
Using Planning & Research to Segment Markets

A Practical Approach to Market Segmentation

How do you introduce or improve segmentation procedures and activities at your agency? Effective and cost-efficient segmentation analysis requires the following inputs:

- **Superior planning** – A managerial framework emphasizing planning and research guidelines leads to effective segmentation studies.
- **Solid research** – Choosing the optimal blend of primary, secondary, syndicated, and data base sources.
- **Selecting the "right" segmentation dimensions** – As detailed in the previous chapter, these include geographics, demographics, usage and other behavioral measures, benefits, and psychographics.
- **Strategy development** – Target market selection, positioning, nichemanship, and formulating the proper marketing mix based on product, pricing, promotional, and distribution elements.
- **Implementation and control** – Working, evaluating, and revising the segmentation plan.

Chapter 3 focuses on the first three elements of segmentation analysis. Each major section of this chapter is divided into two parts:

- An **overview of the topic**, providing key definitions, procedures, and guidelines for implementing a segmentation analysis. It is not the purpose of this handbook to provide a detailed reference on conducting market research. The focus instead is the application of market research methods in a specific situation – that is, conducting market segmentation analysis. Other references, including the handbook developed for TCRP Project B-2 – *Integrating Market Research Into Transit Decision-Making*, are available that will provide the reader with specific information on conducting market research that is applicable here.
- An **illustration** of an actual implementation of segmentation analysis using three case studies as examples.

Our Case Studies – Some Background

A major part of the effort behind this handbook was the conduct of an actual segmentation analysis of transit riders and nonriders using many of the basis variables described in the previous chapter. It was believed that conduct of such research would provide considerable insight into the applicability of market segmentation specifically in the transit industry. Four criteria were used to select agencies to participate in this research effort.

- Agencies must be of different size (small, medium-sized, and large urban), offer different modes (bus only and rail), and operate under different marketing and service planning philosophies.
- Agencies must have a sizable number of existing riders who are choice riders. In addition, the makeup of the market should be diverse. At least one market should include a university system, as college students have recently represented an important market opportunity for many systems.
- All must have conducted some research in the past. That is, a major segmentation study of the type proposed should not represent their first research effort.
- All must demonstrate a market-orientation in their approach to research, marketing, and service planning. Moreover, all had to be open to the possible use of market segmentation strategies in future marketing or service planning efforts.

The three transit agencies selected for the research effort were Washington Metropolitan Area Transit Authority (WMATA), Milwaukee County Transit System (MCTS), and Boise Urban Stages (The BUS). Following are descriptions of each agency's background. They "set the scene" for the results from this segmentation analysis.



The Milwaukee County Transit System's 535-bus fleet serves Wisconsin's largest county (242 square miles) with regular, shuttle, express, flyer, university, school and special buses. About 90 percent of the 965,000 residents live within one-quarter mile of service. Two-thirds of the 1,400 employees are bus operators, who collectively drive 20 million miles per year picking up close to 50 million passengers. For MCTS (as well as the average transit system nationwide), 1997 ridership is about 4 percent higher than 1996 levels. The base fare was last increased in January, 1996 to \$1.35.

Although Milwaukee area commuters have a short work-travel time (20 minutes), up to 11 percent of workers use public transportation, ranking Milwaukee County 23rd of all U.S. counties (with New York 1st at 53 percent). With 70 rush-hour, 40 midday and 30 weekend routes, MCTS has a commitment to commuters and other choice and transit dependent riders.

Although Milwaukee County has neither gained nor lost population in the past fifteen years, neighboring counties have experienced double-digit growth. The City of Milwaukee, population 620,600, is the nation's 17th largest city and has lost about 1 percent of its population in the last five years.

Heavy industry and the skills of an immigrant labor force forged Milwaukee's economy over five generations. Milwaukee was the "machine shop of the world" and is still home to A.O. Smith Corp., Briggs & Stratton Corp., Allen-Bradley Co. and Harley-Davidson, Inc. Of the nation's 36 largest metro areas, Milwaukee ranks third (after San Jose and Detroit) in the percentage of its workforce in manufacturing. Milwaukee produces 11 percent of the nation's

malt beverages, but less than 1 percent work in a brewery such as Miller Brewing Company. Today, however, the *service* sector employs more people than manufacturing (30% vs. 22% of the workforce, respectively). In the past five years, the service sector added 54 percent of all new jobs created; the manufacturing sector added 18 percent.

If its smokestack industries are declining, Milwaukee is still a factory town with stable union wages and comfortable blue-collar lifestyles that include casino gambling and a cottage "up north." Although the African-American population has grown, Milwaukee County remains a predominately white, middle-class industrial center with a strong German and Polish heritage. "Consumers here drink domestic beer, drive American cars, and belong to bowling leagues at some of the steepest rates in the nation," said Michael Weiss in *Latitudes and Attitudes*. Yet, "many baby boom adults tend to join health clubs, see a lot of movies, and watch TV sports."

While 60 percent of Milwaukeeans were born there and 90 percent have lived there for ten or more years, many move *within* the area: 47 percent live in a different house than they did five years ago. Just over half (52%) of households are owner-occupied; 48 percent are renteroccupied, with an average rent of \$418. The median household income is \$28,000. About 31 percent of the county's households are single-person households and 37 percent are one-parent families; thus, *two-thirds* of Milwaukee County's 373,000 households have either an adult living alone or a single parent with no other adult.

The 1996 unemployment rate was below 4 percent, lower than the national average. The majority of business leaders (74%) responding to a Metropolitan Milwaukee Association of Commerce survey said that their top concern was finding qualified workers. The impact on business of the new state welfare-to-work ("W2") program was a concern as well, because the private sector will be called on to provide jobs, training, and support. Transit officials mentioned this as an opportunity to serve.

In 1991, MCTS conducted a rider opinion / market segmentation study about safety, service availability, cost and driver courtesy. Grouped by geographic area, the clusters of frequent and occasional riders helped in introducing and evaluating new routes. For example, two new routes in "pro-transit" areas ranked 4th and 12th in ridership. But when service began in a "least-likely" area, ridership for that route ranked 34th.

MCTS conducted a rider survey about its operations in 1994, distributing questionnaires at pass outlets. MCTS conducts focus groups as needed; has a quarterly customer satisfaction survey; and participated in a regionwide research and marketing initiative coordinated by the Wisconsin Department of Transportation.

MCTS is recognized for its quality service, management, and marketing that emphasizes convenience, reliability and economy. Executives at MCTS are clear in their mission: "*We're a service.*" "*It's the bus on the corner on time.*" "*It's convenient for riders.*" "*It works for people without a car.*" Their 1998 – 2002 Service Improvement Plan calls for accessible, convenient, efficient service that supports land use plans and essential economic, educational and social activities, while minimizing costs.

The 25-member Milwaukee County Board of Supervisors governs MCTS. "Managing relationships with officials" can dominate the day's concerns at the transit office. Although the local share of MCTS operations is provided by the Milwaukee County property tax (which, for the property owner, can be \$3,000-\$4,000 for a house worth \$100,000), transit managers said "lack of funding" was a challenge; achieving dedicated funding (away from the property tax) was their goal.

MCTS projects for 1997 included rerouting and marketing to accommodate the repaving of the I-94 expressway, a paratransit initiative, a new automated phone system, a state-of-the-system report, a five-year plan; new services and passes including employer-sponsored services, and marketing projects. MCTS planned to begin using the 1997 market segmentation data with its I-94 marketing campaign, in casting the riders for their TV spots.



Washington D.C.'s Metro operates 764 rail cars and 1,284 buses in the District of Columbia and neighboring Northern Virginia and Maryland (in Virginia: Arlington and Fairfax Counties, and the Cities of Alexandria, Falls Church and Fairfax City; in Maryland: parts of Montgomery and Prince George's Counties.) Metro's 8,400 employees provide transportation for the service area population of 2.5 million. By 2020, the Metro service area is expected to have one million more residents.

In 1997, Metrorail recorded over 148 million boardings at their 80 stations. With 106 million passengers boarding Metro's buses, these unlinked trips total 254 million boarding passengers for the year. Average weekday ridership is 510,000 rail and 352,000 bus passengers. Rail ridership is increasing and Metro's parking lots are full. But along with federal reductions in the workforce – in one year, the area lost 30,000 jobs – Metrobus ridership is declining. But not to worry. In 1997 there were two million jobs and four million people in Washington's larger metropolitan statistical area, but by 2020 there will be three million jobs (primarily in public administration, business and education) and 5.5 million people in the MSA. The need is there. A recent Federal Highway study ranks the region first in the country in the per person cost of wasted fuel and time from traffic, and predicts a 70 percent increase in vehicle miles traveled by 2020.

The area is characterized by "affluent metropolitan sprawl and racially diverse singles," age 25 to 44, who tend to be liberals and consumer advocates, according to Michael Weiss in *Latitudes and Attitudes*.

Washington residents stand near the top when it comes to *brains* (two out of three went to college); *bucks* (half of households earn more than \$50,000 a year); *workaholics* (there are more two-career couples here than anywhere else); and *fitness* (they have high rates for exercising, jogging, tennis and skiing.) Although the area has many young singles drawn to the dozen area colleges and high-glamour-low-pay Capitol Hill jobs, the area takes its character from its affluent suburbs, where residents splurge on half-million-dollar-plus homes (three times the U.S. average) and drive luxury cars.

The \$50,000 median *household* income is nearly twice that of Boise or Milwaukee, the other two areas surveyed. As for the affluent suburbs, Arlington County, for example, is 6th highest in the nation for *per capita* income (\$26,000 vs. the U.S. average of \$14,400) and is 3rd of all U.S. counties for the highest percentage of adults with a bachelor's degree (52% versus 20% for the nation.) The average Commuter Store customer in Crystal City has a household income of \$60,000.

Residents tend to take public transit or carpool to work. "The District" (as many locals say) is 5th highest and Arlington County is 12th highest in the nation, with 49 percent and 39 percent of workers, respectively, commuting by rail, bus or rideshare. In addition to commuters, Metro also has the responsibility of communicating with the area's many visitors and new residents from all over the world. For example, one in five (21%) residents living in Arlington County was born outside the U.S.

The popular Metro rises to the challenge, according to the area's community leaders who said the rail service was "*great . . . great*" and "*nothing works better in Washington than the Metrorail system.*" Metro won the American Public Transit Association's 1997 Heavy Rail Award for creative ridership programs, joint development, security, innovation, construction

programs, and impact on the regional economy. Speaking of economic impact, if not for Metrorail, an extra 26 highway lanes would be needed. According to the Urban Land Institute, Metrorail generated \$15 billion in additional development in the region. As for housing, a dwelling within walking distance of the Ballston station costs \$100,000 more; and there is new, top quality streetscaping nearby. Turning to Metrobus service, it is considered "pretty good" by community leaders, who added, "but people don't know how good it really is." They wanted improvements such as timed connections and fast, frequent, direct service with memory headways.

Metro staff regularly works with its jurisdictions and connecting services such as Virginia Railway Express, MARC Commuter Rail Services, Alexandria's DASH, and the Fairfax County Connector. They work with employers and major destinations, such as the Pentagon (with 30,000 employees) and National Airport, to everyone's benefit. Now, for example, with the 1997 opening of the new National Airport Terminal, the Metro platform is adjacent and on the same level.

WMATA has the most sophisticated market segmentation research in the transit industry nationwide, with several related projects in the past five years. The most-likely-to-ride groups from the 1993 Gallup study and the 1997 study documented in this report share strong defining characteristics. "Metro enthusiasts" from the 1993 study tended to be younger, single males, many of whom were working full-time, and often worked late. They tended to be active and first to try something new. Nearly half were already riders who viewed Metrorail and Metrobus favorably. Unfortunately, they really wanted to buy a car, and when they did, tended not to ride the bus again.

This led staff to wonder about aiming marketing messages to attract this group when they tend to quit riding permanently as soon as they get a car. It's an important question, particularly since this 1997 work describes the same potential rider group. Strategies to consider include *not* letting them go (contacting them at home); assuring them it's okay to postpone getting a car (e.g., "a car costs more than you think"); and selling an asset such as the span of service, to this group who works late ("Ride anytime up to midnight"). While this group tended to take risks, the idea is not to portray riding Metrobus as risky but rather to consider media such as MTV or approaches that *attract these young adults*, versus images, marketing messages or media that feel safer for a government agency.



Boise Urban Stages' 36-bus system serves Idaho's capital city with fixed routes and paratransit. The largest metropolitan area for 300 miles, Boise has retained its stately, yet village-like character with historic buildings including the domed Capitol built in 1912, and a 25-mile greenbelt along the Boise River. Cradled by rounded, desert-like hills, Boise is a center for agricultural trade, education, technology and government. It is home to Boise State University and three other colleges, a zoo, 55 parks, a summer-long Shakespeare Festival, an art museum, opera and ballet companies. In addition to state and local government, major employers include Hewlett-Packard, Micron Technology, and St. Luke's Regional Medical Center.

The population of 148,000 is predominately white (96%) and living in "family" households (65%). If enrollment in the public school system is an indication of public confidence, Boise enjoys high rates of approval with 93 percent of elementary and high school students in public schools. (In comparison, Milwaukee's rate is 81%.) The median age is 32. The median annual household income is \$29,000. According to Michael Weiss in *Latitudes and Attitudes*, moderation, family values, financial investments and less government are "in." Music is country. Joining business, veteran and fraternal order groups at high rates, people in Boise also enjoy more individual pursuits such as fishing, hunting and skiing. The nearest skiing is only 16 miles from Boise.

Although the average work trip is eight miles, growth patterns are suburban and transit service will be moving from a radial to a hub system. Although THE BUS now operates only within the city limits, the *Community Vision for Transit* and the *Regional Public Transportation Plan 2015* call for service throughout its home Ada County (which is expected to grow from 201,000 in 1990 to 360,000 people by 2015) and to neighboring Canyon County, with a fleet of 158 buses serving six million riders a year. Managers at THE BUS said their challenge is to "sell, fund and plan the *Community Vision*." They have a good head start: citizen advocacy groups support transit and promote alternatives to building more roads and bridges, and highway officials realize they cannot meet the demand for increased roadways. They are already working with THE BUS on travel demand management.

Operated by Transportation Systems Management of Idaho Inc., a subsidiary of McDonald Transit Associates of Ft. Worth, Texas, THE BUS carried 1.2 million passengers (in unlinked trips) more than 900,000 miles in its 46-square mile service area during 1996. Due to targeted marketing and custom service for St. Luke's, Boise State and the school district, ridership doubled the last few years. It is leveling off in 1997, although demand-response ridership continues to grow. The fleet replacement program has reduced the average age of vehicles (from 14 to 6 years) and operating costs, yet vehicle service miles have increased 15 percent in the past two years.

THE BUS is committed to hiring nice people and has a customer focus in training for its 68 employees, who have authority to make decisions otherwise reserved for supervisors. For example, drivers may give tokens to new riders who don't have the correct change, they may make route deviations for passengers by simply letting the dispatcher know, and they contact the dispatcher when riders will be transferring at the downtown pulse. With mobile radio in hand, the dispatcher may leave the office to take a passenger home in case of a missed connection. These courtesies have led to highly satisfied customers and widespread community support.

Public involvement opportunities and market research have included stakeholder interviews, meetings with neighborhood groups and major employers, regional public meetings, a steering committee for long-range planning, focus groups, telephone and on-board surveys.

Approaching Segmentation: First Considerations and Steps

The First Necessity: Managerial Involvement

To work most effectively, **market segmentation should serve as an essential element in an organization's strategy.** To assume this role, segmentation must have support from the very top of the organization. This must then follow through most of the organization. For instance:

- The agency's marketing organization must be able to execute alternative marketing and/or service strategies.
- The agency's financial department must be able to vary pricing.
- Operations must be able to vary and/or change existing route structures.
- Service Planning must be able to execute variations of basic service plans.
- Finance must be able to report costs and margins by market segment.
- Market research and analysis must be able to monitor and measure rider and nonrider response and provide feedback to the organization by market segment.

Moreover, to succeed, market segmentation requires constancy and consistency to work properly. It is anything but a "one time deal." Rather, it is a continuing process of applying segmentation throughout the organization.

These considerations make it plain that market segmentation requires top management buy-in and support. While marketers and/or market researchers may present the concept of segmentation to management or actually perform the necessary research, the final decision on most segmentation studies must, in most cases, come from an organization's top management.

So how do you get management involved at this level? Nobody has yet devised a foolproof, systematic approach to achieving management buy-in and support. Top management in the organization must have some degree of willingness to undertake segmentation before the subject ever gets broached with them. Even in those cases where the directive to segment the market comes from "on high," there is no guarantee that the project will be well received by the time it gets done.

Creating a sense of ownership and involvement by top management is crucial for the acceptance and use of segmentation results. In too many cases, marketers and/or researchers finally win approval – sometimes grudgingly and only after months of personal "selling" to upper management – and then disappear until the findings come out. By then, top management may not have a good sense of what the project intends to find – and may even find it hard to believe that they agreed to do it in the first place. In the worst case scenario, the management body that agreed to do the study is no longer in place. You can bypass this problem in two ways:

- First, keep management informed about segmentation studies.
- Second, and as much as possible, involve them in any decisions along the way.

While not a typical research effort, it was essential to have top management at each of the agencies involved in the demonstration project. Following is a description of some strategies used to get and keep management at the three transit sites involved in this effort.



"MCTS gained momentum with several previous research projects. The information from the research stimulated management's thinking. Overall, consumer research was useful in understanding aspects of our mission, such as service quality. In pricing, for example, MCTS designed a corporate pass based on what CEOs and CFOs said in focus groups and personal follow-up interviews.

We knew the TCRP segmentation study would help in creating messages and understanding where potential markets are. This study would help bring ideas from our market forward to develop good products. Because of the usefulness of prior research, our previous successes paved the way for this work, so it really wasn't hard to convince our top management to participate. A goal in our marketing plan is to assist our organization to be research- and market-driven." *[Milwaukee County Transit System]*



"While much of the cost of this research was borne by TCRP funding, all participating agencies were required to pay for all direct costs of conducting the interviews in their markets, exclusive of the actual costs of data collection – that is, interviewing costs. It was estimated that these costs could range from \$10,000 to \$15,000 per agency. Thus, it was initially important to "sell" the idea of participating in this research effort to the top management at the three participating agencies. To accomplish this "sales" effort the project team employed a tried and true strategy that has proven effective in gaining internal support for research in many other situations. An "advocate" was identified at each agency who was provided with the support and tools to present the advantages of participation to the management at each agency. Following is the message one "advocate" took to their management.

"We convinced management of the value of participation. We were able to demonstrate the value based upon prior experience with marketing research. Moreover, in the past we had paid up to \$50,000 for what we were going to get for \$15,000. As information is a powerful tool, this represented a great value. Finally, the inclusion of the "training" component for staff represented added value." *[WMATA]*



"Having just received an award as the 'Outstanding Small Transit System' at APTA, it was a natural follow-up to our past research and marketing efforts to understand more about the different markets for transit services here in Boise. Up to now, Boise Urban Stages has followed an approach of 'being all things to all people.' With our rapid growth in population without corresponding growth in resources, a more targeted approach to marketing public transportation may be needed." *[Boise Urban Stages]*

Once the research was completed, a second strategy was employed to encourage management buy-in and to assist the agencies in using the research. Members of the project team gave a one-day workshop at each system. Project team members presented the results of the research as it applied to the individual system. The workshop was interactive in nature and participants were encouraged to bring challenges and opportunities facing their agencies to the table to illustrate how the research results might be applied. Systems were then given "homework" assignments to encourage them to use the results of the research in upcoming projects.

Cost Considerations in Segmentation Studies

Market segmentation studies are typically larger in scope than the market research efforts many transit agencies have traditionally conducted. Moreover, they are often more complex, requiring outside assistance – often from custom research firms that you may not have used before and/or who may be located outside of your immediate market area. Moreover, as noted above segmentation studies require greater involvement of resources and staff throughout the agency. All too often, the amount of staff time required for certain aspects of a segmentation study is grossly underestimated.

There are five primary components of costs to consider in a segmentation study. The first stage – **Problem Definition** – covers the time and costs involved in determining the purpose and objectives of the research. In addition, the basic parameters of the research effort – for example, the bases for market segmentation and the development of a model or assumptions – are defined. Depending on the complexity of the problem and who is involved in the process, the costs for Problem Definition can run from as little as \$1,000 up to \$10,000.

The second stage – **Research Design** – covers the time and costs associated with the actual design of the research effort. Costs included here are the costs and time involved to agree upon the final research design, the costs of selecting and contracting with an outside supplier if required, the costs of pretesting the design, and costs and time associated with redesigning the study based on the pretest. The extent of pretesting required, as well as the use of outside suppliers, can greatly impact the costs at this stage. Plan to spend as little as \$2,000 to as much as \$10,000 at this stage.

The third stage – **Data Collection** – is typically the most costly stage in the process and is affected primarily by sample size, interview length, method of data collection, and the Effective Study Incidence (or the incidence of qualified respondents in the sampling frame or in the general population). While costs here can range from as low as \$10,000 to over \$100,000, average costs are more likely to be between \$30,000 and \$60,000 (for sample sizes ranging from 1,000 up to approximately 2,500 interviews).

Costs in the fourth stage – **Data Analysis** – are largely affected by the nature of analysis that is to be conducted. Simple tabulation is relatively inexpensive – costing as little as \$1,000 – and is typically seen with market segmentation efforts using *a priori* bases for segmentation or in tracking studies. If this is the first market segmentation study you have conducted, or if a post hoc basis for segmentation is employed, costs for Data Analysis are generally higher and can run as high as \$20,000 to \$30,000 if there is extensive use of outside services or if a standardized model such as VALS is used. Plan on spending between \$5,000 and \$15,000 here.

It is nearly impossible to put any range on the cost of **Implementation** – the last stage. However, in determining the value of a segmentation study, it is important to consider how the results are likely to be used. The costs and risks associated with the nature of the decisions that will be based on this research provide a good mechanism against which to evaluate the expected value of this type of research effort. A \$60,000 research project should not be authorized if it is likely that the study will only provide \$30,000 worth of answers. However, if one examines the costs and risks associated with major service changes or an expensive marketing communications and promotions program where hundreds, thousands, or even millions of dollars may be expended with a great deal of uncertainty, a \$60,000 research project that reduces that uncertainty is likely to have much greater value.

The following table further illustrates some of the factors that will affect the true costs of a segmentation study during each of these stages:

Stage	Factors Affecting Costs
Problem Definition	<ul style="list-style-type: none"> ▪ Senior management's involvement ▪ Research staff's time and effort ▪ Outside consulting as required (e.g., about basis variables and model development)
Research Design	<ul style="list-style-type: none"> ▪ Using staff versus outside suppliers to design and perform the study ▪ Sample design – notably sample sizes and procedures to address marketing questions and to insure projectability of the results to the population ▪ Organizational demands for testing reliability and/or validity ▪ Steps needed to develop the survey instrument, including the extent of pretesting and analysis of the pretest data that will be required
Data Collection	<ul style="list-style-type: none"> ▪ Interview method – e.g., phone, personal interview, or some other method ▪ Interview length ▪ Interview recruiting procedure ▪ Incidence of target population ▪ Sample size ▪ Supervision requirements ▪ Editing and coding requirements
Data Analysis:	<ul style="list-style-type: none"> ▪ Segment determination and profiling ▪ Use of modeling or simulations ▪ Computer software and/or hardware requirements ▪ Need for outside assistance with analyzing data and interpreting results
Implementation	<ul style="list-style-type: none"> ▪ Reporting and presentation requirements ▪ Senior management's involvement ▪ Research staff's time and effort ▪ Other staff time and effort ▪ Outside consulting if necessary (e.g., about basis variables and model development) ▪ Direct costs (e.g., media, production, etc.)

Getting Outside Assistance

A final consideration before beginning is deciding whether or not to use outside assistance in designing, implementing, and evaluating a market segmentation study. As noted above, this type of research is often more complex than the ridership studies, customer satisfaction surveys, or even awareness and attitude studies your agency may have performed in the past. In most cases, it is advisable to use a skilled marketing research firm or marketing consultant in the project. Some organizations have also relied on the advice of university faculty. It is beyond the scope of this handbook to provide details on where to find and how to select marketing research firms or consultants. However, following is a checklist of twenty important questions to ask your research supplier before contracting for a market segmentation study.

- ✓ Does the research firm have experience in public transportation or is their experience in other markets applicable to public transportation?
- ✓ How do they view the purpose of the project?
- ✓ From a research perspective, what is involved in this segmentation study – in what specific areas will you need the most assistance?
- ✓ Will the research company work closely with you in the project?
- ✓ What types of primary and/or secondary segmentation bases have they advised?
- ✓ Have they considered all appropriate bases and variables?
- ✓ Will secondary or syndicated data and/or physical attribute dimensions be used?
- ✓ What data collection methods will be employed?
- ✓ Will the survey instrument be pretested?
- ✓ What size sample will be used?
- ✓ Is the research product or service-driven?
- ✓ Is the research design based on causal, descriptive, or exploratory factors?
- ✓ What analytical methods will be employed?
- ✓ How reliable will the findings be?
- ✓ How practical will the information be?
- ✓ Is assistance available in understanding and implementing the findings?
- ✓ What information will be provided – analysis only or analysis plus recommendations?
- ✓ Will there be an oral and written report of the findings?
- ✓ How much will it cost?
- ✓ If this is a baseline study, how will I be able to apply the segmentation results to future research?

Plan, Plan, Plan

Planning is the essential ingredient of any successful research program. It is particularly important and often involves a different approach than what you may have used in your past research efforts. Planning involves the following five steps:

- Establish research objectives.
- Specify target population measurement units.
- State relevant definitions.
- Recognize segmentation viability / segment formation criteria.
- Select segmentation bases.

Establish Research Objectives

As with any research project, the first step in conducting a segmentation analysis is to establish appropriate objectives for the research. The goal of this effort is to be able to answer the question, "What are we trying to accomplish in this research project?" There are three basic steps when establishing research objectives: (1) understanding the background of the project, (2) establishing the research purpose, and (3) setting research objectives.

The following checklist provides a framework for establishing the research objectives.

ESTABLISHING RESEARCH OBJECTIVES	
Project Background	
1)	What is the agency's history? What is the agency's "personality" – innovative, conservative, risk-taking?
2)	What are its major service offerings? What is the relative importance of each service?
3)	What is the agency's ridership? Is it growing, stable, or declining?
4)	In one sentence: What is the major challenge or opportunity facing the agency? Then expand on that one sentence: Who? What? When? Where? Why? How?
5)	What research has been conducted to address this major challenge or opportunity? What did it show?
Project Purpose	
1)	What decision(s) will be made or what action(s) will be taken as a result of this research?
2)	What are the implications of this decision or action?
3)	What are the alternatives available?
4)	What are the risks in the decision or action?
5)	What are the potential payoffs of the decision?
6)	When will the decision be made?
Project Objectives	
1)	What specific information should this research provide?
2)	If more than one type of information will be developed from the research, what is most important? What are the priorities for the information?
3)	What results are expected? Is there agreement among those involved in the project? If not, why not?
4)	Have decision rules been established for evaluating the results? If so, what are they?
Source: Adapted from checklist presented in <u>Practical Marketing Research</u> by Jeffrey L. Pope, p. 48. ©1981 Jeffrey L. Pope. Published by AMACOM, a division of American Management Association, New York.	

Unlike other research projects, segmentation analysis offers the agency an opportunity to take a step back and to take a careful look at the background of the agency and its situation. This process of "setting the scene" allows the agency to better understand the environment in which the segmentation analysis will be used and provides a backdrop against which many subsequent decisions will be made. Also, critical to the ultimate success of a segmentation analysis is an understanding of the purpose of the research from the perspective of the management – that is the "management's desires."

Once the background of the study is understood, the overall purpose of the research should be agreed to. The focus here is on understanding how the research will be used rather than the specific type of information that will be sought or the specific methodologies that will be used.

The third step involves setting the specific research objectives. Research objectives may focus on market segmentation identification (for example, identify market segments based on the benefits they seek), description of segments (for example, establish demographic and psychographic profiles of the market), understanding levels of product usage (for example, profile frequent versus infrequent transit riders), segment validation, target market strategy formulation, and so on. Once the overall objective is set, a series of research questions that relate to the focal problem statement can then be developed. The following list illustrates some of the questions a market segmentation study might answer.

RESEARCH OBJECTIVE QUESTIONS

- ✓ What market segments exist for your product or service?
- ✓ Who are the heavy users for your products or services?
- ✓ How are these segments defined (names, sizes, key variables)?
- ✓ What are their characteristics (demographics, media usage, etc.)?
- ✓ Where are the potential customers located?
- ✓ How do these market segments compare with your current customer profiles?
- ✓ How large are these potential market segments?
- ✓ What features or benefits are sought by members of these market segments?
- ✓ What is the expected change / impact of serving these market segments?
- ✓ How much effort and resources should be allocated to the various market segments now? In the future?
- ✓ What unique niche (competitive advantages) does your organization have in serving this market segment?
- ✓ What alternative marketing strategies and tactics appeal to these marketing segments.
- ✓ How well does your product or service meet segment needs? What changes are required?

Following is a description of the research objectives established for the market segmentation study conducted for this handbook.



Project Background:

Public transportation agencies today exist in an increasingly competitive environment where many potential customers have choices ranging from driving alone to telecommuting. Despite the many opportunities, transit ridership is generally declining. In the face of this declining ridership, transit managers are challenging their organizations to find the most effective means of maintaining and increasing ridership. Many are turning to strategies long employed in the private sector to establish a competitive advantage. Market segmentation is one such strategy.

At its most basic level, using a market segmentation strategy can improve an agency's competitive position and enable them to better serve the needs of their existing and potential riders. Segmentation analysis provides the necessary research base on which strategies can be successfully formulated and implemented.

Despite the increasingly widespread awareness of the value of market segmentation in marketing planning and operations, few transit organizations are taking full advantage of the opportunities that market segmentation offers. Research conducted as part of TCRP Project B2 – *Integrating Market Research Into Transit Decision-Making* – showed that there are many reasons why transit agencies fail to use market segmentation research to its full potential. Among the possible reasons for this failure are that, for the most part, users and potential users of market segmentation research and techniques:

- Do not understand what the essential purpose of market segmentation is,
- Do not understand how it relates to their needs, and
- Do not have the knowledge to undertake a market segmentation research effort.

Project Purpose:

The overall purpose of this research was to develop a comprehensive and actionable market segmentation model that can be used effectively to develop marketing and service planning strategies to increase transit ridership.

Research Objectives:

The specific objective of this research was to identify market segments that represent the greatest opportunity for transit ridership using two different approaches: (1) psychographic market segmentation and (2) benefit or needs-based segmentation. The research questions to be answered include:

- What are the market segments for transit services that represent the greatest potential for transit ridership?
 - How large are these potential market segments?
 - How are these segments defined?
 - What are the demographic characteristics of the segments?
 - Can the segments be targeted geographically?
 - Does transit currently meet segment needs?
-

Identify the Target Population

The next step in planning is to operationalize the target population of interest. The choice of the target population should be linked back to the project purpose and objectives.

Here the purpose was clearly stated as . . .



Identify market segments that represent the greatest opportunity for increasing transit ridership.

Market segments are groups of individuals or organizations with similar characteristics. To segment the market, the researcher must first specify a unit of measurement that clearly identifies the size and scope of the target consumers.



Ridership growth comes from one of four primary strategies:

- 1) Retaining existing transit-dependent riders as they move into a different life cycle or lifestyle stage in which they no longer need to rely on public transportation. For example, when teenagers obtain a driver's license or when individuals in entry level positions increase earning power to the point where they can purchase an automobile, they frequently stop riding. Retaining these riders as occasional "choice" riders should be an important objective of all transit agencies.
- 2) Retaining individuals who have chosen to use public transportation for some purposes – at this time primarily work-related travel. However, the use of public transportation for travel to and from special events and/or other purposes should not be underestimated.
- 3) Increasing frequency of riding among existing riders. Depending on the definition of a rider, this can take many forms. However, some examples include encouraging those who use public transportation for travel to and from special events to use public transportation for other purposes such as an occasional work commute.
- 4) Encouraging nonriders to use public transportation, at least occasionally. These gains would represent incremental increases in ridership and can be obtained among peak riders (e.g., commuters using public transportation when they don't need a car at work) or among off-peak ridership (e.g., to / from special events and/or for some types of shopping).

To achieve the overall objective, therefore, the target population was defined to encompass both riders and nonriders.

Once the basic descriptor has been identified, additional modifiers can be used to better understand and explain the target population.



Among riders, two known segments exist – (1) those riders who are dependent upon public transportation because they do not drive and/or do not have access to an automobile and (2) those riders who have chosen to ride public transportation. In most cases, this latter segment does drive and/or does have access to an automobile. However, some members of this segment have "voluntarily" become dependent upon public transportation, choosing to give up ownership of an automobile or ownership of a second car and use transit instead. These people still must be considered choice riders as they typically have the ability to purchase a car at any time.

In further defining the target population for this research, the decision was made to focus on choice riders and nonriders. First, and foremost, ridership retention efforts must be directed at choice riders and newly choice riders. This latter group represents transit dependent riders who acquire a driver's license and/or car and thus become choice riders. Much of the decline in ridership can be attributed to loss of this group of existing riders. Second, choice riders represent a greater opportunity than transit dependent riders for increased frequency of ridership. Transit dependent riders typically ride as often as they need too, representing little opportunity for ridership growth. On the other hand, choice riders often ride for one purpose only – e.g., to commute to work or to travel to special events. There are opportunities for increased frequency of riding by encouraging choice riders to ride for other types of trips. Finally, nonriders represent the other side of the equation. They represent the largest proportion of the population in nearly all markets. In smaller markets, such as Boise, nonriders represent as much as 98 percent of the population. Attracting even a small percentage of this market can represent significant ridership gains.

State Relevant Definitions

In addition to defining the target population, other definitions are important in planning the segmentation analysis. The market or service area is frequently the most critical definition. Geographical limitations or boundary areas must be set.



WMATA provides service to the District of Columbia and neighboring Northern Virginia and Maryland (in Virginia: Arlington and Fairfax Counties, and the Cities of Alexandria, Falls Church and Fairfax City; in Maryland: parts of Montgomery and Prince George's Counties). Because WMATA does not provide service to all areas of these counties, the service area was further defined by zip code. Respondents were carefully screened to determine first which county, district, or city they lived in and then whether they lived in one of the over 150 zip codes used by WMATA to define its service area.



Milwaukee County Transit System serves nearly all of Milwaukee County. Respondents were screened to determine first if they were a resident of Milwaukee County and then if they lived in one of the zip codes that defined MCTS's service territory.



Boise Urban Stages provides service within the City of Boise. Potential respondents were initially screened to determine whether they lived in one of the zip codes that broadly define Boise's service area. Two zip codes were only partially within The BUS' service territory. Potential respondents living in those zip codes were further screened to determine whether they lived within the service territory as delineated by major geographic boundaries – in this case, major arterials known to nearly everyone in Boise were used.

Other definitions that may need to be specified in a segmentation study might include, but are not limited to, the demographic and socioeconomic classifications to evaluate, criteria for determining benefits or lifestyles, and consumption measures. In this instance, the definitions of a nonrider and a choice rider were critical. These definitions follow.



Nonriders are defined as individuals aged eighteen and older who have not ridden in the past year, or if they have ridden in the past year, they have done so only infrequently (less than once a month) or only because their car was not available, in cases of bad weather, or for a special event or occasion.

Choice riders are defined as individuals aged eighteen and older who have ridden once a month or more often in the past year, have a valid driver's license, have a car available for their personal use, or if they do not have a car available use public transportation because they have **chosen** not to buy a car or to buy an additional car for the household.

Recognize Segmentation Viability / Segment Formation Criteria

Not every market can be segmented. Other markets that can be segmented may not be feasible to pursue from a marketing or planning perspective. Therefore, before undertaking a segmentation analysis, the markets should be assessed as to segmentation viability. Art Weinstein identified four questions, called the "4 R's", to indicate whether market segmentation is worth pursuing¹⁷.

- Can you objectively and subjectively rate your target markets by their importance to your overall marketing program?

By rating a market or target population, the marketer or planner evaluates both objectively and subjectively its potential relative to other market opportunities. The goal should be to quantify the size of the target population and possible segments before segmentation. Past research conducted by your agency or industry research can be used to rate your target market. For segmentation to be viable, the market must be identifiable and measurable.

- Are your target markets of realistic size, large enough to profitably pursue?

The market or target population must be large enough to support more than one type of marketing approach. Moreover, the segments that are ultimately identified must be of sufficient magnitude so that distinct marketing programs can be developed for the target markets.



The target population of nonriders is typically very large. Previous research at each system indicated that the population of nonriders for WMATA is at least 70 percent of the population, for MCTS the population of nonriders is approximately 85 percent of the population, and for The BUS as much as 98 percent of the population. While potentially a difficult market to win, attracting even a small proportion of nonriders can represent significant ridership gains.

Conversely, the target population of choice riders as a percent of the total population is quite small. However, as a proportion of riders it can be significant. For agencies such as WMATA, research suggests that choice riders may represent as much as 40 to 60 percent of the rider base. On the other hand, for agencies such as MCTS and The BUS, the proportion of choice riders relative to transit dependent riders is much smaller – from as little as 10 percent to as much as 30 percent. However, research also suggests that agencies lose a significant proportion of transit dependent riders when they get a driver's license and/or car and could potentially become choice riders. Therefore, while a smaller target, understanding and targeting choice and newly choice riders in a rider retention effort is extremely important for maintaining and increasing ridership.

¹⁷ Weinstein, Arthur, "Strategic Segmentation: A Planning Approach for Marketers." *Journal of Segmentation in Marketing*, (Volume 1, Number 2 1997), pp. 7 – 16.

- Can you reach your customers easily through the mass media, mailing lists, or other means?

For segmentation to work effectively, the resulting target markets must be easily reached to minimize marketing investment and maximize performance. It is clear from past marketing efforts on the part of transit agencies nationwide that, in most cases, riders and nonriders can be effectively reached through traditional mass media. Moreover, some transit agencies (e.g., MCTO in Minneapolis) have experimented with nontraditional methods, using a more direct one-to-one marketing approach.

- Will targeted customers respond to marketing initiatives?

Identifying a large enough segment of customers that can be reached by a reasonable means is of little value if they are nonresponsive to marketing efforts. Again, it is clear from past marketing efforts by transit agencies that while a large number of nonriders will, under no circumstances, ride public transportation, nonriders can be successfully attracted with the introduction of innovative products and services, and through effective marketing programs informing them of existing services. Moreover, there is evidence to support the importance of marketing to existing riders as their life styles change.

Assuming positive responses to the above questions, the next step should be to identify criteria for what constitutes "good" market segments. The following criteria are widely used as the standards for market segmentation. However, your agency may also choose to identify specific segment formation standards based on the specific decisions you are making and the alternatives you are considering.

- **Homogeneity within the segment** – This is the test for similarities among group members. Individuals within the segment should fit some sort of "typical profile." Because of their similar characteristics, it is to be expected that members should exhibit similar patterns of behavior or potential for behavior.
- **Heterogeneity between segments** – This is the test for differences between the identified segments. Segments should be clearly distinct from one another and have their own "personality." It should be clear which group an individual belongs to based on key attributes. Different segments generally exhibit different behaviors, have different needs or motives which then can be targeted by the marketer or planner.
- **Sizable population** – Most segmentation studies identify two or more segments to possibly pursue. Over-segmenting a market – that is dividing the market into a multitude of mini-markets – is costly and is generally of little value for developing strategies – either service planning or marketing. While the purpose of segmentation is to create targeted marketing programs, it is not meant to be as extreme as a one-to-one marketing effort. Therefore, one of the criteria for segmentation should be the ability to create market segments that represent a sizable proportion of the population.
- **Meaningful segment data** – Finally, for segmentation to be effective, there must be value to the marketing information that is provided. Good market segmentation research must provide the marketer and planner with operational data that is practical, usable, and can be readily translated into strategies.

Select Bases for Segmentation

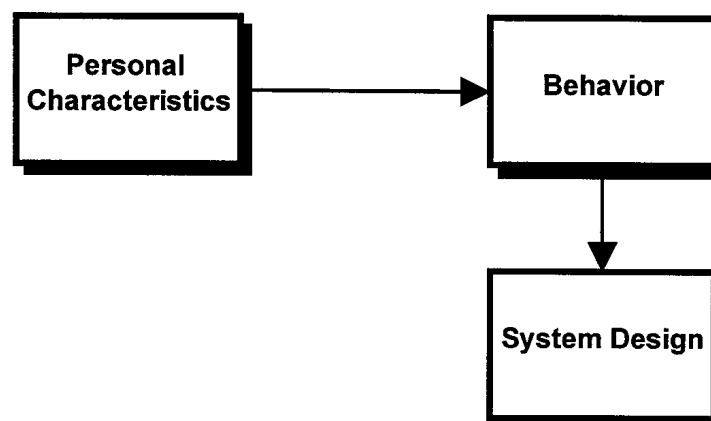
As Chapter 2 pointed out, markets can be segmented in a variety of ways. The selection of the basis variables is a critical decision in any segmentation study. There is no one clear, best method. The basis or bases to use depend on a company's marketing situation and the information needed by management. It is often useful, therefore, in a segmentation study to develop a model that identifies the nature of the consumer decision process and the variables that affect that process. The development of a model is unique to market segmentation research and may be one area for which outside assistance may be needed.

A model was developed for the project that explores the links between the independent variables – demographic characteristics, values, lifestyle, attitudes toward transit, etc. – and the dependent variable – transit ridership. Developing a sound conceptual model was essential to the research design process as it formed the basis for decisions about sample design, questionnaire design, and the development of an analysis plan. The process by which the model was developed and the resulting model are described in detail below.



The Basic or Traditional Model. Traditionally, "segmentation research" in transit agencies, as well as in many industries and companies, starts with actual behavior – for example, frequent versus infrequent ridership or nonridership – and then searches for variables correlated with that behavior. A theoretical model or integrative treatment of the causes of that behavior does not govern this search. Rather, it is aimed at describing potential market segments in terms of highly correlated attributes.

For example, transit agencies have observed a direct correlation between the personal characteristics of an individual and ridership. This approach stresses relatively enduring personal characteristics – for example, socioeconomic status. Based on the relationship between these characteristics and resulting behavior, services are designed. The figure below illustrates this link.



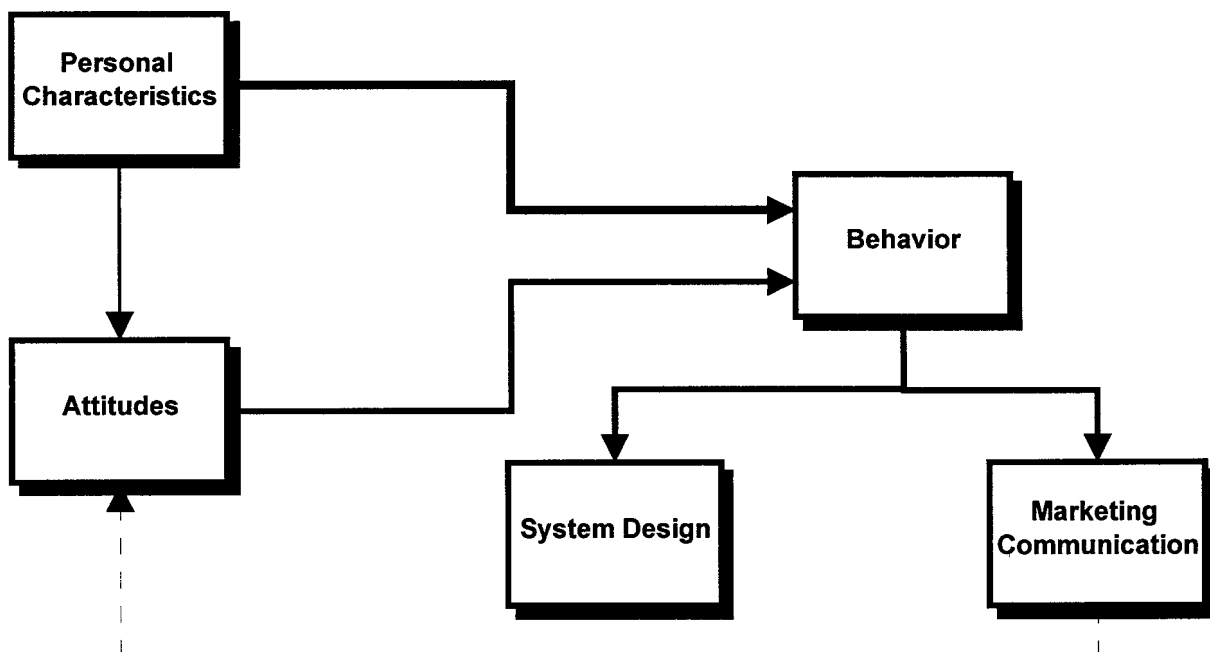
For example, less affluent individuals who do not have or have limited access to a car (e.g., a household shares a single automobile) are more likely to use public transportation. More affluent individuals who have multiple cars per household are more likely to drive. A market segment – the transit dependent rider – emerges from this assumption and the fixed route system serving a widespread area was developed to "meet" the needs of this market.

Frequently, higher levels of service are targeted in lower income neighborhoods. This system often requires multiple transfers to get from an individual's origin to their destination, travel time is not competitive, and service hours and frequency may vary throughout the day. However, the service "meets" the needs of the market, as they have no other option.

In more recent years, transit agencies have identified a second target market – commuters. Again, this market is distinguished by their personal characteristics – that is, they typically commute from a suburban area to a high-density urban area, usually the downtown CBD. Agencies believe that a large segment of this market represents "choice" riders. That is, they have a car available but have chosen to use public transportation. Efforts have been made to develop services that better "meet" the needs of this market. Park-and-ride lots providing direct service to the downtown CBD, frequent peak-hour service, and express "flyers" are all examples of service strategies designed to meet the demands of this market. While this market appears to have a choice, a closer examination of their characteristics indicates that in many cases it is the absence of parking and/or the cost of parking where they work that influences ridership. In many ways, this market is as "captive" as the transit-dependent riders described above. Moreover, as densities and work patterns in cities and suburbs have changed, many systems have seen dramatic erosion in market share from within this market.

An Expanded View

Some agencies have extended these correlations by suggesting that attitudes toward public transportation influence behavior. Whereas the previous model is atheoretical, this approach reflects various theories from the behavioral sciences. Moreover, while the previous model stresses relatively enduring personal characteristics that vary little across products or situations, this model focuses on variables that are product or situation specific. This more elaborate model is illustrated in the figure below.



Guided by this model, agencies have undertaken segmentation studies that examine respondents' attitudes toward public transportation. For example, King County Metro (Seattle) and Tri-Met (Portland) both conducted market segmentation research that included a series of questions focusing on attitudes toward public transportation and/or about transportation in general. A sample of these questions follows:

If offered a choice between convenient public transportation and taking a car, I would always drive a car even in rush hour traffic.

As long as gas prices stay low, I'll drive my car rather than use public transportation.

I often worry about others on the bus who may create disturbances.

We are going to have to change our attitudes about how we use our cars.

People who ride the bus are not usually like me.

If I have to start my car anyway, I might as well drive all the way rather than park and catch a bus or train.

Other agencies, such as Caltrans, have focused more on a benefit segmentation approach, exploring which attributes are important in service design. The assumption is that the presence and/or absence of these attributes influence behavior. Questions used in this approach include:

As you know, different people consider different things important when they are deciding how they will travel to and from work or school I'd like to know what you personally find desirable in a method for getting to and from work or school.

I can count on it to get me to where I am going on time.

Offers me the flexibility I need for my schedule.

Gets me to and from work / school without feeling stressed.

I can get other things done while commuting, it's not just dead time.

Gives me an opportunity to be alone to think.

Gets me there and home the quickest way possible.

Is good for the environment.

Minimizes my risk of getting in a traffic accident.

It's someone else's responsibility to get me there on time.

In the attitudinal studies, the attitude statements are analyzed using some form of multivariate analysis – for example, cluster analysis – to identify groups of respondents having similar attitudes. Additional analyses typically examine the personal characteristics of the customers in the resulting groups, providing a more detailed profile of these market segments. This approach assumes that both personal characteristics and attitudes influence behavior. Moreover, it recognizes the link between personal characteristics and attitudes. With this deeper understanding of the marketplace, agencies have designed products and services to meet the needs of these markets. Agencies also have used this richer picture of their target audiences to develop marketing communications programs containing messages designed to specifically overcome negative attitudes. For example, advertising campaigns portray transit users as demographically similar to a target population to dispel stereotypes about undesirable persons using public transit.

A New Perspective

While to some extent these models reflect an accurate portrayal of the marketplace for public transportation services, they are limited in scope and fail to recognize the complexity of the actual decision process. For example, these models do not provide for the influence of personal values on transit usage. A transit values and lifestyle model is suggested and forms the basis for the design of the research used in the test markets. It contains the following components.

This model begins with an individual's personal characteristics. Here, however, personal characteristics are differentiated between enduring characteristics (an individual's demographic and socioeconomic characteristics) and their "psychographics." Psychographics include what an individual does (i.e., their activities, interests, habits, media exposure, travel characteristics, etc.) and how they feel about life (i.e., their attitudes, beliefs, opinions, emotions, needs, wants, and values).

While the previous components of the model view an individual as a consumer in general, this component looks at the person as a potential consumer of a particular product class – in this case, local transportation. This component measures an individual's perceived profile of wants or needs relevant to the mode choice decision. The model recognizes that an individual's demographic / socioeconomic and psychographic profile influences these attitudes. Moreover, the model recognizes that this is simply one component of overall attitudes.

The model begins to look considerably different at this point. We are suggesting that system design has considerable influence on overall attitudes. That is, an individual's perceptions of the extent to which the current system delivers the desired benefits will influence overall attitudes. In the case of existing riders, an individual's perceptions of the extent to which the system delivers the desired benefits may be based on personal experience. For nonriders or infrequent riders, these perceptions also may be based on past experience with the system or experience with other systems. For nonriders, this experience may be recent – for example within the last one to three years – but often is far back in time and may not be truly reflective of the current types and levels of service. Moreover, this experience may not truly reflect the "real system" as many infrequent riders or nonriders use transit during off-peak hours or in special circumstances – for example, when the weather is bad or for travel to special events. For both riders and nonriders, an individual's perceptions of a system also are influenced by word-of-mouth. This word-of-mouth can be listening to friends and/or coworkers discussing local transit services. Articles in the press may also be considered a form of word-of-mouth.

Moreover, marketing communications influences an individual's perceptions of the benefits desired. Many agencies run advertising and other communications programs to communicate the strengths of a system and/or changes in service. These marketing communications reach both riders and nonriders. In contrast to word-of-mouth, marketing communications are controlled communications and typically present a positive view of the system.

We then suggest that an individual's profile of wants or needs for transportation and their perceptions of the extent to which an existing public transportation system delivers these desired benefits combine to create an overall attitude toward, preference for, and intention to use or not use a particular travel mode. This approach is based heavily in the basic expectancy - value (E-V) approach to motivated behavior and human decision-making explored by Peak¹⁸ and Fishbein's concepts of association learning and mediation¹⁹.

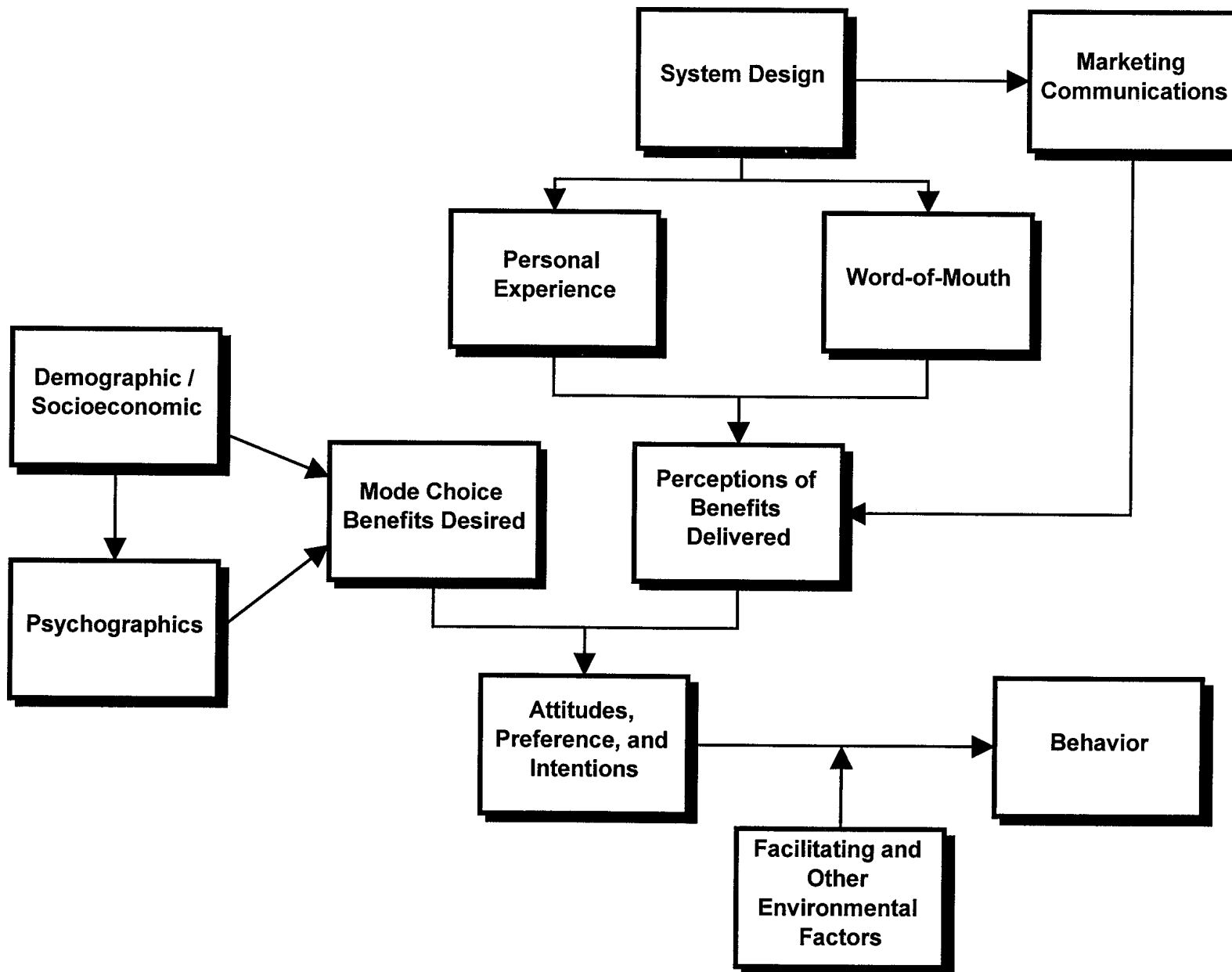
At this point, if earlier models were used, our implicit assumption would be that these overall attitudes toward, preferences for, and intentions to use or not use a particular travel mode would provide a good prediction of behavior. In this model, we are positing that the scrambling effects of the environment and the presence or absence of facilitating factors moderate behavior. For example, a person with negative attitudes toward using public transportation and a preference for driving alone may indeed use public transportation if their employer does not provide subsidized parking at their place of work. Conversely, a person with positive attitudes toward service, a preference for using public transportation, and who fully intends to ride the bus may be unable to do so if they do not have access to service, do not have service available when needed, or simply are unaware that service is available.

The final component of the model consists of measures of behavior. A range of measure can be employed to measure the "nature of behavior" – for example, mode choice – and the "magnitude of behavior" – for example frequency of riding.

The model is illustrated on the following page.

¹⁸ Helen Peak, "Attitude and Motivation," in M.R. Jones (ed.), *Nebraska Symposium on Motivation* (Lincoln: University of Nebraska Press, 1954), pp. 149-189.

¹⁹ Martin Fishbein, "Attitude and the Prediction of Behavior: A Behavior Theory Approach to the Relations Between Beliefs About an Object and the Attitude Toward an Object," in Martin Fishbein (ed.), *Readings in Attitude Theory and Measurement* (New York: Wiley, 1967).



Implementation

Once this basic planning process has been completed, the next phase in the process is implementation. There are five major components to implementation:

- Determining the sample design.
- Designing the survey instrument.
- Collecting the data.
- Analyzing and interpreting the data.
- Presenting the results.

Each step will be discussed below.

Determining the Sample Design

All true segmentation studies have one goal in common – projecting the segmentation schema obtained to the entire pertinent market. Therefore, these studies generally require probability samples from that market. The use of convenience or judgement samples will lead to unreliable results and potentially misleading results and are not projectable to the population.

Quota samples seldom work correctly in segmentation studies. Post-data collection sample balancing procedures, or weighting, can severely affect the results you get, if done before using clustering procedures. These procedures also make it difficult to estimate errors, and they complicate modeling of the segments.

Sampling entails many steps. It is easy to underestimate the complexity of this process. The exhibit below illustrates the seven basic steps for sampling.

Step	Description
1) Define the population	Could be defined by (a) "elements," or kinds of people, (b) where (place), or (c) when (time).
2) Specify sampling frame	Determine lists or sources for locating the sample – for example, using the telephone book, a city directory, random digit dialing (RDD) in a specified area, recruiting at a central location, etc.
3) Specify sampling unit	Specify the "unit" for sampling. The unit might be one person, a household, or an entire city block. The sampling unit may contain one or more elements in the population.
4) Specify the sampling method	Determine the method by which the sampling units are to be selected (e.g., RDD, every N adults boarding a bus, etc.)
5) Determine the sample size	Choose the number within the population to be sampled.
6) Specify the sampling plan	Choose the actual procedures for selecting the sampling units.
7) Select the sample	Carry out the office and fieldwork necessary for the selection of the sample.

These seven basic steps were applied in each test market.



Step	Applied
1) Define the population	Population was defined in terms of ridership. The population was defined as choice riders – individuals who had ridden transit in the past year but had an option to use some other form of transportation or had made a conscious choice to use public transportation – and nonriders – individuals who had not ridden transit in the past year.
2) Specify sampling frame	<p>The sampling frame for nonriders and for choice riders in those markets where the incidence of riders in the population was reasonably high (greater than 15 percent), was random digit dialing within the area served by the transit agency. The sample frame was purchased from a national sampling company – Scientific Telephone Samples. Other companies (e.g., Survey Sampling) also sell RDD sampling frames. Purchased RDD sample is often more efficient than creating your own RDD sample as business and nonworking numbers are culled.</p> <p>In markets where the incidence of choice riders in the population is very low, RDD is cost-prohibitive. In Boise, an alternative approach to developing the sampling frame was to distribute a brief postcard survey on-board buses. The postcard survey asked several questions to determine dependence on transit as well as a request to participate in additional research. A random sample of “choice” riders was then drawn from this database of riders. Approximately half of the choice riders were identified through RDD sampling; the remainder was drawn from this database. The nonrider frame was RDD within the area served by the Boise Urban Stages.</p>
3) Specify sampling unit	As the purpose of this study was to segment individuals, the sampling unit was one person in the household.
4) Specify the method	Random digit dialing (RDD) was employed.
5) Determine the sample size	A total of 3,000 interviews – 1,000 in each test market – was completed. One criterion for segment formation was set that no segment should be smaller than 10 percent of the population. This sample size provided for a large enough sample to provide for reliable analysis of the resulting market segments. For example, under this criterion, the smallest segment sample size would be 300 – or 100 in one test market. The level of error for this segment was plus or minus 5.6 percent – or 9.8 percent in one test market.
6) Specify the sampling plan	Computer-assisted telephone interviewing was used. Each sample element was attempted up to five times. Other procedures were instituted to minimize nonresponse bias resulting from not-at-homes or busy numbers. For example, “soft refusals” were recontacted at another time to determine willingness to participate. Callbacks were scheduled to insure that the interview could be completed when the respondent had sufficient time.
7) Select the sample	The sample was managed via a computer-assisted sample management program – Ci3 CATI.

Designing the Survey Instrument

As with any research project, questionnaire design is a critical element. It is not the purpose of this handbook to provide general guidelines for questionnaire development. This information is available from many other sources, including the handbook that was developed for TCRP Project B-2 – *Integrating Market Research Into Transit Decision-Making*. Instead, this section focuses on the unique aspects of questionnaire development as applied in segmentation studies.

The design of a questionnaire for a segmentation study is both an "art" and a "science." It also an unusually complex process. The design of the questionnaire is based on the model. It provides a general indication of basic descriptor variables that will be required. Scale development may be an area where you seek outside assistance. The complexity of questionnaire design in segmentation analysis stems from a number of factors:

- **The number of descriptor variables is enormous.** Most of the variables covered in consumer behavior literature can be considered as segment descriptors. These include demographic and socioeconomic characteristics, media usage, behavioral characteristics, attitudes unrelated to the basis variables, and so on. It is possible for both those who design the study and the respondents who answer the questions to become lost in all these possible descriptors.
- **"Actionability" or being able to do something with the findings, remains a difficult question.** Inadequate descriptor variables can lead to a study in which you develop some strong-looking insights from the basic variables, but not enough action-oriented information to move forward with any real confidence. During study design, consider management's ability to use the findings, in particular information from the descriptors. Will these help form the agency's marketing strategy and tactics – for instance, can they influence service design, pricing, media scheduling, promotional messages, and so on? Expanding the list of descriptor variables can often make the study more usable. Alternatively, using one basis variable that is generally familiar to research users – for example, geodemographics or product usage – and adding a new approach – for example, benefit segmentation or psychographics – may help make the findings more actionable.
- **You may only find weak links between basis and descriptor variables.** You may not be able to identify segments with varying responses to marketing actions, based on demographic and other segment descriptors. Conversely, although segments defined by demographic and other general customer characteristics tend to be easily described, they may not have varying responses to marketing variables. This lack of strong connections can emerge even in well-designed studies. Sometimes, attitudes and opinions will truly cut uniformly across demographic characteristics. Then, positive responses will not be associated with any group that you can reach selectively. Finally, you may have trouble finding "lifestyle" differences between segments, just as with demographic differences. Lifestyles can have some relation to both product use and to demographic characteristics. Nevertheless, unless responses to your marketing efforts can vary in these groups, you cannot call them true segments.

Keeping in mind these issues, other segmentation research suggests several guidelines for constructing a more "disaster-proof" study:

- **Include at least one battery of questions that address the concerns that you believe will form the basis for grouping respondents.** This battery of questions should be developed based on the model you have developed or your research objectives. Then consider including one or two alternative batteries, each taking a different approach. For example, you might include (1) a battery of questions dealing with the ways respondents view transit and occasions or reasons for its use, (2) a second battery about user and self-perceptions related to transit ridership, and (3) another battery addressing broader "life style" and interest-related concerns. While this can add to the length of the questionnaire and the cost of the research, it can provide some insurance. Given the fixed cost of many segmentation studies, the incremental costs of adding a second battery of questions may not be significant.

- **Try not to include too many questions of different types in the basis variables.** Careful pretesting, to be discussed later, is important in keeping the number of questions required to develop the basis variables at a minimum while at the same time insuring reliable measures.

As can be seen in the following example, the design of the questionnaire for the test study closely followed the final model. A copy of the Final Questionnaire used for this research is included in the Appendix. Moreover, a detailed description of the analysis that was conducted to determine what scale items to include and the components of each scale are contained in the Final Report for this project, which is available upon request from the Transportation Research Board, Transit Cooperative Research Program.



Screening Questions.

A series of screening questions were developed to identify qualified respondents as defined under the sampling plan. These included questions on area of residence as well as ridership.

Demographic / Socioeconomic Characteristics

A set of standard demographic questions was included to obtain measures of an individual's demographic and socioeconomic characteristics. These measures included:

Age,
Education,
Marital status,
Employment status (of individual and spouse),
Occupation,
Household size and composition (i.e., number and age of children),
Ethnicity,
Household income, and
Perceived social class.

Moreover, respondents were asked to provide the names of cross streets or intersections nearest their home. These responses were geocoded and the census tract in which the respondent lives identified. This data could be used in conjunction with census data and standardized geodemographic data to examine what geodemographic segments emerge from the data as well as to determine the size of the residence area in which the individual lives (another important demographic / socioeconomic variable).

Values

The term "value" has been defined as "an enduring belief that a particular mode of conduct or that a particular end state of existence is personally and socially preferable to alternative modes of conduct or end states of existence." So defined, a value is "a standard or criterion that tells us how to act or what to want and what attitudes we should hold," "a standard we employ to justify behavior, to morally judge and to compare ourselves with others," and "a standard we employ to tell us which values, attitudes, and actions of others are worth or not worth trying to influence."^{20, 21, 22}

²⁰ Rokeach, Milton J., "The Role of Values in Public Opinion Research," *Public Opinion Quarterly*, XXXII (Winter, 1968-1969), pp. 547 – 559.

²¹ Rokeach, Milton J., *The Nature of Human Values*, (New York: Free Press) 1973.

Following this concept of value, the List of Values (LOV) typology was developed. The LOV is composed of nine values that can be scored in a number of ways. Each value can be scored on a nine or ten point scale (very unimportant to very important), or the values can be rank orders from most to least important. The LOV measures those values that are central to people in living their lives, particularly the values of life's major roles (e.g., work, leisure, and daily consumptions).

The LOV was originally developed by Rokeach and contained eighteen terminal values. The LOV used in this research is a shorter version of the scale as developed by Kahle.²³ This shorter version has been widely tested. The measures are significantly correlated with various measures of mental health, well being, adaptation to society, and self²⁴ and are predictive of a number of consumer behaviors.²⁵

Psychographics

While it would have been possible to create an extensive series of questions designed to assess psychographics in a product-specific context, it was decided that the use of standardized scales offered some significant advantages over an ad hoc questionnaire. First, because standardized scales are used repeatedly, norms can be developed. Without norms, it is often difficult to tell whether a particular score on a particular scale is high, medium, or low. Second, when standardized scales are made publicly available, they can be subjected to tests of convergent and discriminant validity by independent analysts in a variety of research settings. Scales that survive such trials are substantially more trustworthy than untested ad hoc question sets. Finally, when a scale is used repeatedly in a variety of settings, it begins to accumulate "surplus meaning." That is, when its users begin to understand the network of other variables to which it relates, they can say much more about it than they could before.

The first draft of the questionnaire was developed using the scales as presented in the literature. Where possible, the entire scale was used. If the scale was very large, the existing literature was used to identify strategies to shorten the scale. This version of the questionnaire was pretested with over 300 respondents, both nonriders and choice riders. This first interviews averaged over 50 minutes in length.

Extensive psychometric testing was completed to reduce and refine these scales. A second version of the questionnaire was pretested with over 100 respondents. Again both nonriders and choice riders were interviewed. This version of the questionnaire was significantly shorter – approximately 40 minutes in length. Again, analysis was conducted to determine whether the scales continued to be reliable measures of the broader dimensions and to determine whether further reduction and/or refinement was possible.

The final questionnaire reflects the results of both these pretests. It was again tested with over 100 respondents. The focus of this pretest was largely on providing a final estimate of the survey length. Moreover, results were analyzed to verify the accuracy of the programming for the questionnaire logic (e.g., skip and branching patterns).

Following are descriptions of the psychographic dimensions included in the design.

²² Kahle, Lynn R, *Social Values and Social Change: Adaptation to Life in America*. (New York: Praeger Publishers), 1983.

²³ Beatty, Sharon E., Lynn R. Kahle, Pamela Homer, and Shekhar Misra, "Alternative Measurement Approaches to Consumer Values: The List of Values and the Rokeach Value Survey," *Psychology & Marketing*, 2 (Fall 1985), pp. 181 – 200.

²⁴ Kahle (1983).

²⁵ Homer, Pamela and Lynn R. Kahle, "A Structural Equation Analysis of the Value-Attitude-Behavior Hierarchy," *Journal of Personality and Social Psychology*, 54 (April 1988), pp. 638 – 646.

Susceptibility to Interpersonal Influence

Consumer susceptibility to interpersonal influence is assumed to be a general trait that varies across individuals and is related to other individual traits and characteristics. The construct is defined as the need to identify with or enhance one's image in the opinion of significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions, and/or the tendency to learn about products and services by observing others or seeking information from others.²⁶ It was hypothesized that the degree to which an individual is influenced by others' perceptions of the types of people who use public transportation and its reflection of one's self-image is associated with transit ridership and/or openness to using public transportation.

The original scale consists of twelve items. Each are operationalized as a bi-polar, seven-place rating scale ranging from "strongly agree" to "strongly disagree." All items are positively worded. The twelve items reflect two correlated dimensions of susceptibility to interpersonal influence: normative and informational influences. The scale used in this questionnaire consisted of five items, such as the one shown below.

I often identify with other people by purchasing the same products and brands they purchase.

Optimum Stimulation Level / Arousal Seeking Tendency

Optimum Stimulation Level (OSL) is a property that characterizes an individual in terms of his / her general response to environmental stimuli. This is based on the assumption that each individual has a uniquely determined, homeostatic degree of stimulation or an "optimum stimulation level" (OSL) with which he / she is comfortable.²⁷

Similarly, Arousal Seeking Tendency (AST) is viewed as a characteristic that varies across individuals. An individual's preference for an environment is closely related to his / her preferred arousal. Some people prefer calm settings, whereas others actively seek to increase their arousal by choosing novel, complex, or unpredictable settings.²⁸

Research suggests that an individual will adjust their behavior to obtain the optimal level of stimulation or arousal. For example, if an environment provides more stimulation than desired, the individual will engage in behavior to reduce stimulation. In public transportation, therefore, individuals who are uncomfortable with high levels of stimulation may adapt their behavior to reduce this stimulation or may simply avoid any situation that is too stimulating. For example, riders who are uncomfortable with crowded places or around different people may choose to ride only during off-peak hours. Nonriders may choose to not ride at all or may simply not even consider riding.

The AST is a 40-scale item, where each item is evaluated on a nine-point Likert format (i.e., very strong disagreement [-4] to very strong agreement [+4]).²⁹ The complete AST scale was far too long to be included in the questionnaire. Moreover, the response format was different from other Likert scales used in the questionnaire. Therefore this scale was shortened to five items and the response format was changed to correspond to the other Likert scale questions on the survey.

I like to go somewhere different every day.

²⁶ Bearden, William O., Richard G. Netemeyer, and Jesse E. Teel, "Measurement of Consumer Susceptibility to Interpersonal Influence," *Journal of Consumer Research*, 15 (March 1989), pp. 473 – 481.

²⁷ Raju, P.S., "Optimum Stimulation Level: Its Relationship to Personality, Demographics, and Exploratory Behavior," *Journal of Consumer Research*, 7 (December, 1980), pp. 272 – 282.

²⁸ Mehrabian, Albert and James A. Russell, *An Approach to Environmental Psychology*. Cambridge: The MIT Press (1974).

²⁹ Mehrabian and Russell (1974).

Innovativeness

Innovativeness is a personality trait that is assumed to underlie the adoption of new products or services as well as a general openness to information processing. Innovators are described as individuals who are open to new experiences and novel stimuli, who possess the ability to transform information about new concepts, ideas, products, or services for their own use, and who easily recognize the potential application for new ideas.^{30, 31} It was hypothesized that an individual's openness to trying new products and services would be related to an individual's willingness to try public transportation, particularly alternative public transportation services that are being considered.

This scale is still under refinement and somewhat limited information was available for evaluation. However, two versions of the scale have been developed – each containing 24 items. Craig and Ginter factor analyzed the original version of the scale and found seven factors. These factors are: new is wasteful, social desirability, novelty seeking, risk aversion, style consciousness, satisfaction with the status quo, and other-directedness.³² The length of the survey precluded the use of the entire scale developed by Leavitt and Walton. Variables were selected from those factors dealing with desirability, risk aversion, and satisfaction with the status quo. Those variables that were most highly correlated with a factor were selected. An example follows:

When it comes to taking chances, I would rather be safe than sorry.

Socially Responsible Consumption Behavior

Socially responsible consumption behavior (SRCB) is defined as those consumer behaviors and purchase decisions that are related to environmental and resource-related problems. These behaviors and decisions are motivated not only by a desire to satisfy personal needs, but also by a concern for the welfare of society in general.^{33, 34} This is thought to be an important component of the mode choice decision as several transit research studies have shown an association between an individual's attitudes toward the environment or "greenness" and transit ridership.

The SRCB is composed of 40 Likert items (agree-disagree) scored on a five-point basis. Scores can be summed to form an overall SRCB Index. The length of this scale precluded inclusion of the entire scale. Instead, seven items were selected for inclusion that had the highest item-to-total correlation. Moreover, some wording was simplified.

I think that a person should urge his or her friends not to use products that pollute or harm the environment.

In addition to this specific measure of socially responsible consumption behavior, a more generalized scale to measure overall attitudes toward the environment was included. General environmental concern (GEC) is a construct frequently used as a measure of the importance of the environment and its protection. It is cited as an indicator of the greening of

³⁰ Leavitt, Clark and John Walton, "Development of a Scale for Innovativeness," in *Advances in Consumer Research*, Vol. 2, Mary Jane Schlinger (ed), Ann Arbor: Association for Consumer Research (1975), pp. 545-554.

³¹ Leavitt, Clark and John R. Walton, "Openness of Information Processing as a Moderator of Message Effects on Behavior," *Faculty Working Paper*, College of Business Administration, Ohio State University (1988).

³² Craig, C. Samuel and James L. Ginter, "An Empirical Test of a Scale for Innovativeness," in *Advances in Consumer Research*, Vol. 2, Mary Jane Schlinger (ed), Ann Arbor: Association for Consumer Research (1975), pp. 555-562.

³³ Antill, John A. and Peter D. Bennett, "Construction and Validation of a Scale to Measure Socially Responsible Consumption Behavior," in *The Conserver Society*, Karl H. Hennion II and Thomas Kinnear (eds), Chicago: The American Marketing Association (1979), pp. 51 – 68.

³⁴ Antill, John A., "Socially Responsible Consumers: Profile and Implications for Public Policy," *Journal of Macromarketing* (Fall 1984), pp. 18-39.

consumption. GEC is useful as an attitudinal construct because it is clearer than the term "green" which is imprecise and may mix attitudinal and behavioral constructs.³⁵

The General Environmental Concern is measured by agreement ratings using three items on a Likert scale. The three items were derived from those used by Maloney and Ward³⁶ and Maloney, Ward, and Braucht³⁷. An example:

We have to do something immediately to reduce the amount of gasoline we use.

Automobile Involvement

Transit research has long suggested that American's "love affair with the automobile" is associated with ridership and the propensity to ride. This involvement is borne out in other research that suggests that product involvement as a long-term interest in a product is based on the centrality of the product to important values, needs, or the self-concept, and is primarily a function of individual differences. Consistent with this conceptualization, Bloch views product involvement as a construct that affects consumer behavior on an ongoing basis and varies across individuals (ranging from minimal levels to extremely high levels). Based on this view, a scale to measure involvement with automobiles was developed.³⁸

The original scale developed by Bloch consisted of a 17-item scale that uses a Likert scale (strongly agree – strongly disagree), scored on a six-point format. In another study, Shimp and Sharma factor analyzed the Automobile Involvement Scale with a sample of 696 adult nonstudent respondents. They compared the six-factor solution identified by Bloch with a number of other factor structures. This analysis suggested that Bloch's six-factor structure could be simplified. Based on this analysis an eight-item, two-factor version of the scale was developed as a reasonable alternative to Bloch's 17-item, six-factor scale.³⁹ The final scale used in the questionnaire retained four of the original scale items, including:

Driving my car is one of the most satisfying and enjoyable things I do.

Overload

It is well recognized that an individual's time has become increasingly burdened. Moreover, it is believed that time and role overload and perceptions of transit may be related. Therefore, a scale to measure the extent to which individual's feel their time is overburdened was identified. One such scale – Role Overload of the Wife – was developed to explore the conflict that occurs when the sheer volume of the behavior of the wife exceeds her available time and energy.⁴⁰ This definition is consistent with the organizational behavior literature view of role overload.^{41, 42}

This scale is composed of 13 Likert items on a five-point basis from strongly disagree to strongly agree. For the first pretest wave, the complete 13-item scale was used. The scale

³⁵ Shrum, L.J., J. A. McCarty, and T.M. Lowrey, "Buyer Characteristics of the Green Consumer and Their Implications for Advertising Strategy," *Journal of Advertising*, 24 (1995), pp. 71 – 82.

³⁶ Maloney, M.P. and M.P. Ward, "Ecology: Let's Hear From the People," *American Psychologist*, 28 (1973), pp. 583-586.

³⁷ Maloney, M.P., M.P. Ward, and N.G. Braucht, "Psychology in Action: A Revised Scale for the Measurement of Ecological Attitudes and Knowledge," *American Psychologist*, 30 (1975), pp. 787-790.

³⁸ Bloch, Peter H., "An Exploration Into the Scaling of Consumers' Involvement With a Product Class," in *Advances in Consumer Research*, Vol. 8, Kent B. Monroe (ed.), Provo: The Association for Consumer Research (1981), pp. 61 – 65.

³⁹ Shimp, Terence and Subhas Sharma, "The Dimensionality of Involvement: A Test of the Automobile Involvement Scale," in the *American Marketing Association Winter Educator's Conference: Research Methods and Causal Methods in Marketing*, William R. Darden, Kent B. Monrol, and William R. Dillon (eds.), Chicago: The American Marketing Association (1983).

⁴⁰ Reilly, Michael D., "Working Wives and Convenience Consumption," *Journal of Consumer Research*, 8 (March 1982), pp. 407-417.

⁴¹ House, Robert L. and John R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," *Organizational Behavior and Human Performance*, 7 (1972), pp. 467 – 505.

⁴² Rizzo, John R., Robert J. House, and Sidney Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," *Administrative Science Quarterly*, 15, (1970), pp. 150 – 163.

was changed to be consistent with the other scales in the questionnaire – scored on a seven-point Likert scale – and streamlined to contain only five items, such as:

I need more hours in the day to do all the things that are expected of me.

Time Management

Related to the concept of role overload is the extent to which an individual employs strategies to manage their time. It was hypothesized that the extent to which an individual organized their time and/or felt the need to be in control of their time would influence their ridership and/or propensity to ride transit.

Several scales have been developed to explore the extent to which people manage time. Several of these scales have been developed to examine the relationship between time management and shopping behavior. Lumpkin and Darden used a multi-item, six-point Likert summated ratings scale ranging from strongly disagree to strongly agree. The scale measures a person's tendency to schedule activities and organize time.⁴³, ⁴⁴ The final scale used four items that showed the highest item-to-total internal consistency.

I am always looking for ways to be more efficient so that I can get more things done.

Internal Locus of Control

Locus of control refers to the degree to which a person attributes success to his or her own efforts versus fate or other forces. It was hypothesized that this factor combined with other personality traits related to feelings of personal control would be associated with one's current ridership or propensity to ride.

The items for this scale were taken from Rotter. However, his scales consisted of 23 pairs of opposing statements in a forced-choice format.⁴⁵ Therefore, a shortened version of Rotter's scale was used, in part based on research by Lumpkin and Hunt.⁴⁶

When I make plans, I am certain I can make them work.

Self Confidence / Leadership

Some research has shown a link between self-confidence and the extent to which individuals rely on public transportation and/or others to get around. In this study, respondents who were self-reliant in terms of transportation were significantly more self-confident than persons who were dependent on others for transportation.⁴⁷ Therefore, a scale to measure the perception of one's self as a leader and having confidence was included. This scale was drawn from several sources. It is believed to have been developed originally by Burnett and Bush (1986)⁴⁸.

I think I have more self-confidence than most people.

⁴³ Lumpkin, James R., "Shopping Orientation Segmentation of the Elderly Consumer," *Journal of the Academy of Marketing Science*, 13 (Spring, 1985), pp. 271-289.

⁴⁴ Lumpkin, James R., and William R. Darden, "Relating Television Preference Viewing to Shopping Orientations, Lifestyles, and Demographics," *Journal of Advertising*, 11 (1982), pp 56-67.

⁴⁵ Rotter, J.B., "Generalized Expectancies for Internal and External Locus of Control of Reinforcement," *Psychological Monographs: General and Applied*, 80 (Volume 1, 1966), Whole No. 609.

⁴⁶ Lumpkin, James R. and James B. Hunt, "Mobility as an Influence on Retail Patronage Behavior of the Elderly: Testing Conventional Wisdom," *Journal of the Academy of Marketing Science*, 17 (Winter 1989), pp. 1 – 12.

⁴⁷ Lumpkin, James R. and James B. Hunt, "Mobility as an Influence on Retail Patronage Behavior of the Elderly: Testing Conventional Wisdom," *Journal of the Academy of Marketing Science*, 12 (Winter 1989), pp. 1 – 12.

⁴⁸ Burnett, John J. and Alan J. Bus, "Profiling the Yuppies," *Journal of Advertising Research*, 16 (April / May 1986), pp. 27 – 35.

Physical and Occupational Mobility / Financial Optimism

Consistent with the belief that a person's ridership or propensity to ride is associated with their socioeconomic status, the extent to which an individual is or perceives themselves to be physically or occupationally mobile may also be linked to ridership and/or attitudes toward using public transportation. To test this, a scale to measure the extent to which an individual perceives themselves as physically and/or occupationally mobile was included. This multiitem scale has been used in many studies but appears to have been originally developed for the classic study of psychographics by Wells and Tigert.⁴⁹

In the last ten years, I have lived in at least three different cities.

I expect to be a top executive in the next ten years.

Five years from now my total household income will probably be a lot higher than it is now.

Frugality

There is a long-established association between ridership and an individual's socioeconomic status. It was hypothesized that this association might also be translated into a values and lifestyle characteristic – specifically how frugal a person considers himself / herself to be. A four-item scale was used to measure this association. This scale was taken from work by John Lastovicka that examines lifestyle segmentation as it relates to drunk driving behavior.⁵⁰ The original scale was actually a multi-dimensional scale. One dimension focused specifically on discipline, or the extent to which an individual practices frugal behavior.

I believe in being careful how I spend my money.

Personal Control and Responsibility

Transit research has shown that a major barrier to transit ridership is concern about the extent to which a person must rely on the system to get them where they want to go on time. Many factors drive this concern. However, the extent to which a person feels they must be in control appears to be the primary consideration. Therefore a series of questions used in other transit studies – notably ones conducted by King County Metro (Seattle), Tri-Met (Portland), and Caltrans – were combined to create a schedule to measure the extent to which an individual values personal control.

I always schedule my time so that I arrive at my destination a few minutes early.

It is very important to me not to have to rely on other people.

Fearfulness

Comments from qualitative research suggest that many people do not ride public transportation because they are worried about their personal safety. However, crime and safety statistics clearly show that there is little evidence to support concerns about personal safety when using transit. Instead, it is believed that a person's general level of fearfulness in conjunction with other attitudes leads to an overall predisposition to use public transportation. A three-item scale to measure a person's feelings about their security / safety was included.

I worry a lot about myself or a family member becoming a victim of a crime.

⁴⁹ Wells, William D. and Douglas Tigert, "Activities, Interests, and Opinions," *Journal of Advertising Research* (August 1971), pp. 27 – 35.

⁵⁰ Lastovicka, John, unpublished paper.

Cleanliness

As with fearfulness, comments from qualitative research suggest that many people do not ride public transportation because they believe that buses are dirty and/or that people on the bus are dirty. Again, evidence does not support this perception. Instead, it is hypothesized that an individual's level of comfort with large public environments in general may be the motivating factor. To test this assumption, a four-item scale to measure an individual's general attitudes toward cleanliness was included.

I am uncomfortable when I am in places that are not totally clean.

Benefits Sought and Perceptions of Benefits Delivered

The majority of research conducted by transit agencies has focused on riders' and, to a lesser extent, nonriders' perceptions of service quality. The emphasis, therefore, has been on measuring satisfaction with specific aspects of transit service – for example, on-time performance, helpfulness of drivers, and usefulness of information. In some instances, agencies have also included measures of the importance of these same aspects of transit service. Comparisons of satisfaction and importance enables one to develop a matrix that measures the extent to which performance meets customer expectations (as measured by importance or some other scale). While useful for day-to-day service planning and determining where to best place resources for service quality improvement, these measures provide little insight into what is required to increase ridership. This is particularly true among nonriders who may have difficulty answering these types of questions because of lack of direct experience. Moreover, there is no evidence to support that improvements in service quality will cause nonriders to ride.

In other instances, some agencies have explored barriers to ridership. Again, this information may provide some useful insight into day-to-day service planning. For example, finding out that not being able to get home easily in case of an emergency has led to the development of "guaranteed ride home" programs in many markets. However, again the assumption is made that simply removing a barrier will lead to an increase in ridership.

Literature on "benefit segmentation" suggests that two components should be measured: (1) the benefits sought (product-benefit importance), and (2) the extent to which those benefits are delivered (brand preferences).^{51, 52} The combination of these two factors – that is the extent to which a product or service delivers the most primary benefits desired – forms one's attitudes toward a product or service.

Two factors were carefully considered in the design of the questionnaire: (1) what specific benefits to include, and (2) how to operationalize the constructs.

⁵¹ Haley, Russell I., "Benefit Segments: Backwards and Forwards," *Journal of Advertising Research*, 24 (February / March, 1984) pp. 19 – 25.
⁵² Green, Paul E., Abba M. Krieger, and Catherin M. Schaffer, "Quick and Simple Benefit Segmentation," *Journal of Advertising Research*, 25 (June / July, 1985), pp. 9 – 15.

To address the first factor – that is, what specific benefits to include – available transit research was reviewed to generate a comprehensive list of possible benefits that are sought in deciding how to travel. A list of twenty-nine individual attributes was ultimately identified. Some examples follow:

I can count on it to get me to where I am going on time.
I can control my own schedule.
It is appropriate for a person in my position.
It gets me to and from where I want to go without feeling stressed.
I can get other things done while traveling; it's not just dead time.
It gets me where I am going the quickest way possible.
It is conveniently located to my trip origin and destination.
It does not cost much.
I don't have to worry about wear and tear on my vehicle.
I am assured of my personal safety from crime.
It is comfortable.
It is clean.
I don't have to get out in inclement weather.
It is good for the environment.

In many instances, transit research has focused on identifying what is important in deciding to ride the bus. For example, a question might read, "Please tell me how important each of the following are in deciding whether to ride the bus?" There are two problems inherent in this question. First, it assumes that riding the bus is part of the decision set for everyone. However, many transit studies suggest that in most cases, people simply do not think of using public transportation – that is, riding the bus is not in their evoked set. Second, this question looks at transit in isolation. That is, it ignores the competition.

Therefore, to measure the second construct – benefits sought – respondents were asked to evaluate the importance of these twenty-nine items. The introduction to the question reads as follows:

Different people consider different things important when deciding whether to drive or to use transit for local travel. As I read the following list, please tell me how important each item is to you in the method of transportation that you use. Please answer on a 7-point scale where "1" means "not at all important" and "7" means "extremely important."

Operationalization of the second construct – the extent to which those benefits are delivered – was introduced as follows. Respondents rated the same twenty-nine items.

Now based on your personal experience or anything you have seen, read, or heard, please tell me how well you think these same statements describe using public transportation. Please answer using a 7-point scale where 1 means the statement "does not describe public transportation at all" and 7 means the statement "describes public transportation very well."

Involvement with the Mode Choice Decision

Much transit research suggests that the mode choice decision is a relatively low-involvement decision. That is, when making a trip, few people make a conscious decision as to whether to drive or use transit for that trip. Instead, most simply use the mode they are most accustomed to or that they always use for that trip. To test this hypothesis, a set of questions measures the extent to which an individual is involved with the mode choice decision.

Scales to measure consumer involvement were originally developed by Laurent and Kapferer⁵³ and Jain and Srinivasan.⁵⁴ Both sets of authors had developed multi-item scales to

⁵³ Laurent, Gilles and Jean-Noel Kapferer, "Measuring Consumer Involvement Profiles," *Journal of Marketing Research*, 11 (February, 1985), pp. 41 – 53.

measure the perceived importance and risk of the product class, the subjective probability of making a mispurchase, and the level of interest or the extent to which an individual has an enduring relationship with the product class.

However, these scales were very lengthy, having as many as sixteen items to capture the different dimensions. Moreover, some dimensions were believed to be less relevant to the mode choice decision. A shorter version of these scales, as developed by Foote, Cone, and Belding was used. The FCB Involvement Subscale (FCBI) views involvement as implying personal importance (i.e., relevance) and consequent attention to an object or product.⁵⁵

During this period, Northwest Research Group was testing a shortened (four-item) version of this scale in another study. Responses to this scale can be combined to reflect the extent to which an individual is involved with the mode choice decision and the degree of risk associated with the decision – for example, high involvement / low risk, high involvement / high risk, low involvement / low risk, and low involvement / high risk).

Would you say the decision to use public transportation is an important decision or an unimportant decision?

Would you say the decision to use public transportation is a decision that requires absolutely no thought at all, very little thought, some thought, a great deal of thought?

If you decide to use public transportation, would you say there is nothing to lose if you make the wrong decision, little to lose if you make the wrong decision, something to lose if you make the wrong decision, a lot to lose if you make the wrong decision?

How sure are you about the ability of public transportation to perform satisfactorily?

Attitudes Toward, Preference For, And Intention To Use Public Transportation

As denoted in the model, several factors combine to create an overall attitude toward, preference for, and intention to use public transportation. The following types of questions were included to obtain measures of these constructs.

Transit Use

One such factor is the extent and nature of an individual's personal experience with public transportation generally, and specifically with public transportation in the area in which they live. Questions were included to measure the extent to which an individual has used or considered using transit in the past.

Several questions in the screening section of the questionnaire covered transit use in the past year. Persons who had ridden in the past year were asked questions regarding the nature of their transit trip.

Persons who had not ridden in the past year were asked questions regarding consideration of and past use of transit.

Awareness of Transit

Another factor is the extent to which an individual is aware of and familiar with transit services. Awareness is a function of marketing and word-of-mouth communications. News stories published or broadcast in the media are considered a form of word-of-mouth communications, as they are not under the direct control of the marketer. Two questions

⁵⁴ Jain, Kapil and Narasimhan Srinivasan, "An Empirical Assessment of Multiple Operationalizations of Involvement," in *Advances in Consumer Research*, Vol. 17, Marvin Goldberg, Gerald Gorn, and Richard Pollay (eds.) Provo, UT: The Association for Consumer Research (1990), pp. 594 – 602.

⁵⁵ Ratchford, Brian T., "New Insights About the FCB Grid," *Journal of Advertising Research*, 27 (August – September (1987), pp. 35 – 38.

were included to measure the extent to which a respondent believes himself / herself to be aware of and informed about public transportation services.

Preferences for Public Transportation

Several questions were included to measure preferences for using public transportation over driving a car. These questions were drawn from surveys conducted by different transit agencies. The first set of questions examined the general appeal of using public transportation in different situations.

In general, how appealing or unappealing to you is the idea of using the bus instead of driving to work or school?

In general, how appealing or unappealing to you is the idea of using the bus instead of driving for your personal travel?

A more specific question to measure preference for public transportation was also included.

If offered a choice between convenient public transportation and taking a car, would you always drive a car, sometimes use public transportation, or always use public transportation?

A final question further measures specific preferences for public transportation compared with driving a car.

Please assume that driving alone or using public transportation are the only options available. Both are equally accessible to you. If you had a total of 100 points to divide between the two options and the higher amount is given to the method you prefer, how many points would you give to public transportation / driving alone?

Intentions to Use Public Transportation

Next, questions were included to measure respondents' intentions to use public transportation in the next year given different situations.

Thinking about different methods for getting around, how likely are you to use public transportation to make the following trips in the next year?

Commuting to work or school

Shopping

Special events, such as sporting events or fairs

Medical or other appointments

Cultural events

Facilitating and Other Environmental Factors

Finally, as the model suggests, individuals who have positive attitudes toward public transportation and/or would prefer using public transportation often do not do so. This may be due to intervening factors that make it difficult or impossible to use transit. On the other hand, individuals who have negative attitudes toward public transportation and/or would prefer driving alone often use transit because intervening factors make using transit a more viable alternative. Therefore, questions were included to identify the nature of these factors and the extent to which they influence final behavior.

Access to Service

Access to service is a major factor that affects transit use. In some cases, this is a very real barrier. That is, transit service is simply not available from where a person lives to where they need to go. In other cases, this may be a perception. For example, transit service is available but people do not think it is available because either they are not aware of the service or because they do not feel the service would work for them.

Several questions were included to determine the extent to which respondents have reasonable access to service, including availability of service, distance from home to bus stop, train station, and/or park-and-ride lot, distance from bus stop or train station to work, and the need to transfer.

To the best of your knowledge, how far is it from your home to the nearest bus stop?

To the best of your knowledge, do you currently have bus or train service available from where you live to where you work / attend school?

To the best of your knowledge, how far is from where you work / attend school to the nearest train station?

[Would / Does] the route you [would need to take / take] from where you live to where you work or attend school require transferring? [If yes] How many transfers?

Trip Characteristics

The nature of the trip also influences transit use. For example, research has suggested that the length of the trip – in distance or time – is a factor that affects transit use for that trip. This is notable for commute trips. The research suggests that commuters travelling less than five to ten miles are less likely to use transit than those experiencing longer trips. Commuters were asked the distance (in miles) they travel from home to work or school one-way.

Perceptions of service, notably as it relates to travel time by bus or train compared with that by car, influences transit use. Current research suggests that riders will accept travel times by bus or train up to two times longer than that by car. Nonriders are less tolerant of longer travel times and in many instances are demanding travel times by public transportation equal to or less than that by car. The following questions were included for commuters:

On a normal day, about how long [does] [would] the trip to work/school take from door to door from the time you leave your house until the time you get to work or school if you drive alone?

How long [does] [would] it take by bus?

How long [does] [would] it take by train?

Finally, as land use patterns have changed, where an individual lives and/or works has increasingly influenced use of public transportation. Many people have chosen to live in areas where providing transit is difficult. Similarly, major employment sites have moved away from central business districts to suburban areas. Transit service may be limited or unavailable. On the other hand, employees simply prefer to drive, as there is little incentive to use public transportation (e.g., low parking costs). Questions were included to measure the direction of their commute.

Do you live in a central city or downtown area or a suburb or suburban city?

Do you work in a central city or downtown area or a suburb or suburban city?

Congestion

The extent to which an individual encounters congestion on their typical trips has increasingly become a factor that facilitates transit use. That is, as congestion increases and travel time by cars increase, transit becomes a more attractive alternative. Two questions assessed the impact of congestion on ridership and/or predisposition to ride.

How much is your commute trip affected by congestion?

How much is your daily nonwork travel affected by congestion?

Parking

Similarly, the availability and/or cost of parking are factors that facilitate transit use. That is, as parking costs increase and/or parking becomes less available people are more likely to

consider transit as a viable alternative to driving alone. Two questions were included to assess the impact of cost and availability of parking on ridership and/or predisposition to ride.

How often do you change your travel plans or not take trips because of the cost of parking at the destinations where you would like to go?

How often do you change your travel plans or not take trips because of the availability of parking at the destinations where you would like to go?

For commuters, the extent to which employers subsidize parking can be a barrier to or facilitator of transit use. That is, in those cases where employers do not subsidize parking and daily parking costs are high, public transportation is an attractive alternative. On the other hand, when employers subsidize parking and/or employees can find alternatives for low cost parking, there is less incentive to use public transportation. Several questions were asked of commuters to assess the extent and the nature of subsidized parking.

Employer Support

In recent years, some employers have been increasingly supportive of employees using public transportation. Many have begun to offer programs and other assistance to enable employees to use transit. Commuters were asked whether their employer participated in a number of programs designed to encourage use of public transportation or other alternative modes.

Does your employer. . .

Offer a program to pay for some or all of the transportation costs for employees who ride the bus.

Provide a car to use for work purposes during work hours.

Sell bus or rail passes.

Provide bus or rail information on routes and schedules.

Allow bus / train riders the use of a company car during the day to run personal errands.

Assist in forming carpools and vanpools.

Provide bike racks, showers, and lockers.

Job Characteristics

Finally, the nature of one's job can represent barriers to using public transportation. In some cases, they are real barriers (e.g., in cases where an employee starts and/or finishes work during hours when bus service is not available). In other cases, they are perceptual or created barriers (e.g., the idea that running errands on the way to and from work keeps one from being able to ride transit). Questions were included to study the impact of an individual's work characteristics on ridership and/or propensity to ride.

What time do you typically arrive at work? What time do you typically leave work to travel home?

How often does your job require you to. . .

Work regular hours?

Use your own personal automobile for work-related travel during the day?

Work overtime hours?

Does your job allow you to. . .

Work flexible hours?

Work an alternative work schedule?

Telecommute?

How often do you. . .

Leave work during the day to eat lunch at places farther from your place of work than you can walk?

Leave work during the day to run errands?

Drop off and/or pick up children at day care / school on your way to / from work?

Run errands on your way to / from work?

Pretesting

Pretesting is an important part of any questionnaire design process. Because of the extent to which scales are used in segmentation analysis – notably in psychographic and benefit segmentation studies – pretesting takes on several unique aspects.

The primary question that is asked of questionnaires and scales used in segmentation analysis is the extent to which the scale reliably or consistently measures the larger construct. Reliability can refer to two types of consistency. The first is whether results would remain the same if the same individuals were "tested" and "retested" with the same questions. The second is consistency between groups of similar respondents. Determining reliability is not the same thing as investigating validity. The validity of a measurement refers to how closely it in fact reflects some "reality." However, since a nonreliable measure cannot be valid, reliability puts an upper limit on validity. Much of the focus in pretesting segmentation questionnaires is on testing reliability. Validity is a much more difficult aspect of the questionnaire to assess.

Several approaches to assessing reliability exist in the social sciences. None of these methods get much use in market research, largely due to cost and time considerations. It is important to budget for these additional costs and time when conducting a segmentation study. These are the principal ways in which reliability gets measured.

- **Test-retest reliability** involves applying the same measure to the same objectives (or respondents) a second time. Because of increasing difficulty of completing even one study in market research, this form of investigation remains quite rare.
- **Alternative-forms reliability** involves measuring the same objects by two instruments designed to be as nearly alike as possible. Generally, only one form gets used in market research. In some surveys, differences between versions may consist solely of "rotation" of items to reduce "position or order bias." This is not at all the same as using alternative forms that contain different questions.
- **Internal-comparison reliability** involves comparing responses among the various items on a multiple item battery, in which several questions are designed to measure the same thing. This form of testing is frequently used to measure the extent to which the individual items in a scale correlate to the broader construct they are designed to measure. It is also useful in determining what individual items need to be included in the scale and can be used as a device to shorten the overall questionnaire length by eliminating redundant scale items or those that do a poor job of measurement.

This latter form of reliability testing was used extensively in the design of the scales ultimately used in the questionnaire.

Collecting the Data

As noted in Chapter 2, nearly all segmentation analysis requires the collection of primary data – that is, data obtained directly from the target population and collected for the specific project at hand. There are many methods for collecting this data, each with its distinct advantages and disadvantages. Again, it is beyond the scope of this guidebook to go into details about different data collection. The reader is urged to refer to other sources, including the handbook developed for TCRP Project B-2 – *Integrating Market Research Into Transit Decision-Making*.

In selecting the data collection method for segmentation analysis, two factors frequently drive this decision:

- **The sample design and sampling procedure selected.** Notably, the need for random sampling procedures to insure the ability to project the results of the research to the general population may indicate the most appropriate data collection method. Telephone interviewing – notably computer-assisted telephone interviewing (CATI) – is the data collection method that represents the greatest opportunity for administering a truly random sample.
- **The questionnaire.** Questionnaires for segmentation analysis are generally longer than average and quite complex. The ability to randomize the order of the scale items – to prevent response order bias – and the possibility for complex skip and/or branching patterns often dictates the use of telephone or face-to-face interviews. Again, the use of computers – either computer-assisted telephone interviewing or computer-assisted self-administered questionnaires – can greatly enhance the reliability of the data that is gathered.

Some segmentation studies purport to use qualitative data collection methods – for example, focus groups. The results of such methods can never be projected to the general population and should be considered strictly exploratory in nature. These methods, however, are often very useful to pretest the questionnaire.



Computer-assisted telephone interviewing was selected for this project for the following reasons:

- The ability to develop and administer a random sample of households in each market to insure projectability of the data to the target population.
 - The ability to program the questionnaire administration so that the scales could be delivered to the respondent in a random order, thereby eliminating any kind of order bias. The questionnaire also contained complex skip and branching patterns for several groups of respondents including riders and nonriders, and commuters and noncommuters. These skip and branching patterns could be programmed so that the questionnaire could be administered smoothly and accurately.
 - The ability for trained interviewers to encourage respondents to complete a long – 39 minute – and complex survey.
 - The ability for the computer-assisted telephone system to handle callbacks – both random and scheduled callbacks. This was particularly important because of the length of the survey instrument. Many appointments were scheduled with interested respondents so the interview could be completed at a mutually convenient time.
 - The ability to monitor the administration of the questionnaire by trained supervisors to insure a consistency of delivery when interviewing a great many respondents – over 3,000 – in different markets.
-

Analyzing and Interpreting the Data

Once the data has been gathered, it must be analyzed to provide meaningful information to the end user of the research – the marketer, service planner, or general manager. However, data analysis should begin before the data is collected. To maximize the value of the findings, the researcher should have a clear idea of what is being sought. An analysis plan should be developed. Then, the specific data analysis tools can be selected. Because of the complexity of data analysis and the use of multivariate statistical methods that are not commonly used, outside assistance is frequently needed at this stage of the project.

An analysis plan, as its name implies, is an overview of the steps to be taken to analyze the data once it has been collected. The plan typically specifies what should occur at each of the following stages:

- **Coding and Data Preparation.** Coding simplifies further analysis by classifying responses into predetermined categories. Somewhat unique to segmentation analysis is the significant amount of other data preparation that must be completed prior to forming the segments. For example, factor analysis might be performed to determine natural groupings of variables that can be combined to create a new measure. The individual variables contained in psychographic scales are often combined to create an overall measure of the psychographic dimension. Standardizing variables before subjecting them to clustering procedures usually makes sense. This is because differences in the scales of variables can influence the results from many clustering procedures. Depending on the sample design used, data may also need to be weighted.
- **Segment Formation.** Many procedures exist for identifying market segments. A listing in the Appendix provides a non-technical summary of the major multivariate procedures that are often used in segmentation analysis. At this stage, practicality is of the essence. A complex segmentation model is not advisable if a simpler design adequately provides the required information.
- **Tabulation.** Once the segments have been formed, additional tabulation is needed to assess the general relationships between the segments and other key marketing variables. One of the most basic data analysis techniques available, cross-tabulations extend the value of tabulation by studying inter-relationship among groups of marketing variables. Banner tabulations – multiple cross-tabulations on a single page – provide an easy reference for those users of the information that want to see how each segment responds to each and every question in the survey instrument.

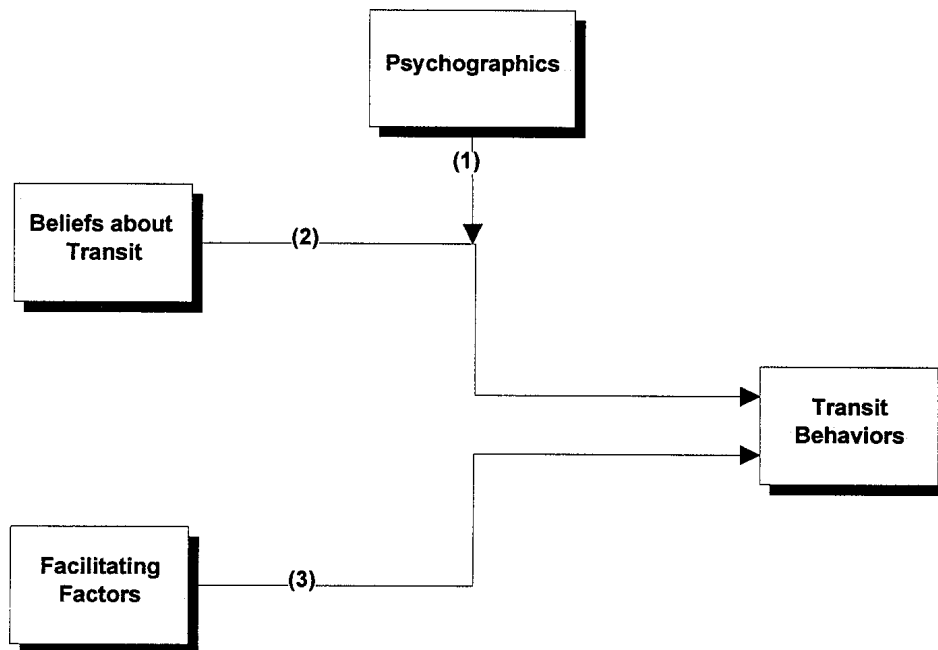
Following is an excerpt from the analysis plan developed as part of this research effort.



Overall Approach for Lifestyle Segmentation

The data from the system interviews will be analyzed to develop and validate the general lifestyle approach to predicting transit usage. The analysis consists of several parts. The first part involves identifying from the many proposed variables those that most relate to transit usage. This stage also involves determining if there are any redundancies. Given that most variables were evaluated in the measure development phase, it is expected that few variables will prove to be unrelated to the model. The remaining predictor variables will be grouped into one of three broad groupings, (1) psychographics, (2) beliefs about transit, and (3) facilitating factors. The criterion variable will be transit usage, which is a combination of everyday and special circumstance uses of public transit.

The chart below summarizes the groupings and analysis methods.



Values and Lifestyle Segmentation

Analysis of the data to estimate the model's parameters begins with an individual's values and lifestyle characteristics. The view is that an individual's ridership and/or predisposition to ride is largely driven by their values and lifestyle.

That is, responses to the transit system as perceived by the respondent are assumed to be governed by the individual's values and lifestyle. For example, perceptions that transit is or is not safe will affect behavior differently depending on the individual's perceived vulnerability. Individuals who are especially worried about their safety will avoid using a transit system whenever there is even a slight chance of danger, whereas individuals not especially worried about their safety may continue to use the system even though they recognize that some risk is present.

The lifestyle segments will be developed using the LOV scale and the sixteen lifestyle scales. The sum of the items in the scale will be used as the variable's measured value rather than factor or component scores. Summing the items in the scale more effectively retains the needed information.⁵⁶ Means will be substituted for missing values. A cluster procedure will be used to group individuals into homogenous segments.

The clusters will be described in terms of their values and lifestyles. Moreover, the demographic and/or geodemographic characteristics of the individual segments will be assessed to provide a clear profile of the different groups.

This analysis will be conducted on a system by system basis to determine whether there is any consistency in the resulting clusters. Moreover, samples from all systems will be

⁵⁶ Dillon, William R., Narendra Mulani, and Donald G. Frederick, "On the Use of Component Scores in the Presence of Group Structure," *Journal of Consumer Research*, 16 (June, 1989), pp. 196-212.

combined to determine if a single cluster solution can be identified that satisfies the criteria for effective market segmentation. In this latter approach, clustering will be done on a split-half-validation basis to determine if the solutions tend to replicate.

Beliefs about Transit

The second stage of the model focuses on individual's beliefs about transit. The view is that individuals base their decisions in part on their perceptions of the transit system. These perceptions reflect both the actual operations of the system and indirect information about the system. The latter includes word of mouth, mass media news stories, and transit promotions. It is expected that individuals will consider the pros and cons of using the transit system and make a rational decision about whether to use it or not. The responses to the questions on benefits sought and perceptions of transit will be combined to develop a transit belief variable. These variables will be factor analyzed to determine what, if any, underlying constructs exist.

The resulting variables from the factor analysis, along with the variables measuring general beliefs about transit and current or past use / consideration of transit will be compared across the clusters identified above. This analysis will identify which, if any, of the clusters evidence the highest existing ridership and/or propensity to ride.

Facilitating Factors

Finally, it has been observed that individuals may share similar beliefs about transit and yet engage in different behaviors. The model attributes some of this to factors not under the control of the individual that may override individual preferences. The availability of employer provided parking and service availability in the individual's area represent two such factors. These factors are assumed to have a direct effect on transit usage.

Existence of facilitating factors will be explored across the different clusters to further identify which clusters represent the greatest potential for ridership.

Conducting the Analysis – Psychographic Segmentation

As the analysis plan suggests, one phase of the analysis identified segments based on psychographics – that is, life style and psychological variables. This analysis identified five market segments that satisfied the following criteria for market segmentation:

- The segments must be large enough to be profitable.
- The segments must be identifiable.
- The segments must be reachable by media.
- The segments should respond differently to the marketing mix.
- The segments should be stable in terms of size.
- The segments should be reasonably cohesive. That is, the members should behave in as much the same way as possible.
- The segments should be growing.

- The segments should not be so dominated by competitors to make it unlikely that your product can be successful.

The analysis consisted of the following steps:

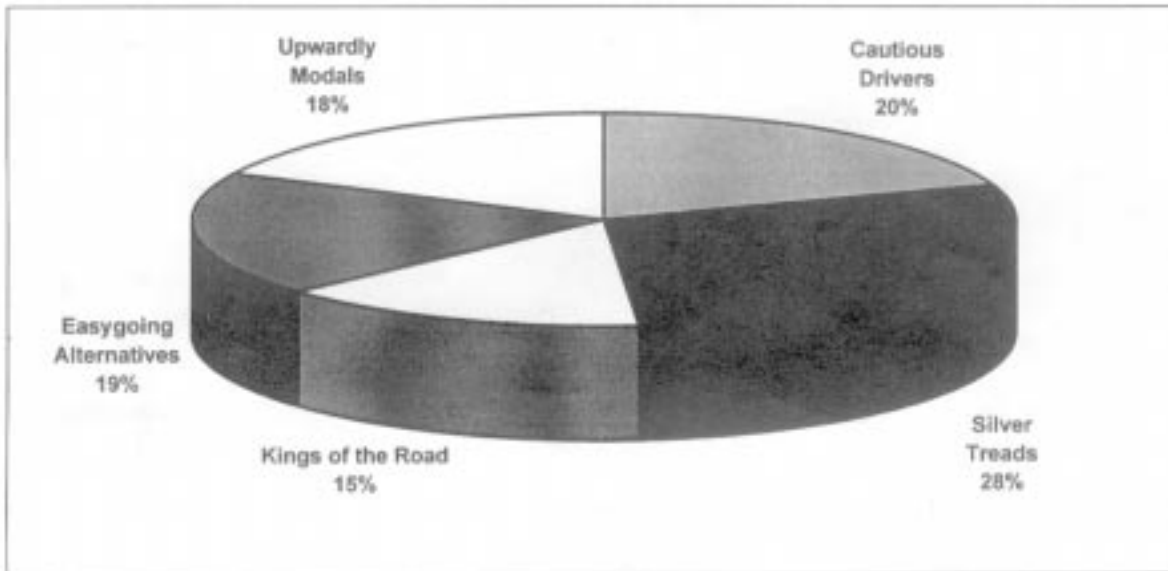
- Combined variables were computed to reflect each of the nineteen psychographic characteristics – susceptibility to interpersonal influence, arousal seeking tendency, innovativeness, time management, general environmental concern, socially responsible consumption behavior, automobile involvement, locus of control, self-confidence, fearfulness, cleanliness, sociability, frugality, personal control, responsibility, physical mobility, occupational mobility, financial optimism, and role overload. The List of Values was treated as individual psychographic variables.
- These twenty-eight variables were then centered and standardized. The purpose of this process is to remove the effects of different scale responses.
- Following this process, all variables were analyzed using a clustering procedure called Convergent Cluster Analysis. Convergent Cluster Analysis is a software program used for developing cluster-based solutions for market segmentation. Survey information on product preferences, desired benefits, usage habits, product requirements, attitudes, values and lifestyles, or other variables are used to explore the underlying structure of your market. The replication offering the greatest reproducibility was selected for further analysis.
- Further analysis consisted of basic cross-tabulations and CHAID (Chi-squared Automatic Interaction Detector) to better understand the characteristics of the individual segments.



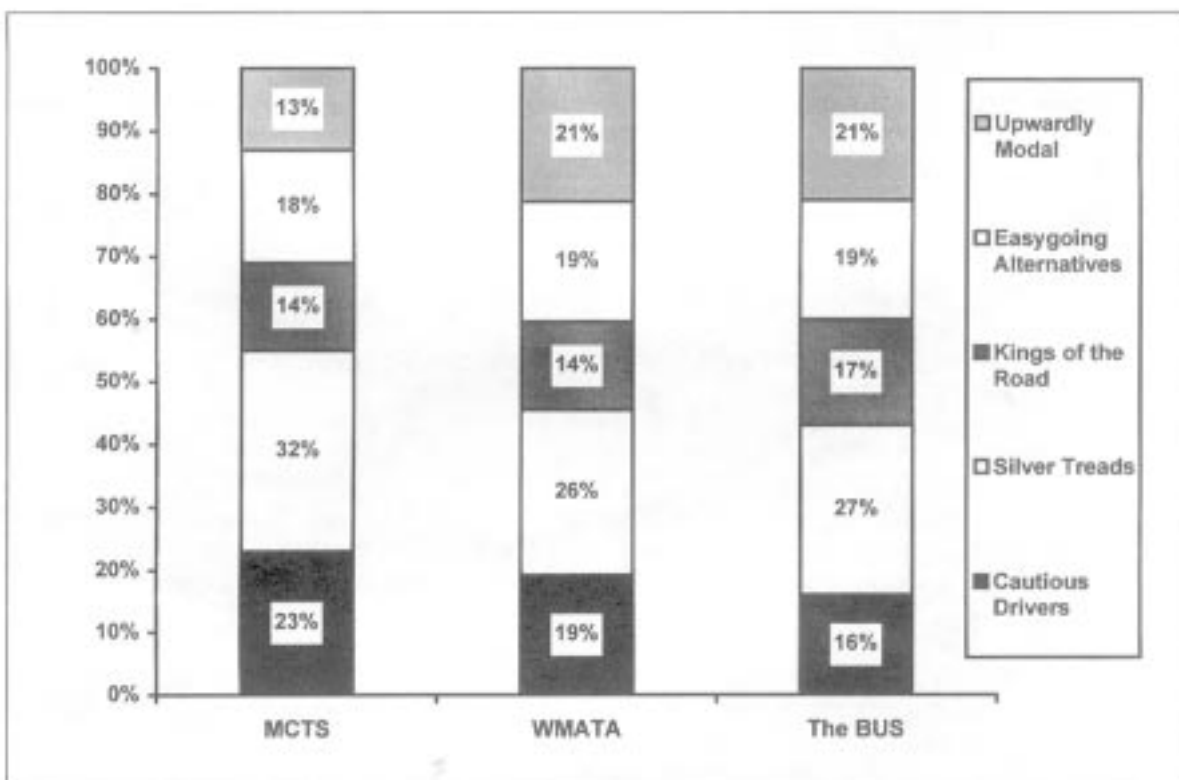
Using the clustering procedure described above, five market segments were identified – each having a unique psychographic profile. Further analysis also indicated that each of these five segments have different demographic characteristics, attitudes toward transit, needs for transportation that must be satisfied, and potential for using public transportation. Each segment was given a "name" to represent these unique sets of characteristics.

Two segments – Easygoing Alternatives and Upwardly Modals – represent markets that should be considered Intenders – that is, they are the most likely markets to use or consider using public transportation. Intenders represent 37 percent of the total market for choice riders.

The remaining three segments – Cautious Drivers, Silver Treads, and Kings of the Road – represent markets that are Avoiders – that is, they are least likely to use or consider using public transportation. Only Cautious Drivers represents any potential for use of some alternative mode. Avoiders represent 63 percent of the total market.



The size of the segments differs in the three market areas, with MCTS having an above average incidence of Cautious Drivers and Silver Treads. WMATA and The BUS have an equally high incidence of Upwardly Modals.



In addition to having a unique psychographic profile, each segment also differs in terms of demographic characteristics, their attitudes toward transit, their propensity to ride, and the presence and/or absence of facilitating factors for ridership. These characteristics are described in detail on the next pages.

Segment	How do I think and feel and live?	Who am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Cautious Drivers	<p>Cautious Drivers consider the world a dangerous place and are concerned about their and their family's personal safety.</p> <p>Cautious Drivers prefer environments that are comfortable and clean. Being in a dirty place gives them the "heebie-jeebies."</p> <p>Cautious Drivers like to drive their cars. Driving gives them a sense of personal space, and insures their safety and a comfortable environment.</p> <p>Susceptible to influence, they base their decisions on what others are doing. Moreover, they often seek advice before making decisions.</p> <p>Cautious Drivers have many demands on their time and their life is overburdened. They hate wasting time and take steps to manage their time carefully.</p> <p>While holding the same job and living in the same place for many years, Cautious Drivers are optimistic about the future.</p> <p>Cautious Drivers are not highly motivated by life values such as self-fulfillment, a sense of accomplishment, a sense of fun and enjoyment out of life.</p>	<p>Cautious Drivers generally mirror the demographic profile of the target population with a few notable exceptions.</p> <p>While the average age of Cautious Drivers is 43 years, an above-average incidence (61%) is between the ages of 18 and 44.</p> <p>Cautious Drivers are typically high school graduates or have some college education.</p> <p>Cautious Drivers are less affluent than other segments.</p> <p>There is an above average incidence of ethnic minorities in this segment.</p>	<p>Cautious Drivers are generally neutral in their attitudes toward public transportation – that is they find the idea of using transit neither appealing nor unappealing.</p> <p>While this segment rates public transportation most positively overall, they see substantial gaps in transit's ability to deliver the benefits they seek in terms of general travel characteristics.</p>	<p>Current ridership is average – but if Cautious Drivers ride they are the most likely to be frequent riders who use transit to commute.</p> <p>If Cautious Drivers currently do not ride, they are the least likely to have ridden in the past.</p> <p>Cautious Drivers represent moderate potential for ridership in the future.</p>	<p>Cautious Drivers are the most likely to say their commute travel is affected by congestion.</p>

Segment	How do I think and feel and live?	Who am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Silver Treads	<p>Silver Treads like to be in control of their life and schedule their time to stay in control.</p> <p>Despite this need for control, their time is not particularly overburdened.</p> <p>Silver Treads place a high degree of importance on security, being well-respected, and a sense of belonging</p> <p>Conversely, they do not look for stimulation or excitement in their lives.</p> <p>Silver Treads exhibit a high degree of frugality.</p> <p>They are not particularly mobile – having lived in the same area and held the same job for many years.</p> <p>Silver Treads are the least involved with their automobile, seeing it as simply a means of getting to where they need to go.</p>	<p>Silver Treads are more often female (73%) than male (27%)</p> <p>Average age 55 years – highest incidence of those 55 plus.</p> <p>Lowest educational achievements</p> <p>Many are retired. If married, their spouses are also likely to be retired.</p> <p>Consistent with their age, their household size is smaller than average.</p> <p>Silver Treads are a less affluent market segment.</p>	<p>Like Cautious Drivers, Silver Treads are generally neutral in their attitudes toward public transportation – that is they find the idea of using transit neither appealing nor unappealing.</p> <p>Silver Treads place a great deal of importance on being in control, comfortable, and safe when deciding what mode of transportation to use.</p> <p>They see significant gaps between what they need in terms of transportation – control, comfort, and safety – and transit's ability to deliver.</p>	<p>Silver Treads have the lowest incidence of current ridership. If they ride, they ride infrequently (less than once a month) and they taking non-commute trips (e.g., to appointments or special events).</p> <p>Silver Treads suggest relatively low potential for future ridership.</p>	<p>Silver Treads are the least likely to have transit service available from their home to where they work or go to school.</p> <p>This reflects the fact that many live and work in a suburban location.</p> <p>Silver Treads are the least likely to work for an employer who pays for transportation costs for employees who ride the bus.</p> <p>On the other hand, they have some job characteristics that facilitate their use of public transportation. Silver Treads generally work regular hours. However, an above-average proportion works second or graveyard shifts. They rarely or never work overtime. Finally, they generally do not leave work during the day and go straight home from work.</p>

Segment	How do I think and feel and live?	Who am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
<i>Kings of the Road</i>	<p>Kings of the Road are our community and industry leaders. They have confidence in their ability to make things happen.</p> <p>Kings of the Road are not afraid of life and what it will throw at them.</p> <p>They place high degree of importance on a sense of accomplishment</p> <p>Kings of the Road are occupationally mobile – but they are already high achievers.</p> <p>They schedule their time carefully – but not because their time is overburdened.</p> <p>Kings of the Road are the least environmentally conscious segment and the least likely to practice socially responsible consumption behavior.</p>	<p>More often male (56%) than female (44%).</p> <p>Kings of the Road are middle aged. The majority is between the ages of 35 to 64 – their average age is 45 years.</p> <p>Married, many have children in the household.</p> <p>The majority of Kings is employed full-time or is self-employed. They work in professional and technical positions.</p> <p>The most affluent segment, they are generally well educated.</p> <p>Kings of the Road have the highest degree of auto availability. They like to drive and believe that driving gives them time to relax.</p>	<p>Kings of the Road feel decision to use transit is low risk but also relatively unimportant – it is simply something they don't think about.</p> <p>If offered a choice between transit and driving Kings of the Road will always drive – but not because they find transit unappealing.</p> <p>Kings of the Road place the most importance on quality of service and control over one's time when traveling.</p> <p>Moreover, they see the greatest gap between the importance of service / control and transit's ability to deliver.</p> <p>Kings of the Road are least likely to be influenced by pragmatic benefits of using transit – e.g., cost, environment.</p>	<p>Kings of the Road are generally nonriders. Few ride currently and few have ridden in the past.</p> <p>Kings of the Road are the least likely segment to use transit in the future.</p>	<p>Kings of the Road generally live in the suburbs. They are the second most likely segment to say transit service is not available from where they live to where they work.</p> <p>However, they generally commute to downtown locations.</p> <p>While they generally work during regular work hours, Kings of the Road are the most likely segment to work overtime hours or to start or finish work later than regular work hours.</p> <p>Many have to pick up or drop off children on the way to and from work.</p>

Segment	How do I think and feel and live?	Who am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Easygoing Alternatives	<p>Easygoing Alternatives place high importance on excitement, fun and enjoyment of life, and a sense of self-fulfillment. They feel that much that happens in life is a function of luck rather than a function of hard work.</p> <p>Easygoing Alternatives also feel that warm relationships and self-respect are important. They are the most sociable of the market segments.</p> <p>Easygoing Alternatives don't practice a high degree of personal control over what happens in their lives and do not take steps to schedule time carefully.</p> <p>They exhibit the lowest frugality quotient.</p>	<p>More often female (65%) than male (35%).</p> <p>Average age 39 years – above average incidence of those between 25 and 44.</p> <p>If employed, Easygoing Alternatives are employed in professional or technical positions or as managers/administrators. Moreover, they are the most likely segment that if married are members of a two-income household.</p> <p>If they are married, Easygoing Alternatives are the most likely segment to have children at home.</p> <p>Easygoing Alternatives are moderately affluent.</p>	<p>Easygoing Alternatives see the decision to use transit as an important decision. However, they also feel it is high risk and are unsure of transit's ability to perform as they require.</p> <p>If offered a choice, Easygoing Alternatives would sometimes use public transportation.</p> <p>While not particularly demanding in terms of the benefits they seek in the mode choice decision, they see gaps in transit's ability to perform as required.</p>	<p>Easygoing Alternatives are the second most likely segment to have ridden in the past year.</p> <p>Similarly, Easygoing Alternatives exhibit the highest incidence of former ridership.</p> <p>Easygoing Alternatives are the second most likely segment to ride in the future.</p>	<p>Easygoing Alternatives are the most likely to have transit service available from they live to where they work or go to school.</p> <p>The majority works regular hours and only sometimes comes to work early or leaves late.</p> <p>However, they are the most likely to have to drop off or pickup children on the way from work. Often they need to run errands as well.</p>

Segment	How do I think and feel and live?	Who am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Upwardly Modals	<p>Upwardly Modals are both physically and occupationally mobile – moving and/or changing jobs in the past several years. They are likely to be community and industry leaders in the future but in a different way than the Kings of the Road.</p> <p>Upwardly Modals like stimulation and are not uncomfortable in different or unusual situations.</p> <p>Upwardly Modals exhibit a high degree of environmental consciousness and practice the highest level of socially responsible consumption behavior.</p> <p>They place low value on security, a sense of belonging, and being well respected.</p> <p>Upwardly Modals are generally comfortable with themselves and others.</p>	<p>More likely to be men (58%) than women (42%).</p> <p>The youngest segment, their average age is 36 years. An above-average number are between the ages of 18 and 34.</p> <p>They are well educated. An above-average number are currently students.</p> <p>Mostly single. If married, their spouses often work. However, an above-average number are homemakers.</p> <p>If employed, Upwardly Modals are typically working in professional or technical positions or employed as managers and administrators.</p> <p>Upwardly Modals are moderately affluent.</p>	<p>Upwardly Modals are the most likely segment to find the idea of using transit appealing – notably for commute travel.</p> <p>They see the least gaps between what is important in the mode choice decision and transit's ability to deliver.</p>	<p>Upwardly Modals are the most likely segment to have ridden in past year. They also high show the highest incidence of former ridership and/or consideration of using transit.</p> <p>Upwardly Modals are the most likely segment to ride in the future – primarily as commuters.</p>	<p>Upwardly Modals generally have transit service available from they live to where they work or go to school. They are the most likely to work in a central city or downtown area.</p> <p>They are the most likely to work for an employer who pays for transportation costs for those employees who use public transportation.</p> <p>Most likely to work for an employer that allows flexible work hours or allows telecommuting.</p> <p>They frequently come to work early or leave late.</p>

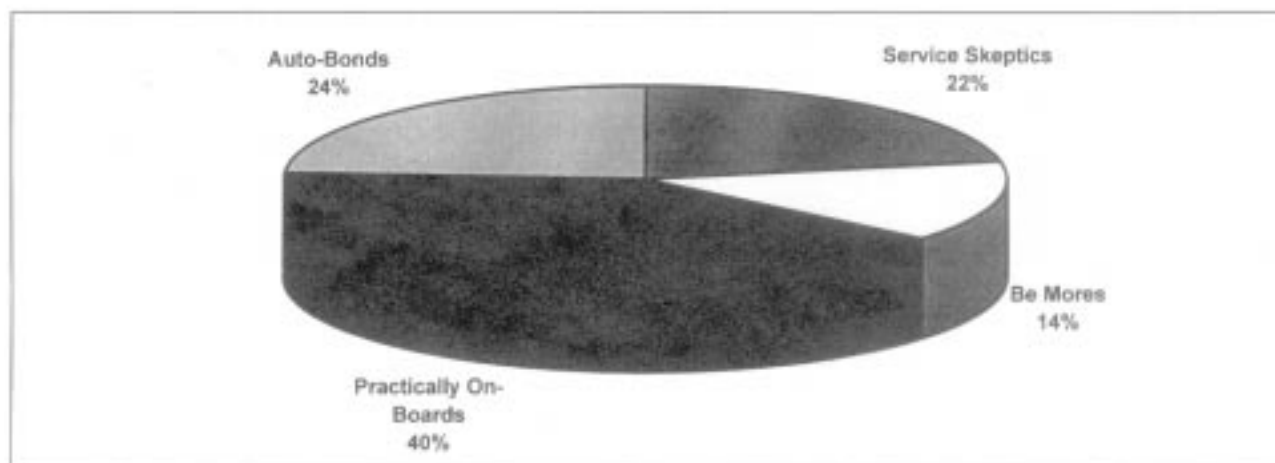
Conducting the Analysis – Benefit Segmentation

An alternative basis for segmentation – benefit segmentation – was also employed. The same criteria set for the psychographic segmentation was used. This analysis consisted of the following steps:

- The questions on the importance of twenty-nine characteristics of mode choice were factor analyzed. Four dimensions were identified. The characteristics that correlated with each dimension and the corresponding descriptors (titles) are shown below.
- **Service / Control:** I can count on it to get me where I am going on time. I can control my own schedule. It is easy to arrange. I am able to get home in an emergency. I am able to come and go when I want. It offers me the flexibility I need for my schedule. It gets me where I am going the quickest way possible. I do not have to change from one mode to another to get to where I am going.
- **Comfort / Safety:** It is comfortable. I have a place to sit. It is clean. I do not have to worry about who is going to sit next to me. I do not have to worry about bad weather. I do not have to worry about carrying packages or parcels. I am assured of my personal safety from crime. I am assured that other people will not bother me. It enables me to arrive at my destination feeling clean and fresh, not dirty or grimy.
- **Pragmatic Benefits:** It is good for the environment. It does not contribute to traffic congestion. It gets me to and from where I want to go without feeling stressed. It does not cost much. It minimizes my risk of getting in a traffic accident. I don't have to worry about wear and tear on my vehicle. I don't have to worry about bad weather.
- **Image:** It is appropriate for a person in my position. It is consistent with the kind of person I am. It gives me the opportunity to be alone to think. It gets me in the right frame of mind for the rest of the day.
- Variables were computed to reflect these overall dimensions. These were then analyzed using Convergent Cluster Analysis.
- Further analysis consisted of basic cross-tabulations and CHAID to better understand the characteristics of the individual segments.

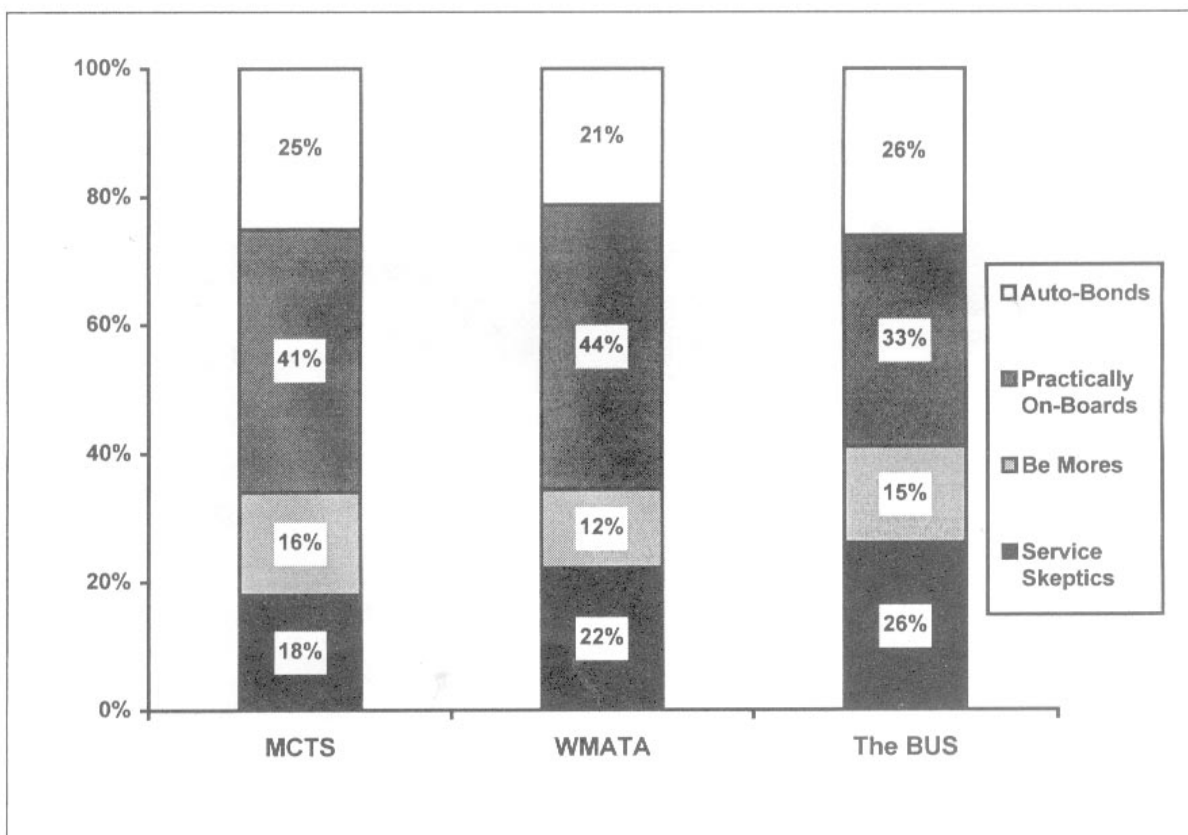


Four benefit segments were identified and are introduced below. The Practically On-Boards represents the largest segment and the greatest potential for transit ridership. Service Skeptics, while a small segment, are supportive of transit and the concept of alternative modes. As their names suggest, the Be Mores and the Auto-Bonds avoid the very idea of using public transportation.



The size of the segments varies by market area. The BUS has an above-average number of Service Skeptics – representing both a problem and opportunity for increasing use of transit and other alternative modes. This may reflect the current level and nature of service in Boise.

On the other hand, the more mature markets – Milwaukee and Washington D.C. – have an above-average number of Practically On-Boards. Washington has greater penetration of choice riders in this segment – 53 percent of Washington D.C Practically On-Boards are choice riders compared with 38 percent of Milwaukee Practically On-Boards.



While the benefits sought clearly define the markets, they also differ in terms of other characteristics including demographics, lifestyles, travel characteristics, attitudes toward transit, and so on.

Segment	What do I want?	Who Am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Service Skeptics	<p>Service Skeptics look for service and flexibility when selecting their transportation mode. However, they are not as extreme in their needs for service and control as the Be Mores.</p> <p>Service Skeptics are the least concerned with image of mode and comfort / safety when choosing a mode.</p>	<p>Service Skeptics are between the ages of 25 and 44.</p> <p>They are highly educated with the highest incidence of post-graduate degrees.</p> <p>Service Skeptics are married and they are the most likely segment to have children at home.</p> <p>Service Skeptics are employed or self-employed – primarily in professional / technical positions.</p> <p>They are the most affluent segment.</p> <p>Service Skeptics are predominantly white.</p>	<p>Service Skeptics find the idea of using transit very or somewhat appealing – more so for work than nonwork travel.</p> <p>They see the decision to use public transportation as important – but risky.</p> <p>If offered a choice, Service Skeptics would sometimes use transit.</p> <p>Service Skeptics see a substantial gap in terms of benefit sought – service and control – and transit's ability to deliver. Otherwise, they do not see large gaps between what they need and what public transportation can offer.</p>	<p>Service Skeptics have considered or used transit in the past.</p> <p>They would need to be convinced to use public transportation in the future.</p>	<p>Service Skeptics have many barriers to future use of transit. They are the least likely to have transit service available from where they live to where they work.</p> <p>They are the most likely to live and/or work in a suburb or suburban city.</p> <p>Service Skeptics are the second most likely to work for employers who pay for parking.</p>
Be Mores	<p>Highly demanding, Be Mores are looking for a high degree of service and control when selecting mode.</p> <p>Comfort and safety is also an important benefit.</p> <p>Be Mores are least concerned with practical aspects of mode choice.</p>	<p>Be Mores profile the population demographically.</p> <p>Be Mores have the highest rate of full-time employment. They may be managers or administrators but are often in blue-collar or hands-on positions / industries.</p> <p>Be Mores are moderately affluent.</p>	<p>Be Mores find the idea of using transit very unappealing.</p> <p>They show the highest preference for drive alone travel.</p> <p>Be Mores see a significant gap in terms of benefits sought and transit's ability to deliver those benefits.</p>	<p>Be Mores are the least likely segment to ride currently.</p> <p>They are unlikely to ride in the future.</p>	<p>Be Mores are the least familiar with and informed about public transportation in their area.</p> <p>They are the most likely to work for employers who pay for parking.</p> <p>Be Mores often leave work during the day to eat lunch or run errands.</p> <p>They are also the most likely segment also to have to pickup or drop off children on the way to or from work and to run errands on the way to and from work.</p>

Segment	What do I want?	Who Am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
<i>Practically On-Boards</i>	<p>Practically On-Boards feel that pragmatic benefits – reducing wear and tear on vehicle, environmental cleanliness, reducing stress, cost – are important when making a mode choice.</p> <p>Practically On-Boards are the least concerned with service / control and safety / comfort.</p>	<p>Practically On-Boards is the oldest segment – average age 46 years. An above-average proportion is 55 and over.</p> <p>Many Practically On-Boards are retired. If employed, they work in clerical or service positions.</p> <p>Practically On-Boards is the least affluent segment. And, they have the lowest auto availability.</p> <p>An above-average number of Practically On-Boards is of diverse heritage.</p>	<p>Practically On-Boards are the most likely to find the idea of using transit appealing – for work and nonwork.</p> <p>They see the decision to use public transportation as important and low risk.</p> <p>However, Practically On-Boards need to be convinced that transit can deliver the pragmatic benefits they demand. This is particularly true for those who currently do not ride and who see a gap between what they want in terms of pragmatic benefits and transit's ability to deliver.</p>	<p>Practically On-Boards have the highest incidence of current riders</p> <p>Moreover, they are the most likely segment to ride in the future – for all types of trips but notably commute trips.</p>	<p>Practically On-Boards are the most familiar with and informed about public transportation in their area.</p> <p>They are also the most likely to say they have transit service available from where they live to where they work.</p> <p>Practically On-Boards typically work in a central city or downtown area.</p> <p>They generally work regular hours and rarely need their car for work-related travel</p> <p>Practically On-Boards are the most likely to suggest that their commute and personal travel is affected by congestion.</p> <p>Many work for employers who subsidize transportation costs for those who use transit.</p>

Segment	What do I want?	Who Am I?	What do I think about public transportation?	How likely am I to use public transportation?	Is it easy or hard for me to use transit?
Auto-Bonds	Auto-Bonds feel strongly that image – mode is consistent with person-image – and personal space – have space or time to think or get ready for the day – are important.	<p>Auto-Bonds generally profile the population demographically.</p> <p>They are the least likely to have children.</p> <p>Like Practically On-Boards, many Auto-Bonds are retired.</p> <p>If employed, Auto-Bonds often work in clerical or blue-collar occupations.</p> <p>Also like Practically On-Boards, Auto-Bonds are somewhat more likely to be members of ethnic minorities.</p>	<p>Auto-Bonds find the idea of using transit very or somewhat unappealing – particularly for work.</p> <p>If offered a choice, Auto-Bonds would drive.</p> <p>They see the decision to use public transportation as unimportant – low involvement. It is simply something they do not consider.</p> <p>Auto-Bonds see a significant gap between benefits sought and transit's ability to fit their self-perception.</p>	<p>Auto-Bonds have the highest incidence of former ridership.</p> <p>They are unlikely to ride in the future.</p>	Auto-Bonds have no factors that notably facilitate or hinder their use of public transportation.

Summary

The required elements of a good segmentation plan include:

- 1) Insuring management involvement and buy-in by ...
 - Involving them early in the process.
 - Keeping them informed.
 - Involving them in any decisions along the way.
- 2) Establishing budgetary constraints by ...
 - Including both in-house and outside vendor costs in analysis.
 - Recognizing cost / benefit tradeoffs (anticipate expected value of research).
- 3) Obtain outside assistance as required. Outside assistance is most likely to be required in the design of the research, data collection, and analysis.
- 4) Establish research objectives that include clear statements regarding the ...
 - Project background.
 - Project purpose.
 - Research objectives.
- 5) Specify target population measurements that clearly describe your customers.
- 6) State relevant definitions regarding ...
 - Market or service area to be included in the study.
 - Key demographic and socioeconomic classifications to evaluate, criteria for determining benefits or lifestyles, and consumption measures that will be included.
- 7) Establish criteria for segmentation viability that ensures ...
 - The market can be **rated**.
 - The market is **realistic** in size.
 - Members of the market can be easily **reached**?
 - Customers will **respond** to marketing initiatives?
- 8) Develop market segments that...
 - Have similar characteristics.
 - Are distinct from other segments..
 - Represent a sizable population.
 - Provide meaningful segment data that is actionable.

- 9) Select the appropriate bases for segmentation by ...
 - Developing the segmentation model.
 - Identifying physical bases – geographic, demographic, geodemographic.
 - Identifying behavioral bases – psychographics, benefits, product use.
- 10) Collect the data by ...
 - Considering the applicability of secondary, primary and syndicated data.
 - Selecting the best method of data collection – telephone or personal interviews.
- 11) Employ appropriate sampling procedures. This generally means using probabilistic or random samples.
- 12) Analyze and interpret the data by following an analysis plan that...
 - Specifies coding and tabulation requirements.
 - Defines the statistical analysis – including multivariate procedures – that will be employed.
 - Uses complex models and advanced techniques only as needed.

Translating Segmentation Findings into Strategy

Using Segmentation Results

The results of a market segmentation study can be informative, insightful, and even fun. Once the segmentation analysis is complete, however, the hard work begins. The real value of segmentation analysis lies in its ability to be translated into actionable strategies. The following example provides an illustration of how one company took the results of research, synthesized and integrated the research with its overall goals and business mission to develop one of the most successful niche airlines in the world.



Consumer mapping, focus groups and annual tracking studies helped Virgin Atlantic Airways attract passengers to the posh service from London to fourteen cities worldwide. Passengers have fun, and arrive relaxed and comfortable.

Virgin Atlantic Airways was an idea that grew from a 1965 magazine aimed at rebellious youths, a discount mail order record business, basement record stores, and a recording studio ... all begun by owner Richard Branson by the time he was 22. Virgin Atlantic began with one Boeing 747 leased for \$4 million, on one daily London-Newark round trip. Virgin said it could make \$25 million the first year, and expected a \$3 million to \$4 million profit. Virgin's low fares matched People Express' on that route. "Friendly competitors," People Express had already sold many of their seats for the summer when Virgin started, and there was still a big demand. Virgin wanted to offer good food, music and films at the lowest possible prices.

Considering Virgin's overall moves, no one decision making or segmentation process stands out, according to Michael Glavin and Taylor Tait at CMG Communications. They combined resources, in priority order:

- Annual tracking studies
- Focus groups
- Syndicated research
- Consumer mapping

The **annual image and advertising tracking** telephone survey of 1,680 respondents monitors airline awareness, airline advertising awareness, and perceptions of / attitudes toward Virgin Atlantic and its competitors in the U.S.-London travel market. The survey includes images describing travel behavior and demographics, as well as carriers (airlines). The study uses a sample from Plog Research's Travel-TRAK / USA database of 500,000 air travelers, rather than random digit-dialing.

Last year, Virgin was pleased that 82% of flyers knew that Virgin flies to London. But unaided awareness of Virgin was low (28%) and declining. Facing significant product improvements and massive ad campaigns (\$160 million in the category) by British Airways, American Airlines and United Airlines, Virgin found that its initial low-fare positioning affected the present attitudes of frequent business-class travelers. In focus groups, they said that "people like them did not fly on Virgin." With profitability linked to Upper Class® service, the challenge was whether Virgin could break from its backpacker / low-fare heritage and be fully embraced by business travelers. Here is the Virgin Atlantic / CMG experience:

"TURNING BACKPACKS INTO BRIEFCASES"

GOALS: To elevate the stature of Virgin, CMG Communications set out to increase brand and advertising awareness, increase familiarity with the Upper Class® product, increase business travelers' approval or "Airline-for-Me" ratings, and turn these into trial and subsequent profit.

TARGET AUDIENCE: Three-quarters of Trans-Atlantic business travelers were men ages 35 to 54 with household incomes of \$75,000+ who flew business or first class and were "married" to frequent flyer programs. Interestingly, they had low service expectations.

CREATIVE STRATEGY: *"Show them the product. Make them smile."* Enhance Virgin's image as an innovative leader among jaded international business travelers. To creatively link messages in all media, Virgin used the theme, "Instead of traveling to a culture, travel *in* a culture." Specific services such as drive-through check-in and in-flight massage were shown in high quality images to portray the "Virgin Culture." Focus groups showed that this changed the perceptions of travelers who knew about Virgin, but had rejected trial of the airline. Seeing is believing.

MEDIA STRATEGY: *"Go big. Or don't bother wasting the money."* With only a 5% "share of voice" (advertising in its competitive set), Virgin revised its \$8 million budget. It sacrificed radio -- a previous media cornerstone -- in favor of cable and spot TV in 45-, 30- and 15-second increments, and ran cover gatefolds in the magazines used by "the big guys" (mega-carriers.) They also used newspaper, direct mail, point-of-purchase and travel industry events.

EVIDENCE OF RESULTS: The most important increases related to familiarity and a shift in the perception that Virgin is "appropriate for me" among those in target market segment. Those who were familiar with Virgin increased 70% (19 points) and those who rated Virgin highly increased 42% (16 points.) In 1997, Virgin had the highest load factor on the Atlantic and the most profitable year in its history.

Focus groups were used to explore attitudes found in the annual tracking survey and evaluate the impact of advertising. Heavily used in brand management, focus groups are helpful in concept development, testing and evaluation.

Syndicated research such as Simmons Market Research Bureau helps analyze product and media usage through magazine data. Other examples are *FIND / SVP* which monitors most publications and provides articles according to subject; and *Tab-It*, demographic profiles for product categories. To study competitors' activities and buy media, ad agencies typically refer to: *Arbitron*, local television and radio ratings; *Nielsen*, national and local ratings by demographic definitions; *Mediamark Research, Inc.*, product and media usage; *Scarborough*, demographic and product usage habits of media audiences; *Leading National Advertisers' Adspender*, all expenditures in ten major markets; *Broadcast Advertiser Reports*, competitive television activity; and *Publishers Information Bureau*, competitive print activity with geographic scope.

Consumer mapping is a geodemographic system that uses census data and consumer purchase records to classify cities into distinct clusters. By geographically charting the preferences for products and ideas, and seeing the courses of trends and even fads over time, one gets an idea of what consumers will buy tomorrow and can give consumers what they want even before they know they want it, according to Michael Weiss, author of *Latitudes & Attitudes* and *The Clustering of*

America. PRIZM™ (potential rating index by zip markets) from Claritas and ClusterPlus from Donnelley are examples of syndicated research relating to consumer mapping, combining lifestyle and demographic information using geographic (census tract or zip code) divisions. Virgin develops "Heat Sensitive Maps" with demographic, psychographic and purchase behavior information showing the propensity to travel to the U.K., and ranking zip codes in its U.S. gateway markets.

Created around a core philosophy of innovation, value for the money and the idea that flying should be fun, Virgin is way ahead of the concept of consumer orientation ... focusing not simply "on the passenger" but rather on *how passengers feel when they step off the plane -- relaxed and comfortable*. Identifying with gracious British hospitality, Virgin Atlantic aims to offer the highest quality service in the world at competitive prices. Economy class is a superb value, but almost all the profits come from Virgin's posh Upper Class® service.

Today, Virgin's 20 long-haul aircraft fly nonstop, London to seven "gateway" U.S. cities -- New York / Newark, Boston, Washington D.C., Orlando, Miami, Los Angeles and San Francisco -- and South Africa, Greece, Japan and Hong Kong. In 1995 there were 8,000 departures with an overall load factor of 77% (percentage of available seats sold.) Weathering the industry's most troublesome years (and the demise of Pan Am, Braniff, British Caledonian and People Express) Virgin Atlantic has emerged as Britain's second largest long-haul passenger and freight carrier, with 5,000 employees helping more than two million passengers each year in business and leisure markets. Virgin Atlantic has received top awards from Travel Weekly, Executive Travel Magazine, Business Travel World, World Airline Entertainment Assn. and Business Traveller Magazine. It has been "Best Airline of the Year" six years in a row and received awards for Best Transatlantic Airline, Best Business Class, Best Advertising Campaign, Best In-flight Entertainment, Best In-flight Magazine (*Hot Air*), Best In-flight Video and Best Check-in Ground Staff.

The remainder of this chapter explores strategies for incorporating the results from market segmentation research into your decision-making. Hypothetical and real-life examples illustrate the process. Worksheets are provided to aid your agency in your own strategic planning.

A Three-Step Process

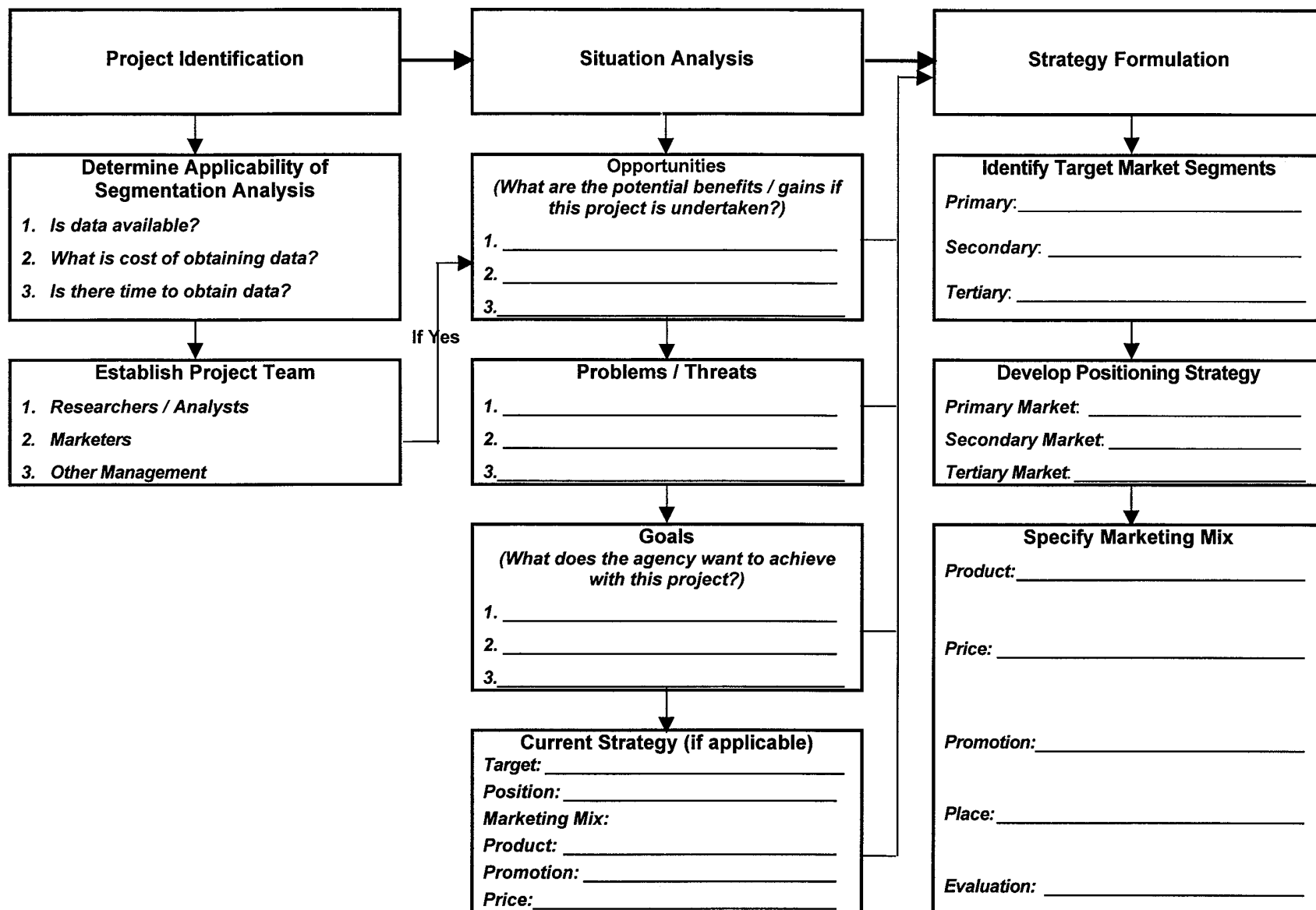
A simple three-step process can be used for strategy formulation.

- 1) **Identify the project or decision.** Consider projects or decisions your agency is presently considering and determine whether segmentation analysis is appropriate for that project or decision. Some examples of projects for which segmentation analysis might be considered include: new services, special promotions, pass or other fare media programs, advertising, special events, passenger information services, direct mail campaigns, guaranteed ride home programs, etc. Once the project or decision is identified, the following sub-tasks should be completed.
 - a) **Determine the applicability of segmentation analysis to this project.** Look first to see if segmentation data is available at your agency to see if segmentation analysis can be readily applied to this project or decision. If not, look to see if secondary data is available. If data is not available, determine the value of collecting this information compared with the overall cost of the project or the inherent risk in the decision. While segmentation analysis is appropriate to nearly any project or decision, consider also whether there is any value – given the potential costs and or time required to use segmentation analysis – to applying segmentation analysis to this effort.
 - b) **Create a project team.** If segmentation analysis proves applicable to this situation, establish a team of researchers, analysts, marketers, service planners, and other management personnel as appropriate to collect, analyze, interpret, and use the data.
- 2) **Conduct a situation analysis.** If it is determined that segmentation analysis is applicable to this project, the project team should first conduct a situation analysis. This step involves taking a step back and examining why your agency is considering this project or undertaking this decision. It is both a fact-finding and decision-making process. This is not an easy task. As Hal W. Goetsch, former director of marketing for the American Marketing Association, points out, "Even when a conscientious effort is made to see the situation objectively, the focus can be blurred by tradition, unquestioned procedures, personalities, manipulated programs, corporate politics, indifference, or laziness. Too often the picture is faulty because facts are missing, guesses are not reliable, or important elements of the marketing environment have been ignored or overlooked." The situation analysis represents an opportunity for your agency to break out of the box and to look at the project or decision in different ways. Dare to be different! The following elements are part of a good situation analysis.
 - a) **Identify opportunities.** Ask yourself and members of the project team about the potential benefits or gains to the agency if this project is undertaken.
 - b) **Examine problems / threats.** Conversely, outline the potential problems or threats that may be encountered. Ask if the opportunities outweigh the problems. Or, can the problems / threats be overcome?
 - c) **Establish goals.** Specify what the agency wants to achieve with this project. These goals should be the marketing results sought by management. This process is useful in providing direction – that is determining what you want to accomplish – motivating staff – identifying what you should be accomplishing – providing a timetable for implementation – noting if you are on schedule – and measuring performance – evaluating whether or not you are meeting your goals. Examples of goals are increased ridership, inquiries, awareness / recognition; attract new riders; reduce churn / turnover of existing riders, etc. These goals should be specific, measurable, and time-oriented. Furthermore, the goals should be realistic, objective, clear, and concise.
 - d) **Evaluate current strategies.** If this is an existing project, time should be taken to examine current strategies in light of the opportunities, problems / threats, and goals explored above. Carefully outline and evaluate your current target market selections, the positioning strategy – key message – employed, and the marketing mix – product, promotion, price – that is being explored. If your existing strategy has had an evaluation or control function, carefully evaluate the data that is available from this process. If this function was not in place, other sources of data may need to be used.

3) **Formulate strategies.** If the situation analysis indicates that this project is worth pursuing, the next step is to formulate the strategies to employ. If this is an existing project, this may involve a revision or complete overhaul of existing strategies. For new projects, you are operating from a clean slate. As noted in the situation analysis, be creative. Try looking at the results of your segmentation analysis in different ways. Brainstorm – don't reject ideas simply because your agency has never done it that way before. The bold new approach may be critical to attract those customer segments that have been resistant but through segmentation analysis have indicated they can be reached – with just a little more effort. The strategy formulation process entails the following three steps:

- a) **Identify target market segments.** The first major strategic decision is to select from the alternative market segments one or more groups you want to target for marketing activities. Each of the individual segments needs to be evaluated on its own merits and in conjunction with the capabilities and environmental situation surrounding the agency. Such an evaluation will pinpoint the different options that exist and the degrees of attractiveness these options have for the agency. Although several segments may be worth pursuing, the agency must balance multiple factors in making the final decision as to which segment(s) to ultimately pursue. This list might include the internal environment of the agency (financial and other resources), the external environment, an assessment of opportunities versus problems, and agency objectives. A measure of segment potential can then be determined. The question that should be asked now is, "How will this target audience contribute to the achievement of the marketing objective?" At this point, the agency should have a good idea which market segments should be targeted.
- b) **Position the segments.** The second step in strategy formulation is to formulate a unique marketing strategy to appeal to the target segment(s) you are trying to reach. The basic premise behind positioning is that the agency must have a specific advantage when serving this target segment. These advantages can be real or perceived. Positioning is the combination of sound marketing decision-making – based on research – and creativity. Careful consideration of the characteristics of each market segment will enable you to identify the position that is most likely to have the greatest relevance, as well as originality and impact.
- c) **Specify the marketing mix.** The overall marketing strategy employed – which includes the manipulation of the marketing mix (or 4-Ps) – is based on the target market(s) selected and the positioning strategy that will be employed. Product, promotion, price, and place (distribution) are the "architectural drawing" of strategy. For maximum effectiveness, they should be based on the segmentation analysis, as well as other strategic variables – company resources, management's values and policies, potential risk and return, etc. Strategies are the way in which market operations will be conducted before actual implementation. Strategies should be developed with full consideration of all other strategies. There must be consistency and compatibility among all strategic elements. Tactics – short-term strategies – are the "nuts and bolts" of the plan. Tactics consist of marketing initiatives such as advertising budgets, media schedules, route plans, etc. At this point in the process, the plan for your project is laid out. Will it work? To gauge the success of the project, the plan must be executed and then evaluated. Control and evaluation measures – to check whether specific objectives are being met, variances in performances have occurred, efforts are on schedule, and changes are prescribed – should be an integral part of this strategy formulation process.

The following figure illustrates this three-step process.



More on Selecting Target Markets

Selecting the target markets can be an exciting and insightful process. As you undertake this process ask yourself the following questions:

- 1) **To whom will this project be targeted?** The primary target selected should include all those who might be responsive to the project and what is being offered. Typically, one market is likely to be most responsive.
- 2) **Are there important niche segments that might account for significant responses?** When you selected your primary target, you should have focused on one segment over other possible targets. However, if you have sufficient resources, you may wish to examine the idea of also addressing one or more other market segments. This may be one of the other broad segments you have defined or a specific niche within one of these larger segments. Each may or may not require separate strategies which will then require additional resources. When looking at these secondary targets consider the following:
 - a) Can the secondary target represent an important source of ridership or other gain?
 - b) Is this target segment reachable through targeted means?
 - c) Would the positioning strategy employed for this audience be compatible with the main positioning strategy employed for the primary target?
 - d) Would the funds needed to reach this target not be better spent elsewhere – against the main target?

If you answered "yes" to all the first three questions and no to the last question, you should probably develop a strategy or strategies to address secondary consumer targets.

- 3) **What is this target like as a person?** Most important, what feelings, attitudes, and beliefs does this target hold about your proposed project? It is easier to develop strategies if one can visualize the audience. An insightful answer to this question will contribute decisively to the relevancy, originality, and impact of the final strategies. The description should include all known likes and dislikes, ambitions, concerns, attitudes, etc. And, most important from a strategic point of view, it should include the known ideas, attitudes, and beliefs that relate the individual to the proposed idea. If there are beliefs or attitudes that must be altered, these should be identified explicitly.
- 4) **What action do you want your target to take?** By specifying the action you want to cause, you can create a more focused strategy. This focus will lead to strategies with more relevance and more impact than vague references to desirable or remote goals such as "improve the image," "change attitudes," or "increase ridership."
- 5) **What action will that action replace?** In trying to persuade the target to take a particular action, what you are really asking them to do is to perform this act instead of doing something else. A complete statement of what the target is to do will always include explicit recognition of the source of that action – of what the prospect might have done instead.

Worksheet #1 should prove helpful in identifying your target market segment(s) – Steps 1 and 2. Complete one worksheet. The second worksheet will help you better understand your selected target markets – Steps 3 through 5. Complete one worksheet for each target market.

Worksheet # 1 – Identifying Target Markets																	
<p>Step 1: Identify Market Segments <i>(List all applicable market segments from the market segmentation study.)</i></p> <p>Market Segment A: _____ <i>(segment name)</i></p> <p>Market Segment B: _____ <i>(segment name)</i></p> <p>Market Segment C: _____ <i>(segment name)</i></p> <p>Market Segment D: _____ <i>(segment name)</i></p> <p>" " : _____ <i>(segment name)</i></p>																	
<p>Step 2: Select Primary Market Segment <i>(Select the key segment for this marketing activity.)</i></p> <p>Primary Segment: _____ <i>(segment name)</i></p>																	
<p>Step 3: Identify / Evaluate Other Market Segments</p> <p>Secondary Segment: _____ <i>(segment name)</i></p> <table style="width: 100%; margin-top: 20px;"> <thead> <tr> <th style="width: 70%;"></th> <th style="width: 15%; text-align: center;">Yes</th> <th style="width: 15%; text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td>Can the secondary target represent an important source of ridership or other gain?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Is this target segment reachable through targeted means?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Would the positioning strategy employed for this audience be compatible with the main positioning strategy employed for the primary target?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Would the funds needed to reach this target not be better spent elsewhere – against the main target?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>				Yes	No	Can the secondary target represent an important source of ridership or other gain?	<input type="checkbox"/>	<input type="checkbox"/>	Is this target segment reachable through targeted means?	<input type="checkbox"/>	<input type="checkbox"/>	Would the positioning strategy employed for this audience be compatible with the main positioning strategy employed for the primary target?	<input type="checkbox"/>	<input type="checkbox"/>	Would the funds needed to reach this target not be better spent elsewhere – against the main target?	<input type="checkbox"/>	<input type="checkbox"/>
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Would the funds needed to reach this target not be better spent elsewhere – against the main target?	<input type="checkbox"/>	<input type="checkbox"/>															

Worksheet # 2 – Understanding Your Target Market Segment Name: _____	
Step 1: What is this target like as a person?	
Demographics:	_____
Psychographics:	_____
Lifestyle:	_____
Attitudes:	_____
Current Ridership:	_____
Barriers to Ridership:	_____
Other Characteristics:	_____
Step 2: What action do we want our target to take?	
Desired Action:	_____
Step 3: What action will that action replace?	
Current Action:	_____

More on Positioning

Positioning is a key strategic concept in modern marketing theory and practice. It refers to the problem of differentiating one's own product or service from other competing entries in the marketplace.

At its most basic level, positioning is the development of the value proposition, the statement of how the agency proposes to deliver superior value to customers. Positioning is the communication about the product or service, not the product or service itself. This is evident in the classic definition of position by the authors who popularized the term, Al Ries and Jack Trout:

Positioning starts with a product. A piece of merchandise, a service, a company, an institution, or even a person. Perhaps yourself.

But positioning is not what you do to a product. Positioning is what you do to the mind of the prospect. That is, you position the product in the mind of the prospect.

So it is incorrect to call the concept "product positioning." You're not really doing something to the product itself.⁵⁷

Positioning is the strategic decision-making, the analytical, conceptual, and creative processes that lead to the positioning statement. The positioning statement – or value proposition – puts the concepts into words and performs two critically important functions:

- It becomes the selling proposition to your potential customers, the reason why they should use the service or act in a certain way rather than another.
- It communicates to the whole organization a sense of specific purpose or direction, coordinating their efforts toward the overarching common purpose of creating a satisfied customer.

The search for a positioning theme around which your strategy can coalesce requires four steps:

- 1) Identify alternative positioning themes.
- 2) Screen each meaningful alternative according to whether it is meaningful to customers, is feasible given your agency's competencies and customer perceptions of what the agency is capable of achieving, and is helpful in meeting long-term performance objectives.
- 3) Choose the position that best satisfies the criteria, and generates the most enthusiasm and commitment within the organization.
- 4) Write and communicate the positioning statement throughout the organization.

A well-written value proposition or positioning statement has three parts.

- 1) Who is the target customer?
- 2) Why should the customer act in the proposed way? The "Why?" part of the positioning statement is the familiar problem of defining the benefits for the customers and the reasons why acting in the proposed way will deliver those benefits.
- 3) What are we selling? The "What?" part of the value proposition is the most basic, most challenging, and most interesting part of the problem – specifying the service concept, exactly what is being offered. It must be defined from the point of view of the customer.

The following worksheet will help your agency work through this process.

⁵⁷ Al Ries and Jack Trout, *Positioning: The Battle For the Mind*. (New York: Warner Books, 1986) pg. 2.

Worksheet # 3 – Positioning		
Step 1: Identify Positioning Themes		
Theme #1: _____	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>
Is it meaningful to customers?	<input type="checkbox"/>	<input type="checkbox"/>
Is it feasible given your agency's competencies and customer perceptions of what the agency is capable of achieving?	<input type="checkbox"/>	<input type="checkbox"/>
Is it helpful in meeting long-term performance objectives?	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>		
Theme #2: _____	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>
Is it meaningful to customers?	<input type="checkbox"/>	<input type="checkbox"/>
Is it feasible given your agency's competencies and customer perceptions of what the agency is capable of achieving?	<input type="checkbox"/>	<input type="checkbox"/>
Is it helpful in meeting long-term performance objectives?	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>		
Theme #3: _____	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>	<div style="text-align: right; padding-right: 10px;">Yes</div> <div style="text-align: right; padding-right: 10px;">No</div>
Is it meaningful to customers?	<input type="checkbox"/>	<input type="checkbox"/>
Is it feasible given your agency's competencies and customer perceptions of what the agency is capable of achieving?	<input type="checkbox"/>	<input type="checkbox"/>
Is it helpful in meeting long-term performance objectives?	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>		
Step 2: Select the Positioning		
Theme #____: _____		
<hr/>		
Step 3: Write the Positioning Statement – Value Proposition		
Who is the target? _____		
Why should they act? _____		
What are we selling? _____		

More on Strategy Formulation

Ideally, market segmentation findings can be readily translated into workable strategies. But, this is not always the case and the strategy formulation process is not easy. Although strategy formulation begins with data, strategy development also requires a good deal of experience, creativity and common sense.

Specific strategies and tactics must be adapted to particular market segments. Worksheet #3 provides a model for identifying important strategic issues and capitalizing on them. If you have gone through the three-step process described, this worksheet should be easy to complete using your existing information. The focus then becomes strategy development.

Formulating a marketing plan is the recommended next step. A formal, written marketing plan helps to remedy any potential lack of focus. The advantages for the agency in having a marketing plan include:

- It helps to produce desired results by giving your agency direction and organization.
- It is an excellent planning and control tool. Results can be easily compared to the forecast.
- It is a useful management tool. A wealth of information is available at your fingertips.

A marketing plan does not have to be a lengthy or complex document. The goal is to produce a consistent, information-based document with synergism created among all of its components. Such a project can be implemented, and then monitored for performance. The five required components of a good marketing plan include:

- **Step 1: Market / Situation Analysis.** Includes an overview of the results of any market research that is applicable, a competitive analysis, and an assessment of uncontrollable factors.
- **Step 2: Marketing Objectives.** These must be consistent with your agency mission and overall goals. Moreover, they must be specific.
- **Step 3: Strategy Formulation.** This involves identifying the target markets, selecting a positioning strategy, and specifying the marketing mix.
- **Step 4: Implementation.** Here, plans become actions. This should include assignments for coordination of all efforts.
- **Step 5: Evaluation.** During this ongoing process, one assesses performance relative to objectives and goals. Strategies and tactics are revised as necessary.

Worksheet # 4 – Strategy Formulation Worksheet Segment Name: _____															
Opportunities 1. _____ 2. _____ 3. _____															
Problems / Threats 1. _____ 2. _____ 3. _____															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center; padding: 5px;">Goals</th> <th style="width: 50%; text-align: center; padding: 5px;">Marketing</th> <th style="width: 50%; text-align: center; padding: 5px;">Financial</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1. _____</td> <td style="padding: 5px;">1. _____</td> <td style="padding: 5px;">1. _____</td> </tr> <tr> <td style="padding: 5px;">2. _____</td> <td style="padding: 5px;">2. _____</td> <td style="padding: 5px;">2. _____</td> </tr> <tr> <td style="padding: 5px;">3. _____</td> <td style="padding: 5px;">3. _____</td> <td style="padding: 5px;">3. _____</td> </tr> </tbody> </table>				Goals	Marketing	Financial	1. _____	1. _____	1. _____	2. _____	2. _____	2. _____	3. _____	3. _____	3. _____
Goals	Marketing	Financial													
1. _____	1. _____	1. _____													
2. _____	2. _____	2. _____													
3. _____	3. _____	3. _____													
Positioning Strategy: _____ _____ _____															
Marketing Mix Strategies: Product Promotion Price Place	Present Strategy	Recommended Strategies	Potential Impact												
Marketing Mix Tactics: Product Promotion Price Place	Present Tactics	Recommended Tactics	Potential Impact												
Evaluation / Control Measures: 1. _____ 2. _____ 3. _____															

Examples

The following examples are meant to illustrate how the above process can be applied to specific situations. Examples were chosen that are similar to projects that many agencies have or have considered undertaking.

A Direct Mail Campaign Using Psychographic Segmentation

Agencies frequently use direct mail campaigns to introduce new routes and/or to announce route changes. Use the three-step process and the psychographic segmentation schema, the following direct mail campaign was developed.



Identify Project: "Direct Mail By Route"

Situation Analysis

Opportunities: What are the potential benefits / gains if this project is undertaken?

- Increase Awareness
- Attract new riders within walking distance
- Build and use a database (with home and destination locations, route numbers)
- Reward current riders

Problems / Threats: What potential barriers / problems may be encountered?

- Theft of home delivery with free-ride coupons
- Throw-aways
- Resent receiving mail (for privacy, green, or less-government reasons)
- Overwhelming service capacity by system-wide mailing
- Revenue "loss" from free-ride tickets
- Tickets presented for redemption forever after

Goals: What do we hope to achieve with this effort?

- Build ridership in Easygoing Alternatives and Upwardly Modals segments.
- Going beyond awareness, be more top-of-mind in Cautious Drivers' and other Avoider segment perceptions and merit their high approval scores
- Give great service through communications to everyone and to specific audiences.

Current Strategies: How have we approached projects like this in the past?

Target: Residents within walking distance of selected routes.

Position: Did you know where you might go on your neighborhood service?

Marketing Mix:

Product: Specific route and connections.

Promotion: Postcards to neighborhoods near routes or envelope with a promotional piece with timetables, maps and free-ride tickets.

Price: Promotional free-rides typically for one ride. Same regular price.

Evaluation: Ridership counts Total returned coupons Evidence suggests limited success with these promotions

Strategy Formulation

Target Market(s)

Primary Market: Routes with high incidence of Upwardly Modals

Secondary Market: Routes with high incidence of Easygoing Alternatives

Tertiary Market: Routes with high incidence of Cautious Drivers

Position

Get up and go

Marketing Mix

Product: No change. Insure that routes are not selected that could be overwhelmed if ridership increases

Promotion: **Introductory newspaper ad** saying if you live near a route, look for your invitation to *get up and go*.

Postcards with mail-back opportunity (see example)

Create and add responses to database.

Use database for future mailings about (1) the route; (2) all alternative-mode services near home; (3) all alternative-mode services near destination; (4) system-wide service and price changes.

Include 10 free rides – significant enough offer to create value.

Price: Promotional free rides. Same regular price.

Evaluation: Ridership increases by route segment / date
Returned coupons by route segment / date
Recall / opinion / use survey cross-tabulated according to segmentation. Ask about attitudes and whether tried riding because of mailing / free-ride tickets.

See yourself receiving **twenty free** Metro trips by completing this coupon.
Please send my New Rider kit and free Metro sample to:

1. Name _____

2. Home Address (no P.O. box, please) _____

3. City _____

4. Zip _____

5. What is your age:

☐ a) 16-19

☐ c) 25-34

☐ e) 45-54

☐ g) 65 or older

☐ b) 20-24

☐ d) 35-44

☐ f) 55-64

6. In the last 30 days, how many one-way rides have you personally taken on a Metro bus, not counting rides entirely within the downtown Seattle Ride Free Area.

☐ a) 5 or more rides

☐ b) 1-4 rides

☐ c) zero rides

7. I will use the free Metro tickets to ride to/from:

☐ a) work

☐ c) appointments

☐ e) fun/recreation/social

☐ b) school

☐ d) shopping/errands

☐ f) other

8. Help us send you trip information by providing the address of your primary destination:

Offer limited to one resident of the household to which this coupon was addressed. Photocopies or facsimiles of this coupon are not valid. Coupons postmarked after November 30, 1997 will not be honored.

Service to a Special Event Using Benefit Segmentation

Agencies frequently run special services during special events. All too often, little is done to take advantage of the ridership on these special services and institute methods to convert this special ridership to occasional or even regular ridership. Using the three-step process and the benefit segmentation schema, the following program was developed.



Identify Project: "Service to Local Special Event"

Situation Analysis

Opportunities: What are the potential benefits / gains from this project?

- Increase awareness
- Attract and retain new occasional or frequent riders
- Build relationships / familiarity with many who ride only for occasions
- Build and use a database (with home and destination locations)

Problems / Threats: What potential barriers / problems may be encountered?

- Cost of providing service
- Costs of training
- Costs of public information in a much larger area than the service district
- Revenue "loss" from future free-ride tickets

Goals: What do we hope to achieve with this effort?

- Increase awareness of service and quality / availability of service
- Increase ridership counts
- Attract new, permanent riders
- Build relationships with occasional riders as "supportive constituents"

Current Strategies: How have we approached projects like this in the past?

Target: Anyone attending festival

Position: Get from parking to festival easily

Marketing Mix:

Product: Special routes created for festival
Relatively frequent
Circulating between fixed park-and-ride lots and central location at festival

Promotion: Sometimes none
Limited newspaper or radio in conjunction with festival advertising

Price: Free or nominal (\$0.25 to \$0.50) charge

Evaluation: Ridership counts

Strategy Formulation

Target Market(s)

Primary Market: Service Skeptics

Secondary Market: Practically On-Boards

Position "It's a sure, quick ride."

Marketing Mix

Product: Two service offerings:
Regular service circulating between fixed park-and-ride lot and festival event. Service would circulate every 30 minutes to 1 hour.
Premium service circulating between fixed park-and-ride lots and festival event. Would serve people who have elected to park in set aside / reserved parking rows. Very frequent service – guaranteed wait of no more than 10 minutes between buses.

Price: Regular service – free or regular cash fare Premium service – \$1.00 per person or double cash fare.

Promotion: **Newspaper and radio advertising** announcing service.
Ambassadors at park-and-ride lots or festival event to assist riders with service, answer other questions about service, distribute promotional postcards for future riding.
Postcards with mail-back opportunity (see previous example). Also, includes one free ride coupon for future ride or one free gate ticket to the event.
Create and add responses to database.
Use database for follow-up mailings about (1) regional services; (2) all alternative-mode services near home; (3) all alternative-mode services near destination; (4) system-wide service and price changes.
Include in follow-up mailing 10 free rides – significant enough offer to create value.

Evaluation: Ridership at festival Returned coupons by route segment / date Recall / opinion / use survey cross-tabulated according to segmentation. Ask about attitudes and whether tried riding because of mailing / free-ride tickets.

Two Real Life Applications

Between the time the segmentation research was completed and the development of this handbook, two of the participating agencies have had the opportunity to make use of this data and to use the data in implementing a specific project. In both situations, the data was applied to the development of a marketing communications campaign. This is not to say that this type of research is only useful for these types of applications. Rather, this is simply a function of the amount of time – approximately four months – that was available between the time the segmentation research was completed and this handbook was developed. Application of this research is equally applicable to the development of new products or services, planning new routes, or developing new fare media. These latter types of projects, however, usually take longer to implement because of the amount of capital investment and other factors that are involved.

Development of a Ridership Campaign – Southeast Wisconsin

The Wisconsin Department of Transportation (WisDOT) joined with four transit systems – the Milwaukee County Transit System, the Racine Belle Urban Transit System, the City of Kenosha Transit System and the City of Waukesha Metro Transit System – to create a regional marketing program in Southeastern Wisconsin. As part of this initiative, considerable research was conducted. Moreover, Milwaukee County Transit System participated as one of the sites in this TCRP research effort. The following represents the use of this combined research in the development of a ridership campaign.



Target Market(s)

Primary Market: Upwardly Modals

Secondary Market: Easygoing Alternatives

Position

You Can Catch All Day Passes

Strategy

Product: No change.

Promotion: Radio and newspaper advertising.

::: RADIO COPY :::

SE Wisconsin Transit Partners
PARTNERSHIP – 701 :60
"Catching Passes TW"

April 21, 1997
REVISED 5/01/97

MUSIC: (TV Music)

ANNCE: I'm here on the bus with a couple of pretty darn good pass catchers – Antonio Freeman and Mark Chmura – talking about, what else, catching passes.

MARK: When you run good routes, you're wide open.
FREE: Then you catch passes all day.
MARK: Just like your bus company.
FREE: And this Wednesday and Thursday you can catch an all day pass.
MARK: Just a dollar fifty
FREE: There's the Z-option to work.
MARK: 2-Jet Scat Hang to school.
FREE: A Rover Blast to the Mall.
MARK: Then X Hitch Post home.
FREE: All day, all over – a dollar fifty.

ANNCE: So if you're in Milwaukee, Waukesha, Racine, or Kenosha, you can ride the bus all day

FREE: ... this Wednesday and Thursday ...

ANNCE: Wednesday, May 14 OR Thursday May 15 for how much?

MARK: Just a dollar fifty.

ANNCE: A buck fifty, unlimited rides?

MARK: All day long. All over.

ANNCE: For routes and schedules call ...

MARK: Your bus company.

ANNCE: Get your All Day Pass when you hop on board. That's a super deal.

FREE: Your bus.

MARK: All day, all over – a dollar fifty.

FREE: Catch one.

::: RADIO COPY :::

SE Wisconsin Transit Partners
PARTNERSHIP – 702 :60
"Catch Today THUR"

April 21, 1997
REVISED 5/01/97

MUSIC: (TV Music)

ANNCE: I'm here on the bus with a couple of pretty darn good pass catchers – Antonio Freeman and Mark Chmura – talking about, what else, catching passes.

MARK: When you run good routes, you're wide open.
FREE: Then you catch passes all day.
MARK: Just like your bus company.
FREE: They run lots of routes ...
MARK: all over town
FREE: in all kinds of traffic
MARK: right on time.
FREE: And this Thursday you can catch an all day pass.
MARK: Just a dollar fifty.
FREE: There's the Z-option to work.
MARK: 2-Jet Scat Hang to school.
FREE: A Rover Blast to the Mall.
MARK: Then X Hitch Post home.
FREE: All day, all over – a dollar fifty.

ANNCE: So if you're in Milwaukee, Waukesha, Racine, or Kenosha, you can ride the bus all day today for how much?

MARK: Just a dollar fifty.

ANNCE: A buck fifty, unlimited rides?

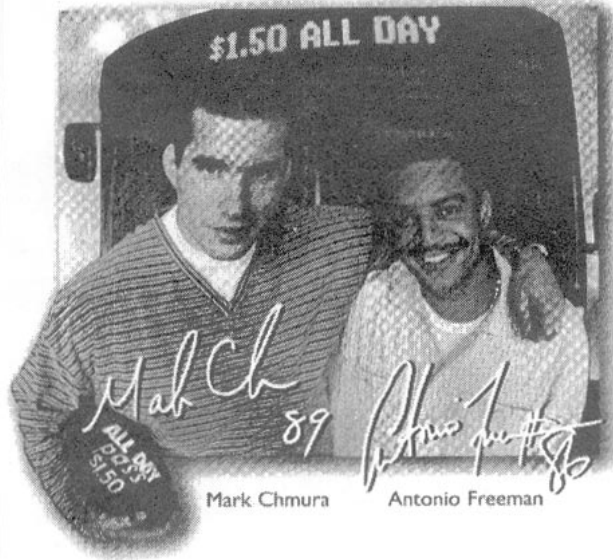
MARK: All day long. All over.

ANNCE: For routes and schedules call your bus company and get your "All Day Pass" when you hop on board. That's a super deal.

FREE: Your bus.

MARK: All day, all over – a dollar fifty.

ANNCE: Catch one today.



"Catch
passes
all day."

This Wednesday and Thursday, you can ride the bus
all day, all over town – for just \$1.50 a day, all day.
One pass, one fare, every route.



Simply pick up your All Day Pass when you hop on board. Then take unlimited rides, all day long.



To work, to school, to the mall, to visit friends – and home again – all day, all over, \$1.50.

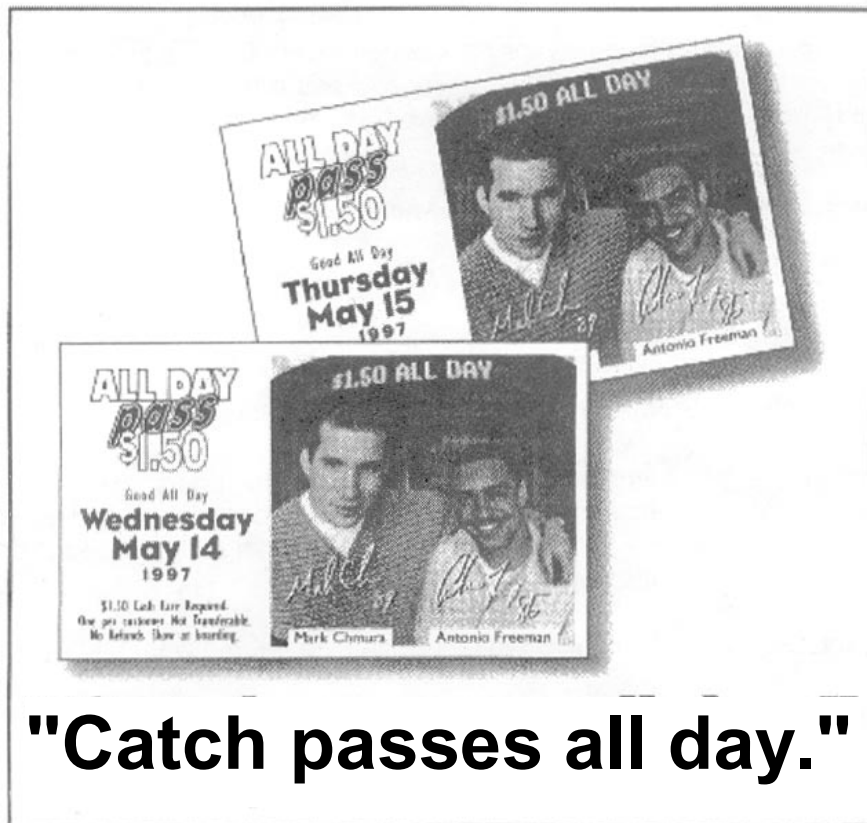
Today's Bus. Catch one.



Your Southeastern Wisconsin Transit System

For fare and schedule information, please call:
Milwaukee County Transit System: 344-6711
Waukesha Metro Transit: 524-3636
Racine Belle Urban System: 637-9000
Kenosha Transit: 653-4287

A Partnership of your bus company and the Wisconsin Department of Transportation



Development of a Ridesharing Campaign – Boise, Idaho

The ADA County Highway Department obtained a grant to develop a marketing program to encourage the use of alternative modes. The program focuses on use of Commuterride and The Bus. Using the market segments identified in this TCRP Project, the following campaign was developed. Boise is truly a town on the fast track – developing and implementing this campaign in just under two and a half months. Our "kudos" to the ADA County Department of Highways and The Bus for developing and implementing such a creative and potentially award-winning campaign.



Identify Project: "Ridesharing Campaign – Boise Idaho"

Objective:	Increase ridership on The Bus by 3 percent Increase number of peak-hour commuters participating in carpools and vanpools by reducing the number of drive alone trips by 600 per day.
Primary Target:	Women 35 to 64 (Easygoing Alternatives)
Secondary Target:	Men 18 to 40 (Upwardly Modals)
Position:	To create a sense of community support among the public as well as businesses, a theme was developed that stresses the need to "come together" to provide solutions to traffic congestion. The tagline, "Let's Make the Road Less Traveled," is central to all design component transitions.
Message Strategy:	<p>Based on the research conducted for The Bus as part of TCRP Project B-9, the focus of the message to the primary target is schedules are not always predictable and that's why the flexibility of car / vanpooling works. Ridesharing doesn't have to be done five days a week. Participants can reserve one or two days a week to drive alone and take care of personal errands.</p> <p>The message to the secondary target focuses on financial savings, reducing stress, and environmental advantages associated with sharing the ride.</p>

SCRIPT

CLIENT: ACHD	A.E.: Christy Mower		
SPOT TITLE: Matched Up	DATE: 10/3/97		
JOB ORDER NO.: 22-0901	P.O. #:	DEADLINE:	
SPOT LENGTH: 30	# DUBS:	MASTER:	CASSETTE:



Woman (about 35).
Through the eyes of a video
camera, as if it were a
dating service.

1 I'm definitely looking for early morning risers. They should be interested in
2 saving money, and heading in the same direction I am.



Man (about 25) same
setting

3
4 I'm looking for environmentally conscious types who like to travel in groups.



Woman (about 50) same
setting

5
6 I'm hoping to find companions to shop with, run errands, and share in daily
7 excursions.

Announcer VO
Visual goes from 1st
woman getting into vanpool
to man getting off the BUS
to 2nd woman getting in a
carpool.

8 Getting connected up is easier than you think. You don't have to make a
9 video, just a phone call. Commuteride and THE BUS can help you save
10 money and the environment by matching you up with a vanpool or carpool,
11 or by providing you information about THE BUS. For more information call
12 336-1010 for THE BUS or 345-POOL for Commuteride for car or
13 vanpooling. Let's make the road less traveled.

14

15

16

17

18



Outdoor

-
- Media Strategy:** To create "top-of-mind awareness," two focused four-week flights concentrate the advertising efforts, maximizing the impact and awareness of the message. Radio and outdoor are the primary mediums, reaching both audiences throughout the day while they are driving and educating them about transportation alternatives. Television and newspaper complement the buy and reinforce the message. The combination of mediums achieves the maximum reach and sufficient frequency to build "top-of-mind awareness" among both audiences. The effectiveness of the campaign is enhanced by using public relations and promotional strategies.
- Public Relations:** A press conference was held to kick off the campaign. Attendees included Boise City government officials, transportation officials, Commuteride and The Bus employees, major employers, campaign sponsors and contributors, and media representatives.

Promotions: A Commuter Kit was distributed to all individuals interested in ridesharing or riding The Bus at a mall registration. Individuals received a Commuter Kit upon registering that contained promotional items and discount coupons. By registering, participants became Commuter Card members committed to using alternative transportation modes. Commuter cards allow members to receive discounts at various area merchants supporting the programs. All coupons and promotional items were donated by contributors.



The bearer of this card is entitled to discounts at participating sponsors/retailers. Discounts are determined individually by the sponsor/retailer.

Look for "Let's Make The Road Less Traveled" Sponsor signage prominently displayed at participating locations. Show your member card at the time of purchase to receive money-saving discounts.

Brought to you by Commuteride and THE BUS.

For more details call: 345-POOL.

Summary

The results of a market segmentation study can be informative, insightful, and even fun. The real value of segmentation analysis lies in its ability to be translated into actionable strategies. A three-stage process is suggested.

- 1) **Identify the project or decision.** Consider projects or decisions your agency is presently considering and determine whether segmentation analysis is appropriate for that project or decision. Some examples of projects for which segmentation analysis might be considered include: new services, special promotions, pass or other fare media programs, advertising, special events, passenger information services, direct mail campaigns, guaranteed ride home programs, etc. Once the project or decision is identified, then ...
 - a) Determine the applicability of segmentation analysis to this project.
 - b) Create a project team.
- 2) **Conduct a situation analysis.** If it is determined that segmentation analysis is applicable to this project, the project team should first conduct a situation analysis. This step involves taking a step back and examining why your agency is considering this project or undertaking this decision. The situation analysis represents an opportunity for your agency to break out of the box and to look at the project or decision in different ways. Dare to be different! As part of your situation analysis, you should ...
 - a) Identify opportunities.
 - b) Examine problems / threats.
 - c) Establish goals.
 - d) Evaluate current strategies.
- 3) **Formulate strategies.** If the situation analysis indicates that this project is worth pursuing, the next step is to formulate the strategies to employ. If this is an existing project, this may involve a revision or complete overhaul of existing strategies. For new projects, you are operating from a clean slate. As noted in the situation analysis, be creative. Try looking at the results of your segmentation analysis in different ways. Brainstorm – don't reject ideas simply because your agency has never done it that way before. The bold new approach may be critical to attract those customer segments that have been resistant but through segmentation analysis have indicated they can be reached – with just a little more effort. During this process you will ...
 - a) Identify target market segments.
 - b) Position the segments.
 - c) Specify the marketing mix.

Enhancing the Value of Market Segmentation

Some Guidelines

Market segmentation can reward your agency with some or all of these riches.

- Increased ridership.
- Improved share of mode choice.
- New customers.
- Better customers.
- More satisfied customers.
- Potentially more 'profitable' marketing and service opportunities.

This process, however, takes considerable time and effort. To be successful, market segmentation requires well-conceived and executed research. Strategies must be formulated on the research and then monitored to determine their success.

Following are some final guidelines to assist and improve the value of your agency's market segmentation efforts. As with any good segmentation effort, we have targeted these guidelines to two audiences. However, we recommend that both audiences read and understand both sets of guidelines to better understand the often-distinct roles played by each. The first set of guidelines is for those who will be involved in actually performing segmentation analysis. These are helpful "how-to" pointers geared toward conducting segmentation studies. The second set is targeted toward those who are likely to use the segmentation results. They are more management-oriented and provide direction for segmentation's role in your agency's marketing and service planning processes.

Guidelines for Researchers

Following are five valuable tips that should form the basis of your market segmentation study. Follow these steps and you will be on your way to a well-conceived segmentation study.

- 1) **Plan, plan, plan. Then plan some more.** Successful segmentation projects are based on planning. The planning process is and should be more complex than that involved in many research studies. Use the many guidelines presented throughout this handbook to aid in your planning process.
- 2) **Consult important references.** Thorough research is the backbone of the segmentation project. Start with free and low-cost secondary sources of information before launching into your primary research. Familiarize yourself with all of the other research that your agency has done. Consult with other agencies to see what they have done in terms of market segmentation analysis. A good segmentation researcher routinely follows changes in the marketplace, trends in consumer behavior, changes in the industry, the

performance of the agency, and other related factors. The quest for market insight should be a continuous process – not just a process used when the need for specific information arises.

- 3) **Recognize the dynamics of the market.** No two people are identical. People do not stay the same. Neither is your agency at a standstill. If you have completed a segmentation study in the past, do not rest on your laurels. Once you have completed your first segmentation analysis, don't consider your work done. Market segmentation analysis should be considered as part of each marketing study where feasible. Keeping abreast with changes in the marketplace and the impact of these changes on your key market segments will allow the marketer and service planner to recognize and respond quickly to changing market conditions, to take advantage of unique opportunities, and to become a truly market and customer-driven organization.
- 4) **Use more than one basis for segmentation.** To provide the most realistic profile of the market, several bases for segmentation should be considered and used. For example, one might use a combination of psychographic and product usage bases for segmentation. In addition, more than one or two variables within a chosen basis for segmentation must be used. An analysis of all potentially useful variables should be planned prior to beginning the analysis. Developing a model of consumer behavior can be particularly helpful in identifying the potential bases for segmentation.
- 5) **Get down to basics.** The segmentation study should be designed to provide information needed for marketing and planning decision-making. It may not be necessary to employ a complex approach to market segmentation emphasizing theoretical methods and multivariate analysis. Practical segmentation should be the goal. This stresses a systematic planning framework that uses quantitative analysis effectively and efficiently, involves management in the study, and provides findings that are readily translatable into marketing strategy.

Guidelines for Managers

Segmentation represents one of the most valuable tools available for managers. Successful service plans and marketing strategies can be developed on this foundation. The following eight guidelines will assist you in managing and using market segmentation in your agency.

- 1) **Integrate market segmentation with other management activities.** Market segmentation is not an activity that should be undertaken in isolation or a project completed by a researcher and "presented" to management. Segmentation findings should be an integral part of your agency's service and marketing plans. For any decision your agency needs to make, consider whether market segmentation can be used effectively to make a better decision.
- 2) **Get involved in the project.** If you or your agency is conducting a segmentation study – no matter how large or small – get involved. Work closely with the researchers and other planners, analysts and/or consultants on the study. This involvement will insure information that is practical. Moreover, it precludes possible misunderstandings later. Frequent meetings and regular, two-way communication between management and those implementing the project can lead to higher quality studies.
- 3) **Be realistic in your expectations.** Set reasonable goals. Like any research, segmentation analysis is not a substitute for marketing or managerial deficiencies. Used properly, however, it can be a basis upon which your agency can become market- and customer-oriented. Don't expect immediate results. Some patience must be exercised in assessing the segmentation's value. As this handbook shows, segmentation research can often be used quickly to design more effective advertising. Changing products or services using segmentation analysis may take considerably more time. Moreover, it takes time for the results to be seen. The segmentation project may bridge several weeks or months – from the research and analysis to the strategy implementation phase. Finally, other marketing elements greatly influence behavior, making

the reconciliation of the study's findings and actual behavior more difficult. Hence, the need for coordination of all service planning and marketing efforts is critical.

- 4) **Listen to the results.** Research is a critical tool for the "learning" organization. It represents the opportunity to understand the market in which your transit agency is operating. Some of the information you get from research will be new. Other findings will build on existing knowledge providing greater insight into your customers and their needs. The use of market segmentation analysis will give your agency the edge necessary to survive and prosper in these increasingly difficult times.
- 5) **Dare to be different.** Segmentation studies generally provide fresh perspectives and new information. However, the translation of these findings into strategy is not always clear. Try looking at the findings in different ways. If one doesn't work, ask your researcher to slice the market in another way. Brainstorm – don't reject ideas simply because your agency has never done it that way before. Sometimes, this means risk – be willing to take it. If necessary, take a trial run or a small step first – try it with something that is low risk. The bold new approach may be critical to attract those customer segments that have been resistant but through segmentation analysis have indicated they can be reached – with just a little more effort.
- 6) **Request frequent updates.** The marketing environment is dynamic and constantly evolving. Do not think of a market segmentation study as a one-time project. Stay current with market conditions; keep abreast of changing trends. Incorporate market segmentation analysis into as many decisions and processes as possible.
- 7) **Get professional assistance when and where necessary.** Segmentation analysis is often complex and requires specialized expertise and training. Consult with experts when necessary – to assist in the research design, obtain data, analyze the results, interpret the findings, or develop strategy. Consultants can analyze situations objectively and are often more efficient for short-term projects than hiring additional staff.
- 8) **Treat segmentation as an investment.** Recognize that market segmentation is a beginning – not an ending point. The completed research study sets in motion a series of recommended activities contributing to a customer-centered plan. Better knowledge of your customers leads to better products and services that meet customer needs, wants, and expectations. This will ultimately lead to increased ridership and greater public support for public transportation and the use of alternative modes.

Market segmentation will continue to gain prominence in the next few years as more and more agencies – large and small – discover the power of this strategic marketing tool for attracting and keeping riders, and acknowledge its importance to the service planning and marketing functions. Donna Murray, Market Research Analyst, Dept. of Public Service, WMATA, states...

Segmentation analysis is used for guidance for the advertising plan and concept development. The results are also used in service initiatives such as premium parking at Metrorail stations, new suburban bus services, and fare simplification, as well as our annual promotion for MetroPool / Metrochek employer-subsidized transit. We constantly strive to develop and refine materials to meet the needs of our audiences.

How about you?

Appendix

Demographic Variables

The following table provides standard breakdowns for demographic characteristics. These are adapted from those developed by the American Association of Advertising Agencies. The purpose of this guide is to provide researchers with a tool for collecting and analyzing media and marketing data with comparable reporting standards.

This appendix can be used as a handy checklist to be sure you are considering all demographic variables in your segmentation studies. Note that the recommended minimum and additional data standards apply to generalized surveys. Those surveys done for more specific purposes – e.g., particular geographic sections, affluent markets, etc. – may choose to collapse or expand characteristics as appropriate to their context. This appendix is meant to serve simply as a guide.

Characteristic	Minimum Data	Additional Data
1. Personal Characteristics		
A. Household relationship	Principle wage earner in household (defines household head) Spouse Child Other relative Partner / Roommate Other non-relative	
B. Age	18 – 24 25 – 34 35 – 44 45 – 54 55 – 64 65 and older	Dependent on respondent qualifications Breaks should be consistent with age definitions used by agency (e.g, if interviewing children, age breaks might capture breaks for Youth Passes).
C. Gender	Male Female	

Characteristic	Minimum Data	Additional Data
D. Education	Last Grade Attended Grade School or Less (Grades 1 – 8) Some High School Graduated High School Some College (at least 1 year) Graduated College If Currently Attending School: Full-time student Part-time student	Any post graduate work Post graduate degree If pertinent to study: Live home Live away Live in student housing Live off campus
E. Marital Status	Married Widowed Divorced / Separated Single (Never Married)	Spouse present Spouse absent
F. Race	Caucasian Black (African-American) Asian-American Hispanic Native American Other	
H. Principle Language Spoken at Home	English Spanish Other	Depends on nature of study. If high incidence of specific ESL group in population (e.g., Chinese, Polish), include as separate category
H.1 Other Languages Spoken At Home	English Spanish Other	See note above

Characteristic	Minimum Data	Additional Data
I. Occupation As Defined by Bureau of the Census	Armed Forces Civilian Labor Force Employed Full-Time (35 or More Hours / Week) Part-time (Less Than 35 Hrs. / Week) Self-Employed Unemployed – Looking for Work Major Occupational Categories Managerial / Professional Tehcnical Administrative Support (including clerical) Sales (including retail) Operative, non-farm laborers, service workers, private household workers Farmers, farm managers, farm laborers Craftsmen Other Industry of Employment..... Job Title Not Employed Retired Student (full-time) Homemaker (not employed outside home) Disabled Temporarily disabled Other	Hold more than one job In home Out of home Predominantly – Day Work Evening / Night Work Technical Related Support Occupations Private Company Government
J. Individual Employment Income	Under \$10,000 \$10,000 – \$14,999 \$15,000 – \$19,999 \$20,000 – \$24,999 \$25,000 – \$29,999 \$30,000 – \$39,999 \$40,000 – \$49,999 \$50,000 – \$74,999 \$75,000 and Over	 \$75,000 – \$99,999 \$100,000 and Over
2. Household Characteristics		
A. County Size	A County B County C County D County	

Characteristic	Minimum Data	Additional Data
B. Geographic Area (as defined by Bureau of Census)	Inside Metropolitan Statistical Area..... MSA Central City MSA Suburban MSA Other Outside Metropolitan Statistical Area Urban Rural	Metropolitan Statistical Area Populations 4,000,000 and Over 1,000,000 – 3,999,999 500,000 – 999,999 250,000 – 499,999 100,000 – 249,999 50,000 – 99,999 Urban: Urbanized Area Central City Urban Fringe Other Urban Places of 10,000 – 50,000 population Places of 2,500 – 9,999 population
C. Geographic Region	As Defined by Bureau of Census..... Northeast North Central South West	Census Geographic Division New England Mid Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain Pacific Major Geographic Areas Census Tract Census Block TAZ (Transit Analysis Zone)
D. Household Size	1 Member 2 Members 3 Members 4 or More Members	Number of Adults (Persons 18 or Older) Male / Female HH Female Only HH Male Only HH
E. Household Type		Family Members Only Non Family Members Only Both Family and Non Family Members
F. Presence / Age of Children in Household	No Children Under 18 Youngest Child 6 – 17 Youngest Child Under 6	Youngest Child 12 – 17 Youngest Child 6 – 11 Youngest Child 2 – 5 Youngest Child Under 2
G. Number of Children Under 18 in Household	None One More Than One	Number of Children 6 – 17 Number of Children Under 6 Number of Children by Household Size
H. Household Income	See Individual Employment Income	See Individual Employment Income
I. Other Household Characteristics		Number of Adults Employed Full-time Spouse's Employment Status Spouse's Occupation

Characteristic	Minimum Data	Additional Data
J. Home Ownership	Own Home Private ownership Cooperative ownership Condominium Rent	Residence Five Years Prior to Survey Live in Same House / Home Lived in Different House / Home In Same County In Different County In Same State In Different State
K. Type Housing Unit	Single Family Home Multiple Family Home Apartment Mobile Home or Trailer	

Final Questionnaire

Following is the questionnaire that was used in this study. It is generally complete. However, in some cases, response categories, interviewer instructions, etc. are deleted for ease in reading. In all cases, responses were available for don't know responses or refusal to answer. These are shown only when don't know is a valid response – that is something used in analysis. Average length of this survey was 39 minutes.

Introduction

INTRO1 Hello, I'm _____ from Northwest Research Group, a public opinion research firm. Today/tonight we are conducting a study for the Transportation Research Board that will be used to benefit transportation systems nationwide. This study is on consumer values and lifestyles, and public transportation. Your participation is very important to us.

INTRO2 For this survey I would like to speak with a member of this household who is 18 years of age or older. Would that be you?

- 1 YES
- 2 NO [ASK FOR ANOTHER IN HOUSEHOLD, BEGIN AGAIN OR ARRANGE A CALLBACK]
- 3 NO ONE IN HOUSEHOLD OVER 18 [SKIP TO THANK1]

Screening -- Definition of Qualified Respondent

Respondent qualifies as a Nonrider if Scr1.1 = 2 (has not ridden in the past year) or Scr1.2 > 8 (has ridden in the past year but less than once a month or in unusual circumstances).

Respondent qualifies as a Choice Rider if Scr 1.2 < 9 (has ridden at least 1 - 3 days a month in the past year), Scr3 = 1 (has valid driver's license), and Scr4 > 0 (has a car available for their use) or if Scr4 = 0 and Scr8 = 1 (has chosen not to purchase a car or to purchase an additional car for their household).

AREA1 First, what county do you live in? [READ LIST IF NEEDED]

AREA2 What is your home zip code?

SCR1.1 Have you personally used public transportation in the past year?

- 1 YES
- 2 NO [QUALIFIED AS NONRIDER, SKIPTO SCR3]
- 3 DON'T KNOW [SKIP TO SCR 2.1]
- 9 REFUSED [SKIP TO THANK2]

SCR1.2 [IF SCR1.2 EQ 1] How many days a week did you use public transportation in the past year?

[WAIT FOR RESPONSE, THEN PROBE AND VERIFY: Is that ____ days a week?]

- ____ ENTER NUMBER OF DAYS A WEEK [RIDER]
- 8 1 - 3 DAYS A MONTH [RIDER]
- 9 LESS THAN ONCE A MONTH [NONRIDER, SKIPTO SCR3]
- 10 ONLY RODE BECAUSE CAR WAS NOT AVAILABLE / BAD WEATHER [NONRIDER, SKIPTO SCR3]
- 11 ONLY RODE BECAUSE OF SPECIAL EVENT / OCCASION [NONRIDER, SKIPTO SCR3]

SCR2.1 Have you personally used public transportation in the past month?

- 1 YES **[SKIPTO SCR2.2]**
- 2 NO
- 9 DON'T KNOW / REFUSED **[SKIPTO THANK2]**

SCR2.1A Have you stopped riding the bus?

- 1 YES **[SKIPTO SCR3]**
- 2 NO
- 9 DON'T KNOW / REFUSED **[SKIPTO THANK2]**

SCR2.1B When you rode, did you ride only ...

- 1 because your car was broken down or not available, **[SKIPTO SCR3]**
- 2 because of bad weather, **[SKIPTO SCR3]**
- 3 or because of a some other unusual circumstance? **[SKIPTO SCR3]**
- 4 NONE OF THE ABOVE **[SKIPTO SCR3]**
- 8 DON'T KNOW **[SKIPTO THANK2]**
- 9 REFUSED **[SKIPTO THANK2]**

SCR2.2 **[IF SCR2.1 EQ 1]** How many one-way trips have you personally taken on public transportation in the past month?

- ___ ENTER NUMBER
- 97 97 OR MORE
- 99 DON'T KNOW / REFUSED **[SKIP TO THANK2]**

SCR3 Do you have a valid driver's license?

- 1 YES
- 2 NO **[IF RIDER SKIPTO THANK3]**
- 9 DON'T KNOW / REFUSED **[IF RIDER SKIP TO THANK2]**

SCR4 How many automobiles in working condition do **you** personally have available for your use?

- ___ ENTER NUMBER **[IF GE 1 SKIP TO SCR9-1]**
- 8 8 OR MORE
- 9 DON'T KNOW / REFUSED **[SKIP TO THANK2]**

SCR5 **[IF SCR4 EQ 0 AND NONRIDER]** How do you usually get around?

- 1 RIDE WITH SOMEONE ELSE
- 2 BICYCLE
- 3 MOTORCYCLE
- 4 WALK
- 5 OTHER (SPECIFY)

SCR6 **[IF SCR4 EQ 0 AND RIDER]** Do you rely on public transportation for...

- 1 All of your local travel,
- 2 Most of your local travel,
- 3 Some of your local travel, Or
- 4 None of your local travel? **[RESCREEN]**
- 9 DON'T KNOW / REFUSED **[SKIP TO THANK2]**

SCR7 **[IF SCR6 EQ 2 OR 3]** How else do you usually get around?

- 1 RIDE WITH SOMEONE ELSE
- 2 BICYCLE
- 3 MOTORCYCLE
- 4 WALK
- 5 OTHER (SPECIFY)

SCR8 **[IF SCR6 < 4]** Do you use public transportation because you have **chosen** not to buy a car or to buy an additional car for the household?

- 1 YES
- 2 NO **[SKIPTO THANK3]**
- 9 DON'T KNOW / REFUSED **[SKIPTO THANK3]**

SCR9.1 Are you currently...

- 1 Employed full-time (30 or more hours a week),
- 2 Employed part-time (less than 30 hours),
- 3 Self-employed
- 4 Not employed outside the home [A HOMEMAKER],
- 5 A student,
- 6 Retired, Or
- 7 Unemployed?
- 8 OTHER (SPECIFY)

SCR9.2 **[IF SCR9.1 LE 3]** Do you commute to a fixed work site outside your home?

- 1 YES
- 2 NO

GENDER [RECORD RESPONDENT'S GENDER]

- 1 MALE
- 2 FEMALE

QALRESP [INFO SCREEN ONLY – DO NOT READ]

THIS IS A QUALIFIED RESPONDENT
THIS IS A: [CHOICE RIDER / NONRIDER]

SCR11 I'd like to tell you again how important your participation in this project is. Again, this information will be used to make improvements in transportation systems across the country. I am going to ask you a number of questions about your lifestyle and it is going to take a little while. Please be assured that all of this information will be kept confidential. Do you have time to continue now?

[PRESS ANY KEY TO CONTINUE OR PRESS CTRL-END TO SCHEDULE A CALL BACK]

Overall Values

A1 I'm going to read you a list of things that some people look for or want out of life. As I read the list, please rate each item on how important it is in your daily life. Use a 9-point scale where "1" equals "very unimportant" and "9" equals "very important." You may use any number in between.

- A1.1 A sense of belonging
- A1.2 Excitement
- A1.3 Warm relationships with others
- A1.4 Self-fulfillment
- A1.5 Being well respected

- A1.6 Fun and enjoyment of life
- A1.7 Security
- A1.8 Self-respect
- A1.9 A sense of accomplishment

Values and Lifestyle Characteristics

INTRO1 Next I'm going to read you a list of statements about how you might think or feel in different situations. Please tell me the extent to which you agree or disagree with each statement using a 7-point scale where "1" means "strongly disagree" and "7" means "strongly agree." You may use any number in between.

Susceptibility to Interpersonal Influence

- B1 I often identify with other people by purchasing the same products and brands they purchase.
- B2 When buying products, I generally purchase those brands that I think others will approve of.
- B3 I like to know what brands and products make good impressions on others.
- B4 I frequently gather information from friends or family about a product before I buy.
- B5 I achieve a sense of belonging by purchasing the same products and brands that others purchase.

Optimum Stimulation Level / Arousal Seeking Tendency

- C1 I like to experience novelty and change in my daily routine.
- C2 I like to go somewhere different every day.
- C3 Designs or patterns should be bold and exciting.
- C4 I sometimes like to do things that are a little frightening.
- C5 I prefer friends who are reliable and predictable to those who are exciting and unpredictable.

Innovativeness

- D1 I like to take chances.
- D2 When it comes to taking chances, I would rather be safe than sorry.
- D3 I like people who are a little shocking.
- D4 I believe in leaving well enough alone.

Time Management

- E1 I like to plan my activities by the clock.
- E2 Because I schedule my activities by the clock, I am able to get more things done.
- E3 I hate wasting time.
- E4 I am always looking for ways to be more efficient so that I can get more things done.

INTRO2 The next list contains statements about the environment. Please tell me the extent to which you agree or disagree with each of the following. Use the same 7-point scale where "1" means "strongly disagree" and "7" means "strongly agree." You may use any number in between.

General Environmental Concern

- F1 We use too much oil and gasoline in this country.
- F2 We have to do something immediately to reduce the amount of gasoline we use.
- F3 In the future, my children will have to live in an extremely polluted environment.

Socially Responsible Consumption Behavior

- G1 It really makes me angry to think that the government does not do more to help control pollution of the environment.
- G2 I think that a person should urge his or her friends not to use products that pollute or harm the environment.
- G3 Our public schools should require all students to take a course dealing with environmental and conservation problems.
- G4 Pollution is presently one of the most critical problems facing this nation.
- G5 The whole pollution issue has never upset me too much since I feel it is somewhat overrated.
- G6 I become angry when I think about the harm being done to plant and animal life by pollution.
- G7 People are simply going to have to change the way they have always done things if there is to be any hope for the environment.

INTRO3 Now I'm going to read you statements describing other attitudes or opinions you might hold. Still using the 7-point scale where "1" means "strongly disagree" and "7" means "strongly agree" please tell me the extent to which you agree or disagree with these statements.

Automobile Involvement

- H1 Cars offer me relaxation and fun when life's pressures build up.
- H2 Sometimes I get too wrapped up in my car.
- H3 Driving my car is one way I often use to relieve daily pressures.
- H4 Driving my car is one of the most satisfying and enjoyable things I do.

Internal Locus of Control

- I1 Getting people to do the right things depends on ability; luck has little or nothing to do with it.
- I2 When I make plans, I am certain I can make them work.
- I3 Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- I4 Getting what I want has little or nothing to do with luck.

Self Confidence / Leadership

- J1 I think I have more self-confidence than most people.
- J2 I am more independent than most people.
- J3 I like to be considered a leader.
- J4 I think I have a lot of personal ability.
- J5 I often can talk others into doing something.

Fearfulness / Fear of Crime / Physical Comfort

- K1 I worry a lot about myself or a family member becoming a victim of a crime.
- K2 The world today is a very dangerous place.
- K3 I am constantly concerned for my own safety.

Cleanliness

- L1 The kind of dirt you can not see is worse than the kind of dirt you can see.
- L2 You have to use disinfectants to get things really clean.
- L3 I am uncomfortable when I am in places that are not totally clean.
- L4 When I am someplace that does not smell right, I get the heebie jeebies.

Socialability

- M1 I like to spend a lot of time alone.
- M2 I make friends easily.
- M3 I do not typically socialize with people at work or school or in my neighborhood.

Frugality

- N1 I believe in being careful how I spend my money.
- N2 I discipline myself to get the most for my money.
- N3 I am willing to wait on purchases I want so that I can save money.
- N4 There are things I resist buying today so I can save for tomorrow.

Personal Control and Responsibility

- O1 I always schedule my time so that I arrive at my destination a few minutes early.
- O2 It is very important to me not to have to rely on other people.
- O3 It is always important for me to be on time.
- O4 I always like to feel I am in control of my life.
- O5 I do not like to have to rely on other people for help.

Physical and Occupational Mobility / Financial Optimism

- Q1 In the last ten years, I have lived in at least three different cities.
- Q2 I will probably move at least once in the next five years.
- Q3 I expect to be a top executive in the next ten years.
- Q4 I will probably have more money to spend next year than I have now.
- Q5 Five years from now my total household income will probably be a lot higher than it is now.
- Q6 I often worry about financial security.
- Q7 I wish I had a lot more money.

Overload

- R1 I need more hours in the day to do all the things that are expected of me.
- R2 I can never seem to get caught up.
- R3 I never seem to have any time for myself.
- R4 Sometimes I feel as if there are not enough hours in the day.
- R5 I seem to have to overextend myself to finish everything I have to do.

Use of / Consideration of Transit as Mode

S-INTRO Now I'm going to ask you some questions about transportation and your work and nonwork travel

S1 **[RIDER]** When you ride the bus or train, what is the **primary** purpose of your trip? **[RECORD ONE RESPONSE ONLY]**

S2 **[RIDER]** What other types of trips do you take on public transportation? **[ENTER ALL THAT APPLY]**

- 1 TO AND/OR FROM WORK
- 2 TO AND/OR FROM SCHOOL
- 3 TO AND/OR FROM BUSINESS APPOINTMENTS / ERRANDS
- 4 TO AND/OR FROM SHOPPING / ERRANDS
- 5 TO AND/OR FROM VOLUNTEERING
- 6 TO AND/OR FROM MEDICAL APPOINTMENTS
- 7 PERSONAL BUSINESS
- 8 TO AND/OR FROM SPORTING EVENTS
- 9 TO AND/OR FROM CULTURAL EVENTS
- 10 TO AND/OR FROM OTHER SPECIAL EVENTS [SPECIFY]
- 11 FUN / RECREATION/ SOCIAL/VISITING
- 12 OTHER [SPECIFY]

S3 **[NONRIDER]** Have you ever **considered** using public transportation instead of driving for your local travel?

- 1 YES
- 2 NO

S4 **[IF S3 EQ 1]** For what type of trips have you considered public transportation? **[ENTER ALL THAT APPLY IN ORDER GIVEN]**

SAME RESPONSE CATEGORIES AS S2

S5 **[NONRIDER]** Have you ever tried to get information on using public transportation in your area (for example, on routes or schedules)?

S6 **[NONRIDER]** In the past, have you ever ridden public transportation?

- 1 YES
- 2 NO

S7 **[IF S6 EQ 1]** When was the last time you used public transportation?

- 1 Within the past one to six months,
- 2 Six months to one year ago,
- 3 More than one year ago but less than five years ago, or
- 4 More than five years ago? [SKIPTO S12]
- 9 DON'T KNOW / REFUSED [SKIPTO S12]

S8 **[IF S7 < 4]** When you were using public transportation, how many days a week did you ride?

- ____ ENTER NUMBER OF DAYS A WEEK
- 8 1 - 3 DAYS A MONTH
 - 9 LESS THAN ONCE A MONTH
 - 10 ONLY RODE BECAUSE CAR WAS NOT AVAILABLE / BAD WEATHER
 - 11 ONLY RODE BECAUSE OF SPECIAL EVENT / OCCASION

S9 [IF S8 < 9] For what type of trips did you use public transportation?
[ENTER ALL THAT APPLY IN ORDER GIVEN]

SAME RESPONSE CATEGORIES AS S2

S10 [IF S8 < 9] When you were using public transportation, were you living at your current address?
1 YES
2 NO

S11 [IF S8 < 9 AND COMMUTER] When you were using public transportation, were you working at your current job location?
1 YES
2 NO

S12 [COMMUTERS] Is the idea of using public transportation instead of driving to **work/school** appealing or unappealing to you personally? Would that be very or somewhat?

S13 Is the idea of using public transportation instead of driving for your **personal travel** appealing or unappealing to you personally? Would that be very or somewhat?

S14 Thinking about different methods for getting around, how likely are you to use public transportation to make the following trips in the next year? Please answer on a 7-point scale where "1" means "not at all likely" and "7" means "very likely."

S14.1 Commuting to work or school

S14.2 Shopping

S14.3 Special events, such as sporting events or fairs

S14.4 Medical or other appointments

S14.5 Cultural events

S15.1/S15.3 Please assume that driving alone or using public transportation are the only options available. Both are equally accessible to you. If you had a total of 100 points to divide between the two options and the higher amount is given to the method you prefer, how many points would you give to [public transportation / driving alone]?

S16 If offered a choice between convenient public transportation and taking a car, would you...

- 1 Always drive a car,
- 2 Sometimes use public transportation, or
- 3 Always use public transportation?

Facilitating Factors

Familiarity With Services

T1 In general, are you familiar or unfamiliar with public transportation services in your area – that is, the types of services available, schedules, routes, etc.? Would that be very or somewhat?

T2 In general, are you informed or uninformed about public transportation services in your area – that is, the types of services available, schedules, routes, etc.? Would that be very or somewhat?

Access to Service

U1 To the best of your knowledge, how far is it from your home to the nearest bus stop? [PROBE: Please answer in either blocks or miles.]

U2 [MARKETS WITH TRAIN SERVICE ONLY] To the best of your knowledge, how far is it from your home to the nearest train station? [PROBE: Please answer in either blocks or miles.]

U3 To the best of your knowledge, how far is it from your home to the nearest park-and-ride lot? [PROBE: Please answer in either blocks or miles.]

Commuters Only. Noncommuters skip to V2.

U4 To the best of your knowledge, do you currently have bus or train service available from where you live to where you work / attend school?

- 1 YES
- 2 NO [SKIP TO U9]
- 3 DON'T KNOW [SKIP TO U9]
- 9 REFUSED [SKIP TO U9]

U5 To the best of your knowledge, how far is from where you work / attend school to the nearest bus stop? [PROBE: Please answer in either blocks or miles.]

U6 [MARKETS WITH TRAIN SERVICE ONLY] To the best of your knowledge, how far is from where you work / attend school to the nearest train station? [PROBE: Please answer in either blocks or miles.]

U7 [Would / Does] the route you [would need to take / take] to work or school require transferring?

- 1 YES
- 2 NO
- 3 DON'T KNOW

U8 [IF U7 EQ 1] How many transfers?

_____ RECORD NUMBER
8 8 OR MORE

U9 Do you live in...

- 1 A central city or downtown area or
- 2 A suburb or suburban city
- 3 OTHER [SPECIFY]

U10 Do you work in...

- 1 A central city or downtown area or
- 2 A suburb or suburban city
- 3 OTHER [SPECIFY]

U11 How many miles do you travel from home to work/school one-way?
[PROBE: Using your best estimate.][IF LESS THAN 1, ENTER 1]

_____ MILES
97 97 OR MORE MILES
98 VARIES

U12 About how long [does] [would] your trip to work/school usually take from door to door from the time you leave your house until the time you get to work/school if you drive alone?

_____ MINUTES
97 97 OR MORE MINUTES
98 VARIES

U13 [IF U4 EQ 1] How long [does] [would] it take by bus?

_____ ENTER MINUTES
97 97 OR MORE MINUTES
98 VARIES

U14 [IF U4 EQ 1] [MARKETS WITH TRAIN SERVICE ONLY] How long [does] [would] it take by train?
 _____ ENTER MINUTES
 97 97 OR MORE MINUTES
 98 VARIES

Congestion / Parking

- V1 **[COMMUTERS]** How much is your commute trip affected by traffic? Would you say...
- V2 How much is your daily nonwork travel affected by traffic? Would you say...
- 1 Affected a great deal,
 - 2 Affected somewhat,
 - 3 Not affected very much, or
 - 4 Not affected at all?
- V3 How often do you change your travel plans or not take trips because of the **cost** of parking at the destinations where you would like to go? Would you say...
- V4 How often do you change your travel plans or not take trips because of the **availability** of parking at the destinations where you would like to go? Would you say...
- 1 Never,
 - 2 Rarely,
 - 3 Sometimes, or
 - 4 Often?

Employer Support -- *Work Commuters Only. Noncommuters skip to YINTRO.*

- W1 Does your employer provide you with free or reduced fee parking?
- 1 YES, FREE
 - 2 YES, REDUCED FEE
 - 3 NO
 - 4 NO, BUT HAVE FREE PARKING SOMEWHERE
 - 5 DON'T KNOW
- W2 [IF W1 EQ 2 OR 3, SKIP IF S1 = 1] How much does it cost you personally to park your car when you go to work? [PROBE: Is that daily or monthly?]
 _____ ENTER AMOUNT OF DOLLARS
- W3 [IF W1 EQ 2 OR 3] How much would parking have to be before you would use public transportation to get to and from work? [PROBE: Is that daily or monthly?]
 _____ ENTER AMOUNT OF DOLLARS
- W4 Does your employer...[INSERT STATEMENT]? [PROBE IF SELF EMPLOYED: Does your company...]
- W4.1 Offer a program to pay for some or all of the transportation costs for employees who ride public transportation – for example pay for a bus pass
- W4.2 Provide a car to use for work purposes during work hours
- W4.3 Sell bus or rail passes
- W4.4 Provide bus or rail information on routes and schedules
- W4.5 Allow bus and train riders to use a company car during the day to run personal errands
- W4.6 Assist in forming carpools and vanpools
- W4.7 Provide bike racks, showers and lockers
- 1 YES
 - 2 NO
 - 3 DON'T KNOW

Job Characteristics

X1 What time do you typically arrive at work?

- 1 BEFORE 6:00 A.M.
- 2 BETWEEN 6:00 AND 7:00 A.M.
- 3 BETWEEN 7:01 AND 8:00 A.M.
- 4 BETWEEN 8:01 AND 9:00 A.M.
- 5 BETWEEN 9:01 AND 10:00 A.M.
- 6 AFTER 10:00 A.M.
- 7 VARIES

X2 What time do you typically leave work to travel home?

- 1 BEFORE 3:00 P.M.
- 2 BETWEEN 3:00 AND 4:00 P.M.
- 3 BETWEEN 4:01 AND 5:00 P.M.
- 4 BETWEEN 5:01 AND 6:00 P.M.
- 5 BETWEEN 6:01 AND 7:00 P.M.
- 6 AFTER 7:00 P.M.
- 7 VARIES

X3 How often does your job require you to...[INSERT STATEMENT]? Would you say...

- 1 Never,
- 2 Rarely,
- 3 Sometimes,
- 4 Often, or
- 5 Always?

X3.1 Work regular hours (start and finish work at the same time each day)

X3.2 Use your own personal automobile for work-related travel during the day

X3.3 Work overtime hours

X4 Does your job allow you to...[INSERT STATEMENT]?

- 1 YES
- 2 NO,
- 3 DON'T KNOW
- 9 REFUSED

X4.1 Work flexible hours (that is, start and finish work at different times each day so long as you put in the required number of hours)

X4.2 Work an alternative work schedule (for example, a 4 day work week working 10 hours a day or 3 12-hour work days)

X4.3 Telecommute (that is, work at home that does not include work in the evenings or on weekends)

X5 How often do you... [INSERT STATEMENT]? Would you say...

- 1 Never,
- 2 Rarely,
- 3 Sometimes,
- 4 Often, or
- 5 Always?

X5.1 Leave work during the day to eat lunch or run errands to places farther than you can walk

X5.2 Drop off and/or pick up children at day care or school on your way to or from work

X5.3 Run errands on your way to or from work

X5.4 Begin work earlier or finish later than your regularly scheduled work hours

Involvement With the Mode Choice Decision
--

Y-INTRO Now I'm going to read you a series of questions about using public transportation.

Y1 Would you say the decision to use public transportation is an important decision or an unimportant decision? Would that be very or somewhat important / unimportant?

- 1 VERY UNIMPORTANT
- 2 SOMEWHAT UNIMPORTANT
- 3 NEITHER IMPORTANT NOR UNIMPORTANT
- 4 SOMEWHAT IMPORTANT
- 5 VERY IMPORTANT

Y2 Would you say the decision to use public transportation is a decision that requires...

- 1 Absolutely no thought at all
- 2 Very little thought
- 3 Some thought
- 4 A great deal of thought

Y3 If you decide to use public transportation would you say there is ...

- 1 Nothing to lose if you make the wrong decision
- 2 Little to lose if you make the wrong decision
- 3 Something to lose if you make the wrong decision
- 4 A lot to lose if you made the wrong decision

Y4 How sure are you about the ability of public transportation to perform satisfactorily? Would you say you are...

- 1 Not sure at all
- 2 Somewhat unsure
- 3 Neither sure nor unsure
- 4 Somewhat sure
- 5 Very sure
- 9 DK/REF

Benefits Sought

Z.1-INTRO Different people consider different things important when deciding whether to drive or to use transit for local travel. As I read the following list, please tell me how important each item is to you in the method of transportation that you use. Please answer on a 7-point scale where "1" means "not at all important" and "7" means "extremely important." You may use any number in between.

Z2-INTRO Now based on your personal experience or anything you have seen, read, or heard, please tell me how well you think these same statements describe using public transportation. Please answer using a 7-point scale where 1 means the statement "does not describe public transportation at all" and 7 means the statement "describes public transportation very well." You may use any number in between.

Z1.1 I can count on it to get me to where I am going on time.

Z1.2 I can control my own schedule.

Z1.3 It is easy to arrange.

Z1.4 I am able to get home in an emergency.

Z1.5 I am able to come and go when I want to.

- Z1.6 It offers me the flexibility I need for my schedule.
- Z1.7 It gives me an opportunity to be alone to think.
- Z1.8 It is appropriate for a person in my position.
- Z1.9 It is consistent with the kind of person I am.
- Z1.10 It gets me to and from where I want to go without feeling stressed.
- Z1.11 It gets me in the right frame of mind for the rest of the day.
- Z1.12 It enables me to arrive at my destination feeling clean and fresh, not dirty or grimy.
- Z1.13 I can get other things done while traveling; it's not just dead time.
- Z1.14 It gets me where I am going the quickest way possible.
- Z1.15 It is conveniently located to my trip origin and destination.
- Z1.16 I do not have to change from one mode to another to get to where I am going.
- Z1.17 It does not cost much.
- Z1.18 I do not have to worry about wear and tear on my vehicle.
- Z1.19 I am assured of my personal safety from crime.
- Z1.20 I am assured that I will not be bothered by other people.
- Z1.21 It minimizes my risk of getting in a traffic accident.
- Z1.22 It is comfortable.
- Z1.23 I have a place to sit.
- Z1.24 It is clean.
- Z1.25 I do not have to worry about who is going to sit next to me.
- Z1.26 I do not have to worry about bad weather.
- Z1.27 I do not have to worry about carrying packages or parcels.
- Z1.28 It is good for the environment.
- Z1.29 It does not contribute to traffic congestion.

DEMOGRAPHICS

DEMO1 Finally I have a few demographic questions that will be used to help us analyze the results of the study.

DEMO2 What is your age?
 _____ ENTER ACTUAL NUMBER

DEMO2A [If refused] Are you between...

1	18 and 24,
2	25 and 34,
3	35 and 44,
4	45 and 54,
5	55 and 64, or
6	65 and older?

DEMO3 What is the highest level of formal education you have had the opportunity to complete? [READ IF NECESSARY, **PROBE FOR NEXT HIGHEST LEVEL**]

- 1 Grades 1 - 8
- 2 Grade 9
- 3 Grade 10
- 4 Grade 11
- 5 Graduated High School
- 6 Technical or Vocational School
- 7 First Year of College
- 8 Second Year of College
- 9 Three or More Years of College / Haven't Graduated
- 10 Graduated College (4 yrs.).
- 11 Attended Graduate School
- 12 Completed Graduate School

DEMO4 Are you...

- 1 Married,
- 2 Single, Never Married,
- 3 Divorced or Separated, or
- 4 Widowed?
- 5 OTHER [SPECIFY]

DEMO5 **[IF DEMO4 EQ 1]** Is your spouse...

- 1 Employed full-time (30 or more hours a week)
- 2 Employed part-time (less than 30 hours)
- 3 Self-employed
- 4 Retired
- 5 Not employed outside the home / A Homemaker
- 6 A student
- 7 Current unemployed
- 8 OTHER [SPECIFY]

DEMO6 What is your occupation?

- 1 PROFESSIONAL / TECHNICAL (E.G., ACCOUNTANT, ARTIST, COMPUTER SPECIALIST, DENTIST, ENGINEER, LAWYER, LIBRARIAN, NURSE, PHYSICIAN, SCIENTIST, TEACHER, TECHNICIAN, WRITER, ETC.)
- 2 MANAGER OR ADMINISTRATOR
- 3 SALES (INCLUDES RETAIL) (E.G., INSURANCE SALESMAN, REALTOR, SALES CLERK, STOCKBROKER)
- 4 CLERICAL (E.G., BANK TELLER, BOOKKEEPER, CASHIER, OFFICE CLERK, POSTMAN, SECRETARY, TEACHER'S AIDE, TELEPHONE OPERATOR, ETC.)
- 5 SKILLED WORKER / CRAFTSPERSON (E.G., BAKER, CARPENTER, ELECTRICIAN, FOREMAN, JEWELER, MECHANIC, PAINTER, PLUMBER, TAILOR, ETC.)
- 6 MACHINE OPERATOR (E.G., BUS DRIVER, CONDUCTOR, FACTORY WORKER, TRUCK DRIVER, OPERATOR OF OTHER KINDS OF MACHINES)
- 7 LABORER / SEMI-SKILLED WORKER (EXCEPT ON FARM) (E.G., CARPENTER'S HELPER, FISHERMAN, GARBAGE COLLECTOR, STOCK HANDLER, TEAMSTER, WAREHOUSEMAN, ETC.)
- 8 FARMER OR FARM MANGER
- 9 FARM FOREMAN OR FARM LABORER
- 10 SERVICE WORKER (EXCEPT IN A PRIVATE HOUSEHOLD, E.G., BARBER, BARTENDER, COOK, DENTAL ASSISTANT, DISHWASHER, FIREFIGHTER, JANITOR, NURSING AIDE, POLICE OFFICER, USHER, WAITER, ETC.)
- 11 PRIVATE HOUSEHOLD WORKER
- 12 GOVERNMENT OR MILITARY WORK
- 13 OTHER [SPECIFY]

- DEMO8 Including yourself, how many people live in your household?
 _____ ENTER ACTUAL NUMBER
- DEMO9 [IF DEMO8 > 1] How many children under the age of 18 live in your household?
 _____ ENTER NUMBER
- DEMO10 [IF DEMO9 > 0] What are their ages?
- | | | |
|------|-------|---------------------------|
| 10.1 | _____ | ENTER AGE OF FIRST CHILD |
| 10.2 | _____ | ENTER AGE OF SECOND CHILD |
| 10.3 | _____ | ENTER AGE OF THIRD CHILD |
| 10.4 | _____ | ENTER AGE OF FOURTH CHILD |
| 10.5 | _____ | ENTER AGE OF FIFTH CHILD |
- DEMO11 [IF DEMO8 > 1] Do you have older adults or senior citizens living in your home to whom you are the primary care giver?
- | | |
|---|-----|
| 1 | YES |
| 2 | NO |
- DEMO12 Are you...
- | | |
|---|---------------------------|
| 1 | White / Caucasian, |
| 2 | African-American, |
| 3 | Asian / Pacific-Islander, |
| 4 | Native-American, or |
| 5 | Hispanic? |
| 6 | OTHER [SPECIFY] |
- DEMO13.1 Is your total annual household income from all sources...
- | | |
|----|----------------------|
| 1 | \$30,000 or above |
| 2 | Below \$30,000 |
| 99 | DON'T KNOW / REFUSED |
- DEMO13.2 [IF DEMO13.1 EQ 2] Would that be...
- | | |
|---|-----------------------------|
| 1 | Under \$5,000 |
| 2 | Between \$5,000 - \$7,499 |
| 3 | Between \$7,500 - \$9,999 |
| 4 | Between \$10,000 - \$14,999 |
| 5 | Between \$15,000 - \$19,999 |
| 6 | Between \$20,000 - \$24,999 |
| 7 | Between \$25,000 - \$29,999 |
- DEMO13.3 [IF DEMO13.1 EQ 1] Would that be...
- | | |
|---|-----------------------------|
| 1 | Between \$30,000 - \$39,999 |
| 2 | Between \$40,000 - \$49,999 |
| 3 | Between \$50,000 - \$74,999 |
| 4 | Between \$75,000 - \$99,999 |
| 5 | \$100,000 or Over? |

- DEMO14 If you were asked to use one of the following terms to describe your social class, which would you choose?
- 1 Lower class
 - 2 Lower-middle class
 - 3 Middle class
 - 4 Upper middle class
 - 5 Upper class
- DEMO15 We would like to be able to identify the census tract in which you live. Could you please provide us with the names of the cross streets or intersections nearest your home?
[PROBE: Please provide me with the whole street name, directional indicators, etc. so I can locate the general area on a map.]
[PROBE ONLY IF NECESSARY: We will be using this information to do detailed analysis by census tract.]
-
- THANK That concludes our survey. Thank you very much for the time you spent with us today. Your responses were very helpful.
- DEMO19 SIZE OF RESIDENCE AREA (FROM ZIP CODE)
- 1 LARGE CENTRAL CITY (250,000 OR MORE)
 - 2 MEDIUM CENTRAL CITY (50,000 - 250,000)
 - 3 SUBURB OF LARGE CENTRAL CITY
 - 4 SUBURB OF MEDIUM CENTRAL CITY
 - 5 NOT WITHIN AN SMSA

Multivariate Statistical Techniques

The following synopsis provides a non-technical overview of analytical methods frequently employed in segmentation studies. The objective of this appendix is not to explain how to use multivariate analysis, but rather to acquaint the marketing planner with potential applications for these procedures. The interested reader is advised to consult advance marketing research or statistics texts for further information on multivariate statistical techniques. If you elect to use one or more of these methods in a study, it is suggested that you employ the services of an individual experienced in using the particular method you are seeking to employ. Not all market research firms and/or consultants have expertise using any or all of these techniques.

- **Factor Analysis.** Factor analysis is a method that examines a series of variables and reduces them to a smaller number of key factors that better explain a given marketing situation. The basic aim of factor analysis is to take many variables, and reduce these to a smaller number of "factors." Each factor can be thought of as the basic idea or theme expressed by a group of variables that are highly correlated with that factor. Factor analysis is useful in psychographic and benefit segmentation research. It is used most often to reduce life style, psychological, or benefit variables to broader and more stable dimensions that can then be subjected to clustering procedures.
- **Cluster Analysis.** Cluster analysis includes many techniques aimed at separating (classifying) respondents or objects into groups (clusters). Groups are formed so that any member of a group has more similarities to other members of that group than to members of other groups. These similarities are typically based on psychographic or benefit bases.
- **Classification Tree Methods: (AID, CHAID, or CART).** Classification tree methods greatly expand the ways in which you can analyze, view, and consider survey data and other information.
- **Conjoint Analysis.** Also called "trade-off" analysis, this analytical method measures the impact of varying product attribute mixes on the purchase decision. This statistical approach ranks consumer perceptions and preferences toward products offering different levels of a variety of attributes. Utilities for each level of each attribute are then computed. These utilities can then be evaluated and grouped for segment homogeneity. This technique is particularly useful as part of a benefit segmentation study.
- **Discriminant Analysis.** Discriminant analysis can be highly helpful in interpreting cluster output. This procedure uses the clusters as a "grouping" variable. It then seeks to find which combinations of basis or other variables most differentiate between the clusters. Discriminant analysis can also show how well each cluster has been identified, given detailed information on how much clusters look alike, and even provide each respondent's likelihood of belonging to each cluster group. A discriminant function can be identified that can be used to classify respondents in future studies into the segments identified in a baseline segmentation study.

Resources

Major Sources of Demographic / Marketing Information

The following list of key references is helpful for gathering information needed for segmentation studies. The lists are arranged alphabetically under categories. Generally, these sources are readily available for review at your local public or academic library. Recommend that your company purchase publications that marketing staffs consult frequently. Also, this list is by no means complete, because research sources can vary considerably by industry and market. It does however represent a good starting point – a general reference directory for marketers. The Appendix is organized into three parts: consumer demographics, business demographics, and secondary sources.

I. CONSUMER DEMOGRAPHICS

American Demographics. This monthly magazine is a source for demographic information relevant to consumer change and marketing insights. This journal gives you the essential facts, figures, forecasts, analysis for identifying and segmenting marketing. It features articles on age, education, geography, income, lifestyles, subcultures, trends, spending, and timely consumer topics.

CACI's Sourcebooks. CACI Marketing Systems publishes reference books of selected census data, updates, and forecasts for every zip code and county in the United States (Sourcebook of ZIP Code Demographics and Sourcebook of County Demographics). These desktop guides are easy to use and provide logical and streamlined profiles of 1990 census demographics; they are also available on CD-ROM. The ZIP Code Mapbook of Metropolitan Areas displays 320 maps in an 11" × 17" format.

Census of Population and Housing 1990. This resource offers detailed data on the U.S. population for predefined geographical areas. Census content includes basic population and housing items, as well as social and economic characteristics. Many specialized reports are available. Census products are disseminated in several forms: printed reports, computer tapes, microfiche, online information systems (CENDATA), CD-ROM, and floppy diskettes. The TIGER mapping system provides a handy complement to 1990 Census products.

County and City Data Book. This source is an all-purpose database for all U.S. counties and large cities (population over 25,000). Statistics on population, housing, race, education, marital status, income, employment, occupation, crime, and economic sectors are provided. Available on CD-ROM.

Editor and Publisher Market Guide. This annual reference combines 1990 census data with updated surveys for U.S. and Canadian markets. Local population, household, income, retail sales, newspaper circulation, and related data (and estimates) are featured.

Rand McNally Commercial Atlas and Marketing Guide. Besides being one of the largest books in print, this annual atlas includes traditional area maps, and data on population, economics, communications, and transportation. Canadian statistics are also included.

Sales and Marketing Management's Special Publications. This monthly magazine aimed at sales and marketing professionals offers reference guides such as *The Survey of Buying Power*, *Survey of Media Markets*, and *The Sales Manager's Budget Planners*. These publications feature population estimates, household data, age distributions, and retail sales information. *S&MM's* special issues are particularly helpful for evaluating existing or new markets, analyzing sales territories, measuring market potential, and related marketing decisions.

State and Metropolitan Area Data Book. This government publication reports - via tables, charts, and maps data on U.S. MSAs. The largest part of the reference is arranged by city, and in that section each city is usually divided by suburbs, central city, and MSA. Includes business and government statistics as well as demographics.

Statistical Abstracts. The *U.S. Statistical Abstract* is a logical starting place for many market researchers. This annual reference summarizes and indexes consumer data from the important U.S. government publications. Most states have their own statistical abstracts filled with similar demographic information.

Statistical Handbooks. A series of four targeted publications on *Aging Americans*, *the American Family*, *U.S. Hispanics*, and *Women in America*. In addition to a unique demographic focus for each, these books also address political, social, cultural, and economic issues.

The Numbers News, a monthly newsletter by *American Demographics*, provides market trends and current data releases from government agencies, consumer surveys, and other marketing resources.

Other Good Sources of Consumer Demographics. Business reference librarians were impressed with two new publications from Standard Rates and Data Services (SRDS), the *Lifestyle Market Analyst* and the *Lifestyle Zip Code Analyst*. Claritas' *National Encyclopedia of Residential Zip Code Demography (REZIDE)*, Donnelley's *Market Profile Analysis*, Woods and Poole's *State Profiles*, and the *Zip Code Sale Information Guide* are also worth consulting.

II. BUSINESS DEMOGRAPHICS

Business Census Reports. These publications consist of the following series of individualized Census reports: *Retail Trade*, *Wholesale Trade*, *Services*, *Construction*, *Manufacturing*, *Mineral Industries*, and *Transportation*. These national or state economic reports provide statistics on different kinds of establishments, sales and employment size, and payroll by designated geographic areas and SIC codes. The business censuses are taken every fifth year in years ending in a two or seven (such as 1992 or 1997). In addition to the basic data collected, a number of special subject reports are included detailing specific industries or market related facts. Now available on CD-ROM.

County Business Patterns. A Census Bureau publication organized by county and prepared on an individual state basis, this important reference provides data by SIC code and major industry group. Among the information provided include the number of establishments, number of employees, number of establishments by employment size, the number of large establishments, and payroll for states and counties. Through this source, the industrial marketer can readily identify the number of prospects in a market, determine whether the market is dominated by large or small firms, and estimate market share for a given industry and geographic area. Available on CD-ROM.

Dun's Census of American Business. Do you know how large the national market is for your product? Or where to find the greatest concentration of prospects for it? How about where to locate branches, outlets, and service centers? This source can answer these questions and more. Information includes sales volume, employee size, industry classification, SIC code, and other pertinent data.

Other Good Sources of Business Demographics. You might also check *Markets of the U.S. for Business Planners* by Thomas Conrov and *Manufacturing USA*, a Gale publication. Many state and local/county government agencies provide business demographic information. In addition, don't neglect consumer (Donnelley's *Market Profile Analysis*) or secondary sources (such as *The U.S. Industrial Outlook*). *These and many other nontraditional sources contain some business demographics, even though that is not their primary purpose.*

III. SECONDARY SOURCES

Business Indexes. Some of the major library indexes that you can use to access trade-related articles are *Predicasts F&S*, *Business Periodicals*, *Wall Street Journal*, *New York Times*, *American Statistical*, Business Index, and Magazine Index. Many of these are now available for use on a computer.

Computerized Databases. The latest and greatest entrant into the research 'arena,' online databases are becoming more prevalent as a means of finding published information. There are now dozens of useful databases for marketing applications. Examples include Dialog, ABI Inform, Trade and Industry, the *Predicasts* series, Nexis/Lexis, and; UMI's Newspaper Abstracts. See the Gale *Directory of Databases* for further information.

Directories. Trade directories are one of the best sources for market and customer information. Literally hundreds of specialized directories are available, and they can be of tremendous value to companies seeking marketing information. Some of the most widely used directories include *The Encyclopedia of Associations*; *National Trade and Professional Associations of the United States*; *Findex Directory of Market Research Reports, Studies, and Surveys*; *Thomas Register of American Manufacturers* (available on CD-ROM); *MacRAE's Blue Book*; *Ward's Business Directory of U.S. Firms*; state industrial directories; and Standard and Poor's and Dun and Bradstreet's directories. Don't know where to look? Consider Gale's *Directory of Directories*. It is an annotated guide to business and industrial directories, professional and scientific rosters, and other lists and guides of all kinds.

Statistical Sources. A variety of useful statistical sources provide descriptive information about markets. Some sources provide Statistics only, such as *Predicasts Forecasts*. Other sources, such as *The US. Industrial Outlook* and *Standard and Poor's Industry Survey's*, supplement statistical data with important narrative summaries. U.S. Department of Commerce publications are a good source to tap.

Trade Journals. Some of the best sources for market information are trade journals. These industry-specific publications contain a wealth of information, and one or more trade journals typically exist for virtually every major market or industry. To locate trade journals, a variety of sources can be consulted. Some of these include *Ulrich's International Periodicals Directory*, *Standard Rate and Data Service - Business Publications Rates and Data*, *Bacon's Publicity Checker*, *Writer's Market*, and the *Gale Directory of Publications and Broadcast Media*.

Trade Journals (Special Issues). Three of the best sources of trade information that is published infrequently are *Harfax Guide to Industry Special Issues*, *Special Issues Index* by Greenwood Press, and *Ulrich's Irregular Serials and Annuals*.

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The **Transportation Research Board** is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation by stimulating and conducting research, facilitating the dissemination of information, and encouraging the implementation of research results. The Board's varied activities annually draw on approximately 4,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce M. Alberts is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Kenneth I. Shine is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purpose of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine. Dr. Bruce M. Alberts and Dr. William A. Wulf are chairman and vice chairman, respectively, of the National Research Council.

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation