

# CONSUMER ATTITUDES TOWARD PUBLIC TRANSIT

Gordon J. Fielding, Douglas P. Blankenship, and Timothy Tardiff,  
Orange County Transit District, Santa Ana, California

Transit planning requires a high level of input from the public. Market survey research has been found to be a very useful and simple tool for collecting and analyzing data on key user groups and public opinion segments. Therefore, the objectives of this study were to identify and weight the factors that jointly influence the use of public transportation and, with this information, to formulate guidelines for both marketing and policies of transit operations. In summary, a transit system must, if it is to solve urban transportation problems, be designed to provide service that is attractive and competitive in a consumer-oriented market and socially concerned society. This paper reports preliminary results from a 1972 study conducted in Orange County, California. Changes have been made in the questionnaire, and a more detailed market segmentation study was conducted in 1974.

•**BEHAVIORAL RESPONSE** is one method of validating public attitude. The Orange County Transit District had considerable success between 1972 and 1974 in effecting a large increase in transit use. In part, this success is attributed to the development of transit service that was responsive to consumer desires. Operations began in August 1972, with only five buses. As of July 1974, ridership had increased from 25,000 to more than 520,000 a month, and the bus fleet had been expanded to 103 vehicles. Another 111 buses were added during 1975. Of those, 67 were for expansion of demand-responsive transportation (DRT) service and 44 for improved service on the fixed routes.

Such expansion of transit use in Orange County is encouraging; the most recent survey indicates that 97 percent of all households have at least one private vehicle, and 62 percent have more than one. To maximize potential service and to make transit responsive to the perceived needs of the 1.7 million population of Orange County require that studies of consumer attitudes and preference be conducted.

## STUDY OBJECTIVES

The broad objectives of this research were to identify and assess the relative importance of the attributes of the transit system as conceived by the consumer and to determine the extent to which consumers think existing modes of transportation satisfy their needs.

In the first phase of the research, answers to questions on transit attributes and service level were sought. Although the questionnaire used was preliminary, it did supply information in five areas.

1. What attributes do transit users regard as important on a typical trip?
2. What attributes of transit are important for all transit trips in an ideal system?
3. What are the most important trip purposes for which consumers prefer transit?
4. What are the expectations of the public in terms of financial support for public transit?
5. Why do people desire public transit?

The objectives of this study were to weight the factors that influence the use of public transportation and to use techniques of analysis and prediction that would assist the evaluation of future needs and development of transit in Orange County.

## STUDY METHODS

Two questionnaires were used in the study; one was a general questionnaire relating to standard fixed-route, fixed-schedule bus service. The second was modified to measure the anticipated reaction to the demand-responsive transportation system. Both questionnaires had similar format, and most questions were duplicated. The conventional bus survey was distributed among a stratified sample of 267 respondents in each of three cities: Santa Ana, Costa Mesa, and Cypress. The DRT questionnaire was used in La Habra where the Orange County Transit District (OCTD) was introducing such a system. The sample size for the DRT survey was also 267.

The questionnaires were revised after the first phase of the research, and a second, countywide survey was conducted in 1974. This paper does not include the results of the 1974 survey. These will be presented in a subsequent paper, in which the results will be segmented to reflect the opinions of groups by sex, socioeconomic status, attitudes to public transit, and places of residence and work.

Nor are detailed cross-tabulated results included. The figures summarize some of the results. Time constraints do not permit in-depth analysis. The purpose here is to outline the methods used and to indicate through figures some of the conclusions that have influenced route planning, marketing, and policy decisions.

## RESEARCH DEVELOPMENT

The OCTD study was preceded by research aimed at understanding of transit use and development. Previous research concentrated on trip purpose, trip frequency, and the demographic characteristics of the existing modal split. Much of this research is oriented toward the construction of aggregate behavioral models. The following is only meant to be a brief summary of the status of knowledge about transit consumer behavior. The development of the OCTD research effort was assisted by the methodology and results of six seminal studies (2, 3, 5, 6, 7, 8, 9).

The conclusions drawn from these six studies are presented below.

1. The automobile is universally held as being more satisfactory than public transit, which is rated unfavorable.
2. The major determinants of modal choice include reliability, time, cost, mode of payment, and physical and psychological comfort.
3. A mode shift from automobile to transit would result from better transit accessibility, more frequent scheduling, routing that was responsive to demand, and low cost.
4. Present transit users think that the attractiveness of transit would improve by maintaining schedules, decreasing origin to route and route to destination distances, and reducing trip-time expenditure.
5. Speed and punctuality are less important for nonwork trips than for work trips. Other costs and conveniences are, however, equally important for both purposes.
6. The relative importance of transit attributes varies according to the survey instrument used, the geographic location of the sample, and the existing use made of public transportation.

These conclusions are from studies that investigated the nature of an ideal system as perceived by the respondent and measured the performance of the existing or proposed systems against the ideal. The major problem with using attitude studies is the assumption that the respondent has sufficient information to make a valid judgment between the alternatives offered. In Orange County, 40 percent of the respondents were unaware of the presence of the nearest bus line, and 79 percent replied that

members of their households never used the bus. The interpretation of the results must incorporate these limitations.

## ORANGE COUNTY RESULTS

Both Likert and semantic differential scaling procedures were included in the questionnaire used in Orange County. The Likert scale asked respondents whether they agreed with 40 statements about public transit. These responses were used to group respondents into attitude groups. Semantic scaling proved more useful in assessing different attributes of bus transportation because respondents were asked to scale statements from not important to very important. A summary of the responses for level of service, bus design, and convenience is shown in Figure 1.

From the point of view of users, the public transportation system is a part of a decision-making framework and, as such, is measured against other modes of transportation by satisfaction criteria (Figure 1). These criteria are often speed, safety, comfort, and economy, but for the most part overall level of service (arrival on schedule, closeness to bus line, driver attitude, and arrival frequency) is extremely important. This conclusion is consistent with the six aforementioned studies. Figure 1 shows a measure of the intensity of preference.

All four attributes were more important than attributes reflecting price, travel time, and the inconvenience of transfers. These latter attributes were perceived as being about equal in importance to smoothness of ride, availability of a seat, and provision of bus stop benches and shelters. The perceived importance of design attributes that would reduce smog was expected in southern California. The real surprise was the importance that the public places on the attitude of the driver. A friendly and helpful coach operator appears to be far more important than most attributes of the bus itself. And yet, most transit properties devote more attention to bus design features than they do to either employee relations or the training of coach operators in customer relations.

It is extremely costly to add more buses to improve the schedule of service. Each additional bus costs approximately \$60,000 per year to place in service. By comparison, a program of customer relations for coach operators could substantially increase use of existing services. The coach operator is the best salesperson that a transit property possesses. Too often this attribute has been overlooked as a means of attracting and retaining riders who have a choice between automobile and transit.

The overall findings of this section have definite marketing implications that will be considered later in the paper.

## POTENTIAL TRANSIT RIDERS

The real challenge for public transit in suburban metropolitan areas is to expand ridership in areas in which almost everyone has access to an automobile. Only 3 percent of the households interviewed did not have access to an automobile, and even this minority had friends and relatives who provide essential transportation. Yet this statistic is deceiving: Of the 1.7 million people residing in Orange County, it is estimated that 500,000 do not drive. They are dependent on others for transportation.

For what trips can public transit be substituted for the automobile? Further, for what trips can public transit offer a viable alternative to those who normally drive? Also, how can the needs of those without access to automobiles be met? Answers to these questions provide direction for transit managers.

To answer these questions we collected data on work, school, shopping, and social trip purposes. This information was cross-tabulated with the respondent's intention to use the bus if the fare was 25 cents, the bus route was within three blocks of the origin of the trip, and the bus arrived at 30-minute intervals. Of the respondents who made a daily work trip, 35 percent stated that they would use the bus for work trips. Similarly, 32 percent would use it for school trips, 30 percent for shopping, 32 percent

for entertainment, 21 percent for visiting, and 37 percent for church on a regular basis (Figure 2). These categories are not mutually exclusive and are percentages of those already making these trips who would use transit at least once a week.

Conversely, 70 percent of all respondents were unwilling to discontinue car use even if the public transit service were as described. After examination of total trips, it was found that, with the bus service stated above, 38 percent of person trips would be made by bus. Inasmuch as this is far greater than the recorded split of 2 percent, it is probable that lack of experience with the public transportation system and the increasing scarcity of gasoline in the fall of 1972 when the interviews were conducted resulted in overstatement by respondents of their potential transit use.

Some respondents perceived bus transportation as a substitute for the automobile for certain trip purposes. Use of bus transportation for shopping was greater than anticipated. Preliminary analysis of responses indicates that heavier than anticipated use by persons 12 to 17 and above 65 years old can be anticipated for shopping trips. This is important for operations because selective marketing could increase patronage during the off-peak hours and on Saturdays.

## MARKETING ASPECTS

One of the primary aspects of this study was to gather data that would be useful in developing a marketing strategy. The respondents ranked the importance of public transit attributes on a scale from 1 to 5—not important to very important. These attributes were then grouped into more general categories. Figure 1 shows the results of three categories: level of service, bus design, and convenience.

Under levels of service, the most important attribute was that the bus arrive on schedule. This was followed by driver attitude, closeness to the bus line, and arrival frequency. These ranked more highly than bus design items, which in turn ranked more highly than convenience items.

A smog-reducing characteristic was considered the most important in bus design, which is emphasized by general concern about air quality at the time of the survey. Smoothness of ride, air conditioning, quietness of ride, and seat comfort and bus appearance were considered more important than bus size and storage space. Seat availability was the convenience factor rated the highest, followed by the need for shelters at the stops.

The survey showed that route design and scheduling were important. Respondents required punctuality and closeness of the route to their trip origin. The latter demand fell markedly after a three-block distance from the respondent's home. If the bus ran within one block, more than 50 percent of respondents stated that they would use the bus to some extent. The cost of the ride was less important than distance to the route.

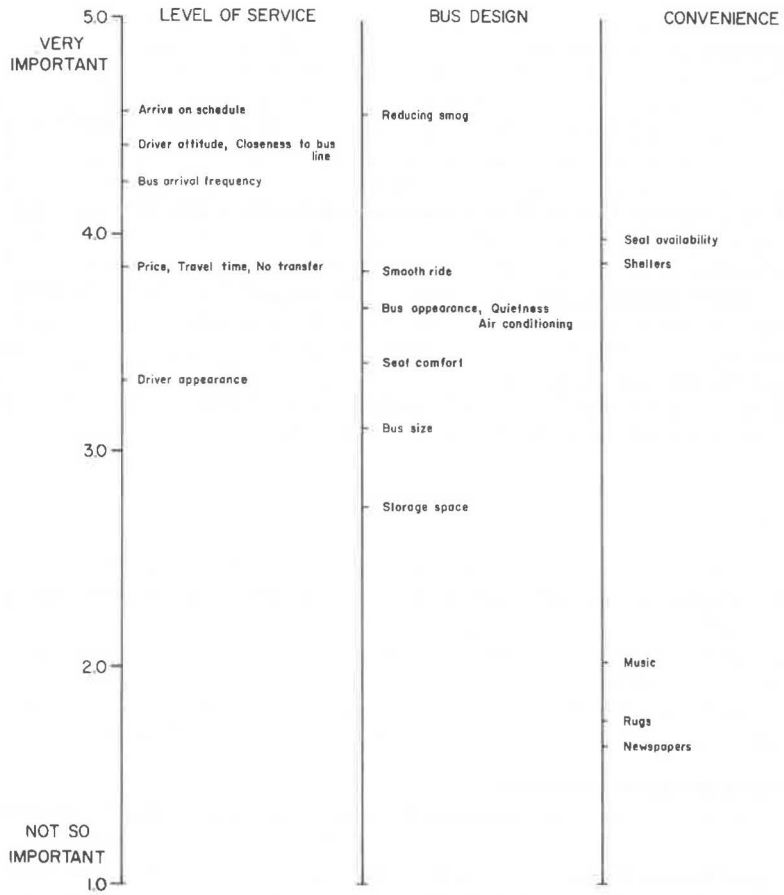
The groups with the highest potential use were those with no cars, those who earn less than \$7,900, and those 12 to 17 and 35 to 65 years old. It was also found that three groups are unlikely to use the bus, regardless of its proximity, and these were those 18 to 24 years old, households with two or more cars, and households with an income greater than \$25,000.

The importance of accessibility to the bus lines caused the OCTD to feature a sectional rather than areawide marketing strategy. The actual placement and selection of advertising were aimed at the individual who resides or works within three blocks of the bus route. Hence, corridors of marketing activity may be defined. The media selected, such as posters, direct mailing, and bench advertising, reflect this local effect.

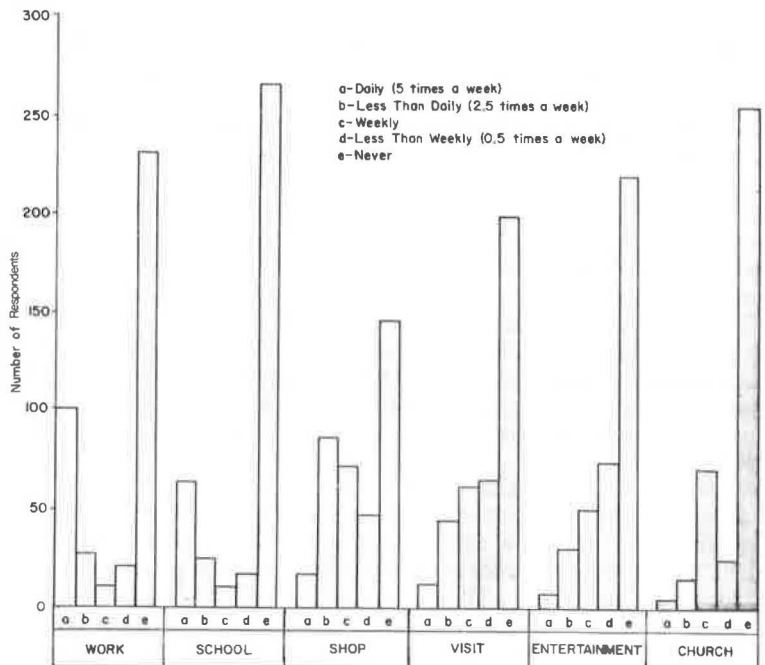
Previous to the results of the survey, radio and newspaper advertising was emphasized. This established an image for the OCTD but has had limited effect on ridership. An intensive direct mail advertising program was initiated in 1973, and it will be interesting to determine the effect of this program on the decision to use the bus for different trips. This information will be available in a subsequent publication.

A strategy has been developed to involve the coach operators in marketing and public relations. The objective was to improve their knowledge of the total transit

**Figure 1. Total sample mean attitude scale for conventional bus transportation.**



**Figure 2. Number of respondents traveling by purpose and frequency—conventional bus transportation.**



system and to encourage them to be more helpful to the customer. The emphasis has focused on an advanced training educational program rather than individual awards.

## POLICY FINDINGS

Several opinions related to policy issues of the transit district were tested in the study. The aspects considered were financing, formulation of goals, and general public support.

Respondents generally expected the bus company to be a profit-making organization and to earn its revenue from the fare box. Only 19 percent favored financing from gas taxes and only 9 percent from sales tax. Attitude scaling confirms the prevailing unwillingness to use public funds to subsidize transit. Respondents agreed (65 percent for, 29 percent against, and 6 percent no opinion) that public transit should be a public service. However, transit managers will have to educate the public on the economics of the industry if they desire continued public support for operating subsidies.

Only two groups disagreed with the flat fare concept, but these form a significant proportion of the total sample. These were those with incomes of \$15,000 or more and those with a college education. The preferred method of fare payment was a monthly pass or multitrip ticket. Credit cards or exact change arrangements were disliked; the 25-cent fare was most preferred.

Support for public transit was overwhelming; 84 percent responded that the benefits of public transit are well worth the cost, and 90 percent thought that bus transport would make their city a better place in which to live. Coupled with this support was the desire to participate in bus routing and to be involved in the planning process. It should be pointed out that a feeling of impotence is not limited to public transit; it is a feature of governmental planning in general.

An apparent paradox is that the strongest support for transit comes from the demographic groups least likely to use it but most likely to face indirect costs of the system. These were groups with annual incomes exceeding \$25,000 and households with two or more automobiles.

Continuing concern with the smog problem was evident on questions dealing with bus design characteristics. Reducing smog was the highest rated feature. It may be pointed out that, although reducing smog is a number one concern today, this is the type of issue that can change quickly. Reduction of bus noise and fumes might improve the perception of the bus as an alternative mode of travel.

## CONCLUSIONS

This transit study was undertaken to evaluate the attributes of the bus within the travel decision process. The aim was to investigate means of improving the competitive position of public transit against the private automobile. The attitude survey was designed to locate potential users and identify those features of route location, scheduling, cost, comfort, and convenience that would encourage these people to use the service provided. It should be stressed that the results are preliminary and that the survey was a pilot study for an expanded attitude study covering the whole of Orange County. Distinct attitude and user groups can be identified from the attitude survey, and the expanded study will give special attention to market segmentation and the characteristics of people in each segment.

Use of cross tabulation and mean scaling produced the following results, which are a step toward preparation of future studies and on which interim management decisions and policy guidelines can be based.

1. Consumers overestimate their proposed use of transit. This may be related to lack of information or experience.
2. Use of transit is directly related to the proximity of the trip origin to a bus route.
3. The attitude of the coach operator is more important to the public than many of the costly amenities of bus design.

4. The public is actively interested in the provision of bus service but must be educated in both its use and its financing. The public is, however, interested in becoming actively involved in the planning processes.

5. Promotion of "take a bus shopping" will appeal to youthful and senior citizens who can travel during off-peak hours.

6. Concern for the quality of life seems to be a major determinant of the popularity of public transit. This is indicated by the concern about smog reduction in making the city a better place to live.

In summary, a transit system must be designed to provide service that is attractive and competitive in a consumer-oriented market and socially concerned society. Surveys of consumer attitudes can assist management in designing competitive service and monitoring its acceptance over time. Future reports will provide information about the attributes of population groups whose attitudes toward public transit differ. The aim will be to segment the population for marketing and policy purposes.

## REFERENCES

1. Technical Report 1. Orange County Transit District, Santa Ana, 1974.
2. G. J. Fielding. Structuring Citizen Involvement in Freeway Planning. Highway Research Record 380, 1970, pp. 23-36.
3. G. J. Fielding, D. E. Benson, and T. J. Tardiff. Designing and Marketing Transit Systems With the Aid of Attitude Studies. Proc., URISA Conference, San Francisco, 1973, pp. 82-95.
4. R. L. Gustafson et al. User Preferences for Dial-a-Bus: A Comparison of Two Cities. General Motors Research Laboratories, Warren, Mich., 1971.
5. T. F. Golob et al. An Analysis of Consumer Preferences for a Public Transportation System. General Motors Research Laboratories, Warren, Mich., 1970.
6. C. H. Lovelock. Consumer Oriented Approaches to Marketing Urban Transit. Stanford Univ., dissertation, 1973.
7. R. K. McMillan and H. Assael. National Survey of Transportation Attitudes and Behavior—Phase I: Summary Report. NCHRP Rept. 49, 1968.
8. R. K. McMillan and H. Assael. National Survey of Transportation Attitudes and Behavior—Phase II: Analysis Report. NCHRP Rept. 82, 1969.
9. F. T. Paine et al. Consumer Conceived Attitudes of Transportation: An Attitude Study. Univ. of Maryland, 1967.