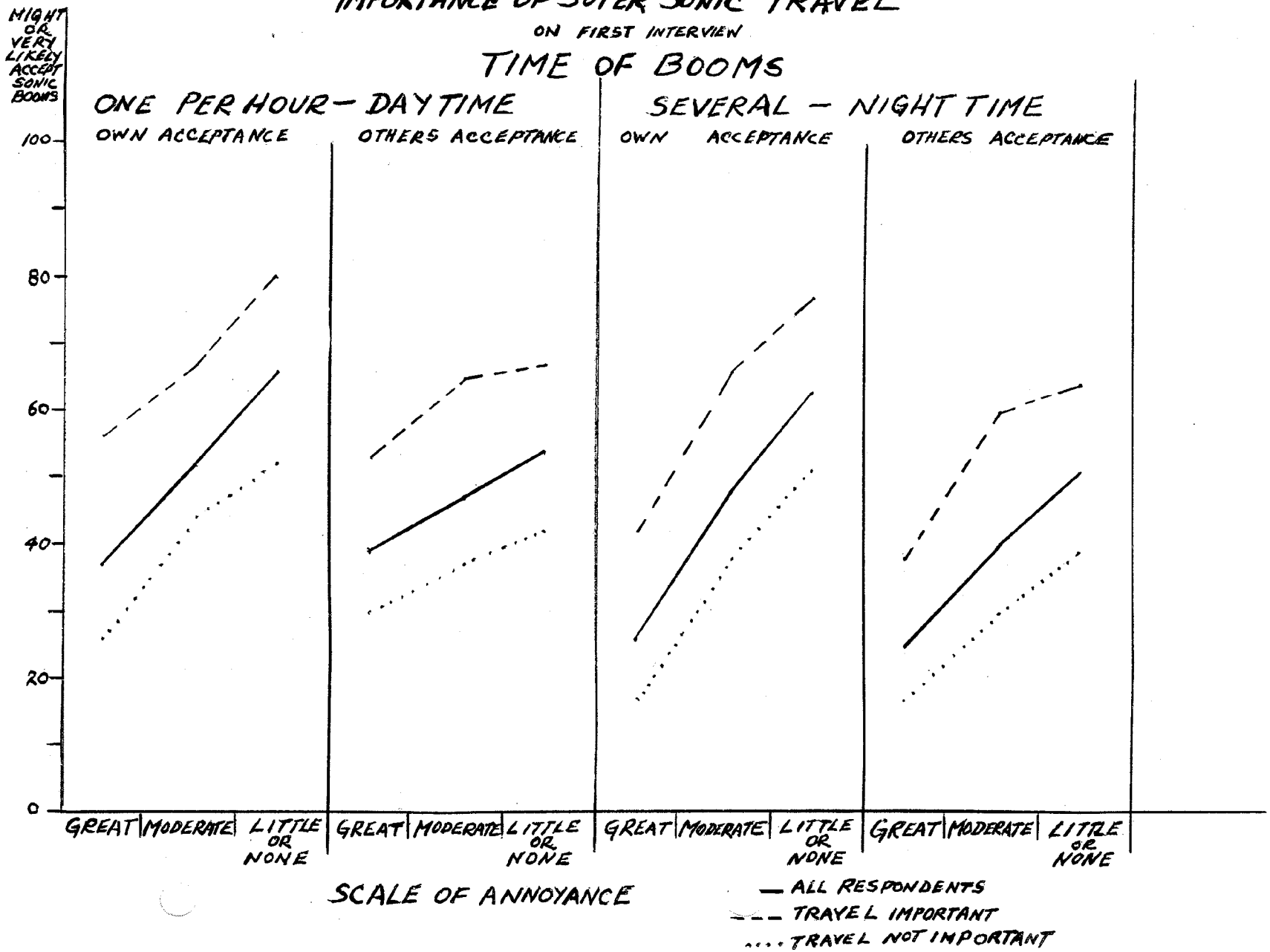
REPORTED ABILITY TO ACCEPT CIVILIAN SONIC BOOMS
BY FEELINGS ABOUT IMPORTANCE OF SUPERSONIC AIR TRAVEL

			Believe Supersonic Travel Important				Believe Supersonic Travel NOT Important			
				Annoyance with Military Boom				Annoyance with Military Boom		
Time	Persons Responding	Acceptability	Total	Great	Moderate	None	Total	Great	Moderate	None
Day	Others	Total	(478)	(94)	(108)	(286)	(667)	(148)	(189)	(330)
		Very likely	29%	21%	22%	34%	11%	5%	12%	13%
		Might	35	32	43	33	27	25	25	29
		Couldn't or DK	36	47	35	33	62	70	63	58
	Self	Very likely	47%	31%	35%	56%	19%	6%	22%	23%
		Might	26	25	32	24	25	20	22	29
		Couldn't or DK	27	44	33	20	56	74	56	48
Night	Others	Very likely	25%	12%	19%	31%	11%	5%	10%	14%
		Might	34	26	41	33	21	12	20	25
		Couldn't or DK	41	62	40	36	68	83	70	61
	Self	Very likely	42%	19%	31%	53%	20%	7%	21%	25%
		Might	26	23	35	24	20	10	17	26
		Couldn't or DK	32	58	34	23	60	83	62	49

FIGURE 8

REPORTED ABILITY TO ACCEPT CIVILIAN SONIC BOOMS BY IMPORTANCE OF SUPER SONIC TRAVEL

ON FIRST INTERVIEW



E. Responses to Second Series of Test Booms

Interpretations of the second series of interviews is complicated by unanticipated weaknesses in the stimulus design. As already mentioned, during the month of December there was an unexpected sharp fall-off of local sonic booms from 19 in November to only 6 for the entire month of December. Because of the great concern over possible physical damages to local dwellings only four test flights of low altitude were flown in January just prior to the NORC reinterviews. Furthermore these four test flights were all flown between 10-10:30 P.M., before most people were asleep. During the first test series in November, six of the 13 test flights were after 11 P.M. and could have disturbed sleep. These incomparabilities in the frequency and time of day of the second series of test booms, are believed to have confounded the experimental effects of lower altitude flights, and made interpretations of the second series of interviews most difficult.

In general, most respondents judged the second series of booms as louder than the first, but fewer persons reported sleep interference, startle or shaking of the house. Consequently, in comparing responses to the first and second series of test booms, the reinterviews record less disturbance and annoyance with the second series of booms. The complaint potential, however, remains much more stable and unchanging. This is probably due to the fact that the more greatly annoyed with the first series of booms (Boom I) reported less change in responses to the second series of booms (Boom II). Most of the changes in attitude were reported by persons only slightly or moderately annoyed with Boom I and most of them weren't action-prone in the first place. Likewise, there is considerable stability in the projected attitudes toward acceptance of civilian booms.

Table 50 shows the comparative ratings of loudness of Boom II and Boom I. Over 60% described Boom II as louder with 70% of the closest area and 66% of the 4-8 mile group, compared to only 52% of the most distant respondents saying Boom II was louder.

TABLE 50

JUDGEMENTS OF LOUDNESS OF BOOM I AND BOOM II

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
Boom II compared to Boom I:	(1010)	(164)	(322)	(154)	(370)
Much louder	38%	42%	44%	32%	33%
Little louder	23	28	22	29	19
Some	31	25	26	32	36
Not as loud	7	3	7	5	11
Don't know	1	2	1	2	1

It is interesting to note that compared to only 9% who voluntarily mentioned dislike of Boom I in the opening free answer questions in the first interview, 16% voluntarily mentioned a hostile comment about Boom II. Being startled or having damage to report are the comments most often recorded.

TABLE 51

COMPARISON OF REPORTED DISTURBANCES BY BOOM II AND BOOM I

	Miles from Ground Zero									
	Total		0-4		4-8		8-12		12-16	
	Boom I	Boom II	Boom I	Boom II	Boom I	Boom II	Boom I	Boom II	Boom I	Boom II
Type of Disturbance:	(1145)	(1011)	(192)	(164)	(360)	(322)	(168)	(154)	(425)	(370)
Shake house	93%	86%	89%	87%	92%	92%	94%	92%	94%	76%
Startle or firghten	74	54	72	60	76	56	74	49	74	50
Disturb sleep	42	22	52	33	39	23	42	18	42	17
Disturb rest or relaxation	24	19	28	23	26	20	26	24	20	14
Interrupt conversation	22	20	26	17	27	19	22	27	17	19
Interrupt radio or TV	14	10	18	10	18	12	11	12	11	8

1. Disturbance by Boom II

Table 51 above indicates that being startled or having sleep disturbed was less often reported after Boom II. Other disturbances were about the same, except for the most distant group which reported a sharp drop in vibrations or shaking of the house.

Table 54 presents the detailed reports of Boom II disturbances. To facilitate comparisons with Boom I reports shown in Table 17, the overall responses to both booms are restated in Table 52. Low disturbance which includes only vibration or no disturbance doubled after Boom II, with 42% giving this response compared to 21% after Boom I. Almost all persons greatly annoyed with Boom I reported great disturbance with Boom I (79%) so it is understandable that any change would have to be to a lesser intensity of disturbance. Most of the shift is to moderate disturbance (less conversation and rest disturbance, probably due to the time of the Boom II flights at 10-10:30 P.M.). Only 15% report low disturbance with Boom II. The greatly annoyed living in the more distant areas showed the sharpest drop to "No annoyance".

The little or moderately annoyed show a drop from moderate to low disturbance, while the no annoyance group shows only a small shift from moderate to no disturbance. The distant areas show a somewhat greater shift than the close areas.

TABLE 52

COMPARISON OF REPORTED DISTURBANCES BY BOOM I AND BOOM II

	Boom I	Boom II	Change
All Respondents	(1145)	(1011)	-
Great disturbance	24%	16%	- 8%
Moderate disturbance	55	42	-13
Low disturbance	21	42	+21
All Great Annoyance with Boom I			
Great disturbance	79%	42%	-37%
Moderate disturbance	21	43	+22
Low disturbance	-	15	+15
All Little or Moderate Annoyance With Boom I			
Great disturbance	17%	16%	- 1%
Moderate disturbance	73	45	-28
Low disturbance	10	39	+29
All No Annoyance with Boom I			
Great disturbance	7%	5%	- 2%
Moderate disturbance	58	41	-17
Low disturbance	35	54	+19

Table 53 compares reports of disturbance by feelings about the necessity of having booms locally. As can be seen, the group saying booms are necessary locally reports somewhat greater shifts in reported disturbance between Booms I and II. The greatly annoyed with Boom I show the most stability followed by the other extreme group which has no annoyance. The tendency for the more distant areas to show greater change is also noted when the attitude of necessity of booms is compared.

TABLE 53

COMPARISON OF REPORTED DISTURBANCES OF BOOM I AND BOOM II
BY FEELINGS ABOUT NECESSITY OF HAVING BOOMS

	Feel Booms Necessary			Feel Booms Not Necessary		
	Boom I	Boom II	Change	Boom I	Boom II	Change
All Respondents	(767)	(681)		(378)	(330)	
Great disturbance	17%	10%	- 7%	37%	27%	-10%
Moderate Disturbance	59	43	-16	47	41	- 6
Low disturbance	24	47	+23	16	32	+16
A. With Great Annoyance With Boom I	(104)	(93)		(128)	(117)	
Great disturbance	69%	30%	-39%	87%	51%	-36%
Moderate disturbance	31	55	+24	13	34	+21
Low disturbance	-	15	+15	-	15	+15
B. With Little or Moderate Annoyance with Boom I	(187)	(169)		(110)	(90)	
Great disturbance	15%	14%	- 1%	20%	21%	+ 1%
Moderate disturbance	76	44	-32	68	45	-23
Low disturbance	9	42	+33	12	34	+22
C. With No Annoyance with Boom I	(476)	(419)		(140)	(123)	
Great disturbance	7%	5%	- 2%	5%	7%	+ 2%
Moderate disturbance	58	40	+18	61	45	-16
Low disturbance	35	55	+20	34	48	+14

TABLE 54

REPORTED DISTURBANCE BY BOOM II
BY ANNOYANCE AND FEELINGS OF NECESSITY OF BOOM I

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1011)	(164)	(322)	(154)	(371)
Great disturbance	16%	21%	16%	18%	12%
Moderate disturbance	42	42	45	42	41
Low disturbance	42	37	39	40	47
A. With Great Boom I Annoyance	(210)	(40)	(70)	(28)	(72)
Great disturbance	42%	52%	47%	39%	32%
Moderate disturbance	43	43	47	47	39
Low disturbance	15	5	6	14	29

TABLE 54 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B. With Little or Moderate Boom I Annoyance	(259)	(54)	(72)	(44)	(89)
Great disturbance	16%	17%	18%	16%	15%
Moderate disturbance	45	50	46	43	40
Low disturbance	39	33	36	41	45
C. With No Boom I Annoyance	(542)	(70)	(180)	(82)	(210)
Great disturbance	5%	7%	3%	11%	4%
Moderate disturbance	41	34	45	40	41
Low disturbance	54	59	52	49	55
II. All Respondents Feel Booms Are Necessary Locally	(681)	(106)	(210)	(103)	(262)
Great disturbance	10%	15%	10%	14%	7%
Moderate disturbance	43	43	43	45	43
Low disturbance	47	42	47	41	50
A. With Great Boom I Annoyance	(93)	(13)	(33)	(12)	(35)
Great disturbance	30%	38%	36%	33%	20%
Moderate disturbance	55	54	58	67	49
Low disturbance	15	8	6	-	31
B. With Little or Moderate Boom I Annoyance	(169)	(37)	(52)	(23)	(57)
Great disturbance	14%	19%	15%	17%	7%
Moderate disturbance	44	49	44	48	40
Low disturbance	42	32	41	35	53
C. With No Boom I Annoyance	(419)	(56)	(125)	(68)	(170)
Great disturbance	5%	7%	2%	10%	4%
Moderate disturbance	40	38	38	40	42
Low disturbance	55	55	60	50	54
III. All Respondents Feel Booms Not Necessary Locally	(330)	(58)	(112)	(51)	(109)
Great disturbance	27%	33%	27%	24%	25%
Moderate disturbance	41	38	50	37	35
Low disturbance	32	29	23	39	40
A. With Great Boom I Annoyance	(117)	(27)	(37)	(16)	(37)
Great disturbance	51%	59%	57%	44%	43%
Moderate disturbance	34	37	38	31	30
Low disturbance	15	4	5	25	27
B. With Little or Moderate Boom I Annoyance	(90)	(17)	(20)	(21)	(32)
Great disturbance	21%	12%	25%	14%	28%
Moderate disturbance	45	53	50	38	41
Low disturbance	34	35	25	48	31

TABLE 54 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C. With No Boom I Annoyance	(123)	(14)	(55)	(14)	(40)
Great disturbance	7%	7%	7%	14%	5%
Moderate disturbance	45	21	58	43	35
Low disturbance	48	72	35	43	60

2. Annoyance with Boom II

As Table 55 indicates, shifts in annoyance were far less than in reports of disturbance. Only 10% more persons reported no annoyance with Boom II than with Boom I. Persons who felt Boom I was not necessary showed significantly more downward shifts in annoyance than persons who felt Boom I was necessary. It is not possible to ascertain whether this represents a change in attitude since the question of necessity of Boom II was not asked. It is interesting to note that there is less shifting in annoyance feelings among the close areas, and no significant differences with regard to feelings of necessity of booms for the 0-8 mile groups. The differences among the 8-12 and 12-16 mile residents are much greater and significant.

TABLE 55

COMPARISON OF REPORTED ANNOYANCE WITH BOOM I AND BOOM II

	Total			Feel Boom I Necessary			Not Feel Boom I Necessary		
	Boom I	Boom II	Change	Boom I	Boom II	Change	Boom I	Boom II	Change
All Respondents	(1145)	(1011)		(767)	(681)		(378)	(330)	
Great annoyance	20%	17%	- 3	14%	11%	- 3	34%	28%	- 6
Little or moderate	26	19	- 7	24	19	- 5	29	18	-11
No annoyance	54	64	+10	62	70	+ 8	37	54	+17
A. Live 0-4 Miles Away	(192)	(164)		(124)	(106)		(68)	(58)	
Great annoyance	23%	19%	- 4	13%	11%	- 2	41%	33%	- 8
Little or moderate	32	21	-11	33	22	-11	31	21	-10
No annoyance	45	60	+15	54	67	+13	28	46	+18
B. Live 4-8 miles away	(360)	(321)		(230)	(210)		(130)	(112)	
Great annoyance	22%	18%	- 4	16%	13%	- 3	34%	28%	- 6
Little or moderate	23	21	- 2	23	19	- 4	23	24	+ 1
No Annoyance	55	61	+ 6	61	68	+ 7	43	48	+ 5
C. Live 8-12 Miles Away	(168)	(154)		(112)	(103)		(56)	(51)	
Great annoyance	18%	19%	+ 1	12%	13%	+ 1	30%	31%	+ 1
Little or moderate	28	16	-12	21	18	- 3	41	10	-31
No annoyance	54	65	+11	67	69	+ 2	29	59	+30
D. Live 12-16 Miles Away	(425)	(371)		(301)	(262)		(124)	(109)	
Great annoyance	18%	14%	- 4	13%	9%	- 4	31%	25%	- 6
Little or moderate	25	17	- 8	23	18	- 5	29	15	-14
No annoyance	57	69	+12	64	73	+ 9	40	60	+20

The gross shifts between annoyance groups is shown in Table 56. Only 44% of those with great annoyance with Boom I also express equal annoyance with Boom II, representing a shift for more than half of all greatly annoyed. In contrast the no annoyance group remained the most stable with 81% of them retaining the same views. The moderate annoyance group was the least stable with only 22% remaining moderately annoyed with Boom II. The differences among geographic groups are too small to be significant with the small samples involved. The most extreme respondents who feel Boom I is not necessary and are greatly annoyed with Boom I show greater stability in their great annoyance, but no difference is found for the moderate and no annoyance groups.

TABLE 56

ANNOYANCE WITH BOOM II BY ANNOYANCE WITH BOOM I AND FEELING ABOUT NECESSITY OF HAVING BOOM I LOCALLY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1011)	(164)	(321)	(154)	(371)
Great annoyance Boom II	17%	19%	18%	19%	14%
Little or moderate	19	21	21	16	17
No Annoyance Boom II	64	60	61	65	69
A. With Great Boom I Annoyance	(210)	(40)	(70)	(28)	(72)
Great Annoyance Boom II	44%	57%	46%	54%	32%
Little or moderate	28	18	36	25	28
No annoyance Boom II	28	25	18	21	40
B. With Little or Moderate Boom I Annoyance	(259)	(54)	(72)	(44)	(89)
Great annoyance Boom II	19%	11%	25%	20%	19%
Little or moderate	22	28	19	16	23
No annoyance Boom II	59	61	56	64	58
C. With No Boom I Annoyance	(542)	(70)	(180)	(82)	(210)
Great annoyance Boom II	5%	3%	5%	6%	5%
Little or moderate	14	19	15	12	11
No annoyance Boom II	81	78	80	82	84
II. All Respondents Feel Booms Necessary Locally	(681)	(106)	(210)	(103)	(262)
Great annoyance Boom II	11%	11%	13%	13%	9%
Little or moderate	19	22	19	18	18
No annoyance Boom II	70	67	68	69	73
A. With Great Boom I Annoyance	(93)	(13)	(33)	(12)	(35)
Great annoyance Boom II	31%	46%	33%	42%	20%
Little or moderate	39	31	43	33	40
No annoyance Boom II	30	23	24	25	40

TABLE 56 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B. With Little or Moderate Boom I Annoyance	(169)	(37)	(52)	(23)	(57)
Great annoyance Boom II	16%	11%	23%	22%	12%
Little or moderate	24	27	23	22	23
No annoyance Boom II	60	62	54	56	65
C. With No Boom I Annoyance	(419)	(56)	(125)	(68)	(170)
Great Boom II annoyance	4%	4%	4%	4%	5%
Little or moderate	13	16	10	15	12
No annoyance Boom II	83	80	86	81	83
III. Respondents Feel Booms Not Necessary Locally	(330)	(58)	(112)	(51)	(109)
Great annoyance Boom II	28%	33%	28%	31%	25%
Little or moderate	18	21	24	10	15
No annoyance Boom II	54	46	48	59	60
A. With Great Annoyance Boom I	(117)	(27)	(37)	(16)	(37)
Great annoyance Boom II	55%	63%	57%	62%	43%
Little or moderate	20	11	30	19	16
No annoyance Boom II	25	26	13	19	41
B. With Little or Moderate Boom I annoyance	(90)	(17)	(20)	(21)	(32)
Great annoyance Boom II	24%	12%	30%	19%	31%
Little or moderate	18	29	10	10	22
No annoyance Boom II	58	59	60	71	47
C. With No Boom I Annoyance	(123)	(14)	(55)	(14)	(40)
Great annoyance Boom II	6%	-%	7%	14%	2%
Little or moderate	17	29	26	-	8
No annoyance Boom II	77	71	67	86	90

3. Complaint Potential with Boom II

As noted previously, the net amounts of complaint potential remain unchanged between Boom I and Boom II. Overall, the small shifts could all be due to chance. There is a persistent tendency, however, for persons with feelings that Boom I is not necessary to report less complaint potential after Boom II interviews. In practically all cases, however, the size of the shift is too small to be significant. Table 58 presents the details of Boom II complaint potentials.

TABLE 57

COMPARISON OF COMPLAINT POTENTIALS FOR BOOM I AND BOOM II

	Total			Feel Boom I Necessary			Feel Boom I Not Necessary		
	Boom I	Boom II	Change	Boom I	Boom II	Change	Boom I	Boom II	Change
All Respondents	(1145)	(1011)		(767)	(681)		(378)	(330)	
High complaint	3%	4%	+ 1	1%	2%	+ 1	8%	8%	-
Moderate	8	8	-	4	6	+ 2	16	11	- 5
Low complaint	89	88	- 1	95	92	- 3	76	81	+ 5
A. Live 0-4 Miles Away	(192)	(164)		(124)	(106)		(68)	(158)	
High complaint	6%	7%	+ 1	1%	5%	+ 4	15%	10%	- 5
Moderate	9	10	+ 1	4	9	+ 5	17	12	- 5
Low complaint	85	83	- 2	95	86	- 9	68	78	+10
B. Live 4-8 Miles Away	(360)	(321)		(230)	(210)		(130)	(112)	
High complaint	3%	7%	+ 4	1%	3%	+ 2	7%	12%	+ 5
Moderate	8	6	- 2	2	5	+ 3	18	9	- 9
Low complaint	89	87	- 2	97	92	- 5	75	79	+ 4
C. Live 8-12 Miles Away	(168)	(154)		(112)	(103)		(56)	(51)	
High complaint	2%	1%	- 1	1%	1%	-	5%	2%	- 3
Moderate	7	9	+ 2	4	8	+ 4	13	12	- 1
Low complaint	91	90	- 1	95	91	- 4	82	86	+ 4
D. Live 12-16 Miles Away	(425)	(371)		(301)	(262)		(124)	(109)	
High complaint	2%	2%	-	*	2%	+ 2	6%	4%	- 2
Moderate	8	7	- 1	6%	4	- 2	13	14	+ 1
Low complaint	90	91	+ 1	94	94	-	81	82	+ 1

TABLE 58

COMPLAINT POTENTIAL REPORTED AFTER BOOM II
BY ANNOYANCE WITH BOOM I
AND FEELING ABOUT NECESSITY OF HAVING BOOM I LOCALLY

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
I. All Respondents	(1011)	(164)	(322)	(154)	(371)
High compalints	4%	7%	7%	1%	2%
Moderate	8	10	6	9	7
Low complaints	88	83	87	90	91
A. With Great Boom I Annoyance	(210)	(40)	(70)	(28)	(72)
High complaints	10%	15%	16%	4%	6%
Moderate	19	25	13	32	15
Low complaints	71	60	71	64	79

TABLE 58 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B. With Little or Moderate Boom I Annoyance	(259)	(54)	(72)	(44)	(89)
High complaints	3%	4%	7%	*	1%
Moderate	9	7	6	9	11
Low complaints	88	89	87	91	88
C. With No Boom I Annoyance	(542)	(70)	(180)	(82)	(210)
High complaint	2%	4%	3%	1%	2%
Moderate	3	4	4	1	2
Low complaint	95	92	93	98	96
II. All Respondents Feel Booms Necessary	(681)	(106)	(210)	(103)	(262)
High complaints	2%	5%	3%	1%	2%
Moderate	6	9	5	8	4
Low complaints	92	86	92	91	94
A_1 With Great Boom I Annoyance	(93)	(13)	(33)	(12)	(35)
High complaint	3%	-%	6%	-%	3%
Moderate	15	23	12	25	11
Low complaints	82	77	82	75	86
A_2 And With Feeling Complaint Successful	(29)	(3)	(13)	(3)	(10)
High complaint	7%	-%	8%	-%	10%
Moderate	31	67	31	33	20
Low complaint	62	33	61	67	70
A_3 And With Feeling Complaint Not Successful	(64)	(10)	(20)	(9)	(25)
High complaint	2%	-%	5%	-%	-%
Moderate	8	10	-	22	8
Low complaint	90	90	95	78	92
B_1 With Little or Moderate Boom I Annoyance	(169)	(37)	(52)	(23)	(57)
High complaint	2%	5%	4%	-%	-%
Moderate	10	11	8	17	9
Low complaint	88	84	88	83	91
B_2 And With Feeling Complaint Successful	(38)	(3)	(10)	(8)	(17)
High complaint	3%	-%	10%	-%	-%
Moderate	10	33	-	25	6
Low complaint	87	67	90	75	94
B_3 And With Feeling Complaint Not Successful	(131)	(34)	(42)	(15)	(40)
High complaint	2%	6%	2%	-%	-%
Moderate	10	9	10	13	10
Low complaint	88	85	88	87	90

TABLE 53 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
C_1 With No Boom I Annoyance	(419)	(56)	(125)	(68)	(170)
High complaints	2%	5%	2%	1%	2%
Moderate	2	5	2	1	1
Low complaints	96	90	96	98	97
C_2 And With Feeling Complaint Successful	(74)	(7)	(20)	(15)	(32)
High complaint	4%	14%	5%	-%	3%
Moderate	1	-	-	-	3
Low complaint	95	86	95	100	94
C_3 And With Feeling Complaint Not Successful	(345)	(49)	(105)	(53)	(138)
High complaints	2%	4%	2%	2%	1%
Moderate	2	6	3	2	1
Low complaint	96	90	95	96	98
III. All Respondents Feel Booms Not Necessary	(330)	(58)	(112)	(51)	(109)
High complaint	8%	10%	12%	2%	4%
Moderate	11	12	9	12	14
Low complaints	81	78	79	86	82
A_1 With Great Boom I Annoyance	(117)	(27)	(37)	(16)	(37)
High complaints	16%	22%	24%	6%	8%
Moderate	21	26	14	38	19
Low complaints	63	52	62	56	73
A_2 And With Feeling Complaint Successful	(50)	(9)	(22)	(9)	(10)
High complaint	18%	22%	27%	-%	10%
Moderate	28	45	18	56	10
Low complaint	54	33	55	44	80
A_3 And With Feeling Complaint Not Successful	(67)	(18)	(15)	(7)	(27)
High complaint	15%	22%	20%	14%	8%
Moderate	16	17	7	14	22
Low complaint	69	61	73	72	70
B_1 With Little or Moderate Boom I Annoyance	(90)	(17)	(20)	(21)	(32)
High complaint	4%	-%	15%	-%	3%
Moderate	6	-	-	-	16
Low complaint	90	100	85	100	81
B_2 And With Feeling Complaint Successful	(34)	(7)	(8)	(8)	(11)
High complaint	6%	-%	12%	-%	9%
Moderate	9	-	-	-	27
Low complaint	85	100	88	100	64

TABLE 58 CONTINUED

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
B_3 And With Feeling Complaint Not Successful	(56)	(10)	(12)	(13)	(21)
High complaint	3%	-%	17%	-%	-%
Moderate	4	-	-	-	10
Low complaint	93	100	83	100	90
C_1 With No Boom I Annoyance	(123)	(14)	(55)	(14)	(40)
High complaint	2%	-%	4%	-%	3%
Moderate	7	-	9	-	7
Low complaint	91	100	87	100	90
C_2 And With Feeling Complaint Successful	(30)	(2)	(15)	(3)	(10)
High complaint	3%	-%	7%	-%	-%
Moderate	10	-	20	-	-
Low complaint	87	100	73	100	100
C_3 And With Feeling Complaint Not Successful	(93)	(12)	(40)	(11)	(30)
High complaint	2%	-%	2%	-%	3%
Moderate	5	-	5	-	10
Low complaint	93	100	93	100	87

4. Damages alleged to Boom II

As Table 59 indicates the amount of damage reported after Boom II is no different from reports after Boom I.

TABLE 59

DAMAGES REPORTED AS A RESULT OF BOOM II

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1011)	(164)	(322)	(154)	(371)
Damage	12%	12%	11%	12%	12%
No damage	88	88	89	88	88

5. Reported Ability to Live with Civilian Sonic Booms after Boom II

A comparison of Table 60 which reports answers after Boom II with Tables 45-48, indicates very little change in projected feelings about living with civilian booms. The slight increases in acceptability reported after Boom II are not usually significant. As Table 60 indicates, about half of all respondents don't think they can get accustomed to commerical sonic booms.

TABLE 60

REPORTED ABILITY TO LIVE WITH COMMERCIAL SONIC BOOMS REPORTED AFTER BOOM II

	Miles from Ground Zero				
	Total	0-4	4-8	8-12	12-16
	(1011)	(164)	(322)	(154)	(371)
I. Hourly Daytime Flights					
A. Ability of Others to Accept					
Very likely	21%	31%	17%	19%	21%
Might	27	20	29	30	28
Couldn't	39	34	38	40	42
Don't know	13	15	16	11	9
B. Ability of Self to Accept					
Very likely	33%	47%	32%	33%	30%
Might	24	18	25	26	23
Couldn't	40	33	40	36	45
Don't know	3	2	3	5	2
II. Several Nighttime Flights					
A. Ability of Others to Accept					
Very likely	20%	24%	18%	18%	21%
Might	26	26	26	27	25
Couldn't	41	34	39	44	44
Don't know	13	16	17	11	10
B. Ability of Self to Accept					
Very likely	33%	38%	33%	30%	32%
Might	24	23	23	26	24
Couldn't	40	37	41	41	41
Don't know	3	2	3	3	3

III. CONCLUSIONS

1. Sonic booms caused by planes flying at 41,000 feet altitude create widespread disturbances over a 32-mile wide path. Only 7% reported no disturbances and only 21% reported only vibrations or no disturbances.

2. Disturbances rank order as follows: House vibrations, startle, interruption of sleep, rest, conversation, and radio and TV listening.

3. The nearest residents living within 4 miles of ground zero report only a little more disturbance than the most distant respondents living 12-16 miles away. There are no significant differences among the residents living within 12 miles of ground zero.

4. Occasionally low flights at 35,000 or 31,000 feet altitude do not cause any greater reports of disturbance than the higher 41,000 feet flights.

5. Reports of damages due to sonic booms were made by only 13% of the respondents, with no differences noted within the 16 miles of ground zero.

6. Feelings of annoyance with sonic boom disturbances were found to be quite low in the St.Louis area. More than half of all persons express no substantial annoyance with any disturbance, and only one out of five express great annoyance.

7. The closest residents living within 4 miles of ground zero report only a little more annoyance than the most distant residents.

8. Annoyance with sonic booms has been found to vary widely in accordance with differences in at least ten socio-psychological factors, as follows:

a) Annoyance varies as disturbance increases. Two-thirds of all persons reporting great disturbance also report great annoyance. In contrast none of the persons with little or no disturbance report great annoyance, and 88% of them report no annoyance at all.

b) Annoyance increases if the resident feels that sonic booms or supersonic military flights are not absolutely necessary locally. Great annoyance was reported by 37% if they felt the booms were not necessary compared to only 17% if they felt them necessary.

c) Annoyance decreases somewhat as familiarity with booms increases. About 81% of the no annoyance group say they have read about booms compared to only 72% of the greatly annoyed. Likewise, only 66% of the greatly annoyed say they always recognize a sonic boom compared to 76% of the non-annoyed.

d) Widespread understanding of the cause of sonic booms probably minimizes startle and reduces annoyance. In St.Louis, over 90% gave valid explanations of the cause of booms.

e) Annoyance probably decreases if the respondent feels that supersonic flights are very important. Over 90% of all St.Louisians feel the military flights are very important.

f) Annoyance decreases if the resident feels the Air Force is considerate and concerned about local feelings. Almost two-thirds of those who felt the Air Force was very considerate expressed no annoyance compared to 47% who felt the Air Force was not very considerate.

g) Annoyance increases as damages are believed to occur. While 37% of all persons with reported damages were greatly annoyed, only 18% of those without any damages were greatly annoyed.

h) Annoyances with booms increases as general dislike of local area increases. Fewer greatly annoyed rate their local area as excellent, and more of them report having a major problem other than sonic booms.

i) Annoyance increases if the resident has hope that there is some chance to reduce the disturbance. About two-thirds of all non-annoyed felt there was no chance to reduce the disturbance from booms compared to only 44% of the greatly annoyed.

j) Annoyance with booms varies somewhat in accordance with the general readiness to complain about a major local disturbance. About 22% of the greatly annoyed expressed a high general complaint potential compared to only 13% of the non-annoyed.

9. A faovrable combination of practically all of the above 10 factors undoubtedly resulted in the very low annoyance level in the St.Louis area. A different combination of these factors in another area could result in a much higher level of annoyance with the sonic booms.

10. A very low complaint potential with respect to sonic booms was found in the St.Louis area. Almost 90% say they, themselves, have felt like doing nothing about the booms. This very low complaint potential is due to a combination of local factors which must be considered in attempting to apply these findings to another area.

11. The complaint potential varies directly as a number of socio-psychological factors vary. Very little difference in the complaint potential is due to variations in the distance from ground zero. The four factors found most important in determining the complaint potential are:

a) Complaint potential varies as annoyance varies. About one-third of the greatly annoyed express some complaint potential compared to 3% of the non-annoyed.

b) If distance from ground zero is combined with annoyance, the complaint potential increases to 50% for the greatly annoyed in the closest areas.

c) If feelings about the necessity of having booms locally is combined with distance and annoyance, the complaint potential is increased to 68% for the greatly annoyed living closest to ground zero who feel the boom is <u>not</u> necessary.

d) If feelings about the possible success of complaining is considered in combination with the other three factors, the complaint potential increases to 90% for the group who are greatly annoyed, live closest, feel the booms are not necessary and who have hope that complaining will succeed in reducing the disturbance.

11. The complaint potential increases if a local organization sponsors a protest campaign. The overall complaint potential increased to 27% when such sponsorship was suggested. The complaint potential increases to 100% when the above four factors are considered -- the greatly annoyed living closest to ground zero, who feel the booms are not necessary and who feel complaining can be successful report a 100% complaint potential in contrast to only a 2% potential for the group with the opposite views.

12. The combination of frequency and time of occurrence and level of pressure wave appears to be most important in determining the level of actual complaints. A three month build up, culminating in a number of somewhat higher than usual sonic booms created sufficient public pressure to stop supersonic flights over the St.Louis area.

13. Very few people feel supersonic civilian air travel is very important. Only one-fourth of all persons said it was very important, while almost half said it was not important.

14. Residents are much more willing to accept military sonic booms than they are civilian sonic booms. Almost 90% say they very likely can accept one military boom per day; 47% say they very likely can accept one military boom per hour during the day and 29% say they might be able to accept it. In contrast, only 19% say others can very likely accept one civilian boom per hour during the day, while only 31% say they themselves can. Almost half say they can't accept one civilian boom per hour during the day.

15. Acceptance of several nighttime booms is somewhat lower than acceptance of daytime booms.

16. Almost 80% of those who have no annoyance with military booms and feel civilian supersonic flights are important say they themselves can probably live with civilian booms, but that only 67% of others can do so. In contrast only about a fourth of those who are greatly annoyed and feel that supersonic air travel is not important say they can probably accept them.

IV. RECOMMENDATIONS

Further technical research is needed to answer the following questions:

1. What is the width of the total impact area of supersonic flights at 41,000 feet or less? How much beyond 15 miles is the boom a serious disturbance?

2. What is the total width of the impact area of supersonic flights above 41,000 feet? Are the differences in disturbance, annoyance and complaint potential more closely related to lateral distance from ground zero, when the altitude of the flight is above 41,000 feet?

3. What is the importance of frequency of sonic booms on disturbance, annoyance and complaint potential? Is there a maximum saturation time period during which booms can be accommodated and beyond which they cannot? Since civilian air schedules are more regular than SAC military flights, what is the importance of day-to-day regularity of booms and of numbers of booms during different hours of the day?

4. What is the prevalence among other cities of psychological feelings and attitudes that determine annoyance and complaint potentials? Unless information is gathered on these significant variables in other major airport areas, it will not be possible to project the St.Louis findings to other areas.

5. What is the variability in the relationships among the key variables that influence disturbance, annoyance and complaint potential? The St.Louis findings are often based on very small samples and, therefore, should be rechecked by larger samples of respondents before being extrapolated to other areas.

An interview study at 4-5 more major airports could provide answers to these questions. It might be possible to select only key questions from the original interview and thus reduce the total interviewing time of the restudy. It might also be possible to have informed local officials "guesstimate" the values of the key variables and then use the actual interview responses as a check on the accuracy of their judgments.

1- 2- 3- 4- 5- 6-

CONFIDENTIAL
Survey 443-1
11-1-61

NATIONAL OPINION RESEARCH CENTER
University of Chicago

Assignment No._____-_____ Time Interview Began:_____

Telephone No._____ Time Interview Ended:_____

Time for Callback:_____

Hello. I'm from the opinion research center at the University of Chicago. We are doing a study about how people feel about living in different places and I'd like to get some of your views.

---

1. The first question is: In general, how do you like living in this part of (name of area)? Do you rate it as an excellent, good, fair, poor, or very poor place to live?

Excellent	7-1
Good.	2
Fair.	3
Poor.	4
Very poor	5
Don't know.	6
NORC use.	Y

---

2. Would you say you like many things, just a few things or hardly anything about living around here?

Many things	8-1
A few things.	2
Hardly anything	3
Don't know.	4
NORC use.	Y

A. And what are some of the things you like -- things that you feel are advantages, or that make this a good place to live? Probe -- Anything else?

3. Now what about things you don't like around here? Would you say there are many things, a few things or nothing at all you don't like around here?

Many things	10-1*
A Few things.	2*
Nothing	3
Don't know.	4
NORC use.	Y

*IF "MANY" OR "A FEW", ASK "A" & "B"

A. Would you tell me some of the things you don't like -- things you may feel are nuisances, or are unpleasant and bothersome conditions? (Anything else?)

11-

12-

13-

B. Have we overlooked anything that may recently have bothered or disturbed your everyday living -- even little annoyances that you just take for granted because nothing much can be done about them?

4. Now to be sure I have all your feelings straight -- I'd like you to tell me for each of the following items how you would rate this area. First, for being close to your (family's) work or place of business -- would you say this area is very good, good, fair, poor, or very poor? (How about "schools", etc.?)

	Very Good	Good	Fair	Poor	Very Poor	Don't Know	NORC Use
A. Close to work or place of business?	14-1	2	3	4	5	6	Y
B. Schools?.	15-1	2	3	4	5	6	Y
C. Peace and quiet?	16-1	2	3	4	5	6	Y
D. Shopping facilities	17-1	2	3	4	5	6	Y
E. Quality of local government?. .	18-1	2	3	4	5	6	Y
F. Safety of area?	19-1	2	3	4	5	6	Y
G. Neighbors?.	20-1	2	3	4	5	6	Y
H. Close to church?	21-1	2	3	4	5	6	Y
I. Train or bus services?	22-1	2	3	4	5	6	Y
J. Entertainment facilities? . . .	23-1	2	3	4	5	6	Y

---

5. Are there any dangerous conditions affecting this area that sometimes concern you?

Yes	24-1*
No.	2
NORC use.	Y

*A. IF "YES": What are they? (Anything else?)

6. If you could change <u>just one</u> of the things you don't like about living around here, which would you choose?

Nothing	25-0*
NORC use.	Y

*<u>IF "NOTHING" SKIP TO Q. 7</u> 26-

<u>IF SOMETHING MENTIONED, ASK "A"-"G"</u>

A. And how would you rate the chances of doing something about this -- <u>very good</u>, <u>good</u>, <u>fair</u> or <u>poor</u>?

Very good	27-1
Good.	2
Fair.	3
Poor.	4
Don't know.	5
NORC use.	Y

B. Have you yourself ever felt like doing something about this? For example, have you ever felt like:

	B			C		
	<u>Yes</u>	<u>No</u>	<u>NORC</u>	<u>Yes</u>	<u>No</u>	<u>NORC</u>
1) Writing or telephone an official?.	28-1	2	3	4**	5	Y
2) Visiting an official?.	29-1	2	3	4**	5	Y
3) Signing a petition?.	30-1	2	3	4**	5	Y
4) Helping to set up a citizens' committee?	31-1	2	3	4**	5	Y
5) Doing something else? (<u>Specify</u>). .	32-1	2	3	4**	5	Y

_____

_____

<u>ASK "C" AFTER FINISHING PART "B", AND CIRCLE "YES" OR "NO" CODES ABOVE FOR EACH OF THE FIVE ITEMS.</u> 33-

C. Have you ever actually done any of these things? (Which?)

**D. <u>IF "YES" TO ANY ITEM IN "C"</u>: Do you feel it did some good, a little good, or no good at all?

Some good	34-1
A little.	2
None.	3
Don't know.	4
NORC use.	Y

QUESTION 6 CONTINUED

E. From what you've heard or read, do most people around here feel less strongly or more strongly than you do about (condition mentioned in Q.6)?

Less strongly	35-1
More strongly	2
Same	3
Don't know	4
NORC use	Y

F. As far as you know, have you heard of any of them trying to do something about this?

Yes	36-1*
No	2
NORC use	Y

*G. IF "YES": Did it do some good, a little good or no good at all?

Some good	37-1
A little good	2
No good	3
Don't know	4
NORC use	Y

---

7. On the whole, would you rate this area as very noisy, fairly noisy, fairly quiet or very quiet?

Very noisy	38-1
Fairly noisy	2
Fairly quiet	3
Very quiet	4
Don't know	5
NORC use	Y

8. And what are some of the different kinds of noises you sometimes hear around here? (Any others?) (Circle Code 1 for each kind of noise mentioned spontaneously. Then prompt for any not mentioned by asking, "Do you ever hear noise from. . .?")

	(1) Cars or trucks going by?	(2) Neighbors or children?	(3) Civilian jet or propeller planes?	(4) Booms from military planes in flight?	(5) Any other noises? (specify)
A. Mention spontaneously	39-1*	40-1*	41-1*	42-1*	43-1*
Yes (prompted).	2*	2*	2*	2*	2*
No, never hear.	3	3	3	3	3
NORC use.	Y	Y	Y	Y	Y

*ASK "B" THROUGH "G" FOR EACH TYPE OF NOISE CODED 1 OR 2

B. How often do you hear the (kind of noise) --					
very often.	44-1	45-1	46-1	47-1	48-1
fairly often, or.	2	2	2	2	2
only occasionally?.	3	3	3	3	3
Don't know.	4	4	4	4	4
NORC use.	Y	Y	Y	Y	Y
C. Would you say this noise is usually --					
extremely loud, ...	49-1	50-1	51-1	52-1	53-1
fairly loud, or	2	2	2	2	2
not so loud?.	3	3	3	3	3
Don't know.	4	4	4	4	4
NORC use.	Y	Y	Y	Y	Y
D. Would you say this noise could be reduced, or not?					
Yes, could be reduced	54-1	55-1	56-1	57-1	58-1
No, couldn't be	2	2	2	2	2
Don't know.	3	3	3	3	3
NORC use.	Y	Y	Y	Y	Y

	(1) CARS OR TRUCKS	(2) NEIGHBORS, CHILDREN	(3) CIVILIAN PLANES	(4) BOOMS	(5) OTHER NOISES
E. Does this noise bother or annoy you --					
very much	59-1**	60-1**	61-1**	62-1**	63-1**
moderately, ...	2**	2**	2**	2**	2**
only a little, or	3**	3**	3**	3**	3**
not at all?	4*	4*	4*	4*	4*
Don't know.	5	5	5	5	5
NORC use.	Y	Y	Y	Y	Y
*F. IF "NOT AT ALL": Was it ever unpleasant, or did it ever bother you at all in the past?					
Yes	64-1	65-1	66-1	67-1	68-1
No.	2	2	2	2	2
Don't know.	3	3	3	3	3
NORC use.	Y	Y	Y	Y	Y
**IF 1, 2 OR 3 CODED ON "E", ASK BOTH "G" & "H"					
G. How often does it bother you --					
very often, ...	69-1	70-1	71-1	72-1	73-1
fairly often, or	2	2	2	2	2
only occasionally?	3	3	3	3	3
Don't know.	4	4	4	4	4
NORC use.	Y	Y	Y	Y	Y
H. About how long has it been since you were last bothered by it?					
Today or yesterday.	74-0	75-0	76-0	77-0	78-0
2-7 days ago.	1	1	1	1	1
8-14 days ago (2 weeks) . .	2	2	2	2	2
15-21 days ago (3 weeks). .	3	3	3	3	3
22-28 days ago (4 weeks). .	4	4	4	4	4
29-35 days ago (5 weeks). .	5	5	5	5	5
36-42 days ago (6 weeks). .	6	6	6	6	6
More than 6 weeks ago . . .	7	7	7	7	7
Don't know.	8	8	8	8	8

Now I'd like to get a better idea of how you feel about some of these noises.

ASK Q. 9 ONLY IF RESPONDENT HEARS NOISE FROM CIVILIAN PLANES (Q. 8, CODES 41-1 OR 2)

*IF YES TO Q. 9, ASK "A" & "B" BEFORE GOING ON TO NEXT ITEM

9. Does the noise from civilian jet or propeller planes ever (ask each item below)	Yes	No	NORC	A. How often is that. . . very often,	fairly often,	or only occasionally?	DK, NORC	B. How annoyed does this make you feel? Very Annoyed	Moderately Annoyed	Only Slightly	DK, NORC
1) Startle or frighten you?. .	7-1*	2	3	4	5	6	7	8	9	0	Y
2) Disturb your family's sleep?.	8-1*	2	3	4	5	6	7	8	9	0	Y
3) Interfere with your rest or relaxation?. . .	9-1*	2	3	4	5	6	7	8	9	0	Y
4) Interfere with your conversation?.	10-1*	2	3	4	5	6	7	8	9	0	Y
5) Interfere with your radio or TV?.	11-1*	2	3	4	5	6	7	8	9	0	Y
6) Make your house rattle or shake?.	12-1*	2	3	4	5	6	7	8	9	0	Y
7) Interfere or disturb any other activity? (IF YES) What? . . .	13-1*	2	3	4	5	6	7	8	9	0	Y

ASK Q. 10 ONLY IF RESPONDENT DOES NOT HEAR BOOMS (Q. 8, CODE 42-3)

10. As far as you know, do the military jets ever cause any booms while flying near here?

Yes. . . (ASK Qs.11-20)	14-1
No . . . (SKIP TO P.13)	2
NORC use	Y

79- 80- 1- 2- 3- 4- 5- 6-

ASK Qs. 11-20 IF RESPONDENT HEARS BOOMS (Q. 8, CODES 42-1 OR 2)
OR KNOWS OF BOOMS (CODE 14-1)

11. Have you heard or read anything about the booms from military jets?

	Yes	15-1*
	No.	2
*IF "YES", ASK "A"	NORC use.	Y

A. Where did you hear about it? (Anyplace else?) (Circle all codes mentioned spontaneously, then ask for each not mentioned, Did you hear anything about it from_____?)

	YES Spont.	YES Probed	NO	NORC
Newspapers.	16-1	2	3	Y
TV.	17-1	2	3	Y
Radio	18-1	2	3	Y
Neighbors or friends.	19-1	2	3	Y
Other (specify)	20-1	2	3	Y

---

12. A. Could you tell me why the military jets make the boom?

21-

B. (When you hear the boom) can you always tell it's from a jet, or do you sometimes wonder what the boom is?

Can tell.	22-1
Sometimes wonder.	2*
Don't know.	3
NORC use.	Y

*C. IF "SOMETIMES WONDER": What do you think it might be?

23-

13. Do you happen to know why the jets making booms, fly around here?

Yes	24-1*
No.	2
NORC use.	Y

*A. IF "YES": Why is that?

25-

14. Do you feel it is absolutely necessary for the military to have the booms around here, or not?

Yes	26-1*
No	2*
Don't know	3
NORC use	Y

*IF "YES" OR "NO", ASK "A"

A. Why is that?

27-

28-

---

15. From what you've heard or read, how do most other people around here feel -- Do you think they generally feel the booms are absolutely necessary, or not?

Necessary	29-1
Not necessary	2
Don't know	3
NORC use	Y

---

16. A. The way things are now, would you say any of the following people can do anything to reduce the noise from the booms:

	A				B	
	Yes	No	Don't Know	NORC	Most	NORC
1) Local Air Force officials?	30-1	2	3	4	6	Y
2) Local government officials?	31-1	2	3	4	6	Y
3) Local civic or political organizations?	32-1	2	3	4	6	Y
4) The pilots of the airplanes?	33-1	2	3	4	6	Y
5) Government officials in Washington,	34-1	2	3	4	6	Y
6) Anybody else? (specify)	35-1	2	3	4	6	Y

IF "YES" TO TWO OR MORE OF THE AGOVE, ASK "B"

B. Which one of those would you say can do the most about the booms? (Circle one category under "B")

C. How much concern would you say the Air Force officials have for the feelings and comfort of residents like yourself -- do you think they have very much concern, moderate concern, only a little, or none at all?

Very much	36-1
Moderate	2
Little	3
None	4
Don't know	5
NORC use	Y

D. How about the Air Force pilots -- Do you think they could perform their missions and still avoid these booms if they wanted to?

Avoid booms	37-1
Not avoid	2
Don't know	3
NORC use	Y

*IF YES TO Q.17, ASK "A" & "B" BEFORE GOING ON TO NEXT ITEM

17. Can you tell me if the booms ever (ask each item below)	Yes	No	NORC	A. How often is that. . . very often	fairly often,	or only occasionally?	DK, NORC	B. How annoyed does this make you feel? Very Annoyed	Moderately Annoyed	Only Slightly	DK, NORC
1) Startle or frighten you? . .	38-1*	2	3	4	5	6	7	8	9	0	Y
2) Disturb your family's sleep?	39-1*	2	3	4	5	6	7	8	9	0	Y
3) Interfere with your rest or relaxation? . . .	40-1*	2	3	4	5	6	7	8	9	0	Y
4) Interfere with your conversation?	41-1*	2	3	4	5	6	7	8	9	0	Y
5) Interfere with your radio or TV?	42-1*	2	3	4	5	6	7	8	9	0	Y
6) Make your house rattle or shake?	43-1*	2	3	4	5	6	7	8	9	0	Y
7) Interfere or disturb any other activity? (IF YES) What? . . .	44-1*	2	3	4	5	6	7	8	9	0	Y

18. Have the booms ever damaged anything in your house?

Yes	45-1*
No.	2
NORC.	3

*IF "YES", ASK "A" & "B"

A. What did it do? (Probe for specific damage)

46-

B. And how annoyed did this make you feel?

Very annoyed	47-1
Moderately annoyed	2
A little annoyed	3
Or not at all.	4
Don't know.	5

19. Have you yourself ever felt like doing something about the booms. For example have you ever felt like writing or telephoning an official? (Ask each item in A, before asking B, etc.)

	ITEMS				
A. (Ever felt like --	Writing or telephoning an official?	Visiting an official?	Signing a petition?	Helping set up a citizens committee?	Doing something else? (specify)
Yes	48-1	49-1	50-1	51-1	52-1
No.	2	2	2	2	2
NORC use.	3	3	3	3	3
B. Have you actually done any of these things? (Which?)					
Yes	4	4	4	4	4
No.	5	5	5	5	5
NORC use.	6	6	6	6	6
C. If a local organization asked you, do you think you would very likely (insert item), that you might but you're not sure, or that you probably wouldn't? (Ask for every Item except those circled Code 4)					
Very likely	7	7	7	7	7
Might	8	8	8	8	8
Wouldn't.	9	9	9	9	9
Don't know.	0	0	0	0	0
NORC use.	Y	Y	Y	Y	Y
D. Do you think (each item) would do some good, only a little good, or no good at all?					
Some good	53-1	54-1	55-1	56-1	57-1
Little good	2	2	2	2	2
No good	3	3	3	3	3
Don't know.	4	4	4	4	4
NORC use.	Y	Y	Y	Y	Y

20. A. On the whole, how would you rate the chances of doing anything about the booms? Would you say there was a very good chance, a good chance, only a fair chance, or hardly any chance at all to improve the situation?

Very good chance.	58-1
Good chance	2
Fair chance	3*
Hardly any chance	4*
Don't know.	5
NORC use.	Y

*B. IF "FAIR" OR "HARDLY ANY": Why is that?

59-

C. How do you think most other people around here feel about this Do you believe they think there is a very good chance, a good chance, only a fair chance, or hardly any chance at all to improve the situation?

Very good	60-1
Good.	2
Fair.	3
Hardly any.	4
Don't know.	5
NORC use.	Y

ASK EVERYBODY ASK EVERYBODY ASK EVERYBODY

21. As you (probably know)(already told me), the booms are caused by Air Force training programs. How important do you feel these jet flights are to our national welfare -- very important, moderately important, or not important at all?

Very important.	61-1
Moderately important. . .	2
Not important	3
Don't know.	4
NORC use.	Y

---

22. A. If you heard only one of these military jet booms a day, do you think you could learn to live with it, or that you might but you're not sure, or that you probably couldn't learn to live with it?

Very likely	62-1
Might	2
Couldn't.	3
Don't know.	4
NORC use.	Y

QUESTION 22 CONTINUED

B. If you heard one of these booms every hour or so during the daytime, do you think you could very likely learn to live with it, that you might but you're not sure, or that you probably couldn't learn to live with it?

Very likely	63-1
Might	2
Couldn't.	3
Don't know.	4
NORC use.	Y

C. How about having several booms during the night, do you think you could very likely get used to that, that you might but you're not sure, or that you probably couldn't get used to it?

Very likely	64-1
Might	2
Couldn't.	3
Don't know.	4
NORC use.	Y

---

23. How about the civilian aircraft and the air transportation industry -- How important do you feel they are to our national welfare -- very important, moderately important, a little important or not important at all?

Very important.	65-1
Moderately.	2
Little.	3
Not important	4
Don't know.	5
NORC use.	Y

---

24. Do you feel that the civilian air transportation industry has any special importance to the St. Louis area besides its national importance ?

Special importance. . . .	66-1
No special importance . .	2
Don't know.	3
NORC use.	Y

---

25. As you may have read, engineers are now developing a <u>civilian</u> supersonic airplane that may make a loud boom as it flies across the country.

How important do you feel it is for us to have supersonic airplanes that fly faster than the speed of sound -- very important, moderately important, a little important, or not important at all?

Very important.	67-1
Moderately important. . .	2
A Little.	3
Not important	4
Don't know.	5
NORC use.	Y

26. A. If this area received a loud boom from a civilian supersonic airplane every hour or so during the daytime, do you think most people around here would very likely get used to it, that they might but you're not sure, or do you think they probably would not get used to it?

B. How about yourself -- Do you think you would very likely get used to it, that you might, or that you probably would not get used to it?

	A. Most People	B. Self
Very likely	68-1	69-1
Might	2	2
Would not	3	3
Don't know	4	4
NORC use	Y	Y

---

27. A. What if this area also received a number of loud booms during the night from these civilian airplanes -- Do you think most people would very likely get used to that, that they might, or that they probably would not get used to it?

B. And how about yourself -- Would you very likely get used to it, do you think you might, or that you probably would not be able to get used to it?

	A. Most People	B. Self
Very likely	70-1	71-1
Might	2	2
Would not	3	3
Don't know	4	4
NORC use	Y	Y

Now we have what we call background information and we'll be through

28. A. How long have you lived in this part of (name of area)? _____years*

*IF LESS THAN 5 YEARS, ASK "B"-"D"

B. Where did you live just before moving here?

72-

C. About how far is that from here? _____miles

D. How long did you live there? _____years**

**IF TOTAL OF "A" & "D" IS LESS THAN 5 YEARS, ASK "E" & "F"

E. And where did you live before that?

F. And how long did you live there? _____years

Q. 29. Have you ever felt like moving away from this area?

Yes	73-1*
No.	2
NORC use.	3

*A. IF "YES": Have you taken any definite steps to find another place?

Yes	4
No.	5
NORC use.	Y

---

30. Family Composition:

Including yourself, how many people live with you in this house? _____
Please list them for me.

Relation to head of family	SEX	About how old is	RACE		
	M F		W	N.W.	74-
Self	M F		W	N.W.	
	M F		W	N.W.	75-
	M F		W	N.W.	
	M F		W	N.W.	
	M F		W	N.W.	
	M F		W	N.W.	
	M F		W	N.W.	

---

31. Now what is the highest grade of school you completed?

Completed 0-4 years of grade school . . .	76-1
Completed 5-6 years of grade school . . .	2
Completed 7-8 years of grade school . . .	3
Completed 1-3 years of high school. . . .	4
Completed 4 years of high school.	5
Completed 1-3 years of college.	6
Completed 4 or more years of college. . .	7
NORC use.	Y

---

32. Here is a card with a list of typical family incomes. Could you tell me the one which comes closest to the amount that all members of your family earned last year. I mean how much money did they get <u>all together from all sources</u> before taxes and other deductions?

A. Less than $4,000	77-1
B. $4,000 but less than $6,000.	2
C. $6,000 but less than $8,000.	3
D. $8,000 but less than $10,000	4
E. $10,000 but less than $15,000.	5
F. $15,000 or more.	6
Refused.	7
NORC	Y

33. Do you rent or own this house? (Circle code and get appropriate information)

78-A Rent -- IF RENT, ASK: A. About how much do you pay per month, including the cost of heat, light and cooking fuel? 78-

79-

$_____

79-B Own -- IF OWN, ASK: B. About how much would you say your home is worth today? 80-

$_____

---

34. I have a list here of noises which sometimes annoy people. Do these ever annoy you when you hear them? (Read list)

	Annoy Yes	Annoy No	Never Hear	NORC
A. The noise of a lawn mower.	7-1	2	3	Y
B. A dripping faucet.	8-1	2	3	Y
C. A dog barking continuously	9-1	2	3	Y
D. The sound of a knife grating on a plate.	10-1	2	3	Y
E. Somebody whistling out of tune	11-1	2	3	Y
F. Somebody switching on the radio or TV when you want to be quiet.	12-1	2	3	Y
G. A pneumatic drill.	13-1	2	3	Y
H. A banging door	14-1	2	3	Y

15-

---

35. Would you say you were more sensitive or less sensitive than most people are to noise?

More sensitive.	16-1
Less sensitive.	2
Same.	3
Don't know.	4
NORC use.	5

---

36. Would you say you were more sensitive or less sensitive than most people to things in general?

More sensitive.	17-1
Less sensitive.	2
Same.	3
Don't know.	4
NORC use.	Y

---

37. How far would you agree or disagree with people who say "noise is one of the biggest nuisances of modern times" -- Would you agree strongly, agree, disagree, or disagree strongly?

Agree strongly.	18-1
Agree	2
Disagree.	3
Disagree strongly	4
Don't know.	5
NORC use.	Y

38. By the way, have you ever flown in a plane?

	Yes	19-1*
	No.	2**
	Don't know.	3**
	NORC use.	Y

*IF "YES", ASK "A" & "B"

A. About how many times?

Once or twice - a few . .	20-1
Three or four	2
Five or more.	3
Don't know.	4
NORC use.	Y

B. When was the last time?

12 months ago or less . .	21-1
One to 3 years ago. . . .	2
Four or more years ago. .	3
Don't know.	4
NORC use.	Y

**IF "NO, ASK "C"

C. Has anyone in your family ever flown in one?

Yes	22-1
No.	2
Don't know.	3
NORC use.	Y

---

39. A. Could you tell me who is the main earner in this family?

B. What sort of work does (main earner in the family)do?

Job:

Industry:

23-

IF RESPONDENT IS NOT MAIN EARNER, ASK "C"-"E"

C. Do you have a job away from your home?

Yes	1*
No.	2**
Don't know.	3

*IF "YES" TO "C", ASK "D"

D. What sort of work is that?

Job:

Industry:

24-

**IF "NO" TO"C", ENTER STATUS BELOW: (student, housewife, retired, etc.)

E.

40. Have you ever been a member or worked for one of the military services?

Yes	25-1*
No	2**
Don't know	3
NORC use	4

*A. IF "YES": Are you (a member)(working there) now?

Yes	25-5
No	6
Don't know	7
NORC use	Y

**B. IF "NO": Have you or anyone in your family ever worked for a compnay that does much of its business with the military?

Yes	26-1
No	2
Don't know	3
NORC use	Y

---

41. (Casually) By the way, had you heard anything about this survey before this interview?

Yes	27-1*
No	2
NORC use	3

*A. IF "YES": What have you heard? (Who was doing the survey? For what purpose?)

---

42. A. Now in case the office finds I've left something out, what would be the best time to call you? (Enter on first page)

B. And what is your phone number? (Enter on first page)

43. Is there anything else you'd like to tell me, that I haven't already asked you?

TO BE COMPLETED BY THE INTERVIEWER AFTER THE INTERVIEW

1. Was the respondent suspicious of the purpose of the interview or the interviewer?

IF "YES", EXPLAIN: Yes ( ) No ( )

---

2. Was the respondent always relaxed and willing to answer all questions frankly, or was he sometimes tense, defensive, uncooperative?

IF "NO", EXPLAIN: Always frank -- Yes ( ) No ( )

1- 2- 3- 4- 5- 6-

CONFIDENTIAL
Survey 443-1A
12-15-61

NATIONAL OPINION RESEARCH CENTER
University of Chicago

Assignment No._____ Time for Callback_____

First
Telephone No. _____ Interviewer_____

Date of
Address_____ 1st Interview_____

_____

Respondent Description_____

Re-interview Assigned to_____ Time Began_____

Time Ended_____

Hello. This is_____ from the opinion research center. About ____ weeks ago we interviewed (you, your wife, your husband) on a survey we are doing around here. (Is /he, she/ home now?) I'd like to thank you again for your help and check a few things with you before I finish my assignment.

---

1. First, during this last week or so, have you heard any booms from military jets flying near here?

Yes	28-1
No.	2*
NORC use.	Y

*IF "NO", ASK "A" then END interview 29-

A. Have you been at home during most of this last week or so, or have you been away?

At home	30-1
Away.	2
NORC use.	Y

---

2. Were the booms you heard recently much louder than usual, a little louder, or not as loud as usual?

Much louder	31-1
Little louder	2
Same.	3
Not as loud	4
Don't know.	5
NORC use.	Y

*IF "YES" TO Q.4, ASK "A" BEFORE GOING ON TO NEXT ITEM

4. Did any of the recent booms (ask each item below)	Yes	No	NORC	A. How annoyed did this make you feel? Very Annoyed	Moderately Annoyed	Only Slightly	or not Annoyed	DK, NORC
1) Startle or frighten you? . .	32-1*	2	3	4	5	6	X	Y
2) Disturb your family's sleep? .	33-1*	2	3	4	5	6	X	Y
3) Interfere with your rest or relaxation? . . .	34-1*	2	3	4	5	6	X	Y
4) Interfere with your conversation?	35-1*	2	3	4	5	6	X	Y
5) Interfere with your radio or TV?	36-1*	2	3	4	5	6	X	Y
6) Make your house rattle or shake?.	37-1*	2	3	4	5	6	X	Y
7) Interfere or disturb any other activity? (IF YES) What? . . .	38-1*	2	3	4	5	6	X	Y

---

5. Did any of the recent booms damage anything in your house?

Yes	39-1*
No.	2
NORC.	Y

*IF "YES", ASK "A" & "B"

A. What did it do? (Probe for specific damage)

40-

B. And how annoyed did this make you feel?

Very annoyed.	41-1
Moderately annoyed. . . .	2
A little annoyed.	3
or not at all	4
Don't know	5
NORC	Y

6. And did you feel like doing something about the recent booms? For example, did you feel like writing or telephoning an official? (Ask each item in A before asking B, etc.)

	ITEMS				
A. Felt like --	Writing or telephoning an official?	Visiting an official?	Signing a petition?	Helping set up a citizens committee?	Doing something else? (specify) _____
Yes	42-1	43-1	44-1	45-1	46-1
No	2	2	2	2	2
NORC use	3	3	3	3	3
B. Have you or anyone in your family here actually done any of these things about the recent booms? (Which?)					
Yes	4*	4*	4*	4*	4*
No	5	5	5	5	5
NORC use	6	6	6	6	6

*C. IF "YES" TO ANY ITEM IN "B": Do you think this will do some good, only a little good, or no good at all?

Some good	47-1
Little good	2**
No good	3**
Don't know	4**
NORC use	Y

**D. IF "LITTLE", "NO GOOD" OR "DON'T KNOW": Why do you say that?

7. A. If your area received booms from a civilian jet as loud as the recent ones every hour or so during the day, do you think most people around here would very likely get used to it, that they might but you're not sure, or do you think they probably would not get used to it?

   B. How about yourself -- do you think you would very likely get used to it, that you might, or that you probably would not get used to it?

	A. Most People	B. Self
Very likely	49-1	50-1
Might	2	2
Would not	3	3
Don't know.	4	4
NORC use.	Y	Y

---

8. A. What if this area also received civilian jet booms as loud as the recent ones during the night -- Do you think most people would very likely get used to that, that they might, or that they probably would not get used to it?

   B. And how about yourself -- Would you very likely get used to it, do you think you might, or that you probably would not be able to get used to it?

	A. Most People	B. Self
Very likely	51-1	52-1
Might	2	2
Would not	3	3
Don't know.	4	4
NORC use.	Y	Y

Well, I guess that's it. Thanks again for all your help.

Date:_____ Interviewer's Signature:_____

1- 2- 3- 4- 5- 6-

CONFIDENTIAL
Survey 443-1B
12-15-61

NATIONAL OPINION RESEARCH CENTER
University of Chicago

Assignment No._____ Time Interview Began:_____

Telephone No._____ Time Interview Ended:_____

Hello. I'm from the opinion research center at the University of Chicago. We are doing a study about how people feel about living in different places and I'd like to get some of your views.

---

1. The first question is: In general, how do you like living in this part of (name of area)? Do you rate it as an excellent, good, fair, poor, or very poor place to live?

Excellent	7-1
Good.	2
Fair.	3
Poor.	4
Very poor	5
Don't know.	6
NORC use.	Y

---

2. Would you say you like many things, just a few things or hardly anything about living around here?

Many things	8-1
A few things.	2
Hardly anything	3
Don't know.	4
NORC use.	Y

---

3. Now what about things you don't like around here? Would you say there are many things, a few things or nothing at all you don't like around here?

Many things	9-1
A few things.	2
Nothing	3
Don't know.	4
NORC use.	Y

---

4. On the whole, would you rate this area as very noisy, fairly noisy, fairly quiet or very quiet?

Very noisy.	10-1
Fairly noisy.	2
Fairly quiet.	3
Very quiet.	4
Don't know.	5
NORC use.	Y

5. During this last week or so, have you heard any booms from military jets flying near here?

Yes	11-1
No	2*
NORC use	Y

*IF "NO", ASK "A" then END interview

A. Have you been at home during most of this last week or so, or have you been away?

At home	12-1
Away	2
NORC use	Y

---

6. Were the booms you heard recently much louder than usual, a little louder, or not as loud as usual?

Much louder	13-1
Little louder	2
Same	3
Not as loud	4
Don't know	5
NORC use	Y

---

*IF "YES" TO Q.7 ASK "A" BEFORE GOING ON TO NEXT ITEM

7. Did any of the recent booms (ask each item below)	Yes	No	NORC	A. How annoyed did this make you feel? Very Annoyed	Moderately Annoyed	Only Slightly	or not Annoyed	DK, NORC
1) Startle or frighten you?	14-1*	2	3	4	5	6	X	Y
2) Disturb your family's sleep?	15-1*	2	3	4	5	6	X	Y
3) Interfere with your rest or relaxation?	16-1*	2	3	4	5	6	X	Y
4) Interfere with your conversation?	17-1*	2	3	4	5	6	X	Y
5) Interfere with your radio or TV?	18-1*	2	3	4	5	6	X	Y
6) Make your house rattle or shake?	19-1*	2	3	4	5	6	X	Y
7) Interfere or disturb any other activity? (IF YES) What?	20-1*	2	3	4	5	6	X	Y

8. Did any of the recent booms damage anything in your house?

Yes	21-1*
No	2
NORC use	Y

*IF "YES", ASK "A" & "B"

A. What did it do? (Probe for specific damage)

22-

B. And how annoyed did this make you feel?

Very annoyed	23-1
Moderately annoyed	2
A little annoyed	3
or not at all?	4
Don't know	5
NORC use	Y

---

9. And did you feel like doing something about the recent booms? For example, did you feel like writing or telephoning an official? (Ask each item in A before asking B, etc.)

	ITEMS				
A. Felt like --	Writing or telephoning an official?	Visiting an official?	Signing a petition?	Helping set up a citizens committee?	Doing something else? (specify)
Yes	24-1	25-1	26-1	27-1	28-1
No	2	2	2	2	2
NORC use	3	3	3	3	3
B. Have you or anyone in your family here actually done any of these things about the recent booms? (Which?)					
Yes	4*	4*	4*	4*	4*
No	5	5	5	5	5
NORC use	6	6	6	6	6

*C. IF "YES" TO ANY ITEM IN "B": Do you think this will do some good, only a little good, or no good at all?

Some good	29-1
Little good	2**
No good	3**
Don't know	4**
NORC use	Y

**D. IF "LITTLE", "NO GOOD" OR "DON'T KNOW": Why do you say that?

30-

10. Do you feel it is absolutely necessary for the military to have the booms around here, or not?

Yes	31-1*
No	2*
Don't know	3
NORC use	Y

*IF "YES" OR "NO", ASK "A"

A. Why is that?

32-

33-

---

11. A. How much concern would you say the Air Force officials have for the feelings and comfort of residents like yourself -- do you think they have very much concern, moderate concern, only a little, or none at all?

Very much	34-1
Moderate	2
Little	3
None	4
Don't know	5
NORC use	Y

B. How about the Air Force pilots -- Do you think they could perform their missions and still avoid these booms if they wanted to?

Avoid booms	35-1
Not avoid	2
Don't know	3
NORC use	Y

---

12. As you may have read, engineers are now developing a civilian supersonic airplane that may make a loud boom as it flies across the country.

How important do you feel it is for us to have supersonic airplanes that fly faster than the speed of sound -- very important, moderately important, a little important, or not important at all?

Very important	36-1
Moderately important	2
A little	3
Not important	4
Don't know	5
NORC use	Y

---

13. A. If your area received booms from a civilian jet as loud as the recent ones every hour or so during the day, do you think most people around here would very likely get used to it, that they might but you're not sure, or do you think they probably would not get used to it?

B. How about yourself -- do you think you would very likely get used to it, that you might, or that you probably would not get used to it?

	A. Most People	B. Self
Very likely	37-1	38-1
Might	2	2
Would not	3	3
Don't know	4	4
NORC use	Y	Y

14. A. What if this area also received civilian jet booms as loud as the recent ones during the night -- Do you think most people would very likely get used to that, that they might, or that they probably would not get used to it?

B. And how about yourself -- Would you very likely get used to it, do you think you might, or that you probably would not be able to get used to it?

	A. Most People	B. Self
Very likely	39-1	40-1
Might	2	2
Would not	3	3
Don't know.	4	4
NORC use.	Y	Y

Now we have what we call background information and we'll be through.

15. A. How long have you lived in this part of (name of area)? _____years*

*IF LESS THAN 5 YEARS, ASK "B"-"D"

B. Where did you live just before moving here?

41-

C. About how far is that from here? _____miles

D. How long did you live there? _____years**

**IF TOTAL OF "A" & "D" IS LESS THAN 5 YEARS, ASK "E" & "F"

E. And where did you live before that?

F. And how long did you live there? _____years

---

16. Including yourself, how many people live with you in your house? _____
Please list them for me.

Relation to head of family	SEX M	SEX F	About how old is	
Self	M	F		42-
	M	F		
	M	F		43-
	M	F		
	M	F		44-
	M	F		
	M	F		
	M	F		

17. Now what is the highest grade of school you completed?

Completed 0-4 years of grade school . . .	45-1
Completed 5-6 years of grade school . . .	2
Completed 7-8 years of grade school . . .	3
Completed 1-3 years of high school. . . .	4
Completed 4 years of high school.	5
Completed 1-3 years of college.	6
Completed 4 or more years of college. . .	7
NORC use.	Y

---

18. Now for statistical purposes we have to know something about family incomes. Could you tell me which of the following six categories comes closest to the amount that all members of your family earned all together last year. I mean how much money did they get <u>all together from all sources</u> before taxes and other deductions? (Read Categories)

A. Less than $4,000	46-1
B. $4,000 but less than $6,000.	2
C. $6,000 but less than $8,000.	3
D. $8,000 but less than $10,000	4
E. $10,000 but less than $15,000.	5
F. $15,000 or more.	6
Refused	7
NORC use.	Y

Well, I guess that's it. Thanks for all your help.

Date:_____ Interviewer's Signature:_____

NATIONAL OPINION RESEARCH CENTER
University of Chicago

SPECIFICATIONS FOR SURVEY 443

I. Materials and Preparation

1. Survey Number This is Survey 443. Please refer to it by that number in filling out your forms and in correspondence with the office.

2. Address Correspondence and Questions to Mrs. Dorothy Rosen.

Mrs Rosen is the field supervisor in charge of all interviewing in the St. Louis area. If you should not be able to complete an assignment, or if you need help of any kind in your interviewing, call her or write to her.

Mrs. Dorothy Rosen
766 Yale
University City 30, Mo.

PArkview 1-0017

3. Time Limits Interviewing will start about November 13 and must be completed before the week of Christmas. As you know, as you approach the holidays, it will become increasingly difficult to secure the cooperation of respondents. It follows, that we must complete our assignments as quickly as possible to avoid last minute complications.

In general, each assignment of eight interviews should be completed within a week. If you find special circumstances that may prevent the completion of an assignment within 7 days, please call Mrs. Rosen and advise her of the problem.

4. Receipt of New Assignments and Return of Completed Interviews.

a. General Procedure: Each assignment will consist of eight interviews. You are to complete each assignment before receiving your next one. Make arrangements with Mrs Rosen, as to whether you are to bring your completed questionnaires to her home or whether you are to mail them to her.

If for some reason you have made appointments to complete your assignment and have free time before you can complete them, call Mrs. Rosen for further instructions.

If you are having difficulty in finding eligible respondents, call Mrs. Rosen.

b. First Assignment: Although your first assignment will generally require eight interviews, you are to call Mrs. Rosen and arrange for a review of your first three or four completed questionnaires, before you proceed with the remainder of your first assignment. This final post-training review will make certain that you are proceeding correctly with your assignment, and avoid any costly mistakes.

5. I.D. (Identification Cards) This card designates you as an NORC interviewer and should be used when necessary to prove you are associated with a bona fide research organization.

6. NORC Brochures When necessary, you may show the respondent the brochure as a further explanation of the kind of work NORC does. As explained in Section II-4 of the Spex, you do not show the brochure voluntarily, since this may involve a costly delay in starting the interview.

7. Interviewer Report - Form F-13 This form is to be used after you complete your last assignment, as a permanent summary of your experiences. Your answers are read very carefully and are used in improving our future research.

8. Interviewer Questionnaires - Form 443-1 These are exact copies of the questionnaire that will be used in this study. They are to be used in your training program. You may markup and make notes on one copy but you are to use the other two copies in your practice interviews.

II. Background and Purpose of Study

1. Study Objectives This is a community survey of how different people feel about living in different areas. It attempts to record systematically the kinds of things people like and dislike about their residential environments and the kinds of individual and group actions taken to improve undesirable situations.

Before doing a study in a particular area, the study director visits the locality and talks to key people about local problems. In this way, the questionnaire can be geared to relevant and meaningful local problems. For Your Information Only - In the St. Louis area, the noise from civilian airplanes and the loud booms from military jets are of particular interest to us. Our review of newspaper files and interviews with community leaders indicate that these special problems are topical in St.Louis at this time.

Obviously, this information, about our special local interests, must not be volunteered to a respondent. As you will see when you read the questionnaire, the early questions are very general and are designed specifically to record the problems which are most salient and important to the respondent. If he were informed in advance of our special interests in airplane noises, this would probably influence his responses and bias our analysis. During the latter parts of the interview, however, when many specific questions are asked about airplanes, the respondent, himself, may inquire why we are so interested in airplanes and noise. Then, only as a direct answer to a respondent's question, you may tell him "In some areas, schools, roads or transportation are major problems and we ask detailed questions about them. In this area, the study director found in preliminary interviews that noise of airplanes are key issues, so he included questions about them in this questionnaire."

2. Uses of Data Secured from Interviews The respondent may ask what is the purpose of this study -- or who will use these answers? Local, state and federal government officials, city planners, and private social welfare organizations have an urgent need for the kinds of information included in this study. The results of this area study will be combined with comparable data from other areas and published as an independent research report. With the rapid growth of new suburban areas and the many changes in older residential communities, there is an urgent need for accurate factual information on how people react to various neighborhood disturbances. We have every assurance that our findings will prove useful to improving future neighborhood and community development.

3. Sponsorship of Study This study is part of the regular NORC social survey program and is supported by a number of Funds. If asked, you may assure the respondent that it is not sponsored by any local group, but is part of our nationwide research program on community studies. In preparing the questionnaire, local government officials were interviewed and expressed an interest in the overall statistical results, but they are not sponsors or directors of this study.

4. Your Approach Most respondents are generally curious about the "purpose" of a study and will usually ask about it some time or other during an interview. A simple approach which has been thoroughly pretested on hundreds of similar NORC surveys is printed on the first page of the questionnaire and should be used as your introduction. You greet your respondent. You explain that you're working on a public opinion survey, you tell him you want his ideas and opinions; and you go immediately into the first question. The wording of the suggested introduction follows:

> "Hello. I'm from the opinion research center at the University of Chicago. We are doing a study about how people feel about living in different places, and I'd like to get some of your views."

Usually this brief statement is sufficient to start the interview. You do not ask him whether he wants to be interviewed, or whether he has the time to be interviewed. You do not tell him what the survey is specifically about. You do not go into details about NORC unless he is curious or suspicious. Your aim is to forestall any hesitancy on his part by getting immediately to the most interesting thing -- the questions -- and to avoid wasting time in lengthy explanations. You will find that most of your respondents will answer Q. 1, start thinking about Q. 2, and very often will go through the entire interview without once raising the question of whom you represent and why you want their answers. In such cases, when you complete the interview, make your farewell and leave promptly.

If the respondent wants to know what the survey is about, what kind of questions you have, say, "Well, the first one is. . ." In general, how do you feel about living in this part of (____) etc." If he seeks further information, explain that, "This survey is designed to assist City Planners in their work and is concerned with the ways in which different people in different communities feel about various problems. The ways in which you and other people have actually solved your local problems will assist in the planning of new communities."

If the respondent wants to know what kind of organization the National Opinion Research Center is,tell him, "The National Opinion Research Center is a non-profit organization which conducts many kinds of surveys of interest to social scientists, to foundations and to government agencies. A few recent studies have included: the cost of health and medical expenses in the United States; public attitudes toward older people, college professors' attitudes toward academic freedom; factors associated with the utilization of dental services; attitudes toward television and television programming; the health problems of older people; the financial situation of American graduate students; and many others.

If he still is not satisfied, you may show him the NORC brochure, but do not volunteer this document, because it may involve costly delay while he reads the brochure.

If he asks for identification, produce your I.D. card, but do not offer it unless asked, because it may create additional questions, where none existed.

If he wants to know, "Why pick me?" tell him, "The office assigns me to an area and I follow a rule of calling at every third or fourth house in a block." If he says, "I'm not typical," answer, "We're interested in all kinds of people in order to get a true cross-section of opinions. Yours is as important to us as anyone else's."

The most important single rule is be brief and get to the first question as soon as possible.

III. Locating Your Respondent

Each sampling area has been carefully selected to represent a variety of physical and sociological characteristics. Be sure, therefore, to interview only in the assigned areas. In case of doubt, consult Mrs. Rosen.

A. General Qualifications of Respondents

1. All respondents must be 18 years of age or over.
2. All must have their permanent residence on the block. Do not interview visitors or houseguests.
3. Do not interview people whose command of English is so poor, or who are so hard of hearing that interview results would be dubious.
4. In every case, interview only one respondent from the same household.

B. Age and Sex Quotas

Twelve interviewers will normally be assigned to each sampling area, with a quota of eight interviews for each interviewer. Half of each quota will be men and half will be women; half will be persons 40 years of age or older and half will be under 40 years of age. Consequently each assignment will be as follows:

Age	Male	Female	Total
Under 40	2	2	4
Over 40	2	2	4
Total	4	4	8

After you have completed specific parts of your age-sex quotas in an assignment use the following introduction in addition to the general approach printed on the questionnaire: "My assignment calls for a man or woman over 40 years of age (or under 40 years of age) is there such a person living here?"

C. When to Interview

While you are not required to interview at any specific hour of the day or night, the scheme described below is designed to give you the most efficient results. An overall consideration underlying the suggested scheme is the desirability of completing all interviews in a small area as soon as possible. Since spontaneity of response is an important objective, it is necessary to complete all assignments quickly.

Experience has shown that neighbors will discuss their interviewing experiences and if we prolong interviewing in an area, the respondent may be forewarned of the contents of the questionnaire. A second underlying consideration is the desirability of avoiding "interviewer fatigue." If too many interviews are completed without interruption, normal fatigue will generally dull the alertness of the interviewer. The suggested scheme provides for a maximum of three consecutive interviews.

1. Schedule 2 or 3 interviews with women during the morning hours before lunch.

2. Schedule 1 or 2 interviews with women in the early afternoon.

3. Return in the evening and schedule 2 or 3 interviews with men in one area.

4. Schedule the return of your first days' completed interviews to the field supervisor and discuss them with her. This step is mandatory for all interviewers. After your first assignment, return your completed interviews and receive your new assignment, as you have arranged with Mrs. Rosen. Then, proceed to interview women during the morning and afternoon hours.

5. Return in the evening to the area and complete your interviews with men.

D. Selection of Respondents

1. Block Assignment Sheet The specific sides of the streets from which you are to select your respondents will be clearly stated in red pencil on a "Block Assignment Sheet" the streets listed in blue pencil merely help you locate the boundaries of the assigned block. Remember to stay within the stated boundaries of your assignment.

2. Familiarize Yourself with the Assigned Areas Before you begin your selection of respondents, walk along the sides of your assigned block(s) so that you are familiar with them. This will help you plan your work and you should call your field supervisor in the event of any situation not covered in these instructions. The street listed on side A of the first block will be your starting point for selecting respondents, unless otherwise specified.

3. Use Random Procedure in Selection of Homes The following system will be used in the selection of dwelling units. (The use of a systematic procedure will minimize any biases in your selection):

a) On your first assigned block, start with the first corner house, then skip every other house until you have filled your quota. On your second assigned block, start with the second house from the corner and proceed as described above. Onthe third assigned block, start with the first corner house etc. . . This procedure will avoid your selection of too many corner houses, only the well-kept homes, etc.

b) If you reach the end of your assigned block and have not filled your quota, return to the first skipped house and try each skipped house (including not at homes) until you have filled your quota. . .

c) If you are unable to fill your quota after contacting every house on the assigned block(s), call Mrs. Rosen for further instructions.

E. Instructions for Block Assignment Sheet

1. The assigned sides of each block will be shown in red on the sketch maps of the Block Assignment Sheet. Any special limitations in terms of house numbers, etc., will be listed under Special Instructions. If there is any doubt about the limits of the assigned area, call your field supervisor for clarification.

2. For each completed interview, list the address, sex and age of the respondent under Part I on the front of the Block Assignment Sheet. Be sure to check the sex and age quota requirements, before you proceed with your selection of respondents.

3. For each unsuccessful contact which does not result in a completed interview, record the following information on the back of the Block Assignment Sheet:

a) The address of the unit approached

b) The time of approach -- A call-back may be scheduled at a different time.

c) Check "Yes" or "No" to indicate whether any adult was at home at the time of contact.

d) If the reason for not securing an interview was that the person did not meet the survey requirements, indicate the specific reason under "D" -- i.e., wrong sex or age, transient, visitor, deaf, language difficulty, etc.

e) If the person refused to be interviewed or broke off the interview before completion, indicate the sex and approximate age of the person and the specific circumstances of the refusal or break-off. This information is important because in the case of a refusal due to temporary inconvenience, a call-back may be necessary. While there is no specific rule, if an eligible person is at home, and you plan to be in the area the following day, try to arrange an appointment. If the only time the respondent will be available is not consistent with your assignment, record the situation and continue your contacts.

Do not count as refusals persons whom you approach and then find do not fit your quota. Such persons have not refused.

Similarly, do not count as refusals people who are willing to be interviewed, but whome you yourself reject because they speak no English, are drunk, or otherwise not qualified.

Don't count it as a refusal if nobody comes tothe door, even though you have reason to believe someone is home.

Count as refusals only those persons you approach who meet the quota, but refuse to answer your questions, or who terminate the interview after you have started.

4. As you skip a house in your sampling procedure, or if you complete your quota before contacting every house in your assignment block, list the address of each unit

which you failed to contact on Part III of this form. It may be necessary to assign these homes to another interviewer, and this information is vital to the field supervisor so that a current inventory of available dwelling units may be maintained.

IV. Speecial Reminders

Please study again "A Brush-up on Interviewing Technique" and review the notes you took during the training sessions. The general rules of good interviewing are not repeated here, except as they are particularly relevant to the study.

A. Be Patient -- Use Only Neutral Probes The general interviewing instructions have pointed up the general rule for all interviewers to maintain an impartial, objective attitude while interviewing. You should be especially conscious of this in the present survey, because the problems of community disturbances are probably particularly important to the people we will interview. Some of the respondents may be slow in answering questions because they may not have thought through the problem. You may be tempted, therefore, to show your approval of certain responses, or you may unintentionally use a biased probe to elicit a certain response. Forget your own interests and attitudes toward the problem while in the process of interviewing and concentrate only on giving your respondents the maximum opportunity for the free expression of their own opinions and ideas within the limits set by the questionnaire.

B. Use a Clear, Legible Handwriting Unless we can read the answers, your hard work will be of little value. Therefore, as soon as you can, take the time to edit the completed questionnaire and to clean up any bad writing.

C. Ask All the Questions Including the Relevant Sub-parts In most instances, a series of related questions have been included on each different psychological factor under study. If one or more parts of the series is accidentally left blank, the entire battery of questions may be voided in the analysis.

To help you select the appropriate sub-parts, a code of asterisks has been used. For example: On Question 3, if the respondent answers "Many things" or "A few things" (Codes 1 or 2 are circled), note a single asterisk next to Codes 1 or 2, and immediately below an explanation of the asterisk in capital letters. It says, "* IF "MANY" OR "A FEW", ASK "A" & "B". If Codes 3 or 4 are circled there is no asterisk and you skip parts A and B. Therefore, whenever you circle a code that has one or more asterisks next to it, look for the subpart immediately below with the same number of asterisks, and ask the sub-part question as directed.

Below each pre-coded question is a category, "NORC use." This code is used whenever a question is accidentally left blank. You are never to circle this category, and we hope we never have to circle it either.

D. Record All Relevant Comments Some of the questions, expecially the second and third are of the free-answer type and require the recording of verbatim comments. This is extremely important because the exact language used is very often a significant clue of the intensity of the respondent's feelings.

Even more important are the extra-unsolicited comments which a respondent may offer in connection with a pre-coded question -- or as an afterthought to a previous question. The subject of this study involves the complex emotions of fear, annoyance, national security etc., and our experience indicates that the most revealing comments are often made at the most unexpected moments of the interview.

BE ALERT TO ALL RELEVANT COMMENTS WHENEVER THEY ARE MADE AND RECORD THEM IN THE MARGINS OF THE QUESTIONNAIRE OR ON THE BACK OF EACH PAGE. Rmemeber, our only clues about the respondent's feelings are the precoded answers and the comments which you actually record on the questionnaire.

E. Avoid Lazy "Don't Knows" We are asking the respondents to pin-point their attitudes and experiences. But for many of them the process of answering our questions will be the first opportunity to think through the problem. Be patient and reassuring. If the respondent gets impatient or unsure of himself, interrupt your questioning and explain, "There are no right or wrong answers -- we're interested in finding out just how you feel about these things....." Don't accept an "I don't know" answer immediately. It may be an easy way out -- of not thinking about the question. Use such neutral probes as, "Well, nobody can be sure -- but what do you think from what you've heard or read. . ." or "Nobody really knows -- but what do you believe (the situation) to be. . . ."

"Don't know" answers make the analysis of the questionnaire more difficult, but some "don't know" answers are bona fide answers. You will learn to judge a real "don't know" from a "lazy don't know." After making an extra effort to get the respondent to answer the question, and he still does not know, accept it as such. In some cases, the "don't know" is the real answer and reflects the lack of knowledge or crystalization of thought among a certain segment of the population.

V. The Questionnaire

A. General Structure of the Questionnaire

One of the major problems involved in devising a standard questionnaire is the arrangement of questions in a natural sequence. Certain questions frequently stimulate a typical pattern of thought and unless the questionnaire is organized to correspond with the natural flow of answers, interviewing problems are increased. In general, this questionnaire is divided into five sequences:

1. General open discussion of likes and dislikes followed by direct questions rating satisfaction with living in the area.

2. Direct questions outlining a pattern of local behavior in response to a major annoyance or dislike.

3. General reaction to perceived noise disturbances and behavior patterns in response to them.

4. Direct questions on topical sonic booms, including knowledge, sources of information, disturbances, feelings of importance and necessity and projected feelings toward civilian jet booms.

5. Background information on the characteristics of the respondent.

B. Specific Questions

QUESTION 1: This question is an "easy opener." It ties in very neatly with your explanation of the purpose of the interview and helps to set the respondent at ease right at the outset with a simple and familiar topic of discussion. The question has an important objective, however, so be sure that the person hears all of the pre-coded scale from "excellent" to "very poor" before giving his answer. We want a measure of the respondent's generalized feelings about the area in which he lives before it is possibly colored by the discussion of particulars.

Some people start right in to discuss particular things that they like or dislike, either expanding on their general rating or without actually giving it. This is perfectly natural, and you should go right along with them -- writing down their responses verbatim. Before leaving the question, however, get their rating by reformulating the question as follows: "That is fine, now, taking everything into consideration, how do you feel, etc."

QUESTION 2: This question directs the respondent toward things he may like about the area, and lays the basis for the first open question, Part A. It also provides a second index of overall attitudes toward the area, and every effort should be made to get the respondent to make one selection.

Part A is directed toward what the respondent values in his residential environment. Any aspect which he values, social or physical, tangible or intangible, is an appropriate response. You will observe that the question has many aspects to it. It asks for "things you like","Things that you feel are advantages" or "that make this a good place to live." All of these phrases have been pretested very successfully both as parts of separate questions and in combination. The combination form is employed here to avoid duplication in response and to suggest the generality of our interests. Probe for "Anything else?" as long as the respondent has anything to offer. Be sure to probe for clear, intelligible and complete answers. The tendency to classify and generalize has proven to be troublesome. When the respondent says "Oh, I sort of like the environment," for example, ha hasn't really told you much. You will have to ask "mn, hmm, I see, and what is it about the environment that you like?" Similarly, a respondent may say, "It's very peaceful." We've found in pretesting this may mean the absence of noise, or a comparative social isolation such that one is not often disturbed by callers or the telephone. It may also mean the slow pace of activities, or the absence of disagreeable, bickering people in the vicinity. There are many other specific meanings which the term could have for different people. The moral is obvious: you must be alert to vague and unspecific answers and you must probe patiently for clear and specific ones. "What about the so-and-so?" "What are you thinking of particularly?" "What sort of thing do you have in mind?" "Can you tell me a little more about it?" etc. are examples of neutral probes that you can use.

Don't on the other hand, pursue answers which are actually irrelevant to the questions. Keep in mind that we are interested in learning about things which affect the respondent's satisfaction with living where he does. Conditions which contribute to personal happiness but which have no particular connection with his residence -- since they would obtain no matter where he resided -- like a "happy marriage" or "my wonderful children" -- are not actually relevant to the question. Record all such responses, but probe for further feelings in terms of "living around here."

NOTE: You will find that a question about "things you like" will sometimes prompt the respondent spontaneously to tell you about something he doesn't like. This is perfectly all right. Don't cut him off. Probe for a clear picture of what he has in mind. When you resume your questioning, however, return to the particular question sequence you were following before he digresses. A suggested transitional phrase might be, "I see, now are there any other things you like. . ."

QUESTION 3: This parallels question 2 but is concerned with sources of dissatisfaction. The precoded main question directs attention to the negative aspects of the respondent's feelings and rates his overall dislikes.

Both Parts A and B must be asked of every respondent. As in Question 2, the combination form has been employed for the sake of brevity. You should practice reading these questions aloud until you can deliver them smoothly and naturally -- without giving undue stress to particular phrases and understressing other parts of the question.

Keep in mind here, too, that not all factors which affect the life satisfaction of the respondent -- an unhappy marriage, illness uncomplicated by climate, etc. -- are connected with his residence, and such responses should not be pursued at length. Rather, you will have to shift the emphasis to things connected with "living around here," as discussed earlier for Question 2.

It cannot be stressed too emphatically that you will have to be on your guard against vague and general answers to all parts of Question 3. Beware of too easily accepting one-word answers, which all too often seem plausible enough in the interview situation but are later found to be hopelessly vague. In response to Q. 3-A, for example, the respondent may say emphatically "The neighbors" in a tone and manner that suggests that he expects you to know exactly what he means. But what, in fact, does he mean? Are they over-friendly or not friendly enough? Too old or too young? Do they make too much noise or don't they like people (like him) who make noise? Probe -- "Uh-huh, now could you tell me, what is it about the neighbors (you don't like)?" etc.

Certain answers seem clear enough on first hearing, for example: "The heavy traffic on this corner is pretty annoying." But again, the question is, what is the specific annoyance -- what is it about the traffic that is annoying? There are several possibilities, any or all of which may apply for a particular respondent. Among these are vibrations of the house, interference with hearing other desired sounds, the danger involved in crossing the street for the respondent himself or other members of his household, and so on. Remember always probe vague answers such as: Airplanes, Booms, Noise and Low Flying."

Caution: While it has been stressed above that you must probe conscientiously for a clear statement of the nature of the "dislike," "annoyance" or "disagreeable condition," you must exercise reasonable caution to avoid going too far into details with respect to questioning about various aspects of noise and aircraft matters at this stage of the interview. Unfortunately, if the respondent goes into considerable detail in describing his feelings about aircraft operations in the vicinity of his residence he frequently becomes uneasy later on when this matter is taken up intensively in the battery of direct and detailed "airplane" and "noise" questions. On this account, caution is necessary in exploring these subjects in the early part of the interview. On the other hand, one of the major purposes of these open questions is to permit the respondent to volunteer his feelings freely

and to describe them in the context of other environmental circumstances which are sources of satisfaction or of dissatisfaction to him. Therefore, when you feel the respondent has gotten his most important feelings "off his chest" proceed to Q. 4.

The following example will illustrate an adequate series of probes:

R: The airport

I: Mn hmm -- what is it about the airport that you don't like?

R: It's a nuisance.

I: How do you mean?

R: Well, it's those darn airplanes! You'd think they were going to come through the roof!

I: I see, tell me some more about that -- I want to be sure I know just what you mean.

R: Well, what more can I say?

I: Well you say you'd think they were going to come through the roof--

R: Yeah, well what I had in mind there is mainly the noise. Honest, sometimes you can't hear yourself think when they come over like that. There's also a fear that they might not make it someday 'tho they never have had a real serious accident around here. . .not yet.

I: Have we overlooked anything . . . (Part B of Q. 3)

Probed sufficiently? In our judgement, yes. The respondent will have many later opportunities to amplify, clarify (and even contradict) his feelings about airplanes, the way in which the noise bothers him, the hazard of airplane operations and his feelings about that, etc. At this point, however, we have what we need to satisfy the objectives of this question area and would be content to proced , the respondent permitting.

Be sure to ask Part B of all respondents. It is a summary-type probe and suggests that we are interested in all kinds of problems. Frequently, a respondent may be quite bothered by something but will be reluctant to discuss it because he feels nothing can be done about it. We are interested in finding out about such feelings of futility.

QUESTION 4: This question asks for a rating of several specific aspects of the respondent's residential area. He himself, may or may not have brought up these matters earlier. In any event, he gets a chance to consider them now. The question constitutes the second screening device for the respondent to tell us about all of his likes and dislikes in his residential situation.

If the respondent doesn't volunteer one of the five categories, probe, i.e., "Would you say this area was very good, good, fair, poor, or very poor in terms of its schools?" Then circle the appropriate code number and proceed to the next item.

If the respondent answer ambiguously, "Well, it's pretty good," probe, "Would you say very good, good, or fair?" Conversely, if he says, "It's not so good,"or "pretty bad," probe, "Would you say fair, poor or very poor?"

If the respondent qualifies his answer, record the qualification as a voluntary comment and continue as follows: "Well, taking everything into consideration, would you say it's very good, etc?"

In Part A if the respondent says, "I'm a housewife and have no job away from home, ask, "Well, how about your husband's work?"

If the respondent is retired and there is no other "main earner" in the household, ask "Well considering most people who live around here, how would you rate this area in terms of being close to their work, etc...?"

Likewise, in Part B if the respondent has no children in school, and says, "I don't know," probe, "Well from what you've heard from neighbors and others, how would you rate the schools?"

QUESTION 5: This is a direct question about the presence of "dangerous conditions" in the area. It is neutral, however, in that it does not suggest any particular type of danger. If the respondent answers that there are some dangers in the area, circle Code 1 and ask Part A. If the respondent says, "It's very safe, except for the jets," circle Code 1, add "jets" under Part A and probe, "What do you mean by that?"

In Part A, probe for a clear statement of the kinds of dangerous situations. It could be traffic, a hole or pit, lack of street lights, etc. It also may be the first mention of the danger of booms or civilian airplanes landing or taking off. Do not go into details about annoyance with jet or propeller planes, but be sure to get a clear statement about the way in which they are dangers.

QUESTION 6: This question explores the usual pattern of the respondent's reacting to a major disturbance. The main question prompts a selection of the most intense annoyance. If the respondent balks at making one selection, say, "I know it isn't always easy to make a choice, and you know there's no right or wrong answer, so which one would you choose?" If he mentions two or three and refuses to make one selection, record verbatim answers and proceed with A-G and use the plural "these" instead of "this" in Part A, B, etc. If the respondent says, "There is nothing I really dislike," circle Code 0 and ask Q. 7.

Part A rates the overall prospects of effecting an improvement.

Part B starts as an open question, but you should continue with the, "For example, have you ever felt like - writing or telephoning an official?" and circle Code 1 or 2 under B. Then repeat the probe for Items 2-4. Item 5 will pick up any open ideas or actions not listed in the probes. Record these below Item 5 and circle Code 1. If the respondent insists on volunteering comments on "things he felt like doing," record them under 5, and then probe Items 1-4, if not already mentioned.

Part C is asked after all of the items in Part B are probed. It is asked globally, for all items, not separately for each item, as Part B. If the respondent says "Yes" to Part C, ask him to specify which items he actually did and circle 4 for Items done, and 5 for items not actually done. Each item of Part C must have a code 4 or 5 circled.

Part D is asked only if one or more Code 4's (yes response to C) are circled. Part D applies to the total of action taken. If the respondent specifies that something helped and others didn't, record verbatim and ask for overall summary response, "In general, then, do you feel. . .etc."

Parts E and F are asked of everyone answering Part A. It asks the respondent to appraise the feelings and actions of "most people around here." Some respondents will be reluctant to report about other people's feelings. Sometimes they suggest they would be considered "tattle tales" or "gossips" if they talked about their neighbors, etc. Reassure the respondent, the interview is confidential and we just want his impressions not a statistical measurement. Tell him it's important to us what he, himself believes the feelings of "most people" are. Everybody has an opinion about this and we want his.

In Part F, if the respondent reports other people have tried to do something, circle Code 1 and ask G. If the answer to F is "No", skip Part G.

QUESTION 7: This question aims at the respondent's overall assessment of the noise level in his residential environment. If the respondent qualifies his answer, "It's generally quiet, except for those planes or trucks" record the comment and probe, "I see, but including all the different noises. . .etc?" Be sure to get an overall rating.

QUESTION 8: This question concerns the kinds of noises heard in the residential area and specific reactions to them.

Part A is aksed in open fashion and should be probed as an open question, with "Anything else?" until the respondent says, "No, that's all." After circling Code 1 for all noises spontaneously mentioned, use specific probes for those items not already mentioned, and circle a code 2 or 3 for each. If other noises are mentioned list them next to Col. 5.

If any noise listed (Items 1-4) is not heard (Code 3 is circled), skip Parts B-G for that noise. Asks Parts B-G only if a Code 1 or 2 is circled in Part A. Ask all Parts B-G for the first noise mentioned, before asking A-G for the second, etc.

Part B inquires about frequency of hearing the noise. The definition of "often" must be the respondent's own. Whatever he considers "very often", etc. - If he says, "Sometimes it's very often and other times it's only occasionally," record the comment in the margin (Noting the item number 1-5, to which the comment applies) and probe for a general rating.

Part C concerns "usual loudness" ratings. Comments under Part B also apply to C.

Part D concerns the physical avoidability of the noise. The key word is could. Is it physically possible for the noise to be reduced? If the noise source wanted to do so, could he reduce the noise? This is the intent of the question, not whether social pressure could force the noise source to reduce the noise. If the respondent says, "It could be reduced, but they won't," circle 1 and record comment of "futility."

Part E is an overall reaction. If the respondent qualifies his response, "Sometimes it bothers me very much, etc." record verbatim and probe for general response. If the respondent indicates that he has already mentioned some of the items on previous questions, indicate that "It is important to find out the extent of the disturbances . . .that is why we are asking about them again in this way." Try to use a conversational tone and humor the respondent when you repeat the categories. If the number of specific selections appears to be tiresome to the respondent you might say, for example on E, and subsequent parts of this question, "How does this noise make you feel -- you know the categories -- very much, moderately, only a little, or not at all annoyed?"

If the answer to Part E is "Not at all" (Code 4) ask Part F, and skip Parts G & H.

If the Part E is coded 1-3, skip Part F and ask Parts G and H. The precoded categories of Part H are very important and you should try to get the respondent to recall in terms of these categories. For example, if the respondent says, "During the past week," probe, "Was that either today or yesterday?" On the other hand, if he says, "About three weeks ago," it is sufficient to circle Code 3. If the answer is more than 6 weeks ago, it is not important to pin the date down more accurately.

QUESTION 9: This is a key question because it asks the respondent to specify the kinds of activities affected. Question 9 is asked only if Codes 41-1 or 2 are circled. Be sure to check Q. 8 if you are uncertain of the respondent's response.

Ask Q. 9 of each item and if the answer is "Yes" to any item, circle Code 1 and ask parts A and B before proceeding to ask Q. 9 of the next item. Be sure to read the categories as part of the probe,"How often is that -- very often, fairly often, or only occasionally?"

QUESTION 10: This is a second and final filter question for Questions 11-20. Therefore, it is very important to the study.

Ask Q. 10 only if the respondent said he does not hear booms (Code 42-3 of Q. 8). If the respondent said he hears booms (Codes 1-2 of Q. 8) leave Q. 10 blank. This question is asked because the respondent may know the booms occur but he ignores them and feels he doesn't even hear them. Such a reaction, then qualifies the respondent to answer Q. 11-20. "Near here" means over the St.Louis area in general.

If the respondent answers "No" to Q. 10, do not show surprise; circle code 2 and skip Q. 11-20.

QUESTIONS 11-20: Are asked only if the respondent hears booms (Codes 42-1 or 2), or knows of booms (Code 14-1).

QUESTION 11: This inquires about the respondent's information of the booms. If the respondent says, "No", he hasn't read or heard anything about them, circle Code 2 and ask Q. 12.

If the respondent answers "Yes", circle Code 1 and ask Part A as an open question. Probe until the respondent can't recall anything else and circle Code 1 for all sources mentioned. The specific name of a newspaper or TV station is not important to us. After recording all spontaneous mentions probe specifically for each source not already mentioned, as follows: "Did you hear anything about it from the____?"

QUESTION 12: This question concerns the cause of the booms as distinct from ordinary jet noises. A circular answer, "Because the jets fly here, they make the boom," is not satisfactory. Probe, "Do you know why some jets make a boom and others don't?" or "Just why is it that they make a boom -- or Do you know just what causes the boom?" We want to know what about the operation of the jet causes it to make the boom. If the respondent doesn't know, write the comment verbatim and ask Part B.

In Part B, if the respondent hears booms, use parenthetical phrase (When you hear a boom). If not, omit phrase. The purpose of Part B is to ascertain the ease of recognition, and alternate events which the boom may represent. If the respondent

can "always tell", circle 1 and ask Q. 13. If the respondent "sometimes wonders", circle 2 and ask C.

QUESTION 13: There is a special reason why the military jets making the booms fly near the St.Louis area. We want to know if the respondent is aware of this reason. If the answer is, "Yes", circle 1 and ask A, recording as fully and specifically as possible.

QUESTION 14: The respondent may or may not know the reason for the jet booms or the jet flights causing the booms, but he may have a feeling about the necessity of having them here. Everyone answering Q. 14, is asked Part A, in explanation of the answer to Q. 14.

QUESTION 15: This question is like Q. 6E, and the comments regarding the respondent's reluctance to discuss neighbor's feelings apply here. It is very important to probe persistently for an answer because, whether or not the respondent feels "alone" or part of a larger concensus is very significant.

QUESTION 16: This question assesses the respondent's beliefs as to who is in a position to do something to reduce the noise from the booms. Knowing where to go for help, may be important in understanding what the respondent actually does in answer to Q. 19. Therefore, probing on this question is urgent.

If the respondent answers "Yes" to more than one item, ask Part B and circle the one group the respondent feels "can do the most." Note the question is can, able to, not will, willingness to.

Part C is asked of everyone answering this part of the questionnaire. If the respondent qualifies, local vs. other types of officials, record verbatim and press for an overall rating.

Part D specifies that the pilots must perform their missions, but within these limits does the respondent feel the pilots can avoid the booms, or not?

QUESTION 17: This question just like Q. 9 and all comments included under Q. 9 apply here. Under Item 7, "Interfere or disturb any other activity," we do not want to include damage to property. If this is mentioned, record verbatim under space of Q. 18.

QUESTION 18: This may be a touchy question, especially if there has been damage and the authorities have not made a satisfavtory settlement. Be careful to indicate tactfully that we sympathize with the respondent, but have nothing to do with the authorities, and are only interested in what happened. Record verbatim all comments and probe for specific kinds of damage (broken windows, mirrors, bric-a-brac, cracked plaster on walls, etc.) Of course, we never suggest any items they are listed here only to illustrate the kind of specific answers that are acceptable.

If under Part A or B, the respondent voluntarily mentions action taken and results of the action in terms of replies by the authorities, record comments verbatim, then, preface Q. 19, by saying, "Now you may already have answered part of this question, but I'll ask it anyway to be sure."

QUESTION 19: This question is similar to Q. 6 and should be probed carefully. It deals with desired and actual complaint behavior. The probe, "For example have you ever felt like writing, etc," is part of the question and must be

asked of each item listed across the top of the page.

Ask all of Part A before asking Part B. While Part B is asked in an overall way, be sure to circle a Code 4 or 5 for each item. Part C, however, is asked separately for each item, except any item with a Code 4 (the respondent says he has actually done this.)

Part D is asked separately of every item. To avoid needless repetition, you can try to leave out the categories after the first item as follows: "How about visiting an official?" If the respondent doesn't specify a category, you may have to repeat them until he grasps the answer pattern.

QUESTION 20: This is an overall summary question and ties together answers to Q. 19, and ends the sequence of questions 11-20.

Ask Part B only if the answer to A is "Fair or hardly any" (Codes 3 or 4). Probe for specific reasons the respondent is pessimistic. Is it physically impossible, or don't enough people care or don't officials care, etc. . .

Part C is another projective type question like Q. 6 and Q. 15.

QUESTION 21: This question is asked of EVERY respondent whether or not he hears or knows of booms. Use the first parenthetical phrase if the respondent has not mentioned correct reason for flights, and the second phrase if he has mentioned training flights in answer to a previous question.

QUESTION 22: This is a "let's make believe" type of question. If the respondent objects, this is not the actual case, answer, "Well just suppose you heard one. . ." If the respondent says, "How do I know how I'd feel?" answer, "Well, just your best guess -- there's no right or wrong answer, you know."

Ask Parts A-C for every respondent and try hard to discourage "lazy" don't knows.

QUESTION 23: This question switches the reference point from the military to civilian aviation. If the respondent doesn't know what we mean by civilian aircraft, answer, "You know, airplane manufacturing and commercial air lines, like TWA and American Air Lines."

QUESTION 24: This question applies to the economic, social and other importance of civilian aviation on the economy of the Greater St.Louis Area. By "importance" we mean whatever contributions the industry makes to the welfare of St.Louisians and nearby communities.

QUESTION 25: This is also a speculative question and may or may not be difficult to answer. Humor the respondent and urge him "to just imagine" the situation and tell you how he feels about commercial airplanes flying faster than the speed of sound.

QUESTIONS 26-27: are also make-believe, but very important questions. People's reactions to a military flight may be quite different from feelings about a commercial flight. From a city planner's point of view, this difference needs to be measured in order to use reported reactions to military booms. Try your best to get the respondent to play the game of make-believe.

QUESTION 28: This is the first of personal background questions. Use the transitional sentence printed on the questionnaire and ask the main question. The introductory phrase printed on the questionnaire assures the respondent that we're almost finished. If necessary, we have also found it helpful to explain the purposes of these "background" questions as follows, "You know, all of your answers are strictly confidential. They are put on tabulating cards and combined with answers from many other people. But to help in the analysis of answers, the office has to know something about the people we talk to -- that's why we have these questions about yourself.

If the respondent has lived at his present address less than a year, enter the number of months and cross out the word "years" and enter "months" over it.

If the respondent has lived at his present address less than five years, ask Parts B-D. Under Part B, get the street address if possible, if it is a neighborhood of the same area, otherwise, the name of the town and state will be sufficient.

If the respondent's present length of residence plus the time he lived at the place "before moving here" still totals less than 5 years, ask Parts E and F. Since Part E is comparable to Part B, the above comments also apply here.

QUESTION 29: This is another measure of general feelings of satisfaction and belonging to an area. If the respondent has ever felt like moving, circle 1 and ask A.

QUESTION 30: This is a listing of the family and related groups. Enter the total number of persons living in the house, whether or not they are members of the family; i.e. lodgers, friends, etc. Under the column heading, "Relation to head of family", start with the respondent and describe the relationship to the head of the family. . .i.e., wife, mother-in-law, etc. If the head of the family is the respondent, leave the space next to "self" blank. Then, list the relationship of all other persons living in the house.

For each person listed including "self" circle "M" if he is a male or "F" if she is a female, enter his approximate age as of his last birthday, and whether he is white (W) or non-white (N.W.). Mexicans are included in the "white" category, while Negroes, Chinese and other Orientals are included as "non-whites."

One comment about "Age" is in order. Some people believe that women are especially reluctant to reveal their ages to pollsters. In general, this is not true. You will find that if your introduction preceding Q. 28 was made properly, that the respondent will realize we are not prying but are interested in getting these personal facts for statistical purposes only. If necessary, reassure the respondent about our purposes. You will note the suggested probe printed on the questionnaire is purposely vague, "About how old is___?" Indicate that we only want the approximate age -- not the actual birthday, etc. If the respondent still refuses to reveal his age, enter your best guess in parenthesis ( ) and put the letter "I" for interviewer next to it.

QUESTION 31: We are concerned only with years of formal schooling--usually eight years of grammar school, four years of high school, and four years of college. Do not count trade schools, correspondence or adult education courses. Circle the one code that describes the number of years of formal schooling the person had.

QUESTION 32: Give the respondent the card with the list of income categories and have him select the income group that reflects the entire family's earnings from all sources: wages and salaries, self-employment income, interest and dividends, pensions, relief checks, etc. If he objects that he doesn't know for sure, indicate that we only want his best guess of the income group for statistical purposes only. If he absolutely refuses to make a selection, circle Code X.

QUESTION 33: Circle 78-A or 79-B whether the respondent rents or owns his house, and then ask about rent or sale value of house. If the respondent says the cost of heat, etc., varies, indicate we only want "an average figure including summer and winter months." By "worth" we mean how much would it sell for on the present market.

QUESTIONS 34-37: Cover personal reactions to noise sensitivity. Remember the key words are ever and when you hear them. If the respondent says "about average" circle code for "same."

QUESTION 38: This question concerns the respondent's experiences as a passenger in an airplane. If the answer to Q. 38 is "Yes", circle Code 1, ask Part A and B. If "No", circle Code 2 and ask Part C.

QUESTION 39: Part A is asked about the main earner in the family. If the respondent is the main earner, skip Part C; if he is not the main earner, ask Part B in addition to C.

The precise phrasing of this item can best be left to you. If the respondent is a man, it is usually wise to inquire about his occupation and (unless he is retired or unemployed or his job is of such a nature to make you doubtful) to assume that he is the main earner. If the respondent is a woman, it is usually best to ask Part A. By main earner, we mean the person who contributes most to the family's upkeep and expenses. If the respondent is not the "main earner" and is temporarily unemployed circle the code for "Yes', enter the comment "temporary unemployed" and enter his usual line of work in C.

Ask Part C of all respondents who are not main earners. If the respondent is not working away from home circle Code 2 and enter whether he or she is student, retired, a housewife, chronically ill, etc., in Part E.

If the respondent does have a job away from home and is not the main earner, ask Part C.

"Job" refers to the person's line of work, the job he performs. Examples are: Farm owner, Farm tenant, President, Owner, Manager, Lawyer, Physician, Sales clerk, Bellhop, Domestic, Secretary, etc. In the case of factory labor, record the job title -- what the job is called.

"Industry" refers to the type of business that employs the person. Examples might be: Dairy farm, General farm, Real estate agency, Drug store, Bowling alley, Private practice, Oil company, Tire company, Barber shop, Private family, Self-employed, etc. Do not record the names of companies and agencies; we merely want to know the type of business or industry or agriculture which employs him and whether it is private, government, or self-employment.

QUESTION 40: If the respondent ever was a member or worked for one of the military services, circle Code 1 in Q. 40 and ask Part A. Under Part A, code whether the respondent is now or not now a "member or working" for one of the military services. If the respondent has never been a member or worked for one of

the military services, circle 2 and ask Par B. "Much" means whatever the respondent wants it to mean ie a "substantial" amount.

QUESTION 41: Since salience and free answers are important in the early questions, this question is also important. Be very casual about the tone of your voice and record the respondent's impressions of the study.

QUESTION 42: This is a very important question because it will facilitate a call-back in January - about any changes in attitudes or opinions. We do not tell them for certain of the call-backs. We use the exact language on the questionnaire. Indicate this is routine and that we will be interviewing in the area for a month or so.

By this time we should have acquired the respondent's confidence, so that he won't hesitate and be cooperative. Record the telephone number and day of week or time of day on the front of the questionnaire. If the respondent has no phone, enter "None" and record the answer to Part A anyway.

QUESTION 43: Ask Q. 43 and close questionnaire, as if the interview is over and the answer is "off-the-record." Listen carefully to what the respondent says and write it down as soon as you leave his house. Where there is some lack of frankness, this technique often is successful in securing worthwhile comments.

Be sure to thank the respondent and to leave promptly after you are through.

Interviewer's comments: After completing Q. 43, answer questions 1-4, as completely as possible. They will be most useful in interpreting the recorded answers.

You are literally my eyes and ears and I'm dependent on what you record on the questionnaire for all analyses of the data. Be sure to enter the date and sign your name at the end of the questionnaire.

Good luck!

Paul N. Borsky
Senior Study Director

All Interviewers, Survey 443 12-15-61

Paul N. Borsky, Senior Study Director

Instructions for Second Series of Interviews

In order to ascertain completeness and stability of response, every respondent interviewed in November or December will be briefly reinterviewed in January. This will provide up-to-date attitudes and reactions just prior to the end of all field work. The comments listed below will assist you in completing this final phase of your work.

1. Strive for 100% completion rate - No substitutions of respondents are possible in the reinterviews. Only persons already interviewed are eligible for this second wave of interviews. Consequently, any person who is not reinterviewed will have an incomplete report and be of limited value to our final analysis. It is most important, therefore, to make every effort to achieve a 100% completion rate in all reinterviewing.

2. Time Limits - As you may recall the time reference given to respondents in the first series of interviews was indefinite and cummulative up to the time of the interview. In this reinterview, the emphasis is on "this last week or so." In order to insure that the reference period is uniform for all respondents, it is urgent that all reinterviews be completed within a two week period. The longer the reinterviews are delayed, the more incomparabilities are introduced. We urge you, therefore, to complete all assignments as quickly as possible.

3. Use of Form 443-1A

   A. When to Call - Almost all respondents previously gave you their telephone numbers and the time most convenient for callbacks. This information is recorded on the top of the reinterview questionnaire. Use this information in scheduling your telephone calls.

   B. Whom to reinterview - The respondent's description is prelisted on the top of form 443-1A. Since this is a telephone contact and you cannot visually verify the respondent, be especially careful to make sure the person you reinterview is the same as the respondent initially interviewed. Attitudes reported in the first interview will be compared by us to those given in the reinterview. If the persons answering are different in the two interviews, you can readily see the difficulties we will encounter in matching answers.

   C. Introduction - If you were the interviewer who actually conducted the first interview with the respondent, you will already have established an understanding with the respondent which should facilitate the reinterview. In any event, use the suggested approach printed on the questionnaire inserting your name in the first blank space. If the respondent doesn't seem to remember the first

interview refresh his memory by saying, "You remember the interview about things you liked and disliked about living in your area."

The date of the first interview is prelisted on the face sheet of the reinterview questionnaire. Calculate the number of weeks since the first interview and insert the number in the second blank space of the introduction.

Depending on who answers the telephone, vary your reference to the respondent in terms of his relationship to the person answering the phone. If the respondent isn't at home or is not immediately available, find out when you can call back, etc.

After getting the respondent on the phone, avoid any lengthy explanations of the purpose of the callback. Remember at the end of the first interview, you suggested a brief callback might be necessary, so the respondent should be receptive. Use the suggested explanation and ask the first question. In most cases, you'll run through the seven questions in 5-10 minutes - thank the respondent and conclude the call without any questions about purposes being asked. If you are asked to elaborate the reason for a second call, just say, "Well I just wanted to check a few things to make sure I got everything straight. The first question is. . ."

D. The Questions

Question 1: This is a screener. If the respondent says, "No, I haven't heard any booms during the last week or so," circle Code 2 and ask Part A. Then, thank the respondent and end the interview. Be sure the respondent's answer clearly indicates that the question was heard and understood. Otherwise, we will fail to ask Questions 2-8 and lose valuable information. By last week or so we mean since the "New Year" and time of the reinterview.

Question 2: This and the remaining questions are asked only if the respondent has heard booms during the "last week or so. Q.2 asks for a comparative rating of loudness. As usual press for an overall judgment.

Question 3: Don't look for it. There is none. After the pretest, Question 3 was deleted but in stenciling the final form we forgot to change the remaining question numbers.

Questions 4-8: These are very much like questions asked in the first interview, except that they refer to recent booms during the last week or so. If you have any questions about word meanings, refer to the original Spex. Note in Question 6, Part B and C are asked in an overall summary form, and while Part B is recorded for each item, Part C is recorded only once.

Ending: Thank the respondent, make sure to enter date, your signature on the back page and the time the call began and ended on the face sheet.

E. Use of Form 443-1A in face to face interviewing - In about 50 cases, where a respondent did not have a telephone, a personal visit will be necessary to complete the reinterview. If you are assigned a personal visit, you will schedule your call at the time suggested on the Face Sheet and, using the same form (443-1A) complete the face to face interview.

4. Use of Forms 443-1B and 443-3A

A. Purpose - Since the experience of the first interview may affect the respondent's answers on the reinterview, it is necessary to control for this possibility by interviewing a comparable independent sample of respondents. Some of the respondents selected for this purpose will be interviewed by telephone, while others will be visited face to face. Form 443-3A will be used to record all contacts, and form 443-1B will be used to record the interview.

B. Time for contacts - Since this is a control procedure the interview contacts for this phase must be integrated with the regular reinterview calls. This means that all work must be completed within two weeks of start, if at all possible.

In scheduling home visits for the reinterviews, you can also arrange for face to face contacts for this phase at the same time you are in an area. This will cut down on travel time and facilitate early completion of all work.

Since there are no age, sex quotas for these control cases, try to call during the evening hours as well as during the day in order to increase the possibility of male respondents

C. Whom to Interview - At the top of the Assignment Sheet, Form 443-3A, the total number of required interviews for each assignment is entered. While there are no age-sex quotas, try to get an almost equal number of men and women by the way you schedule your calls. In any event, the following general qualifications remain in effect:

1 - All respondents must be 18 years of age or over. If a child answers the phone, ask for an adult. If you discover a respondent is under 18 after completing an interview, do a substitute interview to complete your assignment.

2 - Interview only one respondent from the same household.

3 - Do not interview people whose command of English or whose hearing are poor.

4 - Do not interview a visitor or houseguest if the respondent volunteers the information. We need not ask whether the respondent is a permanent member of the household, but if he volunteers the information, inquire about a permanent resident.

D. Telephone contacts - Form 443-3A, Side A.

1. Sample If the control interviews are to be made by telephone, telephone numbers from streets adjoining the regular sample areas will be listed on Side A of Form 443-3A. You are to call only the numbers listed on the assignment sheet, indicating the results of such calls in the appropriate columns.

2. Date Called Enter the date of each telephone call. If there is no answer and it is necessary to call back on another date, cross out the first date and enter the second date above the initial entry when the second call is made.

3. Completed If the call results in a completed interview, enter the number of the interview in a series from 1-10, in the column marked "Completed."

4. No Answer If the line is busy, make a note and call again. If there is no answer after at least "five rings," check "no answer" column and call the next number. Likewise, if the line is out of order or disconnected, check "no answer."

5. Not Eligible If no adult is home or if the person speaks English or hears poorly or volunteers he is a visitor, check "not eligible."

6. Refusal If a person refuses to answer even the first question, check "refusal" and note any pertinent comments. If a child answers and no adult comes to the phone, this is not a refusal, but a "not elibible" contact. If a person pleads "too busy now," this is a refusal and note comments.

7. Breakoff If the first question is answered and the respondent discontinues the interview before answering the last question, check "breakoff" and note circumstances under "comments."

E. Face to Face Contacts - Form 443-3A, Side B

1. Sample Addresses in the original sample area that were not contacted by you during the first phase of interviewing are listed on Side B of form 443-3A. Only these addresses may be contacted. Do not substitute any other addresses since they may be included in the original assignment or in another interviewer's assignment.

2. Location of Assignment The general location of the assigned addresses will be listed on the block diagrams. If you have any questions, call your supervisor.

3. Results of Contacts For each address listed enter the results of each contact in the appropriate columns of Side B.

F. The Control Interview - Form 443-1B

1. Your Approach Approach each respondent as you did on the original interviews. The comments included in the original Spex apply to these interviews and are not repeated here. Remember, be pleasant in voice, confident and brief in your introductions. Use the standard approach whenever feasible.

2. The Questionnaire You will note this is a short-short version of the main questionnaire with the seven reinterview questions interwoven. Questions 1-4 introduce the study; Questions 5-9 are identical to the reinterview questions; Questions 10-12 record key basic attitudes; Questions 13-14 complete the special reinterview series. Finally, Questions 15-18 record key personal data for statistical processing. For detailed specifications, review the original Spex, Form 443-2.

If any questions arise about the concentration of interest in "booms," remember the standard answer about "In this area, we have these questions. In other areas, with other problems, we have other questions."

Remember to enter the date, your signature and time interview began and ended.

Good luck and thanks again for your fine cooperation.