United States General Accounting Office

GAO

Fact Sheet for Congressional Requesters

April 1989

AVIATION SAFETY

Conditions Within the Air Traffic Control Work Force

GAO/RCED-89-113FS

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-222217

April 24, 1989

The Honorable Guy V. Molinari
Ranking Minority Member, Subcommittee
on Investigations and Oversight
Committee on Public Works and Transportation
House of Representatives

The Honorable Glenn M. Anderson
Chairman, Committee on Public Works
and Transportation
House of Representatives

This fact sheet supplements the work summarized in our report about problems concerning the air traffic control work force.[1] The work performed responds to your request that we update and replicate our previous evaluation[2] of the air traffic control system. In this fact sheet, we have compared the complete 1988 questionnaire responses of air traffic controllers, supervisors, and facility managers (the air traffic work force) with those of our 1985 survey.

The responses to each question are summarized for (1) the air route traffic control centers, which control flights between airports and over oceanic routes, (2) the largest terminals, and (3) the overall combined responses of centers and terminals. The questions and the responses address a variety of air traffic issues facing the Federal Aviation Administration (FAA), including, among others, work load, staffing, overtime, training, morale, and system safety.

In summary, the perceptions of the air traffic work force have changed little since the 1985 survey. Controllers, in general, believe that they are required to handle too much traffic; believe that more overtime is needed to cover

---

[1]Aviation Safety: Serious Problems Continue to Trouble the Air Traffic Control Work Force (GAO/RCED-89-112).

[2]Aviation Safety: Serious Problems Concerning the Air Traffic Control Work Force (GAO/RCED-86-121, Mar. 6, 1986).

CONTENTS

		Page
LETTER		1
SECTION		
1	1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY (OVERALL, BY CENTERS, AND BY TERMINALS) AIR TRAFFIC CONTROL--CONTROLLERS	5
2	1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY (OVERALL, BY CENTERS, AND BY TERMINALS) AIR TRAFFIC CONTROL--FIRST LINE SUPERVISORS	40
3	1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY (OVERALL, BY CENTERS, AND BY TERMINALS) AIR TRAFFIC CONTROL--FACILITY MANAGERS	81
4	OBJECTIVE, SCOPE, AND METHODOLOGY	123
APPENDIX		
I	THE 84 MAJOR AIR TRAFFIC CONTROL FACILITIES INCLUDED IN GAO'S SURVEY	129
II	MAJOR CONTRIBUTORS TO THIS FACT SHEET	130
Table		
4.1	Universe, Sample, and Return-Related Data for the Three Questionnaires Used in the 1988 Survey	126
4.2	Universe, Sample, and Return Rates for the 1988 and 1985 Surveys	127

ABBREVIATIONS

ARTCC	air route (enroute) traffic control center
ATA	air traffic assistant
ATC	air traffic control
DARC	Direct Access Radar Channel
DYSIM/ETG	Dynamic Simulation/Electronic Target Generation
FAA	Federal Aviation Administration
FAB	Facility Advisory Board
FPL	full performance level (controller)
GAO	General Accounting Office
OJT	on-the-job training

SECTION 1

1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY
(OVERALL, BY CENTERS, AND BY TERMINALS)
AIR TRAFFIC CONTROL -- CONTROLLERS

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
1. According to FAA records you are employed either as a full performance level (FPL) or developmental level controller certified on at least one radar position. Is this correct?						
1. Correct - I am an FPL--certified as FPL at this facility.[a]	85	90	87	91	81	89
2. Correct - I am a developmental certified on at least one radar position at this facility.[a]	15	10	13	9	19	11
3. Incorrect - I am ...	*	*	*	*	*	*
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,981	5,334	2,682	3,635	1,299	1,699

*Respondents checking incorrect were instructed to not complete the questionnaire and were not included in the results.

[a]"At this facility" added in 1988 survey to better classify developmentals who had been FPLs at a previous facility.

NOTES: (1) Estimated respondent universe is the actual number of terminal controllers who responded and our estimate of the number of center controllers who would have responded had they received qestionnaires. Center controllers were sampled and results calculated using apropriation projections.

(2) Percentages may not add to 100 because of rounding.

(3) Comparisons between 1985 and 1988 are not shown for "other" categories because of the wide range of written responses received. Comparisons are also omitted where modifications of a question make such comparisons inapproriate.

(4) The terms "center," "enroute center," and "air route traffic control center" have the same meaning in this report.

(5) Respondents were instructed to "check one" response for each question or part of a question whenever response categories were preseneted.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Shortage of radar controllers						
1. Major reason	50	42	50	38	50	50
2. Somewhat of a reason	35	37	35	38	35	34
3. Not a reason	15	22	15	25	15	16
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,659	3,271	1,903	2,234	756	1,037
c. Shortage of non-radar controllers						
1. Major reason	10	7	12	8	4	5
2. Somewhat of a reason	22	22	28	28	8	8
3. Not a reason	68	71	61	63	88	88
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,458	3,110	1,788	2,133	670	977
d. Shortage of other staff qualified to assist radar controllers						
1. Major reason	11	10	9	8	17	15
2. Somewhat of a reason	27	29	25	28	31	30
3. Not a reason	62	61	66	64	53	55
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,477	3,146	1,771	2,150	706	996
e. Inadequate flow control procedures						
1. Major reason	38	41	38	42	38	40
2. Somewhat of a reason	47	45	50	47	41	42
3. Not a reason	15	14	12	12	21	19
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,618	3,243	1,891	2,214	727	1,029
f. Airline schedules						
1. Major reason	52	58	58	65	37	43
2. Somewhat of a reason	36	32	35	29	39	38
3. Not a reason	12	10	7	6	24	19
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,646	3,306	1,912	2,271	734	1,035
g. Other						
1. Major reason		76		77		75
2. Somewhat of a reason		15		15		15
3. Not a reason		9		8		10
Total		**100**		**100**		**100**
Estimated respondents		771		502		269

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
7. While working daily peak traffic periods, how often, if ever, are you taking each of the following actions?[a]						
a. Provide another aircraft with instructions without waiting for first aircraft to acknowledge receipt of its instructions						
1. Very often	7	5	5	3	12	10
2. Often	15	14	13	10	19	22
3. Occasionally	38	59	36	37	41	41
4. Seldom, if ever	40	443	46	50	28	27
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,954	5,264	2,667	3,589	1,287	1,675
b. Drop track before target leaves area of jurisdiction						
1. Very often	5	5	6	5	2	4
2. Often	9	11	11	13	4	7
3. Occasionally	21	24	24	27	13	17
4. Seldom, if ever	66	60	58	55	81	73
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,923	5,238	2,655	3,584	1,268	1,654
c. Use inefficient vector patterns						
1. Very often	2	3	2	2	4	5
2. Often	8	7	7	6	9	11
3. Occasionally	34	32	33	31	37	34
4. Seldom, if ever	55	58	58	62	50	50
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,795	5,132	2,545	3,496	1,250	1,636
d. Decline to provide weather advisories						
1. Very often	6	6	7	7	3	4
2. Often	13	13	16	15	7	9
3. Occasionally	34	33	36	35	29	29
4. Seldom, if ever	48	48	42	43	61	58
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,893	5,236	2,625	3,586	1,268	1,650

[a]Question asked in 1985 survey included one additional item in the list of actions.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
9. Do you believe the amount of time you are typically required to continuously work a position without a break during peak periods is too long, too short, or appropriate?						
1. Much too long	16	14	17	14	13	12
2. Somewhat too long	46	45	47	46	44	43
3. Appropriate	37	41	35	40	42	43
4. Somewhat too short	1	1	1	1	1	1
5. Much too short	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,954	5,283	2,672	3,601	1,282	1,682
10. Considering peak periods in the last month, what was the longest period you had to work continuously on position without a break?[a]						
1. 2 hours or less		13		11		18
2. Over 2 hours to 2 1/2 hours		34		31		41
3. Over 2 1/2 hours to 3 hours		29		31		26
4. Over 3 hours to 3 1/2 hours		17		20		11
5. Over 3 1/2 hours to 4 hours		4		5		3
6. More than 4 hours		2		2		2
Total		**100**		**100**		**100**
Estimated respondents		5,303		3,612		1,691

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
12. In your opinion, do you currently have too many, too few, or an appropriate number of developmental controllers to meet future controller needs? If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[a]						
1. Much too many	1	1	1	1	1	1
2. Somewhat too many	4	3	3	4	5	2
3. Appropriate number	30	29	26	31	37	26
4. Somewhat too few	44	45	44	44	42	46
5. Much too few	22	22	26	21	15	25
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,942	5,292	2,654	3,601	1,288	1,691
13. Which of the following best describes the current situation for developmentals in regard to the ability to provide them with quality training now? Again, if you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[b]						
1. We have a lot more developmentals than we can train now.		7		9		5
2. We have somewhat more developmentals than we can train now.		20		23		15
3. We have about the right number of developmentals to train now.		31		30		33
4. We could train somewhat more developmentals than we do now.		34		32		37
5. We could train a lot more developmentals than we do now.		8		7		11
Total		**100**		**100**		**100**
Estimated respondents		5,289		3,606		1,683

[a]Wording of 1988 question was derived from the first part of a two-part question in 1985 survey.
[b]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Your ability to refuse scheduled overtime						
1. Very great extent	24	17	27	14	19	23
2. Great extent	18	10	19	9	14	12
3. Moderate extent	15	11	15	11	16	13
4. Some extent	18	15	18	16	19	14
5. Little, no extent	25	46	21	50	33	38
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,882	5,264	2,630	3,586	1,252	1,678
f. Your ability to get required training						
1. Very great extent		11		11		11
2. Great extent		12		12		12
3. Moderate extent		16		15		17
4. Some extent		21		21		22
5. Little, no extent		40		42		38
Total		**100**		**100**		**100**
Estimated respondents		5,176		3,529		1,647
g. Your ability to get or provide team briefings						
1. Very great extent		9		8		10
2. Great extent		10		9		11
3. Moderate extent		14		13		15
4. Some extent		23		22		25
5. Little, no extent		45		47		39
Total		**100**		**100**		**100**
Estimated respondents		5,282		3,596		1,686
h. Your ability to take needed personal breaks						
1. Very great extent	14	12	15	11	12	14
2. Great extent	17	13	17	12	16	15
3. Moderate extent	23	23	24	23	21	22
4. Some extent	29	30	29	32	28	26
5. Little, no extent	17	23	15	23	22	22
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,920	5,282	2,646	3,598	1,274	1,684
i. Your ability to take duty FAM (familiarization) airline trips						
1. Very great extent		32		31		36
2. Great extent		14		14		15
3. Moderate extent		13		13		13
4. Some extent		15		16		14
5. Little, no extent		25		27		23
Total		**100**		**100**		**100**
Estimated respondents		5,245		3,570		1,675

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
17. Which of the following best describes the current situation in regard to overtime at your facility?[a]						
1. Too much overtime is assigned so that our personnel are overworked		17		15		21
2. Too little overtime is allowed so that we cannot cover training, leave, and other duties		49		50		47
3. Overtime assignments are appropriate at this time		24		23		25
4. No overtime assigned here; no overtime needed		4		5		1
5. Other		7		7		6
Total		**100**		**100**		**100**
6. No basis to judge[b]		5		6		4
Estimated respondents		4,970		3,375		1,595
TRAINING						
18. In your opinion, how adequate or inadequate is the training developmental controllers get before beginning on-the-job training?						
1. Much more than adequate	1	1	1	1	2	2
2. Somewhat more than adequate	4	4	3	2	7	6
3. Generally adequate	40	34	38	28	42	46
4. Somewhat less than adequate	36	35	37	38	33	29
5. Much less than adequate	19	27	21	31	16	18
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b,c]		5		5		4
Estimated respondents	3,952	5,010	2,661	3,401	1,291	1,609

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.
[c]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Emergency procedures						
1. Excellent	1	1	1	1	2	1
2. Good	8	9	7	8	10	11
3. Adequate	36	34	36	32	38	39
4. Less than adequate	39	38	39	40	38	35
5. Poor	15	18	17	20	12	14
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		3		3		2
Estimated respondents	3,933	5,078	2,653	3,456	1,280	1,622
d. Handling heavy traffic						
1. Excellent	8	9	6	7	12	14
2. Good	22	23	21	22	25	27
3. Adequate	33	33	34	34	32	31
4. Less than adequate	26	23	27	25	23	21
5. Poor	11	11	12	13	8	7
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		2		2		2
Estimated respondents	3,940	5,131	2,653	3,495	1,287	1,636
e. Holding patterns						
1. Excellent	2	2	2	3	1	1
2. Good	9	9	10	10	6	7
3. Adequate	35	33	36	35	33	29
4. Less than adequate	34	35	34	34	35	35
5. Poor	20	21	18	18	25	28
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		8		4		18
Estimated respondents	3,876	4,784	2,635	3,425	1,241	1,359
f. Operational characteristics of types of aircraft						
1. Excellent	4	5	2	4	6	6
2. Good	15	16	14	14	18	19
3. Adequate	39	36	39	34	39	38
4. Less than adequate	27	27	28	29	25	24
5. Poor	15	17	17	20	12	12
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		2		2		2
Estimated respondents	3,941	5,127	2,657	3,496	1,284	1,631

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
k. Other						
1. Excellent		4		5		3
2. Good		2		3		2
3. Adequate		3		2		5
4. Less than adequate		18		21		14
5. Poor		72		69		77
Total		**100**		**100**		**100**
6. No basis to judge[a,b]		9		11		4
Estimated respondents		360		232		128
20. Overall, how do you rate the quality of on-the-job training (OJT) that developmentals currently receive at your facility?[b]						
1. Excellent		3		2		4
2. Good		26		24		30
3. Adequate		43		43		42
4. Poor		24		25		20
5. Very poor		5		5		4
Total		**100**		**100**		**100**
6. No basis to judge[a]		1		1		1
Estimated respondents		5,171		3,518		1,653
21. Do you believe developmental controllers are provided with sufficient training involving live traffic before being certified on a position?						
1. Definitely yes	18	20	15	16	25	27
2. Probably yes	40	41	40	40	41	43
3. Uncertain	11	9	12	9	11	8
4. Probably not	21	20	24	22	16	15
5. Definitely not	9	11	10	13	7	7
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,c]		1		1		1
Estimated respondents	3,947	5,169	2,662	3,517	1,285	1,652

[a]The categories totaling 100 percent do not include these responses.
[b]Question was not asked in 1985 survey.
[c]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
24. Were you an FPL 3 years ago (in May 1985)?						
1. Yes		69		62		84
2. No*		31		38		16
Total		**100**		**100**		**100**
Estimated respondents		5,228		3,560		1,668
*SKIP TO QUESTION 26						
25. Do you believe developmental controllers today are better, worse, or about the same as developmental controllers were in each of the following areas 3 years ago?[a] If you feel that you do not have enough knowledge to compare the two groups for any of the items, please check "No Basis to Judge" for those items.						
a. Overall skill level when arriving on floor for on-the-job training						
1. Much better		2		1		3
2. Somewhat better		10		7		16
3. About the same		49		46		53
4. Somewhat worse		28		31		22
5. Much worse		12		16		7
Total		**100**		**100**		**100**
6. No basis to judge[b]		5		4		6
Estimated respondents		3,479		2,156		1,323
b. Aptitude or ability to learn controller duties						
1. Much better		1		1		2
2. Somewhat better		9		7		12
3. About the same		59		57		63
4. Somewhat worse		24		27		18
5. Much worse		7		8		4
Total		**100**		**100**		**100**
6. No basis to judge[b]		4		4		6
Estimated respondents		3,489		2,154		1,335

[a]Question is not comparable to 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
27. Please consider your own observations and experience for each of the factors listed below. Then indicate your opinion as to whether that factor is currently helping, is currently hindering, or currently has no impact on the maintenance of ATC system safety today.[a]						
a. Current skill level of developmental controllers						
1. Strongly helps		4		4		5
2. Helps somewhat		20		17		25
3. No impact		29		28		30
4. Hinders somewhat		41		45		35
5. Strongly hinders		6		7		5
Total		**100**		**100**		**100**
Estimated respondents		5,286		3,598		1,688
b. Current number of developmental controllers available						
1. Strongly helps		1		1		1
2. Helps somewhat		16		16		17
3. No impact		37		39		32
4. Hinders somewhat		39		38		41
5. Strongly hinders		7		6		9
Total		**100**		**100**		**100**
Estimated respondents		5,293		3,609		1,684
c. Current number of FPL controllers available						
1. Strongly helps		7		7		6
2. Helps somewhat		15		16		13
3. No impact		12		13		10
4. Hinders somewhat		43		43		43
5. Strongly hinders		23		21		28
Total		**100**		**100**		**100**
Estimated respondents		5,296		3,607		1,689

[a]Question is not comparable to 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
i. Other						
1. Strongly helps		2		2		2
2. Helps somewhat		1		1		2
3. No impact		1		1		1
4. Hinders somewhat		22		22		21
5. Strongly hinders		74		73		74
Total		**100**		**100**		**100**
Estimated respondents		767		562		205
28. In general, how would you describe <u>your</u> morale as a controller at this facility?[a]						
1. Very high		7		7		7
2. High		22		23		21
3. Neither high nor low		28		28		28
4. Low		29		29		31
5. Very low		14		14		14
Total		**100**		**100**		**100**
6. Uncertain[b]		1		1		1
Estimated respondents		5,224		3,564		1,660
29. How do you rate the typical "performance" of each of the following types of pilots with whom you communicate?[a] By "performance," we mean following control instructions, using correct phraseology, and keeping unnecessary communication to a minimum.						
a. Major airlines						
1. Excellent		26		26		27
2. Good		45		45		46
3. Adequate		19		19		17
4. Less than adequate		8		8		8
5. Poor		2		2		2
Total		**100**		**100**		**100**
6. Don't know/No basis to judge[b]		0		0		0
Estimated respondents		5,290		3,612		1,678

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
30. What effect, if any, do you think the following have on the flow of traffic in the ATC system?[a]						
a. Airlines' use of hubs						
1. Strongly helps		2		1		2
2. Helps somewhat		6		6		7
3. Neither helps nor hinders		16		14		20
4. Hinders somewhat		40		39		43
5. Strongly hinders		36		39		28
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		5		4		9
Estimated respondents		4,996		3,470		1,526
b. Airlines' scheduling practices						
1. Strongly helps		1		1		1
2. Helps somewhat		2		1		3
3. Neither helps nor hinders		5		4		7
4. Hinders somewhat		37		35		41
5. Strongly hinders		56		59		48
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		2		1		4
Estimated respondents		5,187		3,574		1,613
31. What contribution, if any, has each of the following made in helping you perform your duties as an air traffic controller?[a]						
a. Recommendations from FAB (Facility Advisory Board)						
1. Strongly helps		5		5		5
2. Helps somewhat		50		48		55
3. Neither helps nor hinders		38		41		31
4. Hinders somewhat		6		5		8
5. Strongly hinders		2		2		2
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		3		3		2
Estimated respondents		5,112		3,477		1,635

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
f. TMU (Traffic Management Unit)						
1. Strongly helps		4		4		4
2. Helps somewhat		35		36		30
3. Neither helps nor hinders		22		20		29
4. Hinders somewhat		26		26		27
5. Strongly hinders		13		14		11
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		6		1		18
Estimated respondents		4,924		3,556		1,368
g. Host computer						
1. Strongly helps		16		20		4
2. Helps somewhat		41		45		27
3. Neither helps nor hinders		36		31		52
4. Hinders somewhat		5		3		13
5. Strongly hinders		1		0		4
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		17		6		39
Estimated respondents		4,370		3,359		1,011
h. Other						
1. Strongly helps		8		8		7
2. Helps somewhat		4		4		4
3. Neither helps nor hinders		1		1		0
4. Hinders somewhat		21		22		19
5. Strongly hinders		67		66		70
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		1		0		2
Estimated respondents		2,346		1,714		632

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
33. Where minimum standards for maintaining separation of aircraft exist (3 miles for terminals; 5 miles for centers), what distance do you typically try to maintain?[a]						
1. 3 - 3.9 miles		20		0		63
2. 4 - 4.9 miles		10		0		31
3. 5 - 5.9 miles		8		9		6
4. 6 - 6.9 miles		12		18		0
5. 7 - 7.9 miles		24		36		0
6. 8 - 8.9 miles		13		19		0
7. 9 - 9.9 miles		6		9		0
8. 10 - 15 miles		7		11		0
9. Over 15 miles		0		0		0
Total		**100**		**100**		**100**
Estimated respondents		5,266		3,586		1,680
AUTOMATED OPERATIONAL ERROR DETECTION PROGRAM						
34. Do you work at an enroute center?						
1. Yes	68	68	100	100	0	0
2. No*	32	32	0	0	100	100
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,958	5,287	2,673	3,609	1,285	1,678
*SKIP TO QUESTION 38						
35. How much positive or negative impact, if any, does the automated operational error detection program have in each of the following areas at your facility?						
a. Identifying operational errors						
1. Significant positive impact			32	29		
2. Some positive impact			31	34		
3. No impact			7	8		
4. Some negative impact			15	20		
5. Significant negative impact			15	10		
Total			**100**	**100**		
Estimated respondents			2,639	3,554		

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
g. Pilot/controller relationships						
1. Significant positive impact			1	0		
2. Some positive impact			2	3		
3. No impact			22	36		
4. Some negative impact			44	43		
5. Significant negative impact			32	19		
Total			**100**	**100**		
Estimated respondents			2,637	3,601		
h. Other						
1. Significant positive impact				12		
2. Some positive impact				0		
3. No impact				3		
4. Some negative impact				19		
5. Significant negative impact				66		
Total				**100**		
Estimated respondents				250		
36. Have you personally had an operational error detected by the automated operational error detection program during the past 18 months?[a]						
1. Yes			32	19		
2. No			68	81		
Total			**100**	**100**		
Estimated respondents			2,596	3,607		
37. Overall, how satisfied or dissatisfied are you with the approach management currently uses to confirm whether or not an event detected by the automated operational error program is an actual operational error on the part of the controller?						
1. Very satisfied			3	4		
2. Generally satisfied			22	22		
3. Neither satisfied nor dissatisfied			22	23		
4. Generally dissatisfied			26	26		
5. Very dissatisfied			27	24		
Total			**100**	**100**		
6. No basis to judge[b]			4	5		
Estimated respondents			2,535	3,406		

[a]The 18 month period was added to the 1988 question because the program had been automated about 18 months at the time of the 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Proposed changes to retirement system						
1. Major reason	49	32	48	32	52	33
2. Somewhat of a reason	37	41	36	40	38	44
3. Not a reason	14	27	16	28	10	23
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	477	392	354	305	123	87
d. Work-related burnout						
1. Major reason	33	30	35	30	27	30
2. Somewhat of a reason	35	38	34	39	39	34
3. Not a reason	32	32	32	31	34	36
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	470	398	346	309	124	89
e. Dissatisfaction with FAA						
1. Major reason	42	54	44	54	37	54
2. Somewhat of a reason	36	33	36	34	37	30
3. Not a reason	22	13	21	12	25	17
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	476	398	353	307	123	91
f. Career change						
1. Major reason	7	6	7	7	8	5
2. Somewhat of a reason	18	17	20	18	15	13
3. Not a reason	74	77	73	76	78	82
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	438	377	321	294	117	83
g. Other						
1. Major reason		90		94		79
2. Somewhat of a reason		8		6		14
3. Not a reason		2		0		7
Total		**100**		**100**		**100**
Estimated respondents		51		37		14

BACKGROUND QUESTIONS

	Mean years					
41. What is your age?	36.7	35.2	37.4	35.3	35.3	35.0
Estimated respondents	3,818	5,301	2,576	3,608	1,242	1,693

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
45. How many total years of experience do you have for each of the following? (Round to the nearest year. If none for miltary, enter 0.)				Mean years		
a. Total years with FAA	11.2	9.9	11.7	10.0	10.0	9.7
Estimated respondents	3,822	5,289	2,580	3,600	1,242	1,689
b. Years controlling traffic with FAA (Developmental and FPL)[a]		9.3		9.3		9.4
Estimated respondents		5,197		3,545		1,652
c. Years controlling traffic for the military[b]		4.8		4.6		5.0
Estimated respondents		1,907		967		940
46. Thank you for your help with this study. If you have any other comments, please write them in the space below.						
Written comments provided	57	45	58	43	55	48
No comments provided	43	55	42	57	45	52
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,981	5,334	2,682	3,635	1,299	1,699

[a]Question is not comparable to 1985 survey.
[b]Question was not asked in 1985 survey. The 1988 answer is the mean for all controllers with 1 or more years' military experience.

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
	Total radar controllers					
Number of radar controllers handling too much traffic*	2,024	2,040	1,362	1,338	662	702
Estimated respondents	875	1,003	537	614	338	389

*IF NONE SKIP TO QUESTION 4

3. For those controllers you were referring to in question 2, how much, if any, does each of the following factors represent a reason for their handling more traffic than they should?						
a. Sector configuration (complexity)						
(1) Major reason	40	44	45	48	33	37
(2) Somewhat of a reason	42	40	41	38	43	42
(3) Not a reason	18	17	15	15	25	21
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	595	585	383	356	212	229
b. Controller capability						
(1) Major reason	28	23	23	20	37	28
(2) Somewhat of a reason	48	41	49	40	48	44
(3) Not a reason	24	36	29	41	16	28
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	589	576	370	348	219	228
c. Shortage of radar controllers						
(1) Major reason	45	33	45	27	46	43
(2) Somewhat of a reason	33	33	34	34	32	32
(3) Not a reason	22	34	22	39	22	26
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	584	577	373	349	211	228
d. Shortage of non-radar controllers						
(1) Major reason	6	5	9	6	2	4
(2) Somewhat of a reason	18	17	24	24	8	7
(3) Not a reason	76	78	68	70	90	90
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	536	541	351	331	185	210
e. Shortage of other staff qualified to assist radar controllers						
(1) Major reason	10	7	7	5	14	9
(2) Somewhat of a reason	22	23	20	19	25	29
(3) Not a reason	69	71	73	76	61	62
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	532	546	343	330	189	216

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
6. How satisfied or dissatisfied are you with the amount of say you had in the reconfiguration(s) that took place during the past 18 months?						
1. Very satisfied	14	14	12	15	17	11
2. Generally satisfied	30	33	30	31	30	36
3. Neither satisfied nor dissatisfied	17	21	16	22	21	17
4. Generally dissatisfied	25	21	26	19	24	24
5. Very dissatisfied	14	12	17	13	8	12
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	584	707	392	463	192	244
7. Do you feel any of your current sectors should be reconfigured?						
1. Definitely yes	42	40	48	47	33	29
2. Probably yes	28	29	28	28	27	31
3. Uncertain	4	6	4	5	6	7
4. Probably not	21	21	17	17	26	28
5. Definitely not	6	4	4	3	8	5
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	878	1,003	534	613	344	390
8. FAA has established TMUs (Traffic Management Units) at ARTCCs (Centers) to assist in controlling the flow of traffic. Over the last 12 months, do you believe these TMUs have helped you manage the volume of traffic that controllers you supervise are required to handle?[a]						
1. Definitely yes		31		40		18
2. Probably yes		32		34		29
3. Uncertain		7		5		11
4. Probably not		18		13		24
5. Definitely not		13		9		18
Total		**100**		**100**		**100**
Estimated respondents		1,001		609		392

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
d. Decline to provide weather advisories						
(1) Very often	3	3	3	3	2	2
(2) Often	8	7	9	7	7	8
(3) Occasionally	33	28	33	29	32	25
(4) Seldom, if ever	57	63	55	61	60	65
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	865	992	525	607	340	385
e. Decline to provide traffic advisories						
(1) Very often	6	3	7	3	3	4
(2) Often	17	10	18	10	16	11
(3) Occasionally	41	44	40	47	43	39
(4) Seldom, if ever	36	43	35	41	38	47
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	875	996	532	609	343	387
f. Decline user requests for services (direct routes, altitude changes, etc.)						
(1) Very often	11	9	11	9	10	8
(2) Often	23	22	24	23	23	22
(3) Occasionally	45	46	46	45	45	47
(4) Seldom, if ever	20	23	19	23	22	23
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	875	996	532	610	343	386
g. Other(s)						
(1) Very often		50		52		46
(2) Often		27		21		37
(3) Occasionally		11		14		7
(4) Seldom, if ever		12		13		11
Total		**100**		**100**		**100**
Estimated respondents		122		76		46

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
12. Do you feel you spend too much, too little, or an appropriate amount of time working traffic?						
1. Much too much	14	6	16	6	10	6
2. Somewhat too much	32	18	35	17	27	18
3. Appropriate amount	31	41	30	42	33	38
4. Somewhat too little	18	27	15	26	23	28
5. Much too little	6	9	5	8	8	9
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	873	980	530	602	343	378
STAFFING						
13. In your opinion, is the current number of staff available for each of the following types of positions higher than needed, lower than needed, or at the appropriate level? If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[a]						
a. First-line supervisors						
(1) Much higher than needed	3	1	3	1	3	1
(2) Somewhat higher than needed	8	4	7	4	9	5
(3) Appropriate number	68	69	72	78	61	55
(4) Somewhat lower than needed	17	23	13	15	24	35
(5) Much lower than needed	4	3	5	2	3	4
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	881	1,001	539	614	342	387
b. FPLs						
(1) Much higher than needed	1	1	1	1	1	0
(2) Somewhat higher than needed	2	3	2	4	1	1
(3) Appropriate number	12	20	9	21	17	18
(4) Somewhat lower than needed	49	52	51	52	47	52
(5) Much lower than needed	37	25	38	22	35	30
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	880	1,003	538	615	342	388

[a]Question asked in 1985 included one additional type of staff.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
14. In your opinion, do you currently have too many, too few, or an appropriate number of developmental controllers to meet future controller needs? If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[a]						
1. Much too many	1	1	1	1	1	0
2. Somewhat too many	4	4	3	4	5	2
3. Appropriate number	32	32	27	34	41	30
4. Somewhat too few	42	47	43	46	41	50
5. Much too few	21	16	26	15	13	18
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	882	1,005	537	614	345	391
15. Which of the following best describes the current situation for developmentals in regard to the ability to provide them with quality training now? Again, if you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[b]						
1. We have a lot more developmentals than we can train now.		6		7		5
2. We have somewhat more developmentals than we can train now.		19		21		16
3. We have about the right number of developmentals to train now.		32		32		32
4. We could train somewhat more developmentals than we do now.		36		34		39
5. We could train a lot more developmentals than we do now.		7		6		9
Total		**100**		**100**		**100**
Estimated respondents		1,004		614		390

[a]Wording of 1988 question was derived from the first part of a two-part question in 1985 survey.
[b]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Your ability to take annual leave on short notice (2 weeks or less)						
(1) Very great extent		21		15		30
(2) Great extent		20		17		24
(3) Moderate extent		17		19		15
(4) Some extent		21		23		18
(5) Little, no extent		20		26		12
Total		**100**		**100**		**100**
Estimated respondents		1,001		610		391
d. Your ability to take needed sick leave						
(1) Very great extent	8	4	7	3	9	5
(2) Great extent	11	7	13	5	7	10
(3) Moderate extent	16	9	17	8	13	10
(4) Some extent	16	14	18	15	13	14
(5) Little, no extent	50	66	44	70	58	61
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	877	990	533	603	344	387
e. Your ability to refuse scheduled overtime						
(1) Very great extent	16	9	18	6	14	13
(2) Great extent	15	7	16	6	13	9
(3) Moderate extent	14	9	13	8	17	10
(4) Some extent	18	13	18	10	18	18
(5) Little, no extent	37	63	36	71	38	50
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	863	964	523	581	340	383
f. Your ability to get required training						
(1) Very great extent		10		9		12
(2) Great extent		14		13		16
(3) Moderate extent		20		19		22
(4) Some extent		26		25		27
(5) Little, no extent		30		35		24
Total		**100**		**100**		**100**
Estimated respondents		992		605		387

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
COMPENSATORY TIME/OVERTIME						
18. In the last 12 months, how many days of compensatory time have you accumulated?[a]						
1. None*		20		19		22
2. 1-5 days		43		41		47
3. 6-10 days		24		25		23
4. 11-20 days		9		11		6
5. 21-30 days		2		3		1
6. 31-50 days		1		1		0
7. Over 50 days		0		0		1
Total		**100**		**100**		**100**
Estimated respondents		1,000		610		390
*SKIP TO QUESTION 20						
19. Are you generally working more compensatory time than you think you should?[a]						
1. Definitely yes		10		10		11
2. Probably yes		20		22		18
3. Uncertain		13		12		13
4. Probably not		40		40		40
5. Definitely not		17		16		18
Total		**100**		**100**		**100**
Estimated respondents		799		493		306

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
22. How do you rate the quality of the on-the-job training developmental controllers currently receive at your facility in each of the following areas?						
a. Using backup systems						
(1) Excellent	2	2	2	2	2	4
(2) Good	15	11	13	11	16	11
(3) Adequate	39	40	36	34	44	49
(4) Less than adequate	33	33	36	37	28	27
(5) Poor	11	14	12	17	9	10
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		2		1		2
Estimated respondents	875	988	532	608	343	380
b. Controlling traffic in bad weather						
(1) Excellent	5	5	5	5	6	6
(2) Good	25	17	24	17	26	18
(3) Adequate	35	36	35	35	36	39
(4) Less than adequate	29	32	30	32	27	32
(5) Poor	6	9	7	12	6	6
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		1		0		1
Estimated respondents	879	997	532	612	347	385
c. Emergency procedures						
(1) Excellent	2	2	1	2	3	3
(2) Good	13	13	12	12	14	14
(3) Adequate	43	43	41	42	46	46
(4) Less than adequate	34	33	38	35	29	29
(5) Poor	8	9	8	10	8	8
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		0		0		1
Estimated respondents	876	997	530	608	346	389

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in the 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
h. Control techniques						
(1) Excellent	12	11	11	10	14	13
(2) Good	35	33	36	34	34	31
(3) Adequate	35	38	35	39	34	37
(4) Less than adequate	16	16	17	15	14	16
(5) Poor	3	2	1	2	5	3
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		0		0		1
Estimated respondents	878	995	532	607	346	388
i. Phraseology						
(1) Excellent	11	11	7	10	17	13
(2) Good	37	37	38	35	35	39
(3) Adequate	38	36	39	36	35	37
(4) Less than adequate	11	14	12	17	10	10
(5) Poor	3	2	4	3	2	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		0		0		1
Estimated respondents	876	1,002	530	612	346	390
j. Flow control procedures						
(1) Excellent	4	5	3	5	6	5
(2) Good	19	17	19	14	19	21
(3) Adequate	42	42	40	41	45	44
(4) Less than adequate	27	28	29	30	24	24
(5) Poor	8	9	10	10	6	6
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		3		2		5
Estimated respondents	875	967	530	597	345	370
k. Other						
(1) Excellent		4		3		6
(2) Good		2		0		6
(3) Adequate		4		0		13
(4) Less than adequate		25		22		31
(5) Poor		65		75		44
Total		**100**		**100**		**100**
(6) No basis to judge[a,b]		8		9		6
Estimated respondents		48		32		16

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in the 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
1. Very great extent		12		13		9
2. Great extent		28		35		18
3. Moderate extent		25		27		20
4. Some extent		23		21		27
5. Little, or no extent		12		4		26
Total		**100**		**100**		**100**
6. Don't know; uncertain[b]		4		3		4
Estimated respondents		955		587		368
27. Are there currently enough FPLs available to provide OJT to all developmentals (either to new developmentals or those from other facilities)?[a] If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.						
1. Definitely yes		33		34		30
2. Probably yes		38		36		41
3. Uncertain		3		3		3
4. Probably not		16		14		18
5. Definitely not		11		13		9
Total		**100**		**100**		**100**
Estimated respondents		995		608		387
28. What portion of the OJT instructors you supervise have sufficient ATC experience and teaching skills to provide OJT to developmentals?[a]						
ATC Experience						
1. All/Almost all		26		28		24
2. Most		34		35		31
3. About half		25		22		29
4. Some		13		13		13
5. Few/None		3		3		3
Total		**100**		**100**		**100**
Estimated respondents		995		608		387
Teaching Skills						
1. All/Almost all		10		10		9
2. Most		27		28		25
3. About half		26		26		26
4. Some		30		29		33
5. Few/None		7		7		8
Total		**100**		**100**		**100**
Estimated respondents		974		593		381

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. First-line supervisors						
(1) Very great extent		4		1		8
(2) Great extent		7		4		14
(3) Moderate extent		18		14		25
(4) Some extent		37		37		36
(5) Little, no extent		34		44		18
Total		**100**		**100**		**100**
Estimated respondents		989		603		386
f. Other						
(1) Very great extent		28		14		50
(2) Great extent		5		8		0
(3) Moderate extent		4		6		0
(4) Some extent		35		45		20
(5) Little, no extent		28		27		30
Total		**100**		**100**		**100**
Estimated respondents		26		16		10
30. Do you believe developmental controllers today are better, worse, or about the same as developmental controllers were in each of the following areas 3 years ago?[a] If you feel that you do not have enough knowledge to compare the two groups for any of the items, please check "No Basis to Judge" for those items.						
a. Overall skill level when arriving on floor for on-the-job training						
(1) Much better		2		2		3
(2) Somewhat better		19		12		28
(3) About the same		51		51		52
(4) Somewhat worse		22		28		13
(5) Much worse		6		6		4
Total		**100**		**100**		**100**
(6) No basis to judge[b]		3		3		2
Estimated respondents		970		590		380

[a]Question is not comparable to 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
31. For each of the following types of FPL proficiency training that FPLs have received, is the amount of training more or less than needed, or is it about the right amount?[a] If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.						
a. Tape monitor review						
(1) Much more than needed		5		5		4
(2) Somewhat more than needed		10		9		11
(3) About the right amount		64		66		62
(4) Somewhat less than needed		17		16		18
(5) Much less than needed		5		4		6
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		0		1		0
Estimated respondents		993		606		387
b. Over-the-shoulder evaluations						
(1) Much more than needed		5		5		6
(2) Somewhat more than needed		9		9		10
(3) About the right amount		73		74		71
(4) Somewhat less than needed		11		10		11
(5) Much less than needed		2		2		2
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		0		0		0
Estimated respondents		994		609		385
c. Annual specialized training (map, operating procedures, letters of agreement, etc.)						
(1) Much more than needed		2		2		1
(2) Somewhat more than needed		4		4		4
(3) About the right amount		39		39		38
(4) Somewhat less than needed		34		34		35
(5) Much less than needed		22		22		22
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		1		2		1
Estimated respondents		982		599		383

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these categories.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
h. Other						
(1) Much more than needed		3		4		0
(2) Somewhat more than needed		0		0		0
(3) About the right amount		0		0		0
(4) Somewhat less than needed		10		15		0
(5) Much less than needed		87		80		100
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		9		12		0
Estimated respondents		34		23		11

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
35. Please consider your own observations and experience for each of the factors listed below. Then indicate your opinion as to whether that factor is currently helping, is currently hindering, or currently has no impact on the maintenance of ATC system safety today.[a]						
a. Current skill level of developmental controllers						
(1) Strongly helps		4		5		3
(2) Helps somewhat		26		24		30
(3) No impact		27		29		24
(4) Hinders somewhat		39		40		38
(5) Strongly hinders		4		3		4
Total		**100**		**100**		**100**
Estimated respondents		983		596		387
b. Current number of developmental controllers available						
(1) Strongly helps		2		1		2
(2) Helps somewhat		23		22		24
(3) No impact		31		32		29
(4) Hinders somewhat		40		40		38
(5) Strongly hinders		6		4		7
Total		**100**		**100**		**100**
Estimated respondents		983		596		387
c. Current number of FPL controllers available						
(1) Strongly helps		10		12		6
(2) Helps somewhat		21		20		23
(3) No impact		13		15		10
(4) Hinders somewhat		39		37		42
(5) Strongly hinders		17		16		19
Total		**100**		**100**		**100**
Estimated respondents		985		598		387
d. Current amount of traffic work load						
(1) Strongly helps		1		1		1
(2) Helps somewhat		8		5		12
(3) No impact		21		20		22
(4) Hinders somewhat		49		51		47
(5) Strongly hinders		21		23		19
Total		**100**		**100**		**100**
Estimated respondents		984		597		387

[a]Question is not comparable to 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
36. In general, how would you describe your morale as a first-line supervisor at this facility?[a]						
1. Very high		8		8		8
2. High		30		30		29
3. Neither high nor low		27		25		29
4. Low		28		29		27
5. Very low		8		8		7
Total		**100**		**100**		**100**
6. Uncertain[b]		2		1		3
Estimated respondents		982		603		379
37. How do you rate the typical "performance" of each of the following types of pilots with whom you communicate?[a] By "performance," we mean following control instructions, using correct phraseology, and keeping unnecessary communication to a minimum.						
a. Major airlines						
(1) Excellent		25		23		30
(2) Good		41		43		39
(3) Adequate		21		22		19
(4) Less than adequate		11		11		10
(5) Poor		2		2		2
Total		**100**		**100**		**100**
(6) Don't know/No basis to judge[b]		0		0		0
Estimated respondents		1,003		610		393

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
38. What effect, if any, do you think the following have on the flow of traffic in the ATC system?[a]						
a. Airlines' use of hubs						
(1) Strongly helps		2		1		3
(2) Helps somewhat		6		6		6
(3) Neither helps nor hinders		12		8		18
(4) Hinders somewhat		38		34		45
(5) Strongly hinders		42		51		27
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		6		4		9
Estimated respondents		946		588		358
b. Current airline scheduling practices						
(1) Strongly helps		1		0		1
(2) Helps somewhat		2		2		2
(3) Neither helps nor hinders		3		2		5
(4) Hinders somewhat		31		26		39
(5) Strongly hinders		62		69		52
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		2		1		4
Estimated respondents		984		606		378
39. What contribution, if any, has each of the following made in helping the controllers you supervise perform their duties as air traffic controllers?[a]						
a. Recommendations from FAB (Facility Advisory Board)						
(1) Strongly helps		9		9		10
(2) Helps somewhat		63		63		63
(3) Neither helps nor hinders		24		25		22
(4) Hinders somewhat		3		3		4
(5) Strongly hinders		1		0		1
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		1		1		1
Estimated respondents		990		602		388

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Resectorization						
(1) Strongly helps		7		8		4
(2) Helps somewhat		38		41		34
(3) Neither helps nor hinders		26		19		37
(4) Hinders somewhat		20		20		20
(5) Strongly hinders		9		12		5
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		13		7		23
Estimated respondents		862		562		300
f. TMU (Traffic Management Unit)						
(1) Strongly helps		11		13		7
(2) Helps somewhat		52		58		42
(3) Neither helps nor hinders		18		14		24
(4) Hinders somewhat		14		10		22
(5) Strongly hinders		5		5		5
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		4		0		10
Estimated respondents		955		606		349
g. Host computer						
(1) Strongly helps		22		29		5
(2) Helps somewhat		42		48		28
(3) Neither helps nor hinders		31		22		52
(4) Hinders somewhat		3		1		10
(5) Strongly hinders		2		0		5
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		20		6		40
Estimated respondents		800		571		229
h. Other						
(1) Strongly helps		7		6		8
(2) Helps somewhat		5		6		2
(3) Neither helps nor hinders		1		0		0
(4) Hinders somewhat		15		15		16
(5) Strongly hinders		73		73		73
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		2		2		0
Estimated respondents		400		273		127

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
41. Where minimum standards for maintaining separation of aircraft exist (3 miles for terminals; 5 miles for centers), what distance do the controllers you supervise typically try to maintain?[a]						
1. 3 - 3.9 miles		24		0		61
2. 4 - 4.9 miles		11		0		29
3. 5 - 5.9 miles		8		8		9
4. 6 - 6.9 miles		14		23		0
5. 7 - 7.9 miles		23		37		0
6. 8 - 8.9 miles		9		15		0
7. 9 - 9.9 miles		4		6		0
8. 10 - 15 miles		7		11		0
9. Over 15 miles		0		0		0
Total		**100**		**100**		**100**
Estimated respondents		988		605		383

AUTOMATED OPERATIONAL ERROR DETECTION PROGRAM

42. Do you work at an enroute center?						
1. Yes	61	62	100	100	0	0
2. No*	39	38	0	0	100	100
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	876	996	534	613	342	383

*SKIP TO QUESTION 46

43. Based on your experience, how much positive or negative impact, if any, does the automated operational error detection program have in each of the following areas?						
a. Identifying operational errors						
(1) Significant positive impact			44	42		
(2) Some positive impact			28	32		
(3) No impact			3	4		
(4) Some negative impact			12	14		
(5) Significant negative impact			14	8		
Total			**100**	**100**		
Estimated respondents			533	605		

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
g. Pilot/Controller relationships						
(1) Significant positive impact			1	0		
(2) Some positive impact			4	3		
(3) No impact			30	34		
(4) Some negative impact			45	47		
(5) Significant negative impact			21	16		
Total			**100**	**100**		
Estimated respondents			532	611		
h. Other						
(1) Significant positive impact				17		
(2) Some positive impact				3		
(3) No impact				5		
(4) Some negative impact				30		
(5) Significant negative impact				44		
Total				**100**		
Estimated respondents				37		
44. Have you personally had an operational error detected by the automated operational error detection program during the past 18 months?[a]						
1. Yes			16	8		
2. No			84	92		
Total			**100**	**100**		
Estimated respondents			527	610		
45. Overall, how satisfied or dissatisfied are you with the approach management currently uses to confirm whether or not an event detected by the automated operational error program is an actual operational error on the part of the controller?						
1. Very satisfied			13	14		
2. Generally satisfied			46	46		
3. Neither satisfied nor dissatisfied			13	16		
4. Generally dissatisfied			17	16		
5. Very dissatisfied			10	8		
Total			**100**	**100**		
6. No basis to judge[b]			1	0		
Estimated respondents			522	612		

[a]The 18-month period was added to the 1988 question because the program had been automated about 18 months at the time of the 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Proposed changes to retirement system						
(1) Major reason	53	40	54	43	51	33
(2) Somewhat of a reason	36	36	34	35	40	37
(3) Not a reason	11	24	12	21	10	30
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	350	255	234	171	116	84
d. Work-related burnout						
(1) Major reason	15	18	14	15	19	26
(2) Somewhat of a reason	41	37	42	37	40	36
(3) Not a reason	43	45	45	48	41	38
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	346	247	231	166	115	81
e. Dissatisfaction with FAA						
(1) Major reason	30	31	27	31	37	29
(2) Somewhat of a reason	36	39	37	37	35	45
(3) Not a reason	34	30	37	32	28	26
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	348	258	233	173	115	85
f. Career change						
(1) Major reason	7	8	7	7	7	10
(2) Somewhat of a reason	21	18	19	18	24	18
(3) Not a reason	72	74	74	76	70	72
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	344	240	229	161	115	79
g. Other						
(1) Major reason		81		85		75
(2) Somewhat of a reason		17		12		25
(3) Not a reason		2		4		0
Total		**100**		**100**		**100**
Estimated respondents		48		28		20

SECTION 3

1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY
(OVERALL, BY CENTERS, AND BY TERMINALS)
AIR TRAFFIC CONTROL -- FACILITY MANAGERS

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
WORK LOAD						
1. In your opinion, during typical daily peak periods approximately what percentage of your facility's radar controllers, if any, are handling more traffic than they feel they should?						
Percent of radar controllers who feel they are handling too much traffic	Mean percent[a]					
	18	14	19	14	17	16
Respondents	69	73	18	18	51	55
2. Considering the complexity of the sectors and the capabilities of controllers at your facility, do you feel any of your radar controllers are currently handling more traffic than they should during typical daily peak periods?						

[a]Estimate of percent of all controllers based on aggregate of all responses provided.

NOTES: (1) Percentages may not add to 100 because of rounding.

(2) Comparisons between 1985 and 1988 are not shown for "other" categories because of the wide range of written responses received. Comparisons are also omitted where modifications of a question make such comparisons inappropriate.

(3) The terms "center," "enroute center," and "air route traffic control center" have the same meaning in this report.

(4) Respondents were instructed to "check one" response for each question or part of a question whenever response categories were presented.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Shortage of radar controllers						
(1) Major reason	22	11	17	17	24	8
(2) Somewhat of a reason	26	26	33	17	24	31
(3) Not a reason	52	63	50	67	53	62
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	23	19	6	6	17	13
d. Shortage of non-radar controllers						
(1) Major reason	0	0	0	0	0	0
(2) Somewhat of a reason	4	16	0	33	6	8
(3) Not a reason	96	84	100	67	94	92
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	23	19	6	6	17	13
e. Shortage of other staff qualified to assist radar controllers						
(1) Major reason	0	0	0	0	0	0
(2) Somewhat of a reason	26	37	17	50	29	31
(3) Not a reason	74	63	83	50	71	69
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	23	19	6	6	17	13
f. Inadequate flow control procedures						
(1) Major reason	9	20	17	17	6	21
(2) Somewhat of a reason	65	50	67	50	65	50
(3) Not a reason	26	30	17	33	29	29
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	23	20	6	6	17	14
g. Airline schedules						
(1) Major reason	38	32	57	57	29	20
(2) Somewhat of a reason	21	46	29	29	18	53
(3) Not a reason	42	23	14	14	53	27
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	24	22	7	7	17	15
h. Other						
(1) Major reason		50		0		75
(2) Somewhat of a reason		33		50		25
(3) Not a reason		17		50		0
Total		**100**		**100**		**100**
Respondents		6		2		4

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
3. Sector(s) too complex						
(1) Very great extent	5	4	0	11	8	0
(2) Great extent	18	24	33	37	11	17
(3) Moderate extent	11	22	11	26	11	19
(4) Some extent	20	22	22	16	18	25
(5) Little, no extent	46	29	33	11	53	39
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	56	55	18	19	38	36
4. Improve service to system users						
(1) Very great extent	22	23	29	16	20	26
(2) Great extent	41	36	35	42	44	33
(3) Moderate extent	17	27	12	26	20	28
(4) Some extent	10	13	6	16	12	12
(5) Little, no extent	9	2	18	0	5	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	58	62	17	19	41	43
5. Response to other system changes						
(1) Very great extent	16	20	17	32	15	15
(2) Great extent	28	19	28	11	28	23
(3) Moderate extent	14	29	6	37	18	25
(4) Some extent	24	20	28	21	23	20
(5) Little, no extent	19	12	22	0	18	18
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	58	59	18	19	40	40
6. Other						
(1) Very great extent		39		57		27
(2) Great extent		33		29		36
(3) Moderate extent		6		0		9
(4) Some extent		11		0		18
(5) Little, no extent		11		14		9
Total		**100**		**100**		**100**
Respondents		18		7		11

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
9. Do you feel your first-line supervisors are currently spending too much, too little, or an appropriate amount of time working traffic?						
1. Much too much	7	3	11	5	6	2
2. Somewhat too much	38	18	50	11	33	21
3. Appropriate amount	48	63	39	58	51	65
4. Somewhat too little	7	15	0	21	10	12
5. Much too little	0	1	0	5	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
10. At your facility, approximately what percentage of a typical first-line supervisor's duty time during a week is spent working traffic?						
	Mean percent					
Percent time working traffic	31	18	38	16	28	18
Respondents	69	76	18	19	51	57
STAFFING						
11. In your opinion, is the current number of staff available for each of the following types of positions at your facility higher than needed, lower than needed, or at the appropriate level?[a]						
a. First-line supervisors						
(1) Much higher than needed	4	3	17	11	0	0
(2) Somewhat higher than needed	9	1	0	0	12	2
(3) Appropriate number	68	70	83	74	63	68
(4) Somewhat lower than needed	16	22	0	16	22	25
(5) Much lower than needed	3	4	0	0	4	5
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57

[a]Question asked in 1985 listed one additional type of staff.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
12. Regardless of whether or not you are currently at your authorized staffing level, do you believe your authorized staffing level for each type of position listed below is higher than you need, lower than you need, or about right?[a]						
a. First-line supervisors						
(1) Much higher than needed	1	1	6	5	0	0
(2) Somewhat higher than needed	12	1	17	0	10	2
(3) Appropriate number	64	75	72	90	61	70
(4) Somewhat lower than needed	19	20	6	5	24	25
(5) Much lower than needed	4	3	0	0	6	4
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
b. FPLs						
(1) Much higher than needed	0	0	0	0	0	0
(2) Somewhat higher than needed	7	4	11	11	6	2
(3) Appropriate number	57	70	61	74	55	68
(4) Somewhat lower than needed	29	25	28	16	29	28
(5) Much lower than needed	7	1	0	0	10	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
c. Air traffic assistants (ATAs)[b]						
(1) Much higher than needed	2	1	0	0	2	2
(2) Somewhat higher than needed	12	7	6	5	14	7
(3) Appropriate number	52	65	50	58	53	67
(4) Somewhat lower than needed	27	20	33	21	25	20
(5) Much lower than needed	8	7	11	16	6	4
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	67	74	18	19	49	55

[a]Question asked in 1985 listed one additional type of staff. Question 13 preceeded question 12 in 1985 survey.
[b]Acronym "ATA" added in 1988.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
14. Which of the following best describes the current situation at your facility for developmentals in regard to the ability to provide them with quality training now?[a]						
1. We have a lot more developmentals than we can train now.		3		0		4
2. We have somewhat more developmentals than we can train now.		11		26		5
3. We have about the right number of developmentals to train now.		41		37		42
4. We could train somewhat more developmentals than we do now.		40		37		40
5. We could train a lot more developmentals than we do now.		7		0		9
Total		**100**		**100**		**100**
Respondents		76		19		57
15. (FOR CENTERS ONLY:) In your opinion, is the current number of FPLs on board in your TMU higher than needed, lower than needed, or at the appropriate level?[a]						
1. Much higher than needed				0		
2. Somewhat higher than needed				5		
3. Appropriate number				53		
4. Somewhat lower than needed				37		
5. Much lower than needed				5		
6. Unsure				0		
Total				**100**		
Respondents				19		

OVERTIME

16. Overall, are radar controllers at your facility working more, less, or about at much overtime as you believe they should be working?

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
TRAINING						
19. Do you believe you have sufficient resources in each of the following areas to provide adequate training at your facility?						
a. Number of training specialists or contract personnel to train developmentals upon completion of Academy training						
(1) Definitely yes	50	40	50	56	50	35
(2) Probably yes	16	24	22	28	14	22
(3) Uncertain	2	3	6	6	0	2
(4) Probably no	18	29	17	11	18	35
(5) Definitely no	15	4	6	0	18	6
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	72	18	18	50	54
b. Number of FPLs qualified to provide OJT						
(1) Definitely yes	52	48	50	56	53	46
(2) Probably yes	23	33	33	22	20	37
(3) Uncertain	3	3	6	6	2	2
(4) Probably no	10	16	6	17	12	16
(5) Definitely no	12	0	6	0	14	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	18	51	57
c. Number of supervisors to provide OJT						
(1) Definitely yes	68	59	72	71	67	55
(2) Probably yes	20	25	28	18	18	27
(3) Uncertain	1	3	0	0	2	4
(4) Probably no	9	12	0	12	12	13
(5) Definitely no	1	1	0	0	2	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	73	18	17	51	56
d. Equipment at facility for training						
(1) Definitely yes	57	21	56	6	57	26
(2) Probably yes	16	25	28	39	12	21
(3) Uncertain	3	0	11	0	0	0
(4) Probably no	10	29	6	33	12	28
(5) Definitely no	15	24	0	22	20	25
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	18	51	57

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Emergency procedures						
(1) Excellent	27	17	29	16	26	18
(2) Good	44	40	35	26	47	44
(3) Adequate	27	40	29	53	26	35
(4) Less than adequate	3	4	6	5	2	4
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	76	17	19	51	57
d. Handling heavy traffic						
(1) Excellent	48	47	33	47	53	47
(2) Good	38	37	50	32	33	39
(3) Adequate	13	13	17	16	12	12
(4) Less than adequate	1	3	0	5	2	2
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
e. Holding patterns						
(1) Excellent	12	11	17	21	10	7
(2) Good	26	28	44	32	19	27
(3) Adequate	42	54	17	42	52	58
(4) Less than adequate	15	5	22	5	13	6
(5) Poor	5	1	0	0	6	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	66	74	18	19	48	55
f. Operational characteristics of types of aircraft						
(1) Excellent	28	18	28	21	28	18
(2) Good	42	43	33	26	45	49
(3) Adequate	22	33	11	42	26	30
(4) Less than adequate	9	5	28	11	2	4
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
g. Direct routings (expediting traffic)						
(1) Excellent	38	21	50	21	33	21
(2) Good	33	44	22	37	37	46
(3) Adequate	29	33	28	37	29	32
(4) Less than adequate	0	1	0	5	0	0
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	19	51	56

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
22. Overall, how do you rate the quality of on-the-job training that developmentals currently receive at your facility?[a]						
1. Excellent		26		21		28
2. Good		63		58		65
3. Adequate		11		21		7
4. Poor		0		0		0
5. Very poor		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
23. What portion of the OJT instructors at your facility have the ATC experience and teaching skills they need to provide OJT to developmentals?[a]						
ATC Experience						
1. All/Almost all		41		58		35
2. Most		42		32		46
3. About half		15		11		16
4. Some		3		0		4
5. Few/None		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
Teaching Skills						
1. All/Almost all		16		11		18
2. Most		38		33		39
3. About half		31		44		27
4. Some		15		11		16
5. Few/None		0		0		0
Total		**100**		**100**		**100**
Respondents		74		18		56
24. Do you believe today's developmental controllers are better, worse, or about the same as developmental controllers were in each of the following areas 3 years ago?[b]						

[a]Question was not asked in 1985 survey.
[b]Question is not comparable to 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
25. Do you believe developmental controllers at your facility are provided with sufficient training involving live traffic before being certified on a position?						
1. Definitely yes	83	90	78	95	84	88
2. Probably yes	15	9	11	5	16	11
3. Uncertain	1	0	6	0	0	0
4. Probably not	1	1	6	0	0	2
5. Definitely not	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
26. Does your facility have an adequate amount of simulator equipment?[a]						
1. Definitely yes		23		5		29
2. Probably yes		16		26		13
3. Uncertain		3		0		4
4. Probably not		19		37		13
5. Definitely not		40		32		43
Total		**100**		**100**		**100**
Respondents		75		19		56
27. To what extent, if at all, is your facility's simulator equipment used by developmental controllers?[a]						
1. Very great extent		38		58		31
2. Great extent		24		32		22
3. Moderate extent		12		11		13
4. Some extent		15		0		20
5. Little, or no extent		11		0		15
Total		**100**		**100**		**100**
Respondents		74		19		55

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
31. (FOR CENTERS ONLY:) In your opinion, has the quality of the facility classroom and laboratory training provided to developmentals gotten better or worse or stayed about the same since October 1, 1986, when the contract personnel started training?[a]						
1. Much better				12		
2. Somewhat better				35		
3. About the same				41		
4. Somewhat worse				12		
5. Much worse				0		
Total				**100**		
6. No basis to judge/ Not here before 10/1/86[b]				11		
Respondents				17		
32. (FOR CENTERS ONLY:) Do you believe that the contract to provide center classroom and laboratory training should be renewed for centers only, expanded to terminals, or should FAA let it lapse?[a]						
1. Renew for centers only				11		
2. Expand to terminals				16		
3. Let it lapse				53		
4. Other				21		
Total				**100**		
5. Don't know/No basis to judge[b]				0		
Respondents				19		
SYSTEM SAFETY AND AIR TRAFFIC OPERATIONS						
33. How would you rate the overall safety of the ATC system today?						
1. Excellent	70	59	83	79	65	53
2. Good	28	37	17	21	31	42
3. Adequate	3	4	0	0	4	5
4. Poor	0	0	0	0	0	0
5. Very poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b]	0	0	0	0	0	0
Respondents	69	76	18	19	51	57

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Current amount of overtime being worked						
(1) Strongly helps		5		11		4
(2) Helps somewhat		8		5		9
(3) No impact		66		63		67
(4) Hinders somewhat		18		21		18
(5) Strongly hinders		3		0		*
Total		**100**		**100**		**100**
Respondents		76		19		57
f. Current hardware reliability						
(1) Strongly helps		26		47		19
(2) Helps somewhat		22		21		23
(3) No impact		22		0		30
(4) Hinders somewhat		25		21		26
(5) Strongly hinders		4		11		2
Total		**100**		**100**		**100**
Respondents		76		19		57
g. Current software reliability						
(1) Strongly helps		33		53		26
(2) Helps somewhat		25		26		25
(3) No impact		29		16		33
(4) Hinders somewhat		13		5		16
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
h. Current controller morale						
(1) Strongly helps		26		26		26
(2) Helps somewhat		30		21		33
(3) No impact		22		37		18
(4) Hinders somewhat		21		16		23
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
i. Other						
(1) Strongly helps		0		0		0
(2) Helps somewhat		0		0		0
(3) No impact		0		0		0
(4) Hinders somewhat		36		0		40
(5) Strongly hinders		64		100		60
Total		**100**		**100**		**100**
Respondents		11		1		10

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
37. What contribution, if any, has each of the following made in helping controllers perform their duties as air traffic controllers?[a]						
a. Recommendations from FAB (Facility Advisory Board)						
(1) Strongly helps		47		53		46
(2) Helps somewhat		49		42		51
(3) Neither helps nor hinders		4		5		4
(4) Hinders somewhat		0		0		0
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		0		0		0
Respondents		76		19		57
b. New controller chairs						
(1) Strongly helps		1		5		0
(2) Helps somewhat		21		32		18
(3) Neither helps nor hinders		63		42		70
(4) Hinders somewhat		8		11		7
(5) Strongly hinders		7		11		5
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		1		0		2
Respondents		75		19		56
c. New strip printer						
(1) Strongly helps		27		21		30
(2) Helps somewhat		44		21		55
(3) Neither helps nor hinders		17		26		13
(4) Hinders somewhat		12		32		3
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		21		0		29
Respondents		59		19		40
d. Revised traffic flows						
(1) Strongly helps		15		16		15
(2) Helps somewhat		67		68		66
(3) Neither helps nor hinders		14		11		15
(4) Hinders somewhat		4		5		4
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		5		0		7
Respondents		72		19		53

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
38. Of the factors listed below, which do you think are the three most serious problems facing the air traffic control system today?[a] Write the letters of the three problems in the boxes below. You need not use all three boxes. Use letter "A" if you see no serious problems. (The order is not important.)						
A. No serious problems		7		11		5
One or more serious problems		93		89		95
Total		**100**		**100**		**100**
Respondents		76		19		57
		Percent of facility managers citing serious problems				
B. Too much air traffic		11		24		7
C. Morale of the work force		11		6		13
D. Too few FPLs		31		12		37
E. Too few developmentals		13		12		13
F. Poor pilot performance		11		29		6
G. Skill level of developmentals		3		0		4
H. Too much scheduled or unscheduled overtime		4		0		6
I. Out-of-date hardware/equipment		44		41		44
J. Limited software capabilities		11		0		15
K. Inadequate training for developmentals		6		6		6
L. Airlines' use of hubs		24		18		26
M. Current airline scheduling practices		58		77		52
N. Other		38		47		36
Missing choices[b]		31		28		32
Total[c]		**300**		**300**		**300**
Respondents		71		17		54

[a]Question was not asked in 1985 survey.
[b]Respondents selected only one or two serious problems.
[c]Because respondents could select up to three choices, percentages add to 300.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Helping management identify system problems (e.g., airspace configuration)						
(1) Significant positive impact			39	11		
(2) Some positive impact			44	42		
(3) No impact			17	42		
(4) Some negative impact			0	0		
(5) Significant negative impact			0	5		
Total			**100**	**100**		
Respondents			18	19		
c. Ensuring adequate separation of aircraft						
(1) Significant positive impact			44	32		
(2) Some positive impact			44	53		
(3) No impact			0	16		
(4) Some negative impact			11	0		
(5) Significant negative impact			0	0		
Total			**100**	**100**		
Respondents			18	19		
d. Efficiency of controller performance						
(1) Significant positive impact			44	0		
(2) Some positive impact			22	68		
(3) No impact			11	11		
(4) Some negative impact			22	21		
(5) Significant negative impact			0	0		
Total			**100**	**100**		
Respondents			18	19		
e. Controller morale						
(1) Significant positive impact			11	0		
(2) Some positive impact			6	0		
(3) No impact			6	11		
(4) Some negative impact			44	68		
(5) Significant negative impact			33	21		
Total			**100**	**100**		
Respondents			18	19		

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
STRIKE RECOVERY						
43. Since the PATCO strike, to what extent, if at all, has your facility recovered its capability to handle traffic (volume and complexity)?						
1. Totally	44	71	39	74	45	70
2. Great extent	35	17	50	21	29	16
3. Moderate extent	16	8	6	5	20	9
4. Some extent	4	3	6	0	4	4
5. Little or no extent	1	1	0	0	2	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
BACKGROUND						
44. How many total years of experience do you have for each of the following?[a]			Mean years			
A. Total years with FAA		26.9		25.9		27.3
Respondents		75		19		56
B. Years as an ATC facility manager		7.8		5.9		8.5
Respondents		76		19		57
45. How long have you been the manager of this facility?[a]						
1. 6 months or less		12		32		5
2. 7-12 months		13		5		16
3. 13-24 months		5		16		2
4. 25-48 months		37		37		37
5. More than 4 years		33		11		40
Total		**100**		**100**		**100**
Respondents		76		19		57

[a]Question was not asked in 1985 survey.

Responses in percent (unless indicated otherwise)

Question	Overall 1988	Centers 1988	Terminals 1988
FACILITY INFORMATION[a]			
47. What is your facility's current goal (in number of months) for releasing FPLs for (a) promotions, (b) lateral transfers for career enhancements, and (c) other lateral and downgrade transfers, once your facility is notified of an FPL's offer for a job at another facility. (Enter number of months for each.)		Mean months	
a. Promotions	3.7	1.6	4.5
Respondents	70	17	53
b. Lateral transfers for career enhancements	5.3	4.6	5.5
Respondents	72	18	54
c. Other lateral and downgrade transfers	8.2	8.3	8.1
Respondents	66	14	52
48. During calendar year 1987, how many FPLs left your facility for the following reasons? (Enter number for each category.)		Total FPLs leaving	
a. Promotions	186	39	147
Respondents	68	17	51
b. Lateral transfers for career enhancements	116	39	77
Respondents	70	17	53
c. Other lateral and downgrade transfers	92	56	36
Respondents	68	18	50

[a]Questions 47 to 61 were not part of the 1985 survey. Facility managers were explicitly informed that answers to this part of the questionnaire would not be held confidential and may be reported on a facility by facility basis.

Responses in percent (unless indicated otherwise)

Question	Overall 1988	Centers 1988	Terminals 1988
50. Please consider the time period you anticipate that FPLs will typically wait to leave your facility in 1988 for (a) promotions or (b) career-enhancement transfers. Do you think these waiting periods will be longer, shorter, or about the same in calendar year 1988 compared to calendar year 1987?			
a. Promotions			
1988 waiting period will be ...			
(1) Much shorter	1	0	2
(2) Somewhat shorter	10	12	9
(3) About the same	59	77	54
(4) Somewhat longer	23	12	27
(5) Much longer	7	0	9
Total	**100**	**100**	**100**
(6) No basis to judge[a]	3	11	0
Respondents	73	17	56
b. Lateral transfers for career enhancements			
1988 waiting period will be ...			
(1) Much shorter	2	0	2
(2) Somewhat shorter	6	12	4
(3) About the same	65	77	61
(4) Somewhat longer	19	0	26
(5) Much longer	9	12	8
Total	**100**	**100**	**100**
(6) No basis to judge[a]	9	11	5
Respondents	68	17	51

51. During calendar year 1987, how many FPLs, if any, had outstanding requests for release from your facility for noncareer-enhancing lateral or downgrade transfers?	Total FPLs		
Number of FPLs*	158	128	30
Respondents	74	17	57

*IF NONE SKIP TO QUESTION 54

[a]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall 1988	Centers 1988	Terminals 1988
b. There are no outstanding requests for such transfers because FPLs at this facility know that now is not the time to ask to leave.			
(1) Strongly agree	7	0	9
(2) Generally agree	3	5	2
(3) Neither agree nor disagree	16	16	16
(4) Generally disagree	29	32	29
(5) Strongly disagree	45	47	45
Total	**100**	**100**	**100**
Respondents	75	19	56
c. The only releases granted are to accommodate unusual individual circumstances.			
(1) Strongly agree	16	11	18
(2) Generally agree	21	32	18
(3) Neither agree nor disagree	12	5	14
(4) Generally disagree	19	16	20
(5) Strongly disagree	32	37	30
Total	**100**	**100**	**100**
Respondents	75	19	56
d. Current staffing limitations make it difficult to release as many of the FPLs as would like such transfers.			
(1) Strongly agree	31	42	27
(2) Generally agree	21	26	20
(3) Neither agree nor disagree	16	5	20
(4) Generally disagree	15	16	14
(5) Strongly disagree	17	11	20
Total	**100**	**100**	**100**
Respondents	75	19	56
e. We are able to release some FPLs each year based on their personal preferences.			
(1) Strongly agree	15	17	14
(2) Generally agree	49	67	43
(3) Neither agree nor disagree	12	0	16
(4) Generally disagree	15	11	16
(5) Strongly disagree	10	6	11
Total	**100**	**100**	**100**
Respondents	74	18	56

Responses in percent (unless indicated otherwise)

Question	Overall	Centers	Terminals
	1988	1988	1988
j. Other			
(1) Strongly agree	100	100	100
(2) Generally agree	0	0	0
(3) Neither agree nor disagree	0	0	0
(4) Generally disagree	0	0	0
(5) Strongly disagree	0	0	0
Total	**100**	**100**	**100**
Respondents	7	3	4
55. How many FPLs are waiting for release from your facility as of May 1, 1988, for noncareer-enhancing lateral and downgrade transfers.		Total FPLs	
Number of FPLs*	87	70	17
Respondents	75	18	57
*IF NONE, SKIP TO QUESTION 57			
56. Of these FPLs (see question 55) currently waiting for release from your facility for noncareer-enhancing downgrade or lateral transfers, what portion of them, if any, do you anticipate releasing by the end of this calendar year (that is, by December 31, 1988)?			
1. None	23	7	45
2. Few	23	40	0
3. Less than half	0	0	0
4. About half	8	13	0
5. More than half	4	7	0
6. Most	8	13	0
7. All	35	20	55
Total	**100**	**100**	**100**
Respondents	26	15	11
57. Please provide (or attach) any additional information that you think would help us better understand your facility's policy on promotional, lateral, or downgrade transfers for FPLs.			
Written comments provided	55	42	60
No comments provided	45	58	40
Total	**100**	**100**	**100**
Respondents	76	19	57

Responses in percent (unless indicated otherwise)

Question	Overall	Centers	Terminals
	1988	1988	1988
IF YOU ARE			
(1) A FACILITY MANAGER FOR A TRACON THAT SERVICES MORE THAN ONE AIRPORT TERMINAL			
OR (2) A CENTER FACILITY MANAGER, --------->PLEASE SKIP TO 60.			
ALL OTHERS---->CONTINUE WITH NEXT QUESTION.			
59. (LEVEL 4 AND 5 TERMINALS ONLY:) Please list the names of the airlines that had hubs at your facility as of May 1, 1988. If you would prefer to just give the number of airlines, please do so.			Total airline hubs
Respondents			48
			41

60. Please provide the number of developmentals on board at your facility as of May 1, 1988, for each of the categories below. Item (e) should be the total of items (a) through (d).			
Developmentals who...			Total developmentals
a. Came directly to this facility from the Academy	1,599	1,461	138
b. Came directly from another radar facility	418	98	320
c. Came directly from nonradar facility	127	13	114
d. Other	125	96	29
e. TOTAL DEVELOPMENTALS AS OF MAY 1, 1988	2,269	1,668	601
Respondents	74	17	57

SECTION 4
OBJECTIVE, SCOPE, AND METHODOLOGY

The Ranking Minority Member, Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, and the Chairman, House Committee on Public Works and Transportation, requested that we update and replicate our previous evaluation of the air traffic control system. To accomplish this, we mailed separate questionnaires to air traffic controllers, first-line supervisors of controllers, and facility managers at the 84 largest air traffic control facilities. The following sections provide details on our scope and methodology in designing and administering the questionnaires and estimating the overall results.

SCOPE

Our 1988 survey included the 84 largest air traffic control facilities, consisting of all 20 air route traffic control centers in the continental United States and all 64 of the largest terminal facilities (level 4 and 5) in March 1988, the survey selection period. Appendix I shows the specific facilities included in the 1988 survey, in addition to those included in our 1985 survey. Ten more facilities were included in 1988 because (1) the volume of their air traffic had increased, resulting in FAA's including them in the group of largest facilities, or (2) FAA had reorganized some facilities by splitting them into two distinct components (see app. I for details). We performed our review from November 1987 to December 1988, in accordance with generally accepted government auditing standards.

METHODOLOGY

Between May 2 and August 5, 1988, we surveyed the air traffic control work force. Specifically, we mailed similar, but not identical, questionnaires to (1) full performance level controllers and developmental level controllers certified on at least one radar position, (2) first-line supervisors of controllers, and (3) facility managers. The topics of the survey included work load, staffing, overtime, training, system safety and air traffic control operations, operational error detection, and retirement.

To meet our objective, we replicated questions from the 1985 survey. To gain further insight into a variety of issues--such as working conditions, safety, and morale--we added questions to the 1988 survey. In developing the questionnaires, suggested changes were provided by Representative Molinari, FAA, the National Transportation Safety Board, and the controllers' union. Individual controller, supervisor, and manager comments were considered during our questionnaire pretesting at nine specific FAA facilities.

Table 4.1: Universe, Sample, and Return-Related Data for the Three Questionnaires Used in the 1988 Survey

Return rate in percent

Questionnaire and location	Size		Responses		Not returned		Return rate[b]
	Universe	Sample	Eligible	Ineligible[a]	Incorrect address	No response	
Controllers							
Terminals	2,451	2,451	1,699	152	32	568	75.5
Centers	5,291	2,824	1,859	333	25	607	77.6
Total	7,742	5,275	3,558	485	57	1,175	76.6
Supervisors							
Terminals	478	478	393	16	3	66	85.6
Centers	718	636	546	24	2	64	89.6
Total	1,196	1,114	939	40	5	130	87.9
Managers							
Terminals	60	60	57	0	0	3	95.0
Centers	20	20	19	0	0	1	95.0
Total	80	80	76	0	0	4	95.0

[a]Ineligibles represent respondents who were either (1) not full performance level controllers or developmentals certified on at least one radar position or (2) not first-line supervisors.

[b]Return rates were calculated by dividing the total of all responses by the applicable sample size.

Table 4.2 compares universes, samples, and return rates for the 1988 and 1985 surveys.

Because of the sensitive nature of some questions, respondents were promised confidentiality to encourage a reply. The only exception to this pledge was one section of questions on facility information in the 1988 facility manager questionnaire. The facility managers were informed that information in this section could be specifically identified to their facilities.

In order to maintain confidentiality, a control number was written on each questionnaire to identify the respondents without using their names and to facilitate follow-up mailings. The nonconfidential section of the managers' questionnaire was detached and processed separately so that no identification remained on the confidential questions.

On June 6, 1988, we sent follow-up letters to all nonrespondents. The letters also included a second copy of the questionnaire in case the respondent could not locate the original. We subsequently phoned some facility managers to clarify facility staffing information.

MAJOR CONTRIBUTORS TO THIS FACT SHEET

RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, WASHINGTON, D.C.

Kenneth M. Mead, Director, Transportation Issues, (202) 275-1000
Victor S. Rezendes, Associate Director, Transportation Issues
Thomas J. Barchi, Assistant Director
Fran A. Featherston, Research Analyst
Alfred T. Brown, Evaluator
M. Jane Hunt, Reports Analyst

PHILADELPHIA REGIONAL OFFICE

Joseph A. Kredatus, Evaluator-in-Charge
Eric L. Hallberg, Supervisory Evaluator
William F. Schmanke, Technical Assistance Manager
Thomas N. Bloom, Systems Analyst
Jeannie Bryant Davis, Evaluator
June A. Ragone, Evaluator

(341191)

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are $2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

THE 84 MAJOR AIR TRAFFIC CONTROL FACILITIES INCLUDED IN GAO'S SURVEY

Air Route Traffic Control Centers

1. Albuquerque
2. Atlanta
3. Boston
4. Chicago
5. Cleveland
6. Denver
7. Fort Worth
8. Houston
9. Indianapolis
10. Jacksonville
11. Kansas City
12. Los Angeles
13. Memphis
14. Miami
15. Minneapolis
16. New York
17. Oakland
18. Salt Lake City
19. Seattle
20. Washington, D.C.

Terminal Facilities

1. Atlanta
2. Austin Tower[a]
3. Baltimore-Washington
4. Boston
5. Burbank
6. Charlotte
7. Chicago O'Hare[b]
8. Chicago TRACON[b]
9. Cleveland
10. Columbus
11. Dallas-Fort Worth[b]
12. Dallas-Fort Worth TRACON[b]
13. Dallas-Love Tower[a]
14. Dayton
15. Denver[b]
16. Denver TRACON[b]
17. Detroit
18. Dulles Tower[a]
19. Edwards Air Force Base
20. Fort Lauderdale
21. Hebron[a]
22. Houston
23. Indianapolis
24. Jacksonville
25. Kansas City
26. Kennedy Tower
27. LaGuardia Tower
28. Las Vegas
29. Los Angeles
30. Los Angeles TRACON
31. Lubbock
32. Memphis
33. Miami
34. Milwaukee
35. Minneapolis
36. Nashville[a]
37. Newark
38. New Orleans
39. New York TRACON
40. Norfolk
41. Oakland Tower[a]
42. Oakland TRACON
43. Oklahoma City
44. Ontario TRACON
45. Orlando
46. Pensacola
47. Philadelphia
48. Phoenix
49. Phoenix TRACON
50. Pittsburgh
51. Portland TRACON[c]
52. Sacramento
53. St. Louis[b]
54. St. Louis TRACON[b]
55. Salt Lake TRACON[c]
56. San Antonio
57. San Diego
58. San Francisco
59. Santa Ana
60. Seattle TRACON[c]
61. Tampa
62. Washington National
63. West Palm Beach
64. Windsor Locks

Note: TRACON = Terminal radar approach control facility.

[a]Facility upgraded subsequent to 1985 survey and now included in FAA's list of largest facilities (level 4 and 5).

[b]Facility reorganized subsequent to 1985 survey to include separate tower and TRACON activity; each organizational unit is sufficiently large to be separately included in FAA's list of largest facilities.

[c]Facility reorganized subsequent to 1985 survey to include separate tower and TRACON. Towers (Portland, Salt Lake City, and Seattle) no longer included in our survey since FAA deleted them from its list of largest facilities.

Table 4.2: Universe, Sample, and Return Rates for the 1988 and 1985 Surveys

Return rate in percent

Category	Universe		Sample size		Return rate	
	1988	1985	1988	1985	1988	1985
Controllers	7,742	6,248	5,275	4,472	76.6	73.4
Supervisors	1,196	1,150	1,114	1,052	87.9	81.4
Managers	80	74	80	74	95.0	93.2

Survey Results

Survey questions (see sections 1, 2, and 3) are presented with responses to each item. Further, responses to each item are shown (1) overall for all 84 facilities, (2) for the 20 centers, and (3) for the 64 terminal facilities. We used stratified sampling at centers and assigned appropriate weights to sampled cases prior to analyzing the survey results. Thus, responses shown for centers and overall represent weighted estimates. We examined selected estimates to ensure sampling errors of no more than ± 5 precent at the 95-percent confidence level.

Questionnaire Procedures

The 1988 questionnaires were developed using the 1985 questionnaires as our starting point. (Sections 1, 2, and 3 show 1985 results for comparable questions.) We added and deleted questions on the basis of suggestions provided by the Ranking Minority Member, FAA officials, the National Transportation Safety Board, union officials, and members of the air traffic control work force. We conducted pretests with a total of 36 individuals at 9 facilities: 4 centers (Cleveland, Jacksonville, Oakland, and Seattle) and 5 terminal facilities (Cleveland, Jacksonville, Oakland TRACON, Orlando, and Seattle TRACON).

During each session, an individual respondent filled out a questionnaire in the presence of two GAO observers. The GAO observers timed the respondent and observed reactions to questions and question flow. Afterwards, the observers debriefed the respondent to identify ambiguities, incorrect use of technical language, potential bias, or other problems in question wording or questionnaire format.

Questionnaires for controllers and supervisors were mailed to the respondents' home address. If a home address was not available, questionnaires were mailed to controllers at the facilities where they worked. Questionnaires for the facility managers were also mailed to each facility.

We designed three separate questionnaires for each of the three work force components for both the 1988 and 1985 surveys. Each questionnaire was designed to gain a unique perspective of the air traffic work force: controllers directly work and control air traffic primarily using radar; first-line supervisors represent a manager's view and also reflect personal observations from directly working and controlling traffic; facility managers represent the perspective of FAA field management.

Research Design

To establish the universe of controllers, we used an FAA computer file, containing names and home addresses, of all controllers (GS-2152 series) employed at the 84 largest facilities as of March 23, 1988. Since some of the controllers on this file were not radar qualified, we developed criteria in consultation with FAA to identify qualified controllers. This procedure identified 7,742 air traffic controllers; however, the criteria to screen FAA's file for radar-certified controllers were inexact. Therefore, we included a screening question in the questionnaire to more precisely identify full performance level controllers and developmental controllers who were certified on at least one radar position.

We used a similar selection and screening process for first-line supervisors and identified 1,196.

We sent questionnaires to all facility managers at the 84 largest facilities. FAA provided a list of the facility managers' names and addresses. At four terminals (Chicago, Dallas-Fort Worth, Denver, and St. Louis), FAA has one manager overseeing two facilities, or organizational components--the control tower and the terminal radar approach control, or TRACON, facility. Thus, questionnaires were sent to 80 facility managers.

Sample, Universe, and Return-Related Data

The largest FAA facilities in the air traffic control system consist of air route traffic control centers, which control flights between airports, and terminal facilities. Because a center has a considerably greater number of controllers and supervisors than does a terminal, we used a stratified sample at centers for selection; at terminals, all controllers and supervisors were sent questionnaires. The number of controllers and supervisors sampled at each center was large enough to yield a sampling error of no more than 5 percent at the 95-percent confidence level for each center.

Table 4.1 shows universe, sample, and return-related data for the 1988 survey.

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
61. Considering the developmental controllers who were certified in the last 12 months at your facility, what is the typical length of time it took for them to become fully certified (FPL)? Your answer should be based on total elapsed calendar time between facility entry date and FPL certification date. Answer separately for each category shown. (ENTER TIME IN MONTHS)						
Developmentals who...						
a. Came directly to this facility from the Academy or a nonradar facility		Mean months				
Respondents		24.8		34.2		19.3
		46		17		29
b. Came directly from another radar facility		11.6		13.9		10.9
Respondents		63		14		49
62. Thank you for your help with this study. If you have any other comments, please write them in the space below. Any written comments will be considered confidential. Attach additional sheet(s) if you need more space.						
Written comments provided	39	33	22	37	45	32
No comments provided	61	67	78	63	55	68
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57

Responses in percent (unless indicated otherwise)

Question	Overall 1988	Centers 1988	Terminals 1988
58. Excluding permanent staff positions, please think about the FPLs and first-line supervisors in staff positions (temporary, detail, special project, etc.) at your facility as of May 1, 1988. Please give the number of such FPLs and supervisors at your facility (Column A), the number of them retaining currency on position (Column B), and the number of them included in the controller work force count for your facility as of May 1, 1988 (Column C). For staff positions, consider FPLs performing duties such as training, quality assurance, plans and programs, airspace and procedures, military operations, automation, etc. Do not include TMU positions in the numbers you give below.			
a. FPLs in nonpermanent staff positions (temporary assignment, detail, special projects, etc.)		Total FPLs	
(A) Total Number on Board as of May 1, 1988	179	93	86
(B) Number of Those (From Column A) Retaining Currency on ATC Positions	165	82	83
(C) Number of Those (From Column A) in Controller Work Force Count (as of 5/1/88)	108	38	70
Respondents	74	17	57
b. First-line supervisors in nonpermanent staff positions (temporary assignment, detail, special projects, etc.)		Total supervisors	
(A) Total Number on Board as of May 1, 1988	20	11	9
(B) Number of Those (From Column A) Retaining Currency on ATC Positions	14	7	7
(C) Number of Those (From Column A) in Controller Work Force Count (as of 5/1/88)	19	10	9
Respondents	72	16	56

Responses in percent

Question	Overall	Centers	Terminals
	1988	1988	1988
f. Most FPLs requesting such releases are generally released within a time period they find acceptable.			
(1) Strongly agree	12	5	14
(2) Generally agree	40	32	42
(3) Neither agree nor disagree	16	26	12
(4) Generally disagree	21	32	18
(5) Strongly disagree	12	5	14
Total	**100**	**100**	**100**
Respondents	76	19	57
g. FPLs at this facility can be released within 60 days, if they wish, for such transfers.			
(1) Strongly agree	7	5	7
(2) Generally agree	10	0	13
(3) Neither agree nor disagree	14	11	15
(4) Generally disagree	23	32	20
(5) Strongly disagree	47	53	46
Total	**100**	**100**	**100**
Respondents	74	19	55
h. This facility releases most FPLs within a year after they request release.			
(1) Strongly agree	21	5	27
(2) Generally agree	32	32	32
(3) Neither agree nor disagree	17	21	16
(4) Generally disagree	13	21	11
(5) Strongly disagree	16	21	14
Total	**100**	**100**	**100**
Respondents	75	19	56
i. All FPLs requesting such releases in calendar year 1988 can leave this facility within 2 years.			
(1) Strongly agree	25	16	29
(2) Generally agree	29	26	30
(3) Neither agree nor disagree	25	26	25
(4) Generally disagree	8	16	5
(5) Strongly disagree	12	16	11
Total	**100**	**100**	**100**
Respondents	75	19	56

Responses in percent (unless indicated otherwise)

Question	Overall 1988	Centers 1988	Terminals 1988
52. Of those FPLs requesting such releases (see question 51), how many FPLs were actually released in calendar year 1987 for noncareer-enhancing lateral or downgrade transfers?		Total FPLs	
Number of FPLs*	63	45	18
Respondents	31	15	16
*IF NONE SKIP TO QUESTION 54			
53. How many months did these FPLs (reported in question 52) actually wait from the time they first requested release until their last day at this facility? Give the number of FPLs for each category.		Total FPLs	
1. 1-30 days	2	1	1
2. 1-3 months	17	13	4
3. 4-6 months	17	11	6
4. 7-12 months	18	13	5
5. 13-24 months	2	1	1
6. 25-36 months	0	0	0
7. Over 3 years	0	0	0
Total[a]	**56**	**39**	**17**
Respondents	20	10	10
54. Considering the current FPL staffing at your facility and the desires of some FPLs for noncareer-enhancing lateral or downgrade transfers, please indicate how strongly you agree or disagree with each of the following statements.			
a. Currently, no one can be released from this facility for such transfers.			
(1) Strongly agree	31	11	38
(2) Generally agree	15	16	14
(3) Neither agree nor disagree	11	11	11
(4) Generally disagree	23	32	20
(5) Strongly disagree	21	32	18
Total	**100**	**100**	**100**
Respondents	75	19	56

[a]The total of FPLs does not equal the corresponding total in question 52 because some managers responded to question 52 but not to question 53.

Responses in percent (unless indicated otherwise)

Question	Overall 1988	Centers 1988	Terminals 1988
49. For the FPLs who left your facility for promotions or career enhancements in calendar year 1987, please show the time periods these FPLs waited before leaving your facility. By "waited," we mean the length of time from when you were first notified of the transfer until the FPL's last day of work at the facility.			
CALENDAR YEAR 1987 RELEASES FOR FPLS			
a. Promotions		Total FPLs	
Number of FPLs who waited for...			
(1) Less than 3 months	71	15	56
(2) 3-6 months	67	6	61
(3) 7-12 months	35	6	29
(4) 13-18 months	2	0	2
(5) Over 18 months	0	0	0
Total FPLs[a]	175	27	148
Respondents	65	15	50
b. Lateral transfers for career enhancements			
Number of FPLs who waited for...		Total FPLs	
(1) Less than 3 months	47	15	32
(2) 3-6 months	49	15	34
(3) 7-12 months	19	2	17
(4) 13-18 months	2	0	2
(5) Over 18 months	0	0	0
Total FPLs[a]	117	32	85
Respondents	67	15	52

[a]"Total FPLs" does not equal the corresponding total in question 48 because some managers listed different numbers for both questions and some managers responded to question 48 but not to question 49.

Responses in percent

Question	Overall 1988	Centers 1988	Terminals 1988
46. Do you believe that information from this survey will be useful to FAA for improving air traffic control conditions?[a]			
1. Definitely yes	6	6	5
2. Probably yes	29	25	30
3. Uncertain	18	13	20
4. Probably not	38	50	34
5. Definitely not	10	6	11
Total	**100**	**100**	**100**
6. No basis to judge[b]	5	16	2
Respondents	72	16	56

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
f. ATC system capacity						
(1) Significant positive impact			11	0		
(2) Some positive impact			6	0		
(3) No impact			67	53		
(4) Some negative impact			17	42		
(5) Significant negative impact			0	5		
Total			**100**	**100**		
Respondents			18	19		
g. Pilot/Controller relationships						
(1) Significant positive impact			0	0		
(2) Some positive impact			11	5		
(3) No impact			28	47		
(4) Some negative impact			61	47		
(5) Significant negative impact			0	0		
Total			**100**	**100**		
Respondents			18	19		
h. Other						
(1) Significant positive impact				0		
(2) Some positive impact				0		
(3) No impact				0		
(4) Some negative impact				0		
(5) Significant negative impact				0		
Total				**0**		
Respondents				0		

42. Approximately what percentage of the operational errors detected by the automated operational error detection program at your facility in the last 12 months were operational errors on the part of your controllers?	Mean percent	
Percent controller error	93	76
Respondents	17	18

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
39. Where minimum standards for maintaining separation of aircraft exist (3 miles for terminals; 5 miles for centers), what distance do your controllers typically try to maintain?[a]						
1. 3 - 3.9 miles		51		0		68
2. 4 - 4.9 miles		23		0		30
3. 5 - 5.9 miles		3		5		2
4. 6 - 6.9 miles		7		26		0
5. 7 - 7.9 miles		15		58		0
6. 8 - 8.9 miles		1		5		0
7. 9 - 9.9 miles		1		5		0
8. 10 - 15 miles		0		0		0
9. Over 15 miles		0		0		0
Total		**100**		**100**		**100**
Respondents		75		19		56
AUTOMATED OPERATIONAL ERROR DETECTION PROGRAM						
40. Is your facility an enroute center?						
1. Yes	26	26	100	100	0	0
2. No*	74	74	0	0	100	100
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	74	18	19	51	55
*SKIP TO QUESTION 43						
41. How much positive or negative impact, if any, does the automated operational error detection program have in each of the following areas at your facility?						
a. Identifying operational errors						
(1) Significant positive impact			72	58		
(2) Some positive impact			11	11		
(3) No impact			11	11		
(4) Some negative impact			0	11		
(5) Significant negative impact			6	11		
Total			**100**	**100**		
Respondents			18	19		

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Resectorization						
(1) Strongly helps		21		24		20
(2) Helps somewhat		58		65		56
(3) Neither helps nor hinders		19		12		22
(4) Hinders somewhat		2		0		2
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		16		11		18
Respondents		62		19		45
f. TMU (Traffic Management Unit)						
(1) Strongly helps		32		74		17
(2) Helps somewhat		49		26		57
(3) Neither helps nor hinders		10		0		13
(4) Hinders somewhat		7		0		9
(5) Strongly hinders		3		0		4
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		5		0		7
Respondents		72		19		53
g. Host computer						
(1) Strongly helps		37		63		25
(2) Helps somewhat		41		37		43
(3) Neither helps nor hinders		21		0		30
(4) Hinders somewhat		2		0		2
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		17		0		23
Respondents		63		19		44
h. Other						
(1) Strongly helps		11		0		14
(2) Helps somewhat		11		0		14
(3) Neither helps nor hinders		0		0		0
(4) Hinders somewhat		26		67		14
(5) Strongly hinders		52		33		57
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		0		0		0
Respondents		27		6		21

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
35. How would you describe the morale of controllers and first-line supervisors at this facility?[a]						
Controllers						
1. Very high		13		11		14
2. High		43		26		49
3. Neither high nor low		40		58		33
4. Low		4		5		4
5. Very low		0		0		0
6. Uncertain		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
First-line Supervisors						
1. Very high		13		11		14
2. High		52		47		54
3. Neither high nor low		32		42		29
4. Low		3		0		4
5. Very low		0		0		0
6. Uncertain		0		0		0
Total		**100**		**100**		**100**
Respondents		75		19		56
36. What effect, if any, do you think the following have on the flow of traffic in the ATC system?[a]						
a. Airlines' use of hubs						
(1) Strongly helps		0		0		0
(2) Helps somewhat		4		0		6
(3) Neither helps nor hinders		7		0		9
(4) Hinders somewhat		53		47		56
(5) Strongly hinders		36		53		30
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		3		0		4
Respondents		73		19		4
b. Current airline scheduling practices						
(1) Strongly helps		1		0		2
(2) Helps somewhat		1		0		2
(3) Neither helps nor hinders		3		0		4
(4) Hinders somewhat		42		26		47
(5) Strongly hinders		53		74		46
Total		100		100		100
(6) No basis to judge/Doesn't apply[b]		3		0		4
Respondents		74		19		55

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
34. Please consider your own observations and experience for each of the factors listed below. Then, indicate your opinion as to whether that factor is currently helping, is currently hindering, or currently has no impact on the maintenance of ATC system safety today.[a]						
a. Current skill level of developmental controllers						
(1) Strongly helps		16		16		16
(2) Helps somewhat		40		16		47
(3) No impact		32		47		26
(4) Hinders somewhat		13		21		11
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
b. Current number of developmental controllers available						
(1) Strongly helps		8		5		9
(2) Helps somewhat		32		16		38
(3) No impact		37		63		29
(4) Hinders somewhat		23		16		25
(5) Strongly hinders		0		0		0
Total		**100**		**100**		**100**
Respondents		75		19		56
c. Current number of FPL controllers available						
(1) Strongly helps		17		16		18
(2) Helps somewhat		28		21		30
(3) No impact		20		37		14
(4) Hinders somewhat		32		26		34
(5) Strongly hinders		3		0		4
Total		**100**		**100**		**100**
Respondents		75		19		56
d. Current amount of traffic work load						
(1) Strongly helps		8		6		9
(2) Helps somewhat		8		0		11
(3) No impact		42		33		45
(4) Hinders somewhat		41		61		34
(5) Strongly hinders		1		0		2
Total		**100**		**100**		**100**
Respondents		74		18		56

[a]Question is not comparable to 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
28. The next two questions after this one (29 and 30) cover first-line supervisor training for recognizing substance abuse (drugs and alcohol). Do you believe that substance abuse is currently a significant problem affecting the performance of controllers at your facility?[a]						
1. Definitely yes		0		0		0
2. Probably yes		0		0		0
3. Uncertain		3		5		2
4. Probably not		26		26		26
5. Definitely not		71		68		72
6. Other		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
29. During the last 12 months, how many of your facility's first-line supervisors, if any, have received any formal training (classroom or individual instruction) in recognizing substance abuse (drugs and alcohol)?[a]						
1. All/Almost all		37		32		39
2. Most		7		21		2
3. About half		4		5		4
4. Some		15		26		11
5. Few/None		38		16		46
Total		**100**		**100**		**100**
Respondents		76		19		57
30. About what portion of your first-line supervisors, if any, do you think have received sufficient formal training in recognizing substance abuse (drugs and alcohol)?[a]						
1. All/Almost all		22		11		26
2. Most		15		16		14
3. About half		4		5		4
4. Some		20		32		16
5. Few/None		40		37		40
Total		**100**		**100**		**100**
Respondents		76		19		57

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
a. Overall skill level when arriving on floor for on-the-job training						
(1) Much better		15		0		19
(2) Somewhat better		41		44		40
(3) About the same		40		50		37
(4) Somewhat worse		4		6		4
(5) Much worse		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge[a]		1		5		0
Respondents		75		18		57
b. Aptitude or ability to learn controller duties						
(1) Much better		11		11		11
(2) Somewhat better		32		22		35
(3) About the same		55		67		51
(4) Somewhat worse		3		0		4
(5) Much worse		0		0		0
Total		**100**		**100**		**100**
(6) No basis to judge[a]		1		5		0
Respondents		75		18		57
c. Work attitude						
(1) Much better		12		12		12
(2) Somewhat better		30		24		32
(3) About the same		46		41		47
(4) Somewhat worse		11		24		7
(5) Much worse		1		0		2
Total		**100**		**100**		**100**
(6) No basis to judge[a]		3		11		0
Respondents		74		17		57
d. Other						
(1) Much better		0		0		0
(2) Somewhat better		0		0		0
(3) About the same		0		0		0
(4) Somewhat worse		50		0		100
(5) Much worse		50		100		0
Total		**100**		**100**		**100**
(6) No basis to judge[a]		0		0		0
Respondents		2		1		1

[a]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
h. Control techniques						
(1) Excellent	39	29	39	26	39	30
(2) Good	44	52	39	47	45	54
(3) Adequate	12	16	11	21	12	14
(4) Less than adequate	6	3	11	5	4	2
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	19	51	56
i. Phraseology						
(1) Excellent	32	25	17	16	37	29
(2) Good	44	40	44	21	43	46
(3) Adequate	19	28	39	47	12	21
(4) Less than adequate	6	7	0	16	8	4
(5) Poor	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	19	51	56
j. Flow control procedures						
(1) Excellent	23	16	44	26	16	13
(2) Good	39	30	11	26	49	32
(3) Adequate	25	51	17	42	28	54
(4) Less than adequate	12	3	28	5	6	2
(5) Poor	1	0	0	0	2	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	73	18	19	51	54
k. Other						
(1) Excellent		0		0		0
(2) Good		0		0		0
(3) Adequate		33		0		33
(4) Less than adequate		33		0		33
(5) Poor		33		0		33
Total		**100**		**0**		**100**
Respondents		3		0		3

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Other						
(1) Definitely yes		0		0		0
(2) Probably yes		0		0		0
(3) Uncertain		13		0		17
(4) Probably no		0		0		0
(5) Definitely no		87		100		83
Total		**100**		**100**		**100**
Respondents		8		2		6
20. In your opinion, how adequate or inadequate is the training developmental controllers get before beginning on-the-job training?[a]						
1. Much more than adequate		16		11		18
2. Somewhat more than adequate		38		37		39
3. Generally adequate		42		53		39
4. Somewhat less than adequate		4		0		5
5. Much less than adequate		0		0		0
Total		**100**		**100**		**100**
Respondents		76		19		57
21. How do you rate the quality of the on-the-job training developmental controllers currently receive at your facility in each of the following areas?						
a. Using backup systems						
(1) Excellent	19	15	28	0	16	19
(2) Good	41	38	33	26	43	42
(3) Adequate	36	37	28	42	39	35
(4) Less than adequate	4	9	11	32	2	2
(5) Poor	0	1	0	0	0	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
b. Controlling traffic in bad weather						
(1) Excellent	28	24	33	26	26	23
(2) Good	51	46	39	37	55	49
(3) Adequate	17	28	17	32	18	26
(4) Less than adequate	4	1	11	5	2	0
(5) Poor	0	1	0	0	0	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
1. Much more then they should	7	8	17	11	4	7
2. Somewhat more than they should	34	18	33	32	34	14
3. About right	53	70	50	53	54	75
4. Somewhat less than they should	6	4	0	5	8	4
5. Much less than they should	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	76	18	19	50	57
17. In your opinion, to what extent, if at all, does the amount of overtime controllers at your facility are working positively or negatively affect their overall ATC duties?						
1. Significant positive effect	0	3	0	0	0	4
2. Some positive effect	9	7	6	6	10	7
3. Little or no effect	70	76	61	83	73	74
4. Some negative effect	22	15	33	11	18	16
5. Significant negative effect	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	18	51	57
18. Which of the following best describes the current situation in regard to overtime at your facility?[a]						
1. Too much overtime has to be assigned so that our personnel are overworked		11		16		9
2. Too little overtime is authorized so that we can't cover training, leave, and other duties		12		21		9
3. Overtime assignments are appropriate at this time		70		58		74
4. No overtime assigned here; no overtime needed		1		0		2
5. Other		7		5		7
Total		**100**		**100**		**100**
Respondents		76		19		57

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
d. Staff specialists (training, quality assurance, planning and procedures, etc.)						
(1) Much higher than needed	0	0	0	0	0	0
(2) Somewhat higher than needed	2	0	6	0	0	0
(3) Appropriate number	47	47	56	53	44	46
(4) Somewhat lower than needed	38	43	33	26	40	49
(5) Much lower than needed	13	9	6	21	16	5
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	76	18	19	50	57
e. Other(s)						
(1) Much higher than needed		5		0		6
(2) Somewhat higher than needed		0		0		0
(3) Appropriate number		16		0		19
(4) Somewhat lower than needed		32		0		38
(5) Much lower than needed		47		100		38
Total		**100**		**100**		**100**
Respondents		19		3		16
13. In your opinion, do you currently have too many, too few, or an appropriate number of developmental controllers to meet future controller needs?[a]						
1. Much too many	0	0	0	0	0	0
2. Somewhat too many	4	3	6	5	4	2
3. Appropriate number	61	47	72	47	57	47
4. Somewhat too few	29	38	17	37	33	39
5. Much too few	6	12	6	11	6	12
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57

[a]Wording of 1988 question was derived from the first part of a two-part question in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. FPLs (fully certified)						
(1) Much higher than needed	0	0	0	0	0	0
(2) Somewhat higher than needed	4	1	0	0	6	2
(3) Appropriate number	24	28	12	26	28	28
(4) Somewhat lower than needed	38	53	41	47	37	54
(5) Much lower than needed	34	18	47	26	29	16
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	76	17	19	51	57
c. Air traffic assistants (ATAs)[b]						
(1) Much higher than needed	1	1	0	5	2	0
(2) Somewhat higher than needed	13	5	11	0	14	7
(3) Appropriate number	48	51	39	26	51	60
(4) Somewhat lower than needed	32	30	44	42	28	26
(5) Much lower than needed	6	12	6	26	6	7
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	74	18	19	51	55
d. Staff specialists (training, quality assurance, planning and procedures, etc.)						
(1) Much higher than needed	0	0	0	0	0	0
(2) Somewhat higher than needed	3	0	6	0	2	0
(3) Appropriate number	38	40	22	37	43	40
(4) Somewhat lower than needed	42	47	56	42	37	49
(5) Much lower than needed	17	13	17	21	18	11
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57
e. Other(s)						
(1) Much higher than needed		5		0		6
(2) Somewhat higher than needed		0		0		0
(3) Appropriate number		10		0		13
(4) Somewhat lower than needed		43		40		44
(5) Much lower than needed		43		60		38
Total		**100**		**100**		**100**
Respondents		21		5		16

[b]Acronym "ATA" added in 1988.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
7. FAA has established TMUs (Traffic Management Units) at ARTCCs (centers) to assist in controlling the flow of traffic. To what extent, if at all, do you believe these TMUs have helped manage the volume of traffic at your facility over the last 12 months?[a]						
1. Very great help		20		58		7
2. Great help		25		42		19
3. Moderate help		21		0		28
4. Some help		17		0		23
5. Little or no help		17		0		23
Total		**100**		**100**		**100**
Respondents		76		19		57
8. During daily peak traffic periods, do you believe FPL and radar-certified developmental controllers at your facility are typically required to spend too much, too little, or about the right amount of time continuously on radar positions between breaks?						
FPLs						
1. Much too much	0	0	0	0	0	0
2. Somewhat too much	10	7	6	5	12	7
3. Appropriate amount	81	88	83	95	80	86
4. Somewhat too little	6	5	11	0	4	7
5. Much too little	3	0	0	0	4	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	75	18	19	51	56
Developmentals						
1. Much too much	0	0	0	0	0	0
2. Somewhat too much	7	3	11	0	6	4
3. Appropriate amount	79	81	78	84	80	80
4. Somewhat too little	9	15	11	16	8	15
5. Much too little	4	1	0	0	6	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	68	74	18	19	50	55

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
5. How much sector reconfiguration (procedural and/or boundary changes) do you anticipate will take place at your facility during the next 12 months?						
1. Great deal	13	16	17	17	12	16
2. Moderate amount	26	22	22	28	28	20
3. Some	44	46	56	56	39	43
4. None*	17	16	6	0	22	21
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	74	18	18	51	56
*SKIP TO QUESTION 7a						
6. In your opinion, to what extent, if at all, does each of the following factors contribute to the sector reconfigurations you anticipate taking place at your facility during the next 12 months?						
1. Sector(s) handling too much traffic						
(1) Very great extent	7	7	0	12	11	5
(2) Great extent	20	22	33	18	13	24
(3) Moderate extent	13	11	11	12	13	11
(4) Some extent	21	31	28	47	18	24
(5) Little, no extent	39	29	28	12	45	37
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	56	55	18	17	38	38
2. Sector(s) handling too little traffic						
(1) Very great extent	0	0	0	0	0	0
(2) Great extent	5	6	11	12	3	3
(3) Moderate extent	9	11	11	12	8	11
(4) Some extent	14	13	17	35	13	3
(5) Little, no extent	71	70	61	41	76	84
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	56	54	18	17	38	37

[a]"Skip" instruction was not included in the 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
1. Definitely yes	7	3	0	5	10	2
2. Probably yes	29	26	39	32	26	25
3. Uncertain*	4	7	0	0	6	9
4. Probably not*	28	37	33	37	26	37
5. Definitely not*	32	28	28	26	33	28
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	69	76	18	19	51	57

*SKIP TO QUESTION 5

3. In your opinion, approximately what percentage of your radar controllers are handling more traffic than you feel they should during typical daily peak periods?						
	Mean percent[a]					
Percent of radar controllers handling too much traffic	5	5	3	5	8	6
Respondents	66	71	18	19	48	52

4. For those controllers you were referring to in question 3, how much, if any, does each of the following factors represent a reason for their handling more traffic than they should?						
a. Sector configuration (complexity)						
(1) Major reason	22	25	17	33	24	21
(2) Somewhat of a reason	57	55	67	67	53	50
(3) Not a reason	22	20	17	0	24	29
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	23	20	6	6	17	14
b. Controller capability						
(1) Major reason	42	14	17	0	50	21
(2) Somewhat of a reason	46	57	50	29	44	71
(3) Not a reason	13	29	33	71	6	7
Total	**100**	**100**	**100**	**100**	**100**	**100**
Respondents	24	21	6	7	18	14

[a]Estimate of percent of all controllers based on aggregate of all responses provided, considering question 2, answers 4 and 5, and question 3.

Responses in percent (unless indicated otherwise)

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
BACKGROUND QUESTIONS						
	Mean years					
49. What is your age?	46.3	45.8	47.0	46.5	45.3	44.8
Estimated respondents	875	1,008	531	615	344	393
50. What is your grade?						
	Responses in percent					
GS/GM 14	32	27	15	13	60	50
GS/GM 15	68	73	85	87	40	50
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	879	1,006	535	614	344	392
51. How many years experience do you have for each of the following?						
	Mean years					
A. Total years with FAA	21.9	20.9	22.5	21.3	20.9	20.3
Estimated respondents	880	1,009	537	616	343	393
B. Years controlling traffic with FAA (only as a developmental and FPL)[a]		15.1		15.5		14.4
Estimated respondents		1,006		613		393
C. Years experience as first-line supervisor	7.5	6.6	7.3	6.1	7.7	7.3
Estimated respondents	881	1,009	537	616	344	393
52. Thank you for your help with this study. If you have any other comments, please write them in the space below.						
	Responses in percent					
Written comments provided	55	49	55	50	55	48
No comments provided	45	51	45	50	45	52
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	886	1,009	539	616	347	393

[a]Question is not comparable to 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
RETIREMENT						
46. Are you now or will you be eligible to retire within the next 2 years?						
1. Yes	50	37	55	38	43	34
2. No*	50	63	45	62	57	66
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	880	1,008	535	616	345	392
*SKIP TO QUESTION 49						
47. Do you plan to retire within the next 2 years?						
1. Definitely yes	38	32	40	35	35	26
2. Probably yes	43	42	42	42	45	42
3. Probably not*	16	21	15	18	18	24
4. Definitely not*	3	6	3	5	3	8
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	436	363	290	232	146	131
*SKIP TO QUESTION 49						
48. How much of a reason, if any, is each of the following for your planned retirement?						
a. Personal health						
(1) Major reason	6	5	5	6	10	5
(2) Somewhat of a reason	22	17	23	14	19	22
(3) Not a reason	72	78	73	80	71	73
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	346	248	232	167	114	81
b. Health of family member						
(1) Major reason	1	0	1	1	2	0
(2) Somewhat of a reason	3	3	2	2	5	4
(3) Not a reason	96	97	97	97	93	96
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	344	245	230	165	114	80

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Helping management identify system problems (e.g., airspace configuration)						
(1) Significant positive impact			12	5		
(2) Some positive impact			34	34		
(3) No impact			41	51		
(4) Some negative impact			4	6		
(5) Significant negative impact			10	5		
Total			**100**	**100**		
Estimated respondents			533	610		
c. Ensuring adequate separation of aircraft						
(1) Significant positive impact			27	27		
(2) Some positive impact			45	46		
(3) No impact			18	17		
(4) Some negative impact			6	7		
(5) Significant negative impact			5	3		
Total			**100**	**100**		
Estimated respondents			532	605		
d. Efficient controller performance						
(1) Significant positive impact			9	6		
(2) Some positive impact			32	31		
(3) No impact			14	24		
(4) Some negative impact			29	28		
(5) Significant negative impact			16	11		
Total			**100**	**100**		
Estimated respondents			530	605		
e. Controller morale						
(1) Significant positive impact			1	1		
(2) Some positive impact			3	3		
(3) No impact			4	6		
(4) Some negative impact			44	60		
(5) Significant negative impact			48	31		
Total			**100**	**100**		
Estimated respondents			533	611		
f. ATC system capacity						
(1) Significant positive impact			2	1		
(2) Some positive impact			6	5		
(3) No impact			24	36		
(4) Some negative impact			41	40		
(5) Significant negative impact			27	18		
Total			**100**	**100**		
Estimated respondents			529	603		

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
40. Of the factors listed below, which do you think are the three most serious problems facing the air traffic control system today?[a] Write the letters of the three problems in the boxes below. You need not use all three boxes. Use letter "A" if you see no serious problems. (The order is not important.)						
A. No serious problems		3		4		3
One or more serious problems		97		96		97
Total		**100**		**100**		**100**
Estimated respondents		1,005		613		392
		Percent of supervisors citing serious problems				
B. Too much air traffic		29		35		21
C. Morale of the work force		32		30		35
D. Too few FPLs		40		37		45
E. Too few developmentals		7		8		5
F. Poor pilot performance		8		6		12
G. Skill level of developmentals		13		10		17
H. Too much scheduled or unscheduled overtime		6		5		8
I. Out-of-date hardware/equipment		38		31		48
J. Limited software capabilities		11		7		18
K. Inadequate training for developmentals		14		16		11
L. Airlines' use of hubs		21		26		12
M. Current airline scheduling practices		49		56		37
N. Other		21		21		21
Missing choices[b]		12		12		11
Total[c]		**300**		**300**		**300**
Estimated respondents		970		588		382

[a]Question was not asked in 1985 survey.
[b]Respondents selected only one or two serious problems.
[c]Because respondents could select up to three choices, percentages add to 300.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. New controller chairs						
(1) Strongly helps		3		3		3
(2) Helps somewhat		29		31		26
(3) Neither helps nor hinders		57		56		57
(4) Hinders somewhat		7		7		9
(5) Strongly hinders		4		3		6
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		2		2		3
Estimated respondents		972		595		377
c. New strip printer						
(1) Strongly helps		10		7		15
(2) Helps somewhat		41		39		44
(3) Neither helps nor hinders		34		36		29
(4) Hinders somewhat		12		14		8
(5) Strongly hinders		5		5		4
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		11		1		28
Estimated respondents		879		602		277
d. Revised traffic flows						
(1) Strongly helps		5		5		5
(2) Helps somewhat		44		46		40
(3) Neither helps nor hinders		19		13		28
(4) Hinders somewhat		24		26		22
(5) Strongly hinders		8		9		5
Total		**100**		**100**		**100**
(6) No basis to judge/Doesn't apply[b]		6		1		14
Estimated respondents		938		600		338

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Commuters and taxis						
(1) Excellent		10		8		13
(2) Good		42		42		42
(3) Adequate		33		36		29
(4) Less than adequate		13		12		14
(5) Poor		3		3		3
Total		**100**		**100**		**100**
(6) Don't know/No basis to judge[b]		0		0		0
Estimated respondents		1,001		608		393
c. General aviation						
(1) Excellent		2		2		1
(2) Good		17		16		18
(3) Adequate		41		46		34
(4) Less than adequate		30		28		32
(5) Poor		11		8		15
Total		**100**		**100**		**100**
(6) Don't know/No basis to judge[b]		0		0		0
Estimated respondents		1,000		608		392
d. Military						
(1) Excellent		11		12		8
(2) Good		36		37		34
(3) Adequate		35		34		38
(4) Less than adequate		14		14		13
(5) Poor		4		3		7
Total		**100**		**100**		**100**
(6) Don't know/No basis to judge[b]		3		0		6
Estimated respondents		976		609		367

[a]Question not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Current amount of overtime being worked						
(1) Strongly helps		1		1		1
(2) Helps somewhat		7		6		9
(3) No impact		52		55		47
(4) Hinders somewhat		30		28		32
(5) Strongly hinders		10		10		11
Total		**100**		**100**		**100**
Estimated respondents		980		595		385
f. Current hardware reliability						
(1) Strongly helps		11		14		7
(2) Helps somewhat		21		25		16
(3) No impact		23		25		20
(4) Hinders somewhat		31		26		38
(5) Strongly hinders		14		10		20
Total		**100**		**100**		**100**
Estimated respondents		980		593		387
g. Current software reliability						
(1) Strongly helps		11		14		7
(2) Helps somewhat		22		26		16
(3) No impact		26		28		22
(4) Hinders somewhat		29		26		36
(5) Strongly hinders		11		6		19
Total		**100**		**100**		**100**
Estimated respondents		984		598		386
h. Current controller morale						
(1) Strongly helps		5		4		6
(2) Helps somewhat		20		20		19
(3) No impact		17		17		18
(4) Hinders somewhat		44		43		44
(5) Strongly hinders		15		16		13
Total		**100**		**100**		**100**
Estimated respondents		983		596		387
i. Other						
(1) Strongly helps		3		2		4
(2) Helps somewhat		0		0		0
(3) No impact		4		7		0
(4) Hinders somewhat		31		28		36
(5) Strongly hinders		62		63		61
Total		**100**		**100**		**100**
Estimated respondents		75		47		28

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
32. In the last 12 months, have you received any formal training (classroom or individual instruction) in recognizing substance abuse (drugs and alcohol)?[a]						
1. Yes		35		34		35
2. No		65		66		65
Total		**100**		**100**		**100**
Estimated respondents		998		610		388
33. Do you feel that you have received sufficient training in recognizing substance abuse (drugs and alcohol)?[a]						
1. Definitely yes		4		4		4
2. Probably yes		15		15		14
3. Uncertain		12		13		10
4. Probably not		38		37		40
5. Definitely not		32		32		32
Total		**100**		**100**		**100**
Estimated respondents		998		610		388
SAFETY AND ATC OPERATIONS						
34. How would you rate the overall safety of the ATC system today?						
1. Excellent	24	18	25	20	23	15
2. Good	42	43	43	43	40	44
3. Adequate	27	31	27	29	28	32
4. Poor	7	7	5	7	9	8
5. Very poor	0	1	0	1	1	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b]	0	0	0	0	0	1
Estimated respondents	878	982	536	596	342	386

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
d. DARC/Other backup systems						
(1) Much more than needed		1		1		0
(2) Somewhat more than needed		1		1		1
(3) About the right amount		30		32		27
(4) Somewhat less than needed		40		37		46
(5) Much less than needed		27		28		25
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		7		0		18
Estimated respondents		920		608		312
e. OJT instructor performance evaluation						
(1) Much more than needed		4		4		4
(2) Somewhat more than needed		7		8		6
(3) About the right amount		53		54		52
(4) Somewhat less than needed		24		23		25
(5) Much less than needed		12		11		12
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		1		1		1
Estimated respondents		990		606		384
f. Computer-based instruction						
(1) Much more than needed		6		9		2
(2) Somewhat more than needed		8		10		6
(3) About the right amount		39		44		29
(4) Somewhat less than needed		25		21		31
(5) Much less than needed		22		16		33
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		6		3		12
Estimated respondents		931		591		340
g. Simulation (DYSIM/ETG) lab						
(1) Much more than needed		2		3		1
(2) Somewhat more than needed		3		4		3
(3) About the right amount		31		34		25
(4) Somewhat less than needed		31		30		33
(5) Much less than needed		33		29		39
Total		**100**		**100**		**100**
(6) No basis to judge/Don't know[b]		8		5		13
Estimated respondents		912		578		334

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Aptitude or ability to learn controller duties						
(1) Much better		3		3		3
(2) Somewhat better		16		13		22
(3) About the same		63		64		61
(4) Somewhat worse		15		16		12
(5) Much worse		3		4		2
Total		**100**		**100**		**100**
(6) No basis to judge[b]		2		3		2
Estimated respondents		973		593		381
c. Work attitude						
(1) Much better		5		4		5
(2) Somewhat better		14		12		18
(3) About the same		47		46		48
(4) Somewhat worse		27		29		24
(5) Much worse		8		10		6
Total		**100**		**100**		**100**
(6) No basis to judge[b]		2		2		2
Estimated respondents		975		594		381
d. Other						
(1) Much better		11		5		18
(2) Somewhat better		3		5		0
(3) About the same		0		0		0
(4) Somewhat worse		25		25		24
(5) Much worse		62		64		59
Total		**100**		**100**		**100**
(6) No basis to judge[b]		20		27		11
Estimated respondents		37		20		17

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
29. In the last 12 months, to what extent, if any, have the following groups of employees provided OJT?[a] If you work at an enroute center, answer for your area of specialization; if you work at a terminal, answer for your schedule.						
a. FPLs fully qualified 5 or more years at your facility						
(1) Very great extent		32		37		25
(2) Great extent		27		29		24
(3) Moderate extent		18		17		18
(4) Some extent		15		13		19
(5) Little, no extent		8		5		14
Total		**100**		**100**		**100**
Estimated respondents		986		602		384
b. FPLs fully qualified less than 5 years at your facility						
(1) Very great extent		30		27		35
(2) Great extent		38		38		37
(3) Moderate extent		20		21		19
(4) Some extent		12		14		9
(5) Little, no extent		1		1		1
Total		**100**		**100**		**100**
Estimated respondents		992		605		387
c. Developmentals at your facility 2 or more years						
(1) Very great extent		5		5		4
(2) Great extent		9		8		11
(3) Moderate extent		16		16		17
(4) Some extent		27		29		25
(5) Little, no extent		43		42		44
Total		**100**		**100**		**100**
Estimated respondents		975		596		379
d. Developmentals at your facility less than 2 years						
(1) Very great extent		3		3		3
(2) Great extent		6		5		8
(3) Moderate extent		9		9		10
(4) Some extent		24		24		24
(5) Little, no extent		57		60		54
Total		**100**		**100**		**100**
Estimated respondents		985		602		383

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
23. Overall, how do you rate the quality of on-the-job training (OJT) that developmentals currently receive at your facility?[a]						
1. Excellent		9		7		10
2. Good		40		40		41
3. Adequate		38		39		37
4. Poor		12		13		11
5. Very poor		1		1		1
Total		**100**		**100**		**100**
6. No basis to judge[b]		0		0		1
Estimated respondents		1,004		613		391
24. Do you believe developmental controllers are provided with sufficient training involving live traffic before being certified on a position?						
1. Definitely yes	41	42	38	39	46	48
2. Probably yes	38	40	41	40	33	41
3. Uncertain	3	3	4	4	3	2
4. Probably not	14	11	14	13	14	8
5. Definitely not	4	3	4	4	4	1
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b,c]		0		0		1
Estimated respondents	882	999	535	610	347	389
25. Does your facility have an adequate amount of simulator equipment?[a]						
1. Definitely yes		20		18		24
2. Probably yes		41		45		36
3. Uncertain		8		10		5
4. Probably not		17		18		15
5. Definitely not		14		10		21
Total		**100**		**100**		**100**
Estimated respondents		996		608		388
26. To what extent, if at all, is your facility's simulator equipment used by developmental controllers?[a]						

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.
[c]Answer was not offered as a choice in the 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
d. Handling heavy traffic						
(1) Excellent	15	15	14	13	18	19
(2) Good	31	31	33	31	29	31
(3) Adequate	30	34	29	35	32	31
(4) Less than adequate	18	18	20	17	16	18
(5) Poor	5	3	4	4	6	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		0		0		1
Estimated respondents	877	1,003	530	613	347	390
e. Holding patterns						
(1) Excellent	2	4	3	4	1	2
(2) Good	11	12	14	15	7	6
(3) Adequate	41	39	41	38	41	41
(4) Less than adequate	34	33	32	32	36	35
(5) Poor	12	12	10	11	15	16
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		10		3		23
Estimated respondents	858	895	524	596	334	299
f. Operational characteristics of types of aircraft						
(1) Excellent	7	6	6	4	9	9
(2) Good	20	19	18	16	23	23
(3) Adequate	39	39	39	38	38	40
(4) Less than adequate	26	26	27	31	23	19
(5) Poor	9	11	10	12	8	9
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		1		1		1
Estimated respondents	879	1,000	532	611	347	389
g. Direct routings (expediting traffic)						
(1) Excellent	9	8	9	8	9	8
(2) Good	29	24	30	24	29	26
(3) Adequate	44	50	43	50	45	49
(4) Less than adequate	15	13	16	13	13	13
(5) Poor	3	5	2	5	5	5
Total	**100**	**100**	**100**	**100**	**100**	**100**
(6) No basis to judge[a,b]		3		1		5
Estimated respondents	870	974	527	604	343	370

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in the 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
20. Which of the following best describes the current situation in regard to overtime at your facility?[a]						
1. Too much overtime is assigned so that our personnel are overworked		12		10		15
2. Too little overtime is allowed so that we can't cover training, leave, and other duties		42		44		40
3. Overtime assignments are appropriate at this time		36		35		38
4. No overtime assigned here; no overtime needed		4		6		2
5. Other		6		6		4
Total		**100**		**100**		**100**
6. No basis to judge[b]		1		1		1
Estimated respondents		990		603		387
TRAINING						
21. In your opinion, how adequate or inadequate is the training developmental controllers get before beginning on-the-job training?						
1. Much more than adequate	3	2	2	1	5	3
2. Somewhat more than adequate	8	7	5	5	14	8
3. Generally adequate	41	44	43	39	39	50
4. Somewhat less than adequate	31	29	33	33	28	23
5. Much less than adequate	17	18	18	20	15	15
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b,c]		1		1		1
Estimated respondents	870	994	526	606	344	388

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.
[c]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
g. Your ability to get or provide team briefings						
(1) Very great extent		12		10		14
(2) Great extent		12		12		13
(3) Moderate extent		17		15		18
(4) Some extent		25		26		24
(5) Little, no extent		35		37		31
Total		**100**		**100**		**100**
Estimated respondents		1,002		611		391
h. Your ability to take needed personal breaks						
(1) Very great extent	15	13	14	12	18	15
(2) Great extent	16	15	14	12	18	19
(3) Moderate extent	21	17	24	17	17	17
(4) Some extent	24	25	27	26	21	24
(5) Little, no extent	24	30	22	33	27	25
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	879	1,001	536	611	343	390
i. Your ability to take duty FAM (familiarization) airline trips						
(1) Very great extent		21		17		27
(2) Great extent		14		13		15
(3) Moderate extent		12		11		13
(4) Some extent		20		22		18
(5) Little, no extent		34		38		27
Total		**100**		**100**		**100**
Estimated respondents		997		607		390
j. Other						
(1) Very great extent		59		57		61
(2) Great extent		28		25		33
(3) Moderate extent		9		12		4
(4) Some extent		1		1		0
(5) Little, no extent		4		4		2
Total		**100**		**100**		**100**
Estimated respondents		124		78		46

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
16. (FOR CENTERS ONLY:) In your opinion, is the current number of FPLs on board in your TMU higher than needed, lower than needed, or at the appropriate level?[a]						
1. Much higher than needed				8		
2. Somewhat higher than needed				26		
3. Appropriate number				42		
4. Somewhat lower than needed				20		
5. Much lower than needed				4		
Total				**100**		
6. Unsure[b]				4		
Estimated respondents				585		
17. In the last 12 months, to what extent, if at all, have shortages of controllers or first-line supervisors limited you personally in each of the following areas?[c]						
a. Your ability to take your first 2 weeks of annual leave each year						
(1) Very great extent		3		1		5
(2) Great extent		4		3		6
(3) Moderate extent		8		6		12
(4) Some extent		15		14		17
(5) Little, no extent		70		76		61
Total		**100**		**100**		**100**
Estimated respondents		999		609		390
b. Your ability to take the rest of your annual leave each year						
(1) Very great extent		6		4		9
(2) Great extent		8		6		12
(3) Moderate extent		13		13		14
(4) Some extent		24		25		23
(5) Little, no extent		49		53		43
Total		**100**		**100**		**100**
Estimated respondents		999		610		389

[a]Question was not asked in 1985 survey.
[b]The categories totaling 100 percent do not include these responses.
[c]Question asked in 1985 used a different list of areas. Answers to identical areas are reported for 1985.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Air traffic assistants (ATAs)[a]						
(1) Much higher than needed	5	3	5	3	6	3
(2) Somewhat higher than needed	7	4	5	2	9	5
(3) Appropriate number	41	22	36	10	50	41
(4) Somewhat lower than needed	34	37	38	36	29	39
(5) Much lower than needed	13	35	16	49	7	12
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	876	997	534	610	342	387
d. Staff specialists (training, quality assurance, planning and procedures, etc.)[b]						
(1) Much higher than needed		4		4		4
(2) Somewhat higher than needed		15		16		13
(3) Appropriate number		43		44		42
(4) Somewhat lower than needed		27		26		29
(5) Much lower than needed		12		11		12
Total		**100**		**100**		**100**
Estimated respondents		999		611		388
e. Other(s)						
(1) Much higher than needed		27		25		30
(2) Somewhat higher than needed		7		8		6
(3) Appropriate number		9		8		10
(4) Somewhat lower than needed		19		21		16
(5) Much lower than needed		38		38		38
Total		**100**		**100**		**100**
Estimated respondents		149		86		63

[a]Acronym "ATA" added in 1988.
[b]Item was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
10. During daily peak traffic periods, do you believe radar-certified developmental and FPL controllers under your supervision are typically required to spend too much, too little, or about the right amount of time continuously on radar positions between breaks?						
FPLs						
1. Much too much	11	5	12	5	9	6
2. Somewhat too much	33	26	33	27	32	25
3. Appropriate amount	53	61	51	58	55	65
4. Somewhat too little	4	7	3	9	4	4
5. Much too little	0	1	0	1	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	874	999	534	615	340	384
Developmentals						
1. Much too much	5	3	5	3	5	2
2. Somewhat too much	27	18	29	20	24	14
3. Appropriate amount	59	67	60	67	57	68
4. Somewhat too little	8	11	6	9	12	13
5. Much too little	1	2	0	1	2	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	871	990	532	613	339	377
11. Approximately what percentage of your duty time do you typically spend working traffic per pay period?	Mean percent					
Percent of time working traffic	36	19	41	19	28	20
Estimated respondents	869	971	527	596	342	375

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
9. During daily peak periods, how often, if ever, are radar controllers under your supervision taking each of the following actions?[a]						
a. Provide another aircraft with instructions without waiting for first aircraft to acknowledge receipt of its instructions						
(1) Very often	5	5	3	4	8	6
(2) Often	17	13	11	9	27	20
(3) Occasionally	45	44	44	40	45	51
(4) Seldom, if ever	34	38	42	47	20	24
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	874	993	531	607	343	386
b. Drop track before target leaves area of jurisdiction						
(1) Very often	2	2	3	2	1	2
(2) Often	8	5	11	7	3	3
(3) Occasionally	29	31	35	40	21	18
(4) Seldom, if ever	61	62	51	52	75	77
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	874	997	532	612	342	385
c. Use inefficient vector patterns						
(1) Very often	3	2	1	1	6	3
(2) Often	12	12	10	9	15	16
(3) Occasionally	53	54	54	53	52	55
(4) Seldom, if ever	32	33	35	37	27	26
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	863	981	523	597	340	384

[a]Question asked in 1985 survey included one additional item in the list of actions.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
f. Inadequate flow control procedures						
(1) Major reason	23	26	23	28	23	23
(2) Somewhat of a reason	49	50	53	52	42	47
(3) Not a reason	28	24	24	20	36	30
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	566	569	366	351	200	218
g. Airline schedules						
(1) Major reason	49	56	57	64	35	43
(2) Somewhat of a reason	34	31	34	30	35	32
(3) Not a reason	16	13	9	6	30	25
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	590	592	386	363	204	229
h. Other						
(1) Major reason		65		67		63
(2) Somewhat of a reason		7		6		8
(3) Not a reason		28		28		29
Total		**100**		**100**		**100**
Estimated respondents		141		76		65
4. Have any of the sectors in your area of responsibility been reconfigured (procedural and/or boundary changes) during the past 18 months?						
1. Yes	66	71	73	76	56	63
2. No*	34	29	27	24	44	37
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	883	1001	538	611	345	390
*SKIP TO QUESTION 7						
5. Did reconfiguration of your sector(s) increase, decrease, or have no effect on the work load of the radar controllers you supervise?						
1. Increased work load	32	28	35	29	28	27
2. No effect on work load	16	9	14	9	21	9
3. Decreased work load	23	28	24	31	23	23
4. Increased some and decreased some - more than one sector affected	28	35	28	32	29	41
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	580	706	390	463	190	243

SECTION 2

1988 SURVEY RESULTS INCLUDING COMPARABLE RESPONSES FROM 1985 SURVEY
(OVERALL, BY CENTERS, AND BY TERMINALS)
AIR TRAFFIC CONTROL -- FIRST LINE SUPERVISORS

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
1. According to FAA records you are a first-line supervisor. Is this correct?						
1. Correct (%)	100	100	100	100	100	100
2. Incorrect - I am ...	*	*	*	*	*	*
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	886	1,006	539	614	347	392

*Respondents checking incorrect were instructed to not complete the questionnaire and were not included in the results.

WORK LOAD

2. Consider the complexity of the sectors and the capabilities of controllers under your supervision as a first-line supervisor. During typical daily peak periods, how many radar controllers under your supervision, if any, are handling more traffic than you feel they should?

NOTES: (1) Estimated respondents universe is the actual number of terminal supervisors who responded and our estimate of the number of center supervisors who would have responded had they received questionnaires. Center supervisors were sampled and results calculated using appropriate projections.

(2) Percentages may not add to 100 because of rounding.

(3) Comparisons between 1985 and 1988 are not shown for "other" categories because of the wide range of written responses received. Comparisons are also omitted where modifications of a question make such comparisons inappropriate.

(4) The terms "center," "enroute center," and "air route traffic control center" have the same meaning in this report.

(5) Respondents were instructed to "check one" response for each question or part of a question whenever response categories were presented.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
42. What is your grade?						
GS-11	2	1	2	1	3	0
GS-12	8	4	8	5	8	2
GS-13	27	25	16	14	51	49
GS-14	63	70	75	80	37	49
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,824	5,309	2,578	3,615	1,246	1,694
43. (FPLs ONLY:) Which of the following comes closest to describing your current duties?[a]						
1. Working control positions full-time (including providing OJT)		92		91		94
2. TMU/Traffic management coordinator		4		5		1
3. Working other duties (e.g. staff detail, special projects) but also maintaining currency on at least one position		3		3		3
4. Working other duties, but not maintaining currency on any control position		0		0		0
5. Other		2		2		1
Total		**100**		**100**		**100**
Estimated respondents		4,794		3,281		1,513
44. Have you been an FPL at another FAA facility?[a]						
1. Yes		37		19		76
2. No		63		81		24
Total		**100**		**100**		**100**
Estimated respondents		5,216		3,538		1,678

[a]Question was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
RETIREMENT						
38. Are you now or will you be eligible to retire within the next 2 years?						
1. Yes	15	10	16	12	12	7
2. No*	85	90	84	89	88	93
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,811	5,311	2,567	3,618	1,244	1,693
*SKIP TO QUESTION 41						
39. Do you plan to retire within the next 2 years?						
1. Definitely yes	42	39	44	39	38	40
2. Probably yes	42	37	40	38	45	35
3. Probably not*	14	19	14	19	14	19
4. Definitely not*	3	5	3	4	3	7
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	558	529	409	405	149	124
*SKIP TO QUESTION 41						
40. How much of a reason, if any, is each of the following for your planned retirement?						
a. Personal health						
1. Major reason	9	9	10	9	7	9
2. Somewhat of a reason	22	18	22	16	23	23
3. Not a reason	69	73	68	74	71	68
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	463	386	344	298	119	88
b. Health of family member						
1. Major reason	2	1	2	1	1	0
2. Somewhat of a reason	5	3	5	3	5	2
3. Not a reason	93	97	93	96	94	98
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	462	380	344	296	118	84

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Helping management identify system problems (e.g., airspace configuration)						
1. Significant positive impact			5	4		
2. Some positive impact			23	21		
3. No impact			53	56		
4. Some negative impact			6	10		
5. Significant negative impact			13	9		
Total			**100**	**100**		
Estimated respondents			2,613	3,575		
c. Ensuring adequate separation of aircraft						
1. Significant positive impact			19	17		
2. Some positive impact			38	42		
3. No impact			23	26		
4. Some negative impact			10	9		
5. Significant negative impact			10	6		
Total			**100**	**100**		
Estimated respondents			2,640	3,583		
d. Efficient controller performance						
1. Significant positive impact			4	3		
2. Some positive impact			16	20		
3. No impact			13	20		
4. Some negative impact			33	31		
5. Significant negative impact			34	26		
Total			**100**	**100**		
Estimated respondents			2,638	3,585		
e. Controller morale						
1. Significant positive impact			1	0		
2. Some positive impact			1	1		
3. No impact			2	7		
4. Some negative impact			27	44		
5. Significant negative impact			69	48		
Total			**100**	**100**		
Estimated respondents			2,650	3,612		
f. ATC system capacity						
1. Significant positive impact			1	1		
2. Some positive impact			2	4		
3. No impact			20	31		
4. Some negative impact			37	37		
5. Significant negative impact			40	27		
Total			**100**	**100**		
Estimated respondents			2,617	3,582		

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
32. Of the factors listed below, which do you think are the three most serious problems facing the air traffic control system today?[a] Write the letters of the three problems in the boxes below. You need not use all three boxes. Use letter "A" if you see no serious problems. (The order is not important.)						
A. No serious problems		2		2		2
One or more serious problems		98		98		98
Total		**100**		**100**		**100**
Estimated respondents		5,306		3,616		1,690
	Percent of controllers citing serious problems					
B. Too much air traffic		27		30		23
C. Morale of the work force		44		43		46
D. Too few FPLs		44		40		52
E. Too few developmentals		5		4		6
F. Poor pilot performance		7		5		12
G. Skill level of developmentals		13		14		10
H. Too much scheduled or unscheduled overtime		5		3		8
I. Out-of-date hardware/equipment		46		43		52
J. Limited software capabilities		11		7		18
K. Inadequate training for developmentals		14		17		8
L. Airlines' use of hubs		14		17		8
M. Current airline scheduling practices		40		45		29
N. Other		19		19		18
Missing choices[b]		12		13		9
Total[c]		**300**		**300**		**300**
Estimated respondents		5,221		3,555		1,666

[a]Question was not asked in 1985 survey.
[b]Respondents selected only one or two serious problems.
[c]Because respondents could select up to 3 choices, percentages add to 300; rounding may affect that total.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. New controller chairs						
1. Strongly helps		3		3		3
2. Helps somewhat		24		24		25
3. Neither helps nor hinders		58		58		57
4. Hinders somewhat		10		10		9
5. Strongly hinders		6		5		6
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		2		2		3
Estimated respondents		5,146		3,531		1,615
c. New strip printer						
1. Strongly helps		7		5		14
2. Helps somewhat		33		30		43
3. Neither helps nor hinders		40		43		32
4. Hinders somewhat		15		17		9
5. Strongly hinders		4		5		3
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		10		1		29
Estimated respondents		4,743		3,567		1,176
d. Revised traffic flows						
1. Strongly helps		3		3		3
2. Helps somewhat		36		36		34
3. Neither helps nor hinders		24		21		32
4. Hinders somewhat		27		28		22
5. Strongly hinders		11		12		9
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		5		2		12
Estimated respondents		4,971		3,505		1,466
e. Resectorization						
1. Strongly helps		3		3		3
2. Helps somewhat		30		31		28
3. Neither helps nor hinders		32		30		38
4. Hinders somewhat		25		25		24
5. Strongly hinders		10		11		8
Total		**100**		**100**		**100**
6. No basis to judge/ Doesn't apply[b]		12		7		22
Estimated respondents		4,641		3,347		1,294

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
b. Commuters and taxis						
1. Excellent		17		17		18
2. Good		44		45		42
3. Adequate		28		29		27
4. Less than adequate		8		7		10
5. Poor		2		2		2
Total		**100**		**100**		**100**
6. Don't know/No basis to judge[b]		0		0		0
Estimated respondents		5,275		3,600		1,675
c. General aviation						
1. Excellent		2		2		1
2. Good		14		16		9
3. Adequate		39		42		32
4. Less than adequate		32		30		34
5. Poor		14		9		23
Total		**100**		**100**		**100**
6. Don't know/No basis to judge[b]		0		0		0
Estimated respondents		5,274		3,601		1,673
d. Military						
1. Excellent		17		19		14
2. Good		37		38		36
3. Adequate		31		29		35
4. Less than adequate		11		10		11
5. Poor		4		4		4
Total		**100**		**100**		**100**
6. Don't know/No basis to judge[b]		1		0		3
Estimated respondents		5,216		3,598		1,618

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
d. Current amount of traffic work load						
1. Strongly helps		1		1		1
2. Helps somewhat		4		5		4
3. No impact		18		18		19
4. Hinders somewhat		51		51		52
5. Strongly hinders		25		25		24
Total		**100**		**100**		**100**
Estimated respondents		5,274		3,592		1,682
e. Current amount of overtime being worked						
1. Strongly helps		1		1		1
2. Helps somewhat		6		6		6
3. No impact		47		50		41
4. Hinders somewhat		35		34		38
5. Strongly hinders		12		10		14
Total		**100**		**100**		**100**
Estimated respondents		5,258		3,576		1,682
f. Current hardware reliability						
1. Strongly helps		7		8		5
2. Helps somewhat		16		18		10
3. No impact		16		16		16
4. Hinders somewhat		37		36		38
5. Strongly hinders		25		22		31
Total		**100**		**100**		**100**
Estimated respondents		5,295		3,608		1,687
g. Current software reliability						
1. Strongly helps		7		8		4
2. Helps somewhat		20		25		11
3. No impact		19		21		15
4. Hinders somewhat		35		33		40
5. Strongly hinders		19		13		31
Total		**100**		**100**		**100**
Estimated respondents		5,290		3,606		1,684
h. Current controller morale						
1. Strongly helps		3		2		3
2. Helps somewhat		10		11		10
3. No impact		14		14		14
4. Hinders somewhat		45		45		46
5. Strongly hinders		28		28		28
Total		**100**		**100**		**100**
Estimated respondents		5,295		3,611		1,684

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
c. Work attitude						
1. Much better		2		1		2
2. Somewhat better		7		6		9
3. About the same		46		43		51
4. Somewhat worse		31		33		29
5. Much worse		14		17		9
Total		**100**		**100**		**100**
6. No basis to judge[b]		4		3		5
Estimated respondents		3,500		2,161		1,339
d. Other						
1. Much better		3		0		7
2. Somewhat better		4		2		7
3. About the same		4		4		5
4. Somewhat worse		24		24		25
5. Much worse		65		70		55
Total		**100**		**100**		**100**
6. No basis to judge[b]		19		16		24
Estimated respondents		280		184		96
SYSTEM SAFETY AND ATC OPERATIONS						
26. How would you rate the overall safety of the ATC system today?						
1. Excellent	16	13	17	14	14	9
2. Good	36	35	34	34	39	39
3. Adequate	31	36	31	36	33	37
4. Poor	15	14	16	14	12	14
5. Very poor	2	2	2	2	3	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[b]	0	0	0	0	1	0
Estimated respondents	3,793	5,303	2,564	3,616	1,229	1,687

[b]The categories totaling 100 percent do not include these responses.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
22. Have you provided OJT at this facility within the last 6 months to developmental controllers (either to new developmentals or those from other facilities)?[a]						
1. Yes		81		81		82
2. No*		19		19		18
Total		**100**		**100**		**100**
Estimated respondents		5,299		3,612		1,687
*SKIP TO QUESTION 24						
23. Do you feel that you have sufficient ATC experience and teaching skills to provide OJT to developmentals?[a]						
a. ATC Experience						
1. Definitely yes		75		72		81
2. Probably yes		19		21		16
3. Uncertain		3		3		1
4. Probably not		3		3		1
5. Definitely not		1		1		0
Total		**100**		**100**		**100**
Estimated respondents		4,306		2,928		1,378
b. Teaching Skills						
1. Definitely yes		55		53		60
2. Probably yes		32		33		30
3. Uncertain		7		8		5
4. Probably not		5		5		5
5. Definitely not		1		1		1
Total		**100**		**100**		**100**
Estimated respondents		4,259		2,905		1,354

aQuestion was not asked in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
g. Direct routings (expediting traffic)						
1. Excellent	5	5	5	5	6	5
2. Good	22	21	23	22	20	20
3. Adequate	44	46	43	45	45	48
4. Less than adequate	20	17	20	17	21	18
5. Poor	9	11	9	11	8	10
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		4		3		6
Estimated respondents	3,932	5,011	2,652	3,456	1,280	1,555
h. Control techniques						
1. Excellent	6	7	5	6	8	8
2. Good	26	28	26	28	27	29
3. Adequate	37	38	37	38	37	39
4. Less than adequate	22	18	23	20	20	16
5. Poor	9	9	9	9	8	8
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		2		2		2
Estimated respondents	3,937	5,121	2,654	3,490	1,283	1,631
i. Phraseology						
1. Excellent	9	10	7	8	13	13
2. Good	32	33	32	33	32	34
3. Adequate	41	40	42	40	39	38
4. Less than adequate	13	12	13	13	11	10
5. Poor	5	5	6	6	5	5
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		2		2		2
Estimated respondents	3,937	5,142	2,653	3,503	1,284	1,639
j. Flow control procedures						
1. Excellent	3	4	2	3	5	5
2. Good	16	17	14	15	19	20
3. Adequate	42	40	42	40	43	40
4. Less than adequate	26	24	28	26	23	22
5. Poor	13	15	14	16	10	13
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		5		4		8
Estimated respondents	3,902	4,934	2,626	3,405	1,276	1,529

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
19. How do you rate the quality of the on-the-job training developmental controllers currently receive at your facility in each of the following areas?						
a. Using backup systems						
1. Excellent	1	1	1	1	1	1
2. Good	9	8	9	7	8	10
3. Adequate	33	30	29	28	39	36
4. Less than adequate	39	9	40	40	38	35
5. Poor	19	22	22	24	13	18
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		3		2		4
Estimated respondents	3,935	5,076	2,655	3,478	1,280	1,598
b. Controlling traffic in bad weather						
1. Excellent	2	2	1	2	3	3
2. Good	13	12	12	11	15	14
3. Adequate	30	28	28	25	35	35
4. Less than adequate	41	39	43	42	36	35
5. Poor	14	18	16	20	10	13
Total	**100**	**100**	**100**	**100**	**100**	**100**
6. No basis to judge[a,b]		2		3		2
Estimated respondents	3,937	5,119	2,648	3,484	1,289	1,635

[a]The categories totaling 100 percent do not include these responses.
[b]Answer was not offered as a choice in 1985 survey.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
j. Other						
1. Very great extent		70		67		75
2. Great extent		20		21		18
3. Moderate extent		6		7		4
4. Some extent		1		2		1
5. Little, no extent		3		4		2
Total		**100**		**100**		**100**
Estimated respondents		472		286		186
OVERTIME						
15. In the last 12 months, how many total days of overtime, if any, have you worked?						
1. None*		21		24		14
2. 1-5 days		32		30		36
3. 6-10 days		1C		15		16
4. 11-20 days		15		15		15
5. 21-30 days		10		10		9
6. 31-50 days		6		5		8
7. Over 50 days		1		0		1
Total		**100**		**100**		**100**
Estimated respondents		5,294		3,610		1,684
*SKIP TO QUESTION 17						
16. Are you generally working more, less, or about as much overtime as you would want to work?[a]						
1. Much more than I want	21	16	24	15	15	18
2. Somewhat more than I want	25	22	27	21	21	24
3. About as much as I want	37	41	36	42	40	40
4. Somewhat less than I want	13	15	10	16	18	13
5. Much less than I want	4	7	3	6	7	5
Total	**100**	**10**	**100**	**100**	**100**	**100**
Estimated respondents	2,770	4,177	2,014	2,738	756	1,439

[a]Question asked of all respondents in 1985; however, only those 1985 respondents answering greater than zero to the question on hours of overtime per pay period are reported here.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
14. In the last 12 months, to what extent, if at all, have shortages of controllers limited you personally in each of the following areas? [a]						
a. Your ability to take your first 2 weeks of annual leave each year						
1. Very great extent		6		3		13
2. Great extent		7		5		9
3. Moderate extent		12		10		14
4. Some extent		19		18		21
5. Little, no extent		57		63		43
Total		**100**		**100**		**100**
Estimated respondents		5,293		3,599		1,694
b. Your ability to take the rest of your annual leave each year						
1. Very great extent		12		11		16
2. Great extent		14		13		16
3. Moderate extent		18		17		20
4. Some extent		25		25		23
5. Little, no extent		31		34		25
Total		**100**		**100**		**100**
Estimated respondents		5,294		3,605		1,689
c. Your ability to take annual leave on short notice (2 weeks or less)						
1. Very great extent		42		39		50
2. Great extent		22		22		23
3. Moderate extent		16		17		13
4. Some extent		13		14		10
5. Little, no extent		7		7		5
Total		**100**		**100**		**100**
Estimated respondents		5,304		3,613		1,691
d. Your ability to take needed sick leave						
1. Very great extent	8	5	8	4	8	7
2. Great extent	11	7	11	6	9	9
3. Moderate extent	15	12	16	11	15	13
4. Some extent	21	19	21	19	19	18
5. Little, no extent	46	58	44	60	50	54
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,913	5,272	2,636	3,590	1,277	1,682

[a]Question asked in 1985 used a different list of areas. Answers to identical areas are reported for 1985.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
STAFFING						
11. In your opinion, is the current number of staff available for each of the following types of positions higher than needed, lower than needed, or at the appropriate level? If you work at a center, answer for your area of specialization; if you work at a terminal, answer for your schedule.[a]						
a. First-line supervisors						
1. Much higher than needed	20	14	22	18	14	6
2. Somewhat higher than needed	21	19	20	20	21	16
3. Appropriate number	52	54	50	52	56	59
4. Somewhat lower than needed	7	12	6	10	8	16
5. Much lower than needed	1	1	1	1	1	2
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,946	5,285	2,651	3,595	1,295	1,690
b. FPLs						
1. Much higher than needed	0	0	0	0	0	0
2. Somewhat higher than needed	1	1	1	2	2	1
3. Appropriate number	7	14	5	15	11	11
4. Somewhat lower than needed	44	48	45	50	43	45
5. Much lower than needed	47	37	49	34	44	42
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,963	5,307	2,668	3,613	1,295	1,694
c. Air traffic assistants (ATAs)[b]						
1. Much higher than needed	5	2	5	2	5	3
2. Somewhat higher than needed	8	3	8	2	7	5
3. Appropriate number	42	23	38	15	50	40
4. Somewhat lower than needed	35	37	38	37	29	39
5. Much lower than needed	11	35	12	45	8	14
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,892	5,256	2,624	3,577	1,268	1,679
d. Other(s)						
1. Much higher than needed		43		43		42
2. Somewhat higher than needed		13		10		18
3. Appropriate number		2		3		1
4. Somewhat lower than needed		16		18		12
5. Much lower than needed		26		26		27
Total		**100**		**100**		**100**
Estimated respondents		1,108		703		405

[a]Question asked in 1985 listed one additional type of staff.
[b]Acronym "ATA" added in 1988.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
e. Decline to provide traffic advisories						
1. Very often	10	8	12	8	6	6
2. Often	22	20	24	22	18	16
3. Occasionally	42	43	42	43	42	42
4. Seldom, if ever	26	30	22	27	35	36
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,923	5,250	2,647	3,584	1,276	1,666
f. Decline user requests for services (direct routes, altitude changes, etc.)						
1. Very often	17	19	18	20	16	18
2. Often	30	31	31	32	28	29
3. Occasionally	39	36	38	35	40	38
4. Seldom, if ever	14	14	12	13	17	15
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,927	5,248	2,648	3,580	1,279	1,668
g. Other(s)						
1. Very often		48		48		48
2. Often		34		34		34
3. Occasionally		13		12		14
4. Seldom, if ever		5		5		4
Total		**100**		**100**		**100**
Estimated respondents		696		480		216
8. During typical daily peak periods how long are you required to work on position continuously without a break?						
1. 1 hour or less 2. Over 1 hour to 1 1/2 hours	14	24	13	23	17	26
3. Over 1 1/2 hours to 2 hours 4. Over 2 hours to 2 1/2 hours	73	70	71	70	76	70
5. Over 2 1/2 hours to 3 hours 6. Over 3 hours to 3 1/2 hours	12	6	16	7	6	3
7. Over 3 1/2 hours to 4 hours 8. More than 4 hours	1	0	1	0	0	1
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,917	5,280	2,648	3,598	1,269	1,682

Note: Categories were combined to make comparable with 1985 categories.

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
4. Have any of the sectors you work been configured (procedural and/or boundary changes) during the past 18 months?						
1. Yes	75	79	82	84	62	69
2. No*	25	21	18	16	38	31
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,956	5,273	2,669	3,599	1,287	1,674
*SKIP TO QUESTION 7						
5. Did configuration of the sector(s) you work increase, decrease, or have no effect on your work load?						
1. Increased work load	36	36	38	35	32	37
2. No effect on work load	21	16	18	16	29	16
3. Decreased work load	15	17	16	18	11	14
4. Increased some and decreased some - more than one sector affected	28	32	28	31	28	33
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,978	4,187	2,181	3,030	797	1,157
6. How satisfied or dissatisfied are you with the amount of say you had in the reconfiguration(s) that took place during the past 18 months?						
1. Very satisfied	2	4	2	3	2	5
2. Generally satisfied	19	21	17	20	23	21
3. Neither satisfied nor dissatisfied	30	22	29	21	34	25
4. Generally dissatisfied	27	29	27	29	26	29
5. Very dissatisfied	21	24	24	26	14	20
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,982	4,182	2,186	3,025	796	1,157

Responses in percent

Question	Overall		Centers		Terminals	
	1985	1988	1985	1988	1985	1988
WORKLOAD						
2. Consider the complexity of the sectors you work and your capabilities as a controller. While working radar during typical daily peak periods, do you believe you are typically required to handle more more traffic than should be handling, less traffic than you should be handling, or an appropriate amount of traffic?						
1. Much more than I should be handling	15	12	18	12	9	12
2. Somewhat more than I should be handling	55	53	57	53	52	53
3. Appropriate level of traffic*	28	33	25	33	36	33
4. Somewhat less than I should be handling*	2	2	1	3	2	2
5. Much less than I should be handling*	0	0	0	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	3,965	5,310	2,676	3,618	1,289	1,692
*SKIP TO QUESTION 4						
3. In your opinion, how much, if any, does each of the following factors represent a reason for your being required to handle more traffic than you feel you should during daily peak periods?						
a. Sector configuration (complexity)						
1. Major reason	34	41	34	41	36	42
2. Somewhat of a reason	48	43	48	44	47	40
3. Not a reason	18	16	19	15	16	18
Total	**100**	**100**	**100**	**100**	**100**	**100**
Estimated respondents	2,620	3,275	1,876	2,239	744	1,036

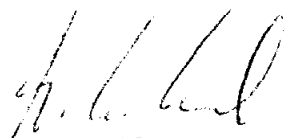
PATCO	Professional Air Traffic Controllers Organization
TMU	Traffic Management Unit
TRACON	terminal radar approach control facility

training, leave, and other duties; and perceive a shortage of both developmental and full performance level (FPL) controllers. A majority of controllers also believe that the quality of several essential areas of training provided to developmental controllers is inadequate, view their own morale as low, and believe that certain factors hinder FAA's ability to maintain system safety. Supervisors reported, to a lesser extent, similar concerns. Facility managers, in contrast, view most of these areas more positively, much as they did in 1985.

Sections 1 through 3 contain the complete questionnaire results for controllers, supervisors, and managers. Section 4 contains our objective, scope, and methodology, including our questionnaire procedures and sampling methods. Appendix I lists the 84 major air traffic control facilities included in our 1988 survey.

- - - -

FAA provided comments on the development of our questionnaires. However, as you requested, we did not obtain its official comments on a draft of this fact sheet. As arranged, unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 30 days from the date of this letter. At that time we will send copies to the Secretary of Transportation; the Administrator, FAA; and other interested parties. If you have any question about this fact sheet, please call me on (202) 275-1000. Major contributors to this fact sheet are listed in appendix II.



Kenneth M. Mead
Director
Transportation Issues