

Mark A. Stachiw
Attorney

Tree-Forest Plaza
12221 Mesa Drive, Suite 800
Dallas, Texas 75251
(214) 458-5077

PAC TEL
Paging
A Pacific Telesis Company

March 12, 1992

RM 7360
ET 92-100

Ms. Donna Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

Attn: Thomas P. Stanley

Re: Demand Study for PacTel Paging's Petition for Rulemaking
Respecting a Ground-to-Air Paging Allocation

Dear Mr. Stanley:

On October 15, 1991, PacTel filed a Petition for Rulemaking to amend Part 2 and 22 of the Commission's Rules to make three 25 KHz channels in the 930-931 MHz band available for a land-based common carrier ground-to-air paging service. The Commission has not yet assigned the Petition a file number.

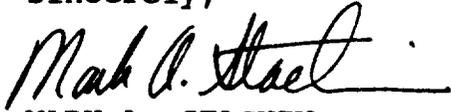
PacTel respectfully submits the enclosed study, commissioned by PacTel and conducted under the direction of Clifford Bean and Barry Goodstadt of Arthur D. Little, which shows the demand for the ground-to-air paging service proposed by PacTel, for inclusion with PacTel's Petition for Rulemaking. I would like to summarize some of the important conclusions of the demand study.

First, the demand study concludes that there is ample demand for Ground-to-Air Paging services. The demand study finds that the demand for Ground-to-Air Paging Service ranges, based upon price, from 275,000 subscribers to 670,000 subscribers in the 1995-1997 time frame. Given that existing paging channels will serve from 150,000 to 300,000 subscribers, depending upon the baud rate of the system, the demand shown in the demand study warrants at least three paging channels be allocated for Ground-to-Air Paging.

Second, the demand study also concludes that the demand for the Ground-to-Air Paging Service is likely to stimulate usage of existing ground-air telephones. This is an important finding because such demand will make that allocation more utilized by the air travelling public. As was stated in PacTel's Petition for Rulemaking, Ground-to-Air Paging Service fills the same complementary role for ground-air telephones as terrestrial paging does today for pay telephones.

Please refer any questions on the demand study to me or Jim
Lawson, Vice President - Technical.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mark A. Stachiw".

MARK A. STACHIW
Attorney

MAS/bet

Encl.

Arthur D Little

**Demand For Ground-To-Air
Paging Services**

Report to Pactel Paging

March, 1992

Arthur D. Little, Inc.

Reference 40543

Arthur D Little

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Introduction

During the last several years there has been growing realization that conventional paging services have entered a mature phase:

- The rate of subscriber growth has slowed
- Prices have declined

To address this situation, a number of firms have sought to rejuvenate paging with advanced offerings:

- Nationwide and regional services
- Acknowledgement or message-back paging
- Data services

Introduction (continued)

As part of this evolution from tone only pagers to true messaging services, Pactel Paging has petitioned the FCC for a rulemaking to allocate spectrum in the 930 to 931 MHz Band for Ground-To-Air Paging (GAP) Service

- GAP provides the capability of alerting paging receivers on aircraft
- Users can then use airphones on commercial airliners to respond to such messages

In support of the FCC filing, market research was undertaken to assess the demand and price sensitivity for Ground-To-Air Paging Service among two populations:

- Current users of nationwide and regional paging services
- Frequent business travelers in the general population

This report describes findings from this study

Methodology

To assess demand for GAP, two telephone surveys were undertaken:

- 1) A survey of 200 users of nationwide and regional paging services
 - This group reflects a current base of approximately 130,000 users across the United States

Methodology *(continued)*

To assess demand for GAP, two telephone surveys were undertaken: *(continued)*

- 2) A household survey was conducted among 231 business travelers who took six or more business trips during the past twelve months and who did not have paging subscriptions
 - Household sample was stratified into three income strata
 - Households in local telephone exchanges with medium annual income greater than \$75,000
 - Households in local telephone exchanges with medium annual income of \$50,000 to \$74,999
 - Households in local telephone exchanges with medium annual income of less than \$50,000
 - Households were screened on the basis of having individuals with six or more business trips
 - Frequent business travelers reside in five percent of all United States households or 4.8 million households

Methodology *(continued)*

The surveys provided respondents with a description of the Ground-To-Air Paging concept and covered a number of pertinent issues surrounding the need for and interest in GAP

- Number of trips taken
- Mode of travel
- Problems encountered while attempting to communicate while traveling
- Ownership of cellular telephones
- Description of the GAP Service
- Perceived usefulness of GAP
- Willingness to subscribe to GAP at different price levels
- Respondent's occupation
- Industry group in which respondent works

Ground-To-Air Paging Service Description

Survey respondents were provided with the following service description:

- In the near future, a new flight messaging service will be offered which provides travelers with access to the same information they have at their desk while they are flying between different locations in the Continental U.S.

- Users who are in transit over the U.S. will be able to
 - Receive pages
 - Receive electronic mail messages
 - Receive faxes
 - Gain access to information from their office systems (e.g., getting memos, spreadsheets, presentations)

- This information can be displayed on an LCD screen on devices such as
 - A laptop computer
 - An electronic organizer or display pagers

Methodology (continued)

Ground-To-Air Paging Service Description (continued)

- While they are in flight, users will also be able to have access to information services for such things as
 - Stock quotes
 - Headline news
 - Airline schedules
 - Weather reports
- Users will be able to respond to messages by means of air phones found in many of today's airliners – this service will supplement the coverage of existing nationwide, regional and local paging services
- When subscribing to this service, users can also receive these services in the immediate area around airports

Methodology (continued)

To estimate demand for different segments of the population, two different pricing structures were used

- For respondents who currently subscribe to nationwide, regional or local paging services, prices for GAP were set at \$10, \$20 or \$30 per month *in addition to their current paging cost*
- For respondents who do not currently subscribe to paging services, the prices for GAP were set at \$15, \$20, \$25 or \$35 per month, including costs of leasing a pager

Methodology (continued)

To capture responses to different prices, a split sample approach was used

- Independent samples of respondents were assigned different price points in each of the survey segments (i.e., nationwide paging customers, business travelers)
- A cascading procedure was used to gather additional price sensitivity information – responses to the initial price point were then used to determine subsequent prices used
 - A positive response to the initial price led to testing a higher price (e.g., a positive response to \$20 per month was followed by testing of \$30 per month)
 - A negative response to the initial price led to testing a lower price (e.g., a negative response to \$20 per month was followed by testing of \$10 per month)

These procedures enable us to evaluate additional prices, as needed, to examine the impact of price on demand

Methodology (continued)

Penetration estimates involved the use of an 80/30 discounting rule such that likely buyers consisted of

- 80% of those indicating that they would “definitely” buy at a given price plus
- 30% of those indicating that they would “probably” buy at a given price

These penetration estimates were then applied to the appropriate population bases to develop demand estimates

This 80/30 discounting rule yields estimates of penetration and demand for a three- to five-year period after service implementation

Methodology (continued)

Since demand estimates were obtained independently at different prices, it was assumed that those individuals who were willing to pay a higher price (e.g., \$30) would be willing to pay a lower price for the same service (e.g., \$20)

- Penetration and demand estimates at any given price point take into consideration those individuals who are willing to buy at higher prices

Findings Overview

Key findings of the study include

- Demand for Ground-To-Air Paging is moderately sensitive to price
- As expected, likely penetration rates for the service are higher among nationwide and regional paging subscribers
- Demand estimates range from 275,000 at the highest monthly price (\$35 – non-paging customers/\$30 – paging customers) to 670,000 at the lowest price (\$15 – non-paging customers/\$10 – paging customers)
- Correlates of customer interest in GAP are keyed to number of airline trips taken per year and experience with specific communications problems
- Executives and sales people are prominent buyers of GAP

Findings Profiles of Populations Surveyed

Current users of nationwide/regional paging services tend to travel on airlines a bit more and evidence higher penetration of cellular phones

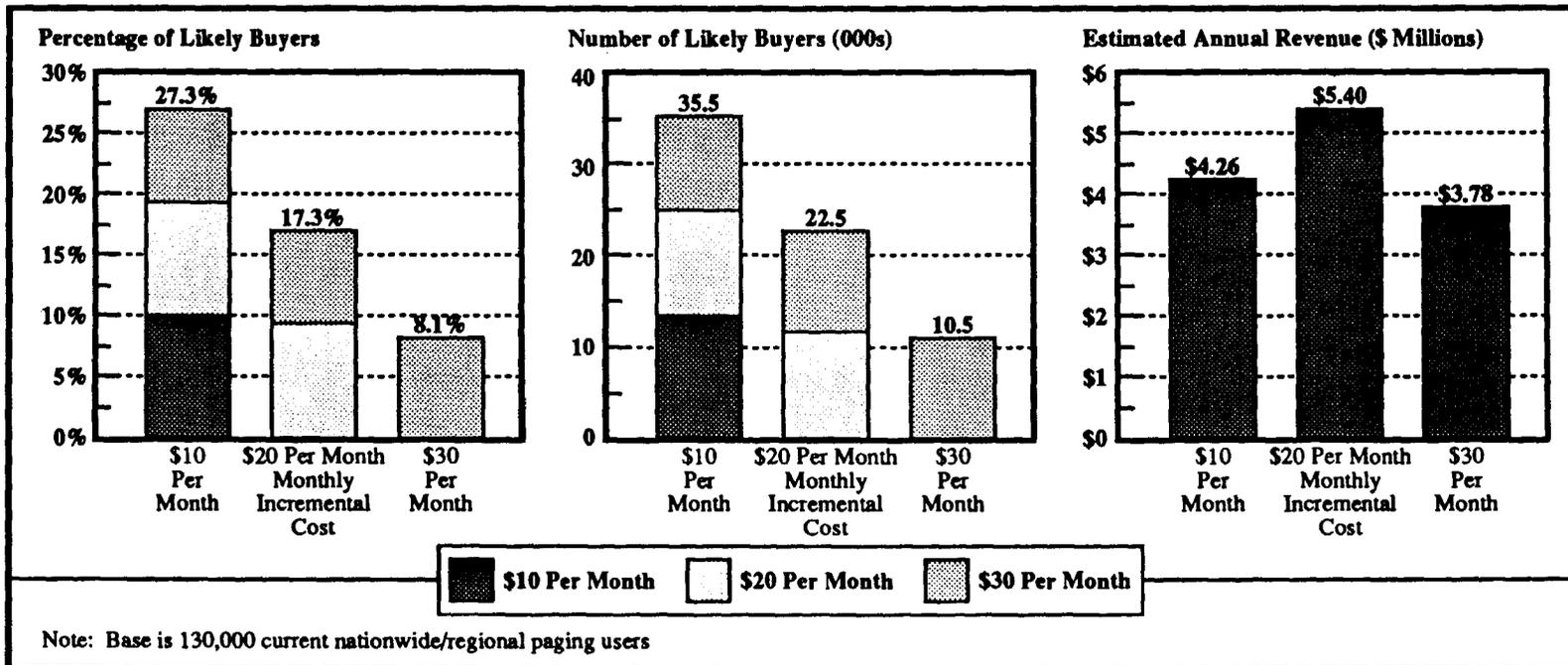
		Current Users of Nationwide/Regional Paging *	Frequent Business Travelers (Non-Paging Subscribers)
Population Base		130,000 users	4,762,000 households
Airplane Trips	None	20%	28%
	1 to 10	43%	41%
	10+	37%	30%
Cellular Phone Ownership		54%	26%

* Not screened for frequent business travel

GAP Demand Estimates Current Nationwide/Regional Paging Customers

There is significant opportunity for GAP service in the current base of nationwide and regional paging customers

- Penetration of GAP in this segment ranges from 8% to 27% depending upon price
- Demand ranges from more than 10,000 customers to over 35,000 customers in this segment (depending upon price)
- Incremental revenue ranges from \$3.8 million to \$5.4 million
- These estimates apply to 1995 to 1997 timeframe and assume no change in the nationwide, regional paging customer base



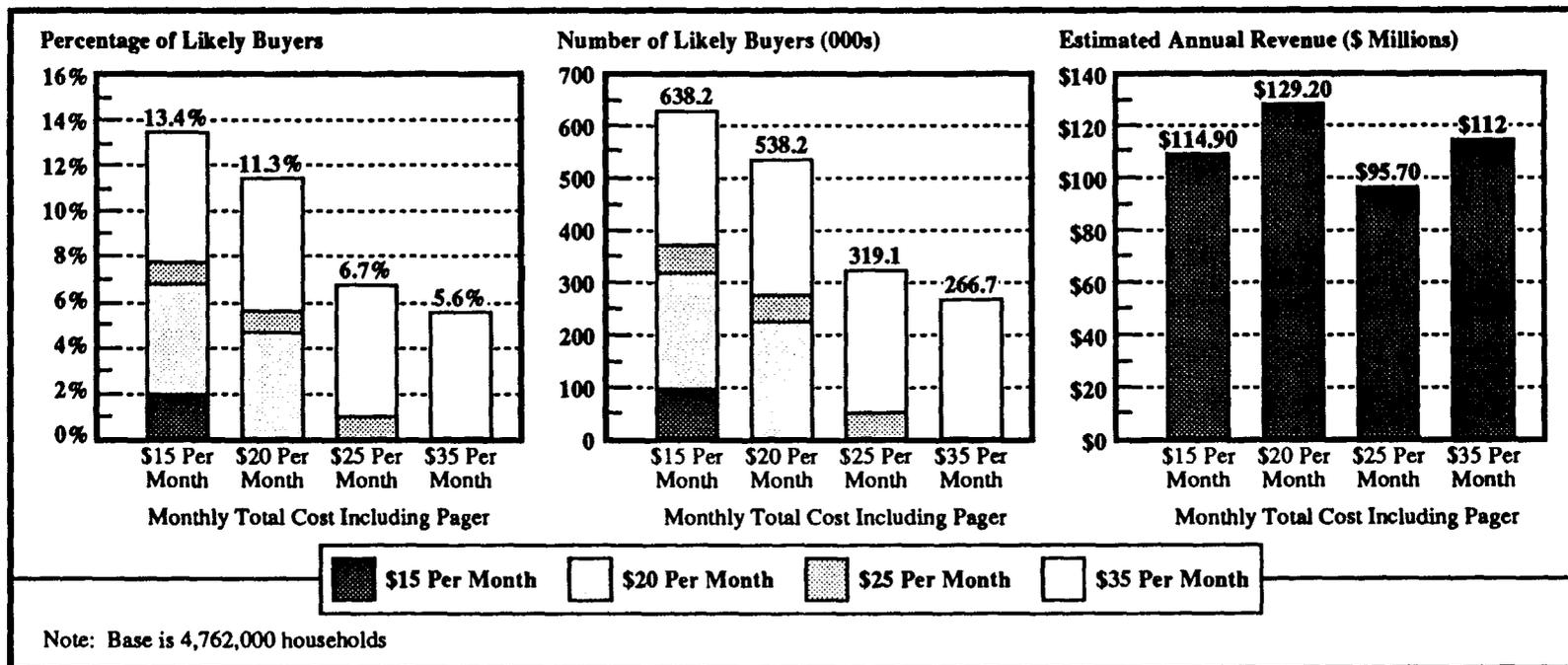
Future demand for GAP in this segment, will be tied to growth in the customer base of nationwide/regional paging

- We estimate that the nationwide/regional paging base will grow to 500,000 customers by 1995
- If one assumes the same GAP interest level in this group, incremental demand from this sector will range between 40,000 (\$30 per month) and 136,000 (\$10 per month) – an increase of between 30,000 and 101,000 customers
- Such demand will, however, lessen demand attributed to the business traveler segment

GAP Demand Estimates Business Travelers

Sizeable opportunity exists for GAP to serve the needs of business travelers who are not currently paging subscribers

- Penetration of GAP in this segment ranges from 5.6% (\$35 per month) to 13.4% (\$15 per month)
- Demand estimates for 1995 to 1997 range from 267,000 subscribers (\$35 per month) to 638,000 (\$15 per month)
- Revenue projections are relatively insensitive to penetration/demand levels and range from \$95 million to \$129 million annually
- These estimates assume one GAP subscription per interested household

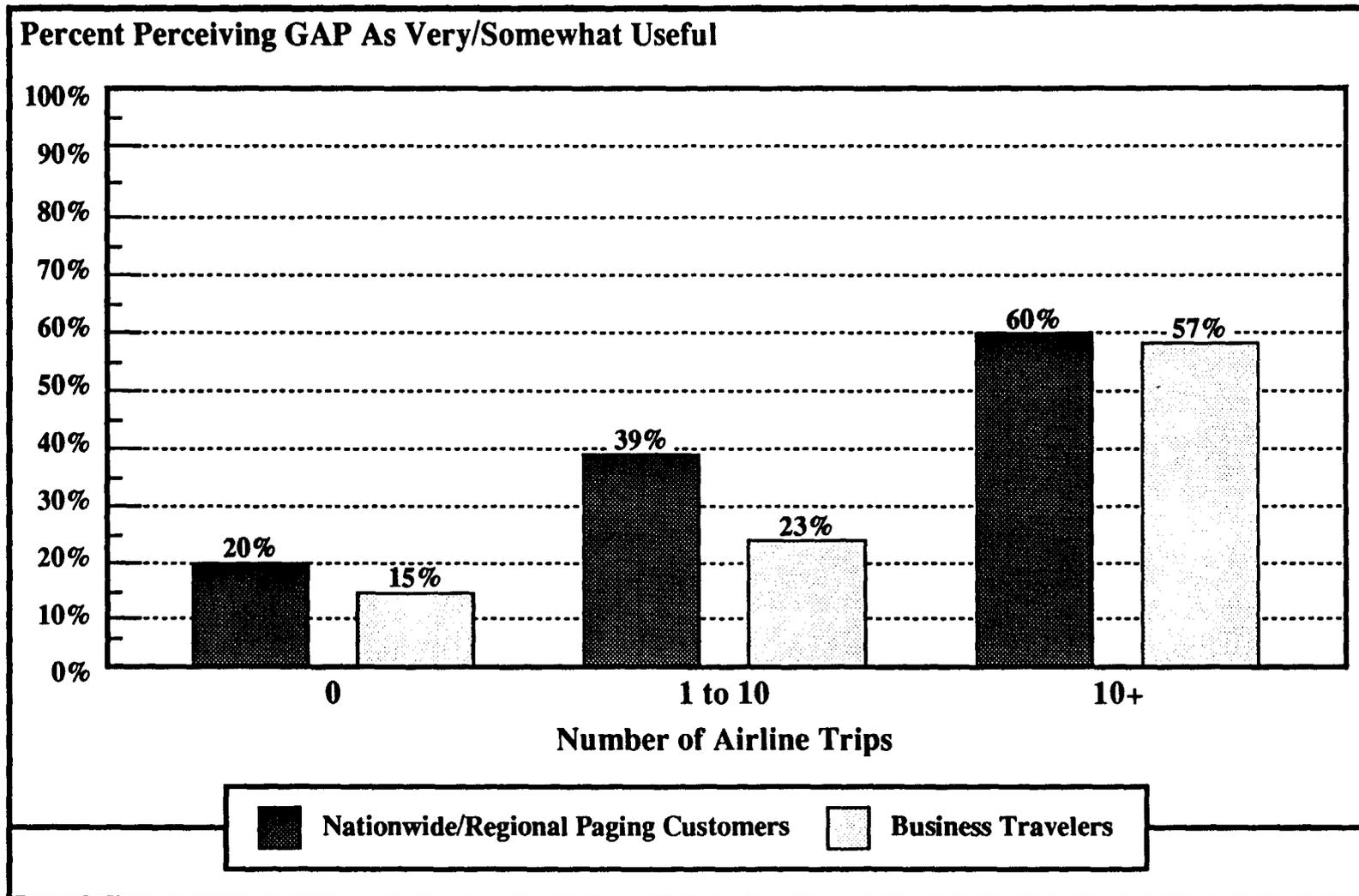


Assuming that nationwide/regional paging grows according to our estimates (500,000 by 1995), the bulk of that population will be drawn from the pool of business travelers

- Business travelers (non-paging subscriber) pool will shrink by 370,000 households
- Adjusting the demand estimates proportionately suggests revised demand estimates of between 246,000 (\$35 per month) and 589,000 (\$15 per month) subscriptions – a decline of between 21,000 and 49,000 customers
- Downward adjustments in this segment will be more than compensated for by increased demand among nationwide/regional paging customers – total demand will rise to between 286,000 and 690,000 users

Correlates of Interest in GAP Number of Airline Trips

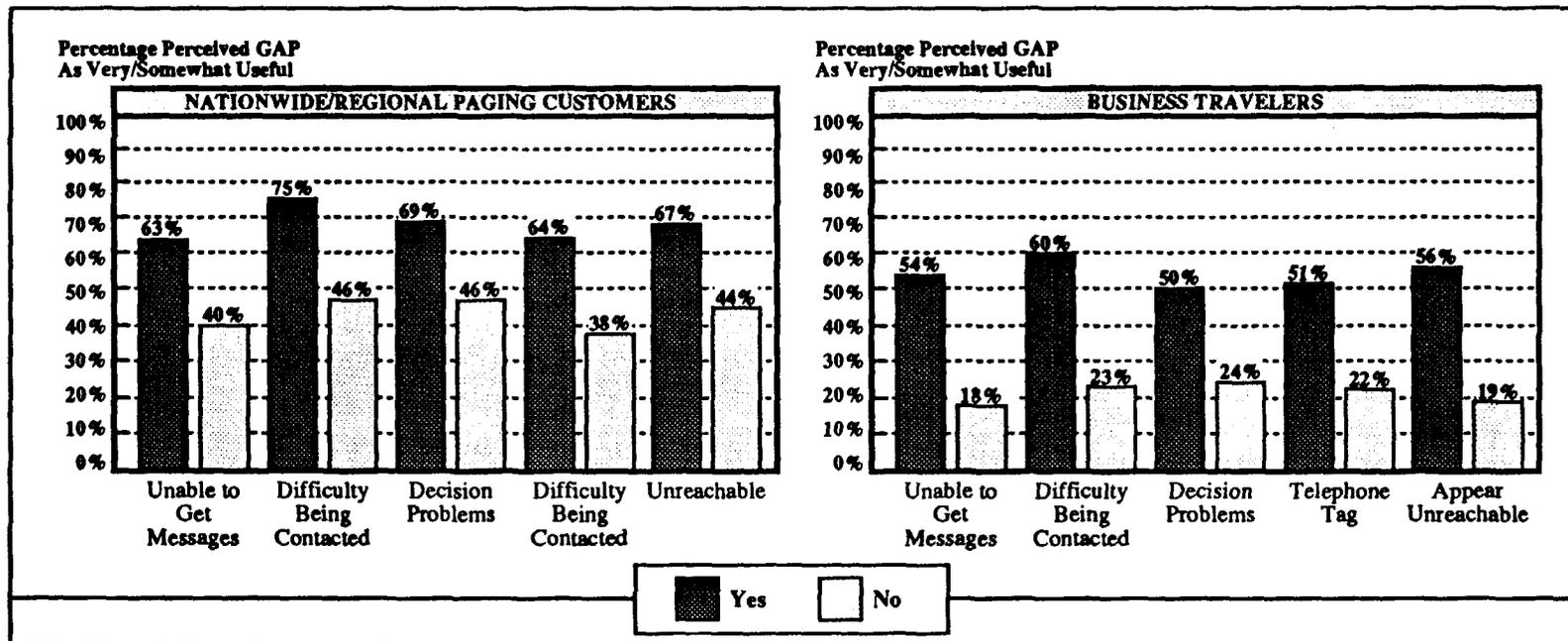
Those who take more airline trips are more likely to perceive GAP as having utility



Correlates of Interest in GAP Experience with Communication Problems

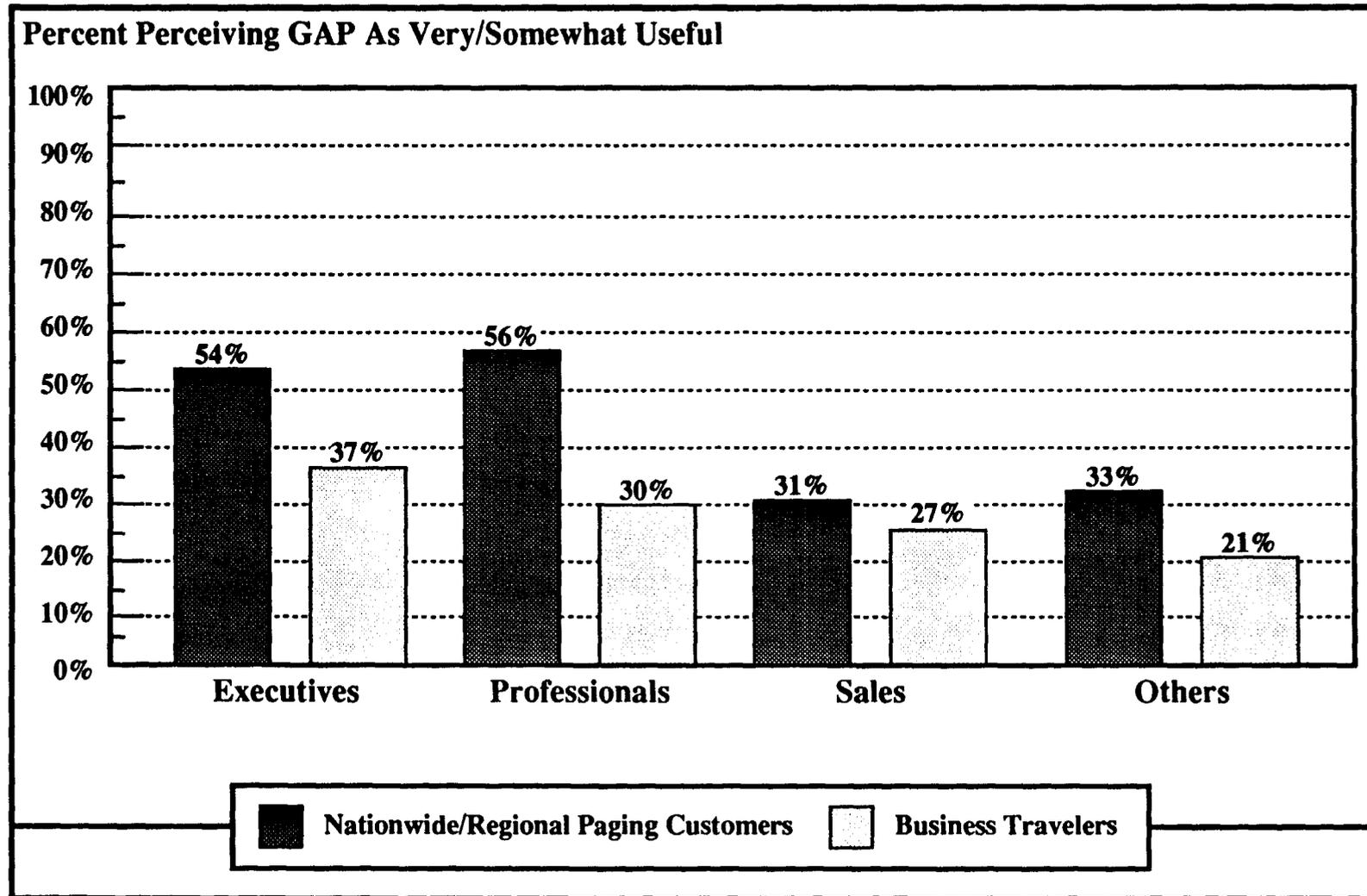
Experience with specific communication problems leads to perception of GAP as a useful service

- Inability to get messages
- Difficulty in being contacted
- Not getting information in time to make decisions
- Playing telephone tag
- Appearing to be unreachable



Correlates of Interest in GAP Occupational Determinants

Executives and professionals are the most likely users of GAP



Conclusion

Based upon these findings, a number of conclusions can be drawn

- 1) There is ample demand for Ground-To-Air Paging Services – depending upon price, demand ranges from 275,000 users to 670,000 users in the 1995 to 1997 timeframe
- 2) Initial adopters of this service are likely to be current users of nationwide and regional paging offerings
- 3) Users are likely to be drawn from among the ranges of executives and professionals, followed by sales people
- 4) Important drivers in consumer demand for this service are tied to difficulties business people have being contacted while in the air
- 5) Given the demand for this service, it is likely to stimulate usage of air phones