NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 212

MARKET OPPORTUNITY ANALYSIS FOR SHORT-RANGE PUBLIC TRANSPORTATION PLANNING

METHOD AND DEMONSTRATION

R. B. WOODRUFF, D. J. BARNABY, R. A. MUNDY, AND G. E. HILLS
The University of Tennessee
Knoxville, Tennessee

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NATIONAL RESEARCH COUNCIL
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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

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FOREWORD

By Staff
Transportation
Research Board

This report will be of special interest to transportation planners, transit marketers, and managers concerned with providing public transportation service. Such persons will obtain an understanding of how a market analysis approach can be used to plan short-range public transportation services.

Public transportation traditionally has been provided by fixed-route service financially supported through revenues from passengers. Reduced patronage, resulting primarily from increased use of the automobile plus higher operating costs, has caused growing deficits. Public concern about energy, environment, auto-dependency, congestion, and quality of urban living in general has obliged governments to underwrite these deficits in most urban areas. The rising amounts of required public monies plus the successful operation of a wide range of services directed at more specialized market segments have posed questions concerning how much financial support is appropriate, what services are required, and how these services should be provided.

NCHRP Project 8-16 was initiated in order to develop a method to provide public officials with the desired information and direction for local public transportation actions. The initial 12-month period of the project was spent conducting an in-depth analysis of present procedures and practices of the urban mass transit industry. Included in this effort were research team visits to 18 urban areas within the United States. From this research process, a descriptive, comprehensive, planning model was developed depicting the necessary information and procedural steps required for the application of market opportunity analysis to the planning of short-range public transportation. As depicted in the model, the application of market opportunity analysis requires both direction from policy decision areas and data from an engineering data base. This report presents full explanation of the model, its application, and its potential value. When applied, the market segments are identified, the transportation needs are determined, a transportation system is developed to meet the needs, and the system is tested. In this report, the model was tested in a neighborhood of Jacksonville, Florida.

Four companion reports are concerned with the application of a market-oriented public transportation planning approach. These constitute a group of reports that bear the main title "Market Opportunity Analysis for Short-Range Public Transportation Planning," and are subtitled as follows: *NCHRP Report 208,* "Procedures for Evaluating Alternative Service Concepts"; *NCHRP Report 209,* "Transportation Services for the Transportation Disadvantaged"; *NCHRP Report 210,* "Economic, Energy, and Environmental Impacts"; and *NCHRP Report 211,* "Goals and Policy Development, Institutional Constraints, and Alternative Organizational Arrangements." Obviously, all elements of the comprehensive planning model could not be addressed in one report. Thus, each report is aimed at one specific segment of the overall model. Together, the reports provide comprehensive guidelines for public transportation officials covering the three primary activities described in the model—policy, marketing, and engineering.

CONTENTS

ACKNOWLEDGMENTS

The research reported herein was performed under NCHRP Project 8-16 by The University of Tennessee Transportation Center. Drs. Ray A. Mundy and Kenneth W. Heathington were the principal investigators. The authors of this report are Drs. Robert B. Woodruff, Professor; and David J. Barnaby, Professor; Dr. Ray A. Mundy, Associate Professor, and Dr. Gerald E. Hills, Professor of Marketing—all of the Department of Marketing and Transportation.

During the course of this research project many public and private transportation officials, and citizens of the Jacksonville, Florida, area, were interviewed concerning public transportation in their area. Their assistance and cooperation in providing this information are greatly appreciated. Many others, too numerous to mention individually, contributed in some measure to the conduct of this research. Grateful acknowledgment is extended for the help and contributions from all sources.

MARKET OPPORTUNITY ANALYSIS FOR SHORT-RANGE PUBLIC TRANSPORTATION PLANNING

METHOD AND DEMONSTRATION

SUMMARY

This report is a part of NCHRP Project 8-16, "Guidelines for Public Transportation Levels of Service and Evaluation," which is directed toward the development of a marketing orientation for short-range transportation planning activities in small- to medium-sized urban areas (50,000 to 500,000 population range). The purpose of this report is to relate the methodology and demonstration of a market opportunity analysis for short-range urban public transportation planning.

The findings and methodology set forth herein represent information and experience gained from (1) the many site visits to urban areas by the research team members, (2) a review of past research literature concerning urban transportation marketing studies, and (3) the field data and analysis gained from the test city—Jacksonville, Florida.

The development of methodology and application of a market opportunity analysis (MOA) for proper identification of viable urban public transportation market segments has been an arduous task. The use of marketing terminology in public transportation has become widespread in recent years, and terms such as "target markets" or "market segments" often are used even though these groupings usually are constructed through definition rather than good marketing research. As used in this report, the term "market segments" refers to groups of potential buyers with similar responsiveness to a marketing appeal. Segmentation is a strategy for selecting and appealing to market targets. And market analysis is an analytical process for finding additional opportunities in markets for a product, a good, or a service. While the MOA process is known to the private business world, its application to public transportation can be termed social science applied research.

This report describes the research steps followed in the experimental application of an MOA process to locate and evaluate public transportation opportunities. Although the MOA process is relatively new and in this application uses sophisticated quantitative techniques, an attempt has been made to simplify the process to facilitate future MOA replications. The report describes the conceptual steps of the MOA process and attempts to provide an understanding of the quantitative analysis techniques including example data tables. Finally, the report describes the actual segmentation analysis attributes study and concept tests used in the test city and reports the results of these studies.

Because of the extensive nature of this project in both size and scope, five separate and complete reports have been generated over the major areas of the project model. These are:

1. "Market Opportunity Analysis for Short-Range Public Transportation Planning—Procedures for Evaluating Alternative Service Concepts," *NCHRP Report 208,* October 1979.

2. "Market Opportunity Analysis for Short-Range Public Transportation Planning—Transportation Services for the Transportation Disadvantaged," *NCHRP Report 209,* October 1979.
3. "Market Opportunity Analysis for Short-Range Public Transportation Planning—Economic, Energy, and Environmental Impacts," *NCHRP Report 210,* October 1979
4. "Market Opportunity Analysis for Short-Range Public Transportation Planning—Goals and Policy Development, Institutional Constraints, and Alternative Organizational Arrangements," *NCHRP Report 211,* October 1979.
5. "Market Opportunity Analysis for Short-Range Public Transportation Planning—Method and Demonstration," *NCHRP Report 212,* September 1981.

A full picture of the results of the project research requires all five reports. How they complement each other is shown in the diagram below. Within this report, an attempt is made to outline a series of marketing research studies that can be used to answer transportation planning questions.

Policy	Marketing	Engineering
NCHRP Rpt. 211 Short-Range Transportation Goals and Policy Development for Urban Communities Institutional Issues Facing Public Transportation Organization of a Public Transportation Market-Oriented Approach	NCHRP Rpt. 209 Transportation Services for the Transportation Disadvantaged NCHRP Rpt. 212 A Market Opportunity Analysis Approach to Short-Range Public Transportation Planning Methodology and Demonstration of a Market Opportunity Analysis for Short-Range Public Transportation Planning	NCHRP Rpt. 208 Procedures for Local Selection and Cost Evaluation of Alternative Public Transportation Service Concepts NCHRP Rpt. 210 Economic, Energy, and Environmental Impacts of Public Transportation

The first stage of the marketing segmentation study of the MOA process demonstrated that the potential public transportation market was small in relation to the total population. Initially it was felt by the researchers that various segments could be identified and then used for further analysis. Unfortunately, little interest for typical public transportation attributes was identified. The population was very auto-oriented; over 60 percent of present nonusers of transit were so committed to the private automobile that they had to be removed from further consideration. However, 40 percent expressed some interest in at least "trying" an alternative. Their market segments were grouped into a transportation leaner group.

The second stage of the MOA process, an attribute study, tried to determine what level-of-service attributes might attract these transportation leaners to try a transportation alternative. Here again, the results were discouraging to public transportation planners. The required levels of service were very high, creating an extensive cost problem if they were to be provided. Also, it must be stated that planners were working with very limited tools and with a limited experience base. Designing public transportation systems through the use of market attribute preference is new, and much more experimentation is necessary. Nonetheless, transit planning researchers, using the attribute preference data, did develop an extensive expansion of the traditional transit "grid" system. To further test the usability of attribute data, the same data were shown to practicing transit planners

and managers in the test city. From the same data, practitioners developed a much less expensive (with a much lower level-of-service) loop system for the test area. Thus, when replicating such studies it can be expected that transit professionals, examining the attribute preference data from a marketing research study, will often make startlingly different recommendations. Further exposure will help develop the necessary skills.

The third stage of the MOA process, the concept test of the two recommended systems (grid versus loops), also provided unexpected results. Stages 1 and 2 of the MOA process sought to find groups (and their preference attributes) for some form of public transportation service. It was anticipated that transit planners could use this information to design new, innovative, and nontraditional transit services to be concept tested. Instead, planners recommended only variations of existing traditional fixed-route, fixed-schedule transit services. Given present levels of transit ridership, it was plausible to assume that variations of the existing service would not possess great potential. Thus, one has to conclude that in this test, planners were unable to use the marketing research data to design a public transit system competitive with the private automobile. Both systems tested failed to achieve a satisfactory level of acceptability to warrant further consideration unless much greater deficit per rider were to be accepted. Given that the geographic area tested contained the highest concentration transportation "leaners," it could be stated that there presently is no new potential market for expanded traditional public transit services. However, it is quite premature to suggest there is no market for all public transportation services because one concept test did not lead to success. In many consumer markets it is rare that only a single product concept test is used; several are often employed before management feels a new offering may be worth producing. In addition, the urban environment is constantly changing, and so may the market for traditional public transportation. At present, however, as evidenced by the data gained in the segmentation study, it was determined that although transportation "leaners" were willing to try some form of public transportation, they were quite satisfied with their present mode.

A final finding concerns the cost of acquiring such marketing research data. The entire MOA process conducted in Jacksonville, Fla., utilized approximately $100,000. If the entire process were replicated in another test city, the cost could be expected to decrease appreciably. Given the research methodology, costs could be 50 to 60 percent of the initial effort. This cost must be balanced against the information benefits received. That is, can management make better decisions based on this information and is the information worth the cost?

In the case of Jacksonville, benefits from the segmentation study indicated on a geographical basis where potential areas for expanded services existed and where there was little or no potential for expanded services. This provided management with consumer information data that could be used to counteract individual citizen group insistence on new or expanded services. Thus, the segmentation data can be an instrument that allows rationale for the known deliveries of existing services as well as information on where to provide additional services.

The second study (i.e., the attributes study) allows the transportation planners to analyze attributes of existing systems and attributes that new systems should have. The most notable one in the Jacksonville area was the clear preference for minibuses as opposed to the standard size vehicle. Such information can be invaluable in new equipment selection.

Finally, the third study of the MOA process, the concept test procedure, as used in this example, enables transportation planners avoid the introduction of costly new services that have little or no chance of success. In other applications,

the concept test can provide valuable information for those services which are marginal or which are about to be offered based on the results of the concept test. Such services either can be tested further or can be introduced into a test market area with a much higher probability of successful adoption.

Overall, the question of market research data cost is one that has been faced by many individuals. Initially, the cost of gathering such data appears high because techniques, questionnaires, and other procedures have not been tested fully. Over time, inefficiencies are discarded, and costs are reduced. The introduction of market research practices to the newspaper industry is a case in point. In-depth marketing research information on readers' habits, interests in types of stories, and so forth, once was considered to be too expensive to gather. Now almost all major newspapers use sophisticated marketing research techniques on a day-to-day basis to direct the complete contents of their newspapers. It would not be surprising if that same phenomenon were to take place in the public transportation planning process. Only time and further experimentation will determine whether the benefits from such consumer information outweigh the cost of its collection.

CHAPTER ONE

INTRODUCTION AND RESEARCH APPROACH

BACKGROUND

Provision of public transportation services within the United States has become an increasingly complex and complicated problem for transportation officials. Within the past several years, the expectations and the demands placed on transportation officials for the delivery of public transportation services have increased dramatically. The broadened role that transportation is expected to play in reducing energy requirements, congestion, and pollution with urban areas has burdened traditional transportation planning even further. A dramatic shift has occurred in the focus, emphasis, and scope of activities for state transportation officials.

Single purpose funding for highways at both the state and federal levels with the interstate trust fund was, in retrospect, relatively straightforward with respect to purpose, goals, and objectives. There was clearly a facilities orientation for a homogeneous public which desired, encouraged, and financially supported the extensive highway system that was built within this country. The need for transportation was and, in a sense, could be considered ubiquitous—all people desired the single attribute of a paved highway for their travel purposes. Other system attributes, such as type of vehicle, speed, level of comfort, and other amenities, could all be provided at the option or desire of the individual.

With the expanded role of transportation today, decision-makers are vested with the responsibility not only of building and maintaining the vast highway network, but additionally of providing public transportation services. The provision of public transportation services is one distinctly different from providing a national highway network. The need for public transportation is not ubiquitous. Different people, accustomed to the varying levels of service and system attributes of the personal automobile, desire various levels of service and alternatives to the public transportation system. Thus, the job of providing the single system that attempts to meet all these varying needs is exceedingly difficult. Clearly, the facilities orientation growing out of the highway area is less than adequate to meet the heterogeneous demands of public transportation. It should be stressed at this point that there is a societal need for public transportation as well as an individual need. In order to conserve energy, to reduce pollution, and to reduce congestion in urban areas, the total transportation system must be used more effectively and efficiently.

State and local public transportation officials now face the major problem of adequate identification of different market groups which both need and desire public transportation. American business has gone from an era of production or product orientation to an era of consumer or satisfaction of demand emphasis; transportation must take the same step if the goals and objectives set forth are to be accomplished. State and local public transportation officials must rethink the attitude that all that is necessary is to provide the product and somehow it will be used. Careful consideration must be given to the services, needs, and system attributes necessary to attract individuals to use more efficient, effective transportation systems. This consideration also must extend to ways of providing the desired systems effectively and efficiently.

It is well documented that little market analysis and research is used in the provision of public transportation services. Thus, transportation decision-makers have little concrete information on which to base service decisions and alternatives with respect to probable utilization by various heterogeneous groups in the urban marketplace.

Unfortunately, a major constraint is the lack of accurate cost data for providing that level of service needed to attract potential users to more effective, efficient transportation systems. Additionally, the challenge of a public transportation service level continues beyond the initial decision of a service alternative. Also needed are day-to-day management strategies and procedures for effectively changing a service alternative either through deletion, improvement, or extension as consumer desires shift and change. This decision framework is one in which the transportation decision-maker has little experience or empirical data. Unlike fire and police protection, which are community services that have been established for many years, there is not much general consensus of what is an "adequate level of service" for public transit.

State and local transportation officials need considerably more information concerning the desire of local urban area populations for the extent, types, and service alternatives for their public transportation systems. In addition, these decision-makers need better marketing research data and knowledge of how such data can be used in making local transportation decisions. Finally, accurate cost data and information must be made available to them so that efficient, effective public transportation alternatives can be selected.

RESEARCH OBJECTIVES AND APPROACH

The initial objective of this research work was to determine the state of the art of marketing research and assess the utilization of marketing techniques and public transportation decision-making by local officials. The research also sought to ascertain the degree of cohesiveness among similar communities in utilizing marketing research and techniques in working public transportation decisions. The goal of this research was to identify one community for further testing of market research techniques and their application to public transportation decision-making. These objectives were to be carried out through a series of field visits whereby local information procedures and cost data on how to accomplish the goals and objectives set forth for public transportation within that community were gathered from the five following groups:

1. Public transportation providers.
2. Private transportation providers.
3. Social service agencies.
4. Elected public officials dealing with public transportation.
5. Local planning officials vested with the responsibility of planning public transportation.

From these field visists and resulting case studies, the research team developed a theoretical model of how short-range public transportation decisions could be made that would provide for the accomplishment of local goals and objectives of public transportation, incorporate appropriate marketing research data, and select the most appropriate, cost-effective system alternative.

Figure 1 shows a basic descriptive model of the market-oriented short-range public transportation planning process recommended by the research team. This model illustrates the flow of activities necessary to ensure that market segments, mobility needs, and services desired are considered in the identification, evaluation, and design of public transportation service alternatives. The model is organized into two basic areas—those decisions which would be considered to be policy decisions and those decisions which would be considered to be planning decisions. Policy decisions are those decisions which ensure involvement of local elected and appointed officials throughout the planning process. Planning decisions are the technical activities that must take place in order to develop public transportation improvement recommendations that will meet the needs of identifying market segments and will be financially and technically feasible to implement. The planning decisions have been categorized according to the professional discipline involved (i.e., marketing research, public transportation service design, and transportation engineering data base).

POLICY ACTIVITIES

A close relationship must be maintained with local elected and appointed officials for the development of a short-range public transportation plan. Political support for recommendations is necessary if the recommendations are to be implemented within the 1- to 5-year time period of the plan. Policy activities are those activities that ensure involvement of local elected officials, appointed transportation officials, and influential citizens of the community throughout the planning process. Four policy activities are shown in Figure 1.

As with any planning model, identification of local transportation goals and objectives is necessary in order to provide general guidance for all of the planning activities. Local goals and objectives are particularly important, however, in the market-oriented planning model. First, local goals and objectives help in the second policy activity (identification of the demographic or geographic area to be studied). Second, local goals and objectives can help expedite the evaluation of alternative transportation services by local decision-makers.

Local goals and objectives should help preselect the population groups to be studied. Market research activities may involve door-to-door interviews that can be prohibitively expensive and time consuming for use in short-range planning. This cost can be reduced significantly by reducing the size of the population to be sampled. The local goals and objectives should be specific enough to identify those population groups in the urban area which should receive priority in the development of transportation services. In one urban area, high income commuters from certain suburbs might be identified as a priority population group to receive improved transportation service because of local emphasis on air pollution abatement and energy conservation. Also, low-income and high unemployment neighborhoods might be a priority because of serious problems residents have reaching places of employment. By identifying a population group to receive first priority, the market research process can be less expensive and can require less time. As the market-oriented planning process is repeated over time, many population groups within an urban area eventually will be surveyed, and a data base will be established that can be easily updated.

Local goals and objectives are necessary for evaluation of

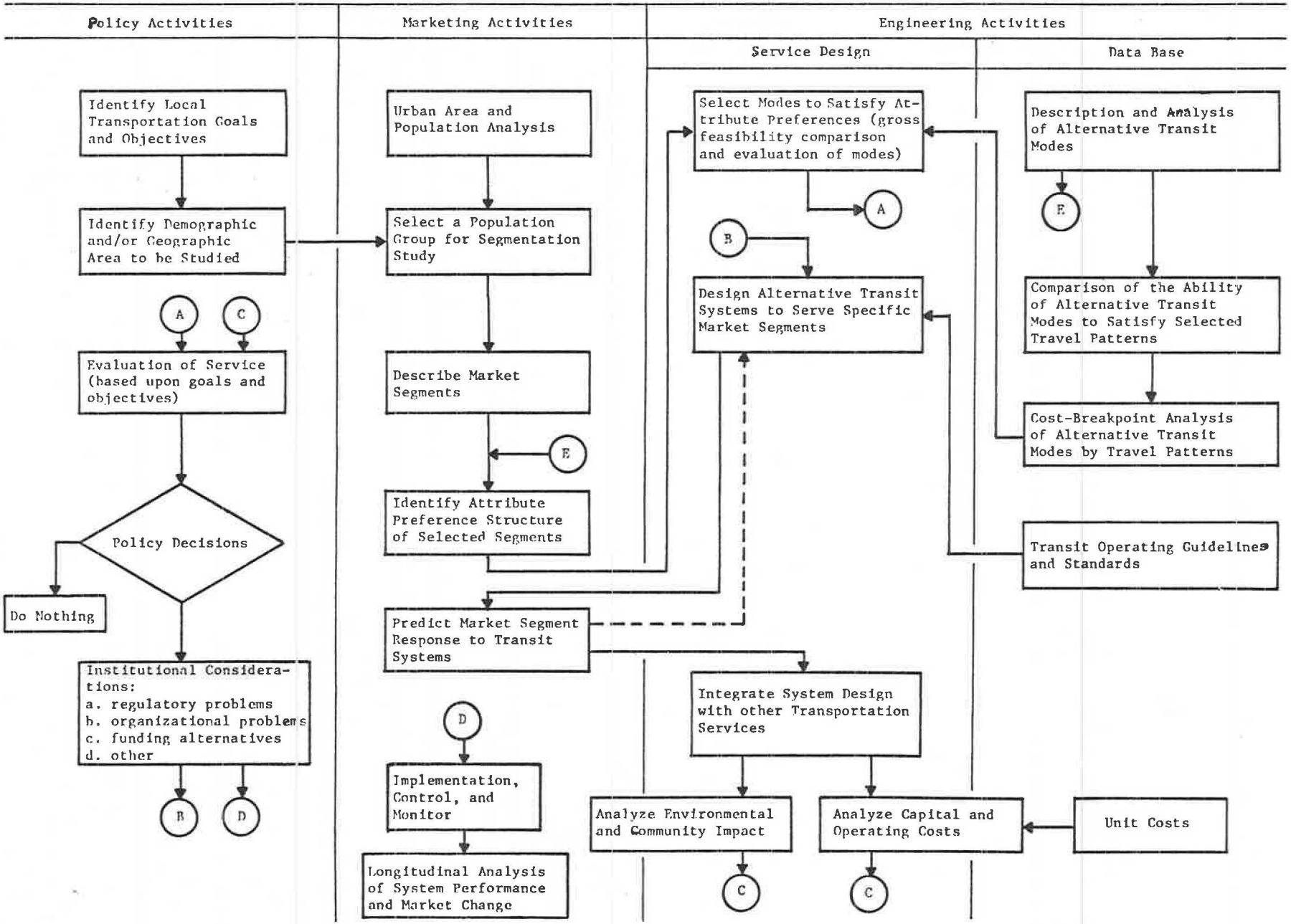


Figure 1. NCHRP Project 8-16 model—a market opportunity analysis to short-range public transportation planning.

alternative transportation services. With short-range improvements it is necessary for local decision-makers to approve, disapprove, or recommend changes to a planned improvement in a relatively short period of time. There is no time for opinions to be formed after years of public forums and debate. Serious involvement by local decision-makers in the development of specific goals and objectives (with ample opportunity for public involvement) will help to reduce the time necessary for approval of recommended short-range projects. General goals and objectives developed to minimize local debate and to avoid serious involvement of local decision-makers will not shorten the time period necessary to approve projects. The same "hot" issues that would have taken time to resolve during the goals and objectives process then will take time during the alternatives evaluation stage.

Policy activities also include evaluation of proposed public transportation services based on institutional considerations (i.e., regulatory problems, organizational problems, and funding alternatives). All transportation alternatives may potentially have institutional issues that need to be addressed. These issues should be made explicit early in the design process and should be assessed continually throughout the process. Political support is necessary to deal with these issues. Frequently, legislative action is required before an alternative may be implemented.

MARKET ANALYSIS ACTIVITIES

Market analysis activities are those activities which identify public transportation market segments and their service attribute requirements for input into service design. Estimation of market alternative service designs (necessary in the evaluation of alternatives) is also one of the market research activities. The six market research activities are shown in Figure 2.

The geographic and demographic characteristics must be determined before a population group can be selected for a segmentation study. For example, if high income commuters are identified in the goals and objectives phase as a priority population group to receive improved public transportation service, it is necessary to be able to identify residential concentrations of individuals in this population group.

Local goals and objectives identifying population groups to be given priority in the development of transportation services are used in conjunction with the urban area and population analysis to focus the segmentation study on subgroups of the urban area's population. By focusing the segmentation study on only a few population groups, the market research process can be less expensive and can require less time.

Properly identified, a market segment is composed of those people within the urban area who are both able and willing in a designated future time period to decide to use a specific type of public transportation service. Description of market segments therefore involves determining those characteristics which affect both the ability and the willingness of individuals within the selected population groups to use public transportation services. These characteristics must then be used to identify and to describe different segments within the selected population groups according to the specific type of public transportation services they would be able and willing to use.

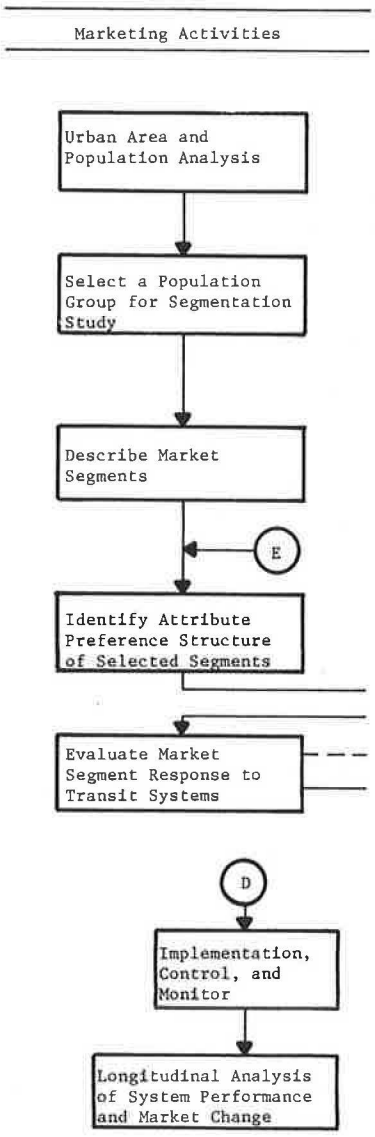


Figure 2. Relationship of activities to project model.

Identifying the attribute preference structure of selected segments involves identifying the service design attributes of the public transportation services that the different population segments are able and willing to use. A description of alternative public transportation modes and their respective attributes from the transportation engineering data base activity is needed as an input into this activity in order to assure that the desired attributes can be provided by alternative modes. For example, many attribute studies have shown "convenience" to be important to potential consumers. Unfortunately, "convenience" has not been defined and is left to individual interpretation. Convenience could mean door-to-door pickup, instantaneous availability, driver assistance with packages, or routing along desired shopping corridors. These attributes can be provided by alternative transportation modes, but they cannot all be provided by the same alternative transportation mode or service design. There is no use in determining the importance of convenience to a potential consumer if that term is not identified specifically enough to be useful in designing the service.

Once the market segments and their attribute preferences have been identified, certain public transportation service

design activities and policy activities concerning evaluation must take place before the marketing activities are continued. The transportation service design activities include selection and design of alternative public transportation services to meet the attribute preferences of the market segments. The policy activities include evaluation of design alternatives based on local goals and objectives. Once the alternative designs have been completed and approved, the marketing study evaluation of actual market use of the designed service would be undertaken. Included is an assessment estimate of whether there is sufficient demand to justify implementing the service alternative. Using break-even kinds of analyses, the assessment must consider the degree to which the designed service meets the attribute requirements of the market segment, the number of people within the market segment, and the percentage response expected within the designated time period.

After implementation of a service, longitudinal analysis of system performance provides the information necessary to "fine tune" the match between the service and consumer needs. This analysis includes measurement of the degree to which the service meets the market segment's attribute requirements and monitoring of market segment changes.

PUBLIC TRANSPORTATION SERVICE DESIGN ACTIVITIES

Public transportation service design activities shown in Figure 1 are those activities necessary to identify and evaluate public transportation alternatives with regard to market segment needs, desires, financial constraints, and technical constraints. Many of these activities were included in the traditional planning process, but their emphasis is different in the market-oriented planning process. In the latter process, selection of modal alternatives is based on the identified market segment attribute requirements, not on the engineering data base.

Selection of modes to satisfy the attribute preferences of market segments involves matching information concerning the attribute preferences of the segments determined from market research with the known attributes of alternative modes. The attributes of modes are discussed in Chapter Five. This information is available, but not in a comprehensive source which measures the same attributes for all modes for comparison purposes.

Once several alternative transportation modes have been identified as providing many of the service attributes desired by the market segment, there needs to be a "first-cut" analysis of the alternatives to determine if it is reasonably feasible to implement the alternatives in the specific local area. For example, a high-speed, modern, elevated rail service may provide the attributes desired by the selected market segment. However, if the urban area is relatively small in population and characterized by low densities, this service would not be financially feasible. Sketch planning guidelines from the engineering transportation data base are used as input into this activity.

The first two steps within the public transportation service design activity involve the selection of technically and financially feasible modes that satisfy the attribute preferences of the identified market segments. If the selected alternative modes also meet the approval of the local decision-makers, particularly with regard to local goals, objectives, and institutional considerations, alternative service designs are developed for the alternative modes. Service design is a broad term indicating many activities that vary in type and detail, depending on the modes selected. The development of new routes and schedules is an important design activity for traditional public transportation services. Development of a package of incentives to encourage private services is a necessary design activity for privately supplied alternatives. Various operational guidelines would need to be developed with regard to all services as a design activity, including decisions concerning the boundaries of the service area, general policies concerning the proper treatment of passengers by driver, and minimum time allowed for boarding of passengers. In the service design, the attributes specified by the market segment and the technical guidelines would be used to determine operational policies.

Following evaluation of the market segment's demand response to the selected transportation service designs (a market research activity), the feasibility of the transportation designs would need to be determined. This feasibility analysis would be based primarily on an analysis of the financial cost of providing the service, expected revenues, and the mobility benefits that the service would provide. Other costs and benefits, such as reduced traffic congestion, energy consumption, and air pollution, would be analyzed based on local goals and objectives. This technical information would then be used by the local decision-makers in their evaluation of the proposed services.

Integration of the proposed transportation service design with other transportation services already being provided in the local area would include recommendations for organizational control of the service; recommendations for institutional changes; recommendations for sharing equipment, physical facilities, and/or labor; and, where appropriate, the actual run cutting necessary to develop schedules or other technical integration activities.

Environmental and community impact analysis would include preparation of an environmental impact statement, where required. The environmental and community concerns focused on in the analysis would be those identified as important in the local goals and objectives. The analysis would be used by the local decision-makers in making the final decision on implementation.

Before implementation, a complete estimate of the costs involved in providing the new service needs to be developed. This information should highlight all additional costs to be incurred, even if not directly used by the service. For example, addition of new peak-hour-only service to the existing fixed-route system, under union rules, may require hiring new full-time drivers that may only work 2 or 3 hours each day. The total increase in cost, including the cost of full-time drivers, is needed by decision-makers in making the final decision to implement.

TRANSPORTATION ENGINEERING DATA BASE

The transportation engineering data base shown in Figure 1 consists of the information necessary to perform the public transportation service design activities. With the exception of the description of alternative public transportation modes and the attributes they possess, all of the information listed

is generally available to most planning agencies and public transportation organizations. Continual improvement, refinement, and updating of the data base are, of course, necessary.

Public transportation modes have not been traditionally defined and analyzed in a manner that makes them readily usable in the selection and design of services based on market research. A general categorization of public transportation modes according to the attributes they possess and do not possess is not available.

CHAPTER TWO

THE MARKETING MANAGEMENT PROCESS

A MARKETING APPROACH TO PLANNING

An application of market opportunity analysis (MOA) to public transportation planning, such as the one described in this report, must be reviewed and evaluated within the context of a total marketing management process. Analyzing market opportunity is not an end in itself; rather, it provides an essential information base for the kinds of organizational planning where a major objective is to influence demand within markets.

Contemporary marketing is founded on the idea that any organization's mission and objectives can be achieved best by providing product or service offerings that are wanted by potential customers. This is in direct contrast to a managerial approach that focuses on selling products or services most conveniently or efficiently produced by the organization. For example, management of a transit service that decides it wants to sell a bus service, puts buses on the street, and then uses promotion to try to get people to ride the buses is not applying a total marketing approach. On the other hand, if the same management identifies groups of citizens needing transportation, describes and assesses their requirements, and then uses this knowledge to tailor one or more services to satisfy these requirements for travel, a true marketing management process is implemented.

The essence of marketing is to begin by building an understanding of the nature and extent of demand in markets, and then to use this knowledge to design and offer a total product or service offering that will satisfy demand in those markets selected as targets. In this way, marketing involves considerably more managerial responsibility than just using advertising and other forms of promotion to sell products or services that an organization wants to produce.

Figure 3 shows the major activities comprising a marketing management process and, in particular, positions MOA in this process. Note first that marketing is conducted within a framework provided by an organization's mission and objectives. This guides MOA and marketing decision-making toward those opportunities that an organization, with a unique combination of skills and resources, is most capable of serving.

The marketing task begins by finding and assessing markets comprised of people having potential demand for some product or service offering that the organization is capable of providing. Having demand means that these people are able to purchase the product or service and want to buy and use it. Identifying those who are able to buy is not too difficult. Determining which people with ability to buy who also will want to buy is the real challenge for MOA. What people want to do is influenced by many factors that are not always easy to uncover, including needs related to using a product or service, past experiences, opinions toward alternative ways of satisfying needs, approaches used to choose between these alternatives, preferences for product or service characteristics, and so forth. Consequently, analyzing markets for demand opportunity often requires considerable knowledge of the kinds of people in markets.

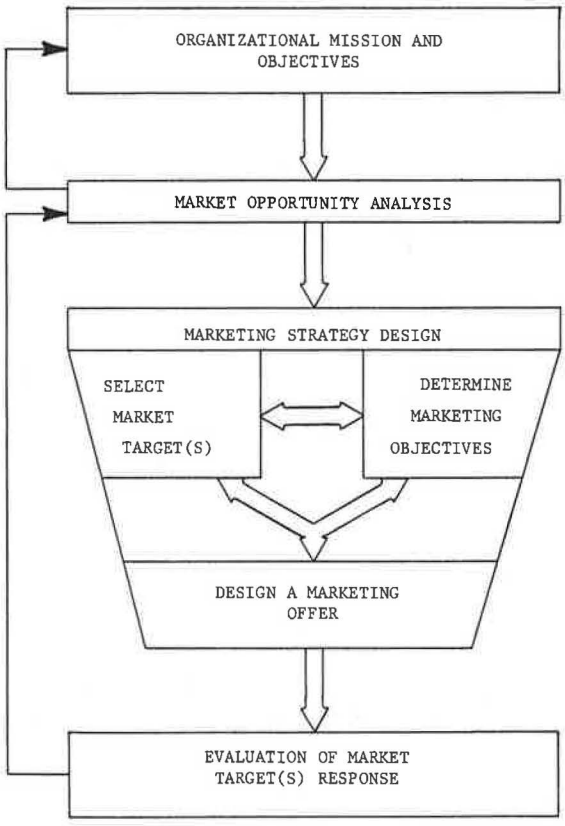


Figure 3. The marketing management process.

The benefit from an MOA lies in the information base it provides for key marketing decisions. These decisions—selecting market targets, determining marketing objectives, and designing a marketing offer—combine to determine the marketing strategy that an organization will use to meet the requirements of market targets. To a great extent, the closeness to which managers can tailor a marketing strategy to the needs and requirements of selected market targets depends on the quality of the MOA. Of course, managers must use the MOA information creatively to determine which marketing strategy alternatives are most likely to generate the required positive market response.

Finally, Figure 3 shows that following up on the design of a marketing strategy to evaluate resulting market target response is an important part of the marketing management process. Market target response information becomes an important input into the periodic reanalysis of market opportunity that takes place to identify when changes are needed in marketing strategy. This highlights the fact that marketing is an ongoing management process where market opportunity information is used to develop and maintain a close match between the organization's marketing offer and market target needs and requirements.

APPROACHES TO MARKET OPPORTUNITY ANALYSIS

The marketing management process described clearly sets out the purpose of an MOA. In essence, an MOA is required to bring the potential buyer's/user's point of view (i.e., needs, preferences, choice processes, uses, etc.) into management's planning process. In a public transportation context, its purpose is to provide the necessary market information to permit and encourage public transportation planners to match a system's design characteristics more closely with the user requirements of a preselected target group of citizens in a community. Applying this approach is particularly important in contemporary times because the private automobile is continuing to provide overwhelmingly powerful competition for intracity travel, especially in medium-sized and smaller cities.

Within the broad framework of the marketing management process, an organization will experience many different situations requiring marketing strategy planning. For example, a transit company may want to plan a more effective strategy to appeal to current riders, to expand the existing service into markets not currently using the service, to develop new services for current riders, and/or to develop new services in order to expand into new markets. Each of these situations requires somewhat different information describing different groups of people in a community.

Consistent with differing marketing management tasks, the MOA should not be viewed as a single kind of study that fits all planning needs. Rather, MOA is merely a label for a variety of different types of studies, each one yielding different kinds of information. The common bond tying these studies together is that all involve collecting, analyzing, and applying information about potential markets for some product or service, in this case public transportation services.

Viewing MOA as a category of studies means that managers involved in making marketing strategy decisions must choose the most appropriate kind of MOA for the public transportation planning decisions of interest. It is not possible simply to design an MOA with little knowledge of the particular planning decisions to be made. Rather, MOAs must be tailored to fit the decisions/planning at hand. For example, a different MOA would be needed to evaluate the effectiveness of an existing bus service from that needed to find opportunities to design and implement new public transportation services. The MOA for the existing bus service probably would make use of market response information (e.g., on-board ridership surveys) from current users, particularly if the purpose of the information is to improve the bus service for those already using the service. On the other hand, locating new markets will not have the benefit of market response information because there is no current use to analyze. The design of a particular MOA must match the marketing decisions faced by the planner. The planner serves as an important input into the design and analysis stage of any MOA to ensure that the information gathered is useful and well understood in light of decisions to be made.

To determine the most appropriate kind of MOA needed for this project, it was necessary to identify the public transportation decisions for which the MOA should prepare planners. Although a general MOA was outlined in the project proposal, a much more specific public transportation planning task had to be formulated before the kind of MOA needed could be determined. Operationally, the design of the MOA was guided by information gathered by visits to, and interviews with, public transportation organizations in many cities. The visits provided greater understanding of the kinds of problems faced by public transportation planners. From this base of information, different decision tasks were identified for which MOA would be helpful. These tasks ranged from controlling existing systems in existing markets, to expanding the use of existing systems in existing markets, to expanding existing systems into new markets, to designing new systems for existing markets, to designing new systems for new markets.

After considerable deliberation, the project team decided to design and demonstrate an MOA that would be suited to help public transportation planners evaluate the opportunity to develop modified or new systems for new markets (see Fig. 4). The intention was to use MOA to see if one or more citizen groups within a community could be identified as a potentially attractive market for a modified or new public transportation service. The new markets would be comprised of people who are now using their automobiles for all or at least a majority of their travel within the test city—Jacksonville, Fla. It was felt that these "noncaptives" represented the greatest potential for substantially expanding the

	Existing Markets	New Markets
Existing Systems		
Modified Systems		X
New Systems		X

Figure 4. Focus for the market opportunity analysis design.

use of public transportation modes (where public transportation broadly refers to any multiple ridership mode) in medium-sized and smaller cities.

Market analysis for the modified or new service/new market decision is clearly the most difficult to design and implement. Finding new opportunities is itself a difficult and often "trial-and-error" kind of activity, because one is searching for opportunities about which little is known at the outset of the project. As such, it requires an elaborate MOA that must be conducted in sequential stages in order to "narrow-in" on opportunities that exist. This was the approach taken here. The project focused on the population of noncaptive travelers in the Jacksonville area and designed a three-stage demonstration MOA to search for market opportunities for a new public transportation service.

MARKET OPPORTUNITY ANALYSIS

There are at least two alternative approaches to MOA for finding new markets for modified or new systems. Planners can use personal experience to select citizen groups in a community that are felt to have demand for new services. The MOA then would take this group and would analyze the nature and extent of market opportunity for serving that group. For example, on an ad hoc basis one might decide that handicapped people in the community are not being served adequately by any public transportation service. An MOA then could be tailored to assess whether there is a sufficiently attractive market opportunity among these people.

A second approach does not assume that a particular group can be identified purely from experience. Rather the tools of MOA are needed, in effect, to search through the whole population in order to uncover market groups that appear to have opportunity. The MOA then can be extended to assess the nature and extent of opportunity available. Because it cannot be assumed that planners in every city will have sufficient experience and knowledge of the population to pick likely groups, it is best to use the latter approach.

The entire MOA process in a search for new public transportation opportunities is shown in Figure 5. Briefly, the MOA began with an in-depth analysis of various secondary sources describing community characteristics relevant to use of transportation (e.g., census of population, community planning studies, route maps, etc.). The purpose here was to become more familiar with the community area and population which constrain or otherwise influence peoples' use of transportation modes.

An aggregate analysis provides an important information base for designing the search part of the MOA: a segmentation study. The goal for the segmentation research is to identify groups within the community that appear likely to represent an opportunity for transportation services tailored to their needs. The end result of the segmentation step in the process is to identify promising, potential market segments that can be matched with a general mode system type likely to be competitive with modes currently being used (mostly the automobile).

One or more segments that appear to have attractive opportunity can be subjected to further analysis to provide information concerning specific mode attribute preferences. This information is intended to aid transportation planners in designing a working, operational public transportation mode.

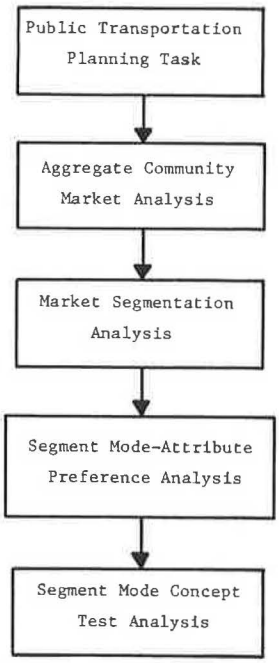


Figure 5. Public transportation market opportunity analysis.

Of course, designing a functional system requires more than MOA information, but the consumer segment preference information plays an important role. Planners need to understand how important various system attributes are to potential users and what tradeoffs these people would be willing to make when it is not possible to build in all attribute levels wanted. For this project, the single most likely segment was selected as sufficient for demonstrating subsequent analysis techniques.

The MOA process ended with an analysis of the consumer segment's likely response to the proposed public transportation system. In the Jacksonville MOA, an in-home concept test was used to demonstrate one alternative kind of methodology suited for this purpose. This technique exposes a sample of potential users from a predetermined target market segment to a pictorial and verbal description of the proposed system. Measures then are made of potential consumers' reaction to the proposed system. This information is used to aid in the go/no-go decision on whether to offer the service on a trial or full-scale basis.

In summary, the MOA process is designed to seek potential opportunities by beginning with broad population groups in a community and sequentially narrowing down to markets with potential opportunity. This is done by using aggregate urban area and segmentation analyses to identify candidate market/transportation mode opportunities, and then using attribute preference and concept test studies to help assess the likelihood of obtaining needed usage levels for a specific proposed system. In this way, MOA provides a systematic, step-by-step search for public transportation opportunities. The key to the whole process is the use of market demand information to guide public transportation planning decisions on new opportunities. This is in sharp contrast to the "trial and error" product-oriented process of starting with the introduction of new services and then noting whether usage is sufficiently high to warrant continuation of the service.

CHAPTER THREE

REVIEW OF SELECTED LITERATURE ON MARKET OPPORTUNITY ANALYSIS FOR PUBLIC TRANSPORTATION PLANNING

Figure 5 shows the stages of the MOA process designed for this study. These stages provide a way to organize the literature for the review. Before beginning a review by stages, however, a few observations on the overall body of literature are offered. No study was found which followed the process throughout. Rather, the majority of studies explored one or a few of the aspects of the process with the intent of better understanding potential market targets. Often what was referred to as segmentation analysis was actually an analysis of the mass market of users as compared to nonusers or of large population groups based on sex, age, or other sociodemographic information. Seldom was there an attempt to carry out the analysis to matching a modal transportation service concept to market targets. Often, when more than one stage of the process (Fig. 5) was included, the data were collected simultaneously in the same study rather than sequentially over multiple studies. For example, segmentation information, attribute preferences, and alternative modal concept preference information might be combined within a single study. This approach does not allow the findings of one kind of information (e.g., segmentation) to guide the design and analysis of subsequent kinds of information (e.g., attribute preferences or preferences for modal services).

In general, the literature to date can be characterized as contributing pieces to an overall MOA process. The point in state-of-the-art development where complete MOA processes routinely are reported ending with a matching of system services to target markets has not been reached.

MARKETING MANAGEMENT PROCESS

A number of articles and reports discuss the central ideas of marketing management as they apply to public transportation. Many of these studies (Alan M. Voorhees and Associates, Inc., 1973; Deslauriers, 1975; Kullman, 1976; Moran and Jones, 1975; *National Transit Marketing Conference Proceedings,* 1975; Smerk, 1971; Reed and Ingram, 1976; Reed, 1973; "Transit Marketing: Do's and Don'ts for a Successful Program," 1975; Vanier and Wotruba, 1977; Wachs, 1976; Winslow and Pfeffer, 1972) discuss the importance of selecting markets and designing marketing mix components for public transportation systems that meet the needs of these targets. These articles argue that public transportation faces an intensively competitive market situation not unlike that faced by commercial firms. Thus, planners have the same need to tailor public transportation services carefully to match market target requirements. Other works (Gensch and Golob, 1975; Grant, 1970; Johnson, 1974; Lovelock, 1976; *Modal Split-Documentation of Nine Methods for Estimating Transit Usage,* 1970; Shocker, undated; Shocker and Srinivasan, 1976; Tauber, 1975 and 1977; *Urban Origin-Destination Surveys,* undated; Wind, 1973) are useful to the market researcher in showing how to obtain information about markets to implement a time marketing management process. Underlying the methodologies are various theoretical models (Horton, 1972; Roeseler, 1974; Sheth, 1976; Stopher and Meybury, 1975) that attempt to explain the decision processes of the transportation consumer. These articles are important because they provide systematic frameworks for properly understanding the behavior of potential customers in markets.

The objective of on-board studies of transit riders (Bates, 1974; Knoxville/Knox County Metropolitan Planning Commission, 1973; *Transit On Board Survey—Phoenix Transit System,* 1976) is to evaluate the current system (transit) with current users. This type of study is common to the literature and probably represents the majority of all MOA for public transportation planning.

Increasingly, however, transit operators are interested in expanding the current transit (bus or rail) system into existing and new markets by instituting service improvements. Many of these studies (Aerni and Surti, 1976; Alpert and Davies, 1975; Beier, 1972; Blankenship, 1976; Byrd, 1976; Foerster et al. 1977; Hind and Anderson, 1976; Lovelock, 1973; Market Facts, Inc., undated and 1975; Recker and Golob, 1976; Schwartz, 1977; Vanier and Wotruba, 1977; Wotruba, 1975; Young et al. 1975) tried to identify and describe target groups comprised of infrequent users and/or nonusers of transit, usually those consumers with access to an automobile. These consumer group descriptions were intended to help planners evaluate the opportunity to expand existing services into these groups.

A minority of studies explored new sysems for new market groups. General Motors Research Laboratories investigated the attitudes of potential consumers toward a demand-responsive jitney system (Gustafson et al. 1971) and an automated system (Dobson and Kehoe, 1974; Golob et al. 1973). Dobson and Tischer (1976) explored potential use of carpooling by Los Angeles commuters. Fielding et al. (1976) obtained the reaction of Orange County, Calif., consumers toward a demand-responsive transportation system. Typically, the research attempted to evaluate market response to a preselected type of service, rather than starting with an analysis of potential markets in order to match the service to markets.

AGGREGATE COMMUNITY MARKET ANALYSIS

In each of the research studies reviewed, indications are that an understanding of community characteristics was obtained through a formal or informal analysis of the aggregate community market as a prelude to the design of the research study. Documentation of the effort often is not available in the study report but would be a prerequisite need, especially

in cases where population groups are preselected for study. Several studies (Costantino, 1975; Dajani and Sullivan, 1976; Guest and Cluett, 1976) use census data as a way of understanding the importance of metropolitan structure and social and economic variables to modal choice. So, the aggregate kind of community analysis is well known to public transportation planners.

MARKET SEGMENTATION ANALYSIS

In only about 30 percent of the research studies reviewed were groups formed that were found to be statistically different in their responses toward marketing mix alternatives. In the three studies reported in the following, ad hoc groups were formed based on differences observed in the preference or importance placed by respondents on attributes of performance. Documentation (Costantino et al., 1974; Dobson, 1973; Dobson and Kehoe, 1974; Golob et al., 1973) was found in the literature of a General Motors Research Laboratories study of the demand for Metro Guideway, an automatic urban transportation concept. The large-scale data collection effort included pretests, mail panel surveys, and home-interview and leave-behind questionnaires. Seven groups with homogeneous perceptions of attribute preferences were identified. In the other studies, homogeneous market segments were formed on the basis of attribute preference (Koutsopoulos and Meyer, 1976) and attribute importance (Foerster et al., 1977).

Homogeneous segments based on travel choice constraints (e.g., availability of bus, auto; waiting/walking time) were formed by Nicolaidis et al. (1976) and Recker and Golob (1976). These constraints were used as predictors of modal choice. Based on modal use, frequency of use and previewed availability, Dobson and Tischer (1976) identified segments with different perceptions of modal attributes. In a study by Market Facts (1975) segments were formed based on attitudes toward modal use. Segments were formed to differ in terms of attributes, interests, and opinions (AIO); demographics; and travel behavior.

In general, the concept of market segmentation is established in the literature. In many cases, segmentation is used to refer to any approach which groups people in a community. Most do not test the groups against segmentation criteria. However, more rigorously developed studies are available. Missing are attempts to follow up on grouping/segmentation studies with a matching service offering including tests of those offerings for customer reactions.

SEGMENT/POPULATION GROUP MODAL ATTRIBUTE PREFERENCE

In each of the foregoing segmentation studies, information about specific modal attribute preferences was obtained during a single data collection effort. In all other research studies reviewed, information about attribute preferences was obtained from population groups selected prior to analysis (Alpert and Davis, 1975; Beier, 1972; Brown, 1974; Fielding et al., 1976; Gustafson et al., 1971; Golob et al., 1972; Hind and Anderson, 1976; Market Facts, Inc., undated; Schwartz, 1977; Stopher et al., 1974). Many of the researchers claimed that groups identified were segments, although it is not known whether the groups met the criteria established for market segmentation analysis. In a section on the selection of segmentation bases, there is a discussion of these studies as well as those which met segmentation criteria.

The majority of the researchers used a bipolar, important-to-unimportant scaling technique to measure attribute importance (Dobson and Tischer, 1976; Fielding et al., 1976; Foerster et al., 1977; Golob et al., 1973; Koutsopoulos and Meyer, 1976; Market Facts, Inc., 1975; Nicolaidis et al., 1976; Recker and Golob, 1976; Schwartz, 1977). The bipolar scale was used to measure attribute satisfaction in the home-interview survey portion of the Metro Guideway Study (Costantino et al., 1974; Dobson, 1973; Dobson and Kehoe, 1974). In the General Motors Research Laboratories study of a demand-responsive jitney system, the importance measure was used in conjunction with a paired comparison technique to determine the tradeoffs of attributes which respondents are willing to make (Golob et al., 1972; Gustafson et al., 1971). Stopher et al. (1974) used paired comparisons to determine tradeoffs between the importance of convenience attributes. In the study by Koutsopoulos and Meyer (1976), tradeoffs between attributes were determined by varying levels of fare, service frequency, and bus stop distance in describing 54 bus systems. Satisfaction with each system then was evaluated by another bipolar type scale. Other researchers (Alpert and Davies, 1975; Beier, 1972; Hind and Anderson, 1976) used a Likert scale to measure attribute importance.

The literature has addressed important issues concerning what people look for in transportation services. Researchers have recognized the value of having potential riders provide opinions on the different characteristics of systems that are important to them. Some attention also has been given to learning how people will trade off one characteristic against another, but this remains an important area of research that needs more work, particularly on techniques for getting this kind of information from consumers.

SEGMENT MODAL CONCEPT TEST ANALYSIS

Only two studies were reviewed that tested public transportation modal concepts. The first was an integral part of the Metro Guideway Study performed by General Motors Research Laboratories (Costantino et al., 1974; Dobson, 1973). Data were collected in the same study for segmentation, segment modal attribute, and segment modal concept test analyses. Respondents to a home-interview survey evaluated their satisfaction with each of these automated modal concepts according to 12 attributes. The three concepts were dual-mode transit, people mover, and personal rapid transit. Respondents received an explanation of the design and operation of each mode through the use of sketches and scenarios.

In a study by Koutsopoulos and Meyer (1976), undergraduate respondents evaluated a series of hypothetical bus systems by means of a rating scale. A total of 54 descriptions were reviewed in which the levels of fare, service frequency, and bus stop distance were varied. As with the General Motors study, segmentation and attribute analyses were carried out in conjunction with the modal concept tests.

TEST MARKET/FORECASTING DEMAND

No test market applications of modal concepts were found in the literature. However, numerous studies developed

models for predicting the demand for alternative modes and future trip generation (Costantino, 1975; Dajani and Sullivan, 1976; Hartgen and Keck, 1976; Keck and Liou, 1976; Knighton, 1976; Martin et al., 1961; *Modal Split: Documentation of Nine Methods for Estimating Transit Usage,* 1970; Oi and Shuldiner, 1962).

SELECTION OF SEGMENTATION BASES

Travel (Purchase/Use) Behavior

In the majority of studies reviewed, an attempt was made to segment the market of transportation consumers on the basis of hypothesized differences in usage of alternate transportation modes. Typically, in such studies (Beier, 1972; Blankenship, 1976; Byrd, 1976; Knoxville/Knox County Metropolitan Planning Commission, 1973; Lovelock, 1973; *Transit On Board Survey—Phoenix Transit System,* 1976; Vanier and Wotruba, 1977; Wotruba, 1975) profiles of the sociodemographic characteristics, attitudes, and travel behavior of mass market groups such as transit users and/or nonusers are developed. On-board surveys of customers were used to evaluate current systems with current users. Transit decision-makers are frequently interested in comparing the perceptions of user/nonuser groups because of an interest in expanding the current system into new markets. However, the potential user market is so diverse with respect to attribute preference that in actuality a mass marketing approach is being undertaken.

In other studies (Dobson and Tischer, 1976; Hind and Anderson, 1976; Market Facts, Inc., 1975 and undated; Recker and Golob, 1976; Schwartz, 1977) attempts were made to form user/nonuser groups into segments with more homogeneous responses toward modal attributes, although the success of such efforts was limited. In a study by Recker and Golob (1976), five market groups were identified based on accessibility to transit (i.e., mobile, inappropriate bus routing, poor bus accessibility, carless, and busless). Through factor analysis, dimensions of attribute perception for each of the four market segments were isolated.

Dobson and Tischer (1976) initially classified 699 Los Angeles commuters into three segments: bus, carpool, and single occupant auto travelers. On the basis of second segmentation criteria consisting of a combination of frequency of use and perceived availability, bus and carpool segments were each further subdivided into four groups according to whether the respondent was a frequent user; occasional user; perceived opportunity to use, but did not use; or did not perceive opportunity to use and do not use. Over the three modes, 63 percent of the commuters were classified correctly according to their usual commute mode as a function of their beliefs about the attributes of transportation modes.

Schwartz (1977) selected a sample of 159 middle class, suburban women shoppers for study. Respondents were classified according to predetermined criteria based on bus use for shopping and other trips. Segments thus were identified consisting of adopters, occasional users, triers, rejecters, discontinuers, and nontriers. Adopters were found to be more pro-bus than nontriers. Additionally, differences in perceptions of attributes were found between users (adopters, occasional users, and triers) and nontriers for 92 percent of the attributes studied. The five segments were not tested separately for homogeneity of attitudes and perceptions.

Socioeconomic Characteristics

Almost as popular as travel behavior segmentation (purchase/use behavior) is segmentation based on sociodemographic characteristics of the consumer. Such population groupings are of particular interest to the political policymakers. For example, a community goal may be to increase the mobility of particular citizen groups such as the elderly and handicapped. In studies (Ashford and Holloway, 1972; Brown, 1974; Dajani and Sullivan, 1976; Fielding et al., 1976; Golob, 1971; Hartgen and Tanner, 1970; and Markovitz, 1971) which attempted to segment on the basis of socioeconomic characteristics, population groups were preselected for analysis as was the case for user/nonuser groups.

One problem of attempting to segment using several population group criteria as most studies do is that group membership is overlapping. A typical listing of population groups for analysis might include low income consumers, elderly, young, nondrivers, and multicar households. Also, while some studies (Fielding et al., 1976; Golob et al., 1972; Golob et al., 1973) attempt to measure attribute perferences/importance, others measure the travel behavior (Markovitz, 1971; Ashford and Holloway, 1972), modal choice (Dajani and Sullivan, 1976), modal shift (Brown, 1974), or destination choice (Stopher, 1977) of population groups.

Alternative segmentations of transportation consumers were compared by Nicolaidis et al. (1976). Demographic, travel choice constraints, general attitudes, and attribute importance alternately were used to explain modal choice. Segmentation based on travel constraints (i.e., auto availability, bus access time and availability) were the best predictors of modal choice, while attitudes were the poorest discriminators. Demographic variables were moderate discriminators. However, it should be noted that modal choice preference is based on attributes of existing systems. The consumers preference for alternative systems with varying attributes would be more useful for the planning of new systems.

For purposes of determining the reasons for increased ridership related to a fare reduction and service improvements, an on-board survey was made of Metropolitan Atlanta Regional Transportation Authority old and new customers (Bates, 1974). For purposes of analysis, four customer groups based on residential transit route location and income were preselected.

Although the behavior of population groups has been found to differ, due possibly to the constraints imposed by income and opportunity, few differences have been found in the attribute preferences of such groups. For this reason, socioeconomic characteristics have not been particularly useful bases for segmenting the transportation market.

Product Characteristics/Dimensions

The potential of using attitudes toward public transportation use and preferences for product attributes to form homogeneous market segments is uncertain but promising. In studies by Alpert and Davies (1975) and Young et al. (1975), potential customers were identified as target market groups on the basis of their willingness to use improved transit for

various trip purposes. Alpert and Davies (1975) found that the potential switcher for the work/school trip generally showed the same patterns as potential switcher for the shopping/personal business trip in terms of attributes sought, improvements needed, and media exposure.

In a survey (Market Facts, Inc., 1975) of 800 New York residents (i.e., 100 users and nonusers in each of four boroughs), segments based on attitudes toward modal use (i.e., security conscious car lovers, the middle and urban transit preferrers) were found to differ in terms of attribute preferences, AIO, and travel behavior.

Segmentation based on product attributes is promising. In the studies examined, the measures were multivariate with consumers grouped into segments based on their preferences for several attributes. In a small scale experimental study (Koutsopoulos and Meyer, 1976) 62 University of Iowa students evaluated 54 hypothetical bus systems differing in fare structure, service frequency, and bus stop distances. Referred to as decision-making segments four homogeneous groups were identified based on responses to alternate system concepts.

Using a multidimensional scaling technique, Dobson and Kehoe (1974) identified seven homogeneous segments based on perceptions of transportation system attributes. Behavioral and sociodemographic variables including trip purpose, sex, income, age, and education also were found to relate significantly to the perceptional groupings.

In a longitudinal study of preferences for transportation attributes, Foerster et al. (1977) identified dimensions of variation in the importance of bus attributes for bus users and nonusers before the implementation of a new bus system. Eight months after service was initiated, it was found that changes had occurred in the market segments defined by attribute importance for both bus users and nonusers. These findings suggest a need for further clarification of the relation of attitudinal data to transit use.

SUMMARY AND CONCLUSIONS

An impressive body of literature is available that discusses and applies marketing management/MOA concepts and techniques to the field of public transportation. Moreover, the volume of work is expanding rapidly. The quality and sophistication vary considerably as is to be expected in a rather new application area. But, for those planners who are interested in learning more about using MOA, the literature is a valuable aid because it covers many of the key aspects.

For those not trained in marketing, the literature probably will be difficult to apply easily. What seems to be missing as of the time of this review are systematic discussions and applications of entire MOA processes. Rather, individual studies typically are concerned with only a part of an MOA needed for planning. For this reason, a contribution of the research reported here is the description of a complete MOA process including its application in a medium-sized community. In addition, the study shows what is required to search for new markets that lie outside the experience of planners in that community. This is probably the most difficult and challenging situation requiring an MOA.

BIBLIOGRAPHY

Aerni, D. R., and Surti, V. H., "Analysis of Suburban Shopper Market for Public Transit: A Case Study." *Transportation Research Record 590.* (1976) pp. 17-20.

Alan M. Voorhees and Associates, Inc., *Short-Range Transit Planning.* Washington, D.C.: U.S. Department of Transportation, Urban Mass Transportation Administration (July 1973).

Alpert, M., and Davies, S., *The Marketing of Public Transportation: Method and Application.* Prepared for Council for Advanced Transportation Studies, The University of Texas at Austin, Austin, Texas (Jan. 1975).

Ashford, N., and Holloway, F. H., "Variations of Urban Travel Characteristics with Age." *Transp. Eng. J.,* Vol. 98 (Aug. 1972) pp. 715-732.

Bates, J. W., "Effect of Fare Reduction on Transit Ridership in the Atlanta Region: Summary of Transit Passenger Data." *Transportation Research Record 499* (1974) pp. 1-11.

Beier, F. J., "Marketing Programs for Mass Transit." *Traffic Quarterly,* Vol. XXVI (Oct. 1972) pp. 533-545.

Blankenship, D. P., "Segmentation Analysis of Transit Users and Nonusers." *Transportation Research Record 590* (1976) pp. 1-8.

Brown, G. R., "Correlation of Socioeconomic Factors with Corridor Travel Demand." *Transportation Research Record 499* (1974) pp. 34-46.

Byrd, J. P., IV., "Characteristics, Attitudes, and Perceptions of Transit Nonusers in the Atlanta Region." *Transportation Research Record 563* (1976) pp. 29-37.

Constantino, D. P., "Attributes of Transit Demand." *Traffic Quarterly,* Vol. XXIX (Apr. 1975) pp. 243-257.

Costantino, D. P., Golob, T. F., and Stopher, P. R., "Consumer Preferences for Automated Public Transportation Systems." *Transportation Research Record 527* (1974) pp. 81-93.

Dajani, J. S., and Sullivan, D. A., "A Causal Model for Estimating Public Transit Ridership Using Census Data." *High Speed Ground Transp. J.,* Vol. 10 (Spring 1976) pp. 47-57.

Deslauriers, B. C., "A Behavioral Analysis of Transportation: Some Suggestions for Mass Transit." *High Speed Ground Transp. J.,* Vol. 9 (Summer 1975) pp. 13-20.

Dobson, R., *Documentation for the Metro Guideway Home-Interview and Leave-Behind Questionnaires.* Transportation and Urban Analysis Department, General Motors Research Laboratories, Warren, Michigan (Sept. 1973).

Dobson, R., and Kehoe, J. F., "Disaggregated Behavioral Views of Transportation Attributes." *Transportation Research Record 527* (1974) pp. 1-15.

Dobson, R., and Tischer, M. L., "Beliefs About Buses, Carpools, and Single Occupant Autos: A Market Segmentation Approach." *Transportation Research Forum Proc.* (May 1976).

Fielding, G. J., Blakenship, D. P., and Tardiff, T., "Consumer Attitudes Toward Public Transit." *Transportation Research Record 563* (1976) pp. 22-28.

Foerster, J. F., Young, F. W., and Gilbert, G., "Longitudinal Changes in Public Preference for Attributes of a New Transit System." *Transportation Research,* Vol. 11 (Oct. 1977) pp. 325-336.

Gensch, D. H., and Golob, T. F., "Testing the Consistency of Attribute Meaning in Empirical Concept Testing." *J. Marketing Res.,* Vol. XII (Aug. 1975) pp. 348-354.

Golob, T. F., Canty, E. T., and Gustafson, R. L., "An Analysis of Consumer Preferences for a Public Transportation System." *Transportation Research,* Vol. 6 (Mar. 1972) pp. 81-102.

Golob, T., Dobson, R., and Sheth, J. N., "Perceived Attribute Importance in Public and Private Transportation." *1973 AIDS Proc.,* Atlanta: American Institute for Decision Sciences (1973) pp. 7-13.

Grant, A. A., "Use of Origin-Destination Data in Determining Urban Needs." *Traffic Quarterly,* Vol. XXIV (Apr. 1970) pp. 219-230.

Guest, A. M., and Cluett, C., "Analysis of Mass Transit Ridership Using 1970 Census Data." *Traffic Quarterly,* Vol. XXX (Jan. 1976) pp. 143-161.

Gustafson, R. L., Curd, H. N., and Golob, T. F., *User Preferences for a Demand-Responsive Transportation System: A Case Study Report.* Transportation Research Department, General Motors Research Laboratories, Warren, Michigan (Jan. 1971).

Hartgen, D. T., and Keck, C. A., "Forecasting Dial-A-Bus Ridership in Small Urban Areas." *Transportation Research Record 563* (1976) pp. 53-62.

Hartgen, D. T., and Tanner, G. H., "Individual Attitudes and Family Activities." *High Speed Ground Transp. J.,* Vol. IV (Sept. 1970) pp. 439-467.

Hind, C., and Anderson, C. W., *METRO Transit Attitude and Awareness Study-1976,* GMA Research Project 76 P-598, Portland, Oregon (1976).

Horton, F. E., "Behavioral Models in Transportation Planning." *Transp. Eng. J.,* Vol. 98 (May 1972) pp. 411-419.

Johnson, R. M., "Trade-off Analysis of Consumer Values." *J. Marketing Res.,* Vol. XI (May 1974) pp. 121-127.

Keck, C. A., and Liou, P. S., "Forecasting Demand for Peripheral Park-and-Ride Service." *Transportation Research Record 563* (1976) pp. 63-74.

Knighton, R. G., *Forecasting Fare-Sensitive Dial-A-Bus Demand Without Surveys.* Preliminary Research Report No. 104. Albany, New York: New York State Department of Transportation (July 1976).

Knoxville/Knox County Metropolitan Planning Commission, Public Transportation Planning Staff, *Public Transportation in the Knoxville SMSA: A Critical Review.* Knoxville, Tenn. (Apr. 30, 1973).

Koutsopoulos, K. C., and Meyer, R., *Mass Transit Decision-Making Market Segmentation: A Pilot Study.* Technical Report 69. The Institute of Urban and Regional Research, The University of Iowa, Iowa City (June 1976).

Kullman, B. C., "Markets and Roles for Paratransit Services in an Integrated Urban Transportation System." *Paratransit: Special Report 164,* Transportation Research Board (1976) pp. 81-88.

Lovelock, C. H., *Consumer Oriented Approaches to Marketing Urban Transit.* DOT/UMTA University Research and Training Grant #CA-11-0008, Research Report 3 (Mar. 1973).

Lovelock, C. H., "Consumer Research in Urban Transportation: Some Methodological Issues." *Advances in Consumer Behavior,* Vol. III (1976), Atlanta: ACR, pp. 407-415.

Market Facts, Inc., *CTA Attitude and Usage Study—A Report to the Chicago Transit Authority,* Chicago, Illinois, undated.

Market Facts, Inc., *A Study of Attitudes Toward the New York Subway.* Prepared for the New York City Transit Authority (June 1975).

Markovitz, J. K., "Transportation Needs of the Elderly." *Traffic Quarterly,* Vol. XXV (Apr. 1971) pp. 237-253.

Martin, B. V., Memmott, F. W., and Bone, A. J., *Principles and Techniques of Predicting Future Demand for Urban Area Transportation.* MIT Report No. 3, Cambridge, Massachusetts: The Massachusetts Institute of Technology Press (June 1961).

Modal Split: Documentation of Nine Methods for Estimating Transit Usage. Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Planning (Oct. 1970).

Moran, A. J., and Jones, W. H., "The Formulation of Marketing Strategy in Urban Public Transport." *Transportation,* Vol. 4 (Sept. 1975) pp. 209-229.

National Transit Marketing Conference Proceedings. Washington, D.C.: U.S. Department of Transportation (Sept. 1975).

Nicolaidis, G. C., Wachs, M., and Golob, T. F., *Evaluation of Alternative Market Segmentations for Transportation Planning*. General Motors Research Laboratories, Research Publication GMR-2289, Warren, Michigan (Nov. 1976).

Oi, W. Y., and Shuldiner, P. W., *An Analysis of Urban Travel Demands*. Chicago: Northwestern University Press (1962).

Recker, W. W., and Golob, T. F., "An Attitudinal Modal Choice Model." *Transportation Research*, Vol. 10 (Oct. 1976) pp. 299-310.

Reed, R. R., *Market Segmentation Development for Public Transportation*. Prepared for Department of Transportation. Stanford University (Aug. 1973).

Reed, R. R., and Ingram, K. R., "Starting the Transit Industry on a Search for Affluent Markets." *Transportation Research Record 590* (1976) pp. 9-13.

Roeseler, W. G., "Mode Preference Model." *Traffic Quarterly*, Vol. XXVIII (July 1974) pp. 401-418.

Schwartz, M. L., "A Marketing Approach to the Study of Transit for Off-Peak Use." Miami University, Ohio (1977).

Sheth, J. N., "A Psychological Model of Travel Mode Selection." *Advances in Consumer Behavior*, Vol. III (1976), Atlanta: ACR, pp. 425-430.

Shocker, A. D., "A Methodological Approach to the Identification of Mass Transit Configurations Providing Maximal Satisfaction to Users." Unpublished working paper, Berkeley, California: Graduate School of Business Administration University of California, undated.

Shocker, A. D., and Srinivasan, V., "Proactive Approaches to Implementing the Marketing Concept: A Review of Multi-Attribute Applications to Product Concept Generation and Evaluation." Working Paper No. 145. Graduate School of Business, University of Pittsburgh, Pittsburgh, Pa. (Jan. 1976).

Smerk, G. M., "The Practice of Business: Mass Transit Management." *Business Horizons*, Vol. XIV (Dec. 1971) pp. 7-16.

Stopher, P. R., "The Development of Market Segments of Destination Choice." Paper submitted to the Transportation Research Board, Washington, D.C. (Jan. 1977).

Stopher, P. R., and Meybury, A. H., *Urban Transportation Modeling and Planning*. Lexington, Mass.: Lexington Books (D.C. Heath and Company) (1975).

Stopher, P. R., Spear, B. C., and Sucher, P. O., "Toward the Development of Measures of Convenience for Travel Modes." *Transportation Research Record 527* (1974) pp. 16-32.

Tauber, E. M., "Why Concept and Product Tests Fail to Predict New Product Results." *J. Marketing*, Vol. 39 (Oct. 1975) pp. 69-71.

Tauber, E. M., "Forecasting Sales Prior to Test Market." *J. Marketing*, Vol. 41 (Jan. 1977) pp. 80-84.

"Transit Marketing: Do's and Don'ts for a Successful Program." *Metropolitan* (Jan./Feb. 1975) pp. 9-12.

Transit On Board Survey—Phoenix Transit System. Technical Report, Phoenix Arizona. City of Phoenix Public Transit Administration and Arizona Department of Transportation Travel and Facilities Section (Oct. 1976).

Urban Origin-Destination Surveys. Washington, D.C.: Department of Transportation/Federal Highway Administration, undated.

Vanier, D. J., and Wotruba, T. R., "Mass Transit: Devising a Research Based Marketing Plan." *Transp. Res.*, Vol. 11 (Aug. 1977) pp. 245-253.

Wachs, M., "Consumer Attitude Toward Transit Service: An Interpretive Review." *J. Am. Inst. Planners*, Vol. 42 (Jan. 1976) pp. 96-104.

Wind, Y., "A New Procedure for Concept Evaluation." *J. Marketing*, Vol. 37 (Oct. 1973) pp. 2-11.

Winslow, R. H., and Pfeffer, J. L., "Evaluation of New Systems for Urban Transportation." *Transp. Eng. J.*, Vol. 98 (Nov. 1972) pp. 757-767.

Wotruba, T. R., *Marketing Information Study*. Prepared for San Diego Transit Corporation (June 1975).

Young, S., Del Belso, R., and Wilkins, J. D., "The UMTA Transit Marketing Project: Project Progress Report." *National Transit Marketing Conference Proc.* Washington, D.C.: U.S. Department of Transportation, (Sept. 1975) pp. 99-107.

CHAPTER FOUR

MARKET SEGMENTATION

PURPOSE OF SEGMENTATION

As part of a total MOA process, segmentation is being used to initially identify market opportunities. Segmentation is used here to refer to both a way of analyzing markets and a strategic approach to selecting and serving market targets. The analysis part of segmentation groups people into segments in such a way that those within each segment are alike on key characteristics that influence the way they will react to a public transportation service. The strategy part of segmentation then matches each segment of interest with a public transportation service most likely to meet the segment's travel and mode characteristic preferences. Fully implemented, segmentation requires both an analysis process and a strategic set of decisions that will tailor public transportation services to the requirements of those segments representing attractive market targets. The market segmentation process is shown in Figure 6.

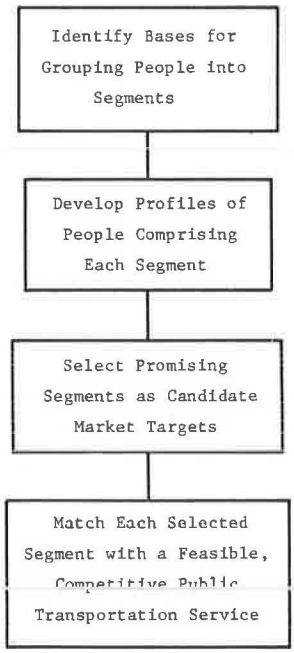


Figure 6. Market segmentation process.

SEGMENTATION ANALYSIS PROCESS

Segmentation market analysis begins with selection of a population of people within which segments are believed to exist. In the present study, the population is comprised of people living within the Jacksonville, Fla., Standard Metropolitan Statistical Area (SMSA), who are noncaptive travelers (operationally defined as people who are 15 years of age or older, travel away from home to another point within the Jacksonville area more than six blocks away one or more times per week, and have access to an automobile for at least half of these trips). To make the sampling process as efficient as possible, census tracts within the SMSA were screened to identify those with highest concentrations of "noncaptive travelers." Census tracts with very sparse population and with high numbers of low income families (and therefore likely captives rather than noncaptives) were eliminated. Appendix A provides a step-by-step description of the sampling process. Appendix B shows the instructions that interviewers followed to select households and respondents for interviewing.

One thousand households were selected randomly from this population. (Randomness was assured through the selection of blocks within tracts and by properly selecting which households to interview on each block—see App. A.) One or more eligible respondents within each household completed a comprehensive questionnaire concerning their travel behavior, mode use, preferred mode, general attitudes toward travel and public transportation, mode attribute preferences, attitudes toward selected modes (automobile, bus, and carpool), and demographic socioeconomic characteristics. This information provided the data base for the segmentation application (see App. C for the questionnaire content).

Frequency Counts

The segmentation analysis process is shown in Figure 7. This process is designed to uncover promising segments and to describe what types of people are in selected segments. The first task is to become familiar with the data obtained from the questionnaires. Frequency distributions for each variable (i.e., each questionnaire question) allow the analyst

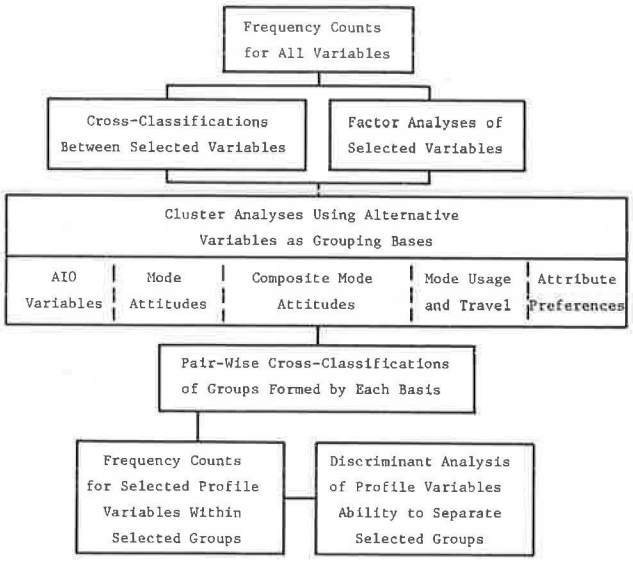


Figure 7. Jacksonville segmentation study analysis process.

to begin forming impressions of the characteristics and behavior of the sample. These impressions, in turn, are very useful for selecting variables for further analyses throughout the entire segmentation process. The analyst is looking for central tendency and overall spread of response on the variables to identify expected, unusual, or otherwise interesting characteristics of the sample with regard to public transportation opportunities. Although this is a tedious and very time consuming step, it is an essential starting point for all other analyses. Moreover, it is also necessary in order to assess how representative the sample is of the population in the selected census tracts. Table 1 gives a comparison between the demographic characteristics of the sample versus the census tracts included in the study's population. The sample appears to represent the population quite well.

TABLE 1 DEMOGRAPHIC COMPARISON OF RESPONDENTS WITH CENSUS TRACTS SAMPLED

Demographic Category	Respondents %	Census Tracts %
Sex		
Male	47	50
Female	53	50
Marital Status		
Single	21	23
Married	67	67
Separated	1	1
Widowed	7	4
Divorced	4	5
Persons Per Household	3.2	3.1
Education (Years of School Completed)		
0-8	18	8
1-3 yrs. high school	21	19
4 yrs. high school	37	37
1-3 yrs. college	13	21
4 yrs. or more college	11	15
Number of Automobiles in Family		
1 Auto	48	35
2 Autos	38	47
3 or More Autos	6	15
None	8	3
Age		
15-19	13	19
20-24	12	12
25-34	19	24
35-44	18	14
45-54	17	12
55-59	6	6
60 over	15	14
Race		
White	92	91
Black	8	9

Cross-Classification and Factor Analyses

Analyzing frequency counts usually leads to questions about how different variables are related to each other. For example, do people with different demographic characteristics also have different travel characteristics? Or, do people tend to evaluate a mode similarly on different mode attributes? Answering these kinds of questions requires comparing responses across questions of interest. The simplest way to do this is to run cross-classifications of one variable against another. Cross-classifications are run easily on a computer and yield two-way tables, such as the example in Table 2, which shows frequency of cases in which respondents answered two questions in a particular combination.

A more efficient procedure is available to work with interrelationships among more than two variables at a time. This is factor analysis. For example, one question concerns whether people in the sample tended to rate the importance of certain attributes of modes similarly (e.g., if one attribute is rated highly important, are other related attributes also rated highly important by the same respondents). When there are many attributes, it is too tedious to look at a very large number of two-way classification tables (or correlations) to search for such relationships. Factor analysis provides a way to find these relationships efficiently by considering all variables of interest simultaneously. Basically, factor analysis finds linear combinations (i.e., factors) of the variables that account for most variance in the data for all variables in a set. The factors are formed so that each succeeding factor after the first accounts for maximum variance subject to the constraint of being uncorrelated with the other factors. Then, by examining the degree of correlation (factor loadings) of each original variable with each factor, the interrelationship of variables can be examined. Typically, only a limited number of variables from the total set will correlate highly with a particular factor indicating that these variables are more interrelated with each other than with other variables in the set.

Cluster Analyses

Frequency counts, cross-classifications, and factor analyses provide essential insights into the data, but generally are not sufficient to identify segments. So, the next step is to group people together according to similarities in the way they answered selected questions. Cluster analysis is appropriate for this task. This technique essentially uses a measure of interrespondent similarity to group people into clusters. The similarity measure is typically the distance between points in a hyperspace where the coordinates of each point represent the responses of a respondent to a preselected set of questions from the questionnaire. For this part of the study, the Howard-Harris Clustering Routine was used to form groups for each of five different sets of variables. The purpose here was to see which set of variables provided the most useful way to group people into segments. These variable sets are (1) general AIO (attitudes, interests, and opinions) variables—Part III, Q1-49 of the questionnaire; (2) mode attitude variables—Part III, Q53; (3) composite or weighted mode attitudes—Part III, Q53 and a combination of Q51 and 52; (4) mode use and travel variables—Part I, Q3, Q5, Q6a and b, Q7a and Part II, Q3; and (5) mode attribute preferences—Part III, combined 51 and 52.

Cross-Classification of Clusters

The results of the separate cluster analyses yielded four different clusters per variable set, where each cluster is comprised of respondent identification numbers. With five different variable sets and four clusters per set, a large number of clusters are formed. Therefore, the next step in the segmentation analysis is to look for the degree of overlap between clusters. This is done by running pair-wise cross-classifications of the clusters. The results are frequency counts of people who fall in each cluster on one variable set and also in each cluster on a second variable set. Figure 8 shows what the output matrix will look like for the general AIO and bus attitude variable sets as an example. This analysis determines if the same people in one propublic transportation cluster formed with one variable set are also in pro-

TABLE 2 EXAMPLE OF A TWO-WAY CROSS-CLASSIFICATION TABLE SHOWING SATISFACTION OF MALES AND FEMALES IN THE SAMPLE WITH THEIR WAY OF GETTING TO WORK

	Does Not Apply	Completely Dissatisfied	Moderately Dissatisfied	Neither	Moderately Satisfied	Completely Satisfied
Male	165	13	18	1	105	223
Female	367	2	7	1	35	117

BUS ATTITUDE CLUSTERS

ATTITUDE AND ACTIVITY CLUSTERS

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cluster 1	24	91	49	40
Cluster 2	83	30	110	67
Cluster 3	86	44	79	84
Cluster 4	57	77	87	100

Figure 8. Example of a two-way cross-classification of clusters formed using two segmentation bases.

public transportation clusters formed by other variable sets. Greater confidence can be felt in selecting a particular cluster for further analysis if it contains people who are also in other clusters that indicate a favorable reaction toward a public transportation service.

Building Cluster Profiles

The final step in the segmentation analysis process is to find out what people are like in selected clusters. First, discriminant analysis was used to examine the ability of demographic variables in the profile to separate (i.e., distinguish between) the different clusters formed by the variable sets of interest. Then, profiles of the people in these clusters were built using a wide variety of variables (other than the ones used to form the clusters) from the questionnaire. This process involves examining frequency counts on selected variables (e.g., demographic socioeconomic variables, degree of familiarity with modes, attitudes, etc.), one variable at a time, within clusters. The results show how people within each cluster of interest are distributed on each profile variable.

CHAPTER FIVE

SELECTION OF A SEGMENT

Following the MOA process depicted in Figure 3, a segment must be selected that represents a potential market opportunity for a public transportation service. This decision should be made jointly by people with transportation, engineering, and marketing expertise. Criteria used to select the segment are:

1. Size of the segment (number of people).
2. Geographic proximity (either origin, destination, or both).
3. Likely receptiveness to a public transportation service tailored to the segment.
4. Technical and cost feasibility of implementing a public transportation service likely to compete with currently used modes.

ANALYSIS OF DATA

It should be noted that these same criteria often have been used in the traditional methods of short-range public transportation planning. However, the market segmentation process requires that the segments be identified by using the process previously outlined. Thus, when speaking of an identified segment, it is understood that such a segment is comprised of individuals who already have been grouped through the MOA to have similar attitudes, preferences, and desires for transportation.

To become more familiar with the data collected for the segmentation component of the MOA, it is necessary to describe the highlights of responses to all parts of the questionnaire. These highlights are based on the question-by-

question frequency counts. Figure 9, which gives an example of how this market segmentation process was used in the test city of Jacksonville, Fla., shows the variables included within the segmentation questionnaire that are covered in this overview.

Demographic Characteristics

A brief demographic profile of the sample of 1,108 respondents included in the Jacksonville market segmentation study is provided to help form an overall impression of respondents. The sample was evenly split between the males and females with approximately two-thirds being married. Average household size was 3.4 persons. Slightly less than 80 percent of the males in the household in the study are employed; others include retirees, students, and the unemployed. Almost 40 percent of the women in the households work, with about one-third of the married women working. Of the respondents who work, 64 percent are employed on a 5-day workweek, and 22 percent work more than 5 days. The sample includes a majority of longtime Jacksonville residents, with almost two-thirds living in the community more than 10 years. The age distribution shows that 46 percent of the sample is under 30 years old, with 29 percent falling in the 30 to 49-year old category, and the remaining 25 percent

Travel Behavior and Mode Use Within the Jacksonville Urban Area

- Consumer satisfaction with current mode for ten selected trip purposes
- Modal split frequency
- Number of stops
- Geographic location of trip destination
- Number of persons traveling with respondent
- Time of day travel occurs
- Number of minutes required for round trip
- Days of week travel occurs
- Round trip mileage
- Mode alternatives considered for ten selected trip purposes
- Alternative mode rankings
- Mode alternatives used
- Number of trips per day

General Transportation Attitudes and Activities (AIOS)

- Auto access by time of day

Specific Attitudes Toward Selected Modes

- Attitudes toward specific modes: car, bus, carpool/vanpool
- Perceived cost benefits by mode
- Transit familiarity

Demographic and Socioeconomic Descriptors

- Sex
- Marital status
- Household size
- Ages of children
- Number and sex of employed family members
- Occupation of respondent
- Number of days normally worked in a week
- Length of residence in Jacksonville
- Age
- Education
- Total family income
- Number of vehicles available
- Home location
- Work location
- Race
- Possession of driver's license
- Physical handicap limitations
- Necessity of auto for occupation
- Type of dwelling

Figure 9. Variables in the Jacksonville, Fla., segmentation questionnaire.

reporting ages of 50 or older. The sample includes 15 percent who are college graduates and 73 percent who are high school graduates. Income is distributed such that one-fourth have incomes of less than $10,000, one-half of the sample households reported incomes of less than $15,000, and almost 30 percent report incomes of $20,000 or more. All of the samples have ready access to an automobile, and 60 percent of the households have two vehicles available. Interestingly, 26 percent of the respondents report that an automobile is a requirement for performance of their job. Further investigation would be necessary to determine the degree to which this potential constraint is real or perceived.

Trip Behavior and Usage Patterns

Although many Americans depend on the automobile to meet their transportation requirements, competitive methods of transportation could gain support if there were a significant amount of dissatisfaction with current means of transportation. Unfortunately, results of the market segmentation survey in Jacksonville show a high degree of satisfaction with the present method of transportation. In fact, less than 4 percent of the sample are dissatisfied with the means of transportation currently used irrespective of the purpose of trip (i.e., work, education, shopping nonfood, shopping grocery, visiting, entertainment, personal business, medical trips, deliver/pickup children, and attending religious functions). Complete satisfaction with current transportation methods is reported by over two-thirds of the sample. These findings strongly point out the distinct competitive advantage of the privately owned automobile over other transportation alternatives and highlight the difficult task of attempting to change the transportation behavior of transportation users who are for the most part completely satisfied with their current mode.

In addition to the high level of satisfaction attributed to current transportation practices, less than 1 percent of the sample reported using a combination of transportation methods. This finding once again seems to reinforce the dominance of the automobile as consumer mode choice. Not surprisingly, the number of stops made during a trip varied according to the purpose of the trip. Multistop trips are greatest for shopping (nonfood and grocery) and personal business. Trips requiring some stops occur most often when visiting or going out for entertainment. Single stop trips are reported for traveling to work or school and for attending religious functions. The trip purpose category exhibiting the greatest solitary travel behavior is the work trip. Over 80 percent of the working members of the sample report that they commute alone. As may be expected, these results provide additional support for the work trip having the greatest potential for using public transportation methods that have multiperson ridership (i.e., ridesharing, express bus, etc.). (Most other trip purposes can be characterized as multiperson trips, but mostly within family.)

The various types of travel information available from the market segmentation survey describe fairly distinct trip patterns in terms of specific trip purposes. Time of travel, round-trip distances, and times for selected trip purposes are given in Table 3.

Several dimensions of transportation use were included in the segmentation questionnaire in an effort to probe consumer intentions as well as to measure actual mode use. In Table 4 the set of modes considered by the sample are ranked for various trip purposes. As shown in the table, driving alone or driving/riding with a family member consistently is first and/or second choice. However, different ordering by trip purpose is evident. Other modes ranking lower than the four in the table included (in order): express bus, bicycle, motorcycle, taxi, and rental car.

A second question that attempted to further define intentions to use alternative modes asked respondents to provide mode rankings under the condition that their normal mode was not available (in most cases this translated into second and subsequent mode choice if driving alone was not available). Those alternatives most frequently chosen included drive/ride with family member, followed by carpool, and then regular bus. Other modes considered, in order, include taxi, bicycle, motorcycle, rental car, and express bus.

Transportation modes normally used consistently showed driving alone as most often used, followed by driving with a family member, carpooling/vanpooling, and regular bus service. Bicycle, motorcycle, and to a lesser degree taxi, rental car, and express bus were used as means of transit by a small portion of the sample.

Transportation Attitudes and Activities

In order to gauge attitudes toward transportation modes and to provide an indication of the extent to which respondents' activities relate to their transportation attitudes and behavior, a set of 49, Likert-scaled AIO statements was used to measure global transportation-related activities, interests,

TABLE 3 TRAVEL PATTERNS BY TRIP PURPOSE IN THE JACKSONVILLE AREA

Purpose	Hours	Mean Round Trip Miles	Mean Round Trip Minutes
Commute	6-9, 4-7	18	36
Shop (Non-food)	9-7	13	30
Shop (Grocery)	9-7	8	32
Visit	2-12	15	34
Entertainment	4-12	19	38

TABLE 4 RANKED ORDER OF MODES BY TRIP PURPOSE

Purpose	Rank Order of Modes Considered
Work Education	Drive Alone Drive/Ride with Family Carpool/Vanpool Regular Bus
Shopping (Non-food and Grocery) Visit Medical Trips	Drive/Ride with Family Drive Alone Regular Bus Carpool/Vanpool
Entertainment Deliver/Pick up Children Attend Religious Functions	Drive/Ride with Family Drive Alone Carpool/Vanpool Regular Bus

and opinions. Results in this section showed a wide distribution of response across all categories. It is sufficient to note at this stage that the wide distribution across response categories allows for subgroup analyses that have the potential to serve as bases for a market segmentation strategy.

Mode Specific Attitudes

In addition to global transportation attitudes, mode specific attitudes and mode attributes also were collected in the market segmentation phase of the study. As expected, the private automobile dominated the mode specific attitudes when compared to bus and carpool/vanpool, except for "low cost for trip" and "small variation in travel time" where regular bus was judged best. Similarly, carpool/vanpool always was evaluated second to the car except for "convenient method of payment," "service available throughout the day," "ease of entry and exit from the vehicle," and "adequate room between me and others in the vehicle." Although these overall results were evident, response distribution was still sufficiently wide to provide the opportunity for subsequent subgroup analyses.

Importance of Mode Attributes

The evaluations of the importance of various mode attributes showed relatively little difference when comparing the work trip with other trips. The only differences were those that were time related which were consistently judged more important for the work trip. Attributes evaluated as very important for any trip included:

1. Arriving at destination when planned.
2. Service available throughout the day.
3. Being able to make trip without changing vehicles.
4. Personal security from crime.
5. Adequate protection from the weather.
6. Assurance of getting a seat.
7. Low cost for trip.
8. Short time spent getting to the vehicle.
9. Convenient method of payment.
10. Adequate room between you and others.

Other results apparent in the survey that help characterize respondents included the fact that 84 percent of the sample always have access to a car and that during working hours only 8 percent do not have access. The automobile is perceived as more expensive than all other modes with the exception of taxi; the bus is considered inexpensive, but bicycle and motorcycle are the most inexpensive. Over two-thirds of the sample claim familiarity with carpooling, bus, and taxi. Less than 5 percent claim to know a lot about express bus service, yet almost 30 percent claim full knowledge of Jacksonville's bus schedules and fares.

Although this broad interpretation of the overall results gives some perspective on the sample, more useful information can be obtained from subsequent multivariate analysis of subgroups and the interrelationships among variables. The procedure for these analyses is discussed in the following section.

DESCRIPTION OF MARKET SEGMENTS

Market Segmentation Bases

A key issue in the formulation of market segments is the choice of an appropriate base or bases for the grouping of homogeneous consumers. In the present study an exhaustive search of potentially useful bases for segmentation yielded consumer classifications formulated on the following variables:

1. Transportation behavior and use patterns for selected trip purposes.
2. Transportation-related attitudes and activities.
3. Attitudes toward buses.
4. Attitudes toward carpools/vanpools.
5. Importance of mode attributes.

The mechanism for determining consumer groupings with similar characteristics is the Howard-Harris Clustering Algorithm (see App. D). This program is essentially a splitting technique that sequentially formulates increasing numbers of groups possessing greater within-group similarity. The purpose is to maximize the within-group similarity with respect to the between-groups similarity (separation) by a ratio designated as Lambda.

Examination of this ratio for the results of clustering on each of seven different bases produced a consistent three or four group solution across all variable bases. Partitioning at this level seemed to provide adequate group differentiation while maintaining respectable segment size and avoiding fragmentation of the sample. Several different data forms were incorporated as inputs for the cluster analyses. Initially raw data on all segment basis variables were analyzed. Subsequently, factor score coefficients generated from results of factor analyzing attitude and activity variables served as inputs for clustering. Additional composite variables, which included a weighting scheme based on consumers' perceived importance of mode attributes, also served as input data for cluster analyses.

Although clustering consumers on a variety of transportation-related attitudes, activities, and usage measures provide results showing segment differences, the important question remains of identifying consumer characteristics idiosyncratic to specific groups. Only when specific measures (peculiar to substantial segments) that go beyond those on which the groups originally were formed are described does the opportunity for a meaningful market segmentation strategy take place.

FORMING SEGMENTS WITH CLUSTER ANALYSIS

As indicated in Table 5, the general AIO (attitudes, interests, and opinions) variables from Part III, Q1-49, of the questionnaire were selected as the bases for forming segments. The Howard-Harris Cluster Analysis Routine was used to form groups of respondents based on the way they answered the 49 AIO questions. To meet the data limitations of the clustering program (approximately 1100 + respondents and 25 variables), the AIO variables were factor analyzed to search for interrelated variables. Fifteen factors were extracted from this analysis and subjected to a varimax rotation. Then factor scores were computed for each respondent on each factor. The net effect of the factor analysis was to reduce the number of variables from 49 to 15, while still accounting for 54 percent of the variance in the original data.

Next, the factors that included attitudes toward transportation were selected from the 15 factors for use in the clustering routine. This was done to ensure that clusters would be formed based on attitudes directly related toward transporta-

TABLE 5 COMPARISON OF ALTERNATIVE SEGMENTATION BASES

	Between Cluster Mean Differences	Within Cluster Variances	Ability to Discriminate
AIO Clusters	Operational differences are apparent	Moderate	About a 50% improvement over chance
Mode Attitude Clusters	Operational differences are apparent	Large	About a 30% improvement over chance
Weighted Mode Attitude Clusters	Operational differences are apparent	Large	About a 33% improvement over chance
Usage Clusters (Work trip-Best performance)	Very few operational differences are apparent	Large	About a 75% improvement over chance
Attribute Preferences	Group differences are apparent, but were not very operational	Large	About a 33% improvement over chance

tion modes rather than on factors less directly related to mode choice. Factor scores on the seven factors selected were imputed into the clustering program. These factors are described in Table 6.

The Howard-Harris clustering routine yielded a four group solution that essentially initially split on three factors: acceptability of public transportation, carpooling as energy saving and cost efficient, and necessity of my automobile. Once groups have been formed based on the splitting factors, the routine reassigns people between groups based on their similarity of responses to all factors simultaneously. So, all seven factors ultimately play a role in determining the final cluster formed for a particular split. The selection of which split to use, which in effect determines the number of clusters with which to work, is based on a measure of within-group variance (the degree of homogeneity within groups) to between-group variance (the degree of heterogeneity between groups) as well as on a subjective assessment of the operational significance of the groups. Using these criteria, the four-group solution was selected.

Table 7 shows how the four groups differ on each of the seven transportation AIO factors. The first number in each cell is the mean of the factor score distribution and the second, in parentheses, is the variance of the same distribution. It should be noted that a factor score is a linear combination of a respondent's answers to all AIO variables. The weights of the linear combination have been normalized, and the AIO responses have been standardized so that the factor scores are very small numbers. The means and variances of each group's factor score distribution are also small. Interpretation of the groups is based more on a relative comparison of the means and variances between groups, rather than on the absolute magnitudes. However, to help in the interpretation of these numbers, the factor means would be very unlikely to fall outside a range of -1.5 to $+1.5$, while the variances would be unlikely to be larger than 1.5.

To see how the data in Table 7 were used to select higher public transportation opportunity groups, the analysis

TABLE 6 TRANSPORTATION SPECIFIC FACTORS ON WHICH MARKET SEGMENTS WERE FORMED VIA CLUSTER ANALYSIS

Factor 1:

Acceptability of Public Transportation

Factor Loading	#	Variable
.651	4.	I like to ride on city buses.
.594	11.	Traveling by public transportation is more relaxing than driving my car.
.590	24.	With the higher automobile insurance rates, I plan to make greater use of public transportation.
.541	5.	We need better bus service more than we need better highways.
.500	9.	Public transportation is fine for some people but not for me.
.447	7.	Everyone pays for bus service through taxes, therefore, everyone should use it.
.430	40.	I would never use public transportation more frequently than I do now, no matter how much the service is improved.

Factor 3:

Status Stereotypes of Transportation Modes

Factor Loading	#	Variable
.533	19.	My friends judge people by the type of car they drive.
.459	20.	I would rather my fellow workers see me arrive at work by car rather than public transportation.
.417	41.	Only the really poor people in Jacksonville use the buses.

Factor 4:

Necessity of My Automobile

Factor Loading	#	Variable
.469	13.	I can't manage without my car.
.464	25.	Although mass transit would be a good way of conserving energy, I really cannot use it since it is very inconvenient.
.231*	23.	Today in most families, two cars are a necessity not a luxury.

Factor 6:

Public Transportation Should Pay Its Own Way Through Fares

Factor Loading	#	Variable
.417	10.	Riders' fares provide all the financial support needed to operate Jacksonville's bus service.

Factor 8:

Carpooling is Cost-Effective

Factor Loading	#	Variable
.581	8.	Carpooling is an effective means of conserving gasoline and reducing the cost of transportation.
-.311*	12.	Carpooling does not appeal to me.
.274*	39.	I really enjoy riding with other people I know.

Factor 9:

Acceptability of Buses for Children Who Travel in Jacksonville

Factor Loading	#	Variable
.635	38.	I do not mind my children riding on public buses without being accompanied by an adult.
.496	37.	Children in our house are involved in activities that require travel to other parts of Jacksonville.

Factor 14:

Bus Stops Are Dangerous

Factor Loading	#	Variable
.467	46.	It is dangerous to stand at a bus stop while waiting for a bus.

*While the loadings did not meet the cutoff criteria of .400, these variables were included to provide additional interpretive aid.

searched for factors for which there are (1) greater differences among group means and (2) low within-group variances. In some cases low means favor public transportation, while in others high means do so, depending on whether agreeing with statements making up each factor shows a positive or negative attitude towards public transportation. Therefore, the most favorable group mean has been circled for each factor, and the least favorable has been enclosed in a box. For example, on the first factor, acceptability of public transportation, Group I is most positive, Group II is least positive, and Groups III and IV fall in between. Note also that group variances are generally low relative to variances for other factors.

Groups I and IV were selected as having the greatest likelihood of being receptive to public transportation services designed to match their travel requirements. Group I was selected because the group mean was very high on the acceptability of public transportation (factor 1). This factor was judgmentally believed to be the best indicator of receptivity to public transportation of all those identified. It should be noted that the group is quite homogeneous with respect to this factor as indicated by the relatively low variance.

Group IV was selected because of positive mean attitudes on a combination of factors. These people are the second most receptive group to public transportation as measured by factor one. In addition, Group IV has the least tendency to develop unfavorable stereotypes toward transportation modes (factor 3), evidences the least attitudinal dependence on their automobiles (factor 4), and has the least fear of bus stops as dangerous places to wait for public transportation. Group IV differs from Group I in being less positive toward public transportation per se, but more favorable toward a broader base of transportation-related factors. Finally, Groups II and III were eliminated as segment candidates because of their negative attitudes toward public transportation (factor 1), while having no counterbalancing attitudes on other factors deemed important enough to offset negative attitudes toward public transportation.

Geographic Analysis of Groups I and IV

Transportation is obviously a service that is influenced heavily by the geographic origin and destinations of potential users. The segmentation analysis was designed to incorporate this geographic influence by locating higher than chance concentrations of Group I and Group IV respondents in the census tracts in which they live. The census tracts then were assigned to one of three locations according to physical proximity. The result of this step in the process is to form segments based on a combination of attitudinal predispositions and geographic concentration.

Table 8 gives the census tracts for the three locations in the Jacksonville SMSA (Dunval County). Location A is in the west-central position of the county with most tracts bordering or close to the St. Johns River. Location B is north central and falls on both sides of the Trout River which feeds into the larger St. Johns River. Location C lies to the east of the St. Johns River and includes tracts along the ocean front as well as more centrally positioned tracts.

Demographic Analysis of Group Differences

To determine whether there are demographic differences between the four groups, a discriminant analysis was performed. The results showed that three variables were important in distinguishing between the groups: age, familiarity with bus, and possession of a driver's license. Table 9 gives the mean scores and standard deviations for each group on these discriminating variables.

The discriminant analysis was reasonably successful in separating the four groups. Table 10 gives the percentage of correct group classification of respondents based on the discriminating variables. These results represent a maximum classification success because the total sample was used both to build the discriminant functions and to classify respondents. Yet, for matching with a public transportation service, the percentage of correct classifications for these groups is most important. For Group I the chance classification is 16.7 percent (185 ÷ 1,108), while the discriminant analysis achieves 49.7 percent. This is nearly a threefold improvement. For Group II, the chance classification is 22.7 percent (251 ÷ 1,108), and the discriminant analysis percentage of correct classification is 37.8 percent. This is a one and two-thirds-fold improvement.

TABLE 7 CLUSTER ANALYSIS OF TRANSPORTATION ATTITUDES AND ACTIVITIES

	Factor Interpretation	N=1108	Group I $9n_1$=185)	Group II (n_2=344)	Group III (n_3=328)	Group IV (n_4=251)
			Factor Means & (Variances)			
#1	Acceptability of public transportation		(-1.08) (.29)	[.58] (.29)	.36 (.30)	-.46 (.35)
#3	Status stereotypes of transportation modes		-.15 (.50)	[-.40] (.37)	.27 (.29)	(.31) (.30)
#4	Necessity of my automobile		-.35 (.27)	.06 (.30)	[-.44] (.28)	(.74) (.22)
#14	Bus stops are dangerous		-.24 (.38)	[-.26] (.32)	.16 (.33)	(.32) (.37)
#9	Acceptability of buses for children who travel		-.01 (.34)	[.07] (.27)	(-.11) (.32)	.06 (.28)
#6	Public transportation should pay its own way through fares		-.10 (.43)	[-.22] (.29)	(.38) (.36)	-.12 (.45)
#8	Carpooling is cost-effective		.04 (.45)	[.24] (.48)	(-.30) (.25)	.03 (.47)

*Howard-Harris Cluster Analysis performed on AIO factor scores. Only 7 transit related factors from the original 15 were included in this analysis.

(⬭) Most Favorable

[▭] Least Favorable

TABLE 8 TRACK LOCATIONS OF GROUPS I AND IV CONCENTRATIONS OF RESPONDENTS

Location A	Location B	Location C
Tract 21 - (G4)	Tract 104 - (G1)	Tract 139 - (G4)
Tract 22 - (G4)	Tract 110 - (G1)	Tract 140 - (G4)
Tract 24 - (G4)	Tract 113 - (G1)	Tract 155 - (G4)
Tract 130 - (G1)	Tract 109 - (G1)	Tract 148 - (G4)
Tract 135 - Tract	Tract 114 - (G4)	Tract 147 - (G1)
Tract 121 - (G1)	Tract 112 - (G4)	Tract 146 - (G1)
Tract 122 - (G1)	Tract 116 - (G4)	
Tract 25 - (G1)		

TABLE 9 GROUP DIFFERENCES ON SELECTED DEMOGRAPHIC CHARACTERISTICS

		Group I	Group II	Group III	Group IV
Age[1]	Mean	4.87	3.43	4.37	3.70
	Std. Deviation	2.28	2.07	2.06	2.20
Bus Familiarity[2]	Mean	1.11	.90	.80	1.18
	Std. Deviation	.68	.61	.61	.69
Driver's License[3]	Mean	1.16	1.06	1.02	1.17
	Std. Deviation	.36	.23	.15	.38

[1]The age variable was coded as 1=Under 20, 2=20-24, 3=25-29, 4=30-34, 5=35-39, 6=40-49, 7=50-59, 8=60 and over.

[2]The bus familiarity variable was coded as 0=I know a lot about it, 1=I know something about it, 3=I don't know anything about it.

[3]The driver's license variable was coded as 1=yes, 2=no.

TABLE 10 CLASSIFICATION OF RESPONDENTS USING DISCRIMINANT ANALYSIS

	Predicted Group				
Actual Group	I	II	III	IV	No of Cases
#1	92	30	28	35	
	49.7%	16.2%	15.1%	18.9%	185
#2	74	143	69	58	
	21.5%	41.6%	20.1%	16.9%	344
#3	84	85	112	47	
	25.6%	25.9%	34.1%	14.3%	328
#4	70	47	39	95	
	27.9%	18.7%	15.5%	37.8%	251
No. of cases	320	305	248	235	1,108

With this background on how market groups were formed with differing likelihoods of being receptive to public transportation services, attention now turns to describing Groups I and IV. These two groups have the highest likelihood of responding favorably to a public transportation service matched with their travel needs. The description of each group will use five kinds of characteristics: demographics, general attitudes toward transportation, specific attitudes toward bus and carpool modes, the importance of various mode attributes, and travel and mode use.

CHAPTER SIX

DESCRIPTION OF MARKET SEGMENTS

GROUP I

As a starting point, returning to Table 7, which shows the four groups identified from the cluster analysis of transportation attitudes and activities. Group I is the most positive group in its attitude toward public transportation as indicated by its mean value on the first factor. Moreover, the group has this relatively positive opinion while being more familiar with bus services than the sample as a whole (Table 11). (Note, to preserve the continuity of the text and enable locating a specific table more easily, all tables for Chapter Six are placed at the end of the chapter. The symbols n and X^2 in these tables refer to sample size and a chi squared test, respectively. The chi square test was used to determine whether the differences between the target market segment (leaner) responses and those of the general population survey were statistically significant. Although no specific confidence level was specified (e.g., the 95 percent level), X^2 data were computed to assist the market research in determining just how confident they might be on each question analyzed.) This suggests a favorable predisposition toward public transportation services even though the group primarily uses the automobile for trips within the Jacksonville area.

Demographics

Demographically, Group I is not very different from the sample. However, a few significant characteristics stand out. Looking at the age distribution, the propublic-transportation group is somewhat older than the total sample (Table 12). There are fewer people under 25 and relatively more in the over-40 age categories. Consistent with these age differences, Group I has relatively fewer single people and more people who are now or have been married (Table 13). Finally, when compared to the entire sample, there are fewer people with driver's licenses (Table 14).

Activities and Attitudes

The reader should scan Tables 15 through 41 because these data provided the basis for forming the groups. One easily can see the rationale for labeling these people as propublic transportation and as people who are more likely to be receptive to a new public transportation service designed to meet their preferences. Group I is much more likely than the sample as a whole to believe that getting around in the Jacksonville area is a major problem (Table 15). They generally like to ride on city buses (Table 16) and believe that better bus service is a more important need than better highways (Table 17). Interestingly enough, Group I has been influenced more by the high price of gasoline, indicating they feel pressure to drive their cars less frequently (Table 18). There is also a much stronger feeling among these people that everyone pays for and should use bus service (Table 19).

There is always a concern when analyzing attitudes that

people will rate something like public transportation very well, but have in mind that others should use it, not themselves. Encouragingly, this does not seem to be the case for Group I. These people were more likely to disagree with the statement that "public transportation is fine for some people, but not for me" (Table 20).

Generally, people in Group I are less likely to feel positive toward the automobile as a way of traveling within the Jacksonville area. They tend to worry more about having an accident in a car (Table 39); they feel that action should be taken to discourage auto use in downtown areas (Table 31); they do not enjoy driving a car as much as the sample as a whole (Table 25); and they do not like carpooling as much (Table 22). Moreover, the car seems to be less important as a status symbol (Table 28). On the other hand, there is an indication that existing public transportation services have not made strong inroads on the auto with this group. They feel the automobile is a necessity rather than a luxury (Table 29), and more than the sample as a whole, feel they cannot manage without their cars (Table 23). Thus, while discontent with the automobile is evident for this group, the automobile is a strong competitor as a method for travel within the Jacksonville area, and a public transportation service will have to be designed to match closely Group I's preferences to compete with their autos for some intracity trips.

As further indication of a general receptiveness to public transportation, the propublic-transportation group is much more likely not to rule out greater use of public transportation which has been improved (Table 38). In fact, these people are more likely to say they plan to react to higher automobile insurance rates by making greater use of public transportation (Table 30). Finally, Group I finds public transportation travel more relaxing than driving their cars (Table 21); they tend not to mind having their children ride public buses as much as does the total sample (Table 37); and they tend to be more likely to understand fully Jacksonville bus schedules and fares (Table 24).

The remainder of the activity and attitude differences concern activities of Group I. A few of these activities are particularly interesting. First, these people are more likely to have children who are involved in activities requiring travel within the Jacksonville area (Table 36) and are more likely not to want to chauffeur their children around (Table 41). They tend to be more involved in nonbusiness activities away from home (Table 34) and enjoy shopping in stores (Table 33). Finally, Group I tends to travel on a less regular basis each week than does the sample as a whole (Table 26).

Attitudes Toward Bus as a Transportation Method

A major section of the questionnaire asked respondents to rate the automobile, bus, and carpool/vanpool on a variety of characteristics that determine the quality of service of a transportation method. Group I was not significantly different from the rest of the sample on most of these attitude ratings. Out of a possible 72 different such ratings (3 modes $\times$ 24 characteristics), only five stand out as particularly interesting to the description of Group I. All five show more positive ratings of bus service than the sample as a whole. The characteristics rated more favorably are:

1. It is easy to go (by bus) to more than one destination on the same trip (Table 42).
2. Riding (by bus) provides me with high personal safety from crime (Table 43).
3. (Bus) typically has a stylish exterior design (Table 44).
4. I know if I wanted to use (a bus), service would be available throughout the day (Table 45).
5. (A bus) has a size and appearance that will not detract from the character of the neighborhood through which it travels (Table 46).

Importance of Mode Characteristics

Respondents were asked to rate the importance of a wide variety of characteristics that describe a transportation service. People were asked to rate their importance in terms of providing a desirable service for a work trip (for those who worked), and then to rate importance again with a nonwork trip in mind. Because differences in ratings by those who take both kinds of trips generally were not great, their ratings were averaged together for these trips so that one set of importance ratings could be assessed. Thus, there are importance ratings for 25 characteristics.

For most characteristics, Group I is not significantly different from the rest of the sample. However, Group I indicated greater importance for five of the characteristics than did the sample as a whole. These characteristics are:

1. Personal security from crime (Table 47).
2. A low cost for the trip (Table 48).
3. Little chance of meeting with people who make you feel insecure or uncomfortable (Table 49).
4. Being able to take a direct route, with few turns and detours (Table 50).
5. Convenient method for paying for the cost of the trip (Table 51).

Travel and Mode Use

Respondents in the study were asked a variety of questions concerning their travel and use of modes for travel in the Jacksonville area. In many ways, Group I was like the rest of the sample. But there were differences between the propublic-transportation people and the rest of the sample in the use of modes, the willingness to consider modes other than the one being used now for different trip purposes, the time of day they usually travel for a few purposes, the number of stops made on a few kinds of trips, and the degree of satisfaction with most frequently used mode for two kinds of trips.

Beginning with use of selected modes, Group I is more likely to use nonautomobile for work (Tables 52 and 53), education (Table 54), grocery shopping (Table 55), nonfood shopping (Table 56), entertainment (Tables 57 and 58), and visiting with friends and relatives (Tables 59 and 60). The nonautomobile modes that are more likely to be used are taxi and regular bus service. This again suggests greater willingness to use public transportation modes by Group I.

The greater use of public transportation modes is consistent with Group I's greater likelihood of considering the use of regular bus service for work trips (Table 61), shopping for nonfood items (Table 62), visiting with friends and relatives (Table 63), and for entertainment (Table 65), if they could not use this present method of transportation. More-

over, the group is less likely to consider using their automobiles with other family members on grocery shopping trips if the methods they are now using were unavailable to them (Table 66).

Group I is more likely to travel to visit friends and relatives between 2 and 4 p.m., and between 4 and 7 p.m., than the remainder of the sample (Tables 67 and 68). They are also more likely to do their grocery shopping between 4 and 7 p.m. (Table 69). For work and visiting with friends and relatives, there is a somewhat greater tendency for Group I to make multiple stop trips (Tables 70 and 71).

Finally, the propublic-transportation group tends to be somewhat less satisfied with their currently used modes for work (Table 72) and nonfood shopping (Table 73) trips.

Overall, Group I stands out from the rest of the sample on a wide variety of factors related to selection and use of transportation modes for travel within the Jacksonville area. The most significant differences are on the transportation attitudes and activities which showed a favorable predisposition (when compared to the sample) toward public transportation. This is to be expected because these variables were used to determine the groups, but the degree of positive response is encouraging. These people do not appear to be so committed to the automobile or so "turned-off" to public transportation as to not be receptive to a public transportation method designed to meet their preferences. Their differences on other variables discussed earlier generally support rather than conflict with this conclusion.

GROUP IV

Group IV also can be considered a relatively propublic-transportation group, although for different reasons from those given for Group I. Returning to Table 7, Group IV is the second most positive group toward the acceptability of public transportation. In addition, this group has the least tendency to view the automobile as a status symbol, the least commitment to the automobile as a necessity, and the least concern for safety while waiting at bus stops of all groups identified. This combination of general attitudes toward public transportation suggests a potential opportunity to gain ridership by matching a service to their needs.

Demographics

Group IV has several distinct demographic differences from the remainder of the sample. There are significantly more single persons in this group (Table 74), and they tend to be generally younger than the rest of the sample, particularly in the 24-and-under age groups (Table 75). Consistent with these characteristics, the group generally has fewer children under 10 years in their households (Table 76). Moreover, family income is lower (Table 77), and more households live in rental apartments (Table 78) with a lower percentage owning their own house. Keep in mind, however, that the predominant residence type is owning a house for Group IV and for the sample as a whole.

Group IV seems to be less dependent on their automobiles than the rest of the sample. A significantly higher percentage indicated they did not require autos to perform their jobs (Table 79); a higher percentage did not have a driver's license, although the majority did have a license (Table 80). Finally, there are generally fewer automobiles available to households in the group (Table 81).

Group IV is similar to Group I in that people tend to feel they are familiar with regular bus service to a greater degree than the sample as a whole (Table 82).

Attitudes and Activities

The general attitude and activities responses of Group IV are particularly important to understanding the potential opportunity. The reader should scan Tables 83 through 109 to become more familiar with the nature of predispositions toward public transportation that these people have relative to the remainder of the sample. These predispositions are described briefly with respect to public transportation, to automobiles, and finally to activities requiring use of transportation within the Jacksonville SMSA.

Group IV appears to be reasonably positive toward public transportation in general. They are more likely to like to ride on city buses than the rest of the sample (Table 84), somewhat more likely to believe higher priority should be placed on improving bus service rather than improving highways (Table 85), and more likely to find travel by public transportation more relaxing than car travel (Table 86). Moreover, there seems to be less difficulty with the idea of riding with other people among those in Group IV (Tables 87 and 88), and with being restricted to fixed times and schedules for travel in Jacksonville (Table 89).

As further indication of Group IV's tendency to "lean toward" public transportation, there was considerable disagreement with statements about not willing to use public transportation more frequently if it were improved (Table 90) and not using public transportation because of its inconveniences (Table 91). In addition, Group IV is more likely to say that higher automobile insurance rates will cause them to plan to use public transportation more frequently (Table 92). Finally, it is particularly encouraging to note the very high disagreement with the statement "public transportation is fine for some people, but not for me" (Table 93). All of these findings suggest that Group IV clearly is not "turned off" by public transportation, but rather is apparently relatively receptive to services that would match their travel needs.

It appears that Group IV, consistent with these reasonably positive feelings toward public transportation, is not attracted totally to the automobile as a mode of transportation. They feel more strongly than the rest of the sample that the auto is not the cheapest form of transportation (Table 95). This is interesting because many of the true costs of operating an automobile are not as visible as is the fare for using public transportation. Group IV is somewhat less likely to feel that two cars are a necessity rather than a luxury (Table 99) and generally are more likely not to enjoy driving a car (Table 100). They are more likely to feel they can manage without their car (Table 101) and less likely to see their car as a status symbol (Table 102). All of these characteristics of Group IV suggest that it may be possible for a well-designed public transportation service to compete with the private automobile for at least some of their travel needs.

A few activities related to travel within the Jacksonville area stand out. These people enjoy getting away from home somewhat more than the sample (Table 105). For those who work outside the home, they tend to travel less as a part of the job (Table 107), and there is somewhat less travel to attend sporting events (Table 109).

Attitudes Toward Bus, Carpool/Vanpool, and Car

Group IV differed more from the remainder of the sample on attitudes toward specific modes than did Group I. Most notable were the great number of characteristics of bus service on which Group I was more positive. These characteristics are listed, as follows, in two categories: attitudes for which Group IV was considerably more positive and those for which the group was moderately more positive than the rest of the sample:

1. *Considerably More Positive Bus Attitudes*
   a. I only have to spend a short time waiting to use the vehicle (Table 110).
   b. When I use this vehicle, I am very likely to arrive at my destination on time (Table 111).
   c. I only have to spend a short time in getting to the vehicle when I need to use it (Table 112).
   d. By using this vehicle, there is little chance of meeting people who make me feel insecure or uncomfortable (Table 113).
   e. Riding in this transportation method provides me with high personal safety from crime (Table 114).
   f. I usually would have adequate weather protection while waiting to use the vehicle (Table 115).
   g. I am able to select the time and wait to go on a trip when using this method (Table 116).
2. *Moderately More Positive Bus Attitudes*
   a. There is adequate room between me and others riding in this vehicle (Table 117).
   b. I know that if I wanted to use this method, service would be available throughout the day (Table 118).
   c. This transportation method provides adequate privacy when traveling (Table 119).
   d. There is only a small variation in travel time from one day to another (Table 120).
   e. When using this vehicle I am able to take routes which are pleasant or scenic (Table 121).
   f. I have great assurance of getting a seat (Table 122).
   g. Using this transportation method requires no vehicle changes (Table 123).
   h. When using this vehicle, I have adequate space for storing packages (Table 124).

Unlike Group I, Group IV also was more positive than the remainder of the sample toward several characteristics of the carpool/vanpool type of transportation. Interestingly enough, Goup IV was less positive toward the automobile on several characteristics:

1. *Carpool/Vanpool Attitudes (Positive)*
   a. There is only a small variation in travel time from one day to another (Table 125).
   b. This transportation method provides a convenient method of paying for the cost of the trip (Table 126).
   c. When using this vehicle, I am able to take a direct route with few turns and detours (Table 127).
   d. When using this vehicle, I have adequate space for storing packages (Table 128).
   e. When I use this vehicle, I am very likely to arrive at my destination on time (Table 129).
2. *Automobile Attitudes (Less Positive)*
   a. I am able to select the time I want to go on a trip when using this method (Table 130).
   b. Riding in this transportation method provides me with high personal safety from crime (Table 131).
   c. There is usually only a small variation in travel time from one day to another (Table 132).

The more positive attitude ratings toward bus and carpool/vanpool when combined with even a few less positive attitudes toward the automobile provide additional indication of the "leaner" nature of this group. However, one should not be too overly optimistic with these findings by believing that Group IV represents good market potential for existing public transportation services. It should be remembered that these people are currently largely auto users. Reasons for the heavy use of the private automobile become clearer when comparing the attitude distributions for car on these characteristics as opposed to the attitude distributions for bus and carpool. One would expect the car to be rated higher, but it is the magnitude of difference in ratings that is impressive. A quick glance at Tables 130 through 132 will provide insight into this magnitude. The inescapable conclusion is that the car is believed to be far superior on every characteristic to the other modes included in the study. Thus, at best, Group IV is at this time likely to be receptive to a new transportation service, but not so much so that it will be easy to convert these auto travelers into public transportation users.

Importance of Transportation Characteristics

A variety of characteristics of transportation methods were rated by respondents as to their importance in choosing between alternative methods. Group IV was not significantly different from the rest of the sample concerning the relative importance of most of these characteristics. However, on three characteristics, Group IV importance distributions suggested somewhat less overall importance. These are:

1. Being able to make a trip without changing vehicles (Table 133).
2. Being able to take a direct route, with few turns and detours (Table 134).
3. Adequate room between you and others in the vehicle (Table 135).

Travel Behavior and Mode Use

On most of the travel behavior questions Group IV is not significantly different from the rest of the sample. The group does have a higher percentage of travel for work trips during the 2 to 4 p.m. time slot than is characteristic of the sample as a whole (Table 136). But, the overall indication is that Group IV's travel patterns are similar to the patterns for others in the sample.

There are several interesting differences between Group IV and the remainder of the sample on mode use and willingness to consider modes other than those being used now. Beginning with modes used for different trip purposes, Group IV appears to be less of a car group and more of a bus group for work trips (Tables 137, 138, and 139). The automobile is still clearly the predominant mode used for work trips. But, the greater use of bus is encouraging in light of the more positive public transportation leaning of this group. This suggests that the positive attitudes are based on more experience than is possessed by the sample as a whole.

Similar differences show up for nonwork trip purposes.

TABLE 11

FAMILIARITY WITH METHODS OF TRANSPORTATION
REGULAR BUS

	Remaining Sample (%) n=1027	Group I (%) n=81
Don't know anything	24.9	13.6
Know something	55.8	61.7
Know a lot	19.3	24.7

$x^2 = .0608$

TABLE 12

AGE ON LAST BIRTHDAY

	Remaining Sample (%) n=1025	Group I (%) n=81
Under 20	20.8	13.6
20-24	12.0	8.6
25-29	14.3	12.3
30-34	9.3	3.7
35-39	7.6	8.6
40-49	11.7	13.6
50-59	10.7	18.5
60 and over	13.6	21.0
	100.0	100.0

$x^2 = .0781$

TABLE 13

MARITAL STATUS

	Remaining Sample (%) n=1026	Group I (%) n=81
Single	25.6	16.0
Separated	0.6	1.2
Divorced	3.9	9.9
Widowed	4.3	6.2
	100.0	100.0

$x^2 = .0393$

TABLE 14

DRIVER'S LICENSE

	Remaining Sample (%) n=1025	Group I (%) n=81
Yes	88.4	77.8
No	11.6	22.2
	100.0	100.0

$x^2 = .0089$

TABLE 15

TRANSPORTATION ATTITUDES AND ACTIVITIES
GETTING FROM ONE PLACE TO ANOTHER IN THE
JACKSONVILLE AREA IS A MAJOR PROBLEM FOR ME

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	5.2	4.9
Strongly disagree	39.7	18.5
Slightly disagree	17.0	11.1
Neutral	13.1	11.1
Slightly agree	12.0	17.3
Strongly agree	13.2	37.0
	100.0	100.0

$x^2 = .0781$

Travel for education shows less use of driving alone (Table 140) and less use of carpool/vanpool (Table 141); for nonfood shopping trips and for visits with friends and relatives, there is less travel by driving alone (Tables 142 and 143) and more travel by regular bus (Tables 144 and 145); for grocery shopping there is less use of driving alone (Table 146); and for entertainment trips there is less driving alone (Table 147), less driving or riding with family members (Table 148), less use of carpool/vanpool (Table 149), but greater use of regular bus service (Table 150) and bicycle (Table 151).

Group IV has a very consistent willingness to consider using nonautomobile transportation methods if the mode they regularly use is not available. For work trips, Group IV was considerably more likely than the rest of the sample to consider using regular bus service (Table 154) and somewhat more likely to consider using a taxi (Table 155) or bicycle (Table 156) to go to work. For education trips, the group was less likely to consider driving alone (Table 157). Similarly, for nonfood shopping trips, the group is less likely to consider driving alone (Table 158) or driving/riding with family members (Table 159) if their regular method of travel were not available, but much more likely to consider regular bus service for these trips (Table 160). Greater consideration of regular bus service is true for grocery shopping trips (Table 161) as well.

Travel to visit with friends and relatives shows a similar pattern to that for the previous purposes. Group IV is less likely to consider driving or riding with a family member (Table 162), but more likely to consider using regular bus service (Table 163). Finally, for entertainment travel, the group is somewhat less likely to consider driving alone (Table 164) and more likely to consider using regular bus service (Table 165) and bicycle (Table 166).

There is a very consistent indication throughout this profile that Group IV has a relatively positive attitude toward public transportation. Again, it must be emphasized that attitudes toward and use of their cars suggest that there is a strong commitment to the automobile, most probably because of its advantage over existing public transportation services. Yet the positive public transportation predisposition suggests the opportunity to overcome some of this commitment with a well-designed service tailored to Group IV's travel needs.

SUMMARY

This chapter has described the segmentation and detailed the findings. Two groups from the total sample were selected for further study. The profiles of these groups were presented in depth to show the "leaner" nature of the people comprising each group. As such, segmentation was used as a kind of screening tool to "weed out" those who did not appear to be receptive to public transportation and to group together those who were more receptive. The market analysis now can focus on analyzing preferences of these leaner segments to determine more specifically what characteristics of a transportation service will be most likely to attract their patronage for at least a portion of their trips. This is the task for the transportation attribute preference study discussed in Chapter Seven.

TABLE 16

I LIKE TO RIDE ON CITY BUSES

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	10.2	7.4
Strongly disagree	31.5	1.2
Slightly disagree	12.2	4.9
Neutral	24.1	21.0
Slightly agree	12.6	27.2
Strongly agree	9.4	38.3
	100.0	100.0

x^2 = .0781

TABLE 17

WE NEED BETTER BUS SERVICE MORE THAN WE NEED BETTER HIGHWAYS

	Remaining Sample (%) n=1025	Group I (%) n=81
Does not apply	4.5	0.0
Strongly disagree	20.6	6.2
Slightly disagree	12.1	2.5
Neutral	24.2	14.8
Slightly agree	16.2	13.6
Strongly agree	22.4	63.0
	100.0	100.0

x^2 = .0000

TABLE 18

THE HIGH PRICE OF GASOLINE HAS CAUSED ME TO DRIVE MY CAR MUCH LESS FREQUENTLY

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	12.2	13.6
Strongly disagree	16.8	7.4
Slightly disagree	13.2	4.9
Neutral	12.7	3.7
Slightly agree	20.4	23.5
Strongly agree	24.6	46.9
	100.0	100.0

x^2 = .0000

TABLE 19

EVERYONE PAYS FOR BUS SERVICE THROUGH TAXES, THEREFORE, EVERYONE SHOULD USE IT

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	3.2	6.2
Strongly disagree	24.6	3.7
Slightly disagree	17.0	4.9
Neutral	29.2	18.5
Slightly agree	14.3	24.7
Strongly agree	11.6	42.0
	100.0	100.0

x^2 = .0000

TABLE 20

PUBLIC TRANSPORTATION IS FINE FOR SOME PEOPLE, BUT NOT FOR ME

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	2.9	1.2
Strongly disagree	16.9	39.5
Slightly disagree	16.6	14.8
Neutral	22.2	17.3
Slightly agree	17.6	16.0
Strongly agree	23.8	11.1
	100.0	100.0

x^2 = .0000

TABLE 21

TRAVELING BY PUBLIC TRANSPORTATION IS MORE RELAXING THAN DRIVING MY CAR

	Remaining Sample (%) n=1024	Group I (%) n=81
Does not apply	10.4	6.2
Strongly disagree	28.5	1.2
Slightly disagree	17.5	3.7
Neutral	17.5	16.0
Slightly agree	12.1	28.4
Strongly agree	14.0	44.4
	100.0	100.0

x^2 = .0000

TABLE 22

CARPOOLING DOES NOT APPEAL TO ME

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	9.4	11.1
Strongly disagree	21.7	8.6
Slightly disagree	17.4	18.5
Neutral	9.7	14.8
Slightly agree	12.4	18.5
Strongly agree	19.4	28.4
	100.0	100.0

x^2 = .0269

TABLE 23

I COULDN'T MANAGE WITHOUT MY CAR

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	10.0	9.9
Strongly disagree	9.3	6.2
Slightly disagree	10.4	1.2
Neutral	7.5	2.5
Slightly agree	13.3	23.5
Strongly agree	49.5	56.8
	100.0	100.0

x^2 = .0063

TABLE 24

I FULLY UNDERSTAND JACKSONVILLE'S BUS SCHEDULES AND FARES

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	8.7	3.7
Strongly disagree	32.9	24.7
Slightly disagree	14.4	14.8
Neutral	17.7	16.0
Slightly agree	12.0	16.0
Strongly agree	14.2	24.7
	100.0	100.0

x^2 = .0640

TABLE 25

I GENERALLY DO NOT ENJOY DRIVING A CAR

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	8.1	11.1
Strongly disagree	56.2	30.9
Slightly disagree	13.7	12.3
Neutral	8.2	6.2
Slightly agree	7.4	14.8
Strongly agree	6.3	24.7
	100.0	100.0

x^2 = .0000

TABLE 26

I DO NOT TRAVEL WITHIN THE JACKSONVILLE AREA ON A REGULAR BASIS EACH WEEK

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	7.0	13.6
Strongly disagree	49.5	37.0
Slightly disagree	14.2	7.4
Neutral	6.5	8.6
Slightly agree	7.9	11.1
Strongly agree	14.7	22.2

$X^2 = .0196$

TABLE 27

PARKING IS AN ANNOYING PROBLEM AT THE PLACE WHERE I WORK

	Remaining Sample (%) n=1025	Group I (%) n=81
Does not apply	48.5	56.3
Strongly disagree	30.1	18.8
Slightly disagree	6.4	3.8
Neutral	5.0	8.8
Slightly agree	4.0	2.5
Strongly agree	6.0	10.0
	100.0	100.0

$X^2 = .0924$

TABLE 28

MY FRIENDS JUDGE PEOPLE BY THE TYPES OF CARS THEY DRIVE

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	7.0	9.9
Strongly disagree	47.3	30.9
Slightly disagree	14.6	14.8
Neutral	14.9	19.8
Slightly agree	10.3	12.3
Strongly agree	5.8	12.3
	100.0	100.0

$X^2 = .0392$

TABLE 29

TODAY IN MOST FAMILIES TWO CARS ARE A NECESSITY, NOT A LUXURY

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	2.1	0.0
Strongly disagree	8.7	3.7
Slightly disagree	8.5	6.2
Neutral	8.1	2.5
Slightly agree	25.4	23.5
Strongly agree	47.2	64.2
	100.0	100.0

$X^2 = .0335$

TABLE 30

WITH THE HIGHER AUTOMOBILE INSURANCE RATES I PLAN TO MAKE GREATER USE OF PUBLIC TRANSPORTATION

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	9.9	9.9
Strongly disagree	29.6	4.9
Slightly disagree	16.7	3.7
Neutral	26.3	23.5
Slightly agree	9.7	18.5
Strongly agree	7.7	39.5
	100.0	100.0

$X^2 = .0000$

TABLE 31

SOMEONE SHOULD TAKE MEASURES TO DISCOURAGE PEOPLE FROM USING AUTOS IN DOWNTOWN AREAS OF CITIES

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	2.3	0.0
Strongly disagree	15.9	3.7
Slightly disagree	11.9	1.2
Neutral	23.4	17.3
Slightly agree	20.7	25.9
Strongly agree	25.8	51.9
	100.0	100.0

$X^2 = .0000$

TABLE 32

I ENJOY STAYING AT HOME AS MUCH AS POSSIBLE

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	0.8	1.2
Strongly disagree	20.3	13.6
Slightly disagree	16.3	8.6
Neutral	12.9	11.1
Slightly agree	21.2	18.5
Strongly agree	28.6	46.9
	100.0	100.0

$X^2 = .0193$

TABLE 33

I ENJOY SHOPPING IN STORES VERY MUCH

	Remaining Sample (%) n=1025	Group I (%) n=81
Does not apply	2.0	2.5
Strongly disagree	14.7	3.7
Slightly disagree	12.0	7.4
Neutral	14.6	12.3
Slightly agree	27.8	25.9
Strongly agree	28.9	48.1
	100.0	100.0

$X^2 = .0035$

TABLE 34

I AM HIGHLY INVOLVED IN NON-BUSINESS ORGANIZATION ACTIVITIES THAT TAKE ME AWAY FROM HOME

	Remaining Sample (%) n=1024	Group I (%) n=81
Does not apply	18.8	18.5
Strongly disagree	31.8	18.5
Slightly disagree	14.7	9.9
Neutral	10.8	18.5
Slightly agree	11.7	16.0
Strongly agree	12.1	18.5
	100.0	100.0

$X^2 = .0229$

TABLE 35

I DO NOT LIKE TO WALK

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	1.5	1.2
Strongly disagree	43.6	30.9
Slightly disagree	22.3	13.6
Neutral	11.7	18.5
Slightly agree	8.1	16.0
Strongly agree	12.9	19.8
	100.0	100.0

$X^2 = .0054$

TABLE 36

CHILDREN IN OUR HOUSE ARE INVOLVED IN ACTIVITIES THAT REQUIRE TRAVEL TO OTHER PARTS OF JACKSONVILLE

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	49.5	42.0
Strongly disagree	12.0	6.2
Slightly disagree	4.9	2.5
Neutral	7.7	3.7
Slightly agree	10.8	12.3
Strongly agree	15.2	33.3
	100.0	100.0

$X^2 = .0000$

TABLE 37

I DO NOT MIND MY CHILDREN RIDING ON PUBLIC BUSES WITHOUT BEING ACCOMPANIED BY AN ADULT

	Remaining Sample (%) n=1026	Group I (%) n=81
Does not apply	56.2	39.5
Strongly disagree	17.1	13.6
Slightly disagree	6.5	4.9
Neutral	5.3	4.9
Slightly agree	6.3	13.6
Strongly agree	8.6	23.5
	100.0	100.0

$X^2 = .0000$

TABLE 38

I WOULD NEVER USE PUBLIC TRANSPORTATION MORE FREQUENTLY THAN I DO NOW NO MATTER HOW MUCH THE SERVICE IMPROVED

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	4.2	0.0
Strongly disagree	27.6	58.0
Slightly disagree	20.5	14.8
Neutral	18.5	12.3
Slightly agree	10.4	8.6
Strongly agree	18.8	6.2
	100.0	100.0

$X^2 = .0000$

TABLE 39

I FREQUENTLY WORRY ABOUT HAVING AN ACCIDENT WHILE DRIVING OR RIDING IN A CAR

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	4.5	2.5
Strongly disagree	27.6	13.6
Slightly disagree	15.2	7.4
Neutral	15.4	18.5
Slightly agree	23.6	23.5
Strongly agree	13.8	34.6
	100.0	100.0

$X^2 = .0000$

TABLE 40

IT IS DANGEROUS TO STAND AT A BUS STOP WHILE WAITING FOR A BUS

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	4.0	1.3
Strongly disagree	21.2	16.3
Slightly disagree	20.7	13.8
Neutral	18.9	18.8
Slightly agree	24.0	26.3
Strongly agree	11.2	23.8
	100.0	100.0

$X^2 = .0158$

TABLE 41

I DISLIKE HAVING TO CHAUFFEUR MY CHILDREN TO AND FROM ACTIVITIES IN WHICH THEY ARE INVOLVED AWAY FROM HOME

	Remaining Sample (%) n=1024	Group I (%) n=81
Does not apply	61.8	54.3
Strongly disagree	14.9	7.4
Slightly disagree	6.3	7.4
Neutral	6.8	9.9
Slightly agree	6.3	13.6
Strongly agree	3.8	7.4
	100.0	100.0

$X^2 = .0245$

TABLE 42

IT IS EASY TO GO TO MORE THAN ONE DESTINATION ON THE SAME TRIP (BUS)

	Remaining Sample (%) n=1024	Group I (%) n=81
Strongly disagree	26.7	22.2
Slightly disagree	26.8	25.9
Neutral	23.5	16.0
Slightly agree	14.8	21.0
Strongly agree	8.2	14.8

$X^2 = .0901$

TABLE 43

RIDING IN THIS TRANSPORTATION METHOD PROVIDES ME WITH HIGH PERSONAL SAFETY FROM CRIME (BUS)

	Remaining Sample (%) n=1026	Group I (%) n=81
Strongly disagree	10.9	11.1
Slightly disagree	22.4	14.8
Neutral	31.8	24.7
Slightly agree	23.7	37.0
Strongly agree	11.2	12.3

$X^2 = .0689$

TABLE 44

VEHICLE TYPICALLY HAS A STYLISH EXTERIOR DESIGN (BUS)

	Remaining Sample (%) n=1024	Group I (%) n=81
Strongly disagree	9.5	2.5
Slightly disagree	13.5	14.8
Neutral	50.4	46.9
Slightly agree	16.3	16.0
Strongly agree	10.4	19.8

$X^2 = .0342$

TABLE 45

I KNOW THAT IF I WANTED TO USE THIS METHOD, SERVICE WOULD BE AVAILABLE THROUGHOUT THE DAY (BUS)

	Remaining Sample (%) n=1023	Group I (%) n=81
Strongly disagree	14.0	22.2
Slightly disagree	18.2	21.0
Neutral	21.6	13.6
Slightly agree	22.9	14.8
Strongly agree	23.4	28.4

$X^2 = .0585$

TABLE 46

THE VEHICLE USED IN THIS METHOD OF TRANSPORTATION HAS A SIZE AND APPEARANCE THAT WILL NOT DETRACT FROM THE CHARACTER OF THE NEIGHBORHOOD THROUGH WHICH IT TRAVELS (BUS)

	Remaining Sample (%) n=1024	Group I (%) n=81
Strongly disagree	5.8	2.5
Slightly disagree	9.9	7.4
Neutral	38.1	34.6
Slightly agree	21.9	14.8
Strongly agree	24.4	40.7

$X^2 = .0193$

TABLE 47

PERSONAL SECUPITY FROM CRIME

		Remaining Sample (%) n=1027	Group I (%) n=81
Not important	0.00	5.5	3.7
	0.50	1.3	0.0
Slightly important	1.00	9.9	2.5
	1.50	3.9	7.4
Important	2.00	24.1	21.1
	2.50	7.4	4.9
Very important	3.00	48.0	60.5

$X^2 = .0751$

TABLE 48

A LOW COST FOR THE TRIP

		Remaining Sample (%) n=1027	Group I (%) n=81
Not important	0.00	5.9	6.2
	0.50	2.0	0.0
Slightly important	1.00	15.4	11.1
	1.50	7.0	3.7
Important	2.00	34.6	32.1
	2.50	7.4	2.5
Very important	3.00	27.7	44.4

$X^2 = .0315$

TABLE 49

LITTLE CHANCE OF MEETING WITH PEOPLE WHO MAKE YOU FEEL INSECURE OR UNCOMFORTABLE

		Remaining Sample (%) n=1027	Group I (%) n=81
Not important	0.00	30.2	27.2
	0.50	5.5	1.2
Slightly important	1.00	24.7	18.5
	1.50	7.3	6.2
Important	2.00	17.2	17.3
	2.50	2.9	7.4
Very important	3.00	12.2	22.2

$X^2 = .0229$

TABLE 50

BEING ABLE TO TAKE A DIRECT ROUTE WITH FEW TURNS AND DETOURS

		Remaining Sample (%) n=1027	Group I (%) n=81
Not important	0.00	10.5	9.9
	0.50	2.3	0.0
Slightly important	1.00	17.0	12.3
	1.50	5.7	9.9
Important	2.00	32.4	27.2
	2.50	9.5	6.2
Very important	3.00	22.4	34.6

$X^2 = .0774$

TABLE 51

CONVENIENT METHOD FOR PAYING FOR THE COST OF THE TRIP

		Remaining Sample (%) n=1027	Group I (%) n=81
Not important	0.00	7.9	7.4
	0.50	2.0	1.2
Slightly important	1.00	14.5	9.9
	1.50	7.4	2.5
Important	2.00	37.8	29.6
	2.50	6.9	8.6
Very important	3.00	23.5	40.7

$X^2 = .0226$

TABLE 52

USE OF TAXI FOR WORK TRIPS

	Remaining Sample (%) n=519	Group I (%) n=38
Do not use	97.1	89.5
Do use	2.9	10.5

$X^2 = .0413$

TABLE 53

USE OF BICYCLE FOR WORK TRIPS

	Remaining Sample (%) n=519	Group I (%) n=38
Do not use	93.3	81.6
Do use	6.7	18.4

$X^2 = .0207$

TABLE 54

USE OF MOTORCYCLE FOR EDUCATION TRIPS

	Remaining Sample (%) n=277	Group I (%) n=20
Do not use	90.6	75.0
Do use	9.4	25.0

$X^2 = .0677$

TABLE 55

USE OF REGULAR BUS SERVICE FOR SHOPPING (GROCERY)

	Remaining Sample (%) n=795	Group I (%) n=71
Do not use	96.0	84.5
Do use	4.0	15.5

$X^2 = .0001$

TABLE 56

USE OF REGULAR BUS SERVICE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=882	Group I (%) n=73
Do not use	85.6	75.3
Do use	14.4	24.7

$X^2 = .0294$

TABLE 57

USE OF REGULAR BUS SERVICE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group I (%) n=70
Do not use	92.6	84.3
Do use	7.4	15.7

$X^2 = .0248$

TABLE 58

USE OF TAXI FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group I (%) n=70
Do not use	96.9	91.4
Do use	3.1	8.6

$X^2 = .0396$

TABLE 59

USE OF REGULAR BUS SERVICE TO VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=899	Group I (%) n=74
Do not use	92.2	79.7
Do use	7.8	20.3

$X^2 = .0006$

TABLE 60

USE OF TAXI TO VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=899	Group I (%) n=74
Do not use	98.3	91.9
Do use	1.7	8.1

$X^2 = .0012$

TABLE 61

CONSIDERATION OF REGULAR BUS SERVICE FOR WORK TRIPS

	Remaining Sample (%) n=515	Group I (%) n=37
Would not consider using	69.5	51.4
Would consider using	30.5	48.6

$X^2 = .0348$

TABLE 62

CONSIDERATION OF REGULAR BUS SERVICE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=878	Group I (%) n=73
Would not consider using	68.9	45.2
Would consider using	31.1	54.8

$X^2 = .0001$

TABLE 63

CONSIDERATION OF REGULAR BUS SERVICE TO VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=899	Group I (%) n=74
Would not consider using	80.5	58.1
Would consider using	19.5	41.9

$X^2 = .0000$

TABLE 64

CONSIDERATION OF DRIVE ALONE VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=899	Group I (%) n=74
Would not consider using	33.0	43.2
Would consider using	67.0	56.8

$X^2 = .0977$

TABLE 65

CONSIDERATION OF REGULAR BUS SERVICE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group I (%) n=71
Would not consider using	82.3	66.2
Would consider using	17.7	33.8

$X^2 = .0015$

TABLE 66

CONSIDERATION OF DRIVE/RIDE WITH FAMILY MEMBERS FOR SHOPPING (GROCERY) TRIPS

	Remaining Sample (%) n=794	Group I (%) n=71
Would not consider using	19.0	29.6
Would consider using	81.0	70.4

$X^2 = .0476$

TABLE 67

TIME OF TRAVEL (2-4 p.m.) TO VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=894	Group I (%) n=75
Do not usually travel	81.4	72.0
Do usually travel	18.6	28.0

$X^2 = .0664$

TABLE 68

TIME OF TRAVEL (4-7 p.m.) TO VISIT WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=894	Group I (%) n=75
Do not usually travel	67.8	56.0
Do usually travel	32.2	44.0

$X^2 = .0506$

TABLE 69

TIME OF TRAVEL (4-7 p.m.) FOR SHOPPPING (GROCERY)

	Remaining Sample (%) n=793	Group I (%) n=71
Do not usually travel	70.1	59.2
Do usually travel	29.9	40.8

$X^2 = .0747$

TABLE 70

NUMBER OF STOPS BETWEEN LEAVING HOME AND RETURNING HOME FOR WORK

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	49.8	54.3
1 Stop	34.5	17.3
2 Stops	7.9	17.3
3 Stops	2.6	4.9
4 Stops	1.4	2.5
5 Stops	3.7	3.7

$X^2 = .0095$

TABLE 71

NUMBER OF STOPS BETWEEN LEAVING HOME AND RETURNING HOME TO VISIT FRIENDS AND RELATIVES

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	13.2	6.2
1 Stop	55.9	60.5
2 Stops	18.9	17.3
3 Stops	6.7	3.7
4 Stops	2.4	1.2
5 Stops	2.4	9.9

$X^2 = .0028$

TABLE 72

SATISFACTION WITH METHOD OF TRANSPORTATION MOST OFTEN USED FOR WORK TRIPS

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	50.2	53.1
Completely dissatisfied	1.2	3.7
Moderately dissatisfied	2.2	4.9
Neither	0.1	1.2
Moderately satisfied	12.9	13.6
Completely satisfied	33.2	22.2

$X^2 = .0088$

TABLE 73

SATISFACTION WITH METHOD OF TRANSPORTATION MOST OFTEN USED FOR SHOPPING (NON-FOOD)

	Remaining Sample (%) n=1027	Group I (%) n=81
Does not apply	14.4	8.6
Completely dissatisfied	1.2	3.7
Moderately dissatisfied	2.3	8.6
Neither	1.5	1.2
Moderately satisfied	17.3	18.5
Completely satisfied	63.0	58.0

$X^2 = .0056$

TABLE 74

MARITAL STATUS

	Remaining Sample (%) n=1031	Group IV (%) n=76
Single	24.3	32.9
Married	66.7	51.3
Separated	.6	1.3
Divorced	4.1	7.9
Widowed	4.3	6.6
	100.0	100.0

TABLE 75

AGE ON LAST BIRTHDAY

	Remaining Sample (%) n=1029	Group IV (%) n=77
Under 20	19.6	28.6
20-24	11.2	19.5
25-29	14.6	9.1
30-34	9.0	6.5
35-39	7.8	6.5
40-49	12.3	5.2
50-59	11.9	3.9
60 and over	13.6	20.7
	100.0	100.0

TABLE 76

NUMBER OF CHILDREN UNDER 10 YEARS OLD

	Remaining Sample (%) n=1031	Group IV (%) n=77
0	65.9	76.6
1	18.9	15.6
2	10.6	3.9
3	3.9	1.2
4 or more	.8	2.6
	100.0	100.0

TABLE 77

TOTAL FAMILY INCOME

	Remaining Sample (%) n=1031	Group IV (%) n=76
0 - 4,999	8.5	9.8
5,000 - 9,999	17.9	34.4
10,000 - 14,999	25.7	18.0
15,000 - 19,999	18.0	18.0
20,000 - 24,999	15.8	9.8
25,000 - 29,999	7.7	6.6
More than 30,000	6.4	3.4
	100.0	100.0

TABLE 78

TYPE OF RESIDENCE

	Remaining Sample (%) n=1030	Group IV (%) n-77
House owned	78.9	62.3
House rented	13.4	14.3
Apartment - less than 10 units	4.4	11.7
Apartment - more than 10 units	1.2	2.6
Trailer	1.5	7.8
Other	.6	1.3
	100.0	100.0

TABLE 79

AUTOMOBILE REQUIRED TO PERFORM JOB

	Remaining Sample (%) n=986	Group IV (%) n=71
Yes	27.5	11.3
No	72.5	88.7
	100.0	100.0

TABLE 80

POSSESSION OF DRIVER'S LICENSE

	Remaining Sample (%) n=1029	Group IV (%) n=77
Yes	88.3	77.9
No	11.7	22.1
	100.0	100.0

TABLE 81

NUMBER OF AVAILABLE VEHICLES

	Remaining Sample (%) n=1031	Group IV (%) n=77
0	3.2	1.3
1	33.5	50.6
2	47.4	42.9
3	13.1	3.9
4	2.8	1.3
	100.0	100.0

TABLE 82

FAMILIARITY WITH REGULAR BUS

	Remaining Sample (%) n=1031	Group IV (%) n=77
Don't know anything	25.1	10.4
Know something	55.9	61.0
Know a lot	19.0	28.6
	100.0	100.0

TABLE 83

TIME LIVED IN JACKSONVILLE

	Remaining Sample (%) n=1028	Group IV (%) n=77
Less than 2 years	9.1	20.8
2-4 years	11.1	7.8
5-7 years	9.8	9.1
8-10 years	7.4	1.3
More than 10 years	62.6	61.0
	100.0	100.0

TABLE 84

I LIKE TO RIDE ON CITY BUSES

	Remaining Sample (%)	Group IV (%)
Does not apply	10.6	2.6
Strongly disagree	30.8	7.8
Slightly disagree	12.1	5.2
Neutral	23.0	36.4
Slightly agree	12.8	24.7
Strongly agree	10.7	23.4

$X^2 = .0000$

TABLE 85

WE NEED BETTER BUS SERVICE MORE THAN WE NEED BETTER HIGHWAYS

	Remaining Sample (%) n=1030	Group IV (%) n=76
Does not apply	4.3	2.6
Strongly disagree	20.6	5.3
Slightly disagree	11.5	10.5
Neutral	22.9	31.6
Slightly agree	15.7	19.7
Strongly agree	25.0	30.3

$X^2 = .0259$

TABLE 86

TRAVELING BY PUBLIC TRANSPORTATION IS MORE RELAXING THAN DRIVING MY CAR

	Remaining Sample (%) n=1028	Group IV (%) n=77
Does not apply	10.2	9.1
Strongly disagree	28.1	5.2
Slightly disagree	16.4	16.9
Neutral	16.1	35.1
Slightly agree	13.3	13.0
Strongly agree	15.9	20.8

$X^2 = .0000$

TABLE 87

I WOULD NOT LIKE TO RIDE WITH THE TYPE OF PEOPLE WHO TYPICALLY USE PUBLIC TRANSPORTATION

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	6.7	2.6
Strongly disagree	26.6	39.0
Slightly disagree	16.1	19.5
Neutral	33.8	35.1
Slightly agree	10.0	3.9
Strongly agree	6.9	0.0

$X^2 = .0127$

TABLE 88

I DO NOT LIKE TO RIDE IN THE SAME VEHICLE WITH PEOPLE I DO NOT KNOW

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	1.9	2.6
Strongly disagree	18.9	36.4
Slightly disagree	18.3	11.7
Neutral	23.7	28.6
Slightly agree	19.2	14.3
Strongly agree	18.0	6.5

$X^2 = .0014$

TABLE 89

I DON'T MIND BEING RESTRICTED TO FIXED TIMES AND SCHEDULES FOR MY TRAVEL WITHIN THE JACKSONVILLE AREA

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	5.5	3.9
Strongly disagree	37.0	19.5
Slightly disagree	18.3	16.9
Neutral	14.0	24.7
Slightly agree	15.0	13.0
Strongly agree	10.3	22.1

$X^2 = .0007$

TABLE 90

I WOULD NEVER USE PUBLIC TRANSPORTATION MORE FREQUENTLY THAN I DO NOW NO MATTER HOW MUCH THE SERVICE IMPROVED

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	4.2	0.0
Strongly disagree	28.6	45.5
Slightly disagree	20.2	19.5
Neutral	17.3	28.6
Slightly agree	10.8	3.9
Strongly agree	19.0	2.6

$X^2 = .0000$

TABLE 91

ALTHOUGH MASS TRANSIT WOULD BE A GOOD WAY OF CONSERVING ENERGY, I REALLY CANNOT USE IT SINCE IT IS VERY INCONVENIENT

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	6.4	1.3
Strongly disagree	10.0	27.3
Slightly disagree	11.6	16.9
Neutral	17.9	44.2
Slightly agree	17.9	6.5
Strongly agree	36.9	3.9

$X^2 = .0000$

TABLE 92

WITH THE HIGHER AUTOMOBILE INSURANCE RATES, I PLAN TO MAKE GREATER USE OF PUBLIC TRANSPORTATION

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	9.7	13.0
Strongly disagree	29.5	5.2
Slightly disagree	16.0	11.7
Neutral	25.1	39.0
Slightly agree	9.7	19.5
Strongly agree	9.9	11.7

$X^2 = .0000$

TABLE 93

PUBLIC TRANSPORTATION IS FINE FOR SOME PEOPLE BUT NOT FOR ME

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	2.9	1.3
Strongly disagree	16.4	46.8
Slightly disagree	15.6	27.3
Neutral	21.9	20.8
Slightly agree	18.5	3.9
Strongly agree	24.6	0.0

$X^2 = .0000$

TABLE 94

I FREQUENTLY WORRY ABOUT HAVING AN ACCIDENT WHILE DRIVING OR RIDING IN A CAR

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	4.1	7.8
Strongly disagree	27.0	20.8
Slightly disagree	14.6	14.3
Neutral	15.0	23.4
Slightly agree	23.4	26.0
Strongly agree	15.9	7.8

$X^2 = .0811$

TABLE 95

MY OWN CAR PROVIDES THE CHEAPEST TRANSPORTATION I CAN BUY

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	9.8	20.8
Strongly disagree	16.9	27.3
Slightly disagree	16.3	22.1
Neutral	13.7	20.8
Slightly agree	17.7	5.2
Strongly agree	25.6	3.9

$X^2 = .0000$

TABLE 96

SOMEONE SHOULD TAKE MEASURES TO DISCOURAGE PEOPLE FROM USING AUTOS IN DOWNTOWN AREAS OF CITIES

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	2.3	0.0
Strongly disagree	15.2	11.7
Slightly disagree	11.6	5.2
Neutral	21.3	45.5
Slightly agree	21.6	14.3
Strongly agree	28.1	23.4

$X^2 = .0001$

TABLE 97

I FULLY UNDERSTAND JACKSONVILLE'S BUS SCHEDULES AND FARES

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	8.8	1.3
Strongly disagree	33.7	14.3
Slightly disagree	14.6	13.0
Neutral	16.5	32.5
Slightly agree	11.7	19.5
Strongly agree	14.7	19.5

$X^2 = .0000$

TABLE 98

EVERYONE PAYS FOR BUS SERVICE THROUGH TAXES, THEREFORE, EVERYONE SHOULD USE IT

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	3.6	1.3
Strongly disagree	23.7	15.6
Slightly disagree	16.2	15.6
Neutral	27.3	44.2
Slightly agree	15.1	14.3
Strongly agree	14.2	9.1

$X^2 = .0391$

TABLE 99

TODAY IN MOST FAMILIES TWO CARS ARE A NECESSITY NOT A LUXURY

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	2.1	0.0
Strongly disagree	7.7	16.9
Slightly disagree	7.9	14.3
Neutral	7.2	14.3
Slightly agree	26.1	14.3
Strongly agree	49.1	40.3

$X^2 = .0004$

TABLE 100

I GENERALLY DO NOT ENJOY DRIVING A CAR

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	7.8	15.6
Strongly disagree	56.2	29.9
Slightly disagree	13.2	19.5
Neutral	7.6	14.3
Slightly agree	7.6	13.0
Strongly agree	7.7	7.8

$X^2 = .0003$

TABLE 101

I COULDN'T MANAGE WITHOUT MY CAR

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	9.6	15.6
Strongly disagree	7.7	27.3
Slightly disagree	8.9	20.8
Neutral	6.9	10.4
Slightly agree	14.3	11.7
Strongly agree	52.7	14.3

$X^2 = .0000$

TABLE 102

I WOULD RATHER MY FELLOW WORKERS SEE ME ARRIVE AT WORK BY CAR THAN BY PUBLIC TRANSPORTATION

	Remaining Sample (%) n=1026	Group IV (%) n=77
Does not apply	44.1	51.9
Strongly disagree	24.7	35.1
Slightly disagree	5.6	3.9
Neutral	17.5	7.8
Slightly agree	4.3	0.0
Strongly agree	3.9	1.3

$X^2 = .0228$

TABLE 103

THE HIGH PRICE OF GASOLINE HAS CAUSED ME TO DRIVE MY CAR MUCH LESS FREQUENTLY

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	11.7	19.5
Strongly disagree	16.9	6.5
Slightly disagree	12.5	14.3
Neutral	11.3	22.1
Slightly agree	20.6	22.1
Strongly agree	27.1	15.6

$X^2 = .0018$

TABLE 104

CARPOOLING DOES NOT APPEAL TO ME

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	9.0	15.6
Strongly disagree	20.6	23.4
Slightly disagree	17.7	15.6
Neutral	18.5	29.9
Slightly agree	13.0	10.4
Strongly agree	21.2	5.2

$X^2 = .0030$

TABLE 105

I ENJOY STAYING AT HOME AS MUCH AS POSSIBLE

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	0.9	0.0
Strongly disagree	19.1	28.6
Slightly disagree	14.7	28.6
Neutral	12.9	10.4
Slightly agree	21.1	22.1
Strongly agree	31.4	10.4

$X^2 = .0003$

TABLE 106

MY WAYS OF GETTING TO AND FROM WORK HAVE NOT CHANGED IN YEARS

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	42.8	44.2
Strongly disagree	8.1	1.3
Slightly disagree	4.8	10.4
Neutral	5.6	10.4
Slightly agree	7.3	11.7
Strongly agree	31.5	22.1

$X^2 = .0088$

TABLE 107

I DO A LOT OF TRAVELING WITHIN THE JACKSONVILLE AREA AS PART OF MY JOB

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	50.2	55.8
Strongly disagree	16.2	22.1
Slightly disagree	7.2	5.2
Neutral	5.4	3.9
Slightly agree	6.4	9.1
Strongly agree	14.5	3.9

$X^2 = .0967$

TABLE 108

I REALLY ENJOY RIDING WITH OTHER PEOPLE I KNOW WHEN I TRAVEL WITHIN THE JACKSONVILLE AREA

	Remaining Sample (%) n=1031	Group IV (%) n=77
Does not apply	4.8	0.0
Strongly disagree	5.0	1.3
Slightly disagree	3.1	6.5
Neutral	16.8	28.6
Slightly agree	26.8	20.8
Strongly agree	43.5	42.9

$X^2 = .0109$

TABLE 109

I SELDOM ATTEND SPORTING EVENTS AS A SPECTATOR

	Remaining Sample (%) n=1030	Group IV (%) n=77
Does not apply	9.0	3.9
Strongly disagree	21.7	23.4
Slightly disagree	16.4	7.8
Neutral	10.2	13.0
Slightly agree	15.7	28.6
Strongly agree	26.9	23.4

$X^2 = .0183$

TABLE 110

I ONLY HAVE TO SPEND A SHORT TIME WAITING TO USE THE VEHICLE (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	14.7	6.5
Slightly disagree	18.9	13.0
Neutral	26.0	23.4
Slightly agree	24.0	31.2
Strongly agree	16.4	26.0

X^2 = .0363

TABLE 111

WHEN I USE THIS VEHICLE, I AM VERY LIKELY TO ARRIVE AT MY DESTINATION ON TIME (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	9.7	3.9
Slightly disagree	17.3	5.2
Neutral	27.3	16.9
Slightly agree	27.1	31.2
Strongly agree	18.6	42.9

X^2 = .0000

TABLE 112

I ONLY HAVE TO SPEND A SHORT TIME IN GETTING TO THE VEHICLE WHEN I NEED TO USE IT (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	13.9	5.2
Slightly disagree	22.0	10.4
Neutral	25.6	16.9
Slightly agree	22.6	35.1
Strongly agree	15.9	32.5

X^2 = .0000

TABLE 113

BY USING THIS VEHICLE, THERE IS LITTLE CHANCE OF MEETING PEOPLE WHO MAKE ME FEEL INSECURE OR UNCOMFORTABLE (BUS)

	Remaining Sample (%) n=1028	Group IV (%) n=77
Strongly disagree	13.5	6.5
Slightly disagree	23.1	6.5
Neutral	33.7	40.3
Slightly agree	18.9	31.2
Strongly agree	10.9	15.6

X^2 = .0006

TABLE 114

RIDING IN THIS TRANSPORTATION METHOD PROVIDES ME WITH HIGH PERSONAL SAFETY FROM CRIME (BUS)

	Remaining Sample (%) n=1030	Group IV (%) n=77
Strongly disagree	11.5	3.9
Slightly disagree	22.5	13.0
Neutral	31.2	32.5
Slightly agree	24.2	31.2
Strongly agree	10.7	19.5

X^2 = .0108

TABLE 115

I USUALLY WOULD HAVE ADEQUATE WEATHER PROTECTION WHILE WAITING TO USE THE VEHICLE (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	25.2	15.6
Slightly disagree	28.2	23.4
Neutral	24.5	23.4
Slightly agree	14.5	20.8
Strongly agree	7.7	16.9

X^2 = .0139

TABLE 116

I AM ABLE TO SELECT THE TIME I WANT TO GO ON A TRIP WHEN USING THIS METHOD (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	20.0	9.1
Slightly disagree	28.2	16.9
Neutral	23.0	32.5
Slightly agree	19.9	22.1
Strongly agree	8.8	19.5

X^2 = .0008

TABLE 117

THERE IS ADEQUATE ROOM BETWEEN ME AND OTHERS RIDING IN THIS VEHICLE (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	6.8	2.6
Slightly disagree	13.0	5.2
Neutral	26.5	28.6
Slightly agree	28.5	24.7
Strongly agree	25.2	39.0

X^2 = .0249

TABLE 118

I KNOW THAT IF I WANTED TO USE THIS METHOD, SERVICE WOULD BE AVAILABLE THROUGHOUT THE DAY (BUS)

	Remaining Sample (%) n=1027	Group IV (%) n=77
Strongly disagree	15.0	9.1
Slightly disagree	18.7	14.3
Neutral	20.8	23.4
Slightly agree	22.6	18.2
Strongly agree	22.9	35.1

X^2 = .0994

TABLE 119

THIS TRANSPORTATION METHOD PROVIDES ADEQUATE PRIVACY WHEN TRAVELING (BUS)

	Remaining Sample (%) n=1030	Group IV (%) n=77
Strongly disagree	25.0	7.8
Slightly disagree	26.2	16.9
Neutral	28.2	46.8
Slightly agree	13.7	16.9
Strongly agree	7.0	11.7

X^2 = .0002

TABLE 120

THERE IS ONLY A SMALL VARIATION IN TRAVEL TIME FROM ONE DAY TO ANOTHER (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	6.6	5.2
Slightly disagree	14.6	3.9
Neutral	31.4	33.8
Slightly agree	23.7	22.1
Strongly agree	23.7	35.1

X^2 = .0387

TABLE 121

WHEN USING THIS VEHICLE I AM ABLE TO TAKE ROUTES WHICH ARE PLEASANT OR SCENIC (BUS)

	Remaining Sample (%) n=1028	Group IV (%) n=77
Strongly disagree	14.9	3.9
Slightly disagree	18.5	10.4
Neutral	38.9	48.1
Slightly agree	17.3	16.9
Strongly agree	10.4	20.8

X^2 = .0018

TABLE 122

I HAVE GREAT ASSURANCE OF GETTING A SEAT (BUS)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	8.5	5.2
Slightly disagree	17.7	11.7
Neutral	28.9	27.3
Slightly agree	28.3	23.4
Strongly agree	16.7	32.5

X^2 = .0109

TABLE 123

USING THIS TRANSPORTATION METHOD REQUIRES NO VEHICLE CHANGES (BUS)

	Remaining Sample (%) n=1028	Group IV (%) n=77
Strongly disagree	17.3	6.5
Slightly disagree	22.4	28.6
Neutral	27.5	27.3
Slightly agree	17.0	23.4
Strongly agree	15.8	14.3

X^2 = .0905

TABLE 124

WHEN USING THIS VEHICLE, I HAVE ADEQUATE SPACE FOR STORING PACKAGES (BUS)

	Remaining Sample (%) n=1037	Group IV (%) n=77
Strongly disagree	12.4	5.2
Slightly disagree	20.6	9.1
Neutral	30.6	37.7
Slightly agree	25.4	33.8
Strongly agree	11.0	14.3

X^2 = .0198

TABLE 125

THERE IS ONLY A SMALL VARIATION IN TRAVEL TIME FROM ONE DAY TO ANOTHER (CARPOOL/VANPOOL)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	3.3	0.0
Slightly disagree	8.5	1.3
Neutral	36.2	50.6
Slightly agree	26.3	18.2
Strongly agree	25.7	29.9

X^2 = .0091

TABLE 126

THIS TRANSPORTATION METHOD PROVIDES A CONVENIENT METHOD OF PAYING FOR THE COST OF THE TRIP (CARPOOL/VANPOOL)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	2.2	1.3
Slightly disagree	3.8	1.3
Neutral	33.0	46.8
Slightly agree	24.1	14.3
Strongly agree	36.8	36.4

X^2 = .0770

TABLE 127

WHEN USING THIS VEHICLE, I AM ABLE TO TAKE A DIRECT ROUTE WITH FEW TURNS AND DETOURS (CARPOOL/VANPOOL)

	Remaining Sample (%) n=1025	Group IV (%) n=77
Strongly disagree	7.2	0.0
Slightly disagree	12.2	5.2
Neutral	35.3	55.8
Slightly agree	25.2	16.9
Strongly agree	20.1	22.1

X^2 = .0008

TABLE 128

WHEN USING THIS VEHICLE, I HAVE ADEQUATE SPACE FOR STORING PACKAGES (CARPOOL/VANPOOL)

	Remaining Sample (%) n=1028	Group IV (%) n=77
Strongly disagree	6.7	3.9
Slightly disagree	16.9	11.8
Neutral	36.7	52.6
Slightly agree	25.6	18.4
Strongly agree	14.1	13.2

X^2 = .0846

TABLE 129

WHEN I USE THIS VEHICLE, I AM VERY LIKELY TO ARRIVE AT MY DESTINATION ON TIME (CARPOOL/VANPOOL)

	Remaining Sample (%) n=1030	Group IV (%) n=77
Strongly disagree	3.5	1.3
Slightly disagree	8.3	2.6
Neutral	31.9	32.5
Slightly agree	32.3	23.4
Strongly agree	24.0	40.3

X^2 = .0098

TABLE 130

I AM ABLE TO SELECT THE TIME I WANT TO GO ON A TRIP WHEN USING THIS METHOD (CAR)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	0.7	0.0
Slightly disagree	1.1	6.5
Neutral	1.4	5.2
Slightly agree	4.6	9.1
Strongly agree	92.3	79.2

$X^2 = .0000$

TABLE 131

RIDING IN THIS TRANSPORTATION METHOD PROVIDES ME WITH HIGH PERSONAL SAFETY FROM CRIME (CAR)

	Remaining Sample (%) n=1030	Group IV (%) n=77
Strongly disagree	2.0	1.3
Slightly disagree	3.9	3.9
Neutral	8.1	18.2
Slightly agree	20.6	23.4
Strongly agree	65.4	53.2

$X^2 = .0329$

TABLE 132

THERE IS USUALLY ONLY A SMALL VARIATION IN TRAVEL TIME FROM ONE DAY TO ANOTHER (CAR)

	Remaining Sample (%) n=1029	Group IV (%) n=77
Strongly disagree	1.2	0.0
Slightly disagree	2.8	0.0
Neutral	4.2	18.2
Slightly agree	10.4	14.3
Strongly agree	81.4	67.5

$X^2 = .0000$

TABLE 133

BEING ABLE TO MAKE A TRIP WITHOUT CHANGING VEHICLES

		Remaining Sample (%) n=1031	Group IV (%) n=77
Not important	0.0	3.7	6.5
	0.5	0.6	1.3
Slightly important	1.0	9.2	14.3
	1.5	4.6	6.5
Important	2.0	29.9	39.0
	2.5	10.6	6.5
Very important	3.0	41.5	26.0

$X^2 = .0639$

TABLE 134

BEING ABLE TO TAKE A DIRECT ROUTE, WITH FEW TURNS AND DETOURS

		Remaining Sample (%) n=1031	Group IV (%) n=77
Not important	0.0	10.1	15.6
	0.5	2.1	2.6
Slightly important	1.0	15.8	28.6
	1.5	6.2	3.9
Important	2.0	32.6	24.7
	2.5	9.1	11.7
Very important	3.0	24.1	13.0

$X^2 = .0171$

TABLE 135

ADEQUATE ROOM BETWEEN YOU AND OTHERS IN THE VEHICLE

		Remaining Sample (%) n=1031	Group IV (%) n=77
Not important	0.0	6.2	3.9
	0.5	2.1	3.9
Slightly important	1.0	15.8	36.4
	1.5	6.5	10.4
Important	2.0	35.6	31.2
	2.5	6.6	2.6
Very important	3.0	27.2	11.7

$X^2 = .0000$

TABLE 136

USUAL TIME FOR TRAVEL TO AND FROM WORK THE 2 to 4 P.M. TIME SLOT

	Remaining Sample (%) n=513	Group IV (%) n=34
Do not travel at this time	74.9	55.9
Travel at this time	25.1	44.1

$X^2 = .0256$

TABLE 137

USE OF DRIVE ALONE FOR WORK TRIPS

	Remaining Sample (%) n=523	Group IV (%) n=34
Do not use this mode	7.5	20.6
Use this mode	92.5	79.4

$X^2 = .0176$

TABLE 138

USE OF DRIVE/RIDE WITH FAMILY MEMBER FOR WORK TRIPS

	Remaining Sample (%) n=523	Group IV (%) n=34
Do not use this mode	47.2	64.7
Use this mode	52.8	35.3

$X^2 = .0720$

TABLE 139

USE OF REGULAR BUS SERVICE FOR WORK TRIPS

	Remaining Sample (%) n=523	Group IV (%) n=34
Do not use this mode	87.4	61.8
Use this mode	12.6	38.2

$X^2 = .0001$

TABLE 140

USE OF DRIVE ALONE FOR EDUCATION TRIPS

	Remaining Sample (%) n=270	Group IV (%) n=27
Do not use this mode	35.6	59.3
Use this mode	64.4	40.7

$X^2 = .0268$

TABLE 141

USE OF CARPOOL/VANPOOL FOR EDUCATION TRIPS

	Remaining Sample (%) n=270	Group IV (%) n=27
Do not use this mode	60.4	81.5
Use this mode	39.6	18.5

TABLE 142

USE OF DRIVE ALONE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=886	Group IV (%) n=69
Do not use this mode	21.4	43.5
Use this mode	78.6	56.5

X^2 = .0001

TABLE 143

USE OF DRIVE ALONE FOR VISITS WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=901	Group IV (%) n=72
Do not use this mode	26.7	45.8
Use this mode	73.3	54.2

X^2 = .0009

TABLE 144

REGULAR BUS SERVICE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=886	Group IV (%) n=69
Do not use this mode	86.0	69.6
Use this mode	14.0	30.4

X^2 = .0005

TABLE 145

USE OF REGULAR BUS SERVICE FOR VISITS WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=901	Group IV (%) n=72
Do not use this mode	92.6	75.0
Use this mode	7.4	25.0

X^2 = .0000

TABLE 146

USE OF DRIVE ALONE FOR SHOPPING (GROCERY) TRIPS

	Remaining Sample (%) n=811	Group IV (%) n=72
Do not use this mode	20.6	36.4
Use this mode	79.4	63.6

X^2 = .0098

TABLE 147

USE OF DRIVE ALONE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group IV (%) n=70
Do not use this mode	34.4	48.6
Use this mode	65.6	51.4

X^2 = .0249

TABLE 148

USE OF DRIVE/RIDE WITH FAMILY MEMBER FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group IV (%) n=70
Do not use this mode	13.4	21.4
Use this mode	86.6	78.6

X^2 = .0941

TABLE 149

USE OF CARPOOL/VANPOOL FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group IV (%) n=70
Do not use this mode	69.1	85.7
Use this mode	30.9	14.3

X^2 = .0053

TABLE 150

USE OF REGULAR BUS SERVICE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group IV (%) n=70
Do not use this mode	93.2	77.1
Use this mode	6.8	22.9

X^2 = .0000

TABLE 151

USE OF BICYCLE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=842	Group IV (%) n=70
Do not use this mode	91.8	80.0
Use this mode	8.2	20.0

X^2 = .0020

TABLE 152

USE OF DRIVE/RIDE WITH FAMILY MEMBER FOR VISITS WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=901	Group IV (%) n=72
Do not use this mode	12.5	23.6
Use this mode	87.5	76.4

X^2 = .0133

TABLE 153

USE OF DRIVE/RIDE WITH FAMILY MEMBER FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=886	Group IV (%) n=69
Do not use this mode	15.1	26.1
Use this mode	84.9	73.9

$X^2 = .0260$

TABLE 154

CONSIDERATION OF REGULAR BUS SERVICE FOR WORK TRIPS

	Remaining Sample (%) n=518	Group IV (%) n=34
Do not use this mode	70.5	35.3
Use this mode	29.5	64.7

$X^2 = .0000$

TABLE 155

CONSIDERATION OF TAXI FOR WORK TRIPS

	Remaining Sample (%) n=518	Group IV (%) n=34
Would not consider	96.3	85.3
Would consider	3.7	14.7

$X^2 = .0087$

TABLE 156

CONSIDERATION OF BICYCLE FOR WORK TRIPS

	Remaining Sample (%) n=518	Group IV (%) n=34
Would not consider	87.5	73.5
Would consider	12.5	26.5

$X^2 = .0405$

TABLE 157

CONSIDERATION OF DRIVE ALONE FOR EDUCATION TRIPS

	Remaining Sample (%) n=273	Group IV (%) n=27
Would not consider	34.8	63.0
Would consider	65.2	37.0

$X^2 = .0074$

TABLE 158

CONSIDERATION OF DRIVE ALONE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=882	Group IV (%) n=69
Would not consider	28.2	40.6
Would consider	71.8	59.4

$X^2 = .0417$

TABLE 159

CONSIDERATION OF DRIVE/RIDE WITH FAMILY MEMBER FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=882	Group IV (%) n=69
Would not consider	18.1	30.4
Would consider	81.9	69.6

$X^2 = .0190$

TABLE 160

CONSIDERATION OF REGULAR BUS SERVICE FOR SHOPPING (NON-FOOD) TRIPS

	Remaining Sample (%) n=882	Group IV (%) n=69
Would not consider	69.6	34.8
Would consider	30.4	65.2

$X^2 = .0000$

TABLE 161

CONSIDERATION OF REGULAR BUS SERVICE FOR SHOPPING (GROCERY) TRIPS

	Remaining Sample (%) n=811	Group IV (%) n=54
Would not consider	85.1	53.7
Would consider	14.9	46.3

$X^2 = .0000$

TABLE 162

CONSIDERATION OF DRIVE/RIDE WITH A FAMILY MEMBER FOR VISITS WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=901	Group IV (%) n=72
Would not consider	18.1	30.6
Would consider	81.9	69.4

$X^2 = .0148$

TABLE 163

CONSIDERATION OF REGULAR BUS SERVICE FOR VISITS WITH FRIENDS, RELATIVES

	Remaining Sample (%) n=901	Group IV (%) n=72
Would not consider	81.2	48.6
Would consider	18.8	51.4

$X^2 = .0000$

TABLE 164

CONSIDERATION OF DRIVE ALONE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=843	Group IV (%) n=70
Would not consider	43.1	57.1
Would consider	56.9	42.9

$X^2 = .0312$

TABLE 165

CONSIDERATION OF REGULAR BUS SERVICE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=843	Group IV (%) n=70
Would not consider	83.0	57.1
Would consider	17.0	42.9

$X^2 = .0000$

TABLE 166

CONSIDERATION OF BICYCLE FOR ENTERTAINMENT TRIPS

	Remaining Sample (%) n=843	Group IV (%) n=70
Would not consider	92.2	84.3
Would consider	7.8	15.7

$X^2 = .0397$

CHAPTER SEVEN

MODAL ATTRIBUTE PREFERENCE

PURPOSE OF STUDYING CONSUMER PREFERENCES FOR SPECIFIC MODE ATTRIBUTES

This chapter describes the third stage of the public transportation MOA and reports results of the study of modal attribute preferences within selected market segments. Two groups of transportation users were identified in the previous segmentation stage of this analysis. These groups were designated as transportation leaners from analysis of their transportation attitudes showing positive predispositions and receptivity to transportation alternatives to the single occupancy automobile. Members of these segments have been profiled in terms of their demographic characteristics and transportation use; additional information is required to assess their receptivity to specific transportation alternatives.

The purpose of this stage in the MOA is to investigate the preferences of selected consumers for various transportation features (attributes) that can be combined to provide a type of service. Consumer preference information on modes, attributes, and mode attribute combinations are sought to provide data which can be incorporated in the planning and design of a transportation system to serve various transportation needs of groups within the community.

MULTIATTRIBUTE TRANSPORTATION PREFERENCES

Consumer decisions, whether for durable or nondurable products or services, can be analyzed from the perspective of consumer satisfaction. In order to translate this statement into an operational scheme, the following factors require consideration: the alternatives representing viable choices (brands), the attributes (characteristics) by which these brands can be described and differentially evaluated, and the varying importance (weight) of these attributes across selection alternatives in the specific choice situation. Identification of those attributes important to specific groups of transportation users and the inclusion of perceived levels of attributes common to specific alternatives should provide useful information to the transportation system designer in providing service to various potential user groups. If, for example, an attribute such as "arriving on time" is of extreme importance to a user group (e.g., a commuter group) and certain transportation alternatives are perceived as possessing this important characteristic, express bus for example, this mode will represent a viable alternative for this group. However, this simple example poses two major problems that need to be considered carefully for this marketing approach to be useful.

One area of potential difficulty is the selection of attributes on which consumers judge (evaluate) transportation alternatives. Inclusion of those attributes that are salient to consumers and that provide key dimensions determining transportation choices is a necessity. Identification of such salient and determinant attributes across a variety of transportation consumers requires careful research. Obviously, exclusion of just one such important attribute could seriously jeopardize subsequent research results. Accordingly, an extensive set of attributes that describe and differentiate transportation alternatives is a requirement in this phase of the study.

Additionally, an easily overlooked but complicating aspect of attribute selection and identification is the terminology used to describe different attributes and transportation alternatives. Simply put, the language of the transportation planner and that of the consumer are quite different. What the planner labels fixed-route, fixed-schedule transit translates as a type of bus to most consumers. However, most consumers would not only have trouble with the translation, but would fail to appreciate the different types of "bus service" potentially available and best described in terms of differentiating attributes (e.g., express bus, skip stop, etc.). Therefore, serious efforts must be undertaken to translate the terminology of the transportation planner into the language of the transportation consumer and to educate potential consumers to the varieties of transportation services that they may only visualize in any limited market (e.g., "bus") but which may be designed to meet specific needs and preferences. Examples of this situation are found in Part III of the questionnaire (see App. E) where descriptive scenarios are developed in order to present a limited range of transporta-

tion possibilities and to obtain consumer reaction to these alternatives. Both the transportation planner's descriptive label and a complete interpretation (translation) of each transportation alternative are presented to the respondent.

LEVELS OF SERVICE

In order to obtain more detailed consumer information specific to different characteristics of public transportation service, the desirability of various levels of service were assessed in Part IV of the questionnaire (App. E). An effort was made to determine which levels of certain transportation service characteristics held the most appeal for the two groups under study. For example, the service characteristic "waiting time prior to using service" was evaluated with respect to the following three levels: less than 5 min, 5 to 10 min, and 10 to 20 min. Responses to the desirability of these levels could provide an important consumer input into the headways or scheduling of fixed-route alternatives.

Other service characteristics are similarly evaluated on the desirability of levels specific to that characteristic. From the complete evaluation of all service levels, and overall assessment of preferred service characteristics and their respective levels may emerge for those consumer types sharing similar attitudes toward transportation and identified in stage 2 of this study as "transportation leaners." Transportation services could then be assembled to meet these consumer preferences. Although this approach is quite simple and straightforward, a pitfall can develop if consumer responses reflect a unidimensional preference function for the highest (the costliest) level of service. This simply translates into preferring a Cadillac with all of its power, comfort, prestige, etc., at Volkswagen prices—obviously not a viable alternative from a transportation point of view. But this result is possible given the scheme of consumer evaluations which allows respondents to judge service levels irrespective of other service characteristics. In order to provide for this situation and to reduce the boundaries of unlimited choice, the concept of tradeoff analysis is introduced.

In Part V of the questionnaire, respondents are presented with a series of transportation service alternatives that take into account various tradeoffs between time and cost parameters. Examples of transportation services are provided in terms of levels-of-service characteristics that can be traded off one against the other, depending on the respondent's specific preferences for service levels. For example, in Q1, a transportation service is described in terms of waiting time and one-way fare. Three levels of waiting time (less than 5 min, 5 to 10 min, and 10 to 20 min) are contrasted with three levels of one-way fare ($0.25, $0.75, and $1.25). Respondents rank the combinations of time and cost that are most appealing to them. Obviously, in this instance the first choice would undoubtedly be the lowest cost trip with the shortest waiting time. Hence, a 1 is placed in the cell representing this combination (see Table 167).

Once this first choice is made, respondents must then consider if the amount of the fare or the amount of waiting time is more important. If money (lower fare) is preferred over time (waiting for vehicle), a 2 is placed in the cell representing the $0.25 fare but a longer waiting time of 5 to 10 min. Possibly, in this example, a third choice will be the $0.75 trip with less than a 5-min wait, perhaps indicating that 10 to 20 min is too long to wait even for an inexpensive $0.25 ride. This pattern can be reinforced with the remaining nine choices which demonstrate a propensity for higher fares in an effort to keep waiting time to 10 min or less.

TABLE 167 ILLUSTRATIVE RESPONSE TO TRADEOFF QUESTION

One-Way Fare	Less than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
$.25	1	2	7
$.75	3	4	8
$1.25	5	6	9

Although first and last choices in this scheme of tradeoffs are often as shown in the example, the second through eighth choices provide important information as to the levels-of-service characteristics preferred when compared to other levels-of-service characteristics. By contrasting all pairs of service characteristics one against the other (n service characteristics are represented by $[n(n-1)]/2$ paired comparisons), patterns of preference emerge which can provide the transportation system designer with detailed consumer information that can be assembled into a concept of transportation service which can then be tested on potential users.

RESULTS OF MODAL ATTRIBUTE PREFERENCE STUDY

The group of 100 consumers with positive attitudes toward transportation alternatives to single occupancy automobiles identified earlier in the segmentation phase of this research were studied further. Responses were analyzed in light of consumer preferences for mode attributes and system characteristics.

A perspective on current mode use patterns preferences of the group (designated as transportation leaners) can be gained by examining Table 168. Of the 100 individuals, 39 selected driving alone as their preferred mode, while 38 chose drive/ride with family member as their favorite way to travel. Similarly, 11 individuals like driving or riding with a friend, and 10 individuals selected regular bus service as their

TABLE 168 MODE USE RANKING (N = 100)

Mode	Mode Usage Rank 1st	2nd	3rd	Do Not Use
Drive Alone	39	24	7	28
Drive/Ride with Family Member	38	32	15	11
Drive/Ride with a Friend	11	24	33	21
Carpool/Vanpool	1	2	4	85
Express/Commuter Bus Service	-	4	2	83
Regular Bus Service	10	11	15	36
Taxi	-	1	2	87
Motorcycle	-	-	3	90
Bicycle	1	2	10	59
Rental Car	-	-	-	93

preferred mode. Approximately 60 percent of the group selected a mode other than single occupancy automobiles as their preferred method of traveling. This figure is further reinforced when individuals were forced to make second and third choices, with paratransit and transit alternatives receiving much greater support than single occupancy automobiles. Also of note in describing this group's transportation patterns are those modes which a large majority indicate they do not use—carpool/vanpool, express/commuter bus, taxi, motorcycle, and rental car. Although any number of reasons may account for such uniformly high nonusage, these figures may also point to new transportation opportunities that need development if supported by consumer desires.

A further indication of the attractiveness of specific modes to nonusers of those modes is reported in Table 169. The likelihood of switching to a specific mode when one's normal mode is unavailable, given that one does not normally use the alternative being considered, reinforces results reported in Table 168. Interestingly, regular bus service, walking, and driving or riding with a family member show the greatest consumer interest in a situation analogous to the trial of a new product (mode). Also, drive alone, bicycle, express bus, and carpool are alternative modes that show consumer interest and support. Perhaps the most pleasant surprise in the data is recurring strength of regular bus as a perceived viable alternative by those consumers who traditionally do not use this mode.

When considering all other trip purposes exclusive of work trips, driving alone and driving or riding with a family member are the dominant modes. However, as shown in Table 170, a small number (6 percent) continue to rely on regular bus service for these trips. But for the most part results show a heavy dependence on the automobile (indicating noncaptive travelers). The opportunity may exist for modes other than private automobiles, although these other modes were not greatly used for nonwork trips.

TABLE 169 LIKELIHOOD OF SWITCHING TO OTHER MODES WHEN NORMAL MODE UNAVAILABLE (N = 100)

Mode	Of Those Commuters Who Do Not Use This Mode, the Stated Likelihood of Using This Alternative Is (%):
Drive Alone	55
Drive/Ride with Family Member	71
Carpool	34
Vanpool	12
Express Bus	35
Regular Bus	76
Taxi	19
Walk	67
Motorcycle	9
Bicycle	46
Rental Car	3

TABLE 170 METHODS OF TRAVELING FOR PURPOSES OTHER THAN WORK (N = 100)

Mode	Percent Using this Mode
Drive Alone	33
Drive/Ride with Family Member	53
Carpool	3
Vanpool	-
Express Bus	-
Regular Bus	6
Taxi	-
Walk	1
Motorcycle	-
Bicycle	2
Rental Car	-
Other	2
	100

MODAL ATTRIBUTE PREFERENCES

Prior to obtaining consumer preference information with respect to specific modes, the desirability of various system characteristics was assessed in order to gain insight into the attributes (characteristics) most preferred by this group of transportation leaners. In Table 171 a listing of possible system characteristics is provided. In addition to the attribute (characteristic) description shown in the first column, for example, "cost of a typical shopping trip," the range of alternative attribute levels is found in the second column and the levels preferred by consumers are reported in the third column. In the case of the first attribute (example), the cost range considered was \$0.25 to \$2.50 for a one-way trip, while the most preferred price level was from \$0.25 to \$0.75. Obviously, many other factors affect price preference levels such as distance, type of vehicle, and so on. However, in this initial attempt to collect attribute preference information, each characteristic is evaluated uniquely. (Subsequent results will be included that attempt to mitigate the artificiality that may result from single attribute evaluations.)

It is also worth noting that various ranges of alternative attribute levels may also have some impact on those levels that are perceived as most preferable. Limited choices may restrict preferred alternatives, while wider ranges of alternatives including some of limited feasibility may unrealistically heighten choice levels. In an effort to minimize these two types of errors, imputs from transportation planners and researchers were incorporated into these questions. The results are given in Table 172. (Note that trip purpose was not specified; hence responses could include system characteristic preferences pertaining to work as well as nonwork trips.)

A relative comparison of consumer preferences for various transportation systems characteristics is provided in Table 172. In order to facilitate system designs incorporating those features most desired by consumers, a set of system characteristics was evaluated according to their desirability. The table groups responses from a five point desirability scale into two categories—high and low desirability. Results show (in decreasing order) the relative preferences afforded each attribute. Notably, those system characteristics denoting cost, time, proximity, and availability lead the list of most desired system attributes.

In an effort to measure consumer intentions to use various transportation alternatives, five scheduling alternatives were presented in scenario form (see Table 173). In this example only schedule variations (irrespective of vehicle description) were tested to gauge consumer reaction to manageable

TABLE 171 PREFERENCE LEVELS FOR SYSTEM CHARACTERISTICS

	Attribute	Range of Alternative Attribute Levels	Cutoff (Max/Min) Level Is Between
1.	Cost of a Typical Shopping Trip	$.25, $.75, $1.25, $2.50 one way	$.25-$.75
2.	Chances of Getting A Seat on the Vehicle	1/4, 1/2, 3/4 chance-certainty	1/2-3/4 chance
3.	Cost of a Typical Work Trip	$.25, $.75, $1.25, $2.50 one way	$.25-$.75
4.	Space Between You and Others on Vehicle	Shoulder to Shoulder--Separate Seat for Each Individual with Extra Leg & Shoulder Room	Shoulder to shoulder--Bench Seat--Shoulders not touching
5.	Waiting Time Prior to Using Service	Less than 5 minutes, 5 to 10, 10 to 20, 20 or more minutes	5 to 10 minutes--10 to 20 minutes
6.	Arriving at Your Destination	On Time, 5 minutes late, 5 to 10 minutes late, 10 to 20 minutes late	5 minutes late to 5 to 10 minutes late
7.	Number of Vehicle Changes Required to Get to Your Destination	No transfer, 1 transfer, 2 transfers	1 transfer, 2 transfers
8.	Time to Vehicle Pickup Point When Walking	Less than 5 minutes, 5 to 10 minutes, 10 to 20 minutes	5 to 10, 10 to 20 minutes
	When Driving	same	same
9.	Protection from Adverse Weather	Shelter, Phone--no shelter, lights, seating	Shelter only
10.	Availability of Service	24 hour service--selected times between 6 am and 6 pm	6 am to 6 pm service
11.	Control Over Use of Service	Regular, preplanned stops, Call same day, Call day before use	Call same day
12.	Route Directness	Nonstop, 1 to 2 stops, more than 2 stops	No break

TABLE 172 PREFERENCES FOR SYSTEM CHARACTERISTICS

Attribute	High Desirability	Low Desirability
Low cost for using the service relative to car	97	03
Arriving at your destination at desired time	96	04
Having the vehicle pick you up at a point very close to where you are when you need the service	95	05
Having a service that is available to you whenever you want to use it throughout the day and evening	95	05
Being able to arrive at your destination without changing vehicles	93	07
Short time waiting prior to using the service	92	08
Having very good protection from adverse weather while waiting to use vehicle	92	08
Very easy entry and exit from the vehicle	92	08
Certainty of getting a seat on the vehicle you want to use	89	11
Being able to stop at more than one destination without having to pay an extra or additional fare	89	11
Having a convenient way of paying for the service	86	11
Being able to use the service exactly when you are ready to ride	86	14
Being able to get to your destination by using the service as fast as if you drove by yourself in a car	83	17
Being able to ride directly to your destination without the vehicle taking any detours of the most direct route	81	19
Having a nonstop direct service to your destination	76	24
Having an uncrowded vehicle where you have plenty of space between you and other people	76	24
Being able to stop at more than one destination while using the same vehicle	58	42
Having the freedom to change your destination after you are in the vehicle	56	44

schedule alternatives. Scheduling alternative 1 describes a fixed-route, fixed-schedule system; the majority of the respondents indicated potential use of this system. This may be due in part to greater respondent familiarity with this type of system. Scheduling alternative 2 allows for schedule variation given consensus of the riders. Approximately one-fourth of the respondents indicated inclination to use this type of service. Alternative 3 reflects an irregular schedule and a wait for pickup at a predetermined location. Slightly more than one-fourth of the consumers surveyed showed an inclination to participate in this service. Alternative 4 includes a phone request for service along with an irregular schedule. Results are similar to usage inclination for alternatives 2 and 3. Finally, alternative 5 involves a 24-hour phone reservation request system coupled with an irregular schedule. Although results are similar to those reported for the last three alternatives, this service has the lowest indication of consumer usage inclination.

Because the type of vehicle with which service may be provided can vary, consumer preferences for vehicle types were obtained on a rank order preference basis as shown in Table 174. Not surprisingly, the transportation leaner group favors bus-type vehicles in general, with greatest preference for a minibus. Three different automobile-type vehicles were all ranked lower than the three different bus configurations. Somewhat unaccountably, a van-type vehicle had the lowest first choice ranking, but became more attractive as a first choice alternative. Strong consideration in interpreting the results of the rank order preferences should be given to the fact that a well-established bus system exists in Jacksonville with which the respondent group is familiar. Other types of transportation services, including vans, appear to be less well established and, hence, less familiar to respondents. This lack of awareness may be subsequently reflected in the lower preference rankings.

COMMUTER PATTERNS AND PREFERENCES

The results discussed to this point reflect the responses of 100 consumers designated transportation leaners from analysis of their transportation attitudes and activities. Of these 100 individuals, exactly one-half commute to and from work. A brief look at the trip patterns of these 50 individuals reinforces the viability of transportation modes other than the single occupancy automobile.

In Table 175, the dominance of the single occupancy automobile is revealed with 64 percent of commuters using this mode. Adding the 12 percent who drive or ride with family members to the 64 percent driving alone, 76 percent of commuters can be classified as not being transit dependent. However, 18 percent of the community group under study do ride the bus.

TABLE 173 LIKELIHOOD OF TRANSPORTATION USE FOR EACH OF FIVE SCHEDULING ALTERNATIVES (N = 100)

Scheduling Alternatives	Percent Indicating Service Usage
Scheduling Alternative 1	
This vehicle will pick up and deliver passengers at regularly scheduled times. To use the service you would find out the vehicle's schedule and then wait for it to pick you up at its regularly scheduled time.	55
Scheduling Alternative 2	
This vehicle will pick up and deliver passengers at regularly scheduled times, but the passengers help determine the schedule. To use the service you would wait for the vehicle to pick you up at its regularly scheduled time. To change the schedule you would notify the driver of your suggested change. The driver would ask the other riders to agree to the change. Changes would be made if there is a consensus of the riders.	24
Scheduling Alternative 3	
This vehicle will not follow a fixed schedule. It provides frequent service along the same street to the same predetermined places such as shopping centers, schools, industrial plants, parks, etc. To use the service you would walk to the street or one of these predetermined places and wait for the next vehicle to pass. You would hail (wave or call) the vehicle to stop and pick you up.	27
Scheduling Alternative 4	
This vehicle will not follow a fixed schedule. To use it you telephone the transportation company office and ask to be picked up. The dispatcher will tell you when the vehicle will be able to pick you up. You would then wait for the vehicle.	26
Scheduling Alternative 5	
This vehicle will not follow a fixed schedule. To use it you would telephone the transportation company office at least a day in advance to request service on a specific day and at a specific time. On that day the vehicle would pick you up at the designated time.	23

TABLE 174 VEHICLE PREFERENCE RANKINGS (N = 100)

Vehicles	Percent Ranking Vehicle as: 1st	2nd	3rd
Limousine (extra long automobile, similar to those used at many airports, storage area in back for packages, individual side doors, padded bench seats).	11	2	6
Van (many windows, side door as well as front door, has auto-type padded bench seats).	3	15	12
Transit Bus with traditional bench seats.	14	23	23
Automobile with four doors, trunk space for packages, padded bench seats.	7	12	9
Minibus (holds 20 passengers instead of 40, smaller profile, less noise, traditional bus bench seats).	41	12	21
Automobile with four doors, trunk space for packages, individual contour seats.	7	12	10
Transit Bus with individual molded seats, wide doors, lots of seat room.	21	23	18

TABLE 175 METHODS OF TRAVELING TO WORK (N = 50)

Mode	Percent Commuters Using This Mode
Drive Alone	64
Drive/Ride with Family Member	12
Carpool	2
Vanpool	--
Express Bus	--
Regular Bus	18
Taxi	--
Walk	--
Motorcycle	--
Bicycle	2
Rental Car	--
Other	2
Total Commuters (N = 50)	100

An assessment of commuter preference for modes other than those normally used was made by asking respondents to select another mode of transportation if their usual mode was unavailable. Results reveal the attractiveness of bus (regular and express) as well as carpooling as second choices to normal modes (Table 176). The viability of these alternatives does not seem to be materially affected by time of departure from home or work. Tables 177 and 178 show the times of those commuters leaving for work and returning home from work respectively. The distributions do not appear so dispersed that transportation alternatives to the automobile are not possible modes for consideration. However, more detailed information on travel time and destination requirements is necessary before specific modes can be identified to meet specific commuting needs of consumers.

TABLE 176 LIKELIHOOD OF SWITCHING TO OTHER MODES WHEN NORMAL MODE UNAVAILABLE FOR WORK TRIP (N = 50)

Mode	Of Those Commuters Who Do Not Use This Mode, the Stated Likelihood of Using This Alternative if Their Usual Mode is Unavailable is (%):
Drive Alone	47
Drive/Ride with Family Member	58
Carpool	60
Vanpool	24
Express Bus	41
Regular Bus	62
Taxi	10
Walk	33
Motorcycle	4
Bicycle	33
Rental Car	0

TABLE 177 TIME DISTRIBUTION OF COMMUTERS LEAVING FOR WORK (N = 50)

Time 24 Hour Clock	Percent of Commuters Going to Work
0000-0259	5
0300-0559	2
0600-0629	12
0630-0659	17
0700-0729	26
0730-0759	9
0800-0829	7
0830-0859	5
0900-1159	7
1200-1359	-
1400-1859	5
1900-2359	5
Total	100

TABLE 178 TIME DISTRIBUTION OF COMMUTERS RETURNING HOME FROM WORK (N = 50)

Time (24 Hour Clock)	Percent of Commuters Leaving Work At This Time
0000-0259	5
0300-1159	2
1200-1559	19
1600-1829	48
1830-1959	-
2000-2159	14
2200-2359	12
	100

CHAPTER EIGHT

USING MARKET ANALYSIS TO MATCH PUBLIC TRANSPORTATION SYSTEMS TO MARKETS

A SYSTEMATIC APPROACH

The value of having the market analysis data lies in the guidance it provides planners who are trying to match public transportation services to markets. The purpose of stage 2 data was to describe preferences people in the preselected segment had for system characteristics that would make a service competitive to them. Using the preferences and other data, planners can better evaluate alternative system designs to narrow down to those most likely to match market needs and wants. From this effort will come one or more proposals for new or modified systems for specific market targets. These proposals can be analyzed for cost requirements and can be tested in markets to better predict the level of market acceptance before a go/no-go decision is made.

Using market analysis data to develop public transportation system proposals requires coordination between market analysts and planners who are experienced in systems design. Clearly, a considerable amount of sound judgment is needed to translate market preference information into operational systems proposals. It is also very beneficial if the planners have experience in applying market analysis information to management decisions. Probably the most important role of market analysis data is to stimulate and guide creative ideas from planners for system designs. Practice at matching systems to markets by using market analysis data clearly improves the effort.

Application of market analysis data can be enhanced by following a systematic approach to this matching process. Such an approach should ensure that a careful assessment of market and cost information provides the basis for selecting candidate systems for markets. A systematic approach also will facilitate the needed coordination between public transportation planners and market analysts. The approach used for the Jacksonville study is shown in Figure 10.

CATEGORIZING SYSTEM ALTERNATIVES

The starting point for matching public transportation systems to markets is to outline the system alternatives that management is willing to consider. Because many system variations are possible, it is important to develop some categorization scheme to organize alternatives into types. This will greatly facilitate later evaluation of alternatives against market preferences.

A scheme chosen should be based on system characteristics that are important influences on demand. The categorization used in this study is based on route and schedule variations that are possible. Looking first at schedule variations, a system may have either a fixed schedule or a flexible schedule. With respect to route variations, there are several possibilities. A route may be fixed in advance or deviations from a planned route may be allowed. If deviations are allowed, there are different kinds of deviations that can be

considered. For a route deviation service, requests can be made for the vehicle to deviate a few blocks off a fixed route for pickup or delivery of a rider. Other deviation options are more pervasive. A point deviation allows a flexible routing between stops at prespecified activity centers to respond to rider requests. Many-to-few routes allow pickups anywhere in a preestablished service area, but limit destinations to a few specified activity centers. Finally, a many-to-many routing allows flexible routings anywhere within a service area. Using the route-schedule categorization, public transportation modes fall into a relatively few groupings as shown in Figure 11. Other classification schemes are also possible, of course; this categorization proved very useful to this study.

PRIORITIZING MARKET ANALYSIS DATA

Making complete use of market analysis requires assembling the different kinds of data available and then assessing the role and importance of each kind in the matching process. Part of the needed data may come from market survey work; another part comes from other sources typically available in a community. These may include U.S. Bureau of the Census reports, traffic studies, aerial photographs, and community planning reports. All persons involved in systems design must be given the opportunity to suggest types of data they may feel are necessary to select between alternative public transportation. These suggestions will typically include population and area data not found in market survey studies.

Once data are listed, it is very helpful to examine how essential each type of data is to the evaluation. This process will encourage basing an evaluation on modes for markets on a variety of considerations rather than overrelying on too few factors. This process also will offer designers the chance to review how well they understand the nature and purpose of each type of data available, particularly data from market surveys. As an illustration, data used in the Jacksonville market analysis are given in Table 179. A simple priority scale was used as the focus for a discussion among market analysts and transportation experts concerning how each type of data would be used.

MATCHING SYSTEM CHARACTERISTICS TO MARKET CHARACTERISTICS

The benefits from market analysis lie in improved matching of system modal characteristics to market preferences and other characteristics. If market data are to have any value, they must provide public transportation planners with the guidance needed to design a system creatively to fit the needs and wants of market targets. In large part this means choosing system alternatives that will be competitive with what potential customers are using now. An analysis must be made of the types of data given in Table 179 to "trigger" creative thinking.

A useful starting point is to begin sorting out mode alternatives that are not feasible. Over time transportation managers have developed "rules of thumb" concerning population and travel characteristic thresholds or minimums needed by alternative modes to be economically viable. Cross classifying these thresholds against each mode alternative will help reduce the number of mode alternatives that have to be evaluated. Figure 12 shows this kind of cross-classification.

Once the obvious mode-market mismatches have been weeded out, planners must assess judgmentally which of the basic mode types remaining could match market preferences. Here planners must rely on experience to determine whether specific designs which seem to match market preferences and other characteristics are possible. Out of this effort should come one or more plans for a system to meet the market's travel requirements.

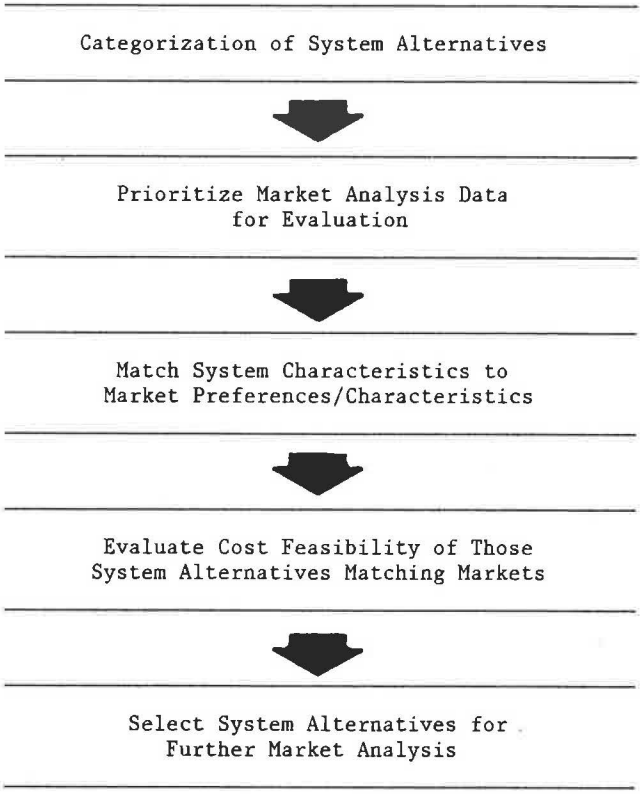


Figure 10. Systematic approach used in the Jacksonville study.

EVALUATING COST FEASIBILITY OF ALTERNATIVES

Once specific mode design plans have been developed, a cost analysis for each plan can be performed. All costs of setting up and operating a system should be considered. From these costs a break-even analysis can be performed to see what demand levels are needed to make the system alternative economically attractive. Rough estimates of demand available in markets, based on size and travel characteristics, can be compared to these break-even demand levels to assess the attractiveness of pursuing opportunities further. It may turn out, for example, that even if a very optimistic percentage of a market converts to the proposed design, demand levels will not offset costs sufficiently. In this case, designers either may redesign the system to operate at lower costs or may drop the plan from further consideration.

SYSTEM ALTERNATIVES FOR FURTHER STUDY

It is unlikely, at this point, that a final decision can be made on whether or not to introduce a system mode alternative into market targets. It may be that more than one alternative remains viable after the cost/break-even analyses. In this case, more market analysis may help to choose between

	Fixed Schedule	Flexible Schedule
Fixed Route	Local bus service	Subscription local service
	Express bus service	Hail local service
	Skip stop bus service	Subscription local service
Deviation Route	Local	Local, local hail, local
	Express	Advanced request, local
	Skip stop	Immediate request
Point Deviation Route		Hail service
		Advanced request
		Immediate request
Many-to-Few Route	Vanpools	Hail
		Advanced request
		Immediate request
		vanpools
Many-to-Many Route	N O T P O S S I B L E	Hail
		Advanced request
		Immediate request

Figure 11. System characteristic classification.

	Threshold Market Characteristics				
System Alternatives	Pop. Density	Trip Length	Trip Frequency	Roads	Etc.
Fixed Route, Fixed Schedule:					
Fixed Route, Flexible Schedule:					
Deviation Route, Fixed Schedule:					
Deviation Route, Flexible Schedule:					
Point Deviation Route, Fixed Schedule:					
Point Deviation Route, Flexible Schedule:					
Many-to-Few Route, Fixed Schedule:					
Many-to-Few Route, Flexible Schedule:					
Many-to-Many Route, Flexible Schedule:					

Figure 12. Cross classification of mode alternatives against travel characteristic thresholds.

TABLE 179 RELATIVE IMPORTANCE OF DATA SOURCES

Essential = 1
Useful = 2
Nice to have, not essential = 3
Not needed = 4

From the Questionnaire	Priority
1. Transportation AIOs	2
2. Mode used for work	1
3. Likelihood of using alternative modes if usual mode not available for work	1
4. Mode used for nonwork	1
5. Likelihood for nonwork	1
6. Trip destination	
a. Place of work (primary and secondary job)	1
b. Number of round trips weekly for work	3
c. Time leave for work	2
d. Time leave from work	2
e. Place of school	2
f. Number of round trips weekly for school	2
7. Frequency of trips for destination centers	
a. Shopping (food)	2
b. Shopping (nonfood)	2
c. Entertainment	2
d. Personal Business	2
e. Medical	2
f. Religious	2
8. Transportation usage by mode-frequency ranking	1
9. Intentions to use routing alternatives	1
10. Intentions to use scheduling alternatives	1
11. Preferences for vehicle types	2
12. Mode attribute desirability	
a. Waiting time prior to use	1
b. Arriving at destination on time	1
c. Arriving at destination without transfer	2
d. Vehicle pickup close to where you are	3
e. Weather protection	1
f. Certainty of getting a seat	2
g. Nonstop to destination	2
h. Freedom to change destination once on vehicle	1
i. Very easy entry and exit	2
j. Stop at more than one destination while using vehicle	2
k. Low cost for using service	1
l. Uncrowded vehicle	2
m. Having a service available to you throughout the day	2
n. Convenient way of paying	2
o. Being able to stop at more than one destination without paying extra fare	2
p. Being able to use service exactly when you are ready to ride	1
q. Being able to ride directly to destination	2
r. Use of service comparable in travel time to car	2
13. Mode attribute level preferences	
a. Cost of a typical shopping trip	1
b. Chances of getting a seat on the vehicle	1
c. Cost of a typical work trip	1
d. Space between you and others on the vehicle	1
e. Waiting time prior to using service	1
f. Arriving at your destination on time	1
g. Number of vehicle changes required to get to your destination	1
h. Time necessary to get to a point where vehicle will pick you up	1
i. Protection from adverse weather	1
j. Availability of service per day	1
k. Your control over when you use service	1
l. Route directness	1
m. Amount of travel time compared to using your car	1
n. Method of payment for service	1
o. You would use a service that leaves earlier or later than usual from work	1
p. Amount of time you are willing to schedule vehicle in advance of its picking you up	1
14. Demographics	
a. Sex	1
b. Marital status	2
c. Number in household	2
d. Number of children in household	1
e. Number of household members working > 30 hours per week	2
f. Occupation	3
g. Primary wage earner	4

TABLE 179 (CONTINUED)

From the Questionnaire	Priority
h. Number of days/weeks worked outside home	3
i. Length of residence in Jacksonville	2
j. Age	1
k. Education	3
l. Income	1
m. Number of vehicles available	1
n. Address and telephone	1
o. Race	2
p. Driver's license	1
q. Number of other licensed drivers in household	2
r. Physically handicapped	1
s. Auto required in job	1
t. Type of dwelling	4
u. Tract number	1
v. Block number	1
15. Subgroupings of sample	
a. Leaners vs. others	1
b. Workers vs. nonworkers	1

Nonquestionnaire Information	Priority
1. Population	1
2. Aerial photographs/area photographs	2
3. Street network	1
4. Tract boundaries	1
5. Travel on streets	
a. Volume	1
b. Timing distribution of use	1
c. Speed average	1
6. Bus routes through the area (Maps)	1
7. Number of taxis per 1000 population	2
8. Type of dwelling units in tract and block	1
9. Ridership on bus system per capita	1
10. Ridership on taxi per capita	1
11. Traffic generators in area	1
12. Projection of population growth from 1970-1990 by census tract	1
13. Poverty level 1970 by census tract	2
14. Existing and proposed industrial areas, and commercial areas	1
15. Community culture, health, education facilities	2
16. 24-hour AADT (Traffic Counts) for the whole area	2

them. Market reaction to an alternative design may be needed to assess how responsive the market will be to the proposal. In each of these situations, the decision concerns what types of, and how much, additional market analysis is needed to evaluate alternative designs further. When a product is new or is being introduced to a new submarket, a relatively new marketing technique called "concept testing" can be used. This process is examined in Chapter Nine.

CHAPTER NINE

TESTING TRANSPORTATION MARKET ACCEPTANCE

The purpose of this chapter is twofold: (1) to overview the approaches for testing market acceptance and (2) to cite and illustrate each step in the final stage of this project, a transportation concept test.

ALTERNATIVES FOR TESTING MARKET ACCEPTANCE

Methodologies for testing new product acceptance have long been used by major consumer product companies, and they offer considerable merit for testing new transportation venture ideas. Prior identification of a target market (leaners) and delineation of a potential transportation service (based on the attribute study) logically precede these methodologies. Use of concept testing, product use testing, and/or market testing follow (Tauber, 1977).

Concept Testing

Concept testing should usually occur early in the transportation planning process, before the service concept has been developed completely. Potential riders are asked to evaluate a service concept rather than the actual service. Respondents are given a pictorial and verbal description of the service and are asked to visualize their actual use and to indicate their likelihood or ridership.

Product Use Testing

Product use testing involves having respondents actually use a new product prior to being interviewed. In the case of consumer products, the respondents may use it for a few minutes or, more likely, over several days in their homes. Product use tests are less abstract and they contribute to higher reliability, but such tests are not applicable to transportation services because they would require at least a simulated introduction of the service itself. This normally would be prohibitively costly.

Market Testing

Market testing also has limited applicability to transportation services. For consumer products, market testing is the most expensive and complex approach, but it also is the most realistic. Because market testing would present the full service strategy to potential customers and must duplicate the real market situation on a small scale, it has limited applicability to most transportation services. Market testing in effect would require that the full service be launched.

An important dimension for further assessing the relevance of the three methodologies to transportation planning is whether or not the service is continuous or discontinuous with respect to potential users (Tauber, 1977). Continuous innovations are products that are so similar to existing items that they require no change in the user's behavior to be adopted. Discontinuous innovations, at the other extreme, require significant changes in usage patterns and/or usage behavior. It is difficult to forecast market acceptance for discontinuous innovations, and concept testing has a poor record in this area. Given the advance familiarity of the leaner segment with public transportation, however, it was decided that potential riders in this group would be able to visualize their use of the service, thus making it a continuous innovation. Concept testing, in general, is probably the most applicable of the three methods to testing the market acceptance for new transportation ventures.

TRANSPORTATION CONCEPT TESTING

The concept testing process is shown in Figure 13, which also cites the first two stages of this project. The logical outgrowth of the attribute study was the development of the concept itself.

Development of a well-stated concept description is fundamental to the success of a concept test. Every effort should be made to make the description readily understandable and realistic. Respondents must be able to visualize their actual use of the transportation service in order to evaluate their likelihood of riding it.

The starting point was to refer to the priority features or attributes previously identified as important. This ensures that the features of importance to potential riders are included in the concept description. Then a narrative that was readily understandable to average citizens had to be developed. It was essential at this stage to have nontransportation planners involved. Early drafts of the concept description (developed by engineers from the attribute information and cost analysis) were dominated with language readily understandable to transportation specialists but not to transportation leaners, the people in the potential market segment). The most appropriate language for the potential users (defined market segment) must be used. In this study, several rewritten drafts were required. A questionnaire pretest also focused partially on respondents' ability to understand the concept description. Full concept descriptions developed for this study are included in Appendix F.

Initially, engineering members of the research team analyzed the data from stage 2 of the MOA process and decided an expanded "grid" network best met the respondents' attribute preferences. Given the geographically identified target market, the researchers proceeded to design an intricate high service level traditional transit network to supplement existing bus service for commuter work trips in the area. Their initial alternative became known as the "Grid System Alternative."

It should be noted that an integral element of the research process was to ascertain and observe what types of transit

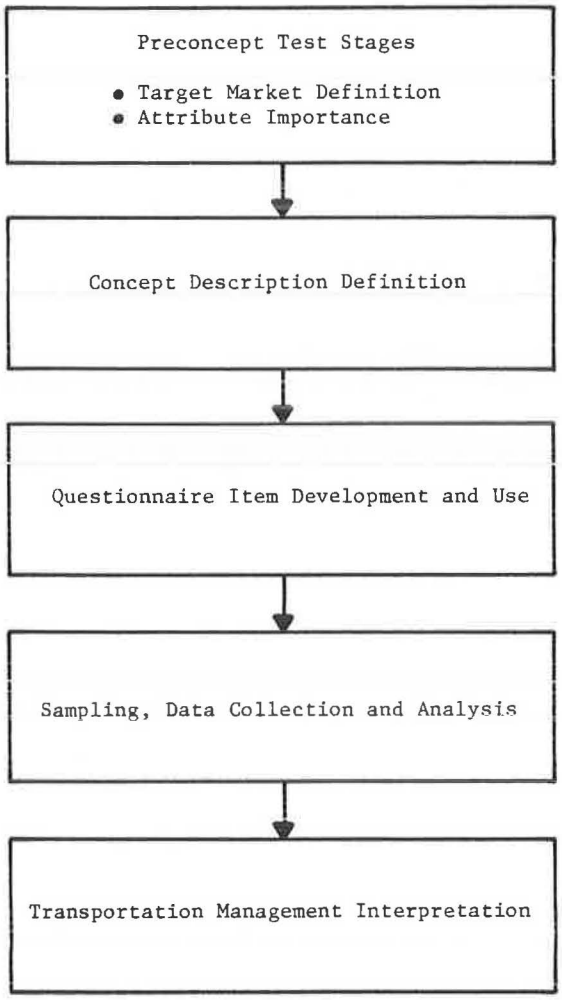


Figure 13. Venture concept testing.

systems would be developed by traditional transit planners. To add information and credibility to this segment of the research, actual transit planners in the Jacksonville area were given the same data along with community goals information and asked to design what they felt was appropriate service. Much to the researchers' surprise, they developed a completely different system concentrating on nonwork trips. This system later became known as the "Loop System." Given the wide range of service levels (and costs) for these two completely different systems, it was decided to use both as "concepts" to be tested.

The description was supplemented with graphic route illustrations and photographs to aid the respondents in visualizing their actual use of the transportation service. A loose-leaf notebook was developed with several 3 by 5 color photographs, the ordering of which matched with the interviewers' reading of the concept description narrative (App. F). Because the proposed concepts used existing bus vehicles, photographs were taken in the Jacksonville area of actual Jacksonville Transit Authority buses, bus stops and shelters, potential destinations in Jacksonville, and other features to help the respondents visualize use of the service. Interviewers turned the pages in the notebooks as they keyed into related parts of the descriptive narrative. Respondents were encouraged to study the route maps as they related to potential use of the systems. Interviewers were instructed (App. F) to find the location of the respondent's home on the route maps, to trace the path to the nearest bus stop, to point out the vehicle route to likely destinations (and bus stops), and to estimate the travel time (based on distance).

The most challenging task in the concept description preparation was the decision as how to present the schedule to the respondents. By definition, a concept test usually involves a product or service that is not completely developed. Because the full-scale development and scheduling of the loop and grid systems (App. F) would have required months of planning and several thousands of dollars in budget, it was not possible to provide a bus schedule. The negative aspect of this was that the concept description had to be somewhat hypothetical as it related to scheduling. Specifically, the estimation of the most likely departure times and wait times for individual respondents as well as the arrival time were the most difficult attributes to describe accurately when preparing the concept description. Routing, although tentative, was presented to the respondent in a definitive manner.

The scheduling issue may be approached in at least two different ways. One method is to develop a distribution of times that can be presented to respondents; that is, each respondent will be given exact (but different) departure and arrival times, although hypothetical, thus adding realism but possibly misrepresenting the concept description. The distribution of times will cluster around an "average" estimate. A major disadvantage of this approach is its cumbersome nature as part of the interviewing process because of the considerable time required to enter exact times on each questionnaire. The second alternative (the one used) is to use average times. Although this is less definitive for respondents, it was selected because it offers the advantages of ease of administration and subsequent data interpretation.

QUESTIONNAIRE DEVELOPMENT AND USE

The initial research design was to return to the previously identified "transportation leaners" that had indicated a "willingness" to try new service. Unfortunately, because of the time delays between surveys, only a limited number (60) of such individuals could be resurveyed. The remaining surveys were conducted using the random sample design procedure explained in the initial questionnaire instructions (see App. B). From a research viewpoint, it was felt that it would be interesting to see if the "random" respondents exhibited statistically different responses from the "transportation leaners" that had been identified previously as an identifiable target submarket.

A wide variety of question types may be used to assess the degree of likely market acceptance for a new transportation service. Related literature was reviewed (Harper et al., 1977; Frank et al., 1972; *Market Testing Consumer Products*, 1967; Shocker and Srinivasan, 1979; Tauber, 1977 and 1975; Wind, 1973), and concept testing questionnaires were obtained from available sources. Because consumer product companies often use concept tests for new products, contact was made with major firms to obtain insights from their experience. The special characteristics of transportation services (versus consumer goods) were considered before transferring knowledge and experience to the transportation realm.

The types of questions included and the overall questionnaire structure are provided in Appendix F. After determining the respondent's awareness of, and satisfaction with, current services available, one of the two concept descriptions was presented to respondents by trained interviewers. The order of presentation was rotated to guard against order bias.

After having read the concept description, the respondent was asked a series of questions that paralleled the potential rider's decision process—beginning with one on "evaluation intentions"; that is, would the respondent even consider using the service described and, if so, for what types of trips. Following these (Fig. 14), questions were presented on potential work trips (if applicable), and this section was later repeated for nonwork trips (if applicable). The first question in those sections concerned "behavioral intentions" with respect to trial use of the bus service; that is, how likely would the respondent be to try the new service once or twice. This is regarded as the single most important question to ask because more specific questions about future levels of use (ridership) often yield invalid results.

Many, if not most, potential users find it nearly impossible to visualize the concepts fully and therefore cannot estimate accurately future use. As defined earlier, this is particularly true for discontinuous innovations. More specific estimates of demand are requested in the questionnaire; this was done for demonstration purposes in full recognition of the need to interpret results cautiously. Respondents were asked how many times they would use the new bus service as opposed to using their present methods of transportation. A related question requested information on the frequency with which the new bus system would be used to replace existing bus service. Respondents were asked qualitative, exploratory questions regarding the advantages and disadvantages of the new service related to their current travel methods. They also were asked specifically what they would consider to be essential changes that must be made before they would try the service.

Following use of all of these questions for work and nonwork trips, respondents were asked how likely they would be to "regularly ride" the new bus service for work and/or nonwork trips and then to estimate the number of trips they would actually make by bus during a one-week period. Following these, a major section was devoted to further studying bus service attributes to allow for more "finely tuned" or adjusted attributes in view of additional customer preference information. These questions were an outgrowth of the previous attribute phase of this study; they refocus on finer graduations of attribute levels for those bus service characteristics (attributes) that were considered important in the early study but which remained rather broadly defined.

The full set of questions just discussed was then presented to respondents following presentation of the second concept description.

Finally, after respondents explored both concepts, questions requiring even more "behavioral commitment" by respondents were presented as well as questions that required comparisons between the two concepts. The last section pertained to media use (newspapers, television, and radio); this is of potential value for directing publicity and advertising efforts if a concept is actually introduced.

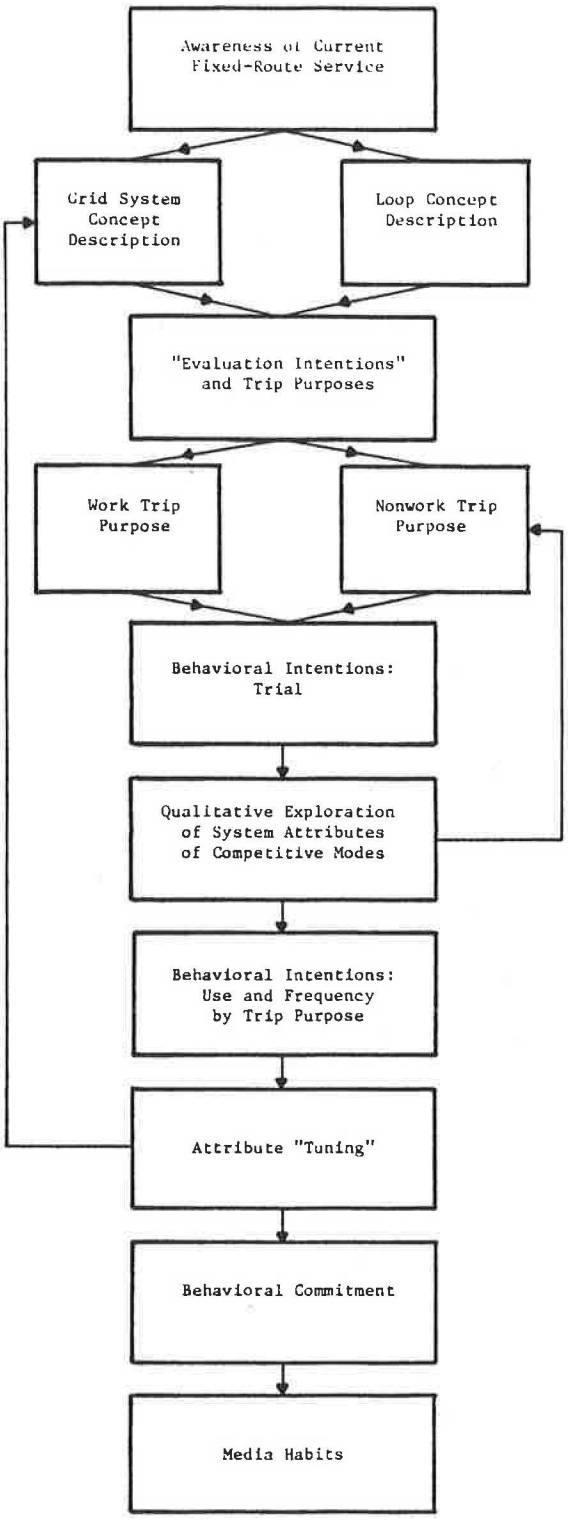


Figure 14. Concept text questionnaire.

The questionnaire was long, but because of well-trained interviewers and the fact that many respondents were not asked to complete all sections (e.g., work or nonwork), the data collection process went smoothly. Minor rewording adjustments were made following a pretest of 16 interviews.

Because of the demonstration nature of this study as well as the desirability of developing a data base for "benchmark" purposes, the questionnaire is more comprehensive than that absolutely required. Significant length and cost reductions would be possible by deletion of selected portions shown in Figure 14. However, the portion not to delete is the one dealing with behavioral intentions (likelihood of trial).

DATA ANALYSIS AND INTERPRETATION

The object of a concept test is not to provide a precise ridership (sales) forecast because that is impossible given the current state of the art. Instead, the object is to provide a sufficient indication of potential demand to help justify either moving to use of a test marketing methodology or to a full-scale service introduction. Because full-scale development of either of the two concepts would require an estimated $20,000 to $40,000 investment in route design, scheduling, and promotion, not including additional equipment, the potential losses would be substantial. If a relatively small amount of resources invested in a concept test can significantly reduce the uncertainty surrounding the probable success of a new service, it is usually a wise investment. If a particular service can be initiated without substantial resources on either a limited or full-scale basis, it may be appropriate to move forward without a concept test; that is, the additional value of information from a concept test may not in every case be sufficient to warrant its use. It was hoped that the results from this study would provide a basis for deciding whether to introduce the service, to drop the concept from consideration, or to modify the service concept substantially. Even with continuous innovations, however, one is considered fortunate to be able to forecast initial trial use and the first repeat use accurately. Experience has been poor in attempting to forecast the ongoing frequency of purchase (ridership). Because of this inexactness concerning the state of the art, concept test results usually are considered along with other judgmental factors. Consequently, very positive questionnaire results are normally required to justify a heavy investment in a new product or service. Estimates are ideally derived as follows:

$$\text{New transportation service revenues} = N \times FR \times AP \times \frac{MS}{SS}$$

where N = number of people in the sample who indicated high intentions to purchase;
FR = fulfillment rate, showing the percentage of the intenders who are expected to actually follow through on their intentions;
AP = average price paid per ride;
MS = estimated size of target market; and
SS = sample size.

Use of this formula is possible in industries where numerous concept tests have been conducted for a variety of products. Such a base of experience often allows for judicious estimates of the fulfillment rate as well as an operational definition of "high" intentions. In industries such as transportation, however, the experience base does not allow for such estimates, and the formula approach is normally ignored in favor of simply setting a minimum high intentions rate. An indication of high intentions commonly requires from 70 to 90 percent of all respondents before moving forward with a new product or service. As indicated by the foregoing formula, it is assumed that actual intentions will be significantly overstated by respondents. It is also assumed that those who engage in regular, ongoing use of the service will be considerably fewer in number than those who engage in trial use.

Another factor to consider is the proportion of people in the target market who must become regular riders in order for the service to be economically viable. In view of these considerations, a requirement of 75 percent was established prior to analysis. The results given in Tables 180 and 181 partially meet that standard, although the question asked only if respondents would "consider" using the system. Eighty percent said they would consider using the bus loop system, and 71 percent said they would consider using the grid bus system. Results from the intentions questions are given in Tables 182 and 183. In Table 182, it may be seen that interest in the loop system for making work trips was very low. Only 36 of 152 respondents even responded to the question and, of those, only 14 (9 percent of the total) expressed positive intentions towards trying the system. In Table 183, it may be seen that interest in the grid service for work trips is also very low. Only 37 of 152 respondents even responded to the question and, of those, only 13 (9 percent of the total number of respondents) indicated positive intentions. The entire sample again responded to the possibility of nonwork trips via the grid system, and 63 percent expressed positive intentions toward trying the system. It also may be seen that the differences between the leaners and the random sample are not substantial. Using the 75 percent standard cited earlier, these results indicate sufficient uncertainty to make it difficult to justify a full-scale introduction or a smaller scale market test (the latter might not be feasible in any event).

TABLE 180 PERCENTAGE OF SAMPLE WHO WOULD CONSIDER THE BUS LOOP SYSTEM

	Total	Leaners	Random
Yes	80	75	83
No	20	25	17
	(n = 152)	(n = 60)	(n = 92)

TABLE 181 PERCENTAGE OF SAMPLE WHO WOULD CONSIDER THE GRID BUS SYSTEM

	Total	Leaners	Random
Yes	71	67	75
No	29	33	25
	(n = 152)	(n = 60)	(n = 91)

In Tables 184 and 185, responses are shown to a question regarding intentions to ride regularly the loop and grid system. The results are consistently discouraging regarding work trips, although nearly as many cited positive intentions to ride regularly for nonwork trips (68 percent) as they did in Table 182 to try the system once or twice (70 percent). The number of round trips per week, however, was only 239, an average of 1.6 rides per respondent in total, or 2.3 rides among those citing positive intentions.

TABLE 182 NUMBER/ PERCENTAGE IN SAMPLE WHO WOULD TRY/NOT TRY THE BUS LOOP SYSTEM

	Work Trips			Nonwork Trips		
	Total	Leaners	Random	Total	Leaners	Random
Definitely Would (%)	22	6	35	41	36	44
Probably Would (%)	16	25	10	29	33	27
Might/Might Not (%)	6	0	10	10	7	13
Probably Would Not (%)	0	0	0	9	12	6
Definitely Would Not (%)	56	69	45	11	12	10
Absolute Number Above:	36 (of 152)	16 (of 60)	20 (of 92)	151 (of 152)	60 (of 60)	91 (of 92)
Number Who Responded "Definitely" or "Probably Would"	14	5	9	107	42	65
Number (above) as Percentage of Total Sample	9	8	10	70	70	70

TABLE 183 PERCENTAGE WHO WOULD TRY/NOT TRY THE GRID BUS SYSTEM

	Work Trips			Nonwork Trips		
	Total	Leaners	Random	Total	Leaners	Random
Definitely Would (%)	22	11	32	32	27	36
Probably Would (%)	14	22	5	30	33	29
Might/Might Not (%)	8	6	11	12	10	13
Probably Would Not (%)	8	11	5	11	10	11
Definitely Would Not (%)	48	50	47	15	20	11
Absolute Number Above:	37 (of 152)	18 (of 60)	19 (of 91)	152 (of 152)	60 (of 60)	91 (of 91)
Number Who Responded "Definitely" or "Probably Would"	13	6	7	95	36	59
Number (above as Percentage of Total Sample	9	10	8	62	60	65

TABLE 184 LIKELIHOOD OF REGULARLY RIDING NEW LOOP BUS AND ESTIMATED NUMBER OF ROUND TRIPS

	Work Trips			Nonwork Trips		
	Total	Leaners	Random	Total	Leaners	Random
Definitely Would (%)	15	4	22	40	34	45
Probably Would (%)	7	13	3	28	23	32
Might or Might Not (%)	2	0	3	7	8	5
Probably Would Not (%)	13	8	16	16	20	13
Definitely Would Not (%)	63	75	56	9	15	5
Absolute Number Above:	61 (of 152)	24 (of 60)	37 (of 92)	152 (of 152)	61 (of 61)	91 (of 91)
Number Who Responded "Definitely" or "Probably Would"	13	4	9	104	35	69
Number (above) as Percentage of Total Sample	9	28	10	68	57	77
Total Number of Estimated Round Trips Per Week	121	81	40	239	52	187

In Table 185, only 9 percent of the total sample indicated positive intentions to ride the grid system regularly for work trips, whereas 63 percent indicated an intention to ride the grid system regularly for nonwork trips. "Regularly" was defined in the questionnaire as "at least once a week." The anticipated number of round trips per week on the grid system was only 218 for nonwork trips, an average of 1.4 per respondent in total or 2.3 for those citing positive intentions.

Respondents were also asked how many times they would use the loop or grid service for work or nonwork trips out of every 10 trips they made. The results in Tables 186 and 187 again show relatively little interest in work trips and significant interest in nonwork trips. Again assuming a significant overstatement of intentions, however, the results point toward no additional testing of the two concepts.

The final portion of the questionnaire included three questions regarding various types of commitment to the concepts. In Table 188, it may be seen that 41 percent of the total sample requested information on the new bus services (if either were actually offered) at a cost of $1.00 for the infor-

TABLE 185 LIKELIHOOD OF REGULARLY RIDING NEW GRID BUS AND ESTIMATED NUMBER OF ROUND TRIPS

	Work Trips			Nonwork Trips		
	Total	Leaners	Random	Total	Leaners	Random
Definitely Would (%)	12	15	11	35	34	36
Probably Would (%)	9	15	5	30	25	33
Might or Might Not (%)	2	0	3	7	5	8
Probably Would Not (%)	14	7	18	14	11	16
Definitely Would Not (%)	63	63	63	14	26	7
Absolute Number Above	65 (of 151)	27 (of 60)	38 (of 91)	145 (of 151)	56 (of 60)	89 (of 91)
Number Who Responded "Definitely" or "Probably Would"	14	8	6	95	33	62
Number (above) as Percentage of Total Sample	9	13	7	63	55	68
Total Number of Estimated Round Trips Per Week	122	95	27	218	44	174

TABLE 186 NUMBER OF RESPONDENTS INDICATING HOW FREQUENTLY THEY WOULD USE NEW LOOP SERVICE OUT OF EVERY 10 TRIPS

	1	2-4	5-7	8-10	1	2-4	5-7	8-10
Total (n = 152)	24	2	6	3	66	50	26	10
Leaners (n = 60)	12	0	1	2	30	20	6	4
Random (n = 92)	12	2	5	1	36	30	20	6

TABLE 187 NUMBER OF RESPONDENTS INDICATING HOW FREQUENTLY THEY WOULD USE NEW GRID SERVICE OUT OF EVERY 10 TRIPS

	Work Trips				Nonwork Trips			
	1	2-4	5-7	8-10	1	2-4	5-7	8-10
Total (n = 152)	26	4	6	1	68	50	26	5
Leaners (n = 60)	13	1	2	1	30	18	9	2
Random (n = 92)	13	3	4	0	38	32	17	3

TABLE 188 REQUESTED INFORMATION ON NEW BUS SERVICE IF OFFERED AT $1.00 COST

	Total (%)	Leaners (%)	Random (%)
Yes	41	52	34
No	59	48	66
	(n = 152)	(n = 60)	(n = 91)

mation packet. It may also be seen that over half of the leaners committed to this proposal. A related question gave respondents an opportunity to request that a bus service representative visit their homes if a new bus service were started. Only 11 percent requested this service (see Table 189), although this probably can be partially explained by considerations unrelated to the bus service (e.g., concern over a "hard sell" or security). In Table 190, however, it may be seen that 29 percent indicated a willingness to sign a statement indicating a definite commitment to use the service. Thirty-seven percent were from the random sample, and only 17 percent were leaners.

The preference for the grid system as opposed to the loop system (Table 191) indicates a high degree of indifference (56 percent) which is presumably comprised largely of those who are least interested in either system. The remaining 44 percent are split nearly evenly with 21 percent preferring the loop bus and 23 percent preferring the grid system (although the leaners slightly preferred the loop, and random respondents slightly preferred the grid).

Why did the results come out as they did? Why was there not a higher percentage of respondents in this predesignated area with positive intentions? And why were the leaners less positive toward the concepts (overall) than the people drawn randomly in the area?

It must first be emphasized that segmentation and attribute

phases of a market study never guarantee a "go ahead" decision at the concept test stage. If they did, there obviously would be no need for a concept test. A concept test provides a means of reducing the uncertainty concerning the possibility of an actual introduction. The alternative is to plunge forward with less information and with a greater likelihood of failure. Failure with a fully implemented system is obviously much more costly than finding advance indications of failure in the concept test approach.

There are four possible explanations for the leaners being less positive toward the concepts than the randomly selected sample. One, of course, is that the concept test represents the true feelings of all those in the target market segment—that the leaner segment simply does not prefer the alternative(s) as much as the general population—although this was not anticipated given stage 1 of this study. Another explanation could be respondent bias due to their prior involvement in stage 1 or stage 2 of the project. It is possible that asking respondents for a second time to engage in a lengthy interview created a negative bias in their responses. Thirdly, it is possible that the small sample (60) of leaners that resulted was not truly representative of the leaner group. This response rate was disappointingly low for the stage 1 and stage 2 respondents who were contacted. It was assumed that the cooperation of 100 could be obtained. However, the interviewing firm experienced difficulty in fulfilling this objective because of the number of respondents who had moved. The final possible explanation is that the concepts developed were not tied adequately to the attribute phase of the study. Of course, this was a critical link in the project which required the good judgment of transportation engineers. It is possible that a modified concept would yield sufficiently positive responses to justify moving forward with an introduction. To explore this final possibility, the attribute portion of the concept test questionnaire was studied.

Changing a small number of system attributes possibly could make a substantial difference in respondents' willingness to ride the proposed bus service. The results from the attribute section of the questionnaire therefore were reviewed in addition to responses to questions dealing with the advantages and disadvantages of the two systems and essential changes as perceived by respondents. The most frequently cited advantages and disadvantages are given in Table 192, and it may be seen that they are fundamental attributes that would almost certaintly require higher levels of service.

The attribute questions were phrased to focus respondents on a single possible change in the concept description (such as a price of $0.90) and to indicate their intentions of "regularly riding" the new service under that condition. Out of 25 attribute changes cited in the questionnaires, only the ones given in Table 192 exceeded the standard of 75 percent positive intentions ("I probably would" or "I definitely would" as discussed earlier). It may be seen in Table 193 that the attribute analysis is completely consistent with the analysis of advantages and disadvantages: both suggest the need for increased levels of service but without the promise of substantial increases in demand. Therefore, despite considerable interest, it must be concluded that the services should not be offered given the 75 percent standard established.

CONCLUSIONS

It may seem unduly tedious to undergo such an in-depth analysis only to determine that the level of service is below the range of acceptability by the target market. However, that is precisely the reason for the concept test. Without introducing the service and then being forced to abandon it (because of low acceptance), thereby creating customer ill will and incurring losses of great magnitude, planners and managers could determine that the service should not be

TABLE 189 REQUESTED BUS SERVICE REPRESENTATIVE TO VISIT HOME IF NEW BUS SERVICE IS STARTED

	Total (%)	Leaners (%)	Random (%)
Yes	11	8	12
No	89	92	88
	(n = 152)	(n = 60)	(n = 91)

TABLE 190 WILLING TO SIGN A STATEMENT INDICATING DEFINITE COMMITMENT TO USE SERVICE

	Total (%)	Leaners(%)	Random (%)
Yes	29	17	37
No	71	83	63

TABLE 191 PREFERENCE FOR LOOP VS. GRID BUS

		Total (%)	Leaners (%)	Random (%)
Preference:	Loop Bus	21 (32)	22 (13)	21 (19)
	Grid Bus	23 (35)	17 (10)	27 (25)
	Indifferent	56 (84)	61 (37)	52 (47)
		(n = 151)	(n = 60)	(n = 91)

Only 6 of 152 preferred existing bus system over new ones, although if "indifferents" are deleted, this is 11 percent of the total.

TABLE 192 PERCENTAGES OF RESPONDENTS WITH POSITIVE INTENTIONS (OVER 75% ONLY) WHO WOULD RIDE THE PROPOSED SERVICE REGULARLY, GIVEN THE ATTRIBUTE CHANGES CITED

	Loop System (%)	Grid System (%)
1. You would often arrive five minutes after scheduled arrival at destination.	80	(74)
2. If it took you ten minutes less than we estimated to walk to the bus stop.	85	83
3. If the new bus service were available two more hours each day, from 4:30 a.m. to 7:00 p.m.	75	(70)
4. If weather shelters were provided at all bus stops	76	(71)
5. If you did not have to transfer to another bus to reach your destination	92 (of only 48 respondents)	84 (of only 57 respondents)

TABLE 193 MOST FREQUENTLY CITED DISADVANTAGES OF SERVICES—NONWORK TRIPS

	Loop System (%)	Grid System (%)
Must Transfer	10	11
Long Waits	7	7
Not Close to Home	5	5
Not Close to Destination	8	8
Scheduling	8	4
Less Convenient	13	16

offered and why it does not appeal to the marketplace. The most logical conclusion to be reached from this specific concept test stage of the MOA process is that there is insufficient potential demand for either the extensive grid network or the single loop system in Jacksonville, Florida. However, it should be noted that the much less expensive loop system would not cost nearly as much to implement as the grid system; thereby it would be the better of the two options. Also, given the earlier data on preference of community decision-makers to support those without access to the automobile and/or shopping and human service trips, the loop system would meet community goals to a higher degree. Correspondingly, if subsidy funds were available, the loop system supporting nonwork trips and interneighborhood movements would be preferable.

Caution is urged in extrapolating the results found in the study to other urban areas. Each urban area is composed of individuals with mixed operational experience (many none) with public transit service offerings. Thus, each segmented market may and probably would not respond exactly the same as those in Jacksonville. Each must be studied in and of itself to determine areas of potential demand for public transportation and preferred system attributes.

The entire three-step MOA process application has been a major focus of this study. It has been an attempt to adopt successful market/business technology to that of public transportation planning. The success or failure of this adaptation should not be based on whether or not a viable new market segment was found in the test site. In this case there was no viable market segment identified, but the technology applied is readily usable. Therefore, one may justifiably conclude that market opportunity analysis (MOA) methodology has been successfully applied to short-range public transportation planning and that the process is a logical one for future transit and transportation planning.

A final note on concept testing for public transportation offerings is in order. Unlike the marketing of many household consumer products, the necessary research experience base in public transportation is in its infancy. Over a period of time and a number of trials in many markets, consumer product companies can develop good approximation of "intention to use" indices to be used as cut-off points in making go or no-go decision for new products. Obviously, public transportation concept testing is far from this level of sophistication. Crude approximates must be made based on the judgment (and skill) of the data reviewer. Thus, if concept testing is to be used on future transportation decision-making processes, it is vital that such decisions be made by experienced individuals. It is appropriate to end with the maximum that no data handbooks exist from which to look up the answers to these decisions.

BIBLIOGRAPHY

Boyd, H. W. Jr., Westfall, R., and Stasch, S. F., *Marketing Research*. Homewood, Ill.: Richard D. Irwin (1977) pp. 581-606.

Frank, R. E., Massy, W. F., and Wind, Y., *Market Segmentation*. Englewood Cliffs, N.J.: Prentice-Hall (1972) pp. 78-89.

Market Testing Consumer Products. New York: National Industrial Conference Board (1967).

Shocker, A. D., and Srinivasan, V., "Multiattribute Approaches for Product Concept Evaluation and Generation: A Critical Review." *J. Marketing Res.* (May 1979) pp. 159-180.

Tauber, E. M., "Forecasting Sales Prior to Test Market." *J. Marketing* (Jan. 1977) pp. 80-84.

Tauber, E. M., "Why Concept and Product Tests Fail to Predict New Product Results." *J. Marketing* (Oct. 1975) pp. 69-71.

Wind, Y., "A New Procedure for Concept Evaluation." *J. Marketing* (Oct. 1972) pp. 2-11.

APPENDIX A

SAMPLING PLAN

1. Identify census tracts within which the population of interest resides. These tracts are within the Jacksonville SMSA, but are not inclusive of all SMSA tracts. Criteria for excluding tracts are density of population, income, car ownership, and military base dominated areas.

    a. Density = leave out any tract with less than 100 people/sq. mile.

    b. Income = leave out any tract with less than $7,000 median income. Check car ownership data for each exclusion candidate.

    c. Military bases = leave out any tract which is primarily comprised of military personnel living on a base.

    d. Tracts excluded are: 137, 106, 103, 101, 144, 136, 138, 2, 3, 4, 5, 13, 12, 11, 10, 9, 19, 26, 18, 17, 16, 29, 28, 116, 115, 15.

2. Examine excluded census tracts (other than the military base tracts) with a person with local, first-hand knowledge of Jacksonville to determine whether there are important residential areas along the borders of excluded census tracts that should be included in the population to be sampled.

3. Group census tracts into two strata based on the following criteria:

    a. Natural boundaries.

    b. Geographically contiguous areas.

    c. Homogeneity of occupation (white vs. blue collar), income, and car ownership.

    d. Stratified into two strata separated by the river natural boundary:

        Strata 1 - all census tracts to the east and south of the St. Johns river included in population

        Strata 2 - all census tracts to the west and north of the St. Johns river included in population

    e. Sample equally (500) in each strata.

4. Group selected census tracts within strata into larger areas within which to draw samples. Focus is on merging the small population census tracts with contiguous census tracts that are relatively homogeneous with respect to all population characteristics on which census data is available. Those groups are:

   a. 160-161

   b. 154-152-151-149

   c. 122-123

   d. 127-135

   e. 132-133

   f. 124-123

   g. 117-119

5. Within strata, determine the sample size by tract/tract-combination based on proportionality to:

$$\text{Sample size in area} = \frac{\#\text{ households in tract/tract-combination}}{\#\text{ households in total geographic area forming a strata}} \times 500$$

6. Draw a single random sample from each of the tract areas of the prespecified sample size. The procedure for drawing a sample within each census tract area is:

   a. Obtain listing of blocks in each tract

   b. Assign random numbers to blocks in relation to the number of households per block

   c. Systematically choose blocks from this list to include in the sample.

7. Interviewer decision rules for selecting respondents are:

   a. Interview four household units per block.

   b. If sparse population/refusals/not-at-homes make it impossible to achieve four household interviews on the same trip, complete the quota of four from an adjacent block.

   c. To determine a starting point on a block, start at one end of a street bounding the block and choose the second housing unit on side of street.

   d. For not-at-homes/refusals, interview adjacent households.

   e. No adjacent households should be included in the sample.

   f. There should be no more than one household interviewed per side of block for blocks bounded by streets on four sides. For blocks bounded by streets on two or three, but not four sides, sample no more than two households per side with a minimum of two households in between households interviewed. For blocks bounded by one street only, sample every fourth household.

8. To qualify as a respondent, a person must:

   a. Be 15 years of age or older.

   b. Travel away from home to some other area in Jacksonville more than six blocks away at least once a week.

   c. Have access to an automobile (as a driver or rider) for 50 percent or more of these trips.

9. Interview all people within the household meeting the criteria for being a respondent and willing to comply up to a maximum of four per household.

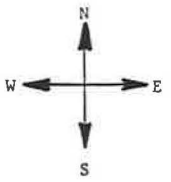
10. There should be approximately 40 percent men, 40 percent women, and 20 percent children (15-20) in the sample.

APPENDIX B

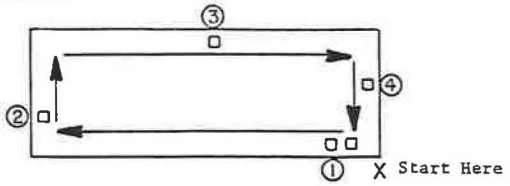
SAMPLING INSTRUCTIONS FOR INTERVIEWERS

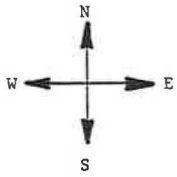
Use the list of block numbers and street addresses for your area or the basis for the location for interviewing. These locations will typically be identified by the intersection of the streets that form the southeast corner of the block. Interviewers will start at this intersection and, walking in a clockwise direction, will attempt their first interview at the second dwelling from the corner, interviewing in a maximum of four households per block and up to a maximum of four individuals per dwelling unit. For blocks bounded by streets on two or three, but not four sides, sample no more than two households per side with a minimum of two households in between households interviewed. For blocks bounded by one street only, sample every fourth household. (See diagrams below for typical blocks showing starting points and directions.) If sparse population, refusals, not-at-homes, make it impossible to achieve four household interviews on the same block, complete the quota of four from an adjacent block. For not-at-homes, refusals, interview adjacent households; however, no adjacent households should be included in the sample.

In the event of apartment houses and other multiple dwelling buildings, the interviewer will call on the units within a building in the order in which they are numbered, beginning with the second lowest numbered unit. In all multiple dwellings the same rules outlined above and the maximum of four households per block will be maintained.



4 - Sided Block





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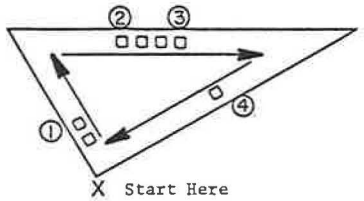

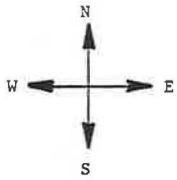

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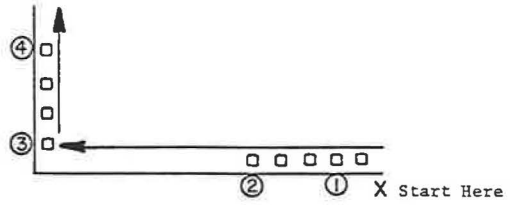
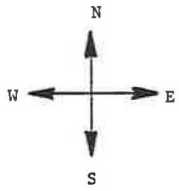
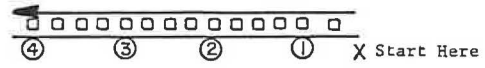


1 - Sided Block





APPENDIX C

URBAN TRAVEL AND TRANSPORTATION USE STUDY, TRAVEL, AND TRAVELER QUESTIONNAIRE, JACKSONVILLE, FLA.

I. TRIP BEHAVIOR WITHIN THE JACKSONVILLE URBAN AREA

1. Again, we have listed below different reasons for traveling in Jacksonville. We would like to know **how satisfied** you are with the **method of transportation you most often use** for each trip purpose.

	Does Not Apply To Me	Completely Satisfied	Moderately Satisfied	Neither	Moderately Dissatisfied	Completely Dissatisfied
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____						
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

2. When you want to go someplace for any of the reasons listed below, do you use **only one** method of transportation to get to your destination and back again **or** do you typically use a **combination** of methods (for example, a combination might be driving your car to parking lot and then taking a bus to work from the parking lot). For those trip purposes where you use several transportation methods, **please write in what the methods are.**

	Does Not Apply To Me	Only One Method	A Combination Of Methods	Write in Methods When a Combination Is Used
Work	[ ]	[ ]	[ ]	_____
Education	[ ]	[ ]	[ ]	_____
Shopping (non-food)	[ ]	[ ]	[ ]	_____
Shopping (grocery)	[ ]	[ ]	[ ]	_____
Visit with friends, relatives	[ ]	[ ]	[ ]	_____
Entertainment	[ ]	[ ]	[ ]	_____
Personal business	[ ]	[ ]	[ ]	_____
Medical trips	[ ]	[ ]	[ ]	_____
Deliver/Pickup children	[ ]	[ ]	[ ]	_____
Attend religious functions	[ ]	[ ]	[ ]	_____
Other (Please write in) _____				
_____	[ ]	[ ]	[ ]	_____

3. When you take a trip within the Jacksonville area for each of the following purposes, **how many stops do you typically make between leaving home and before returning home?** (By a stop we mean when the vehicle stops so that you can get out or otherwise carry out the purpose of the trip.) Please count **all** stops for the typical trip including stops for the primary purpose and any extra stops you may make. For example, if your typical work trip is from your home to a place of work and back home again, you would have 1 stop at your place of work. Or, if you typically stop at two stores in different locations on a non-food shopping trip then you would have 2 stops.

	Does not Apply to me	1 stop	2 stops	3 stops	4 stops	5 or more stops
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____						
_____		[ ]	[ ]	[ ]	[ ]	[ ]

4. We would like to know **where you** typically **go** in the Jacksonville area when you travel for each purpose listed below. For each trip purpose write in the location of the destination you typically go to. **By location we mean a street address, the name of an activity center such as a shopping center,** an **industrial park** or **medical center,** a well-known part of town, or another way of identifying where this destination is. If you typically go to more than one location for a trip purpose, please write in each one up to three locations.

Work _____

_____

Education _____

_____

Shopping (non-food) _____

_____

Shopping (grocery) _____

_____

Entertainment _____

_____

Personal business _____

_____

Medical visits _____

_____

Deliver/pickup children _____

_____

Attend religious functions _____

_____

Other _____

_____

5. Again we have listed below different reasons for traveling in Jacksonville. We want to know **how many people usually travel with you** when you make these trips.

   You will notice there are two sections below. One is for showing us the number of people in your household who travel with you. The other is for showing the number of people outside your household who travel with you.

   For example, if you travel to work with your spouse and a neighbor, **you would circle 1** under the section "Number of people within household" and **1** under "Number of people outside your household." Again, think only of main purpose trips — not the extra stops you may make from home to destination and return. Also, if a person rides for only part of the trip, please count them as a rider. If you travel **alone, circle 0** under each heading.

	Does not apply to me	Number of People **Within** Your Household					Number of People **Outside** Your Household				
Work	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Education	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Shopping (non-food)	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Shopping (grocery)	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Visit with friends, relatives	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Entertainment	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Personal business	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Medical trips	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Deliver/pickup children	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Attend religious functions	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more
Other (Please list)_____											
_____	[ ]	0	1	2	3	4 or more	0	1	2	3	4 or more

6. Again, think of your typical trips for each of the purposes listed below. We would like to know (a) the **times during the day when you usually travel** for these reasons and (b) the **approximate number of minutes this trip takes.** Please **check the category** showing the **time of day** when you normally travel from one place to another for each purpose. By travel we mean using some method of transportation (including walking) to go to or from some destination for each purpose. For example, if you commute to work at 8:30 in the morning and typically come home from work at 5:30 in the afternoon traveling 30 minutes each way, you would check both the "6-9 a.m." and "4-7 p.m." for "work" categories and write (60) in the box.

If you also normally have several reasons for the same trip, please also check the time category showing when you travel for each purpose. For example, if you typically pick up children on the way home from work at 5:30, you would also check the "4-7 p.m." category for "Deliver/pickup children."

	(a)								(b)
	Does not apply to me	6-9 a.m.	9-11 a.m.	11-2 p.m.	2-4 p.m.	4-7 p.m.	7-12 p.m.	12-6 a.m.	Approximate number of minutes
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____									
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

7. Below you will find a list of reasons for traveling within the Jacksonville area during a typical week. For each reason, (a) **please write** in the approximate **number of "round trips"** you take on each day of the week and (b) the approximate **number of miles** to and from that destination. By "round trips" we mean from your home to your destination and back again. If you take more than one round trip for the same purpose in a typical week, please take an average of these trips.

Please do not include extra stops you may have to make in between. For example, when coming home from work, if you stop at the grocery store, you would not count that as a separate trip. Remember, we are only interested in the main purpose trips — from your home to your destination and back to your home again in a typical week.

	(a)								(b)
	Not taken on a weekly basis	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Approximate number of average round trip miles
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business (banking, attend meetings, etc.)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____									
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

II. TRANSPORTATION USAGE

1. For each reason for travel listed below, which methods of transportation would you **consider using** for at least some trips as ways of traveling to and from your destination? Check **all** methods of transportation including the one you use now that you would **consider** using for each of the purposes.

	Does Not Apply To Me	Drive Alone	Drive/Ride with Family Member	Carpool/ Vanpool	Express/ Commuter Bus Service	Regular Bus Service	Taxi	Motorcycle	Bicycle	Rental Car
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____										
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

2. If for some reason you **could not use** your usual method of transportation for travel in Jacksonville, **how would you rank the other methods** that might be available? For example, if you use your car to go to work and it broke down, what other method might you use? Put a "1" in the space for the method you would **most** prefer to use if you could not use the method you use now, a "2" in the space for the second most preferred method, a "3" in the space for the third most preferred method, and so forth. **Do not rank any method that you would not consider using.**

	Does Not Apply To Me	Drive Alone	Drive/Ride with Family Member	Carpool/ Vanpool	Express/ Commuter Bus Service	Bus Service	Taxi	Motorcycle	Bicycle	Rental Car
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____										
_____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

3. We would like to know what methods of transportation you use for each of the trip purposes listed below. **Please check all methods that you use during a year** for each purpose that you have for different reasons for travel in Jacksonville. If you use more than one method be sure to check all methods that you use. Remember, we would like to know whether you use any of these methods **during a year.**

	Does Not Apply To Me	Drive Alone	Drive/Ride with Family Member	Carpool/ Vanpool	Express/ Commuter Bus Service	Regular Bus Service	Taxi	Motorcycle	Bicycle	Rental Car
Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Education	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (non-food)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Shopping (grocery)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Visit with friends, relatives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Entertainment	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Personal business	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Medical trips	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Deliver/pickup children	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Attend religious functions	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____ _____	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

4. Listed below are methods of transportation that people use for travel in the Jacksonville area. **Please count the number of trips** for which you use each method on each typical weekday. (By trip we mean a **round trip** from your home to your destination and back home again). Then, **write in this number for each weekday showing the number of trips on which you use each transportation method.**

	Not taken on a weekly basis or not taken at all	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Drive alone	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Drive/Ride with Family Member	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Carpool/Vanpool	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Express/Commuter Bus Service	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Regular Bus Service	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Taxi	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Motorcycle	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Bicycle	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Walking	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Rental Car	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

SINCE THIS QUESTIONNAIRE IS QUITE LONG,

WE SUGGEST THAT YOU REST AT THIS POINT.

Please rest for a few minutes and return when you feel refreshed. Thank you for your cooperation. Your help is essential for the success of the project.

III. TRANSPORTATION ATTITUDES AND ACTIVITIES

We have listed a number of statements that people have made about travel and use of transportation in the Jacksonville area. We would like to know your opinion concerning each statement. Please check the category that best shows **how much you personally agree or disagree** with each statement. For example, if you strongly agree with the first statement below, "I make fewer non-work trips in the Jacksonville area than I used to" then you would check the "strongly agree" category; or if you strongly disagree, you would check the "strongly disagree" category; and so forth. If you do not think a statement applies to you, check the "Does not apply to me" category at the far right.

	Strongly Agree	Slightly Agree	Neutral	Slightly Disagree	Strongly Disagree	Does not apply to me
1. I make fewer non-work trips in the Jacksonville area than I used to.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2. My ways of getting to and from work have not changed in years.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3. Getting from one place to another in the Jacksonville area is a major problem for me.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4. I like to ride on city buses.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5. We need better bus service more than we need better highways.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6. The high price of gasoline has caused me to drive my car much less frequently.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7. Everyone pays for bus service through taxes, therefore, everyone should use it.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8. Carpooling is an effective means of conserving gasoline and reducing the cost of transportation.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
9. Public transportation is fine for some people but not for me.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
10. Riders' fares provide all the financial support needed to operate Jacksonville's bus service.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
11. Traveling by public transportation is more relaxing than driving my car.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
12. Carpooling does not appeal to me.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
13. I couldn't manage without my car.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
14. I fully understand Jacksonville's bus schedules and fares.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
15. I generally do not enjoy driving a car.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

	Strongly Agree	Slightly Agree	Neutral	Slightly Disagree	Strongly Disagree	Does not apply to me
16. I would not like to ride with the type of people who typically use public transportation.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
17. I do not travel within the Jacksonville area on a regular basis each week.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
18. Parking is an annoying problem at the place where I work.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
19. My friends judge people by the type of car they drive.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
20. I would rather my fellow workers see me arrive at work by car than by public transportation.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
21. I often share a ride to work with a friend.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
22. On the way to or from work I often stop to shop and do errands.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
23. Today in most families two cars are a necessity not a luxury.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
24. With the higher automobile insurance rates, I plan to make greater use of public transportation.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
25. Although mass transit would be a good way of conserving energy, I really cannot use it since it is very inconvenient.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
26. Someone should take measures to discourage people from using autos in downtown areas of cities.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
27. My own car provides the cheapest transportation I can buy.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
28. I enjoy staying at home as much as possible.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
29. I frequently go to parties and other social activities away from home.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
30. I enjoy shopping in stores very much.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
31. I am highly involved in non-business organization activities that take me away from home.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
32. The people I most frequently socialize with live in my neighborhood.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
33. I do not like to walk.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

	Strongly Agree	Slightly Agree	Neutral	Slightly Disagree	Strongly Disagree	Does not apply to me
34. I frequently participate in sports (tennis, golf, etc.) that are played away from home.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
35. I seldom attend sporting events as a spectator.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
36. I enjoy sightseeing as often as I can.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
37. Children in our house are involved in activities that require travel to other parts of Jacksonville.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
38. I do not mind my children riding on public buses without being accompanied by an adult.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
39. I really enjoy riding with other people I know when I travel within the Jacksonville area.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
40. I would never use public transportation more frequently than I do now no matter how much the service improved.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
41. Only the really poor people in Jacksonville use the buses.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
42. I frequently worry about having an accident while driving or riding in a car.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
43. I don't mind being restricted to fixed times and schedules for my travel within the Jacksonville area.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
44. I thoroughly enjoy being with other people.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
45. I do not like to ride in the same vehicle with people I do not know.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
46. It is dangerous to stand at a bus stop while waiting for a bus.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
47. I like to get away from my home frequently for entertainment activities.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
48. I do a lot of traveling within the Jacksonville area as part of my job.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
49. I dislike having to chauffeur my children to and from activities in which they are involved away from home.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

50. When you want to go somewhere in the Jacksonville area **other than going to work, how influential** is each of the factors listed below in making up your mind on whether or not you will take the trip?

	Highly Influential	Influential	Of Little Influence	Not Considered
Availability of auto	[ ]	[ ]	[ ]	[ ]
Availability of baby sitter	[ ]	[ ]	[ ]	[ ]
Time of day	[ ]	[ ]	[ ]	[ ]
Safety from crime	[ ]	[ ]	[ ]	[ ]
Urgency of trip	[ ]	[ ]	[ ]	[ ]
Time to reach destination	[ ]	[ ]	[ ]	[ ]
Distance to destination	[ ]	[ ]	[ ]	[ ]
Amount of traffic congestion	[ ]	[ ]	[ ]	[ ]
Availability of parking	[ ]	[ ]	[ ]	[ ]
Weather conditions	[ ]	[ ]	[ ]	[ ]
Cost of making the trip	[ ]	[ ]	[ ]	[ ]
Other (Please list) _____				
_____	[ ]	[ ]	[ ]	[ ]

51. If you were going to choose between two or more methods of transportation for your **most frequently taken trip other than work, how important are the following items.** For example, if a short time spent traveling in the vehicle is not important to you when considering what method of transportation to use for your most frequently taken trip other than work, you would check the box under "not important." Do not answer this question with only one particular method of transportation in mind. Imagine that you have several alternatives and are trying to choose the one that is best for you.

	Very Important	Important	Only Slightly Important	Not Important
A short time spent traveling in the vehicle.	[ ]	[ ]	[ ]	[ ]
A short time spent waiting to use the vehicle.	[ ]	[ ]	[ ]	[ ]
Arriving at your destination when planned.	[ ]	[ ]	[ ]	[ ]
Adequate space near your seat for storing your packages while traveling.	[ ]	[ ]	[ ]	[ ]
A stylish vehicle exterior design.	[ ]	[ ]	[ ]	[ ]
Small variation in travel time from one day to the next.	[ ]	[ ]	[ ]	[ ]
Phones available in public places used to call for service.	[ ]	[ ]	[ ]	[ ]
Personal security from crime.	[ ]	[ ]	[ ]	[ ]
Adequate protection from the weather while waiting to use the vehicle.	[ ]	[ ]	[ ]	[ ]
Being able to ride in privacy.	[ ]	[ ]	[ ]	[ ]
A low cost for the trip.	[ ]	[ ]	[ ]	[ ]
Being able to make a trip without changing vehicles.	[ ]	[ ]	[ ]	[ ]
Short time spent getting to the vehicle.	[ ]	[ ]	[ ]	[ ]
Being able to select the time you can use the vehicle.	[ ]	[ ]	[ ]	[ ]
A vehicle whose size and appearance do not detract from the character of the neighborhood through which it travels.	[ ]	[ ]	[ ]	[ ]
Ease of entry and exit from the vehicle.	[ ]	[ ]	[ ]	[ ]
Little chance of meeting with people who make you feel insecure or uncomfortable.	[ ]	[ ]	[ ]	[ ]
Being able to take a direct route, with few turns and detours.	[ ]	[ ]	[ ]	[ ]
Being able to take routes which are pleasant or scenic.	[ ]	[ ]	[ ]	[ ]
Convenient method of paying for the cost of the trip.	[ ]	[ ]	[ ]	[ ]
The assurance of getting a seat.	[ ]	[ ]	[ ]	[ ]
Being able to talk to and ask questions of system representatives when desired.	[ ]	[ ]	[ ]	[ ]
Being able to go to more than one destination on the same trip.	[ ]	[ ]	[ ]	[ ]
Service is available throughout the day.	[ ]	[ ]	[ ]	[ ]
Adequate room between you and others in the vehicle.	[ ]	[ ]	[ ]	[ ]

52. (Answer this question only if you travel to work.)
If you were going to choose between two or more methods of transportation to go TO AND FROM WORK, HOW IMPORTANT ARE THE FOLLOWING ITEMS. For example, if a short time spent traveling in the vehicle is not important to you when considering what method of transportation to use FOR WORK, you would CHECK THE BOX under "not important." Do not answer this question with only one particular method of transportation in mind. Imagine that you have several alternatives and are trying to choose the one that is best for you.

	Very Important	Important	Only Slightly Important	Not Important
A short time spent traveling in the vehicle.	[ ]	[ ]	[ ]	[ ]
A short time spent waiting to use the vehicle.	[ ]	[ ]	[ ]	[ ]
Arriving at your destination when planned.	[ ]	[ ]	[ ]	[ ]
Adequate space near your seat for storing your packages while traveling.	[ ]	[ ]	[ ]	[ ]
A stylish vehicle exterior design.	[ ]	[ ]	[ ]	[ ]
Small variation in travel time from one day to the next.	[ ]	[ ]	[ ]	[ ]
Phones available in public places used to call for service.	[ ]	[ ]	[ ]	[ ]
Personal security from crime.	[ ]	[ ]	[ ]	[ ]
Adequate protection from the weather while waiting to use the vehicle.	[ ]	[ ]	[ ]	[ ]
Being able to ride in privacy.	[ ]	[ ]	[ ]	[ ]
A low cost for the trip.	[ ]	[ ]	[ ]	[ ]
Being able to make a trip without changing vehicles.	[ ]	[ ]	[ ]	[ ]
Short time spent getting to the vehicle.	[ ]	[ ]	[ ]	[ ]
Being able to select the time you can use the vehicle.	[ ]	[ ]	[ ]	[ ]
A vehicle whose size and appearance do not detract from the character of the neighborhood through which it travels.	[ ]	[ ]	[ ]	[ ]
Ease of entry and exit from the vehicle.	[ ]	[ ]	[ ]	[ ]
Little chance of meeting with people who make you feel insecure or uncomfortable.	[ ]	[ ]	[ ]	[ ]
Being able to take a direct route, with few turns and detours.	[ ]	[ ]	[ ]	[ ]
Being able to take routes which are pleasant or scenic.	[ ]	[ ]	[ ]	[ ]
Convenient method of paying for the cost of the trip.	[ ]	[ ]	[ ]	[ ]
The assurance of getting a seat.	[ ]	[ ]	[ ]	[ ]
Being able to talk to and ask questions of system representatives when desired.	[ ]	[ ]	[ ]	[ ]
Being able to go to more than one destination on the same trip.	[ ]	[ ]	[ ]	[ ]
Service is available throughout the day.	[ ]	[ ]	[ ]	[ ]
Adequate room between you and others in the vehicle.	[ ]	[ ]	[ ]	[ ]

53. Below are statements that have been used to describe kinds of transportation within the Jacksonville area. Please read each statement and then **circle the number that best indicates how much you agree or disagree with that statement** as a description of car, bus, and then again for carpool or vanpool travel on the trip you take most frequently. **Please give your opinion for each method of transportation whether or not you actually use that vehicle.**

For example, the first statement below is "I only have to spend a short time in the vehicle while traveling." First, think of the vehicle as "a car" that you are driving alone or riding with a family member and indicate the extent to which you agree or disagree with the statement. If you "strongly agree" that you only have to spend a short time in a car while traveling, you would circle the number "1". Then, think of the vehicle as "a bus" and indicate the extent to which you agree or disagree with the same statement. Finally, think of the vehicle as a car or van that you are sharing with other people in a car/vanpool and again indicate the extent to which you agree or disagree with the same statement, "I only have to spend a short time in the vehicle while traveling."

	Strongly Agree	Slightly Agree	Neither Agree Nor Disagree	Slightly Disagree	Strongly Disagree
I only have to spend a short time in the vehicle while traveling.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
I only have to spend a short time waiting to use the vehicle.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
When I use this vehicle, I am very likely to arrive at my destination on time.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5

Continued on Next Page

	Strongly Agree	Slightly Agree	Neither Agree Nor Disagree	Slightly Disagree	Strongly Disagree
When using this vehicle, I have adequate space for storing packages.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
This transportation method provides a low cost for trip.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
Using this transportation method requires no vehicle changes.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
I only have to spend a short time in getting to the vehicle when I need to use it.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
I have great assurance of getting a seat.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
There is adequate ability to communicate with system representative when desired.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5

Continued on Next Page

	Strongly Agree	Slightly Agree	Neither Agree Nor Disagree	Slightly Disagree	Strongly Disagree
It is very easy to go to more than one destination on the same trip.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
By using this vehicle, there is little chance of meeting people who make me feel insecure or uncomfortable.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
When using this vehicle I am able to take a direct route with few turns and detours.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
When using this vehicle I am able to take routes which are pleasant or scenic.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
This transportation method provides a convenient method of paying for the cost of the trip.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
There is usually only a small variation in travel time from one day to another.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5

Continued on Next Page

	Strongly Agree	Slightly Agree	Neither Agree Nor Disagree	Slightly Disagree	Strongly Disagree
Riding in this transportation method provides me with high personal safety from crime.					
Car	1.	2	3	4	5
Bus	1.	2	3	4	5
Carpool/Vanpool	1.	2	3	4	5
I usually would have adequate weather protection while waiting to use the vehicle.					
Car	1.	2	3	4	5
Bus	1.	2	3	4	5
Carpool/Vanpool	1.	2	3	4	5
This transportation method provides adequate privacy when traveling.					
Car	1.	2	3	4	5
Bus	1.	2	3	4	5
Carpool/Vanpool	1.	2	3	4	5
Vehicle typically has a stylish exterior design.					
Car	1.	2	3	4	5
Bus	1.	2	3	4	5
Carpool/Vanpool	1.	2	3	4	5
I am able to select the time I want to go on a trip when using this method.					
Car	1.	2	3	4	5
Bus	1.	2	3	4	5
Carpool/Vanpool	1.	2	3	4	5
I know that if I wanted to use this method, service would be available throughout the day.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5

Continued on Next Page

	Strongly Agree	Slightly Agree	Neither Agree Nor Disagree	Slightly Disagree	Strongly Disagree
The vehicle used in this method of transportation has a size and appearance that will not detract from the character of the neighborhood through which it travels.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
I find it very easy to get in and get out of this vehicle.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5
There is adequate room between me and others riding in this vehicle.					
Car	1	2	3	4	5
Bus	1	2	3	4	5
Carpool/Vanpool	1	2	3	4	5

54. **Please check** the time categories (check all that apply) that show **when you do not have access to a car for your personal use.**

_____ I always have access to a car for my personal use (if you check here, go on to question 55).

or

	6-9 a.m.	9-11 a.m.	11-2 p.m.	2-4 p.m.	4-7 p.m.	7-12 p.m.	12-6 a.m.
Monday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Tuesday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Wednesday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Thursday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Friday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Saturday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Sunday	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

55. How well do you feel the **cost of each of the following methods of transportation compares to the cost of driving your personal car for the same trip.** Remember we are interested in your opinions concerning these costs.

Driving my car is . . . than a . . .	Considerably More Expensive	Moderately More Expensive	Slightly More Expensive	About the Same	Slightly Less Expensive	Moderately Less Expensive	Considerably Less Expensive
Carpool	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Vanpool	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Express/Commuter Bus Service	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Regular Bus Service	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Taxi	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Motorcycle	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Bicycle	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

56. **Please check the category** that best **expresses** how **familiar** you are with each of the **methods of transportation** in the Jacksonville area.

	I know a lot about it	I know something about it	I don't know anything about it
Express/commuter bus	[ ]	[ ]	[ ]
Regular bus	[ ]	[ ]	[ ]
Carpool	[ ]	[ ]	[ ]
Vanpool	[ ]	[ ]	[ ]
Taxi	[ ]	[ ]	[ ]

IV. CLASSIFICATION

1. Your sex is: ____ Male ____ Female

2. What is your marital status? ____ Single ____ Married ____ Separated ____ Divorced ____ Widowed

3. How many persons are currently residing in your household? ____1 ____2 ____3 ____4 ____5 ____6 or more

4. If you have children residing with you in your household, please circle the number in each age group.

Under 10 years	0	1	2	3	4 or more
10-14 years	0	1	2	3	4 or more
15 years or older	0	1	2	3	4 or more

5. Indicate in each blank below the **number** of family members in your household who are paid to work more than **30 hours per week.**

____ Male Wage Earner(s) ____ Female Wage Earner(s)

6. What is your occupation?

_____ student	_____ salesperson	_____ skilled/semi-skilled	_____ manager/proprietor
_____ housewife	_____ machine or vehicle operator	_____ clerical/office worker	_____ retired (omit questions 7 & 8)
_____ military	_____ professional/technical	_____ service worker	_____ other (please specify): _____

7. Are you the major wage earner in your household? Yes No

8. Write in the number of days per week you work outside your home._____

9. How long have you lived in the Jacksonville area?

_____ Less than 2 years _____ 5-7 years _____ more than 10 years
_____ 2-4 years _____ 8-10 years

10. What was your age on your last birthday?

_____ Under 20 _____ 25-29 _____ 35-39 _____ 50-59
_____ 20-24 _____ 30-34 _____ 40-49 _____ 60 and over

11. What was the last grade you completed in school?

_____ 0-8 _____ high school graduate _____ college graduate
_____ 1-3 years high school _____ 1-3 years college _____ more than 4 years college

12. Please indicate your total family income **before taxes last year.**

_____ $0-4,999 _____ $10,000-14,999 _____ $20,000-24,999 _____ More than $30,000

_____ $5,000-9,999 _____ $15,000-19,999 _____ $25,000-29,999

13. How many vehicles in operating condition are regularly available to you within your household?

_____ None _____ One _____ Two _____ Three _____ Four or more

14. Please write in your name, address and telephone number. Please understand that statistical analyses will be made upon the total group interviewed, and that no information concerning a private individual will be released.

_____

Name Address Telephone number

15. The responses to the following question will be used to determine if the respondents included in this study are representative of the overall Jacksonville population. While we feel this information would be very helpful in determining if the results of this study can be generalized, if you feel that this question is irrelevant or offensive, please leave it blank.

Please indicate your race by placing a check in the appropriate blank.

_____ White/Caucasian _____ Black/Afro-American _____ Other (please specify) _____

16. Do you have a driver's license? _____ Yes _____ No

17. How many other licensed drivers are in your household? _____

18. Do you have a physical handicap that you believe would prevent you from using public transportation services? _____ Yes _____ No

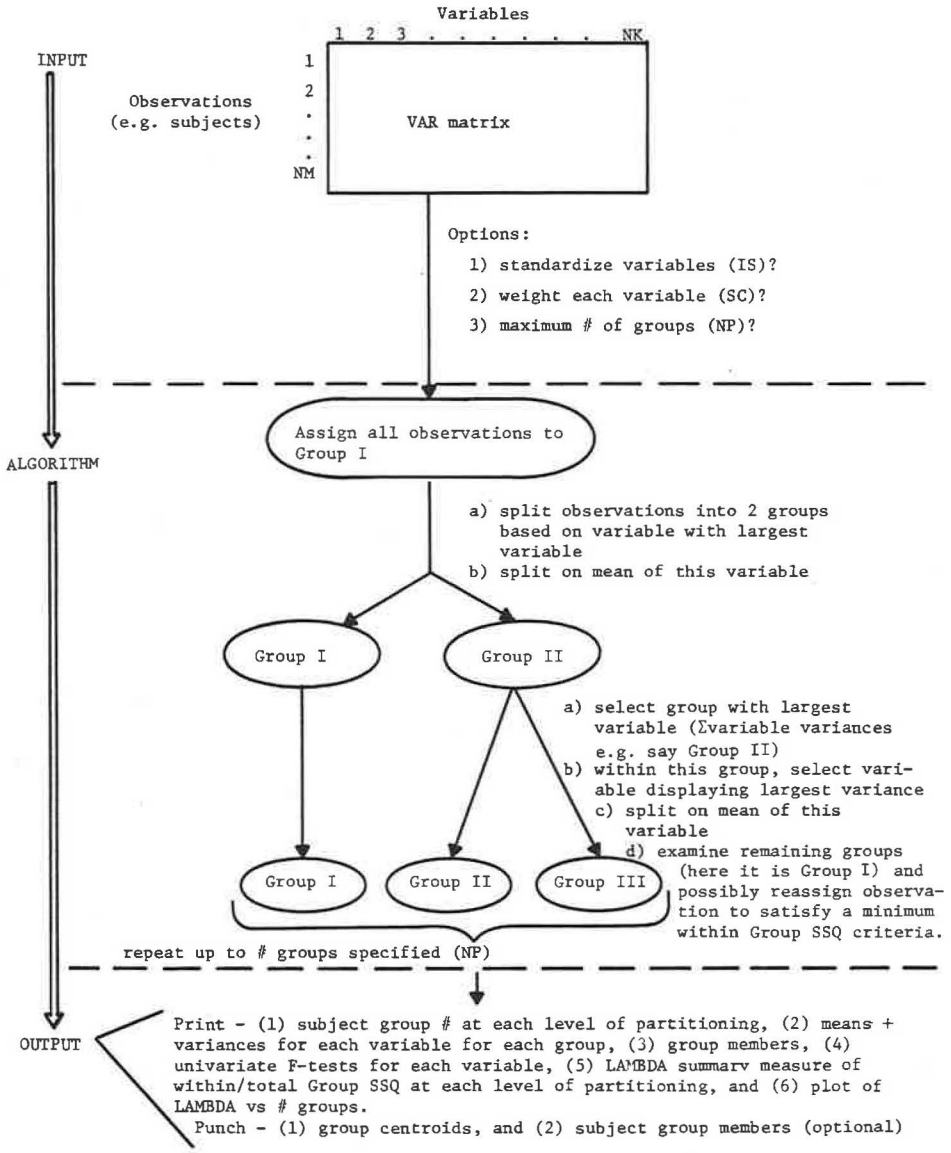
19. Do you require an automobile to perform your job? _____ Yes _____ No

20. In what type of dwelling do you reside?

_____ House, owned _____ Apartment (less than 10 units per building) _____ Trailer
_____ House, rented _____ Apartment (10 or more units per building) _____ Other (please specify): _____

APPENDIX D

HARRIS CLUSTER ANALYSIS



APPENDIX E

PUBLIC TRANSPORTATION ATTITUDE QUESTIONNAIRE, JACKSONVILLE, FLA.

SCREENING QUESTIONS

1. Are you 15 years of age or older? _____Yes _____No

2. Do you travel away from your home to some other area of Jacksonville that is more than three blocks away one or more times per week?

   _____Yes _____No

3. Do you have access to an automobile (either as a driver or a rider) for at least half of these trips?

   _____Yes _____No

To qualify as a respondent, a person must answer yes to all three questions.

PART I: TRANSPORTATION ATTITUDES AND ACTIVITIES

We have listed a number of statements that people have made about travel in the Jacksonville area. We would like to know your opinion concerning each statement. Please check the category that best shows how much you personally agree or disagree with each statement.

For example, if you strongly agree with the first statement below, "getting from one place to another in Jacksonville is a problem for me," then you would check the "strongly agree" category; or if you disagree, you would check the "disagree" category, and so forth.

If you do not think a statement applies to you, check the "does not apply" category at the far right.

		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	Does Not Apply
1.	Getting from one place to another in Jacksonville is a problem for me.	( )	( )	( )	( )	( )	( )
2.	I could not manage without my car.	( )	( )	( )	( )	( )	( )
3.	Carpooling does not appeal to me.	( )	( )	( )	( )	( )	( )
4.	I like to ride on city buses.	( )	( )	( )	( )	( )	( )
5.	I fully understand Jacksonville's bus schedules and fares.	( )	( )	( )	( )	( )	( )
6.	Public transportation is fine for some people, but not for me.	( )	( )	( )	( )	( )	( )
7.	I do not travel within the Jacksonville area on a regular basis each week.	( )	( )	( )	( )	( )	( )

		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	Does Not Apply
8.	Although public transportation would be a good way of conserving energy, I really cannot use it since it is very inconvenient.	( )	( )	( )	( )	( )	( )
9.	I would never use public transportation more frequently than I do now, no matter how much the service improved.	( )	( )	( )	( )	( )	( )
10.	I don't mind being restricted to fixed times and schedules for my travel within the Jacksonville area.	( )	( )	( )	( )	( )	( )
11.	I do not like to ride in the same vehicle with people I do not know.	( )	( )	( )	( )	( )	( )
12.	It is dangerous to stand at a bus stop while waiting for a bus.	( )	( )	( )	( )	( )	( )
13.	Traveling by public transportation is more relaxing than driving my car.	( )	( )	( )	( )	( )	( )
14.	With the higher automobile insurance rates, I plan to make greater use of public transportation.	( )	( )	( )	( )	( )	( )

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	Does Not Apply
15. We need better bus service more than we need better highways.	( )	( )	( )	( )	( )	( )
16. Everyone's taxes help support public transportation, therefore everyone should use it.	( )	( )	( )	( )	( )	( )

17. If you do not work outside your home, check here ☐ and skip to question 18.

Listed below are many different ways people travel to work. First, please (circle) the one way you usually go to work.

Then, suppose for some reason you could NOT use this method. How likely would you be to use each of the other methods of traveling to work in Jacksonville?

	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely
Drive Alone	( )	( )	( )	( )	( )
Drive/Ride with Family Member	( )	( )	( )	( )	( )
Carpool	( )	( )	( )	( )	( )
Vanpool	( )	( )	( )	( )	( )
Express Bus	( )	( )	( )	( )	( )
Regular Bus	( )	( )	( )	( )	( )
Taxi	( )	( )	( )	( )	( )
Walk	( )	( )	( )	( )	( )
Motorcycle	( )	( )	( )	( )	( )
Bicycle	( )	( )	( )	( )	( )
Rental Car	( )	( )	( )	( )	( )

18. Again, we have listed below the many different ways people travel.

This time we would like you to think about the way you travel in Jacksonville for trips other than to work (nonwork trips). First, circle the one way you usually travel on a nonwork trip.

Then, suppose for some reason you could NOT use this method. How likely would you be to use each of the other methods of traveling on a nonwork trip in Jacksonville?

	Very Likely	Somewhat Likely	Neither Likely nor Unlikely	Somewhat Unlikely	Very Unlikely
Drive Alone	( )	( )	( )	( )	( )
Drive/Ride with Family Member	( )	( )	( )	( )	( )
Carpool	( )	( )	( )	( )	( )
Vanpool	( )	( )	( )	( )	( )
Express Bus	( )	( )	( )	( )	( )
Regular Bus	( )	( )	( )	( )	( )
Taxi	( )	( )	( )	( )	( )
Walk	( )	( )	( )	( )	( )
Motorcycle	( )	( )	( )	( )	( )
Bicycle	( )	( )	( )	( )	( )
Rental Car	( )	( )	( )	( )	( )

PART II: TRIP DESTINATIONS

1. If you do not work outside your home, skip questions 1 through 4 and go to question 5. If you do work outside your home, we would like to know where you typically go in the Jacksonville area.

   Please write in the name and address of your primary place of work:

   Name _____

   Address _____

   If you work a second job, please write the name and address of this location also:

   Name _____

   Address _____

2. Please write in the number of round trips per week you take to and from each job location.

   Primary job location - weekly round trips _____

   Second job location - weekly round trips _____

3. What time of day do you normally leave home to go to work? _____

4. What time of day do you normally leave work to come home? _____

5. If you do not attend school as a student, skip questions 5 and 6 and go to question 7. If you do attend school, we would like to know where you typically go in the Jacksonville area.

   Please write in the name and address of your school:

   Name _____

   Address _____

6. Please write in the number of round trips per week you take to and from each school location.

   Weekly round trips _____

7. We would like to know how frequently you make round trips for the purpose of shopping for food, other shopping activities, and delivering and/or picking up children. DURING A TYPICAL WEEK how many round trips do you take to the following locations for each of the three listed purposes?

NUMBER OF ROUND TRIPS PER WEEK

Trip Purpose	Does Not Apply	..or.. Downtown	Regency	Normandy	Orange Park	Roosevelt	Other Inside Neighborhood	Other Outside Neighborhood
Shopping (food)	( )	_____	_____	_____	_____	_____	_____	_____
Shopping (non-food)	( )	_____	_____	_____	_____	_____	_____	_____
Deliver/Pick Up Children	( )	_____	_____	_____	_____	_____	_____	_____

8. We would like to know how frequently you go out for Entertainment, Personal Business, Medical Visits and Religious Activities. Please write in the Number of Round Trips you take DURING AN AVERAGE MONTH.

NUMBER OF ROUND TRIPS PER MONTH

Trip Purpose	Does Not Apply	...or... Downtown	Shopping Center	Other Inside Neighborhood	Other Outside Neighborhood
Entertainment (visiting friends, dining out, movies, etc.)	( )	_____	_____	_____	_____
Personal Business (banking, legal, etc.)	( )	_____	_____	_____	_____
Medical Trips	( )	_____	_____	_____	_____
Religious Trips	( )	_____	_____	_____	_____

9. Are there any other trips which you routinely take more than four times a month? _____ No, _____ Yes, If yes, please list below;

Trip Purpose: _____

How Often: _____

PART III: TRANSPORTATION USAGE

1. We would like to know the methods of transportation that you normally use when traveling in Jacksonville. Please indicate the method you use most by placing a "1" next to that type of transportation, a "2" next to that type you use 2nd most, a "3" next to that type used 3rd most, and so on. Be sure to place a rank in the blanks for all methods you actually use. Do NOT rank any method you do not use.

   YOUR RANKINGS:

   _____ Drive alone
   _____ Drive/ride with family member
   _____ Drive/ride with a friend
   _____ Carpool/vanpool
   _____ Express/commuter bus service
   _____ Regular bus service
   _____ Taxi
   _____ Motorcycle
   _____ Bicycle
   _____ Rental car

2. If a public transportation service were designed for you to use on your most frequently taken trip purpose, there are many alternative types of service that could be offered. We would like to know your preferences for each of these alternatives. Please write in your most frequent trip purpose:_____

   A. One set of alternatives concerns the Routes that a vehicle will travel; this determines how easy it is for you to get on a vehicle close to your starting point and to get off at your destination. Below you will find descriptions of Routing Alternatives that could be made available to you. Please read each description very carefully before giving your preference. Try to visualize actually using a service with these characteristics.

      Alternative 1: This public transportation vehicle will travel along a pre-established route on a major street in your neighborhood. To use it, you must walk a few blocks to the street and wait for the vehicle. You would wait at a corner where the vehicle makes a stop.

      The vehicle would pick you up and take you to a stop nearest to your destination. You would then walk to your destination.

      To return home you would walk to the nearest transportation stop and wait for the vehicle. It would take you to a stop nearest your home. You would then walk home.

      Now, please indicate your preference for this alternative by checking (✓) the appropriate box below:

      ( ) I definitely would not use a service if it had these characteristics.
      ( ) I probably would not use a service if it had these characteristics.
      ( ) I might or might not use a service if it had these characteristics.
      ( ) I probably would use a service if it had these characteristics.
      ( ) I definitely would use a service if it had these characteristics.

Alternative 2: This public transportation vehicle will travel along a pre-established route on a major street in your neighborhood. To use it you can either walk a few blocks to the street and wait for the vehicle anywhere along the street; or you can telephone the transportation company office to request front door service and wait for a vehicle to come to your home.

It will take you to your destination as long as your destination is within a few blocks of the pre-established route.

To return home you can walk to the nearest street on which the vehicle travels and wait to be picked up, or you can telephone the transportation company office and request to be picked up where you are. The vehicle will then take you home.

Please indicate your preference for this alternative by checking (✓) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 3: This public transportation vehicle will make regular stops at predetermined places such as shopping centers, schools, industrial plants, parks, etc. but does not always travel on the same streets between these stops.

To use the service you telephone the transportation company office to be picked up at your door. Shortly after your call, the vehicle will pick you up and take you to your destination as long as it is one of these predetermined places.

To return home you would get on the vehicle at one of its regular stops.

Please indicate your preference for this alternative by checking (✓) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 4: This public transportation vehicle does not make regular stops. Destinations are specific predetermined places such as shopping centers, schools, industrial plants, parks, etc.

To use the service, you telephone the transportation company office to ask to be picked up at your front door. Shortly after your call, the vehicle will pick you up and take you to your destination as long as it is one of these predetermined places.

To return home you would telephone the transportation company office to ask to be picked up where you are.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 5: This public transportation vehicle does not make regular stops, but it serves all destinations within a 20 minute drive of your home.

To use the service, you telephone the transportation company office to ask to be picked up at your door. Shortly after your call, the vehicle will pick you up and take you anywhere you want to go within 20 minutes of your home.

To return home you would telephone the transportation company office to ask to be picked up where you are.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

B. Another set of alternatives concerns the Scheduling that a vehicle will follow. Scheduling describes the time at which vehicles will pick people up and drop them off. Below are descriptions of scheduling alternatives that could be made available to you.

Alternative 1: This vehicle will pick up and deliver passengers at regularly scheduled times. To use the service you would find out the vehicle's schedule and then wait for it to pick you up at its regularly scheduled time.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 2: This vehicle will pick up and deliver passengers at regular scheduled times, but the passengers help determine the schedule. To use the service you would wait for the vehicle to pick you up at its regularly scheduled time.

To change the schedule you would notify the driver of your suggested change. The driver would ask the other riders to agree to the change. Changes would be made if there is a consensus of the riders.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 3: This vehicle will not follow a fixed schedule. It provides frequent service along the same street to the same predetermined places such as shopping centers, schools, industrial plants, parks, etc.

To use the service you would walk to the street or one of these predetermined places and wait for the next vehicle to pass. You would hail (wave or call) the vehicle to stop and pick you up.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 4: This vehicle will not follow a fixed schedule. To use it you telephone the transportation company office and ask to be picked up. The dispatcher will tell you when the vehicle will be able to pick you up. You would then wait for the vehicle.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

Alternative 5: This vehicle will not follow a fixed schedule. To use it you would telephone the transportation company office at least a day in advance to request service on a specific day and at a specific time. On that day the vehicle would pick you up at the designated time.

Please indicate your preference for this alternative by checking (√) the appropriate box below:

( ) I definitely would not use a service if it had these characteristics.
( ) I probably would not use a service if it had these characteristics.
( ) I might or might not use a service if it had these characteristics.
( ) I probably would use a service if it had these characteristics.
( ) I definitely would use a service if it had these characteristics.

C. A final set of alternatives concerns the types of vehicles that will pick up or drop off riders. Below is a list of possible vehicles that could be used. Please rank them number "1" for most preferred through number "7" for least preferred.

_____ Limousine (extra long automobile, similar to those used at many airports, has storage area in back for packages, individual side doors, padded bench seats).

_____ Van (many windows, side door as well as front door, has automobile-type padded bench seats).

_____ Transit Bus with traditional bus bench seats.

_____ Automobile with four-doors, trunk space for packages, padded bench seats.

_____ Mini-Bus (holds 20 passengers instead of 40, has smaller profile, less noise to neighborhood, has traditional bus bench seats).

_____ Automobile with four-doors, trunk space for packages, individual contour seats.

_____ Transit Bus with individual molded seats, wide doors, lots of seat room.

PART IV: OPINIONS CONCERNING TRANSPORTATION SERVICE BENEFITS

If a new public transportation service is going to be attractive to you, it will have to have certain benefits you want. We need to know what these benefits are. Below are several questions that will help us better understand what you want in a transportation service. Please answer all questions completely. Some questions may look like they are repeating previous questions, but they are really getting at different aspects of what you want in a service. So, it is important that you answer all questions as carefully as possible.

1. Listed below are several different characteristics that are typically part of a public transportation service. We would like to know how desirable it is to you to have each characteristic. Please check (✓) the box that best shows how desirable each characteristic is to you when deciding whether to use a public transportation service. If any characteristic does not matter one way or the other to you when you choose a method of transportation, check the "does not matter" box at the far right.

	Very Desirable	*Moderately Desirable*	*Only Slightly Desirable*	*Not Desirable*	...OR...	*Does Not Matter to Me*
Short waiting time prior to using the service.	( )	( )	( )	( )		( )
Arriving at your destination at the time you want to arrive.	( )	( )	( )	( )		( )
Being able to arrive at your destination without changing vehicles.	( )	( )	( )	( )		( )
Having the vehicle pick you up at a point very close to where you are when you need the service.	( )	( )	( )	( )		( )
Having very good protection from adverse weather while waiting to use vehicle.	( )	( )	( )	( )		( )

	Very Desirable	Moderately Desirable	Only Slightly Desirable	Not Desirable	...OR... Does Not Matter to Me
Certainty of getting a seat on the vehicle you want to use.	( )	( )	( )	( )	( )
Having a non-stop, direct service to your destination.	( )	( )	( )	( )	( )
Having the freedom to change your destination after you are in the vehicle.	( )	( )	( )	( )	( )
Very easy entry and exit from the vehicle.	( )	( )	( )	( )	( )
Being able to stop at more than one destination while using the same vehicle.	( )	( )	( )	( )	( )
Being able to stop at more than one destination without having to pay an extra or additional fare.	( )	( )	( )	( )	( )
Low cost for using the service relative to using your car.	( )	( )	( )	( )	( )
Having an uncrowded vehicle where you have plenty of space between you and other people.	( )	( )	( )	( )	( )
Having a service that is available to you whenever you want to use it throughout the day and evening.	( )	( )	( )	( )	( )
Having a convenient way of paying for the service.	( )	( )	( )	( )	( )
Being able to use the service exactly when you are ready to ride.	( )	( )	( )	( )	( )

	Very Desirable	Moderately Desirable	Only Slightly Desirable	Not Desirable	....OR...	Does Not Matter to Me
Being able to ride directly to your destination without the vehicle taking any detours off the most direct route.	( )	( )	( )	( )		( )
Being able to get to your destination by using the service as fast as if you drove by yourself in a car.	( )	( )	( )	( )		( )

2. We all know that a public transportation system must be designed to provide the most desirable service if you are going to use it. We need to know how you feel about each alternative level for every service characteristic. Please rate how desirable each level of every characteristic is to you. If having a particular level of a characteristic would cause you not to use the service, check the box under "this level is not acceptable."

   For example, if you feel $.25 is a very desirable rate to pay for a typical shopping trip, you would check (✓) the box below under "very desirable." Similarly, you would rate how desirable each of the other costs is for a typical shopping trip. If any cost is unacceptable to you, you would check the box under "this level is not acceptable."

	Very Desirable	Desirable	Neither Desirable Nor Undesirable	Undesirable	Very Undesirable	...OR...	This Level Is Not Acceptable
Cost of a typical shopping trip							
$ .25 one way	( )	( )	( )	( )	( )		( )
$ .75 one way	( )	( )	( )	( )	( )		( )
$1.25 one way	( )	( )	( )	( )	( )		( )
$2.50 one way	( )	( )	( )	( )	( )		( )
Chances of getting a seat on the vehicle:							
Certainty of getting a seat	( )	( )	( )	( )	( )		( )
3 out of 4 chance	( )	( )	( )	( )	( )		( )
50-50 chance	( )	( )	( )	( )	( )		( )
1 out of 4 chance	( )	( )	( )	( )	( )		( )

	Very Desirable	Desirable	Neither Desirable Nor Undesirable	Undesirable	Very Undesirable	...Or... This Level Is Not Acceptable
Cost of a typical work trip:						
$ .25 one way	( )	( )	( )	( )	( )	( )
$ .75 one way	( )	( )	( )	( )	( )	( )
$1.25 one way	( )	( )	( )	( )	( )	( )
$2.50 one way	( )	( )	( )	( )	( )	( )
Space between you and others on the vehicle:						
Sitting shoulder to shoulder on the same bench type seat.	( )	( )	( )	( )	( )	( )
Sitting in the same bench type seat with shoulders not touching.	( )	( )	( )	( )	( )	( )
Separate seat for each individual.	( )	( )	( )	( )	( )	( )
Separate seat for each individual with extra leg and shoulder room.	( )	( )	( )	( )	( )	( )
Waiting time prior to using service:						
Less than 5 minutes	( )	( )	( )	( )	( )	( )
5 to 10 minutes	( )	( )	( )	( )	( )	( )
10 to 20 minutes	( )	( )	( )	( )	( )	( )
20 or more minutes	( )	( )	( )	( )	( )	( )
Arriving at your destination:						
On time	( )	( )	( )	( )	( )	( )
5 minutes late	( )	( )	( )	( )	( )	( )
5 to 10 minutes late	( )	( )	( )	( )	( )	( )
10 to 20 minutes late	( )	( )	( )	( )	( )	( )
Number of vehicle changes required to get to your destination:						
No transfers	( )	( )	( )	( )	( )	( )
1 transfer	( )	( )	( )	( )	( )	( )
2 transfers	( )	( )	( )	( )	( )	( )

	Very Desirable	Desirable	Neither Desirable Nor Undesirable	Undesirable	Very Undesirable	....OR... This Level Is Not Acceptable
Time necessary to get to a point where vehicle will pick you up:						
When walking:						
Less than 5 minutes	( )	( )	( )	( )	( )	( )
5 to 10 minutes	( )	( )	( )	( )	( )	( )
10 to 20 minutes	( )	( )	( )	( )	( )	( )
When driving:						
Less than 5 minutes	( )	( )	( )	( )	( )	( )
5 to 10 minutes	( )	( )	( )	( )	( )	( )
10 to 20 minutes	( )	( )	( )	( )	( )	( )
Protection from adverse weather:						
Pickup area bus shelter equipped with seating, telephone, and lights.	( )	( )	( )	( )	( )	( )
Pickup area has shelter from weather only.	( )	( )	( )	( )	( )	( )
Pickup area has no shelter.	( )	( )	( )	( )	( )	( )
Availability of service per day:						
24-hour service	( )	( )	( )	( )	( )	( )
6 a.m. to midnight service	( )	( )	( )	( )	( )	( )
6 a.m. to 6 p.m. service	( )	( )	( )	( )	( )	( )
Selected time periods between 6 a.m. and 6 p.m.	( )	( )	( )	( )	( )	( )
Your control over when you use service:						
Vehicle makes regular, preplanned stops each day.	( )	( )	( )	( )	( )	( )
Can call for vehicle the same day you want to use it.	( )	( )	( )	( )	( )	( )
Must call for vehicle the day before you want to use it.	( )	( )	( )	( )	( )	( )

	Very Desirable	Desirable	Neither Desirable Nor Undesirable	Undesirable	Very Undesirable	..OR.. This Level Is Not Acceptable
Route Directness:						
Nonstop to your destination	( )	( )	( )	( )	( )	( )
Direct to your destination with 1 or 2 stops	( )	( )	( )	( )	( )	( )
Direct to your destination with more than 2 stops	( )	( )	( )	( )	( )	( )
Amount of travel time compared to using your car:						
Faster than by car	( )	( )	( )	( )	( )	( )
Same travel time as by car	( )	( )	( )	( )	( )	( )
One and a half times as slow as by car	( )	( )	( )	( )	( )	( )
Twice as slow as by car	( )	( )	( )	( )	( )	( )
Three times as slow as by car	( )	( )	( )	( )	( )	( )
Method of payment for service:						
Credit is available	( )	( )	( )	( )	( )	( )
Cash only, change given	( )	( )	( )	( )	( )	( )
Exact change required	( )	( )	( )	( )	( )	( )
Prepurchase of tokens	( )	( )	( )	( )	( )	( )
You would use a service that leaves earlier or later than usual from work:						
30 minutes early	( )	( )	( )	( )	( )	( )
30 minutes late	( )	( )	( )	( )	( )	( )
1 hour late	( )	( )	( )	( )	( )	( )
Amount of time you are willing to schedule vehicle in advance of its picking you up:						
30 minutes	( )	( )	( )	( )	( )	( )
1 hour	( )	( )	( )	( )	( )	( )
24 hours	( )	( )	( )	( )	( )	( )

PART V: PREFERENCES FOR TRANSPORTATION SERVICES

Several different transportation services could be offered within the Jacksonville area. These services can be described by showing what combinations of benefits each one may offer you.

For example, one combination offers you a pickup area that is sheltered from weather conditions and allows you to get to your destination without transferring to another vehicle.

Below are descriptions of possible public transportation services. We would like to know which combinations you prefer most and which ones you prefer least. Please read each description and try to imagine yourself using it for work, shopping, or other trips you take in the Jacksonville area.

EXAMPLE

This is an example to help you answer the questions that follow. Please work through this example with the interviewer until you are sure you know how to answer similar kinds of questions. The example below illustrates how you might rank the different combinations a transportation service might offer you. Here a service has been described as having alternative combinations of (1) NUMBER OF VEHICLE TRANSFERS REQUIRED TO REACH YOUR DESTINATION and (2) AVAILABILITY OF SHELTER AT THE PICKUP AREA. Each box describes a different combination. All combinations represent a transportation service that would take you to the same place.

Suppose you most prefer having NO VEHICLE TRANSFERS and a PICKUP AREA THAT HAS A SHELTER EQUIPPED WITH SEATING, TELEPHONE, AND LIGHT. You would place a "1" in the block representing this combination to show it is your first choice. Next, suppose your second most preferred combination is NO TRANSFERS and a PICKUP AREA THAT INCLUDES only SHELTER FROM THE WEATHER. You would place a "2" in the box for that combination. You would continue in this way until all nine combinations are ranked from 1 to 9.

AND THIS TYPE OF SHELTER AT THE PICKUP AREA WOULD BE AVAILABLE:	YOU WOULD HAVE TO MAKE THIS MANY VEHICLE CHANGES TO GET TO YOUR DESTINATION: No Transfers	One Transfer	Two Transfers
Pickup area includes a shelter equipped with seating, telephone, and light			
Pickup area includes cover from weather			
A designated pickup area is available			

1. This public transportation service is described in terms of different combinations of WAITING TIME FOR THE VEHICLE TO ARRIVE and different ONE-WAY FARES. Place a "1" in the block that shows your most preferred combination of WAITING TIME BEFORE PICKUP and TRIP COST; next write a "2" in the block for your second most preferred combination, a "3" for your third choice and so on until all nine combinations are ranked.

AND YOUR ONE-WAY FARE WOULD BE:	YOU WILL HAVE TO WAIT THIS LONG FOR THE VEHICLE TO ARRIVE: Less Than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
$ .25			
$ .75			
$1.25			

2. This public transportation service is described in terms of different times it would take you to walk to a PICKUP POINT and different ONE-WAY FARES. Place a "1" in the block that shows your most preferred combination of TIME TO PICKUP POINTS and TRIP COSTS; next write a "2" for your second most preferred combination, a "3" for your third choice and so on until all 9 combinations are ranked.

AND YOUR ONE-WAY FARE WOULD BE:	YOU WILL HAVE TO WALK THIS LONG TO ARRIVE AT YOUR PICKUP POINT Less Than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
$ .25			
$ .75			
$1.25			

3. This public transportation service is described in terms of different combinations of ONE-WAY FARES and RELATIVE TRAVEL TIMES it would take you to reach your destination. Place a "1" in the block that shows your most preferred combinations of TRIP COST and TRAVEL TIME; next write a "2" for your second most preferred combinations, a "3" for your third choice and so on until all 9 combinations are ranked.

	YOUR ONE-WAY FARE WOULD BE:		
AND YOUR RELATIVE TRAVEL TIME WOULD BE:	$.25	$.75	$1.25
Same as by car			
Twice as slow as by car			
Three times as slow as by car			

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4. This public transportation service is described in terms of combinations of TIME TO PICKUP POINT and TRAVEL TIME. Place a "1" in the block that shows your most preferred combination of TIME TO PICKUP and TRAVEL TIME; next write a "2" for your second most preferred combination, a "3" for your third choice and so on until all 9 combinations are ranked.

	YOU WOULD HAVE TO TRAVEL THIS LONG TO ARRIVE AT A PICKUP POINT		
AND YOUR RELATIVE TRAVEL TIME WOULD BE:	Less Than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
Same as by car			
Twice as slow as by car			
Three times as slow as by car			

5. This public transportation service is described in terms of combinations of WAITING TIME and TRAVEL TIME. Place a "1" in the block that shows your most preferred combination of WAITING TIME and TRAVEL TIME; next write a "2" for your second most preferred combination, a "3" for your third choice and so on until all 9 combinations are ranked.

AND YOUR RELATIVE TRAVEL TIME WOULD BE:	YOU WOULD HAVE TO WAIT THIS LONG FOR THE VEHICLE TO ARRIVE: Less Than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
Same as by car			
Twice as slow as by car			
Three times as slow as by car			

6. This public transportation service is described in terms of combinations of TIME TO PICKUP POINT and WAITING TIME BEFORE PICKUP. Place a "1" in the block that shows your most preferred combination of TIME TO PICKUP POINT and WAITING TIME FOR THE VEHICLE TO ARRIVE; next write a "2" for your second most preferred combination, a "3" for your third choice and so on until all 9 combinations are ranked.

AND YOU WOULD HAVE TO WAIT THIS LONG FOR THE VEHICLE TO ARRIVE:	YOU WOULD HAVE TO WALK THIS LONG TO ARRIVE AT YOUR PICKUP POINT: Less Than 5 Minutes	5 to 10 Minutes	10 to 20 Minutes
Less than 5 minutes			
5 to 10 minutes			
10 to 20 minutes			

PART VI: CLASSIFICATION

1. Your sex is: _____Male _____Female
2. What is your marital status? _____Single _____Married _____Separated _____Divorced _____Widowed
3. How many persons are currently residing in your household? ____1 ____2 ____3 ____4 ____5 ____6 or more
4. If you have children residing with you in your household, please circle the number in each age group.

Under 10 years	0	1	2	3	4 or more
10 - 14 years	0	1	2	3	4 or more
15 years or older	0	1	2	3	4 or more

5. Indicate in each blank below the number of family members in your household who are paid to work more than 30 hours per week.

_____ Male Wage Earner(s) _____ Female Wage Earner(s)

6. What is your occupation?

_____ Student _____ Salesperson _____ Skilled/Semi-Skilled _____ Manager/Proprietor
_____ Housewife _____ Machine/Vehicle Operator _____ Clerical/Office Worker _____ Retired (omit questions 7&8)
_____ Military _____ Professional/Technical _____ Service Worker _____ Other (please specify):
_____

7. Are you the major wage earner in your household? _____ Yes _____ No
8. Write in the number of days per week you work outside your home. _____
9. How long have you lived in the Jacksonville area?

_____ Less than 2 years _____ 5-7 years _____ More than 10 years
_____ 2-4 years _____ 8-10 years

10. What was your age on your last birthday?

_____ Under 20 _____ 25-29 _____ 35-39 _____ 50-59
_____ 20-24 _____ 30-34 _____ 40-49 _____ 60 and over

11. What was the last grade you completed in school?

_____ 0-8 _____ High School Graduate _____ College Graduate
_____ 1-3 Years High School _____ 1-3 Years College _____ More than 4 years College

12. Please indicate your total family income before taxes last year.

_____ $0-4,999 _____ $10,000-14,999 _____ $20,000-24,999 ____ More than $30,000

_____ $5,000-9,999 _____ $15,000-19,999 _____ $25,000-29,999

13. How many vehicles in operating condition are regularly available to you within your household?

_____ None _____ One _____ Two _____ Three _____ Four or more

14. Please write in your name, address and telephon number. Please understand that statistical analyses will be made upon the total group interviewed, and that no information concerning a private individual will be released.

_____

Name Address Telephone Number

15. The responses to the following question will be used to determine if the respondents included in this study are representative of the overall Jacksonville population. While we feel this information would be very helpful in determining if the results of this study can be generalized, if you feel that this question is irrelevant or offensive, please leave it blank.

Please indicate your race by placing a check in the appropriate blank.

_____ White/Caucasian _____ Black/Afro-American _____ Other (please specify) _____

16. Do you have a driver's license? _____ Yes _____ No

17. How many other licensed drivers are in your household? _____

18. Do you have a physical handicap that you believe would prevent you from using public transportation services? _____ Yes _____ No

19. Do you require an automobile to perform your job? _____ Yes _____ No

20. In what type of dwelling do you reside?

_____ House, owned _____ Apartment (less than 10 units per building) _____ Trailer

_____ House, rented _____ Apartment (10 or more units per building) _____ Other (please specify):

_____

Tract No. _____

Block No. _____

APPENDIX F

PUBLIC TRANSPORTATION CONCEPT TEST QUESTIONNAIRE

Interview Information and Instructions

The Transportation Center of The University of Tennessee and the National Cooperative Highway Research Program have commissioned Irwin Research to undertake this survey in Jacksonville. Basically, this survey is the last stage of a study begun in Jacksonville nearly three years ago.

In the first two surveys conducted in Jacksonville, data was gathered on individual preferences for different modes of transportation. We have identified a number of these people as likely users of public transportation. This current and final survey is to test the public bus concepts among these preselected individuals. The two public bus concepts are a loop system and a grid system. This survey will not affect regular bus service, and the city of Jacksonville and the JTA are not likely to implement either of these systems in the near future; the purpose of this survey is to gather information about people's attitudes toward the concepts and to demonstrate the effectiveness of this research approach.

The loop system is simply two circular bus routes on the west side, partially intersecting one another, serving Five Points, Normandy Mall, Roosevelt Mall, all the hospitals on the west side, and various shopping areas.

The grid system is much easier to use but more difficult to describe. It is essentially ten different routes criss-crossing the major streets on the west side.

It is important that you be able to help the respondents understand the grid and loop bus system concepts and how they may be used. Show the respondent the location of her home on the map in the binder, trace the patch to the nearest bus stop on the loop (or grid) system and then trace the vehicle route to appropriate bus stops at destinations (a mall, hospital, work place etc.). Also estimate total trip time and measure the approximate length of the route to estimate the time it would take in travel on the bus.

The pictures in the binder may be shown to the respondent next. Accompanying each picture is part of the concept description text which should be read to the respondent from your concept description card. Proceed slowly and occasionally inquire as to understanding to be certain the concept is thoroughly understood.

Make sure the respondent has a clear idea how to use the loop or grid system before proceeding with Sections A or B of the survey. Make certain the respondent understands that these systems will not affect the current JTA bus service in any way.

Grid Concept Description

Consideration may be given to adding ten additional routes in this area of Jacksonville--and the existing bus service would not be affected. Rather than have all the buses going downtown, special routes would be available here on the west side between 6:00 a.m. and 9:00 p.m., Monday through Saturday. The buses would travel along specific routes on major streets in this area. The bus service could take you to get where you want to go. (Interviewer please show respondent the route map and trace a line to a bus stop and to the more likely destinations. Also show them the bus stop nearest their destinations and the walking distance. Also estimate total trip time.)

You would wait at a corner where there is a bus stop sign. At some major stops a bench would be available and schedules and routing information would also be there. Since the schedule is the same every day, you could call JTA (633-7330) to find out when the next bus arrives in order to reduce your waiting time probably no more than five minutes. All buses would be heated and air-conditioned with comfortable seats and space for packages. Buses would come by your bus stop every 15 minutes in the peak hours (6:00-9:00 a.m. and 3:00-6:00 p.m.) and every 30 minutes at all other times. The fare would be 35¢ and exact change would be required. All transfers to other buses would be at major intersections and covered bus shelters would be available such as at Five Points, Normandy Mall, Roosevelt Mall, Park and Roosevelt, and Edgewood and Park. Transfer to another bus would require an additional 35¢ and the wait between buses would usually be 15-20 minutes.

Bus Loop Description

There could be a new bus service made available here on the west side of Jacksonville--and the existing bus service would not be affected. The bus service could take you to a number of locations in this area of Jacksonville (show respondent map). As you can see, there would be service to the business plants along Beaver and Commonwealth--this between 5:30 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:30 p.m. They would come by your bus stop every 30 minutes, Monday through Friday. You can see here that another bus service would go to shopping areas along Riverside, Normandy, Five Points, Post and Kig, Edgewood Avenue, Normandy Mall, Roosevelt Mall, Poplar Point, and Avondale Center. This second service would come by the bus stops every 45 minutes between 8:30 a.m. and 6:00 p.m., Monday through Saturday. Also served would be St. Vincent Medical Center, Riverside Hospital, Murry Hill Library, and the medical offices in Riverside. (Interviewer, please show respondent the route map and trace a line to a bus stop and to the more likely destinations. Also show them the bus stop nearest their destination and the walking distance. Also estimate total trip time.)

To catch the bus, you would wait at a corner where there is a bus stop sign; at some major stops a bench and schedules would also be provided. Since the bus would be on a set schedule, you could call the JTA at 633-7330 to find out when the next bus arrives and to reduce your waiting time--usually no more than five minutes. All buses would be heated and air-conditioned, with comfortable seats and space to put packages. The fare would be 35¢ and exact change would be required. The bus would then take you to the bus stop nearest to where you want to go. This could be for work, shopping, to a doctor or hospital, to a church, or whatever. For major locations, such as Normandy Mall, the vehicle would stop at the main entrance to the mall (at Penney's). For some other locations, one might have to walk as far as six blocks, taking about 10 minutes.

If necessary, you could also transfer to another bus. Transferring to another bus would require usually an average of 15-20 minutes wait at a covered bus shelter and would cost an additional 35¢.

PUBLIC TRANSPORTATION CONCEPT TEST QUESTIONNAIRE

JACKSONVILLE, FLORIDA

Interviewer Name _____

Note: Please contact the person noted below to arrange an interview.

Respondent Information: No. _____

Name _____

Address _____

Telephone _____

Previously Participated in ___ Phase I (Spring 1977)

___ Phase II (Winter 1978)

Introduction: [*Reference earlier telephone contact and the reason for this additional interview.*]
[*Express appreciation to respondent for again participating in the study.*]

PRELIMINARY QUESTION SECTION

1. Do you still travel to about the same places as when we talked to you in _____? [*data on cover page*]
[*e.g., same employer, (if any) same shopping centers, etc.*]
( ) yes ( ) no [*If "no," please explain. [Interviewer note here if he/she lives at a different location in study area or the location of a new employer, new shopping center used, etc.*]

2. a. Do you still travel to places using the same method(s) of transportation [*e.g., auto, bus, etc.*] as when we talked with you last?
( ) yes ( ) no

b. (If "no") What method(s) do you use now that's different since we talked to you last?

_____ _____ _____

3. When, if ever, were you last on a Jacksonville city bus?
( ) never ( ) over a year ago ( ) over six months ago ( ) over three months ago ( ) three months ago or less

4. [*Ask these questions only if been on bus within the last three months.*]

a. About how many round trips do you usually make a month on a city bus?
( ) none ( ) 1-4 ( ) 5-9 ( ) 10-19 ( ) 20-29 ( ) over 30 trips

b. How satisfied are you with the city bus service you now receive? (give 4B card)
( ) very satisfied ( ) somewhat satisfied ( ) neutral or undecided ( ) somewhat dissatisfied ( ) very dissatisfied

c. [*If respondent does not answer "very satisfied" in (4b), ask:*]
What two or three things about the service cause you to be less than fully satisfied? (Probe)
Notes:
( ) schedules
( ) vehicles
( ) cost
( ) routes
( ) other (note)
_____

Interviewer now introduce the bus loop system using description provided and photographs. Then have respondent read the summary concept card and you may need to respond to questions. Leave the summary card with the respondent as a reference.

5. Please think for a moment about the various types of trips you make around the area; whether to work, to shop, to school, or whatever. [*Pause*] Now think again about the bus service I just described. Keeping in mind that we want your completely honest opinion, can you think of any types of trips that you would consider making by using this bus service?
( ) yes ( ) no

Encourage discussion and review of the concept. Probe with such questions as: "What would this new bus service mean to you?" Be certain that the concept is understood.

[*If "no," skip to Question 7*].

6. [*If "yes"*] What types of trips? [*Check those that apply in column A below*]

[*For each trip NOT MENTIONED ASK*]: Would you consider using the bus service I described for _____? [*Mention trip. . .Check those that apply in Column B*]
[*Hand card 6 to Respondent*]

	Column A	Column B
Work	( )	( )
Grocery Shopping	( )	( )
Other Non-Food Shopping	( )	( )
Education/School	( )	( )
Visit Friends, Relatives	( )	( )
Attend Religious Functions	( )	( )
Entertainment	( )	( )
Medical Trips	( )	( )
Personal Business (Banking, Meetings)	( )	( )
Deliver/pick up Children	( )	( )
Other (specify)	( )	( )
_____	( )	( )
_____	( )	( )
_____	( )	( )

[*If "work" is marked in 6 above, go to question 7. If not, but some other trip is cited, go to question 14.*]

Now I would like to ask some questions about your trips to work as they might relate to the new bus system I described.

7. Suppose the bus service I described became available in about a month. [*Give card 7*] Which of these statements best indicates how likely you would be to try this new service to and from work? Please take your time in deciding and feel free to ask me more questions about the proposed new service if you wish.
( ) Definitely would try the service once or twice
( ) Probably would try the service once or twice
( ) Might/might not try the service once or twice
( ) Probably would not try the service once or twice
( ) Definitely would not try the service once or twice

8. Based on the description we just read, what advantages, if any, would this new bus service have over the way you now travel to work? [*Interviewer please probe and make detailed notes.*]
Any others? [*Repeat*]

9. Based on the description we just read, what disadvantages would this new bus service have compared to the way you now travel to work? [*Interviewer please probe and make detailed notes.*] Any others? [*Repeat*]

10. Think about the next 10 trips you make to go to work. How many times , if any, would you use this new service and how many times would you use your present method(s) of transportation? [*Record below, must add to 10*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

[*Note: Check Question 7. If respondent said "Definitely" or "Probably would try service, ask Questions 11a and 11b. Otherwise, skip to Question 13*]

11a. If you were to use this new bus service to go to work, which method(s) of traveling would you stop using or use less often? [*Show card 11a*]

( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

[*If only one answer to Question 11a, go to Question 12.*]

11b. [*If more than one mentioned ask*]: Which one of these methods of transportation would be most affected by your use of the new bus service? [*Check the single method mentioned*]

( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (Riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

12. [*Ask if cited Regular Bus in 11a*]: Think about the next ten work trips you make using the regular existing bus service, how many (if any) would you replace with the new service?

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

13. Suppose you could change the bus service that I described in any way you wish. What changes, if any, are essential before you would try using the service for work trips? [*Have respondent refer to concept summary card.*]

Interviewer please note each change that is mentioned and for each change seek clarity as to the nature and extent of change desired.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

[*This portion is for coding only--do not use in interview.*]

Route:
( ) Closer to home
( ) Closer to destination
( ) No transfers required

Schedule:
( ) More frequent buses
( ) Arrive at destination faster
( ) Less waiting time
( ) Available more hours during day
( ) Fewer stops on route (more like an express bus)

Vehicle Characteristics:
( ) Seating comfort
( ) Effective heat/air conditioning
( ) Size of bus

Other:
( ) More sheltered bus stop
( ) Better chance of getting a seat
( ) Less likely bus would be crowded
( ) Different methods of payment
( ) Lower fare
( ) Other (please note)

_____

SECTION A2: BUS LOOP--NONWORK TRIPS

Now I would like you to think of the trips other than to work that you mentioned earlier while you continue to think of the proposed new bus service.

14. Again suppose the bus service I described became available in about a month. [*Give card 7*] Which of these statements best indicates how likely you would be to try this new service for making nonwork trips?
( ) Definitely would try the service once or twice
( ) Probably would try the service once or twice
( ) Might/might not try the service once or twice
( ) Probably would not try the service once or twice
( ) Definitely would not try the service once or twice

15. Based on the description we just read, what advantages, if any, would this new bus service have over the way you now make nonwork trips? [*Interviewer, please probe and make detailed notes.*]

16. Based on the description we just read, what disadvantages, if any, would this new bus service have compared to the way you now travel for nonwork trips? [*Interviewer, please probe and make detailed notes.*] Any others? [*Repeat*]

17. Think about the next 10 trips you make for nonwork purposes. How many times, if any, would you use this new service and how many times would you use your present method(s) of transportation? [*Record below, must add to 10*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

[*Note: Check Question 14. If Respondent said "Definitely" or "Probably would try service," ask Questions 18a and 18b. Otherwise, skip to Question 20.*]

18a. If you were to use this new bus service for nonwork trips, which method(s) of traveling would you stop using or use less often? [*Show card 11a*]
( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

18b. [*If more than one mentioned ask*]:
Which one of these methods of transportation would be most affected by your use of the new bus service? [*Check the single method mentioned*]
( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

19. [*Ask if cited regular bus in 18a*]:
Think about the next 10 nonwork trips you make using the regular existing bus service, how many, if any, would you replace with the new service? [*Record below, must add to 10.*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

20. Suppose you could change the bus service that I described in any way you wish. What changes, if any, are essential before you would try using the service for nonwork trips? [*Have respondent refer to concept summary card.*]

Interviewer please note each change that is mentioned and for each change seek clarity as to the nature and extent of change desired.

[*This portion is for coding only--do not use in interview.*]

Route:
- ( ) Closer to home
- ( ) Closer to destination
- ( ) No transfers required

Schedule:
- ( ) More frequent buses
- ( ) Arrive at destination faster
- ( ) Less waiting time
- ( ) Available more hours during day
- ( ) Fewer stops on route (more like an express bus)

Vehicle Characteristics:
- ( ) Seating comfort
- ( ) Effective heat/air conditioning
- ( ) Size of bus

Other:
- ( ) More sheltered bus stop
- ( ) Better chance of getting a seat
- ( ) Less likely bus would be crowded
- ( ) Different methods of payment
- ( ) Lower fare
- ( ) Other (please note)

21. We are interested in how likely you believe you would be to regularly ride the new bus service (at least once a week) first for work and then for nonwork trips.

	Does Not Apply To Me	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not	Question 22
Work Trips	( )	( )	( )	( )	( )	( )	___
Nonwork Trips	( )	( )	( )	( )	( )	( )	___

22. Now if you indicated you would probably or definitely regularly ride the bus, I would like you to estimate as best you can how many round trips you would actually make by bus during a typical one-week period--for work trips and/or nonwork trips. [*Interviewer, please enter numbers in spaces to right of question 21 above. Also, if respondent would make 10 one-way trips, for example, enter as 5 round trips.*]

23. Now, I would like to ask what you would think of some possible changes in the new bus service. For example, if the round trip fare were increased to $.90, how likely would you be to regularly ride the bus? [*Hand respondent card 13*]. Please assume that only one thing is changed at a time; all the rest remains the same as I described it earlier. Please think of work (or nonwork) trips. [*Say "work trips" if respondent can use the new system for work; otherwise say "nonwork trips." Make sure you check (✓) work or nonwork below.*] You may wish to keep in mind your answer to Question 21 which was _____. So, how likely would you be to regularly ride the new bus service if the following change was made?

[*Interviewer: in which context are responses given? ( ) work ( ) nonwork*]	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
If respondent answers "definitely would not," as you proceed, skip to 23f.					
a. Round trip fare were $.90	( )	( )	( )	( )	( )
b. Round trip fare were $1.00	( )	( )	( )	( )	( )
c. Round trip fare were $1.20	( )	( )	( )	( )	( )
d. Round trip fare were $1.50	( )	( )	( )	( )	( )
e. Round trip fare were $1.80	( )	( )	( )	( )	( )

	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
If respondent answers "definitely would not" as you proceed, skip to 23i;					
f. You would have to stand (would not have a seat) once every 4 bus trips (1/4 of time)	( )	( )	( )	( )	( )
g. You would have to stand once every 3 bus trips (1/3 of time).	( )	( )	( )	( )	( )
h. You would have to stand once every 2 bus trips (1/2 of time)	( )	( )	( )	( )	( )
If respondent answers "definitely would not" as you proceed, skip to 23l;					
i. You would often* have to wait 10 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
j. You would often* have to wait 15 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
k. You would often* have to wait 20 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
[Interviewer: "Often" means about 1/3 of the time. Please explain.] If respondent answers "definitely would not" as you proceed, skip to 23o;					
l. You would often arrive 5 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
m. You would often arrive 10 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
n. You would often arrive 15 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
[ask either o or p]					
o. *[ask only if no transfers required]* If you had to transfer to another bus to reach your destination	( )	( )	( )	( )	( )

	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
p. *[Ask only if do have to transfer]* If you did not have to transfer to another bus to reach your destination	( )	( )	( )	( )	( )
If respondent answers "definitely would not" on q, skip to 23s.					
q. If it took you 10 minutes less than we estimated to walk to the bus stop.	( )	( )	( )	( )	( )
r. If it took you 5 minutes less than we estimated to walk to the bus stop	( )	( )	( )	( )	( )
If respondent answers "definitely would not" on s, skip to 23u.					
s. If it took you 5 minutes more than we estimated to walk to the bus stop	( )	( )	( )	( )	( )
t. If it took you 10 minutes more than we estimated to walk to the bus stop	( )	( )	( )	( )	( )
u. If the new bus service were available 2 more hours each day, from 4:30 a.m. to 7:00 p.m.	( )	( )	( )	( )	( )
v. *[If applicable]* If weather shelters could not be provided at transfer points	( )	( )	( )	( )	( )
w. If weather shelters were provided at all bus stops	( )	( )	( )	( )	( )

		I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not

For the following, please compare the new service to the way you now travel and decide whether you would use the service if:

[*Interviewer enter "work" or "nonwork" trip (shopping) in blanks below as determined earlier): na = not applicable*]

If respondent answers "definitely would not," as you proceed go to next section.

x.	If it took a total of 20 minutes longer to go from your home to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )
y.	If it took a total of 30 minutes longer to go from your house to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )
z.	If it took a total of 40 minutes longer to go from your home to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )

[*Interviewer: If you now go on to the second concept description, please take a break and change the conversation away from transportation.*]

Interviewer now introduce the bus loop system using description provided and photographs. Then have respondent read the summary concept card and you may need to respond to questions. Leave the summary card with the respondent as a reference.

5. Please think once again about the various types of trips you make around the area; whether to work, to shop, to school, or whatever.

   Now think again about the bus service I just described. Keeping in mind that we want your completely honest opinion, can you think of any types of trips that you would consider making by using this bus service?
   ( ) yes ( ) no

   Encourage discussion and review of the grid concept. Probe with such questions as, "What would the grid concept service mean to you?" Be certain that the concept is understood.

   [*If "no", go to Question 7.*]

6. [*If "yes"*] What types of trips? [*Check those that apply in column A below*]

   [*For each trip NOT MENTIONED ASK*]: Would you consider using the bus service I described for _____? [*Mention trip. . .Check those that apply in Column B*] [*Hand card 6 to Respondent*]

	Column A	Column B
Work	( )	( )
Grocery Shopping	( )	( )
Other Non-Food Shopping	( )	( )
Education/School	( )	( )
Visit Friends, Relatives	( )	( )
Attend Religious Functions	( )	( )
Entertainment	( )	( )
Medical Trips	( )	( )
Personal Business (Banking, Meetings)	( )	( )
Deliver/pick up Children	( )	( )
Other (specify)	( )	( )
_____	( )	( )
_____	( )	( )
_____	( )	( )

[*If "work" is marked in 6 above, go to question 7. If not, but some other trip is cited, go to question 14.*]

SECTION B1: GRID--WORK TRIPS

Now I would like to ask some questions about your trips to work as they might relate to the new bus system I described.

7. Suppose the bus service I described became available in about a month. [*Give card 7*] Which of these statements best indicates how likely you would b. to try this new service to and from work? Please take your time in deciding and feel free to ask me more questions about the proposed new service if you wish.
( ) Definitely would try the service once or twice
( ) Probably would try the service once or twice
( ) Might/might not try the service once or twice
( ) Probably would not try the service once or twice
( ) Definitely would not try the service once or twice

8. Based on the description we just read, what advantages, if any, would this new bus service have over the way you now travel to work? [*Interviewer please probe and make detailed notes.*]
Any others? [*Repeat*]

9. Based on the description we just read, what disadvantages would this new bus service have compared to the way you now travel to work? [*Interviewer please probe and make detailed notes.*] Any others? [*Repeat*]

10. Think about the next 10 trips you make to go to work. How many times, if any, would you use this new service and how many times would you use your present method(s) of transportation? [*Record below, must add to 10*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

[*Note: Check Question 7. If respondent said "Definitely" or "Probably would try service, ask Questions 11a and 11b. Otherwise, skip to Question 13*]

11a. If you were to use this new bus service to go to work, which method(s) of traveling would you stop using or use less often? [*Show card 11a*]
( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

[*If only one answer to Question 11a, go to Question 12.*]

11b. [*If more than one mentioned ask*]:
Which one of these methods of transportation would be most affected by your use of the new bus service? [*Check the single method mentioned*]
( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (Riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

12. [*Ask if cited Regular Bus in 11a*]: Think about the next ten work trips you make using the regular existing bus service, how many (if any) would you replace with the new service?

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

SECTION B1

13. Suppose you could change the bus service that I described in any way you wish. What changes, if any, are essential before you would try using the service for work trips? [*Have respondent refer to concept summary card.*]

Interviewer please note each change that is mentioned and for each change seek clarity as to the nature and extent of change desired.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

[*This portion is for coding only--do not use in interview.*]

Route:

( ) Closer to home
( ) Closer to destination
( ) No transfers required

Schedule:

( ) More frequent buses
( ) Arrive at destination faster
( ) Less waiting time
( ) Available more hours during day
( ) Fewer stops on route (more like an express bus)

Vehicle Characteristics:

( ) Seating comfort
( ) Effective heat/air conditioning
( ) Size of bus

Other:

( ) More sheltered bus stop
( ) Better chance of getting a seat
( ) Less likely bus would be crowded
( ) Different methods of payment
( ) Lower fare
( ) Other (please note)

_____

SECTION B2: GRID--NONWORK TRIPS

Now I would like you to think of the trips other than to work that you mentioned earlier while you continue to think of the proposed new bus service.

14. Again suppose the bus service I described became available in about a month. [*Give card 7*] Which of these statements best indicates how likely you would be to try this new service for making nonwork trips?

( ) Definitely would try the service once or twice
( ) Probably would try the service once or twice
( ) Might/might not try the service once or twice
( ) Probably would not try the service once or twice
( ) Definitely would not try the service once or twice

15. Based on the description we just read, what advantages, if any, would this new bus service have over the way you now make nonwork trips? [*Interviewer, please probe and make detailed notes.*]

16. Based on the description we just read, what disadvantages, if any, would this new bus service have compared to the way you now travel for nonwork trips? [*Interviewer, please probe and make detailed notes.*] Any others? [*Repeat*]

SECTION B1

17. Think about the next 10 trips you make for nonwork purposes. How many times, if any, would you use this new service and how many times would you use your present method(s) of transportation? [*Record below, must add to 10*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

[*Note: Check Question 14. If Respondent said "Definitely" or "Probably would try service," ask Questions 18a and 18b. Otherwise, skip to Question 20.*]

18a. If you were to use this new bus service for nonwork trips, which method(s) of traveling would you stop using or use less often? [*Show card 11a*]

( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

18b. [*If more than one mentioned ask*]:
Which one of these methods of transportation would be most affected by your use of the new bus service? [*Check the single method mentioned*]

( ) Car/auto
( ) Regular bus service
( ) Taxi
( ) Express/commuter bus
( ) Carpool/vanpool (riding with friends, relatives)
( ) Other (specify) _____
( ) Not one more than others

19. [*Ask if cited regular bus in 18a*]:
Think about the next 10 nonwork trips you make using the regular existing bus service, how many, if any, would you replace with the new service? [*Record below, must add to 10*]

	No. of Times
Use New Bus Service	____
Use Present Method(s)	____
Total	10

20. Suppose you could change the bus service that I described in any way you wish. What changes, if any, are essential before you would try using the service for nonwork trips? [*Have respondent refer to concept summary card.*]

Interviewer please note each change that is mentioned and for each change seek clarity as to the nature and extent of change desired.

[*This portion is for coding only--do not use in interview.*]

Route:
( ) Closer to home
( ) Closer to destination
( ) No transfers required

Schedule:
( ) More frequent buses
( ) Arrive at destination faster
( ) Less waiting time
( ) Available more hours during day
( ) Fewer stops on route (more like an express bus)

Vehicle Characteristics:
( ) Seating comfort
( ) Effective heat/air conditioning
( ) Size of bus

Other:
( ) More sheltered bus stop
( ) Better chance of getting a seat
( ) Less likely bus would be crowded
( ) Different methods of payment
( ) Lower fare
( ) Other (please note)

_____

SECTION B3: INTENTIONS AND ATTRIBUTES

21. We are interested in how likely you believe you would be to regularly ride the new bus service (at least once a week) first for work and then for nonwork trips.

	Does Not Apply To Me	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not	Question 22
Work Trips				( )	( )	( )	____
Nonwork Trips	( )			( )	( )	( )	____

22. Now if you indicated you would probably or definitely regularly ride the bus, I would like you to estimate as best you can how many round trips you would actually make by bus during a typical one-week period--for work trips and/or nonwork trips. *[Interviewer, please enter numbers in spaces to right of question 21 above. Also, if respondent would make 10 one-way trips, for example, enter as 5 round trips.]*

23. Now, I would like to ask what you would think of some possible changes in the new bus service. For example, if the round trip fare were increased to $.90, how likely would you be to regularly ride the bus? *[Hand respondent card 13].* Please assume that only one thing is changed at a time; all the rest remains the same as I described it earlier. Please think of work (or nonwork) trips. *[Say "work trips" if respondent can use the new system for work; otherwise say "nonwork trips." Make sure you check (√) work or nonwork below.]* You may wish to keep in mind your answer to Question 21 which was _____. So, how likely would you be to regularly ride the new bus service if the following change was made?

[Interviewer: in which context are responses given? ( ) work ( ) nonwork]	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
If respondent answers "definitely would not," as you proceed, skip to 23f.					
a. Round trip fare were $.90	( )	( )	( )	( )	( )
b. Round trip fare were $1.00	( )	( )	( )	( )	( )
c. Round trip fare were $1.20	( )	( )	( )	( )	( )
d. Round trip fare were $1.50	( )	( )	( )	( )	( )
e. Round trip fare were $1.80	( )	( )	( )	( )	( )

	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
If respondent answers "definitely would not" as you proceed, skip to 23i;					
f. You would have to stand (would not have a seat) once every 4 bus trips (1/4 of time)	( )	( )	( )	( )	( )
g. You would have to stand once every 3 bus trips (1/3 of time).	( )	( )	( )	( )	( )
h. You would have to stand once every 2 bus trips (1/2 of time)	( )	( )	( )	( )	( )
If respondent answers "definitely would not" as you proceed, skip to 23l;					
i. You would often* have to wait 10 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
j. You would often* have to wait 15 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
k. You would often* have to wait 20 minutes for the bus beyond its scheduled time.	( )	( )	( )	( )	( )
[Interviewer: "Often" means about 1/3 of the time. Please explain.] If respondent answers "definitely would not" as you proceed, skip to 23o;					
l. You would often arrive 5 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
m. You would often arrive 10 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
n. You would often arrive 15 minutes after scheduled arrival at destination	( )	( )	( )	( )	( )
[ask either o or p] o. *[ask only if no transfers required]* If you had to transfer to another bus to reach your destination	( )	( )	( )	( )	( )

	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not
p. [*Ask only if do have to transfer*] If you did not have to transfer to another bus to reach your destination	( )	( )	( )	( )	( )

If respondent answers "definitely would not" on q, skip to 23s.

q. If it took you 10 minutes less than we estimated to walk to the bus stop.	( )	( )	( )	( )	( )
r. If it took you 5 minutes less than we estimated to walk to the bus stop	( )	( )	( )	( )	( )

If respondent answers "definitely would not" on s, skip to 23u.

s. If it took you 5 minutes more than we estimated to walk to the bus stop	( )	( )	( )	( )	( )
t. If it took you 10 minutes more than we estimated to walk to the bus stop	( )	( )	( )	( )	( )
u. If the new bus service were available 2 more hours each day, from 4:30 a.m. to 7:00 p.m.	( )	( )	( )	( )	( )
v. [*If applicable*] If weather shelters could not be provided at transfer points	( )	( )	( )	( )	( )
w. If weather shelters were provided at all bus stops	( )	( )	( )	( )	( )

	I Definitely Would	I Probably Would	I Might or Might Not	I Probably Would Not	I Definitely Would Not

If respondent's answer is "definitely would not," skip to next section.

For the following, please compare the new service to the way you now travel and decide whether you would use the service if:

[*Interviewer enter "work" or "nonwork" trip (shopping) in blanks below as determined earlier): na = not applicable*]
[*If respondent answers "definitely would not," as you proceed go to next section.*]

x. If it took a total of 20 minutes longer to go from your home to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )
y. If it took a total of 30 minutes longer to go from your house to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )
z. If it took a total of 40 minutes longer to go from your home to _____ compared to the way you now travel	na	( )	( )	( )	( )	( )

[*Interviewer: If you now go on to the second concept description, please take a break and change the conversation away from transportation.*]

SECTION C: BEHAVIORAL COMMITMENT

Now I would like to compare the two different bus systems we have discussed.

24a. Between the first bus service [*cite loop or grid*] and the second bus service [*cite other one*] we discussed, which of the two do you prefer, or wouldn't it matter?
( ) Loop Bus ( ) Grid Bus ( ) Indifferent

b. [*Ask only if have preference and make detailed notes.*] Why do you prefer the _____ service?

c. If it came down to having to decide between the regular bus service that now exists and the _____ service you just selected, which of the two would you prefer, or wouldn't it matter?
( ) existing ( ) loop ( ) grid ( ) indifferent

[*Please check if applicable*]:

d. ( ) Would have to have existing service to transfer into the new bus system (that one which respondent prefers).

Tell respondent the next three questions (25, 26, 27) do not mean, and should not be construed to mean, that the service (grid or looper) will actually be started in Jacksonville; you just want an indication of how strongly they feel about the proposed services. They should not feel at all "pressured" to respond "yes" to these questions.

25. If the city were to decide to start one of the services I described, there could, of course, be a few changes in the route and schedule. The city could send you a packet of information to provide details about the service if it is offered. You would receive a bill for $1.00 at the time you received the packet of information, solely to cover their handling costs and postage. You should feel no obligation to request this; but if you wish, I can put your name on a list for the city to send you this information if the service is started. Would you like me to do this?
( ) yes ( ) no

[*If "no," please note explanation given, if any.*]

26. On a related idea, if one of the bus services were started, the city could also send a bus service representative to your home to explain the service and to answer questions. If this were done, would you like to have someone telephone you to set up a time to discuss the service--or would you prefer to wait and look into it yourself?
( ) yes ( ) no, I'll wait and look into it myself

27. [*If respondent indicates he/she probably or definitely would use one or both of the bus services, ask this question.*] You have, in general, expressed interest in using at least one of the bus services. Let's assume the service you prefer is to be started. It would be valuable to the city if we could get a definite commitment from you. Would you be willing to sign this statement now? [*Hand card*] (I agree to use the bus service as described at least _____ times (on the average) per week if it is established, assuming my travel needs remain the same). [*If respondent is clearly ready to sign, check "yes"*]
( ) yes ( ) no

SECTION D: MEDIA USE

Now we are to the last section of the questionnaire. It concerns the newspapers, radio, and television that you see and hear. Your answers could assist the city if they were to advertise a new bus service.

28. a. To which newspaper(s) do you subscribe, if any?

Florida Times-Union	( ) Daily only	Jacksonville Journal	( ) Daily only
	( ) Sunday only		( ) Sunday only
	( ) Both		( ) Both

b. [*If more than one paper, ask*]: Which one do you read most carefully?
( ) Florida Times-Union ( ) Jacksonville Journal
( ) About equally ( ) Do not read them

c. About what portion of the papers that you receive in an average week do you find time to read?
( ) One quarter or less ( ) One-half to three-quarters
( ) One-quarter to one-half ( ) Three-quarters or more

d. What section(s) of the newspaper are of most interest to you?
( ) National News ( ) Local News ( ) Sports ( ) Family

29. On an average weekday, how many hours per day do you watch TV between 8 a.m. and 5 p.m.?
( ) 0 hours ( ) 1-2 hours ( ) 3-4 hours ( ) More than 4 hours

30. Do you have any favorite daytime TV programs? ( ) yes ( ) no

b. [*If "yes," ask:*] What are they? 1._____
2._____
3._____

31. On an average weeknight, how many hours per night do you watch TV between 5 p.m. and midnight?
( ) 0 hours ( ) 1-2 hours ( ) 3-4 hours ( ) More than 4 hours

32. Do you have any favorite nighttime TV programs? ( ) yes ( ) no

b. [*If "yes," ask:*] What are they? 1._____
2._____
3._____

33. On the average, how many hours per day do you listen to:
AM Radio: ( ) 0 hours ( ) 1-2 hours ( ) 3-4 hours ( ) More than 4 hours
FM Radio: ( ) 0 hours ( ) 1-2 hours ( ) 3-4 hours ( ) More than 4 hours

34. Do you have a favorite AM radio station? ( ) yes ( ) no

b. [*If "yes," ask:*] Which one? _____

35. Do you have a favorite FM radio station? ( ) yes ( ) no

b. [*If "yes," ask:*] Which one? _____

36. At what times of day do you most often listen to the radio?
( ) 6-9 a.m. ( ) 3-6 p.m. ( ) 12-3 a.m.
( ) 9-12 a.m. ( ) 6-9 p.m. ( ) 3-6 a.m.
( ) 12-3 p.m. ( ) 9-12 p.m. ( ) Never listen