Institute of Transportation Studies
(University of California, Davis)

Year 2000 *Paper UCD−ITS−RR−*00−08

Identifying and Analyzing Travel−Related Attitudinal, Personality, and Lifestyle Clusters in the San Francisco Bay Area

Lothlorien Redmond
University of California, Davis

This paper is posted at the eScholarship Repository, University of California.
http://repositories.cdlib.org/itsdavis/UCD−ITS−RR−00−08
Copyright ©2000 by the author.

Identifying and Analyzing Travel−Related Attitudinal, Personality, and Lifestyle Clusters in the San Francisco Bay Area

Abstract

This report is part of an ongoing study of attitudes toward the act of traveling and the relationship of these attitudes to travel behavior and other characteristics. The primary purposes of this portion of the research are as follows: 1. From sets of interrelated variables, use factor analysis to identify the fundamental dimensions of Attitude, Personality, and Lifestyle characteristics relevant to this research; 2. Use cluster analysis to group respondents with similar profiles on those Attitude and Personality and Lifestyle characteristics; and 3. Analyze differences between clusters in terms of demographic traits, travel behavior, and other characteristics. The expectation is that clustering respondents with similar Attitudes and Personality and Lifestyle characteristics will offer insights into travel behavior that differ from those that can be gained from typical demographic characteristics.

Understanding and accurately predicting travel behavior can help us develop appropriate and successful policies for the future. Unfortunately, predicting human behavior has consistently proven difficult. This thesis adds to the extensive research on travel attitudes and their connections to travel behavior, through the empirical measurement of new variables and new relationships. Specifically, travel attitudes and their connection to behavior have typically been studied with an emphasis on specific travel behaviors (i.e. the amount of travel, safety and risk behavior, or behavior aimed specifically at helping the environment). This research emphasizes attitudes toward travel itself, and explores how those attitudes are related to the individual's general travel behavior and the desire to change that behavior.

IDENTIFYING AND ANALYZING TRAVEL-RELATED ATTITUDINAL, PERSONALITY, AND LIFESTYLE CLUSTERS IN THE SAN FRANCISCO BAY AREA

UCD-ITS-RR-00-08

by

LOTHLÓRIEN S. REDMOND
B.A. (Antioch College, Yellow Springs, OH) 1996

THESIS
Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

The Graduate Group in Transportation Technology and Policy

in the

INSTITUTE OF TRANSPORTATION STUDIES

of the

UNIVERSITY OF CALIFORNIA
DAVIS

Approved:

_____

_____

_____

Committee in Charge

2000

Table of Contents:

List of Tables:

List of Figures:

EXECUTIVE SUMMARY:

This report is part of an ongoing study of attitudes toward the act of traveling and the relationship of these attitudes to travel behavior and other characteristics. The primary purposes of this portion of the research are as follows: 1. From sets of interrelated variables, use factor analysis to identify the fundamental dimensions of Attitude, Personality, and Lifestyle characteristics relevant to this research; 2. Use cluster analysis to group respondents with similar profiles on those Attitude and Personality and Lifestyle characteristics; and 3. Analyze differences between clusters in terms of demographic traits, travel behavior, and other characteristics. The expectation is that clustering respondents with similar Attitudes and Personality and Lifestyle characteristics will offer insights into travel behavior that differ from those that can be gained from typical demographic characteristics.

Understanding and accurately predicting travel behavior can help us develop appropriate and successful policies for the future. Unfortunately, predicting human behavior has consistently proven difficult. This thesis adds to the extensive research on travel attitudes and their connections to travel behavior, through the empirical measurement of new variables and new relationships. Specifically, travel attitudes and their connection to behavior have typically been studied with an emphasis on specific travel behaviors (i.e. the amount of travel, safety and risk behavior, or behavior aimed specifically at helping the environment). This research emphasizes attitudes toward travel itself, and explores

how those attitudes are related to the individual's general travel behavior and the desire to change that behavior.

We used 1998 survey data from 1,904 respondents in three neighborhoods in the San Francisco Bay area. The neighborhoods represent one example of a typically urban area and two examples of suburban neighborhoods. The survey itself contains sections on travel attitudes, personality and lifestyle characteristics, actual travel patterns, liking for travel, perceived amount of travel, desire to reduce or increase travel, efforts to reduce or ease travel and demographics.

The Attitude section is composed of 32 variables directly associated with travel patterns, comfort while traveling, and beliefs about current transportation problems and possible solutions. The six factors obtained from this section represent the range of variables analyzed: Travel Dislike, Pro-environmental Solutions, Commute Benefit, Travel Freedom, Travel Stress, and Pro-high Density. Five of these six factors (all except Commute Benefit, which was defined only for commuters) were used to create six Attitude clusters (their names are based on dominant travel and demographic characteristics): Affluent Professionals, Transit-using Urbanites, Homemakers and Older Workers, Travel Haters, Excess Travelers, Adventurous, Car-Oriented Suburbanites.

The Personality section of the survey consists of 17 descriptive terms that respondents ranked as being more or less evocative of their personality. The four factors obtained from this section are: Adventure Seeker, Organizer, Loner, and the Calm personalities.

The Lifestyle section of the survey focused 17 statements on prioritizing such things as work, family, status or community. The four factors extracted from these statements were: Frustrated, Family and Community oriented, Status Seeking, and Workaholic.

The Personality and Lifestyle factors were clustered together to create 11 Personality and Lifestyle clusters: New Family Model, Homebodies, Mobile Yuppies, Transit Advocates, Assistant VPs, Status Seeking Workaholics, Suburban and Stationary, Older and Independent, Middle-of-the-roaders, Travel Lovin' Transit Users, and Frustrated Loners. Table i contains a summary of the Attitude and Personality and Lifestyle clusters.

Table i: Cluster Summaries

Cluster Name (Sample Percent)	Description
Attitude Clusters	
Affluent Professionals (17.5%)	Affluent and mobile, this cluster eats out a lot, is not family and community oriented and usually doesn't have a (large) family. They seem to be more entertainment oriented than work oriented.
Transit-using Urbanites (15.0%)	Young, urban, highly educated and community oriented. This cluster is pro-environment and pro-high density (they live in urban areas and like it).
Homemakers and Older Workers (20.5%)	Older suburbanites who focus on family and home and don't particularly like travel.
Travel Haters (12.1%)	This work-oriented cluster doesn't like travel, does as little as possible and wants to do less of it.
Excess Travelers (19.7%)	Young, urban, highly educated and Adventure Seeking. This cluster is pro-environment and pro-high density, and pro-travel. Not one of the highest income groups, perhaps because they are prioritizing their adventure time over work time and status-seeking.
Adventurous, Car-Oriented Suburbanites (15.2%)	Car-bound, excess travelers, oldest, organized, status conscious, and suburban.
Personality and Lifestyle Clusters	
New Family Model (11.0%)	Young families, enjoy traveling for fun but not for work, family/community oriented but not settling down.
Homebodies (8.1%)	Not particularly social, don't really like travel, one of the more neutral clusters compared to the others.
Mobile Yuppies (6.8%)	Young, professional, highly educated, travel lovers.
Transit Advocates (10.0%)	Highly educated, environmentally sensitive, transit-oriented.
Assistant VPs (10.9%)	Suburban, auto-oriented (but not particularly travel loving), older, least educated, frustrated.
Status Seeking Workaholics (9.0%)	Travel most (miles and frequency) for work, auto-bound, enjoy work travel... one of the more extreme clusters - most Status Seeking, Workaholic and not Calm.
Suburban and Stationary (10.8%)	Mostly older, suburban women, calm, don't travel a lot.
Older and Independent (9.4%)	Older, independent, unencumbered (most strongly NOT family/community oriented), entertainment focused.
Middle-of-the-roaders (8.7%)	Most neutral cluster, most strongly family/community oriented.
Travel Lovin' Transit Users (7.1%)	Highly educated urban women, middle income, environmentally sensitive, like short distance travel by bus, strong excess travelers, highest walking share of total miles traveled.
Frustrated Loners (8.1%)	Most extremely frustrated, above average commutes, somewhat transit oriented.

The clusters were evaluated in terms of travel liking, relative desired mobility (a desire to increase or decrease the amount of travel), perceived amount of travel, objective mobility, an excess travel indicator and demographic characteristics. The cluster analysis showed unmistakable and significant differences in travel behavior between clusters and points to the important role that attitudes, personality and lifestyle characteristics play in determining travel behavior.

CHAPTER 1: INTRODUCTION

Understanding and accurately predicting travel behavior can help us develop appropriate and ultimately successful policies and technologies for the future. Unfortunately, predicting human behavior has consistently proven to be difficult. This thesis adds to the extensive research on travel attitudes and their connections to travel behavior, through the empirical measurement of new variables and new relationships. Specifically, we have used data from just over 1900 mail-out, mail-back surveys in the San Francisco Bay Area from 1998. This survey yielded an extensive data set of which this research is only a part[1].

Travel attitudes and their connection to behavior have been studied in many ways, but generally the emphasis has been on the behavior (which is of greater interest to planners and more applicable for policymakers). Focusing on Attitudes and Lifestyle and Personality factors puts the emphasis on the travel attitudes themselves to explore how the attitudes are affecting travel in general. The primary purpose of this thesis is to explore the travel attributes associated with people having different attitude, personality and lifestyle characteristics. In order to define sets of characteristics to compare, we first factor analyzed each of the attitude, personality and lifestyle sections of the survey. Then we used cluster analysis of these factors to define groups of respondents with similar characteristics (similar scores on the factors).

[1] The sections explored in this thesis focus on Attitude, Personality and Lifestyle characteristics as they relate to travel and, as can be seen from their definitions, these sections are closely related. Attitudes have been defined as evaluative processes that dispose an individual to react in a certain way to a give situation. Attitudes are acquired (and changed) through experience and influence future behavior. Personality is the combination of relatively enduring attitudes that are expressed consistently and predictably in various

The organization of this thesis is as follows. The following chapter discusses some key literature concerning attitudes and travel behavior. This brief literature review cannot mention all the influential travel attitude and behavior research, however, we have attempted to offer examples of the literature that discusses the connection between attitudes and behavior, the role of intentions in making this connection, the confounding influences of habitual behavior and the role of social pressures in travel decision making.

The third chapter discusses the survey design and sample methodology. This chapter contains details about the survey and the three sampled neighborhoods. It also illustrates the representativeness of the sample in terms of key demographic variables. Chapter 3 concludes with a description of the survey sections and variables relevant to the cluster analysis.

The final results of this research are two cluster analyses based on factor analyses of the Attitude, Personality and Lifestyle sections of the survey. Generally, factor analysis is used to distill a set of variables into a smaller set of underlying ideas. In this research, six factors were extracted from the 32 Attitudinal variables, and the 17 Personality variables and 17 Lifestyle variables were distilled into four factors each. Chapter 4 discusses the Factor Analysis in greater detail. Chapter 4 begins with an overview of factor analysis in general and the considerations specific to deciding on a final factor solution. This is followed by a discussion of the unique aspects of the three factor analyses in detail. Finally, I will describe the chosen factor solutions.

---

situations (Baron and Byrne, 1991). Lifestyle has been defined as repeated activity patterns over a period of time, and is tied to the relative priority an individual gives to various aspects of his life (Camstra, 1996).

Chapter 5 discusses the cluster analysis methodology. The considerations and judgments made in the cluster analyses are similar for both the Attitude clusters and the Personality and Lifestyle clusters and therefore, cluster analysis in general and the issues relevant to both the final cluster solutions are discussed together in Chapter 5.

The final cluster solutions include six Attitudinal clusters and eleven Personality and Lifestyle clusters[2]. Clusters 6 and 7 discuss the Attitude and Personality and Lifestyle cluster solutions respectively. First, specific characteristics of the cluster solutions are discussed in each chapter and then the clusters are described in detail. Clusters are described in terms of their relative size and their cluster centroid. The centroid is the mean value for the cluster on the variables (factor scores) used to define that cluster. Finally, the clusters are described in terms of their means and distributions for other variables of interest.

It is necessary to look at the differences between the clusters to understand what makes them unique, what defines them as a distinct cluster. However, for many of the variables, the clusters have similarly positive or negative responses and the difference is only in degree. Chapter 8 discusses some of these overall trends and considers possible connections between the clusters. Finally, Chapter 9 concludes and offers specific suggestions for further research.

[2] The Personality and Lifestyle factors were combined for the cluster analysis.

CHAPTER 2: LITERATURE REVIEW

Travel behavior is complex and predicting it difficult because there are many considerations and few (if any) truly hard and fast rules. Travel behavior is modeled as a function of measurable attributes such as socio-demographic characteristics and physical characteristics (of the individual and of the system). However, there are less easily defined aspects such as social pressures and influences, the momentum of a car-culture, the perception of control over travel options, what a typical (habitual) response for a given situation may be, and personal attitudes about travel in particular (and the order of things in general that influence travel behavior as well). To compound this confusion, determining which of these (and other) influences receives the greatest weight at any one time is largely situational. While researchers have long understood that individuals' personality, attitudes and perceptions affect their travel behavior (and the literature to support this has grown over the last 30 years), this understanding has not necessarily made the task of predicting travel behavior any easier. For each new insight, the complexity of the situation is revealed a little more.

The available literature on travel attitudes and behavior is far too extensive to do justice to here. Instead we have focused on several issues that seem to offer a relevant background to the attitude and travel discussion presented in this thesis.

In the 1970s, attitude and behavior research took several forms. Many have struggled to find consistent predictors of behavior. Dumas and Dobson (1979) looked at the effects of

attitudes on beliefs and behavior and came up with an interactive progression in which beliefs and attitudes affect overall liking of a system, which affects frequency of use, which, in turn, influences (and maybe reinforces) beliefs and attitudes. In this progression we find an early conceptualization of the "liking" for travel that is an important variable in our survey and is discussed in Chapter 3. Other researchers began considering intentions as a mediator between attitudes and behaviors in an attempt to explain the disconnect between the two. Specifically, the idea is that intentions (which are based on attitudes) are better predictors of behavior than attitudes (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). More recently, the importance of the perceived control over the behavior (the expectation of success) has been asserted (Ajzen, 1985). This can almost be viewed as a weight for the predictive value of the intention - the greater the perceived control, the more likely the intention will be carried out. The confounding exception to this attitude-intention-behavior correlation is the case of habitual behavior (Gärling, 1992).

Habitual travel is not generally outside of an individual's attitudes and beliefs, but the immediate consideration of them has given way to rote action. The very idea of a habit is that a conscious thought has been truncated due to a set of familiar inputs. Aarts, et al. (1998), look at travel mode choice as an example of repeated behaviors. The authors assert that once these behaviors are repeated enough they become habit, and with each repetition reinforce themselves. If we consider that some travel choices are habitual, it makes travel research and appropriate policy creation very difficult. It may be more

difficult (for both respondent and researcher) to disentangle the attitudes and circumstances that worked to create the habit, from the habit itself.

These attitudes are discussed in relation to various events, emotions, thoughts and prejudices, but what do we mean by attitudes? Gärling, et al. (1998) establish attitudes as responses to some stimuli that are then connected to an action. Hjorthol and Berge (1997) agree and add that attitudes are a "relatively stable" (p. 2) set of opinions. An attitude includes some evaluation of a situation in response to stimuli *and* an inclination to act.

For the purposes of this research, the definitions above work rather well. In fact, these definitions encompass both the "Attitude" section and the "Lifestyle" section of our survey. The Attitude section includes opinions about travel in general, commuting in particular, public transportation, traffic, and the environment, with a few questions about land use. The Lifestyle section includes personal views that are more directly tied to lifestyle choices, such as opinions about the use of time, work, family and status. However, in each case we expect the attitudes to be important influences on behavior or actions.

Subjective influences on travel behavior, such as attitudes, are difficult to measure, interpret and reproduce. However, research in the recent past has attempted to build on the existing base of travel attitudes and behavior research. This has taken the form of independent survey research (Cullinane, 1992; Golob and Hensher, 1998; Harata, 1994;

Kitamura, et al., 1994; Nilsson, 1997; Pazy, et al., 1996), extensive work with the Nationwide Personal Transportation Survey (NPTS), theoretical discussions of the connection between travel attitudes and behavior (Forward, 1994; Gärling, et al., 1995; Kuppam, et al., 1999) and explorations of the social and psychological aspects of travel and automobile use (de Boer, 1986; Flink, 1988; Lewis and Goldstein, 1983; Marsh and Collett, 1986; Rae, 1971; Wachs and Crawford, 1992; Webber, 1992). The history of travel behavior research has been full of debates around the role of travel attitudes in modeling travel behavior. Although attitudes have been used in explanatory models of travel behavior based on relatively small samples, it is the expanding of those modeled relationships onto larger samples and into the future to make predictions that proves the most difficult. Generally, it seems that behavioral research has found a place for travel attitudes, and evidence clearly shows that the inclusion of travel attitudes, and personality and lifestyle factors, has more explanatory power than demographics alone (Forward, 1998; Jones, 1992; Kuppam, et al., 1999; Nilsson, 1997; Pazy, et al., 1996, Rudinger, et al., 1999). There seem to be numerous confounding factors when predicting travel behavior from attitudes, not the least of which is the difficulty in obtaining quality data.

Some have even proposed more "subjective" measures of typical demographic variables. Rudinger, et al. (1999) explains that "subjective age" more accurately predicts and explains travel behavior than demographic age (subjective age refers to various attitude and lifestyle characteristics). The authors explain, "*Subjective age* accounts better for differences in the self-perceived psychophysical skills, in risk perception and in the frequency of driving than chronological age… Elderly people who are intellectually

interested and socially active drive more frequently and more often in demanding traffic conditions (such as heavy traffic, bad weather conditions, darkness) than those who are rather indifferent and passive" (p. 7). Rudinger, et al. (1999) are attempting (we believe) to tie demographic characteristics into psycho-social processes in travel decision making and behavior.

The psycho-social aspects of travel behavior are also addressed by the Social Dilemma literature. The "social dilemma" (Garvill [draft]; Tertoolen, et al., 1998) - the sometimes contradictory interests between collective, social benefits and individual benefits - places a strain on the individual. This cognitive dissonance also exists between personal attitudes and behavior. To resolve it, individuals must choose - between either the social good or individual good, or between modifying either their actions or their attitudes. Indeed, the social dilemma creates problems for researchers on two levels. First, prediction is clearly more difficult when actions do not follow logically from attitudes but are in conflict with some of them. Second, it exploits an inherent problem with self-administered surveys, namely that surveys (such as ours) do not measure action, but *reported* action and in some cases, reported intent that may never lead to action.

Travel-related Attitudes are discussed in the literature in several distinct ways - but all generally referring to something else which is of primary interest. Whether this something else is a discussion of attitudes toward safety (Rumar, 1989), attitudes toward potential policy changes (Curtis and Headicar, 1997; Golob and Hensher, 1998; Harata, 1994; Nilsson, 1997; Pilling, et al., 1998; Stokes and Taylor, 1995; Tertoolen, et al.,

1998; Vlek and Steg, 1996), or attitudes toward congestion and the environment (Cullinane, 1992; Golob and Hensher, 1998; Hjorthol and Berge, 1997), the focus is not on the travel attitudes in general but on the specific attitudes toward something related to travel.

The literature that is directly related to the following thesis is relatively new and focuses on attitudes toward travel itself. At the heart of this research are somewhat contentious ideas - that people enjoy traveling to some extent, and that there may be a positive utility even to mandatory travel. Specifically, that these factors must at least be considered when attempting to make policies to affect travel. Mokhtarian and Salomon (forthcoming) have identified multiple components of a positive utility of traveling: the utility of travel for its own sake (e.g., enjoyment of the sensation of speed), the utility of the activities that can be accomplished while traveling (e.g., listening to books on tape or simply having time alone), and the utility of the destination (the typically assumed purpose of travel). The idea that travel itself (whether for the utility of travel or the activities that can be done while traveling) may entail some utility, rather than being a disutility to be minimized, has important research and policy implications. Considering attitude and personality and lifestyle characteristics that have an effect on travel takes a step toward achieving this understanding.

Salomon and Mokhtarian (1998) address the question of an intrinsic drive for mobility and hypothesize reasons for excess travel. They conclude that understanding attitudes toward mobility and specifically, understanding how travelers perceive the travel that

they do, are important in predicting the effectiveness of policies. More recent follow-up research has supported this idea. Specifically, there are segments of the population that feel that they want to travel more than they do by certain modes or for certain purposes, and this cannot necessarily be predicted by their reported amount of travel (i.e. we cannot say that people who travel more than average necessarily want to reduce their travel). Rather, this desire for more or less travel is tied to the respondents' perception of their travel (Mokhtarian and Salomon, forthcoming). Further, recent research to determine the relationships among travel liking and perceived amount of travel, and the desire to travel more or less (Relative Desired Mobility), illustrates the importance of these factors. Specifically, Curry (2000) found that understanding how much respondents like travel (particularly by purpose) is essential for determining the respondent's Relative Desired Mobility. In this way it is possible for individuals to travel a lot and want to do more of it or, conversely, travel very little and still want to reduce it based on how much they like traveling. The relationship between Perceived Mobility and Relative Desired Mobility is more complex. Curry (2000) found an inverse relationship between Relative Desired Mobility and Perceived Mobility (the more one travels, the less one wants to travel) for mandatory travel and less popular modes, no strong predictive relationship for short-distance discretionary travel and long-distance in a personal vehicle, and a positive relationship (the more one travels, the *more* one wants to travel) for long-distance entertainment and short-distance recreational modes (walk/bike/jog).

The specific contribution of this thesis is to continue the examination of attitudes toward traveling itself and related matters such as land use and the environment, as well as

measures of more fundamental lifestyle and personality traits. We then explore connections between attitudes, behavior and demographic indicators.

CHAPTER 3: DATA COLLECTION AND SURVEY METHODOLOGY

This chapter is intended to provide a basis for understanding the survey design and the sample data. The first section describes the survey methodology and the surveyed neighborhoods. The next section gives some key demographic characteristics of the sample and compares these characteristics with the 1990 census. The final section describes the variables measured by the survey.

3-1: SURVEY AND NEIGHBORHOODS

The data analyzed in this study comes from a 14-page mail-out, mail-back survey containing questions about objective and perceived mobility, attitudes toward travel, lifestyle and personality questions, travel liking, relative desired mobility (a measure of satisfaction with existing travel), and a series of demographic questions. The surveys were sent to 8000 randomly selected households in the San Francisco Bay Area in May and June, 1998. Half of the surveys (4000) were sent to an urban neighborhood in North San Francisco, and the other half were evenly divided between two contiguous suburban neighborhoods: Concord and Pleasant Hill. Of these 8000 surveys, just over 2000 were returned. After screening out surveys with too much missing data on key variables, we were left with 1904 surveys for an overall response rate of 23.8% (22.2% for North San Francisco, 23.7% for Concord and 27.2% for Pleasant Hill).

3-1a: Neighborhoods

The purpose of the survey is to better understand attitudes toward travel and mobility, and how these attitudes relate to current and desired travel behavior. We hypothesized that these attitudes may vary by type of residential location, because different locations may both cause, and be an outcome of, different experiences and values with respect to travel. Therefore, we wanted the sample to encompass a range of traditional (urban) and non-traditional (suburban) neighborhoods. Concord, Pleasant Hill and an area defined by Kitamura, et al. (1994) as North San Francisco were chosen as a representative range. North San Francisco is the typically urban neighborhood and represents a dense mixed land use pattern that is well-served by public transportation (primarily bus). The two examples of suburban neighborhoods (Concord and Pleasant Hill) were chosen to represent different variations of suburbia. They differ in terms of average income, percent of land that is mixed use versus purely residential, and access to transit.

We chose these sections of the San Francisco Bay Area for several reasons. Primarily, these neighborhoods have been studied before, offering a pre-existing point of comparison. In fact, Kitamura, et al. (1994) completed a full inventory (in 1994) of all three areas for their study, and although we did not adhere strictly to their boundaries we used this work as a point of reference. Appendix 1 shows the differences between our definitions of the neighborhoods and those employed by Kitamura, et al.

North San Francisco and Concord are excellent examples of typical urban and suburban areas respectively. North San Francisco is a traditional neighborhood with well-mixed land uses and high residential density. While there is no BART access in this part of the city, there are 21 bus routes that serve this area. A pedestrian-friendly environment makes walking more common than in the other neighborhoods. Concord, on the other hand, has typically low residential density and segregated land uses, and Kitamura, et al. (1994), defines it as actually discouraging walking. Concord has several bus routes and BART access in part of the city, but is largely automobile dependent. Further, to increase the diversity of neighborhoods studied, we decided to include another suburban area, Pleasant Hill. There are a similar number of bus routes in Concord and Pleasant Hill and neither is particularly pedestrian friendly. However, Pleasant Hill has about twice as many people per acre of residential land and has a lower mean annual household income compared to Concord (according to Kitamura, et al. 1994).

By surveying North San Francisco, Pleasant Hill, and Concord we have collected our sample from a range of neighborhoods representing a variety of land use configurations, travel patterns, demographic characteristics, and, presumably, attitudes; these particular neighborhoods will also allow for comparison with previous studies.

3-2: KEY DEMOGRAPHIC CHARACTERISTICS AND REPRESENTATIVENESS OF THE SAMPLE

Respondents are relatively evenly divided between the urban and suburban neighborhoods. In accordance with the instructions in the beginning of the survey, they are also all eighteen years old or older. As expected, almost 98% of respondents have driver's licenses and a vehicle available to them most of the time. The mean household size for our sample is 2.4 people and the average actual commute time is 30 minutes one way. Table 1 lists these and other key statistics of the sample.

Table 1: Key Demographics of Sample (N=1904)

CHARACTERISTIC		COUNT (PERCENT)			
		Total	**North San Francisco**	**Pleasant Hill**	**Concord**
% of sample		1904 (100)	888 (46.6)	543 (28.5)	473 (24.8)
Have a driver's license [T1, N1, C1*]		1857 (97.7)	854 (96.4)	541 (99.6)	462 (97.9)
Age category [T1, N1, C1]					
	23 or younger	61 (3.2)	35 (4.0)	15 (2.8)	11 (2.3)
	24 – 40	691 (36.3)	439 (49.5)	130 (23.9)	122 (25.8)
	41 – 64	894 (47.0)	332 (37.5)	294 (54.1)	268 (56.8)
	65 – 74	155 (8.2)	48 (5.4)	59 (10.9)	48 (10.2)
	75 or older	100 (5.3)	32 (3.6)	45 (8.3)	23 (4.9)
Educational background [T2, N2, C1]					
	Some grade school or high school	15 (0.8)	8 (0.9)	4 (0.7)	3 (0.6)
	High school diploma	126 (6.6)	25 (2.8)	34 (6.3)	67 (14.2)
	Some college or technical school	506 (26.6)	152 (17.1)	188 (34.6)	166 (35.2)
	4-year college/technical school degree	603 (31.7)	328 (37.0)	158 (29.1)	117 (24.8)
	Some graduate school	211 (11.1)	110 (12.4)	49 (9.0)	52 (11.0)
	Completed graduate degree(s)	441 (23.2)	264 (29.8)	110 (20.3)	67 (14.2)
Current employment status [T3, P1]					
	Full-time	1249 (65.6)	640 (72.1)	325 (60.0)	284 (60.0)

CHARACTERISTIC		COUNT (PERCENT)			
		Total	**North San Francisco**	**Pleasant Hill**	**Concord**
	Part-time	267 (14.0)	128 (14.4)	79 (14.6)	60 (12.7)
	Homemaker	60 (3.2)	16 (1.8)	24 (4.4)	20 (4.2)
	Non-employed student	25 (1.3)	13 (1.5)	5 (0.9)	7 (1.5)
	Unemployed	37 (1.9)	19 (2.1)	7 (1.3)	11 (2.3)
	Retired	265 (13.9)	72 (8.1)	102 (18.8)	91 (19.2)
Occupation category [T4, N3, P1, C2]					
	Homemaker	88 (4.6)	23 (2.6)	42 (7.7)	23 (4.9)
	Service/repair	97 (5.1)	38 (4.3)	33 (6.1)	26 (5.5)
	Sales	165 (8.7)	72 (8.2)	45 (8.3)	48 (10.2)
	Production/construction/ crafts	79 (4.2)	30 (3.4)	16 (2.0)	33 (7.0)
	Manager/administrator	388 (20.5)	179 (20.3)	120 (22.1)	89 (18.9)
	Clerical/administrative support	195 (10.3)	80 (9.1)	67 (12.4)	48 (10.2)
	Professional/technical	844 (44.5)	445 (50.4)	212 (39.1)	187 (39.7)
	Other	40 (2.1)	16 (1.8)	7 (1.3)	17 (3.6)
		MEAN (STANDARD DEVIATION)			
		Total	**North San Francisco**	**Pleasant Hill**	**Concord**
Ideal one-way commute time [T5, N4, P2, C3]		16.3 (8.8)	16.4 (8.4)	16.0 (8.9)	16.5 (9.2)
Actual one-way commute					
	… time (minutes) [T6, N5, P3, C4]	29.7 (21.1)	28.1 (18.3)	30.8 (21.8)	31.7 (25.2)
	… distance (miles) [T7, N6, P4, C5]	14.5 (20.2)	11.1 (17.7)	17.5 (14.6)	18.5 (27.8)
Number of personal vehicles per HH [T8, N7, C2]		1.9 (1.8)	1.5 (1.0)	2.2 (1.2)	2.4 (3.0)
Percent of time vehicle is available [T4, N7, P5, C6]		90.8 (25.6)	83.6 (33.4)	98.5 (8.4)	95.6 (16.8)
Number of persons in HH		2.4 (1.2)	2.1 (1.2)	2.4 (1.2)	2.7 (1.3)
Number of workers in HH [T9, N8, P6, C7]		1.6 (0.9)	1.6 (0.9)	1.5 (0.9)	1.6 (1.0)

* In the following listing of sample sizes, T stands for Total, N stands for North San Francisco, C stands for Concord, and P stands for Pleasant Hill. Percents are based on non-missing responses.

T1 = 1901	T2 = 1902	T3 = 1903	T4 = 1896	T5 = 1531	T6 = 1420
T7 = 1394	T8 = 1899	T9 = 1872	N1 = 886	N2 = 887	N3 = 883
N4 = 825	N5 = 700	N6 = 687	N7 = 885	N8 = 875	C1 = 472
C2 = 471	C3 = 417	C4 = 337	C5 = 330	C6 = 470	C7 = 466
P1 = 542	P2 = 489	P3 = 383	P4 = 377	P5 = 541	P6 = 531

The purpose of this study is to identify and understand the range of attitudes toward mobility, not to rigorously represent the distribution of those attitudes across the population as a whole. It is nevertheless relevant to examine the extent to which our sample is representative in terms of the key demographic variables listed in the previous section. Appendix 2 compares our sample data to the Census data for the same zip codes that our data came from and for the US as a whole. Our sample is representative in terms of gender (although the survey sample is closer to the US population than to our survey area population), age distribution within households and average commute times (in these respects closer to the neighborhood distribution). However, our sample is also biased in certain ways. For instance, our sample is clearly skewed towards higher household incomes - a typical bias for most surveys. Our sample is further skewed toward smaller households and more educated respondents. Although this cannot be tested, our sample is likely to be skewed toward individuals with strong opinions in either direction (and an interest in expressing those opinions) about the transportation system as it exists and travel in general. Our relatively high response rate (almost 25%) for such a lengthy survey indicates that this is a central issue in people's lives.

3-3. VARIABLES

The variables included in this analysis can be grouped into nine categories: Objective Mobility, Perceived Mobility, Relative Desired Mobility, Travel Liking, Attitudes, Personality, Lifestyle, Excess Travel, and Demographics. These categories are briefly discussed below.

Objective Mobility:

These questions ask about amounts of current travel by mode and purpose in terms of distance and frequency, distinguishing long-[3] and short-distance. This is intended to be a straightforward report of existing travel. On one hand, reported estimations of *typical* travel, such as we obtained here, are not as reliable as travel diary data. However, on the other hand, travel diaries can be criticized for generally encompassing only a few days of travel and therefore potentially being unrepresentative at the disaggregate level. Of course, these measures are based on individuals' perceptions of distance, frequency, and the actual amount of time they spend traveling, and are therefore estimations that must be understood to be *reported* amounts of travel. The frequency responses are based on a 6-point scale from "never" to "5 or more times a WEEK". Distance is simply reported in miles. The distance traveled by mode and purpose was reported directly; in some cases it was analyzed as a percent of total distance traveled[4].

[3] Consistent with the American Travel Survey, long-distance travel is defined as 100 miles or more one-way.

[4] The "other" category for mode is included in the total travel but a percent variable was not constructed for this category - therefore the total percent for each case may not add to 100%.

Excess Travel[5]*:*

A more indirect measure of Objective Mobility was constructed to qualitatively measure the frequency with which respondents engaged in various activities that could be considered unnecessary travel. Thirteen statements describe activities such as traveling "just to be alone" and "just for the fun of it". The responses to these statements were considered both individually and combined into one Excess Travel Indicator (ETI). The individual responses are based on a three-point scale of frequency: "Never/seldom", "Sometimes" and "Often". The Excess Travel Indicator scaled these responses to range from zero to two and then added them together. Therefore the ETI will range from zero (never engaging in excess travel for our given reasons) to 26 (engaging in all indicators of excess travel "often").

The following three types of variables share exactly the same survey format. Respondents were asked to rate each type of travel on a five-point scale with the anchors defined appropriately for each type of variable. Each category contains questions for travel overall, and by mode and purpose, separating long- and short-distance.

[5] The wording of the Excess Travel questions is as follows: "Keeping in mind that travel is going any distance by any means, *how often do you travel*...".

Perceived Mobility[6]*:*

Aside from the Objective amount people travel, the way they perceive that travel is expected to be important and largely individual. While one person may consider 100 miles a week to be "a lot" of travel, another may consider it to be "a little". Therefore, respondents were asked about their Perceived Mobility overall and by purpose and mode, for short- and long-distance. These responses are in the form of a 5-point semantic differential scale whose extremes were labeled "None" and "A lot". For these questions a value of "3" is assumed to be a neutral or medium response (although there is no specific label given for a response of "3").

Relative Desired Mobility[7]*:*

Our hypothesis when constructing the survey was that, independent of the actual amount that people travel (Objective Mobility), they may want to travel more or less. Similarly, an individual may think that she travels "a lot" (Perceived Mobility) but enjoy it and want to do more of it, while someone else who travels "a lot" may want to reduce it. This is the underlying concept of RDM. It is intended to be a measure of satisfaction with the current travel and is the link between actual travel and ideal travel. Defining this as satisfaction with travel, is to say for example that if a respondent wants to travel "about the same" then she is considered satisfied. However, if our respondent wants to travel either "less" or "more" then she has some degree of dissatisfaction with her current

---

[6] The wording of the Perceived Mobility questions is as follows: "For each of the following categories, circle the number on the scale which best describes how *you* view the amount of travel *you* do. For **short-distance** trips (100 miles or less *one way),* I feel that I travel…".

[7] The wording of the Relative Desired Mobility questions is as follows: "Now, we want to get your *reaction* to the amount of travel you do in each of the categories below. For **short-distance** trips, I'd like to travel (Much less . . . Much more) compared to what I do now:".

travel. Again, a five-point scale is used for responses for overall and by mode and purpose, for short- and long-distance. In this case the responses range from "much less" to "much more" with a "3" equal to "about the same" (representing relative satisfaction).

Travel Liking[8]*:*

As discussed above, respondents may “like” what they consider to be “a lot” or “a little” travel, and most likely have varied affinities for travel by specific modes and for specific purposes. Respondents were again asked to rank their “overall” liking and their liking by mode and purpose on a five-point scale from "strongly dislike" to "strongly like". For these questions a response of "3" is assumed to correspond to "neutral".

The following three categories represent travel attitudes, the respondents' personalities, and their lifestyles. These variables were used in the factor analyses and therefore measurements in these categories will be primarily represented by factor scores. Because these variable types are the focus of the next few chapters, only a brief description is offered here.

Attitudes:

The survey contained 32 attitudinal statements related to travel, land use characteristics, and the environment. Respondents were given a five-point Likert-type scale on which to rate their responses, from "strongly disagree" to "strongly agree". For these variables, a

[8] The wording of the Travel Liking questions is as follows: "How do you feel about *traveling* in each of the following categories? We are *not* asking how you feel about the activity at the destination, but about the travel required to get there. Even if you seldom or never travel in a certain category, you may still have a feeling about it."

"3" is again, "neutral". These statements were distilled into six underlying dimensions (that are discussed in detail in Chapter 4) using factor analysis.

Personality:

Respondents were asked to indicate how well (on a five-point scale from "hardly at all" to "almost completely") they think each of 17 words and phrases described their personality. Here a "3" indicates "moderately well". Factor analysis was used to define four personality factors (discussed in detail in Chapter 4) based on these statements.

Lifestyle:

The survey contained 18 statements (with the same Likert-type response scale as the Attitude section) relating to work, family, money, status and the value of time. Seventeen of these 18 statements comprise the four Lifestyle factors discussed in Chapter 4. One variable, "I view my car (or other vehicle) as having a personality" was not included in the factor analysis because 113 respondents stated that they did not have a vehicle.

Demographics:

The last section of the survey includes an extensive list of demographic variables to allow for comparison to other surveys and the census data. Many of these variables proved significant in the cluster analysis. These questions are sometimes categorical, and sometimes have units of years, miles or minutes. The units for these variables are either given or can be easily inferred.

CHAPTER 4: FACTOR ANALYSIS

We used factor analysis to identify the underlying constructs of the 32 Attitudinal variables, the 17 Personality variables, and the 17 Lifestyle variables. A list of each set of variables appears as part of the tables in Appendices 3, 4, and 5 respectively. In designing the survey, indicators of various specific dimensions were deliberately constructed (in some cases borrowed from previous surveys) and some factors that emerged (such as the commute benefit factor) were generally expected.

This chapter will discuss factor analysis in general and then discuss any unique aspects of the factor analysis that emerged for each section. Lastly, we will describe the final factor solutions.

4-1: FACTOR ANALYSIS

Factor analysis is a tool used to distill our many correlated observed variables into a smaller number of relatively uncorrelated fundamental dimensions. In this case, we used Principal Axis Factoring with an oblique rotation. Oblique rotation allows the underlying dimensions to be correlated. As long as this correlation is not high, the resulting factors are still usable together in models, and the oblique solution will generally be cleaner and more interpretable than an orthogonal one.

The process of factor analysis, as with all science, is partly art. After considering an initial extraction (looking at eigenvalues and scree plots) we picked several of the most promising factor solutions to consider further. We decided upon the final number of factors by considering (1) the correlation between the factors, (2) the point at which the addition of one more factor ceased to add significantly more explanation (a final rotated eigenvalue less than 1.000), and (3) the descriptive power of the factors. The final factor solutions included six attitudinal factors, four personality factors, and four lifestyle factors.

4-2: ATTITUDES

The attitudinal section contains variables that attempt to distinguish attitudes as they relate to travel itself, priorities about residential location and views on solutions to environmental problems. The statements in this section range from: "Traveling makes me nervous" to "We need more public transportation even if taxes have to pay for a lot of the cost," and "Having shops and services within walking distance of my home is important to me" to "The vehicles I travel in are comfortable." Further, in an attempt to encourage respondents to consider travel by any mode we made the travel questions mode neutral wherever possible. Where mode neutral statements were not ideal we included questions about transit, walking and personal vehicles.

Four questions aimed specifically at commuters created a dilemma with the factor analysis. These commute questions allow for a sixth response (outside of our Likert-type

scale): "I don't commute". After temporarily recoding all sixes to be "missing" so that they were not analyzed as being the next level of agreement after "Strongly Agree", we were left with the question of how or whether to include both commuters and non-commuters in the factor analysis. We did not want to ignore the 477 non-commuters' responses altogether and did not want to fill their commute responses in with the mean before factor-analyzing (since non-commuters constituted 25.1% of the total sample, this would have artificially dampened the variability on these four variables quite a bit). However, our final factor solution offered the opportunity for a bit of a compromise. The best overall solution seemed to be the six-factor solution obtained for the commuter subset of the sample, and discussed in greater detail below. As expected, one of the dimensions in the final analysis is a commute benefit factor, on which four of the commute-related statements loaded. The other five factors for the most part have only negligible loadings associated with the four commute-related statements. Thus, for the non-commuters we have constructed factor scores on these five factors by applying the factor score coefficients[9] estimated from the commuter sub-sample to the responses of the non-commuter-sub-sample. Several variations of a sixth "travel benefit" scale were also constructed for the pooled total sample, as explained below.

[9] The factor score coefficients are weights, related to the factor loadings, that specify how strongly a given variable is associated with a given factor. An individual's score on a given factor is a linear combination of her responses to *all* the attitudinal statements, where each response is weighted by its factor score coefficient. In calculating scores on these five factors for the non-commuters, we assigned them a "neutral" response for the four commute-related statements; this does not affect the outcome materially since those four variables have very little weight (small-magnitude factor score coefficients) in determining scores on the factors other than Commute Benefit.

We chose the six-factor solution[10] as best for the Attitude variables. This solution offers six distinct factors with no two strongly correlated and a total variance explained of 39.3%. Each of the factors (and from here on discussed as the Attitude factors) distinguishes an underlying construct: *Travel Dislike, Pro-environmental Solutions, Commute Benefit, Travel Freedom, Travel Stress, and Pro-high Density.* The Commute Benefit factor was not used in the cluster analysis because we did not want to limit the analysis to commuters (and about one-quarter of the sample reported that they did not currently commute). However, the clusters proved robust, in that when the Commute Benefit factor was added the clusters changed cluster solution very little.

In the following discussion, variables marked with an "*" have stronger loadings on other factors, but their loadings on the factor under discussion are high nonetheless and therefore deserve mention.

Travel Dislike

Each of the variables that load strongly on this factor illustrate a lack of utility for travel itself or for the activities that can be done while traveling. Travel is boring, tiring*, makes me nervous*, and is generally wasted time. I don't like exploring new places and getting there is not half the fun, because the only good thing about traveling is arriving at your destination.

[10] The pattern and structure matrices, and factor score coefficient and correlation matrices for this solution can be seen in Appendix 3, Tables A-D.

A positive score on this factor clearly indicates a disutility of traveling to the respondent. In this respect, this factor is very extreme and a negative score indicates that there is some utility to be found in traveling.

Pro-Environmental Policy

These questions generally deal with potential policies to improve air quality and reduce congestion. Each of these policies has environmental benefits. However, it is unclear what motivates the responses to these questions: beliefs about the environment, or how taxes should be used, or feelings about particular modes of transportation or technology in general. Questions loading strongly on this factor include using taxes to improve public transportation (positively loading) or highways (negatively loading), willingness to pay "a little more" to use a cleaner vehicle or for gasoline, the self-regulation of one's own travel and the potential of finding "cost-effective technological solutions" to these issues.

While this factor is called Pro-environmental policy, all of the policies mentioned include a financial aspect, either a willingness to pay or a specific allocation of taxes. This means that some respondents may consider themselves "pro-environment" but not feel that taxes or regulations are the way to solve the solutions and thus not score highly on this factor. At the same time, the factor could be seen as a prioritization of private and public money to these issues.

Therefore, a positive score on this factor could be an indication of a positive view of legislative action to help congestion and air pollution, or a willingness to pay more (or at least allocate money differently) for these policies. A negative score may mean a disinterest in environmental issues, or a disagreement with policies and economic (dis)incentives as effective solutions. Either way, the implications for the nature of the individual's utility for travel are unclear. Pro-environmental individuals may feel that travel should be curtailed since they don't find it very appealing themselves, or may love travel for its own sake but think we should still curtail it for the sake of the environment.

Commute Benefit

This factor combines three variables specific to the commute[11] with three variables specific to travel attitudes and traffic[12] and exists only for those who currently commute. Three of the four questions specific to commuting (the three that specifically say "commute") have their most extreme loadings on this factor and the fourth loads on the Travel Freedom factor first and on Commute Benefit second (with a loading below the 0.2 cutoff for displaying in the pattern matrices in Appendices 3, 4, and 5).

Most of these variables fall into the category of the utility of the activities you can do while traveling and somewhat into a utility of traveling itself. Several address the usefulness of the commute directly, and others refer to not viewing traveling or traffic as a problem (or a disutility).

[11] The variables specific to the commute are: "My commute is a real hassle" (loading negatively), "My commute trip is a useful transition between work and home", and "I use my commute time productively".

A positive score on this factor illustrates not only a utility of travel, but a utility of the commute specifically. Whether it is in the activities that can be accomplished while commuting or the travel itself or in some combination of these, travel is enjoyed and the commute is enjoyed. Those that score positively on this factor (depending on their other factor scores, of course) will generally be harder to convince to reduce (or stop) their commute travel. A negative average score for a cluster could indicate a group of people who would like to reduce their commute, but not necessarily a group that does not like travel or would like to reduce their travel in general.

The Commute Benefit factor can by definition only apply to those who commute. Several of the variables loading on this factor, however, speak to the benefit of travel more generally. Therefore, we constructed three other scales in various attempts to capture this general benefit of travel, on which everyone could have a score. For the first of these, the factor score coefficients (based on those who did commute) for all the variables except the four specifically related to the commute were used to construct scores for the whole sample. The final two scales specifically target those variables that address the utility of traveling generally, in the hope that discarding the less relevant variables would generate a stronger factor. One created an index using the commuters' factor score coefficients for only seven variables; “travel time is wasted time”, “the travel I do interferes with other things I like”, “getting stuck in traffic doesn’t bother me too much”, “getting there is half the fun”, “I like to explore new places”, “the only good

[12] The three non-commute variables that load heavily on the Commute Benefit factor are: “The traveling that I need to do interferes with doing other things I like”, “Travel time is generally wasted time” (both

thing is arriving at the destination", and "travel is tiring". The other further concentrates the measure by using only the first three variables (which were the three loading most heavily on the Commute Benefit factor), weighted by the commuters' factor score coefficients on the Commute Benefit factor. After creating scores on each scale, they were standardized across the entire sample to be comparable to the other factor scores (which are also standardized).

Although these three scales were created for future research, they were not used in the cluster analysis and will not be discussed further in this analysis. Instead we decided to look at commuters as a percent of each cluster sample to see how the underlying dimensions in each cluster apply to commuters.

Travel Freedom

This factor is primarily constructed of two variables that directly question whether respondents have the freedom to travel short- and long-distance, plus less-heavily loading statements concerning the comfort of their vehicles, financial freedom to pay for an uncongested road, and the convenience of their trips.

A cluster that scores positively on this factor may lack constraints (financial, comfort and simply in terms of flexibility) on their travel. A negative score may indicate a constraint on any one or more of these levels, or others. Or it could be considered to indicate a desired mobility that far exceeds their realistic travel potential.

---

loading negatively), and "Getting stuck in traffic doesn't bother me too much".

Pro-high Density

The four variables that mainly comprise this factor can be viewed as attitudes about residential density or about proximity to services. "A multiple family unit would not give me enough privacy", and "Having a large yard is important to me" (both negatively loading on this factor) clearly point to a desire for space that is not available in a high-density area. "I like living in a neighborhood where there is a lot going on" and "Having shops and services within walking distance of my home is important to me", illustrate the desire to live in the middle of the action, associated with a mixture of land uses in close proximity.

This strongly land-use factor may be anti-travel. People want to live within walking distance of services because they do not like to travel. To further support this, "I'd rather have someone else do the driving"* also loads relatively strongly onto this factor. However, Pro-high density could also be seen as a travel liking indicator for several reasons. First, walking could be the preferred mode of transportation, and high-scorers want to maximize the opportunities to walk, indicating a love of travel that is mode-dependent. Second, living close to services means that they are *required* to travel less for these non-discretionary trips, which frees up time for discretionary travel - which is generally more enjoyable than the trips they *have* to make. So it could indicate a love of travel that is purpose-specific. Thus, the implications for the individual's utility for travel are difficult to ascertain for this factor.

Travel Stress

As the name indicates, this factor describes those who feel uncomfortable, nervous, tired and sick when traveling, worry about their safety and consequently do not like to travel alone and would rather have someone else drive. Specifically they feel uncomfortable around people they don't know, which should indicate a low (desired) use of transit.

Those clusters that score positively on this factor should not greatly enjoy travel, and should generally want to do less of it (especially by public transportation). As this is another extreme factor, a negative score means that they don't feel stressed by travel but they may still want to reduce it and not like traveling for other reasons.

As expected (and intended) the attitudinal factors reflect the focus of this section: travel, environment and land use.

4-3: PERSONALITY AND LIFESTYLE

In this section the factors from the Personality and Lifestyle sections of the survey are discussed. The factors are defined for these sections individually, but the factors from both sections are then considered together in creating clusters based on Personality and Lifestyle.

4-3a: Personality Factors

The Personality section of the survey consists of a list of 17 words and phrases that respondents rated from "not at all" describing their personality to "almost completely" fitting. These characteristics range from "risk-taking" and "like being alone" to "ambitious" and "like a routine". We chose a four-factor solution for these 17 characteristics[13]: *Adventure Seeker (Type-T personality[14]), Organizer, Loner, and the Calm personality.*

Unlike some of the attitudinal factors, the personality factors do not necessarily relate directly to travel. However, we can hypothesize that certain traits, such as "Adventure seeking", may be associated with a higher degree of mobility. Further, these factors allow for some insight into the personalities and lifestyle decisions that are associated with different mobility traits.

Adventure Seeker

This factor has the most variables loading strongly on it and indicates people who are adventurous, spontaneous, ambitious, variety seeking and risk taking. They like moving at high speeds and like being outdoors, and dislike a routine*.

This Adventure Seeking personality type has been described in Morehouse, et al. (1990) and Farley (1986) as a risk taker and thrill seeker, and is referred to as the "Type-T"

[13] The matrices associated with these solutions are listed in Appendices 4 (for Personality factors) and 5 (for the Lifestyle factors), Tables A-D.

personality[15]. Furnham and Sarpe (1992) even found that thrill and Adventure Seeking attitudes are related to high speeds and elements of danger when driving, which lead to more moving violations.

While we did not ask for driving records from our survey respondents, we hypothesize that people with a high score on this factor enjoy travel for entertainment more than for work, and may even prioritize entertainment over work.

Organizer

The personality traits that most strongly load on this factor are "efficient", "on time" and "like a routine", indicating someone who likes everything to have its place and run on schedule. Several variables having a split loading (with stronger loadings on other factors) seem to suggest a manager type: "ambitious", "aggressive", "like being in charge", and "independent".

People with a high score on this factor could have a dislike for public transportation (considering its reputation) and a love for the control associated with a private vehicle. However, the mobility inclinations for a cluster that has negative scores on this factor are unclear.

[14] See Adventure Seeker section.
[15] For a thorough overview of the literature concerning thrill seeking behavior and driving, see Forward (1994), pp. 38-42.

Loner

The Loner, quite simply, likes to be alone and likes being independent. This is the only personality factor whose heavily-loading variables do not have any secondary loadings on other factors. Because these variables are more social traits than mobility indicators it is difficult to predict the mobility attitudes of individuals with high or low scores on Loner. Loners may want to travel more to get away from other people, or may want to travel less to avoid encountering other people. They may be more automobile-oriented due to the individuality and independence associated with the automobile, but other hypotheses are certainly possible.

Calm

People scoring highly on this factor tend to see themselves as patient, neither aggressive or restless and don't generally like to be in charge. Conclusions about their mobility are difficult to draw from this small amount of information, except perhaps that they will not travel the most in terms of frequency or distance. If we consider that restlessness may be one element of an intrinsic love for travel (or at least a need to move), people with high ratings on restlessness (or alternately, low scores on calmness) may tend to like to travel more.

Whereas many of the Attitude variables (and factors) were focused specifically on travel, the Personality indicators offer one clue into the way respondents view themselves. However, there are few unambiguous connections to travel attitudes or behavior. The

following section discusses the Lifestyle factors. The Lifestyle factors were clustered with the Personality factors in Chapter 5.

4-3b: Lifestyle Factors

The factor analysis considers 17 statements intended to indicate a prioritization of work, family, money, status or community from the Lifestyle section. The four factors extracted from these statements include: *Frustrated, Family and Community Oriented, Status Seeking, and Workaholic.*

Frustrated

We decided to call this factor "frustrated", but we could have called it "unsatisfied", or "lacking control" because these are the two variables that most strongly describe this factor. This dimension is further defined by, "work and family do not leave me enough time for myself", "I wouldn't necessarily have to like my work that much, as long as I made enough money", and "I feel that I am wasting time when I have to wait". Generally this seems to indicate those who are unsatisfied with their life and feel out of control. What this means for mobility, however, is unclear.

Family and Community Oriented

This factor clearly points to a prioritization of family and community over work, money and to some extent self. This is illustrated in a desire to spend more time with family, friends, and working within the community, and even to give up a day's pay to get a day

off work. We could hypothesize then that these individuals may spend a large amount of time taking others where they need to go and may want to reduce their commute time to make time for family and friends.

Workaholic

The Workaholic is in some ways the opposite of the Family and Community Oriented individual, prioritizing work over family, community and even herself. High-scorers agree that they are workaholics, and they want to spend even more time on work. They feel that they are wasting time when they have to wait*, perhaps because they could be working instead.

Status Seeking

Several questions attempted to measure the status associated with material wealth generally, and automobiles specifically. This factor neatly groups these variables together. The two associated with a vehicle are: "To me the car is a status symbol" (positive), and conversely "To me, the car is nothing more than a convenient way to get around" (negatively loading). Less specific to the automobile, two questions were worded: "A lot of the fun of having something nice is showing it off", and "The one who dies with the most toys wins". Thus, this factor indicates a status-seeking orientation, somewhat focused on the automobile.

This section really represents many lifestyles through priorities. Status Seekers may be thought of as prioritizing outside competition and validation while those who are

frustrated may be trying to prioritize themselves, although this is less clear. Workaholics prioritize work while Family and Community Oriented respondents prioritize their communities.

CHAPTER 5: CLUSTER ANALYSIS METHODOLOGY

5-1: INTRODUCTION

In the previous chapter, we developed composite measures of Attitudes, Personality and Lifestyle through factor-analyzing their constituent variables. In this chapter, we discuss the cluster analysis methodology, and considerations that are common to both solutions presented in the next two chapters. First we explain the cluster analysis itself and related issues. Then we introduce the various ways we have compared the clusters. Finally, we and briefly discuss the range of possible responses to each question used in this portion of the analysis, to aid in interpreting differences between clusters..

As discussed in Chapter 4, we started this analysis with three sets of factors. However, we decided to do only two cluster analyses, one on the Attitudinal factors and the other on the Personality and Lifestyle factors combined. This was somewhat of a compromise. While clustering on all of the factors together would have allowed for all three types of variables to be studied together, it would likely have produced a large number of clusters and would have been unwieldy to analyze. Conversely, clustering on each of the three sets of factors separately would have multiplied the analysis effort. Instead, we clustered all of the Lifestyle and Personality factors together and the Attitudinal factors separately, and then looked at the significance of each cluster solution with respect to the other.

Cluster analysis simply combines cases with similar factor scores into one group. The final number of clusters is based on several indicators. One such indicator is the size of each cluster, especially the smallest and largest clusters. Clusters that are too big, in relation to the total sample size, tend to be neutral and can often be further broken down. Clusters that are too small tend to be more extreme but are not necessarily representative, and further statistical analysis on them is not reliable because of their size. The final distance between cluster centroids is another indicator: clusters whose centroids are "close" may need to be combined. Because there is no hard and fast rule on the appropriate distance between cluster centroids, judgment must be made based on the distances relative to other centroid distances. Proximity between clusters is an indication that they may be combined. Finally (and importantly), the clusters must be interpreted to make sense. Specifically, each cluster should be meaningfully distinct from all the others.

5-2: POSSIBLE RESPONSES

Table 2 shows the potential range of responses for each relevant question, and the actual range of *mean* responses for both the Attitude and Personality and Lifestyle clusters. We can see that in many cases the cluster responses, on average, fall in the same direction, and differ only in degree. This is important to keep in mind when looking at the differences between clusters - while one cluster may want to increase travel "the least" compared to the other clusters, this value may still be positive (its members may still want to increase their travel).

Table 2 can be used to orient the reader to the possible responses and degree of agreement or disagreement with a statement. However, because the clusters in each set are initially defined in conjunction with each other (not independently), it is the differences between the clusters and not the absolute value of the response that is most important to consider. The cluster centroids generally fall on the expected side of zero, for example respondents perceive that they travel more (than the middle value in the range of possible responses - a stronger than neutral positive response) for short-distance trips overall and generally would like to travel "more" than they currently are for long-distance trips overall. Respondents report generally liking to travel for the purposes of eating a meal or entertainment, but not for their commute.

Table 2: Potential and Actual Range of Mean Responses By Cluster[16]

Variable		Possible range	ACTUAL RANGE OF CLUSTER MEAN RESPONSES	
			Attitudinal Clusters	Personality and Lifestyle Clusters
Attitude Factors				
	Travel Dislike	Standardized variable	-0.82 - 1.43	-0.57 - 0.49
	Travel Freedom		-0.57 - 0.48	-0.32 - 0.37
	Travel Stress		-0.59 - 1.02	-0.42 - 0.35
	Pro-Environmental Policy		-0.81 - 0.90	-0.35 - 0.40
	Pro-High Density		-0.92 - 0.75	-0.23 - 0.27
	Commute Benefit		not included	-0.44 - 0.34
Personality Factors				
	Adventure Seeker	Standardized variable	-0.74 - 0.55	-1.06 - 1.23
	Organizer		-0.22 - 0.28	-0.98 - 0.80
	Loner		-0.20 - 0.21	-0.76 - 1.05
	Calm		-0.14 - 0.11	-0.98 - 0.99
Lifestyle Factors				
	Frustrated	Standardized variable	-0.32 - 0.32	-0.83 - 1.07
	Family and Community Oriented		-0.13 - 0.16	-0.99 - 0.67
	Status Seeking		-0.23 - 0.17	-0.87 - 1.09
	Workaholic		-0.12 - 0.19	-0.88 - 0.82
Objective Mobility (SD) - Frequency Category				
	Commute	1-6	4.46 - 4.94	4.25 - 5.32
	Wk/Sc Related	1-6	(3.00-3.28)	2.49 - 3.75
	Grocery Shop	1-6	(3.79-3.99)	3.74 - 4.02
	Eat a Meal	1-6	3.59 - 3.91	3.50 - 4.22
	Entertainment	1-6	3.55 - 4.21	3.49 - 4.28
	Taking others	1-6	2.68 - 3.25	(2.75-3.16)
Objective Mobility (SD) - Weekly Miles - MODE				
	Personal Vehicle	≥ 0	92.92 - 223.17	108.90 - 236.84
	Bus	≥ 0	0.90 - 16.56	(5.10-17.63)
	BART/train	≥ 0	(12.65-20.87)	(8.40-25.88)
	Walk	≥ 0	7.82 - 14.15	7.75 - 16.05
Objective Mobility (SD) - Weekly Miles - TOTAL				
	Total	≥ 0	141.66 - 262.63	148.45 - 277.37
Objective Mobility (SD) - Weekly Miles - PURPOSE				

[16] Those responses that do not differ significantly between clusters (within either the Attitudinal or Personality and Lifestyle cluster solutions) are in parentheses.

Variable		Possible range	ACTUAL RANGE OF CLUSTER MEAN RESPONSES	
			Attitudinal Clusters	Personality and Lifestyle Clusters
	Commute	≥ 0	71.45 - 112.31	68.54 - 124.70
	Wk/Sc related	≥ 0	14.24 - 43.43	9.46 - 43.07
	Grocery Shop	≥ 0	7.50 - 13.60	6.95 - 12.65
	To eat a meal	≥ 0	7.87 - 13.84	6.62 - 15.99
	Entertainment	≥ 0	18.54 - 33.33	16.22 - 36.82
	Taking others	≥ 0	5.87 - 15.92	(7.72-13.32)
Objective Mobility - Percent of Total Miles				
	Commute	0 - 100%	(42.22-49.63)	(38.07-51.44)
	Wk/Sc related	0 - 100%	(3.45-12.57)	5.39 - 14.39
	Grocery Shop	0 - 100%	7.41 - 12.16	5.69 - 14.00
	To eat a meal	0 - 100%	(8.34-9.72)	(7.54-10.66)
	Entertainment	0 - 100%	15.95 - 22.08	14.43 - 22.10
	Taking others	0 - 100%	5.35 - 9.33	(5.73-9.18)
	PV	0 - 100%	55.34 - 85.67	(69.70-79.89)
	Bus	0 - 100%	0.66 - 18.65	(5.07-10.41)
	BART/train	0 - 100%	(4.74-9.44)	(3.85-9.34)
	Walk	0 - 100%	6.59 - 15.47	7.28 - 14.60
Objective Mobility - Commute				
	Time to work (minutes)	≥ 0	(28.31-30.74)	(26.29-30.00)
	Distance to work (miles)	≥ 0	10.51 - 17.54	(11.93-17.12)
Excess Travel				
	Excess Travel Indicator	0 - 26	4.96 - 10.08	6.08 - 10.38
Perceived Mobility				
	SD- Overall	1 - 5	3.33 - 3.64	3.25 - 3.79
	SD- Commute	1 - 5	(2.95-3.16)	2.62 - 3.39
	SD- Wk/Sc related	1 - 5	(2.26-2.40)	1.98 - 2.76
	SD- Grocery Shop	1 - 5	2.44 - 2.73	2.32 - 2.76
	SD- Eat a meal	1 - 5	2.37 - 2.59	2.36 - 2.67
	SD- Entertainment	1 - 5	2.29 - 3.07	2.53 - 3.15
	SD- Taking others	1 - 5	1.79 - 2.25	(1.85-2.20)
	SD- PV	1 - 5	3.34 - 4.31	(3.66-4.08)
	SD- Bus	1 - 5	1.16 - 2.54	1.55 - 2.01
	SD- Train/BART	1 - 5	1.57 - 2.01	(1.53-1.89)
	SD- Walk	1 - 5	2.22 - 2.97	2.35 - 2.98
	LD- Overall	1 - 5	2.44 - 3.06	2.40 - 3.27

Variable		Possible range	ACTUAL RANGE OF CLUSTER MEAN RESPONSES	
			Attitudinal Clusters	Personality and Lifestyle Clusters
	LD- Wk/Sc related	1 - 5	1.73 - 2.11	1.33 - 2.48
	LD- Entertainment	1 - 5	2.37 - 3.03	2.34 - 3.03
	LD- PV	1 - 5	2.68 - 3.45	2.77 - 3.22
	LD- Airplane	1 - 5	2.25 - 3.04	2.20 - 3.24
Relative Desired Mobility				
	SD- Overall	1 - 5	2.50 - 2.78	(2.49-2.76)
	SD- Commute	1 - 5	(2.27-2.39)	(2.24-2.44)
	SD- Wk/Sc related	1 - 5	2.48 - 2.68	(2.45-2.64)
	SD- Grocery Shop	1 - 5	2.71 - 2.85	(2.68-2.85)
	SD- Eat a meal	1 - 5	(2.87-3.00)	(2.89-3.01)
	SD- Entertainment	1 - 5	2.99 - 3.30	(3.09-3.25)
	SD- Taking others	1 - 5	2.53 - 2.70	(2.47-2.75)
	SD- PV	1 - 5	2.67 - 3.04	(2.71-2.95)
	SD- Bus	1 - 5	2.20 - 2.74	(2.32-2.71)
	SD- Train/BART	1 - 5	2.48 - 3.05	2.54 - 3.16
	SD- Walk	1 - 5	3.16 - 3.74	3.09 - 3.70
	LD- Overall	1 - 5	3.21 - 3.78	3.38 - 3.80
	LD- Wk/Sc related	1 - 5	2.45 - 2.85	2.47 - 2.79
	LD- Entertainment	1 - 5	3.20 - 3.91	3.32 - 3.85
	LD- PV	1 - 5	2.83 - 3.34	(3.05-3.23)
	LD- Airplane	1 - 5	3.04 - 3.80	3.14 - 3.74
Travel Liking				
	SD- Overall	1 - 5	2.95 - 3.50	2.95 - 3.41
	SD- Commute	1 - 5	2.50 - 2.87	2.46 - 2.82
	SD- Wk/Sc related	1 - 5	2.67 - 2.98	(2.70-2.95)
	SD- Grocery Shop	1 - 5	2.88 - 3.18	2.88 - 3.17
	SD- Eat a meal	1 - 5	3.11 - 3.52	(3.26-3.52)
	SD- Entertainment	1 - 5	3.24 - 3.91	3.45 - 3.75
	SD- Taking others	1 - 5	2.65 - 2.86	(2.70-2.87)
	SD- PV	1 - 5	3.17 - 4.08	3.32 - 3.78
	SD- Bus	1 - 5	1.86 - 2.49	2.07 - 2.45
	SD- Train/BART	1 - 5	2.64 - 3.27	2.69 - 3.25
	SD- Walk	1 - 5	3.28 - 4.02	3.22 - 4.02
	LD- Overall	1 - 5	2.87 - 4.00	3.29 - 3.92
	LD- Wk/Sc related	1 - 5	2.33 - 2.97	2.50 - 2.99
	LD- Entertainment	1 - 5	3.10 - 4.21	3.46 - 4.08
	LD- PV	1 - 5	2.91 - 3.85	(3.31-3.54)
	LD- Airplane	1 - 5	3.00 - 4.00	3.16 - 3.97
Demographics				

Variable		Possible range	ACTUAL RANGE OF CLUSTER MEAN RESPONSES	
			Attitudinal Clusters	Personality and Lifestyle Clusters
	Sex (% Female)	0 - 100%	45 - 58%	33 - 68%
	Income (HH) category	1 - 6	3.75 - 4.48	3.80 - 4.62
	% Urban (NSF)	0 - 100%	17 - 82%	30 - 61%
	Education category	1 - 6	3.77 - 4.42	3.88 - 4.37
	Household Size	≥ 0	2.17 - 2.63	1.96 – 2.59
	Age category	1 - 5	2.46 - 2.94	2.42 - 3.05
	% of Commuters	0 - 100%	68 - 79%	65 - 85%
	Number of personal vehicles in HH	≥ 0	1.32 - 2.26	1.53 - 2.39
	Vehicles per licensed drivers	≥ 0	0.75 – 1.23	0.87 – 1.27

5-3: ANALYSES OF THE CLUSTERS

The following two chapters consider the six Attitude clusters and eleven Personality and Lifestyle clusters respectively. In these chapters I go into detail about the clusters and their most distinguishing (and significant at 0.01) characteristics. First, I will describe each cluster in terms of its centroid, that is its mean values on the factor scores used to create the clusters. Then, I will describe each cluster in terms of its Demographics[17], Travel Liking, Relative Desired Mobility, Perceived Mobility, Observed Mobility, and Excess Travel. Among these six types of characteristics we considered 98 variables to see if they are significant and/or highly explanatory. Clusters based on one set of factor

[17] In Table 2, and in the cluster tables in Chapters 6 and 7, "% Urban (NSF)" refers to the percent of each cluster that lives in the urban neighborhood of North San Francisco. Income, Education and Age were reported in ordinal categories (see Table 1 for an explanation of the Education and Age categories) and the numbers reported in the tables represent the means of the ordinal categories by cluster.

scores are also examined in terms of the other set of clusters, to see how the Attitudinal clusters vary in terms of Lifestyle and Personality cluster membership, and vice versa.

The clusters will be discussed in various ways. Generally, the clusters are compared to one another. We will often discuss clusters that like commuting the "most" or want to travel for entertainment purposes the "least". This can be a little misleading. For example, the respondents in the Older and Independent Lifestyle and Personality Cluster want to increase their long-distance work and school related travel the most, meaning that their average RDM for work and school related travel is highest among all clusters. However, the actual cluster average for this variable is 2.79, which is between "less" and "about the same" in the range of responses - it is only *relative* to the other clusters that they want to increase their travel "most". We have attempted to clarify this as necessary. However, the difference between the clusters is the focus of this research and truly what makes the clusters unique. Therefore it is important to look at the significant differences between the clusters. Many times the range of responses is not particularly large (see Table 2 for the range of responses to each question). For example, most people want to travel somewhat "more" for entertainment purposes, so explaining that each cluster wants to travel "more" for entertainment does not address the differences between the clusters.

We will generally address only the extreme differences between the clusters. We have chosen to address the clusters in this way for several reasons. First, the sheer volume of information could make the discussion clumsy and repetitive if we discussed all the variables for each cluster; some cut off point had to be made. For the Attitude clusters,

the groups having the two most extreme means (in each direction) were distinguished. For the Personality and Lifestyle clusters, simply due to the larger number of clusters, we included the groups having the three most extreme means on either end. Second, the most distinguishing characteristics *within* each cluster are relatively discernible from the tables (as those with the most extreme cluster averages) and do not require detailed description in the text. Further, because cluster membership is decided based on all the clusters, it makes sense to compare the clusters to each other. And finally, many similar patterns exist from cluster to cluster – for instance, the majority of trips in every cluster are made by personal vehicle, and on average, people in every cluster want to travel more (to some degree) for entertainment, social or recreational purposes. These overall trends are mentioned in Chapter 8 and not detailed in the cluster chapters.

In the analysis that follows, we have compared the clusters to each other by mentioning the variables with means that are extreme for each cluster (and significantly different from the means for other clusters). We list both the average value of the variable for that cluster and the place of that cluster among all the clusters, with respect to that variable. The extreme cluster centroid values (both positive and negative) are commented on in the text, but all centroids greater than or equal to 0.25 in absolute value are displayed.

CHAPTER 6: ATTITUDE CLUSTERS

The Attitude section of the survey contains 32 questions concerning attitudes toward travel by certain modes and for some purposes, and attitudes about safety, congestion and environmental concerns. We used factor analysis to define six underlying dimensions: Travel Dislike, Travel Stress, Commute Benefit, Pro-high Density, Pro-environmental Solutions and Travel Freedom. As explained in Chapter 4, the Commute Benefit factor was not used in the cluster analysis since it did not apply to the 25% of the sample who were non-commuters. The remaining five factors were then used as the dimensions on which the cases were clustered. A six-cluster solution seemed best based on cluster size, the relative distance between the cluster centroids and the values of the cluster centroids (which are used for interpretation). Table 3 contains the number of cases in each cluster, with cluster names derived both from the cluster centroids and from the other variables characterizing each cluster. The cases are relatively evenly distributed between clusters, indicating (on this basis) that there are no obvious clusters to combine or split.

Table 3: Number of Cases in Each Attitudinal Cluster (N=1904)

Cluster	Count	Percent of Sample (%)
Affluent Professionals	333	17.5
Transit-using Urbanites	285	15.0
Homemakers and Older Workers	391	20.5
Travel Haters	230	12.1
Excess Travelers	375	19.7
Adventurous, Car-Oriented Suburbanites	290	15.2

The distance between the cluster centroids is important as a relative measure. Table 4 contains the distances between cluster centroids.

Table 4: Distances Between Final Cluster Centroids for Attitudinal Clusters

Cluster	Affluent Professionals	Transit-using Urbanites	Homemakers and Older Workers	Travel Haters	Excess Travelers
Transit-using Urbanites	1.73				
Homemakers and Older Workers	1.50	1.90			
Travel Haters	2.18	2.10	1.55		
Excess Travelers	1.41	1.66	2.22	3.00	
Adventurous, Car-Oriented Suburbanites	1.60	2.86	1.66	2.76	2.03

The shortest distance between the clusters is between the Affluent Professionals and the Excess Travelers. While they share some travel characteristics, they are also two of the larger clusters and combining them seems unnecessary at this point.

The final consideration is to check the interpretability of the clusters. Table 5 contains the final cluster centroids for the six Attitudinal Clusters. The cluster centroids are the averages of standardized factor scores. Therefore, the farther away a particular element of the centroid is from zero, the more strongly that cluster is related to that factor.

Table 5: Final Cluster Centroids for the Attitudinal Clusters

Clusters / Factors	Affluent Professionals	Transit-using Urbanites	Homemakers and Older Workers	Travel Haters	Excess Travelers	Adventurous, Car-Oriented Suburbanites
Travel Dislike	0.14	0.12	0.09	**1.43**	**-0.82**	**-0.56**
Pro-environment	-0.29	**0.90**	-0.49	-0.19	**0.67**	**-0.81**
Travel Freedom	0.06	-0.46	**-0.57**	-0.19	0.41	0.48
Travel Stress	**-0.59**	0.48	0.43	**1.02**	**-0.50**	**-0.56**
Pro-high Density	0.35	**0.75**	**-0.53**	-0.32	0.43	**-0.92**

The values in bold in Table 5 are relatively strong (defined as ≥ 0.50 in absolute value). These measures offer an introduction to the clusters. The Affluent Professionals cluster, one of the clusters whose members travel a lot and enjoy it (as will be discussed below) does not experience travel stress on average. The Transit-using Urbanites, as may be expected, have a tendency to be Pro-environment and Pro-high Density. The Homemakers and Older Workers cluster, a strongly suburban cluster that does not particularly like travel, has strongly negative scores on the Travel Freedom factor and the Pro-high Density factor. The Travel Haters are clearly defined by positive scores on the Travel Dislike factor and the Travel Stress factor. At the other extreme, the Excess Travelers do not experience Travel Stress and have a negative score on Travel Dislike; they are also (interestingly) Pro-environmental solutions. Finally, the Adventurous, Car-Oriented Suburbanites clearly earn their name: they do not experience Travel Stress and they do not Dislike Travel. They are also not Pro-environmental solutions or Pro-high density.

The following sections go into greater detail about each of these clusters and some of the defining characteristics of each from the survey data. The description of the clusters that follows is based on those characteristics that significantly differ (at 0.01) across clusters and that are (generally) the extremes between the clusters.

6-1: AFFLUENT PROFESSIONALS

Table 6: Affluent Professionals Attitude Cluster

Attitude Cluster 1 **Affluent Professionals**		**333 Cases (17.49% of total)**	
Affluent and mobile, this cluster eats out a lot, is not family and community oriented and usually doesn't have a (large) family. They seem to be more entertainment oriented than work oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Pro-environmental Solutions	-0.29	
	Travel Stress	-0.59	least
	Pro-high Density	0.35	
Personality and Lifestyle Factors			
	Organizer	-0.08	2nd least
	Calm	-0.14	least
	Family/Community Oriented	-0.13	least
	Workaholic	-0.05	2nd least
Personality and Lifestyle Clusters			
	New Family Model	12.6% (greatest % of cluster)	
	Transit Advocates	12%	
	Older and Independent	12%	
	Travel Lovin' Transit Users	5.7% (smallest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Eat a meal	3.91	Most frequent
	Commuting	4.69	2nd least frequent
	Entertainment	4.08	2nd most frequent
	Taking others where they need to go	2.90	2nd least frequent
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	179.46	2nd longest
	Bus	10.32	2nd longest
	TOTAL	213.09	2nd longest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Wk/sc related activities	28.78	2nd longest

Attitude Cluster 1 **Affluent Professionals**		**333 Cases (17.49% of total)**	
Affluent and mobile, this cluster eats out a lot, is not family and community oriented and usually doesn't have a (large) family. They seem to be more entertainment oriented than work oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	To eat a meal	12.33	2nd longest
Objective Mobility - Percent of Total			
	Grocery shop	8.5%	2nd lowest
	Entertainment	20.6%	2nd highest
Excess Travel			
	Excess Travel Indicator	7.12	2nd least
Perceived Mobility			
	SD- Grocery Shop	2.44	least
	SD- Eat a meal	2.59	most
	SD- Just taking others	1.93	2nd least
	LD- Wk/Sc related	2.11	most
	LD- PV	2.90	2nd least
	LD- Airplane	2.87	2nd most
Relative Desired Mobility - Satisfaction			
	SD- Grocery Shop	2.85	most
Travel Liking			
	LD- Wk/Sc related	2.77	2nd most
Demographics			
	Sex (% Female)	47.6%	2nd lowest
	Income (HH) category	4.48	wealthiest
	% Urban (NSF)	53.5%	middle
	Education category	4.33	middle
	Household size	2.20	middle
	Age category	2.85	middle
	Commuters	75.7%	middle
	Number of personal vehicles	1.85	middle
	Vehicles / licensed driver	1.04	middle

One way to begin discussing the *Affluent Professionals* cluster is to discuss the demographics of the group. Of all the Attitude clusters, the Affluent Professionals have the highest incomes (both personal and household), the smallest households, and the fewest young (under 6 years old) children. This seems to imply a relatively young group

of people. However, this cluster is actually the third oldest[18]. This may instead be a case of individuals who have either not made family a priority or who have consciously decided to keep their families small.

In fact, these *Affluent Professionals* are the least Calm and the least Family and Community Oriented of all of the Attitude clusters. More than one-third (36.6%) of the cases in this cluster fall into the New Family Model, The Transit Advocates and the Older and Independent Personality and Lifestyle clusters (see Tables 15, 18 and 22). These disparate groups illustrate the range found in this cluster. The New Family Model accounts for those who do have families but are remaining active and busy. The Transit Advocates are educated, urban transit users. The Older and Independent are an older cluster that is unencumbered by family - and the least Family and Community Oriented of the Lifestyle and Personality clusters.

The purpose of this research is to look at Attitude, Personality and Lifestyle characteristics of groups as they relate to the groups' travel. Therefore, it is important to examine the most outstanding travel characteristics of the *Affluent Professionals*. One overarching trait is that they are the least travel stressed of any of the Attitudinal clusters. This is the most extreme centroid value for the Affluent Professionals and is indicative of the rest of their travel characteristics.

[18] The average age category for this group is 2.85 which falls between the 24-40 age group and the 41-64 age group.

Their (extreme and significant) travel indicators mostly concern eating and grocery shopping. Of all the clusters they make the most (frequent) SD trips to eat a meal, and feel that they travel to eat more than any other cluster. They spend 9.72 % of their total (SD) miles traveling to eat a meal, more than any other cluster in absolute terms (although not significantly different from the other clusters). Conversely, and possibly consequently, they feel that they travel the least (SD) for grocery shopping and even though they are generally satisfied with this (indicated by not wanting to do much more or less of it), the desire to do more is the strongest of all the clusters. In fact the Affluent Professionals do make the fewest trips (overall) for grocery shopping in a week (although this was not statistically significant at 0.01) and the percent of their short-distance travel spent grocery shopping is second lowest among the Attitude clusters. For Long Distance travel they feel that they travel more for work or school related activities than any other cluster. Consistently, the Affluent Professionals travel least for commuting and work and school related activities and the most for entertainment, as is illustrated in their frequencies and miles traveled by purpose and mode.

6-2: TRANSIT-USING URBANITES

Table7: Transit-using Urbanites Attitude Cluster

Attitude Cluster 2 **Transit-using Urbanites**		**285 Cases (14.97% of total)**	
Young, urban, highly educated and community oriented. This cluster is pro-environment and pro-high density (they live in urban areas and like it).			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Pro-environmental Solutions	0.90	most
	Travel Freedom	-0.46	
	Travel Stress	0.48	
	Pro-high Density	0.75	most
Personality and Lifestyle Factors			
	Organizer	-0.22	least
	Loner	0.17	2nd most
	Calm	0.09	2nd most
	Family/Community Oriented	0.16	most
	Status Seeking	-0.23	least
	Workaholic	0.04	2nd most
Personality and Lifestyle Clusters			
	Mobile Yuppies	2.8% (smallest % of cluster)	
	Transit Advocates	20% (greatest % of cluster)	
	Status Seeking Workaholics	4.6%	
	Lonely & Frustrated	14%	
Objective Mobility (SD) - Frequency Category			
	Taking others where they need to go	2.68	least
	Commuting	4.93	2nd most
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	92.92	shortest
	Train/BART/Light rail	16.56	longest
	TOTAL	141.66	shortest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	71.45	shortest
	Wk/sc related activities	14.24	shortest
	To eat a meal	7.87	shortest
	Entertainment/Social/Recreational	18.54	shortest
	Taking others where they need to go	5.87	shortest
Objective Mobility - Percent of Total			
	Taking others	5.3%	lowest
	Personal Vehicle	55.3%	lowest

Attitude Cluster 2 **Transit-using Urbanites**		**285 Cases (14.97% of total)**	
Young, urban, highly educated and community oriented. This cluster is pro-environment and pro-high density (they live in urban areas and like it).			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Bus	18.7%	highest
	Walk	15.5%	highest
Objective Mobility - Commute			
	How many miles to work?	10.51	shortest
Excess Travel			
	Travel in an off road vehicle	1.08	least
Perceived Mobility			
	SD- Overall	3.33	least
	SD- Eat a meal	2.50	2nd most
	SD- Just taking others	1.80	least
	SD- PV	3.34	least
	SD- Bus	2.54	most
	SD - Train/BART	2.01	most
	SD- Walk	2.97	most
	LD- PV	2.68	least
Relative Desired Mobility - Satisfaction			
	SD- Overall	2.60	2nd least
	SD- Wk/Sc related	2.63	2nd most
	SD- Grocery Shop	2.71	least
	SD- Entertainment	3.14	2nd least
	SD- Taking others	2.63	2nd most
	SD- PV	2.67	least
	SD- Bus	2.74	most
	SD- Train	3.05	2nd most
	SD- Walking	3.68	2nd most
	LD- Overall	3.71	2nd most
	LD- Wk/Sc Related	2.85	most
	LD- Entertainment	3.77	2nd most
	LD- PV	3.03	2nd least
Travel Liking			
	SD- Overall	3.05	2nd least
	SD- Commuting	2.52	2nd least
	SD- Wk/Sc related	2.70	2nd least
	SD- Grocery Shop	2.88	least
	SD- Eat a meal	3.28	2nd least
	SD- Entertainment	3.47	2nd least
	SD- Taking others	2.70	2nd least
	SD- PV	3.17	least

Attitude Cluster 2 **Transit-using Urbanites**		**285 Cases (14.97% of total)**	
Young, urban, highly educated and community oriented. This cluster is pro-environment and pro-high density (they live in urban areas and like it).			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Bus	2.49	most
	SD- Train	3.19	2nd most
	SD- Walking	4.01	2nd most
	LD- PV	3.11	2nd least
	LD- Airplane	3.50	2nd least
Demographics			
	Sex (% Female)	56.3%	2nd highest
	Income (HH) category	3.86	2nd lowest
	% Urban (NSF)	82.1%	highest
	Education category	4.38	2nd highest
	Household size	2.17	smallest
	Age category	2.46	youngest
	Commuters	78.9%	most
	Number of personal vehicles	1.32	least
	Vehicles / licensed driver	0.75	least

This *Transit-using Urbanite* cluster is one of the clusters that is largely defined by extremes - the youngest, one of the most educated, and a cluster with a high percent of women. Very strongly pro-high density and pro-environmental solutions (the most positive of all the clusters), they also report some travel stress and somewhat lacking travel freedom. Not surprisingly, this cluster is 82% urban - representing a large percent of people with access to public transit and a wide range of shops and services close to their home. Further, considering the difficulties associated with owning (and parking) a vehicle in San Francisco it makes sense that they have the fewest personal vehicles per household (on average) and an emphasis on public transportation. Consistent with these observations, one-fifth of this cluster is made up of the Transit Advocate Personality and

Lifestyle cluster, while very few of the automobile-bound Status Seeking Workaholics or Mobile Yuppies show up in this cluster.

The *Transit-using Urbanites* travel the shortest distances overall, in a personal vehicle and for almost all purposes (these Objective Mobility characteristics, and that they travel least frequently taking others where they need to go, are aptly reflected in their Perceived Mobility measures). They travel farthest on public transit, both bus and train, of all the Attitude clusters - which is also reflected in their Perceived Mobility and may partially account for their long(est) commute time versus their short(est) commute distance.

These trends are consistent with their Travel Liking and Relative Desired Mobility. They like to grocery shop and travel in a personal vehicle less than any other cluster (although the value of travel in a personal vehicle is still above neutral), and are more inclined to want to reduce their travel by personal vehicle (for both long- and short-distance). Also, the *Transit-using Urbanites* like the bus and BART more and want to increase their travel by bus and walking more than most other clusters.

The Transit-using Urbanites cluster is one where the connection between attitudes, lifestyle and mobility and residential location choice may be clearly drawn. They like the urban environment and make use of the transportation options available to them. Whether their environmental stance plays an important part in their transit focus or it is merely the practicality of not having to drive (and park) that motivates their transit use is difficult to determine.

6-3: HOMEMAKERS AND OLDER WORKERS

Table 8: Homemakers and Older Workers Attitude Cluster

Attitude Cluster 3 **Homemakers and Older Workers**		**391 Cases (20.54% of total)**	
Older suburbanites who focus on family and home and don't particularly like travel.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Pro-environmental Solutions	-0.49	
	Travel Freedom	-0.57	least
	Travel Stress	0.43	
	Pro-high Density	-0.53	
Personality and Lifestyle Factors			
	Adventure Seeking	-0.32	2nd least
	Loner	-0.20	least
	Calm	0.11	most
	Frustration	0.18	2nd most
	Status Seeking	0.15	2nd most
Personality and Lifestyle Clusters			
	Mobile Yuppies	2.3% (smallest % of cluster)	
	Assistant V.P.s	18.9% (greatest % of cluster)	
	Suburban and Stationary	16.6%	
	Travel Lovin' Transit Users	3.6%	
Objective Mobility (SD) - Frequency Category			
	Commuting	4.46	least
	Eat a meal	3.59	least
	Entertainment	3.55	2nd least
	Taking others where they need to go	3.25	most
Objective Mobility (SD) - Weekly Miles - MODE			
	Walking	7.82	shortest
	TOTAL	185.24	2nd shortest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	90.85	2nd shortest
	Grocery Shop	11.47	2nd longest
	To eat a meal	9.72	2nd shortest
	Entertainment/Social/Recreational	19.76	2nd shortest
	Taking others where they need to go	10.69	2nd longest
Objective Mobility - Percent of Total			
	Grocery Shop	12.2%	highest
	Entertainment	16.0%	lowest

Attitude Cluster 3 **Homemakers and Older Workers**		**391 Cases (20.54% of total)**	
Older suburbanites who focus on family and home and don't particularly like travel.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Taking others	9.33%	highest
	PV	81.9%	2nd highest
	Walk	7.87%	2nd highest
Objective Mobility - Commute			
	How many miles to work?	17.54	farthest
Perceived Mobility			
	SD- Grocery Shop	2.73	most
	SD- Eat a meal	2.39	2nd least
	SD- Entertainment	2.68	2nd least
	SD- Just taking others	2.25	most
	SD- Personal vehicle	3.93	2nd most
	SD- Train/BART	1.57	least
	LD- Overall	2.53	2nd least
	LD- Wk/Sc related	1.74	2nd least
	LD- Entertainment	2.48	2nd least
	LD- PV	3.02	2nd most
	LD- Airplane	2.25	least
Relative Desired Mobility - Satisfaction			
	SD- Wk/Sc related	2.48	least
	SD- Grocery Shop	2.76	2nd least
	SD- Taking others	2.54	2nd least
	SD- PV	2.91	2nd most
	SD- Bus	2.34	2nd least
	LD- Overall	3.42	2nd least
	LD- Wk/Sc Related	2.48	2nd least
	LD- Entertainment	3.46	2nd least
	LD- Airplane	3.43	2nd least
Travel Liking			
	SD- Taking others	2.85	2nd most
	SD- PV	3.60	2nd most
	SD- Train	2.70	2nd least
	SD- Walking	3.43	2nd least
	LD- Overall	3.53	2nd least
	LD- Wk/Sc related	2.50	2nd least
	LD- Entertainment	3.61	2nd least
Demographics			
	Sex (% Female)	57.7%	highest
	Income (HH) category	3.75	least
	% Urban (NSF)	25.1%	2nd lowest

Attitude Cluster 3 **Homemakers and Older Workers**		**391 Cases (20.54% of total)**	
Older suburbanites who focus on family and home and don't particularly like travel.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Education category	3.77	least
	Household size	2.63	most
	Age category	2.91	2nd oldest
	Commuters	68.3%	lowest
	Number of personal vehicles	2.17	2nd most
	Vehicles / licensed driver	1.13	2nd most

The *Homemakers and Older Workers* cluster is the second oldest cluster, the least educated (gauged by this cluster having the highest percent of people that stopped at a high school diploma and the least that completed graduate degrees) with the largest families and the highest percent in typically female occupations - homemaker, clerical support and production, and crafts – as well as construction. At least two disparate Personality and Lifestyle clusters are disproportionately represented in this Attitude cluster: the Assistant VPs and the Suburban and Stationary. This heterogeneity should be kept in mind in the following discussion.

The members of this predominantly suburban (75%) cluster distinguish themselves by being relatively negative about environmental solutions and high density, and being somewhat Travel Stressed. Of all the clusters they are most associated with a lack of Travel Freedom. They are not particularly Adventure Seeking or Loners.

In fact, they make the fewest trips commuting to work (although their average commute is the longest of all the Attitudinal clusters), eating out and going for social or

entertainment activities, and the most taking others where they need to go. They log the second fewest miles per week of any cluster. They are firmly second in many categories: second least miles for commuting, eating out or entertainment, and second most for grocery shopping and taking others where they need to go. They have the highest Perceived Mobility (SD) for the purpose of taking others where they need to go and the lowest on a train or BART and (LD) in an airplane. Generally they perceive that they don't travel much long distance, except in a personal vehicle. They would like to travel less (SD) for all purposes (except entertainment - no cluster wanted to travel less for entertainment on average) and by all public transportation modes (long distance reflects the short-distance pattern). Homemakers and Older Workers like taking others where they need to go (SD) and traveling in personal vehicles more than four of the clusters and like public transportation less than most. They want to increase their long-distance travel for all purposes second-least of all the clusters.

Could it be a function of age that travel stress increases and feelings of travel freedom decrease? The *Homemakers and Older Workers* cluster does quite a bit of personal travel but doesn't really enjoy travel: it is (and maybe always has been) a service function that they perform. They were "liberated" to the suburbs at some point in the family's life and remain there today.

6-4: TRAVEL HATERS

Table 9: Travel Haters Attitude Cluster

Attitude Cluster 4 **Travel Haters**		**230 Cases (12.08% of total)**	
This work-oriented cluster doesn't like travel, does as little as possible and wants to do less of it.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Travel Dislike	1.43	most
	Travel Stress	1.02	most
	Pro-high Density	-0.32	
Personality and Lifestyle Factors			
	Adventure Seeking	-0.74	least
	Organizer	0.10	2nd most
	Loner	-0.08	2nd least
	Frustrated	0.32	most
	Workaholic	0.19	most
Personality and Lifestyle Clusters			
	Home-bodies	19.1 % (highest % of cluster)	
	Mobile Yuppies	1.3 % (lowest % of cluster)	
	Assistant V.P.s	18.3 %	
	Suburban and Stationary	15.7 %	
	Travel Lovin' Transit Users	2.2 %	
Objective Mobility (SD) – Frequency Category			
	Eat a meal	3.61	2nd least
	Entertainment	3.55	least
Objective Mobility (SD) – Weekly Miles - MODE			
	Bus	3.32	2nd shortest
	Walking	7.92	2nd shortest
Objective Mobility (SD) – Weekly Miles - PURPOSE			
	Commuting	103.65	2nd longest
	Taking others where they need to go	8.15	2nd shortest
Objective Mobility - Percent of Total			
	Grocery Shop	11.25%	2nd highest
	Entertainment	16.12%	2nd lowest
	Taking others where they need to go	6.55%	2nd lowest
	Bus	3.94%	2nd lowest
Excess Travel			
	Excess Travel Indicator	4.96	least
	overall and lowest on 12/13 variables		

Attitude Cluster 4 **Travel Haters**		**230 Cases (12.08% of total)**	
This work-oriented cluster doesn't like travel, does as little as possible and wants to do less of it.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Perceived Mobility			
	SD- Overall	3.37	2nd least
	SD- Grocery Shop	2.64	2nd most
	SD- Eat a meal	2.37	least
	SD- Entertainment	2.59	least
	SD- Bus	1.37	2nd least
	SD- Walk	2.23	2nd least
	LD- Overall	2.44	least
	LD- Wk/Sc Related	1.73	least
	LD- Entertainment	2.37	least
	LD- Airplane	2.44	2nd least
Relative Desired Mobility - Satisfaction			
	SD- Overall	2.50	least
	SD- Entertainment	2.99	least
	SD- Taking others	2.53	least
	SD- PV	2.71	2nd least
	SD- Train	2.58	2nd least
	SD- Walking	3.22	2nd least
	LD- Overall	3.21	least
	LD- Wk/Sc Related	2.45	least
	LD- Entertainment	3.20	least
	LD- PV	2.83	least
	LD- Airplane	3.04	least
Travel Liking			
	SD- Overall	2.95	least
	SD- Commuting	2.50	least
	SD- Wk/Sc related	2.67	least
	SD- Grocery Shop	2.97	2nd least
	SD- Eat a meal	3.11	least
	SD- Entertainment	3.24	least
	SD- Taking others	2.65	least
	SD- PV	3.34	2nd least
	SD- Bus	2.00	2nd least
	SD- Train	2.64	least
	SD- Walking	3.28	least
	LD- Overall	2.87	least
	LD- Wk/Sc Related	2.33	least
	LD- Entertainment	3.10	least

Attitude Cluster 4 **Travel Haters**		**230 Cases (12.08% of total)**	
This work-oriented cluster doesn't like travel, does as little as possible and wants to do less of it.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	LD- PV	2.91	least
	LD- Airplane	3.00	least
Demographics			
	Sex (% Female)	49.3%	middle
	Income (HH) category	4.25	2nd highest
	% Urban (NSF)	31.3%	2nd lowest
	Education category	4.07	middle
	Household size	2.48	2nd smallest
	Age category	2.82	middle
	Commuters	74.8%	middle
	Number of personal vehicles	2.11	middle
	Vehicles / licensed driver	1.00	middle

Clearly, the defining characteristic of this cluster is that they do not like traveling. The Attitude factor that most strongly identifies this cluster points to this. Evenly split on gender and predominantly suburban - what makes this group a group? They have the strongest workaholic tendencies and are the most frustrated. Perhaps their dislike of travel comes partly from their circumstances, where all time spent traveling interferes with time they could be working. But even in this case there is likely to be some predisposition to prioritizing other things over traveling, and a dislike of travel in general. Their high income could be a function of being workaholics as well. They are also the least Adventure Seeking.

The *Travel Haters'* general disdain for travel is manifest in their mobility patterns. They make the fewest (or second fewest) trips in the truly discretionary categories (short-distance to eat a meal or entertainment), and they do the least excess travel (total and for

almost all the individual categories). Other than these discretionary categories, their actual travel is relatively typical: they are generally one of the average groups for distance and frequency by mode and purpose. In terms of long-distance travel, they perceive themselves to be traveling the least of any other cluster, and they want to reduce their travel the most. Generally, and with great consistency across mode and purpose categories, they like to travel the least of any other group, with a few exceptions when one cluster likes that mode or purpose less than even the Travel Haters do. The only travel they do not hate the most is grocery shopping, and traveling by personal vehicle or bus.

Interestingly, although the difference is not significant at 0.01, this cluster of travel haters travels farther per week by train or BART than any other group. However, consistent with their attitudes toward travel they dislike traveling by train or BART more than any other cluster. They also have an average (one-way) commute distance (not significantly different from the overall sample mean, and therefore not indicated in the table) and below average (one-way) commute time, indicating a relatively congestion-free commute. This below average commute time may allow them to make more trips to work (to come home for lunch or work more frequent but shorter days), accounting for the relatively long total commute miles per week for this cluster. This may also be intentional for those individuals who can choose to travel at a time that will be the least stressful and uncomfortable for them.

6-5: EXCESS TRAVELERS

Table 10: Excess Travelers Attitude Cluster

Attitude Cluster 5 **Excess Travelers**		**375 Cases (19.70% of total)**	
Young, urban, highly educated and Adventure Seeking. This cluster is pro-environment and pro-high density, and pro-travel. Not one of the highest income groups, perhaps because they are prioritizing their adventure time over work time and status-seeking.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Travel Dislike	-0.82	least
	Pro-environmental Solutions	0.67	
	Travel Freedom	0.41	
	Travel Stress	-0.50	
	Pro-high Density	0.43	
Personality and Lifestyle Factors			
	Adventure Seeking	0.55	most
	Loner	0.21	most
	Frustrated	-0.32	least
	Family/Community Oriented	0.15	2nd most
	Status Seeking	-0.15	2nd least
	Workaholic	-0.12	least
Personality and Lifestyle Clusters			
	New Family Model	15.5% (highest % of cluster)	
	Homebodies	5.1%	
	Mobile Yuppies	14.9%	
	Assistant V.P.	4.0% (lowest % of cluster)	
	Travel Lovin' Transit Users	14.9%	
Objective Mobility (SD) – Frequency Category			
	Commuting	4.94	most
	Eat a meal	3.91	2nd most
	Entertainment	4.21	most
Objective Mobility (SD) – Weekly Miles - MODE			
	Driver/passenger PV	145.86	2nd shortest
	Walking	14.15	longest
Objective Mobility (SD) – Weekly Miles - PURPOSE			
	Wk/sc related activities	17.74	2nd shortest
	Grocery shop	7.50	shortest
	Entertainment/Social/Recreational	30.83	2nd longest
Objective Mobility - Percent of Total			
	Grocery shop	7.41%	lowest
	Entertainment	22.08%	highest

Attitude Cluster 5 **Excess Travelers**		**375 Cases (19.70% of total)**	
Young, urban, highly educated and Adventure Seeking. This cluster is pro-environment and pro-high density, and pro-travel. Not one of the highest income groups, perhaps because they are prioritizing their adventure time over work time and status-seeking.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Personal Vehicle	69.94%	2nd lowest
	Bus	10.23%	2nd highest
	Walking	12.14%	2nd lowest
Objective Mobility - Commute			
	How many miles to work?	13.45	2nd shortest
Excess Travel			
	Excess Travel Indicator (and 12/13 variables)	10.08	highest
Perceived Mobility			
	SD- Overall	3.64	most
	SD- Grocery shop	2.54	2nd least
	SD- Entertainment	3.07	most
	SD- PV	3.85	2nd least
	SD- Bus	2.00	2nd most
	SD - Train/BART	1.81	2nd most
	SD- Walk	2.94	2nd most
	LD- Overall	3.06	most
	LD- Wk/Sc related	2.04	2nd most
	LD- Entertainment	3.03	most
	LD- Airplane	3.04	most
Relative Desired Mobility - Satisfaction			
	SD- Overall	2.71	2nd most
	SD- Wk/Sc related	2.68	most
	SD- Entertainment	3.21	2nd most
	SD- Taking others	2.70	most
	SD- Bus	2.65	2nd most
	SD- Train	3.18	2nd most
	SD- Walking	3.74	most
	LD- Overall	3.78	most
	LD- Wk/Sc Related	2.80	2nd most
	LD- Entertainment	3.91	most
	LD- PV	3.19	2nd most
	LD- Airplane	3.80	most
Travel Liking			
	SD- Overall	3.34	2nd most
	SD- Commuting	2.74	2nd most
	SD- Wk/Sc related	2.90	2nd most

Attitude Cluster 5 **Excess Travelers**		**375 Cases (19.70% of total)**	
Young, urban, highly educated and Adventure Seeking. This cluster is pro-environment and pro-high density, and pro-travel. Not one of the highest income groups, perhaps because they are prioritizing their adventure time over work time and status-seeking.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Grocery Shop	3.10	2nd most
	SD- Eat a meal	3.49	2nd most
	SD- Entertainment	3.79	2nd most
	SD- Taking others	2.86	most
	SD- Bus	2.43	2nd most
	SD- Train	3.27	most
	SD- Walking	4.02	most
	LD- Overall	4.00	most
	LD- Wk/Sc related	2.97	most
	LD- Entertainment	4.21	most
	LD- PV	3.56	2nd most
	LD- Airplane	4.00	most
Demographics			
	Sex (% Female)	52.7%	middle
	Income (HH) category	4.18	middle
	% Urban (NSF)	68.5%	2nd highest
	Education category	4.42	most
	Household size	2.18	2nd largest
	Age category	2.58	2nd youngest
	Commuters	78.7%	2nd highest
	Number of personal vehicles	1.65	2nd least
	Vehicles / licensed driver	0.94	2nd least

The *Excess Travelers* do not seem to prioritize work. This group is young (second youngest), highly urban, and most educated (with the fewest stopping at a high school diploma and the most with graduate degrees), has the most full-time workers and one of the highest proportions of commuters. The *Excess Travelers* are the most negatively associated with the workaholic and frustrated factors. Most of them work but their average household income falls close to the sample mean. They love to travel (dislike

travel the least) and are strongly pro-environment and lacking travel stress. They are the most Adventure Seeking of all the clusters.

The *Excess Travelers* are strongly in favor of environmental solutions, even though they travel a lot and would like to travel more. They have the greatest amounts of excess travel but one of the lowest proportions of travel in a personal vehicle. This may either indicate that they find other modes of travel for non-discretionary trips, or that they make their excess travel trips by modes other than the personal auto. They perceive that they travel a lot and want to travel even more. Not surprisingly, they travel most frequently (and spend the highest percent of their travel miles) for entertainment, social and recreational purposes. They like traveling most (or second most) by all modes and for all purposes, both short and long distance. The Excess Travelers, like the Travel Haters, appear to have a relatively uncongested commute (both groups have an above average one-way commute distance but a below average one-way commute time). It is interesting that under similar commute circumstances, one group loves to travel and the other hates it.

Two of the demographic characteristics that are often used to predict travel are gender and income. But the *Excess Travelers* are split evenly on gender and they have an income that is about average. Here it is clearly the travel attitudes, personality and lifestyle that point to their current and desired travel.

6-6: ADVENTUROUS, CAR-ORIENTED SUBURBANITES

Table 11: Adventurous, Car-Oriented Suburbanite Attitude Cluster

Attitude Cluster 6 **Adventurous, Car-Oriented Suburbanites**		**290 Cases (15.23% of total)**	
Car-bound, excess travelers (2nd), oldest, organized, status conscious, and suburban.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Factors			
	Travel Dislike	-0.56	
	Pro-environmental Solutions	-0.81	least
	Travel Freedom	0.48	most
	Travel Stress	-0.56	
	Pro-high Density	-0.92	least
Personality and Lifestyle Factors			
	Adventure seeking	0.29	2nd most
	Organizer	0.28	most
	Calm	-0.10	2nd least
	Frustrated	-0.16	2nd least
	Family/community Oriented	-0.10	2nd least
	Status Seeking	0.17	most
Personality and Lifestyle Clusters			
	New Family Model	15.5% (highest % of cluster)	
	Homebodies	4.5%	
	Transit Advocates	4.1% (lowest % of cluster)	
	Status Seeking Workaholics	14.5%	
	Older and Independent	13.8%	
Objective Mobility (SD) - Frequency Category			
	Taking others where they need to go	3.09	2nd most
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	223.17	longest
	Bus	0.90	shortest
	TOTAL	262.63	longest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	112.31	longest
	Wk/sc related activities	43.43	longest
	Grocery Shop	13.60	longest
	To eat a meal	13.84	longest
	Entertainment/Social/Recreational	33.33	longest
	Taking others where they need to go	15.92	longest
Objective Mobility - Percent of Total			
	Taking others	8.4%	2nd highest

Attitude Cluster 6 **Adventurous, Car-Oriented Suburbanites**		**290 Cases (15.23% of total)**	
Car-bound, excess travelers (2nd), oldest, organized, status conscious, and suburban.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Personal Vehicle	85.7%	highest
	Bus	0.7%	lowest
	Walk	6.6%	lowest
Objective Mobility - Commute			
	How many miles to work?	16.15	2nd highest
Excess Travel			
	Excess Travel Indicator	8.51	2nd highest
	Travel in an off road Vehicle	1.23	most
Perceived Mobility			
	SD- Overall	3.58	2nd most
	SD- Entertainment	3.01	2nd most
	SD- Just taking others	2.08	2nd most
	SD- PV	4.31	most
	SD- Bus	1.16	least
	SD - Train/BART	1.58	2nd least
	SD- Walk	2.22	most
	LD- Overall	2.91	2nd most
	LD- Entertainment	2.95	2nd most
	LD- PV	3.45	most
Relative Desired Mobility - Satisfaction			
	SD- Overall	2.78	most
	SD- Wk/Sc related	2.48	2nd least
	SD- Grocery Shop	2.84	2nd most
	SD- Entertainment	3.30	most
	SD- PV	3.04	most
	SD- Bus	2.20	least
	SD- Train	2.48	least
	SD- Walking	3.16	least
	LD- PV	3.34	most
	LD- Airplane	3.67	2nd most
Travel Liking			
	SD- Overall	3.50	most
	SD- Commuting	2.87	most
	SD- Wk/Sc related	2.98	most
	SD- Grocery Shop	3.18	most
	SD- Eat a meal	3.52	most
	SD- Entertainment	3.91	most
	SD- PV	4.08	most
	SD- Bus	1.86	least

Attitude Cluster 6 **Adventurous, Car-Oriented Suburbanites**		**290 Cases (15.23% of total)**	
Car-bound, excess travelers (2nd), oldest, organized, status conscious, and suburban.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	LD- Overall	3.94	2nd most
	LD- Entertainment	4.05	2nd most
	LD- PV	3.85	most
	LD- Airplane	3.96	2nd most
Demographics			
	Sex (% Female)	45.2%	lowest
	Income (HH) category	4.35	middle
	% Urban (NSF)	16.9%	lowest
	Education category	3.97	2nd lowest
	Household size	2.42	middle
	Age category	2.94	oldest
	Commuters	74.5%	middle
	Number of personal vehicles	2.26	most
	Vehicles / licensed driver	1.23	most

The *Adventurous, Car-Oriented Suburbanites* constitute the oldest cluster, highly suburban, with somewhat more men than women. They are automobile bound (and distinctly dislike buses). They are not pro-high density (as could be guessed from their suburban residential choices) and not pro-environment, but they are pro-travel - have freedom and don't generally find travel stressful. They are the most organized and status conscious of the clusters, as well as Adventure Seeking and not frustrated or family and community oriented.

Adventurous, Car-Oriented Suburbanites travel the farthest overall and for most purposes and by the fastest modes (personal vehicles and airplane). They walk and take the bus extremely little (although they perceive that they walk a lot), like these modes even less and would like to do even less of them. They vie with the Excess Travelers for enjoying travel the most and wanting to do more of it.

CHAPTER 7: PERSONALITY AND LIFESTYLE CLUSTERS

As described in Section 4-3, the 17 Personality variables and 17 Lifestyle variables were used to create four factors for each (see Chapter 4). For the purposes of the cluster analysis, the Personality and Lifestyle factors were analyzed together, so the cluster analysis is based on eight dimensions: the Adventure Seeker, Organizer, Loner and Calm Personality factors, and the Frustrated, Family and Community Oriented, Status Seeker and Workaholic Lifestyle factors.

In this case, we were faced with a decision regarding interpretability: the 12-cluster solution initially seemed to make the most sense based on the criteria described in Chapter 5. However, two cluster centroids were relatively close together, and two other clusters were conceptually similar. We attempted further analysis by combining one pair at a time, and both pairs together. Using the final cluster centroids from the twelve-cluster solution, we "seeded" the initial cluster centroids for the new solutions. This meant first taking the average centroid for the two clusters with the physically close centroids and using the final cluster centroids for all others and then, taking the average centroid for the two that were similar in interpretation, and finally using both averages. We found that combining the two that were similar in definition produced stronger results than combining those with close cluster centers. Combining the clusters with the closest centroids muddied several clusters and did not resolve the situation of some cluster centroids being physically close, whereas combining the two that were interpretably similar did not drastically change the rest and did not muddy the resulting new cluster.

Table 12 contains the number of cases in each cluster for the final eleven cluster solution. For this final solution, the cluster sizes stayed well within a reasonable range and the distances between the cluster centroids looked better than for any other solution.

Table 12: Number of Cases in Each Personality and Lifestyle Cluster (N=1904)

Cluster	Count	Percent of Sample (%)
New Family Model	210	11.0
Homebodies	154	8.1
Mobile Yuppies	130	6.8
Transit Advocates	191	10.0
Assistant VPs	208	10.9
Status Seeking Workaholics	171	9.0
Suburban and Stationary	206	10.8
Older and Independent	178	9.4
Middle-of-the-roaders	166	8.7
Travel Lovin' Transit Users	136	7.1
Frustrated Loners	154	8.1

Table 13 contains the distances between the cluster centroids. The shortest distance is between the Middle-of-the-roaders and the New Family Model cluster centroids. Relatively, these centroids are not significantly closer than other pairs of centroids, and combining these two clusters is unnecessary.

Table 13: Distances Between the Final Cluster Centroids for the Personality and Lifestyle Clusters

Cluster	New Family Model	Homebodies	Mobile Yuppies	Transit Advocates	Assistant VPs	Status Seeking Workaholics	Suburban and Stationary	Older and Independent	Middle-of-the-roaders	Travel Lovin' Transit Users
Homebodies	2.67									
Mobile Yuppies	2.01	2.64								
Transit Advocates	1.80	2.21	2.97							
Assistant VPs	2.20	2.09	3.45	1.78						
Status Seeking Workaholics	2.00	2.56	2.33	2.75	2.11					
Suburban and Stationary	2.57	2.11	3.65	1.74	1.99	3.53				
Older and Independent	1.75	1.85	2.07	2.06	2.10	2.18	2.23			
Middle-of-the-roaders	1.56	1.78	2.32	1.82	2.07	2.52	1.87	1.96		
Travel Lovin' Transit Users	2.31	2.16	2.15	2.14	3.20	3.43	2.25	2.03	1.83	
Frustrated Loners	2.27	1.97	2.54	1.85	2.11	1.86	2.97	2.45	2.22	2.71

Finally, Table 14 contains the final cluster centroids for the Personality and Lifestyle clusters. The values in bold in Table 14 are relatively extreme.

Table 14: Final Cluster Centroids for the Personality and Lifestyle Clusters

Clusters / Factors	Adventure Seeking	Organizer	Loner	Calm	Frustrated	Family/ Community Oriented	Status Seeker	Workaholic
New Family Model	**0.87**	0.01	**-0.65**	-0.49	-0.26	0.31	0.15	-0.24
Homebodies	**-1.00**	0.49	**0.82**	0.19	0.08	-0.27	-0.22	0.17
Mobile Yuppies	**1.23**	**0.80**	**1.05**	**-0.79**	**-0.65**	0.20	-0.25	-0.17
Transit Advocates	0.05	**-0.98**	-0.36	0.19	0.34	0.18	**-0.54**	-0.02
Assistant VPs	**-0.61**	-0.22	**-0.76**	0.17	**0.65**	-0.39	**0.61**	**0.57**
Status Seeking Workaholics	**0.58**	0.43	0.21	**-0.98**	0.46	-0.17	**1.09**	**0.82**
Suburban and Stationary	**-1.06**	-0.43	**-0.68**	**0.99**	-0.32	-0.15	-0.24	**-0.57**
Older and Independent	0.30	0.10	0.16	0.01	**-0.61**	**-0.99**	0.06	-0.03
Middle-of-the-roaders	-0.15	**0.65**	-0.34	0.27	-0.20	**0.67**	-0.24	-0.18
Travel Lovin' Transit Users	0.21	-0.05	**0.77**	**0.57**	**-0.83**	0.34	**-0.87**	**-0.88**
Frustrated Loners	0.07	-0.35	**0.83**	-0.37	**1.07**	0.48	0.15	0.41

The cluster centroids in Table 14 begin to offer a picture of the Personality and Lifestyle clusters. The New Family Model and Homebodies clusters contrast on most of the characteristic dimensions. The New Family Model cluster is Adventure Seeking, does not tend to be Loners and enjoys travel, whereas the Homebodies are the opposite. The Mobile Yuppies are highly Adventure Seeking, Organized and Loners, and they are not Frustrated or particularly Calm. The Transit Advocates are not typically Status Seeking or Organizers. The Assistant VPs are not Adventure Seeking or Loners, but they do tend toward Frustration, and have leanings of Status Seeking Workaholics. The Status Seeking Workaholics are not Calm, are slightly Adventure Seeking and, as their name implies, highly Status Seeking and Workaholics. The Suburban and Stationary cluster is very Calm and not Adventure Seeking or Loners. The Older and Independent cluster is

defined as not being Calm or Family and Community Oriented. The Middle-of-the-roaders tend to be Organizers and Family and Community Oriented. The Travel Lovin' Transit Users are Calm Loners, but not Status Seeking, Frustrated or Workaholics. Finally, the Frustrated Loners are most significantly Frustrated and Loners.

The following sections go into greater detail about the Personality and Lifestyle clusters. The variables on which the clusters were analyzed are the same as those for the Attitudinal clusters. However, fewer variables were significant for the Personality and Lifestyle clusters than for the Attitude clusters. Interestingly, neither commute distance nor time is significantly different between clusters, nor are several Perceived Mobility or Travel Liking variables. But most notable is that only two of all the Relative Desired Mobility (RDM) variables are significant between these clusters - short distance for taking the BART/Train and walking. Also worth highlighting is that RDM by personal vehicle (both short- and long- distance) is not significantly different across clusters.

Of the 16 RDM mode and purpose variables, 10 are not significantly different between the clusters. Considering the narrow range of cluster mean responses for each of these non-significant variables may give us one clue as to why this is the case. Generally the average tendency for each cluster was to want to travel somewhat more for short-distance walking, for short- and long-distance entertainment, for long-distance travel in a personal vehicle and an airplane, and somewhat less with respect to other purposes and modes (see Table 2).

Why is RDM significant when clustering on attitudes but not when clustering on Lifestyle and Personality factors? Apparently Relative Desired Mobility has a stronger relationship to Attitudes than to Lifestyle or Personality characteristics. This is not very surprising, since the Attitudes are more explicitly travel-related than are the other factors.

7-1: NEW FAMILY MODEL

Table 15: New Family Model Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 1 New Family Model		**210 Cases (11.03% of total)**	
Young families, enjoy traveling for fun but not for work, family/community oriented but not settling down.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	0.87	
	Loner	-0.65	
	Calm	-0.49	
	Family/Community Oriented	0.31	
Attitude Factors			
	Travel Dislike	-0.24	3rd least
	Travel Freedom	0.23	2nd most
Attitude Clusters			
	Travel Haters	6.7 % (lowest % of cluster)	
	Excess Travelers	27.6 % (highest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	21.4 %	
Objective Mobility (SD) - Frequency Category			
	Grocery Shop	3.78	2nd least
	Entertainment	4.23	2nd most
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	192.84	2nd longest
	Walk	12.04	3rd longest
Objective Mobility (SD) - Total			
	Total	239.67	2nd longest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Wk/sc related activities	38.32	2nd longest
	To eat a meal	12.67	3rd longest
	Entertainment/Social/Recreational	33.56	3rd longest
Objective Mobility - Percent of Total			

Personality and Lifestyle Cluster 1 **New Family Model**		**210 Cases (11.03% of total)**	
Young families, enjoy traveling for fun but not for work, family/community oriented but not settling down.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Wk/Sc Related	11.66 %	3rd highest
	Walk	8.26 %	3rd lowest
Objective Mobility - Commute not significant between clusters			
Excess Travel			
	Excess Travel Indicator	8.83	2nd highest
	8 of 13 variables are in the top 3, with "taking a new route..." being the highest among the Personality and Lifestyle clusters and "mainly to be alone" the 3rd lowest.		
Perceived Mobility			
	SD- Grocery Shop	2.48	3rd least
	SD- Eat a meal	2.57	3rd most
	SD- Entertainment	3.15	most
	LD- Entertainment	2.97	2nd most
	LD- PV	3.19	2nd most
	LD- Airplane	2.92	3rd most
Relative Desired Mobility - Satisfaction			
	SD- Walking	3.53	3rd most
	LD- Wk/Sc related	2.54	3rd least
	LD- Entertainment	3.80	2nd most
	LD- Airplane	3.74	most
Travel Liking			
	SD- Commuting	2.51	2nd least
	SD- Grocery Shop	3.09	3rd most
	SD- Entertainment	3.75	most
	SD- PV	3.64	3rd most
	SD- Bus	2.11	3rd least
	LD- Wk/Sc related	2.58	3rd least
Demographics			
	Sex (% Female)	39%	2nd least
	Income (HH) category	4.62	highest
	% Urban (NSF)	41.4%	3rd lowest
	Education category	4.09	3rd least
	Household size	2.59	Largest
	Age category	2.49	2nd youngest
	Commuters	78.1%	middle
	Number of personal vehicles	2.02	3rd most
	Vehicles / licensed driver	1.01	middle

Contrary to justified popular perception that people with families do less excess travel and less travel for entertainment as their travel budgets are consumed with errands and taking kids everywhere, this *New Family Model* cluster continues to enjoy travel even with the largest families (on average). The *New Family Model* is generally one of the more average clusters. However, it is distinguished by having the highest household income and the largest household size while being the second youngest group and having the second lowest percent of women respondents. Given this, it may not seem to make sense that they appear less educated than most of the clusters, but in fact they have the highest percent that has stopped at a 4-year or technical degree and the second least with completed graduate degrees. They graduated from college, found well-paying jobs, and had families.

They have strong and consistently positive attitudes about travel, being the third most negative cluster on travel dislike and the second most positively related to travel freedom. They see themselves as Adventure Seeking but are family and community oriented as well.

Their financial status and attitude and personality traits make it possible for them to travel for entertainment often (second most often). They travel second farthest total miles per week, and miles in a personal vehicle, and the third farthest walking. While it is not significant (at 0.01), they travel the farthest taking others where they need to go - which makes sense for the cluster with the largest household size. But they also travel the second and third most miles per week for work and school related activities, and to go out

to eat or for social and entertainment travel. Overall, the *New Family Model* cluster has the second highest Excess Travel Indicator, specifically, they more often reported taking a new route than others. They enjoy traveling for entertainment more than any other cluster, and even like grocery shopping more than most clusters although generally their trend is to like discretionary travel more than most other clusters and to like mandatory travel less than most other clusters.

Their Perceived Mobility reflects their high level of entertainment travel. Their average perceived level of traveling for entertainment is highest among the clusters, and their perceived level of travel to eat a meal out is third highest. They also perceive that they travel long-distance more than most other clusters do. Further, they are one of the clusters that would like to increase their travel the most – particularly short-distance walking and long-distance entertainment and airplane. Only for work and school related activities would they like to decrease their travel more than most other clusters. They love their cars and take the train or BART quite a bit (although this is not significant), but dislike the bus greatly.

The attitude clusters that make up most of the *New Family Model* cluster are the Excess Travelers and the Adventurous, Car-Oriented Suburbanites. Both of these groups enjoy travel and the Adventurous, Car-Oriented Suburbanites have a similar educational background and perhaps similar responsibilities to the family.

7-2: HOMEBODIES

Table 16: Homebodies Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 2 Homebodies		**154 Cases (8.09% of total)**	
Not particularly social, don't really like travel, one of the more neutral clusters compared to the others.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	-1.00	
	Organizer	0.49	
	Loner	0.82	
	Family/Community Oriented	-0.27	
Attitude Factors			
	Travel Dislike	0.49	most
	Travel Stress	0.35	most
Attitude Clusters			
	Travel Haters	28.6% (highest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	8.4% (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Wk/Sc related	2.87	2nd least
	Eat a meal	3.56	2nd least
	Entertainment	3.49	least
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	108.90	shortest
	Walk	7.86	2nd shortest
Objective Mobility (SD) - Total			
	Total	150.65	2nd shortest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	76.90	3rd shortest
	Grocery Shop	8.40	3rd shortest
	To eat a meal	7.53	2nd shortest
	Entertainment/Social/Recreational	16.22	shortest
Objective Mobility - Percent of Total			
	Grocery Shop	12.77%	3rd highest
	Entertainment	14.43%	lowest
Objective Mobility - Commute not significant between clusters			
Excess Travel			
	Excess Travel Indicator	6.08	lowest
	First or second lowest for 12 of 13 variables		
Perceived Mobility			
	SD- Overall	3.25	least

Personality and Lifestyle Cluster 2 Homebodies		**154 Cases (8.09% of total)**	
Not particularly social, don't really like travel, one of the more neutral clusters compared to the others.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Wk/Sc related	2.23	3rd least
	SD- Eat a meal	2.37	2nd least
	SD- Entertainment	2.53	least
	SD- Walk	2.40	3rd least
	LD- Overall	2.46	2nd least
	LD- Wk/Sc Related	1.70	2nd least
	LD- Entertainment	2.34	least
	LD- PV	2.79	2nd least
	LD- Airplane	2.40	3rd least
Relative Desired Mobility - Satisfaction			
	LD- Overall	3.38	least
	LD- Entertainment	3.42	2nd least
	LD- Airplane	3.14	least
Travel Liking			
	SD- Entertainment	3.45	least
	SD- PV	3.47	3rd least
	SD- Bus	2.28	3rd most
	SD- BART/train	2.95	3rd most
	SD- Walking	3.48	3rd least
	LD- Overall	3.29	least
	LD- Entertainment	3.46	least
	LD- Airplane	3.16	least
Demographics			
	Sex (% Female)	61%	3rd highest
	Income (HH) category	3.96	3rd lowest
	% Urban (NSF)	46.8%	middle
	Education category	4.21	middle
	Household size	2.29	middle
	Age category	2.90	middle
	Commuters	76.0%	middle
	Number of personal vehicles	1.65	3rd least
	Vehicles / licensed driver	0.93	2nd least

It was difficult to decide whether to call this cluster the *Homebodies* or the Hermits.

They are not particularly social and don't generally like traveling. Three-fifths of them

are women, they are older and generally well-educated, and are representatively split between the urban and suburban neighborhoods.

They are decidedly not Adventure Seeking and not Family and Community Oriented (even though the average household size implies that many of them have families), and are loners. They are the most Travel Stressed and Dislike Travel the most. Not surprisingly, more than a quarter of their cluster is made up of representatives of the Travel Haters attitude cluster. They like traveling by most modes and purposes less than most other clusters, for both short- and long-distances.

The *Homebodies* perceive that they travel the least overall, for work or school related activities and to eat or for other entertainment purposes. In fact they travel less than most other clusters in terms of both frequency and distance. This cluster is very consistent in doing as little traveling as possible, for short and long distance, liking it the least and wanting to increase their travel the least.

7-3: MOBILE YUPPIES

Table 17: Mobile Yuppies Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 3 Mobile Yuppies		**130 Cases (6.83% of total)**	
Young, professional, highly educated, travel lovers.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	1.23	most
	Organizer	0.80	most
	Loner	1.05	most
	Calm	-0.79	
	Frustrated	-0.65	
Attitude Factors			
	Travel Dislike	-0.57	least
	Travel Freedom	0.37	most
	Travel Stress	-0.42	least
Attitude Clusters			
	Transit Using Urbanites	6.2 %	
	Travel Haters	2.3 % (lowest % of cluster)	
	Excess Travelers	43.1 % (highest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	23.8 %	
Objective Mobility (SD) - Frequency Category			
	Commute	5.32	most
	Wk/Sc related	3.75	most
	Grocery Shop	3.74	least
	Eat a meal	4.05	2nd most
	Entertainment	4.28	most
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	190.27	3rd longest
Objective Mobility (SD) - Total			
	Total	232.82	3rd longest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	190.05	3rd longest
	Wk/sc related activities	32.18	3rd longest
	Grocery Shop	7.59	2nd shortest
	Entertainment/Social/Recreational	33.67	2nd longest
Objective Mobility - Percent of Total			
	Wk/Sc Related	14.39%	highest
	Grocery Shop	5.69%	lowest
	Entertainment	21.24%	3rd highest
	Walk	11.76%	2nd highest

Personality and Lifestyle Cluster 3 Mobile Yuppies		**130 Cases (6.83% of total)**	
Young, professional, highly educated, travel lovers.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Excess Travel			
	Excess Travel Indicator	10.38	highest
	highest or second highest on all 13 variables		
Perceived Mobility			
	SD- Overall	3.79	most
	SD- Commute	3.34	2nd most
	SD- Wk/Sc related	2.76	most
	SD- Grocery Shop	2.32	least
	SD- Eat a meal	2.59	2nd most
	SD- Entertainment	3.14	2nd most
	SD- Walk	2.98	most
	LD- Overall	3.27	most
	LD- Wk/Sc related	2.48	most
	LD- Entertainment	3.03	most
	LD- PV	3.18	3rd most
	LD- Airplane	3.24	most
Relative Desired Mobility - Satisfaction			
	SD- Walking	3.68	2nd most
	LD- Airplane	3.72	3rd most
Travel Liking			
	SD- Overall	3.41	most
	SD- Commuting	2.82	most
	SD- Grocery Shop	3.17	most
	SD- Entertainment	3.70	2nd most
	SD- PV	3.78	most
	SD- Bus	2.09	2nd least
	SD- Walking	4.02	most
	LD- Overall	3.92	most
	LD- Wk/Sc	2.94	2nd most
	LD- Entertainment	4.08	most
	LD- Airplane	3.97	most
Demographics			
	Sex (% Female)	60%	middle
	Income (HH) category	4.22	middle
	% Urban (NSF)	55.4%	middle
	Education category	4.29	3rd highest
	Household size	2.18	2nd lowest
	Age category	2.42	youngest
	Commuters	85.4%	highest

Personality and Lifestyle Cluster 3 Mobile Yuppies		**130 Cases (6.83% of total)**	
Young, professional, highly educated, travel lovers.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Number of personal vehicles	2.31	2nd highest
	Vehicles / licensed driver	1.01	middle

This is one of the smallest clusters and one of the most extreme. The *Mobile Yuppies* are young and educated; three-fifths of them are female. They are extremely Adventure Seeking Loners. They tend to be Organizers but they are not Calm or Frustrated. They like travel and do not generally experience travel stress. They are excess travelers - they have the highest Excess Travel Indicator of all the clusters and more than 40% of this cluster is composed of members of the Excess Travelers Attitude cluster.

But they are also largely employed, with the highest percent of commuters. They make the most frequent trips for commuting and work and school related activities, and travel the third most miles a week. They spend the highest percent of their total miles on work and school related activities of any cluster, and the lowest on grocery shopping. They also make the most and second most trips for entertainment and to eat out, respectively.

Their perceptions of their travel are consistent with their actual mobility. Their average Perceived Mobility is highest (or among the highest) for all purposes and modes, except grocery shopping, and they like traveling by purpose and mode (for both short- and long-distances) more than most others.

7-4: TRANSIT ADVOCATES

Table 18: Transit Advocates Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 4 Transit Advocates		**191 Cases (10.03% of total)**	
Highly educated, environmentally sensitive, transit-oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Organizer	-0.98	least
	Loner	-0.36	
	Frustration	0.34	
	Status Seeking	-0.54	
Attitude Factors			
	Pro-environmental Solutions	0.32	2nd most
	Travel Freedom	-0.26	2nd least
	Pro-high Density	0.22	2nd most
Attitude Clusters			
	Transit-using Urbanites	29.8 % (highest % of cluster)	
	Travel Haters	8.4 %	
	Adventurous, Car-Oriented Suburbanites	6.3 % (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Grocery shop	4.02	most
Objective Mobility (SD) - Weekly Miles - MODE - ALL MIDDLE			
Objective Mobility (SD) - Total - MIDDLE			
Objective Mobility (SD) - Miles - PURPOSE - ALL MIDDLE			
Objective Mobility - Percent of Total - ALL MIDDLE			
Excess Travel - MIDDLE			
Perceived Mobility			
	SD- Eat a meal	2.36	least
	SD- Entertainment	2.76	3rd least
	SD- Bus	1.92	2nd most
	SD- Walk	2.63	3rd most
	LD- PV	2.77	least
Relative Desired Mobility - Satisfaction			
	SD- Train	3.16	most
	SD- Walking	3.68	2nd most
	LD- Overall	3.80	most
	LD- Entertainment	3.77	3rd most
	LD- Airplane	3.73	2nd most
Travel Liking			
	SD- Grocery Shop	2.93	2nd least
	SD- Entertainment	3.46	2nd least

Personality and Lifestyle Cluster 4 Transit Advocates		**191 Cases (10.03% of total)**	
Highly educated, environmentally sensitive, transit-oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- PV	3.32	least
	SD- Bus	2.45	most
	SD- Train	3.25	most
	SD- Walking	3.82	2nd most
Demographics			
	Sex (% Female)	53%	middle
	Income (HH) category	3.98	middle
	% Urban (NSF)	56.5%	2nd highest
	Education category	4.37	most
	Household size	2.38	middle
	Age category	2.70	3rd oldest
	Commuters	77.5%	middle
	Number of personal vehicles	1.73	middle
	Vehicles / licensed driver	0.96	3rd least

This group is highly educated and transit oriented. The *Transit Advocates* are not particularly loners, and not status seeking, and quite strongly not organizers. They are evenly split between men and women. They fall in the middle of the clusters for objective mobility by purpose, mode, percent and excess travel.

Where they stand out is in their use of transit, and certain perceptions about their travel. They perceive that they travel to eat out, for other entertainment purposes and long-distance in a personal vehicle among the least, but walking and taking the bus among the most. However they like trips for entertainment, grocery shopping, and taking the personal vehicle least, while they like bus, train and walking among the most. Consequently they want to increase their train use and walking. And they want to increase their long-distance travel overall, and by airplane and for the purpose of

entertainment specifically. Of all the Personality and Lifestyle clusters, they have the second highest proportion of urbanites. Even so, more than two-fifths of this cluster lives in suburban areas, and it is still strongly transit oriented, against the stereotype.

7-5: ASSISTANT V.P.S

Table 19: Assistant V.P.s Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 5 Assistant V.P.s		**208 Cases (10.92% of total)**	
Suburban, auto-oriented (but not particularly travel loving), older, least educated, frustrated.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	-0.61	
	Loner	-0.76	least
	Frustration	0.65	
	Family/Community Oriented	-0.39	
	Status Seeking	0.61	
	Workaholic	0.57	
Attitude Factors			
	Travel Dislike	0.31	2nd most
	Pro-environmental Solutions	-0.35	least
	Travel Freedom	-0.32	least
	Travel Stress	0.30	2nd most
	Pro-high Density	-0.23	least
Attitude Clusters			
	Homemakers and Older Workers	35.6% (highest % of cluster)	
	Excess Travelers	7.2% (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Commuting	4.50	3rd least
	Grocery Shop	4.01	2nd most
	Entertainment	3.59	2nd least
Objective Mobility (SD) - Weekly Miles - MODE - ALL MIDDLE			
Objective Mobility (SD) - Total - MIDDLE			
Objective Mobility (SD) - Miles - PURPOSE			
	Grocery Shop	12.65	longest
	Entertainment/Social/Recreational	18.79	2nd shortest
Objective Mobility - Percent of Total			
	Wk/Sc Related	9.78%	3rd lowest
	Grocery Shop	14.00%	highest
	Entertainment	16.51%	3rd lowest

Personality and Lifestyle Cluster 5 Assistant V.P.s		**208 Cases (10.92% of total)**	
Suburban, auto-oriented (but not particularly travel loving), older, least educated, frustrated.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Excess Travel			
	Excess Travel Indicator	6.61	3rd least
	All low or middle except "to show off a means of travel" is second highest at 1.10		
Perceived Mobility			
	SD- Grocery shop	2.76	most
	SD- Entertainment	2.62	2nd least
	SD- Walk	2.35	least
	LD- Overall	2.58	3rd least
	LD- Wk/Sc related	1.73	3rd least
	LD- Airplane	2.39	2nd least
Relative Desired Mobility - Satisfaction			
	SD- Train	2.54	least
	SD- Walking	3.09	least
	LD- Overall	3.40	2nd least
	LD- Wk/Sc related	2.53	2nd least
	LD- Entertainment	3.32	least
	LD- Airplane	3.25	2nd least
Travel Liking			
	SD- Entertainment	3.50	3rd least
	SD- Train	2.69	least
	SD- Walk	3.22	least
	LD- Overall	3.46	2nd least
	LD- Entertainment	3.53	2nd least
	LD- Airplane	3.44	2nd least
Demographics			
	Sex (% Female)	44%	3rd least
	Income (HH) category	3.90	2nd lowest
	% Urban (NSF)	36.1%	2nd lowest
	Education category	3.89	2nd lowest
	Household size	2.39	middle
	Age category	3.05	oldest
	Commuters	66.8%	3rd lowest
	Number of personal vehicles	1.94	middle
	Vehicles / licensed driver	1.05	3rd highest

Members of the *Assistant VPs*, the second largest cluster, are more often male and typically suburban. This is the oldest and one of the least educated clusters. They tend to be Frustrated, Status Seeking Workaholics (some of whom may be retired judging from the relatively low proportion of commuters in the cluster). They are not Adventure Seeking, not Family and Community Oriented and (most extremely) not Loners. Their Attitudes about travel are relatively extreme, being one of the two most extreme Personality and Lifestyle clusters on all the Attitude factors. They Dislike Travel and experience Travel Stress. They do not feel that they have Travel Freedom and are not in favor of the Environmental Solutions presented or of High Density. As may be expected they make some of the fewest excess travel trips. They make more trips (in terms of frequency, distance and percent of total miles they travel) grocery shopping than do most other clusters, and less frequent commuting and entertainment trips.

Their Perceived Mobility reflects their actual mobility in most respects. However, their perceived amount of walking is higher than most other clusters, when in fact their actual amount is about average. Their Travel Liking ratings are among the lowest (although slightly higher than neutral on average), and their Relative Desired Mobility ratings are also among the lowest (although centering around wanting to travel "about the same" on average).

7-6: STATUS SEEKING WORKAHOLICS

Table 20: Status Seeking Workaholic Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 6 **Status Seeking Workaholics**	**171 Cases (8.98% of total)**
Travel most (miles and frequency) for work, auto-bound, enjoy work travel... one of the more extreme clusters - most Status Seeking, Workaholic and not Calm.	

Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	0.58	
	Organizer	0.43	
	Calm	-0.98	least
	Frustration	0.46	
	Status Seeking	1.09	most
	Workaholic	0.82	most
Attitude Factors			
	Pro-environmental Solutions	-0.33	2nd least
	Pro-high Density	-0.22	2nd least
Attitude Clusters			
	Affluent Professionals	21.6%	
	Homemakers and Older Workers	23.4%	
	Travel Haters	7.0% (lowest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	24.6% (highest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Commuting	5.08	3rd highest
	Wk/Sc Related	3.63	2nd highest
	Eat a meal	4.22	highest
	Entertainment	4.19	3rd highest
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	236.84	longest
Objective Mobility (SD) - Total			
	Total	277.37	longest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	124.70	longest
	Wk/sc related activities	43.07	longest
	Grocery Shop	11.44	2nd longest
	To eat a meal	15.99	longest
	Entertainment/Social/Recreational	36.82	longest
Objective Mobility - Percent of Total			
	Wk/Sc Related	14.08%	2nd highest
	Grocery Shop	7.39%	3rd lowest
	Walk	7.28%	lowest

Personality and Lifestyle Cluster 6 Status Seeking Workaholics		**171 Cases (8.98% of total)**	
Travel most (miles and frequency) for work, auto-bound, enjoy work travel... one of the more extreme clusters - most Status Seeking, Workaholic and not Calm.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Excess Travel			
	To show off a means of transportation	1.18	highest
Perceived Mobility			
	SD- Overall	3.64	3rd most
	SD- Commute	3.25	3rd most
	SD- Wk/Sc related	2.68	3rd most
	SD- Eat a meal	2.67	most
	SD- Walk	2.37	2nd least
	LD- Overall	3.01	2nd most
	LD- Wk/Sc related	2.36	2nd most
	LD- Airplane	3.01	2nd most
Relative Desired Mobility - Satisfaction			
	LD- Overall	3.51	3rd least
	LD- Wk/Sc related	2.74	3rd most
Travel Liking			
	SD- Grocery Shop	3.09	3rd most
	SD- PV	3.64	3rd most
	SD- Bus	2.11	3rd least
	SD- Train	2.80	2nd least
	SD- Walking	3.44	2nd least
	LD- Wk/Sc related	2.99	most
	LD- Entertainment	3.95	3rd most
	LD- Airplane	3.84	3rd most
Demographics			
	Sex (% Female)	33%	lowest
	Income (HH) category	4.56	2nd highest
	% Urban (NSF)	48.0%	middle
	Education category	4.15	middle
	Household size	2.56	3rd largest
	Age category	2.65	middle
	Commuters	81.9%	3rd highest
	Number of personal vehicles	2.39	most
	Vehicles / licensed driver	1.27	most

The *Status Seeking Workaholics* cluster has the highest proportion of males (67%) with one of the larger average household sizes and one of the highest average incomes. They are the most Status Seeking, most Workaholic and least Calm of all the clusters. They also tend to be Adventure Seeking, Frustrated and Organizers. They are not in favor of the Environmental Solutions suggested nor are they Pro-high Density. Of all the Personality and Lifestyle clusters, they travel the farthest in total, by personal vehicle and for all the purposes. The share of their total travel that is spent on work and school related activities is the second highest among the clusters and the share of grocery shopping is among the lowest.

They perceive that they travel a lot by most purposes. They like grocery shopping and traveling in their automobile. They even like long-distance travel for entertainment purposes and travel by airplane third most. They like long-distance travel for work and school related activities most. They dislike the public transportation modes and walking more than most other clusters. They want to increase their overall long-distance travel the least and their long-distance work and school related activities the most.

7-7: SUBURBAN AND STATIONARY

Table 21: Suburban and Stationary Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 7 Suburban and Stationary		**206 Cases (10.82% of total)**	
Mostly older, suburban women, calm, don't travel a lot.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	-1.06	least
	Organizer	-0.43	
	Loner	-0.68	
	Calm	0.99	most
	Frustrated	-0.32	
	Workaholic	-0.57	
Attitude Factors			
	Travel Freedom	-0.32	least
	Travel Stress	0.20	3rd most
	Pro-high Density	-0.21	3rd least
Attitude Clusters			
	Homemakers and Older Workers	31.6% (highest % of cluster)	
	Excess Travelers	11.2% (lowest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	11.2% (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Commute	4.25	least
	Wk/Sc related	2.49	least
	Eat a meal	3.50	least
	Entertainment	3.59	2nd least
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	122.21	3rd shortest
	Walk	7.75	shortest
Objective Mobility (SD) - Total			
	Total	152.93	3rd shortest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Wk/sc related activities	9.46	shortest
	To eat a meal	7.76	3rd shortest
	Entertainment/Social/Recreational	19.46	3rd shortest
Objective Mobility - Percent of Total			
	Wk/Sc Related	5.39%	lowest
	Grocery Shop	13.54%	highest
Excess Travel			
	Excess Travel Indicator	6.34	2nd least
	At least 2nd or 3rd least for all variables, but least for "with no destination in		

Personality and Lifestyle Cluster 7 Suburban and Stationary		**206 Cases (10.82% of total)**	
Mostly older, suburban women, calm, don't travel a lot.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	mind", "mainly to be alone", "to clear your head" and "in an off road vehicle".		
Perceived Mobility			
	SD- Overall	3.28	2nd least
	SD- Commute	2.62	least
	SD- Wk/Sc related	1.98	least
	SD- Eat a meal	2.41	3rd least
	SD- Entertainment	2.76	3rd least
	SD- Grocery Shop	2.69	2nd most
	SD- Bus	1.55	least
	SD- Walk	2.40	3rd least
	LD- Overall	2.40	least
	LD- Wk/Sc related	1.33	least
	LD- Entertainment	2.50	2nd least
	LD- PV	2.81	3rd least
	LD- Airplane	2.20	least
Relative Desired Mobility - Satisfaction			
	SD- Train	2.78	3rd least
	SD- Walking	3.31	3rd least
	LD- Wk/Sc related	2.53	2nd least
	LD- Airplane	3.46	3rd least
Travel Liking			
	SD- Overall	3.28	3rd most
	SD- Commuting	2.75	3rd most
	SD- Grocery Shop	3.17	most
	LD- Wk/Sc related	2.50	least
	LD- Entertainment	3.65	3rd least
	LD- Airplane	3.47	3rd least
Demographics			
	Sex (% Female)	65%	2nd highest
	Income (HH) category	3.80	lowest
	% Urban (NSF)	29.6%	lowest
	Education category	3.88	least
	Household size	2.37	middle
	Age category	3.05	oldest
	Commuters	64.1%	lowest
	Number of personal vehicles	1.96	middle
	Vehicles / licensed driver	1.07	2nd most

The *Suburban and Stationary* cluster is mostly older, suburban women who do not travel very much. It is one of the largest clusters and is largely defined by what it is not: not highly educated (least educated in fact, with the highest percent that stopped at a high school diploma and the lowest percent with completed graduate degrees), with the lowest percent of commuters and the lowest incomes. This cluster has the highest percent of homemakers and service repair occupations. They are most extremely not Adventure Seeking, strongly not Loners or Workaholics and somewhat not Frustrated or Organizers. They are not particularly Pro-high Density and do not feel that they have Travel Freedom. They *are* the most Calm and experience some degree of Travel Stress.

Suburban and Stationary travel less than most clusters for both short and long distance. Although the absolute number of miles for grocery shopping trips is not extreme, *Suburban and Stationary* spend more than 13% of their total miles grocery shopping - the highest share of all the clusters. They make the fewest trips commuting, for work and school related activities and to eat out. They walk the fewest miles a week and travel the fewest miles a week to work and school related activities.

Their perceived levels of travel are lower than most for most purposes and by most modes - and they like (LD) travel among the least. Again, grocery shopping is the one difference, where they perceive they do it a lot and like it the most of all the clusters. Interestingly, they also like (SD) traveling overall and for commute purposes more than most clusters. This could indicate that they are meeting their desired mobility for most travel (they have the third highest Relative Desired Mobility for both overall and for

commuting, but it is not significantly different from other clusters). Apparently, they are even pleased with their commute travel: they do not do it as often as others and therefore are able to enjoy it more.

This group has one of the lowest Excess Travel Indicators, as could be expected. Somewhat notable about their excess travel however, is that, although all of the variables are low, this group has the lowest average on four of them: "with no destination in mind", "mainly to be alone", "to clear your head", and "in an off-road vehicle".

A third of the members of this cluster also belong to the Homemakers and Older Workers Attitudinal cluster, and they share many characteristics. Both typically female groups are older and one of the least educated, predominantly suburban and Calm. They both commute to work very little, don't need to travel very much (although they like some of the short-distance travel they do) and have a relatively high amount of Travel Stress.

7-8: OLDER AND INDEPENDENT

Table 22: Older and Independent Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 8 Older and Independent		**178 Cases (9.35% of total)**	
Older, independent, unencumbered (most strongly NOT family/community oriented, entertainment focused.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Adventure Seeking	0.30	
	Frustrated	-0.61	
	Family/Community Oriented	-0.99	least
Attitude Factors			
	Pro-environmental Solutions	-0.20	3rd least
	Travel Stress	-0.34	2nd least

Personality and Lifestyle Cluster 8 Older and Independent		**178 Cases (9.35% of total)**	
Older, independent, unencumbered (most strongly NOT family/community oriented, entertainment focused.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Attitude Clusters			
	New Family Model	22.5% (highest % of cluster)	
	Travel Haters	5.1% (lowest % of cluster)	
	Excess Travelers	22.5% (highest % of cluster)	
	Adventurous, Car-Oriented Suburbanites	22.5% (highest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Commute	4.42	2nd least
	Grocery Shop	2.99	3rd least
	Eat a meal	4.01	2nd most
Objective Mobility (SD) - Weekly Miles - MODE - ALL MIDDLE			
Objective Mobility (SD) - Total - MIDDLE			
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	68.54	shortest
	Wk/sc related activities	15.98	3rd shortest
	Grocery Shop	11.22	3rd longest
	To eat a meal	12.78	2nd longest
Objective Mobility - Percent of Total			
	Entertainment	22.10%	highest
	Walk	11.01%	3rd highest
Excess Travel - MIDDLE			
Perceived Mobility			
	SD- Overall	3.34	3rd least
	SD- Commute	2.63	3rd least
	SD- Wk/Sc related	2.17	2nd least
	SD- Eat a meal	2.54	3rd least
	SD- Entertainment	3.10	3rd most
	SD- Bus	1.56	2nd least
	LD- Overall	2.92	3rd most
	LD- Entertainment	2.94	3rd most
Relative Desired Mobility - Satisfaction			
	SD- Train	2.74	2nd least
	SD- Walking	3.27	2nd least
	LD- Wk/Sc related	2.79	most
	LD- Entertainment	3.53	3rd least
Travel Liking			
	SD- Overall	3.38	2nd most
	SD- Commuting	2.79	2nd most

Personality and Lifestyle Cluster 8 Older and Independent		**178 Cases (9.35% of total)**	
Older, independent, unencumbered (most strongly NOT family/community oriented, entertainment focused.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Grocery Shop	3.13	2nd most
	SD- Entertainment	3.75	most
	SD- PV	3.71	2nd most
	SD- Train	2.81	3rd least
	LD- Overall	3.85	2nd most
	LD- Wk/Sc related	2.89	3rd most
Demographics			
	Sex (% Female)	49%	middle
	Income (HH) category	4.19	middle
	% Urban (NSF)	52.2%	middle
	Education category	4.16	middle
	Household size	1.96	smallest
	Age category	3.04	2nd oldest
	Commuters	65.2%	2nd lowest
	Number of personal vehicles	1.69	middle
	Vehicles / licensed driver	1.00	middle

This is another of the oldest clusters, but this one has the smallest household size and appears to enjoy traveling. They are evenly split between men and women and essentially in the middle of the clusters for most other demographic characteristics.

They are the most strongly not family and community oriented, strongly not frustrated and somewhat Adventure Seeking. They do not experience high levels of travel stress and do not strongly favor the environmental solutions presented.

They commute and make other work and school related trips less frequently than most other clusters and make more grocery shopping trips than most. When they do go out to

eat a meal they go relatively far away from their home; they travel second farthest per week for this purpose. They have the highest share of miles (more than 20%) for entertainment purposes and a high share of miles walking (more than 11%). Their perceived levels of travel are generally lower than for most clusters, but for entertainment (both short and long distance) and long distance overall their perceived amounts are higher than most. Not surprisingly, they like traveling short- and long-distances more than most clusters and only dislike BART or trains more than most (and would like to reduce this). Interestingly, they would like to walk less and increase their travel for entertainment (long-distance) less than most - but this could be because they do these activities more than most.

we would guess that this group is so strongly not family and community oriented because they have moved through that phase in their lives and are enjoying their unencumbered years of entertainment and fun.

7-9: MIDDLE-OF-THE-ROADERS

Table 23: Middle-of-the-roaders Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 9 Middle-of-the-roaders		**166 Cases (8.72% of total)**	
Most neutral cluster, most strongly family/community oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Organizer	0.65	
	Loner	-0.34	
	Calm	0.27	
	Family/Community Oriented	0.67	most
Attitude Factors - ALL RELATIVELY NEUTRAL			
Attitude Clusters			

Personality and Lifestyle Cluster 9 Middle-of-the-roaders		**166 Cases (8.72% of total)**	
Most neutral cluster, most strongly family/community oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	Homemakers and Older Workers	23.5% (highest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Eat a meal	3.62	3rd least
Objective Mobility (SD) - Weekly Miles - MODE			
	Walk	8.26	3rd shortest
Objective Mobility (SD) - Total - MIDDLE			
Objective Mobility (SD) - Weekly Miles - PURPOSE - ALL MIDDLE			
Objective Mobility - Percent of Total			
	Walk	8.07%	2nd lowest
Excess Travel - ALL MIDDLE			
Perceived Mobility			
	SD- Commute	2.96	3rd least
	SD- Grocery shop	2.68	3rd most
	SD- Eat a meal	2.41	3rd least
	SD- Bus	1.58	3rd least
	LD- PV	3.22	most
Relative Desired Mobility - Satisfaction			
	LD- Wk/Sc related	2.47	least
Travel Liking			
	SD- Overall	3.13	2nd least
	SD- Commuting	2.52	3rd least
	SD- Bus	2.07	least
	LD- Overall	3.51	3rd least
	LD- Wk/Sc related	2.52	2nd least
Demographics			
	Sex (% Female)	61%	3rd highest
	Income (HH) category	4.33	3rd highest
	% Urban (NSF)	41.6%	middle
	Education category	4.27	middle
	Household size	2.57	2nd largest
	Age category	2.69	middle
	Commuters	75.9%	middle
	Number of personal vehicles	1.92	middle
	Vehicles / licensed driver	0.99	middle

This cluster is amazingly good at hitting the average for most values. The *Middle-of-the-roaders* cluster is one of the most neutral and average clusters. They stand out by being the most Family and Community Oriented (with the second largest average household size), strongly Organizers and somewhat Calm. Throughout this analysis, a cluster is generally identified with a variable if the average value of that variable for the cluster is the first, second, or third most extreme (in either direction). When the *Middle-of-the-roaders* cluster is extreme it is usually least extreme: third highest percent of women and the third highest income for example. They make the third least frequent trips to eat a meal, walk the third lowest number of miles per week (and spend the second lowest percent of their total miles a week walking).

Their average perceived levels of travel for commuting, eating a meal, and taking the bus are third lowest, and for grocery shopping is third highest. Only in long-distance travel by personal vehicle is their perceived amount of travel the highest. They like traveling by bus least of all the clusters, and like short-distance traveling overall and long-distance traveling for work and school related activities second least, and long-distance overall and short-distance commuting third least. They want to reduce their long distance work-school related activities more than other clusters do; the relative dislike for this category of travel and the desire to reduce it may be because it takes time away from family. Aside from these observations, this cluster is so average that it is difficult to find truly distinguishing characteristics for it.

7-10: TRAVEL LOVIN' TRANSIT USERS

Table 24: Travel Lovin' Transit Users Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 10 Travel Lovin' Transit Users	**136 Cases (7.43% of total)**
Highly educated urban women, middle income, environmentally sensitive, like short distance travel by bus, strong excess travelers, highest walking share of total miles traveled.	

Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Status Seeking	-0.87	least
	Loner	0.77	
	Calm	0.57	
	Frustrated	-0.83	least
	Family/Community Oriented	0.34	
	Workaholic	-0.88	least
Attitude Factors			
	Travel Dislike	-0.44	2nd least
	Pro-environmental Solutions	0.40	most
	Pro-high Density	0.27	most
Attitude Clusters			
	Excess Travelers	41.2% (highest % of cluster)	
	Travel Haters	3.7% (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category - ALL MIDDLE			
Objective Mobility (SD) - Weekly Miles - MODE			
	Driver/passenger PV	114.38	2nd shortest
	Walk	14.63	2nd longest
Objective Mobility (SD) - Total			
	Total	148.45	shortest
Objective Mobility (SD) - Weekly Miles - PURPOSE			
	Commuting	73.49	2nd shortest
	Wk/sc related activities	14.10	2nd shortest
	Grocery shop	6.95	shortest
	To eat a meal	6.62	shortest
Objective Mobility - Percent of Total			
	Wk/Sc Related	9.43%	2nd lowest
	Entertainment	21.77%	2nd highest
	Walk	14.60%	highest
Excess Travel			
	Excess Travel Indicator		3rd most
	least "to show off a means of transportation", most "by a longer route..." and second highest "When you need time to think" and "to explore new places" and "out of the way".		
Perceived Mobility			

Personality and Lifestyle Cluster 10 Travel Lovin' Transit Users		**136 Cases (7.43% of total)**	
Highly educated urban women, middle income, environmentally sensitive, like short distance travel by bus, strong excess travelers, highest walking share of total miles traveled.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Grocery Shop	2.46	2nd least
	SD- Bus	2.01	most
	SD- Walk	2.90	2nd most
	LD- Entertainment	2.97	2nd most
Relative Desired Mobility - Satisfaction			
	SD- Train	2.96	2nd least
	SD- Walking	3.70	most
	LD- Overall	3.70	2nd most
	LD- Wk/Sc related	2.78	2nd most
	LD- Entertainment	3.85	most
Travel Liking			
	SD- Grocery Shop	2.95	3rd least
	SD- Entertainment	3.65	3rd most
	SD- Bus	2.38	2nd most
	SD- Train	3.13	2nd most
	SD- Walking	3.98	2nd most
	LD- Overall	3.81	3rd most
	LD- Entertainment	4.04	2nd most
	LD- Airplane	3.85	2nd most
Demographics			
	Sex (% Female)	68%	highest
	Income (HH) category	3.81	middle
	% Urban (NSF)	61%	highest
	Education category	4.31	2nd highest
	Household size	2.19	3rd lowest
	Age category	2.60	middle
	Commuters	77.2%	middle
	Number of personal vehicles	1.53	least
	Vehicles / licensed driver	0.87	least

An assumption about transit users is that they somehow don't like travel, whether it is because they have social and environmental reasons for not liking the transportation system, or because they are stuck on public transportation all the time and could not possibly like it. This small cluster represents those who do like to travel but, consistent

with their strong pro-environmental orientation, often do so using public transportation and walking. Their automobile ownership is the lowest of any of the clusters.

The *Travel Lovin' Transit Users* are highly educated, highly (highest) urban, and predominately female. They have the second most negative average value for travel dislike, meaning that of all the clusters they like travel more than nine others. They are also the most strongly pro-environmental solutions and pro-high density of all the clusters. They are most strongly not status seeking, frustrated or workaholics but they are somewhat family and community oriented and strongly Calm and Loners. Interestingly, they are one of the clusters with the most excess travel.

They travel the shortest distance per week overall and second shortest in a personal vehicle and for all (significant) purposes, however, they walk second farthest. They spend a lower percent of their total miles per week on work and school related activities and a higher percent than most in walking or for entertainment.

They enjoy traveling for entertainment purposes more than most clusters, by all alternative modes to the automobile, and for long-distance travel. Their average perceived amounts of walking and traveling for entertainment are higher than for most other clusters and they would like to increase their walking and long-distance travel more than most. They do desire to increase their train travel less than most, but their average score of 2.96 on that variable is very close to "about the same" (a score of 3).

7-11: FRUSTRATED LONERS

Table 25: Frustrated Loner Personality and Lifestyle Cluster

Personality and Lifestyle Cluster 11 Frustrated Loners		**154 Cases (8.09% of total)**	
Most extremely frustrated, above average commutes, somewhat transit oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
Personality and Lifestyle Factors			
	Organizer	-0.35	
	Loner	0.83	
	Calm	-0.37	
	Frustration	1.07	most
	Family/Community Oriented	0.48	
	Workaholic	0.41	
Attitude Factors			
	Pro-high Density	0.12	3rd most
Attitude Clusters			
	Transit Oriented (2)	26.0% (highest % of cluster)	
	Adventurous, Car-Oriented Suburbanites (6)	9.7% (lowest % of cluster)	
Objective Mobility (SD) - Frequency Category			
	Commute	5.22	2nd most
	Wk/Sc related	3.24	3rd most
	Grocery Shop	3.74	least
Objective Mobility (SD) - Weekly Miles - MODE - ALL MIDDLE			
Objective Mobility (SD) - Total - MIDDLE			
Objective Mobility (SD) - Miles - PURPOSE			
	Commuting	115.15	2nd longest
Objective Mobility - Percent of Total			
	Grocery Shop	7.20%	2nd lowest
	Entertainment	15.97%	2nd lowest
Excess Travel - generally middle			
	Least “to show off a means of travel”, most “mainly to be alone” and second most “to clear your head” and “by a new route partly to experience your surroundings”.		
Perceived Mobility			
	SD- Overall	3.75	2nd most
	SD- Commute	3.39	most
	SD- Bus	1.87	3rd most
	LD- Wk/Sc related	2.05	3rd most
	LD- Entertainment	2.55	3rd least
Relative Desired Mobility - Satisfaction			
	SD- Train	2.92	3rd least
Travel Liking			

Personality and Lifestyle Cluster 11 Frustrated Loners		**154 Cases (8.09% of total)**	
Most extremely frustrated, above average commutes, somewhat transit oriented.			
Defining Characteristics		**Cluster Average**	**Comparison Across Clusters**
	SD- Overall	2.95	least
	SD- Commuting	2.46	least
	SD- Grocery Shop	2.88	least
	SD- PV	3.42	2nd least
	SD- Bus	2.07	least
	SD- Train	2.95	3rd most
Demographics			
	Sex (% Female)	46%	middle
	Income (HH) category	4.05	middle
	% Urban (NSF)	56%	3rd highest
	Education category	4.27	middle
	Household size	2.21	middle
	Age category	2.57	3rd youngest
	Commuters	84%	2nd highest
	Number of personal vehicles	1.62	2nd lowest
	Vehicles / licensed driver	1.00	middle

we have tried not to give the clusters negative names, however this one was hard to name with anything else because they are most clearly defined in negative terms. This small cluster is the most frustrated. It is very strongly a Loner cluster, somewhat Family and Community Oriented and having Workaholic tendencies, but not Calm or inclined to be Organizers.

The Frustrated Loners cluster is young, and leaning toward the urban with a high percent of commuters and among the fewest vehicles per household.

They make the least frequent trips grocery shopping and spend the second most miles per week commuting. Their Perceived Mobility is higher than most overall, with the highest

perceived amount of commuting. They have the lowest travel liking for short distance overall, for commuting, grocery shopping and by bus.

The difficult aspect of this Lifestyle and Personality cluster is that there are few truly distinctive mobility characteristics. The Frustration and Loner Lifestyle and Personality traits only go so far to define this group. They like the bus the least, but perceive themselves to use it among the most. More than a quarter of them belong to the Transit-Oriented Attitude cluster.

CHAPTER 8: PRELIMINARY EXPLORATION OF INTERACTIONS BETWEEN CLUSTER SOLUTIONS

In this chapter, we will first revisit some of the clusters, specifically discussing trends within two demographic characteristics (age and gender) that are typically used in travel behavior models, and then consider the connections between the Attitude and Personality and Lifestyle clusters. As a basis for comparison, Figures 1 and 2 show the percentages of the sample falling into each Attitude, and Personality and Lifestyle cluster, respectively.

Figure 1: Distribution of Attitude Clusters Across the Sample

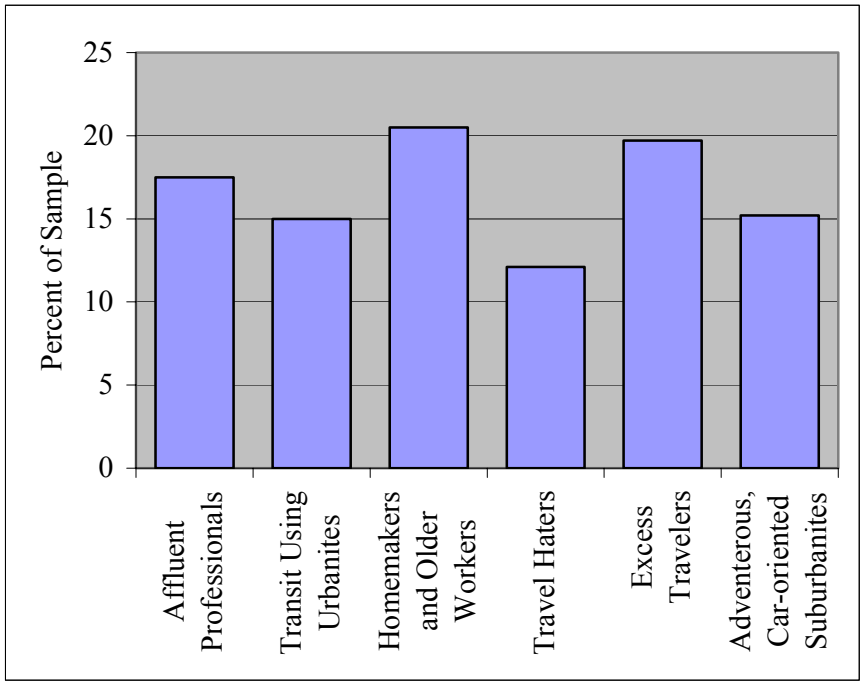
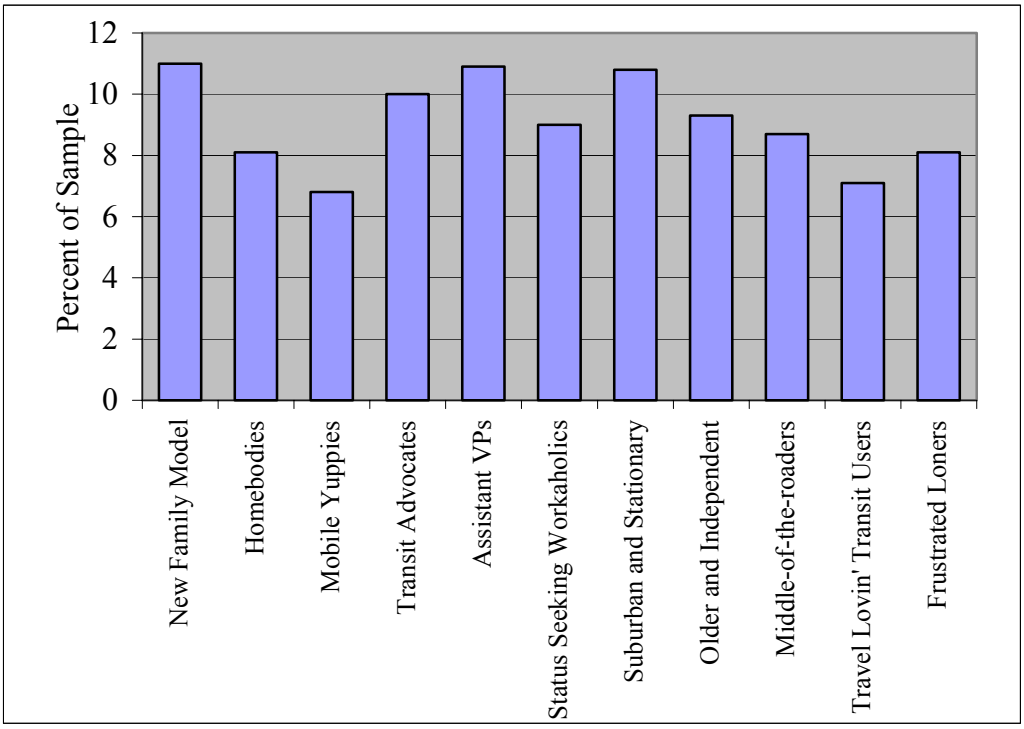


Figure 2: Distribution of Personality and Lifestyle Clusters Across the Sample



8-1: DISTRIBUTIONS OF AGE AND GENDER WITHIN CLUSTERS

Chapters 6 and 7 consider the clusters in terms of their demographic characteristics and discuss the significant variations between the clusters of each solution separately. Figures 3 – 14, below, are graphical depictions of the distribution of cluster membership with respect to two key demographic characteristics (age and gender). All Attitude and Personality and Lifestyle clusters - clusters shown to have significantly different travel characteristics in Chapters 6 and 7 - exist within each of these demographic groups. While much of what is illustrated below is a reflection of what has already been discussed in the previous chapters, it is interesting to notice a few cases where certain demographic groups have substantially higher or lower representation of a particular cluster than in the sample as a whole.

In each of the figures below, the bars represent the proportion of each demographic group that falls into each cluster, and the line represents the proportion of that cluster in the sample as a whole, so that the clusters that are over- or underrepresented in certain groups are easily identifiable. Consider Figures 3 and 4. There is a significantly different cluster distribution (for both sets of clusters) between male and female, with females overrepresented in the Homemakers and Older Workers, Suburban and Stationary, and Travel Lovin' Transit Users clusters and males overrepresented in the Adventurous, Car-oriented Suburbanites, New Family Model, Status Seeking Workaholics, and Assistant VPs. This may seem to support the use of gender as an indicator of travel, and in fact, it points to the importance of this variable. However, each cluster is well represented within both the male and female groups which also shows the variation within these supposedly homogeneous groups, and suggests why this variable is unable to explain more variance when used in travel behavior models.

Figure 3: Distribution of Attitude Cluster Membership Across Gender

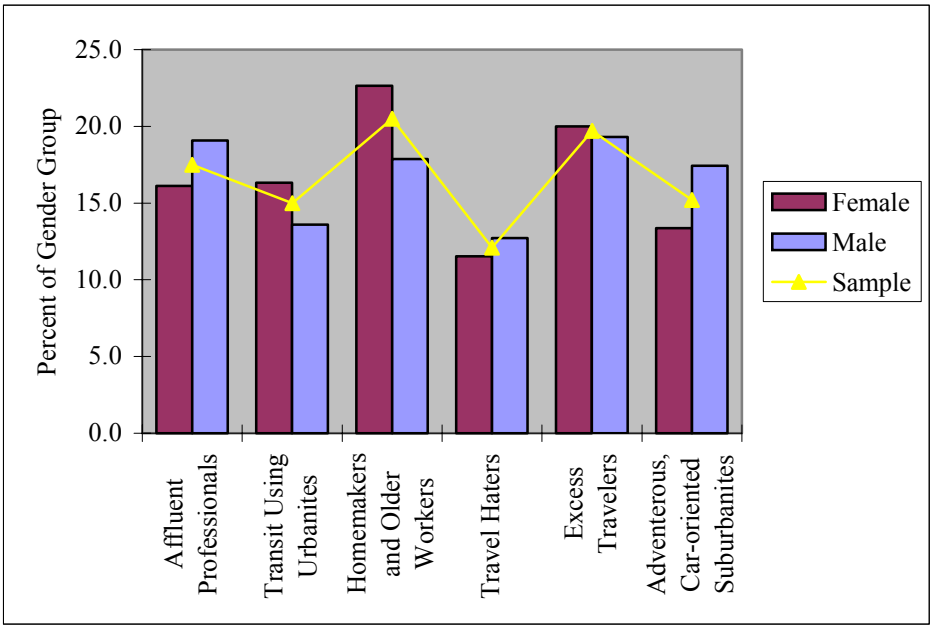
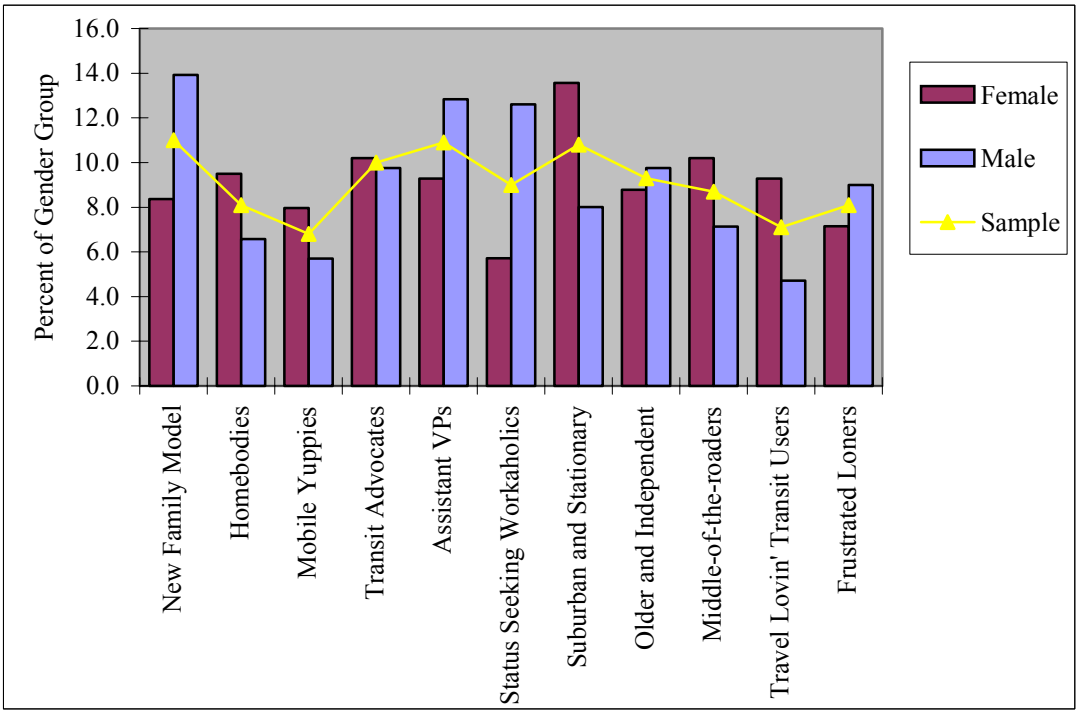


Figure 4: Distribution of Personality and Lifestyle Cluster Membership Across Gender



Figures 5 thru 14 illustrate the cluster membership distribution by age group. First, consider the Attitude clusters by age group and then the Personality and Lifestyle clusters. The Attitude clusters show some interesting patterns across age groups. The Excess Travelers are overrepresented in the two youngest age groups, and conversely, make up a disproportionately small segment of the three oldest age groups. The other strongly travel loving Attitude cluster, the Adventurous, Car-oriented Suburbanites, has the opposite pattern. They are a disproportionately large segment of the three oldest age groups and a disproportionately small segment of the youngest. This pattern of similarly disproportionate responses for the two younger age groups and then the reverse for the three oldest age groups can be seen in the Transit Using Urbanites (underrepresented among the older groups) and Homemakers and Older Workers (underrepresented among the younger groups) as well, but is less extreme in these clusters.

The connection between Attitudes toward travel and age groups is complicated. Attitudes toward travel are developed and affected by both the current situation (having a family or some difficulty driving) and experiences throughout a lifetime (experiencing an oil crisis or growing up in a mini-van). If Attitudes are more strongly tied to the current situation, then the cross-sectional differences observed here between age groups may be quasi-longitudinal, and attitudes will shift in similar ways as situations change. If the travel Attitudes are based more strongly in lifetime experiences, then tomorrow's elders may be substantially different than today's, and so for tomorrow's families.

Figure 5: Distribution of Attitude Cluster Membership Across Age Groups – 23 years old or younger

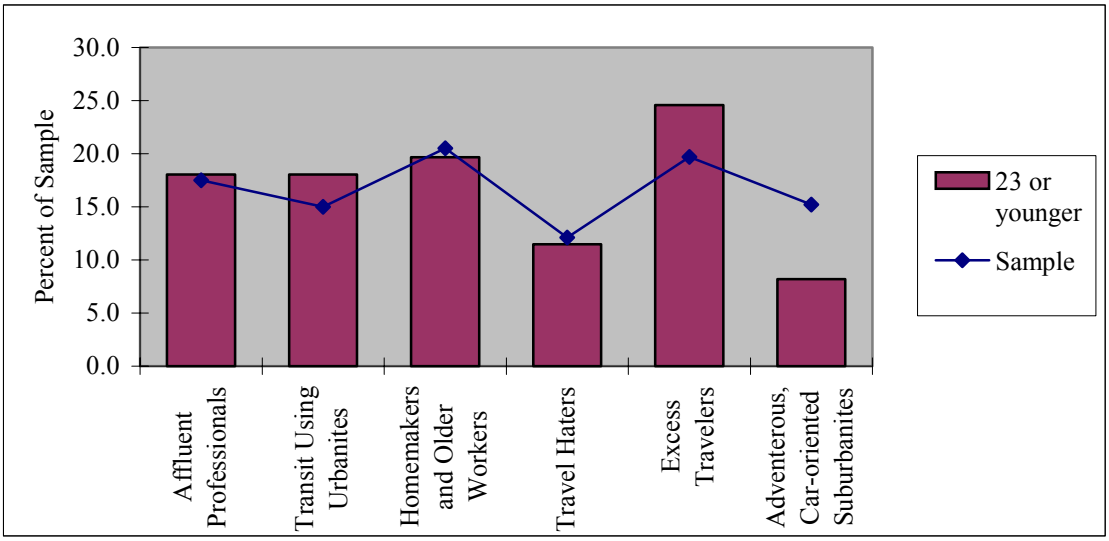


Figure 6: Distribution of Attitude Cluster Membership Across Age Groups - 24-40

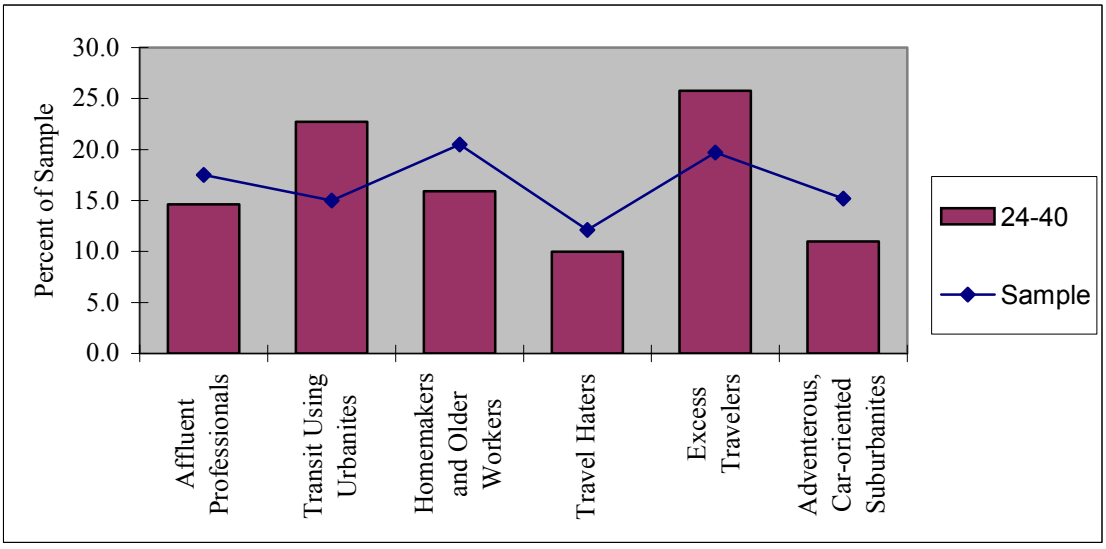


Figure 7: Distribution of Attitude Cluster Membership Across Age Groups – 41-64

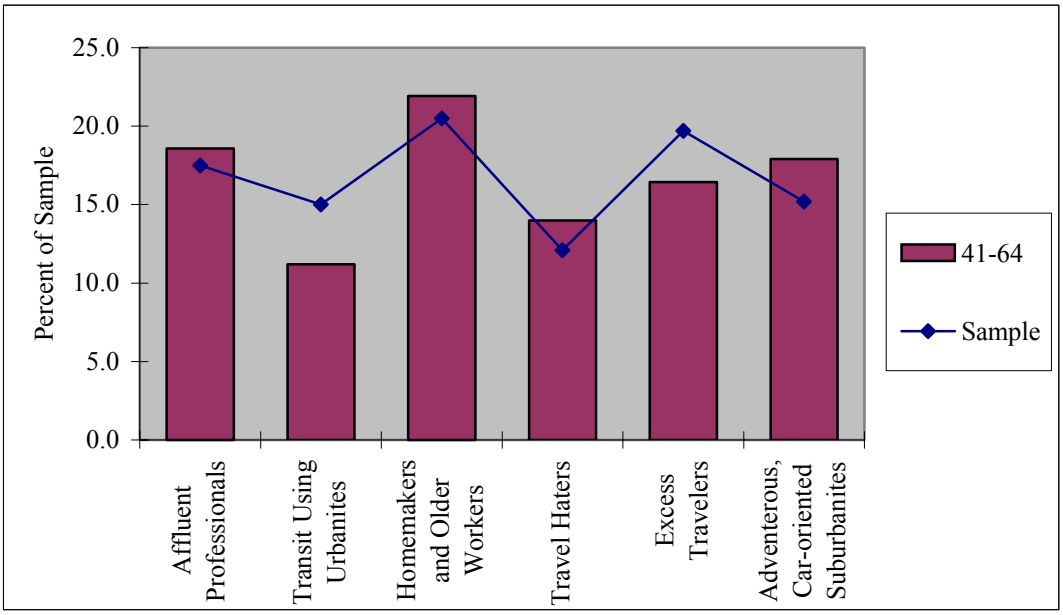


Figure 8: Distribution of Attitude Cluster Membership Across Age Groups – 65 – 74

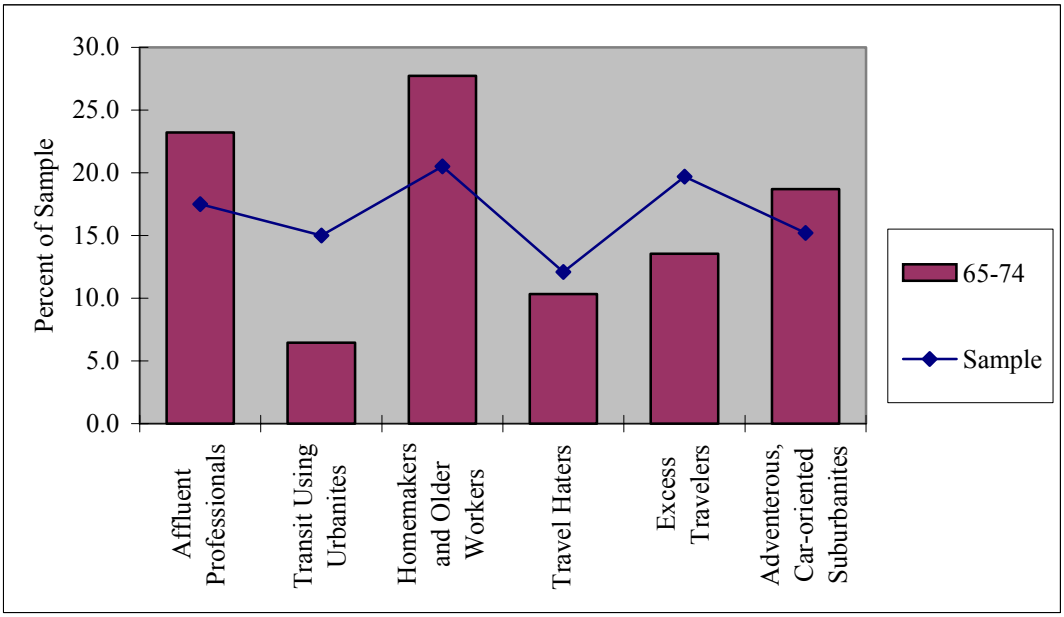
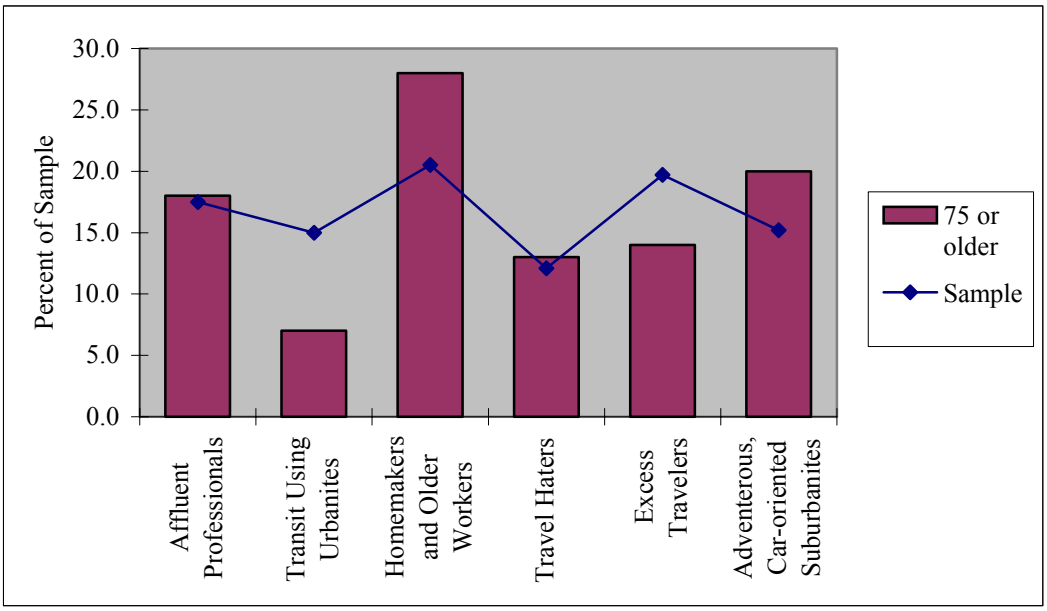


Figure 9: Distribution of Attitude Cluster Membership Across Age Groups – 75 and older



The Personality and Lifestyle cluster distributions are particularly interesting for the youngest and two older age groups. More than one-fifth of the 23 or younger age group is part of the Status Seeking Workaholics cluster. Of the oldest age group (75 and older), just over a quarter belong to the Assistant V.P.s cluster, with the Suburban and Stationary and Older and Independent clusters also overrepresented. On the other hand, the New Family Model, Mobile Yuppies, Middle-of-the-roaders, Travel Lovin' Transit Users and Frustrated Loners are decidedly underrepresented. Similar patterns can be seen in the next oldest age group (65-74).

Figure 10: Distribution of Personality and Lifestyle Cluster Membership Across Age Groups – 23 years old or younger

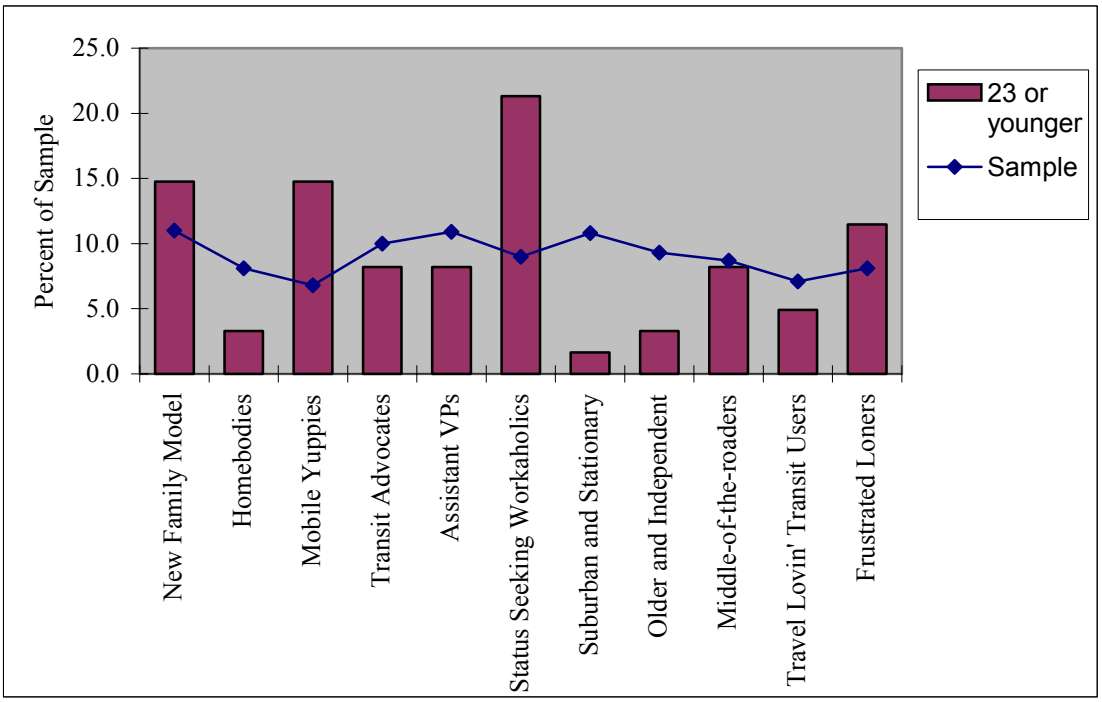


Figure 11: Distribution of Personality and Lifestyle Cluster Membership Across Age Groups - 24-40

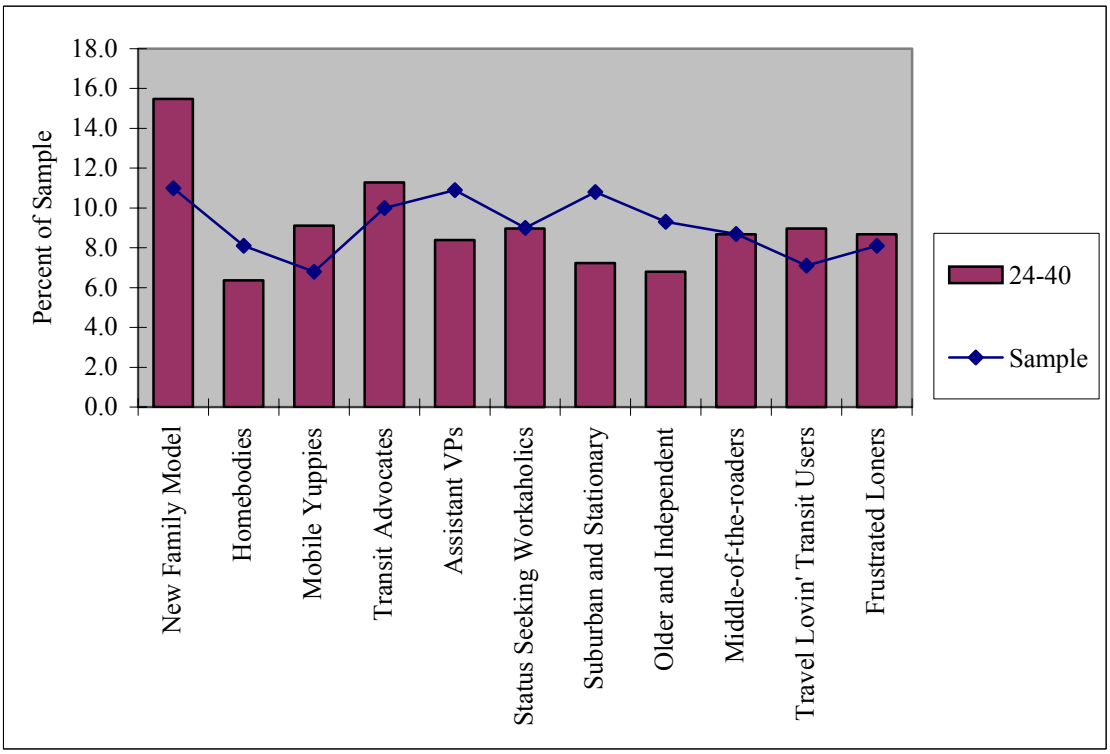


Figure 12: Distribution of Personality and Lifestyle Cluster Membership Across Age Groups – 41 - 64

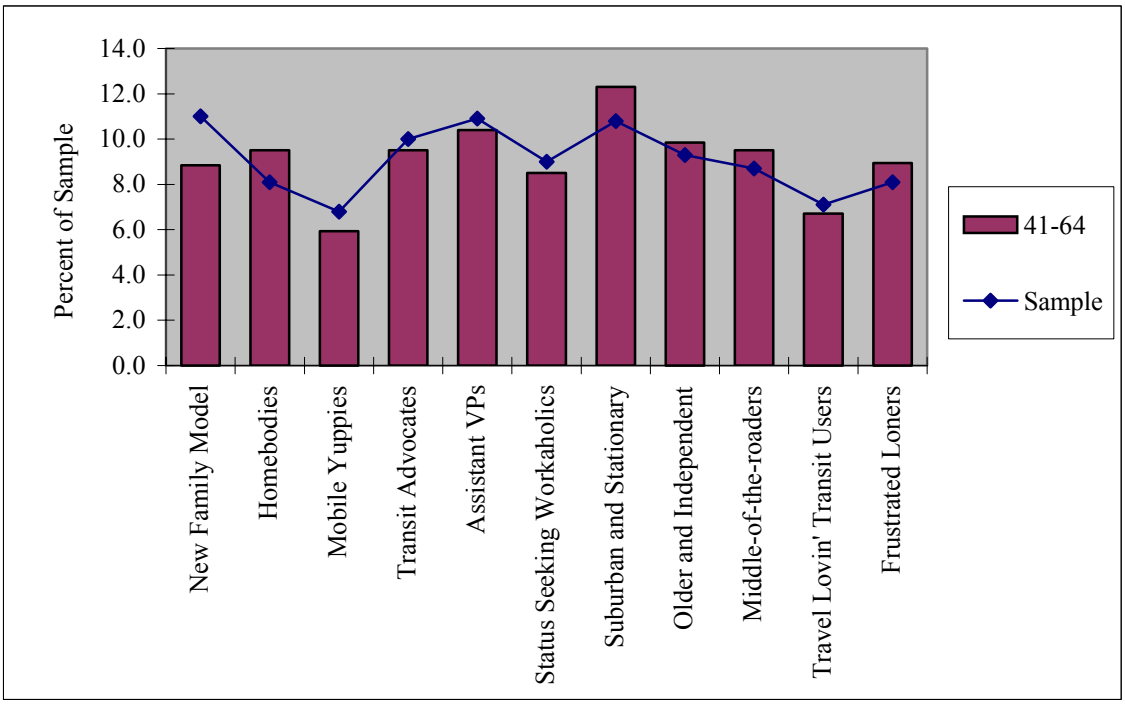


Figure 13: Distribution of Personality and Lifestyle Cluster Membership Across Age Groups – 65 - 74

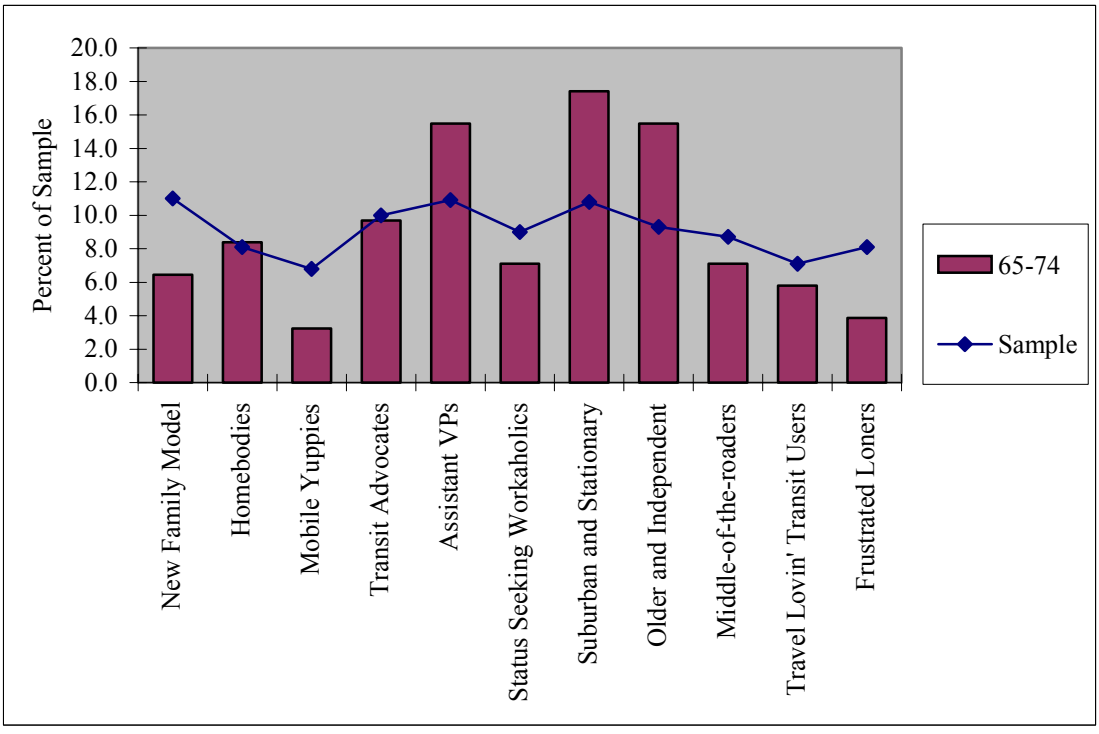
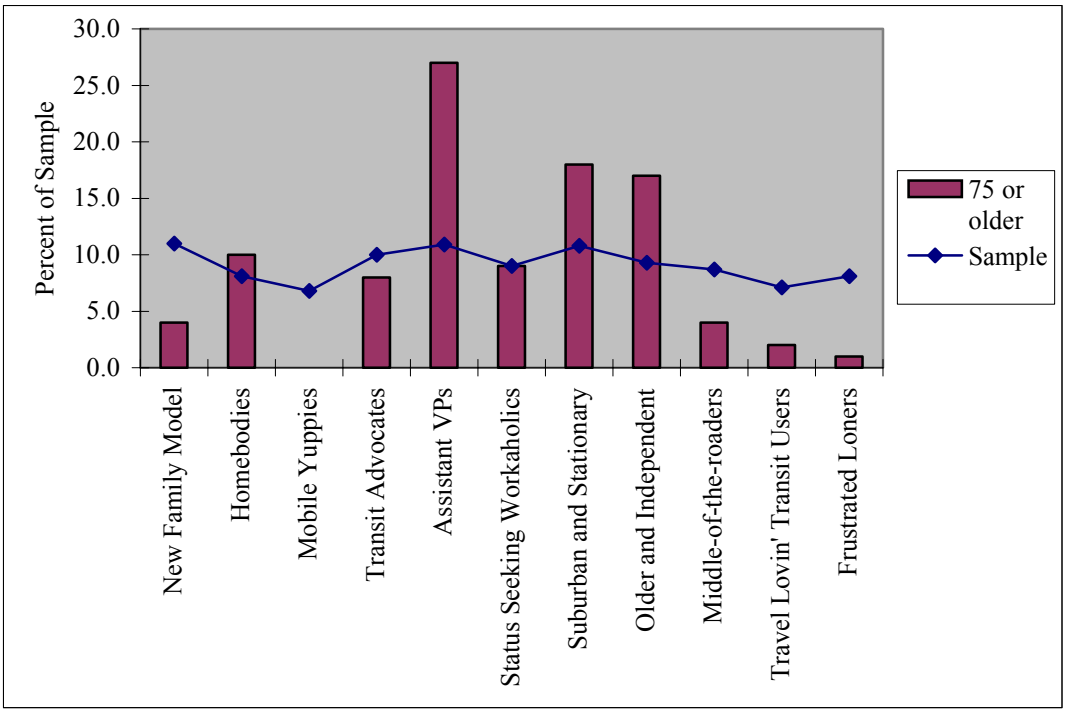


Figure 14: Distribution of Personality and Lifestyle Cluster Membership Across Age Groups – 75 and older



In both the Attitude and the Personality and Lifestyle clusters, the 41-64 age group most closely reflects the sample distribution. As the age groups get younger or older, the response becomes less representative of the sample. This is partly due to the size of the age groups – 41-64 is by far the largest age group (47% of the sample) and consequently has the largest scope for diversity and the strongest influence on the overall sample. Conversely, the smaller (and more extreme) age groups may be likely both to have more extreme tendencies as a group, and to be more influenced by extreme individuals. However, the age groups have the same number of respondents for the Attitude clusters and for the Personality and Lifestyle clusters, and yet the Personality and Lifestyle clusters tend to show more disparity from the sample distribution. This may be an

artifact of having more Personality and Lifestyle clusters, or the Personality and Lifestyle clusters may be capturing differences among age groups not found in the Attitude clusters. This is one example of the importance of understanding the interactions between the Attitude clusters and the Personality and Lifestyle clusters.

8-2: RELATIONSHIPS BETWEEN CLUSTER SOLUTIONS

A chi-squared test of the cross-tab of the Attitude cluster membership with the Personality and Lifestyle cluster membership shows that the two are significantly related (chi-squared=0.000, p=0.000). Table 26 illustrates the differences between the distribution of Attitude clusters across the Personality and Lifestyle clusters (and vice versa) and the distribution of each cluster found in the sample as a whole[19]. This simply depicts whether the cluster proportions are lower (-) or higher (+) within the group in question than for the sample as a whole. Proportions within five percentage points of the sample-wide distribution are considered neutral (~) and extremely disproportionate distributions are shaded in the table (greater than 1.5 times the sample distribution or less than 0.5 times the sample distribution). For example, the most extremely positive relationship is between the Travel Haters and the Homebodies. Each cluster comprises more than twice the sample-wide proportion in the other. Conversely, the most extremely negative relationship is between the Travel Haters and the Mobile Yuppies, with each constituting only 19% of the expected sample distribution within the other cluster. Future analysis will allow these relationships to be rigorously explored, but some intriguing trends are apparent.

Table 26: Cluster proportions as deviations from expected (sample) proportions

Attitudes → / Personality and Lifestyles ↓	Affluent Professionals	Transit-using Urbanites	Home-makers and Older Workers	Travel Haters	Excess Travelers	Adventurous, Car-Oriented Suburbanites
New Family Model	+	-	-	-	+	+
Homebodies	-	+	-	+	-	-
Mobile Yuppies	~	-	-	-	+	+
Transit Advocates	+	+	-	-	-	-
Assistant VPs	-	-	+	+	-	-
Status Seeking Workaholics	+	-	+	-	-	+
Suburban and Stationary	-	-	+	+	-	-
Older and Independent	+	-	-	-	+	+
Middle-of-the-roaders	-	-	+	+	-	+
Travel Lovin' Transit Users	-	+	-	-	+	-
Frustrated Loners	-	+	~	+	-	-

The Excess Travelers and Adventurous, Car-Oriented, Suburbanites have similarly disproportionate patterns of Personality and Lifestyle clusters except for the Status Seeking Workaholics (Excess Travelers have fewer, and Adventurous, Car-Oriented Suburbanites have more) and Travel Lovin' Transit Users (of whom the Excess Travelers have considerably more than average). This could be hypothesized to be a relationship based on a love of travel, with the Transit Users discrepancy illustrating the

[19] For the complete cross-tabs see Appendix 6.

urban/suburban split and/or the split between those who are car-oriented and those who love travel but are not necessarily bound to their cars.

The distributions for nine of the 11 Personality and Lifestyle clusters are similar for the Homemakers and Older Workers and the Travel Haters Attitude clusters. Specifically, both clusters have low or very low proportions of the New Family Model cluster, Mobile Yuppies and Travel Lovin' Transit Users (which makes sense as these are three of the most travel liking Personality and Lifestyle clusters), and high or very high proportions of Assistant V.P.s and the Suburban and Stationary cluster (two clusters that experience travel stress). The main differences lie in the Homebodies and the Status Seeking Workaholics, of which the Travel Haters have a very high proportion and a low proportion respectively.

Two Attitude cluster pairs have almost exactly opposite relative proportions. The Affluent Professionals and the Travel Haters are exact opposites in terms of the Personality and Lifestyle clusters except for the Travel Lovin' Transit Users, for which both of these car-bound Attitude clusters have extremely low proportions.

The Travel Haters and the Excess Travelers are also opposites, except for the Transit Advocates (of which they both have relatively few) and Status Seeking Workaholics (for which they are both).

The interactions seem to be significant between clusters in the same cluster solution and certain clusters consistently group together. For example, the Affluent Professionals, Excess Travelers and Adventurous, Car-Oriented Suburbanites Attitude clusters tend to group together to make up a high percent of several Personality and Lifestyle clusters. Specifically, these three Attitude clusters constitute about two-thirds or more of the New Family Model (69%), Mobile Yuppies (85%), Status Seeking Workaholics (63%), Older and Independent (69%), and Travel Lovin' Transit Users (95%) clusters while they comprise just over half (52.4%) of the entire sample. An example for the Personality and Lifestyle clusters is more difficult to assess - however, even in these clusters, if we consider an appreciable difference to be plus/minus four percentage points, and then look at the clusters that proportionally increase or decrease together there is a distinct pattern. The New Family Model, Mobile Yuppies, and Older and Independent clusters share similarly disproportionate patterns, with the Frustrated Loners exactly the opposite pattern. The Assistant VPs and Suburban and Stationary have exactly the same patterns as well.

Most of this simply illustrates logical conclusions about the clusters. Attitude clusters that generally like to travel have similar relationships to the Personality and Lifestyle clusters. Similarly, Personality and Lifestyle clusters that are mostly suburban or automobile bound have similar Attitude cluster patterns.

Table 27 lists the strongly positive and negative relationships across the Attitude and Personality and Lifestyle Clusters. These relationships are defined as being strong if the actual proportion of one cluster in another is greater than or equal to 150% of the sample proportion, and negatively related if the proportion is less than or equal to half of the sample proportion.

Table 27: Extreme Relationships between the Attitude Clusters and the Personality and Lifestyle Clusters

Attitude Clusters	Personality and Lifestyle Clusters
Positive Relationships	
Transit-using Urbanites	Transit Advocates, Frustrated Loners
Travel Haters	Homebodies, Assistant VPs
Adventurous, Car-oriented Suburbanites	Mobile Yuppies, Status Seeking Workaholics
Excess Travelers	Mobile Yuppies, Travel Lovin' Transit Users
Homemakers and Older Workers	Assistant VPs, Suburban and Stationary
Negative Relationships	
Transit-using Urbanites	Mobile Yuppies
Homemakers and Older Workers	Mobile Yuppies, Travel Lovin' Transit Users
Travel Haters	Mobile Yuppies, Older and Independent, Travel Lovin' Transit Users
Excess Travelers	Assistant VPs
Adventurous, Car-oriented Suburbanites	Transit Advocates

Again, these connections make sense. The positive relationships are based on a transit orientation or on a like or dislike of travel. The negative relationships draw distinctions between those predominantly using transit versus those who are auto-oriented, and those who like travel versus those who do not.

Generally, there are some interesting trends that need to be explored further. These trends point to some potentially very exciting relationships between seemingly disparate groups defined by such things as enjoying travel. However, discovering the most significant relationships and disentangling the causal relationships will be left for further research.

CHAPTER 9: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH.

9-1: SUMMARY

The primary purpose of this research has been to explore the travel attributes associated with people having different Attitude and Personality and Lifestyle profiles. The hypothesis is that clustering respondents with similar Attitudes and Personality and Lifestyle characteristics will offer insights into travel behavior that differ from those that can be gained from typical demographic characteristics.

We used 1998 survey data from 1,904 respondents in three neighborhoods in the San Francisco Bay area. The neighborhoods represent one example of a typically urban area and two different examples of suburban neighborhoods. The survey itself contains sections on travel attitudes, personality and lifestyle characteristics, actual travel patterns, liking for travel, perceived amount of travel, desire to reduce or increase travel, efforts to reduce or ease travel and demographics. Factor analysis was used on the Attitude, Personality and Lifestyle sections of the survey.

The Attitude section is composed of 32 variables directly associated with travel patterns, comfort while traveling, and beliefs about current transportation problems and possible solutions. The six factors from this section represent the range of variables studied: Travel Dislike, Pro-environmental Solutions, Commute Benefit, Travel Freedom, Travel Stress, and Pro-high Density.

The Personality section of the survey consists of 17 descriptive terms that respondents ranked as being more or less evocative of their personality. The four factors from this section are: Adventure Seeker, Organizer, Loner, and the Calm personalities.

The Lifestyle section of the survey focused 17 statements on prioritizing such things as work, family, status or community. The four factors extracted from these statements were: Frustrated, Family and Community Oriented, Status Seeking, and Workaholic.

The Attitude factors and the Personality and Lifestyle factors were then clustered, the Attitude factors alone and the Personality and Lifestyle factors together. Table 28 offers a summary of the clusters.

Table 28: Cluster Summaries

Cluster Name (Sample Percent)	Description
Attitude Clusters	
Affluent Professionals (17.5%)	Affluent and mobile, this cluster eats out a lot, is not family and community oriented and usually doesn't have a (large) family. They seem to be more entertainment oriented than work oriented.
Transit-using Urbanites (15.0%)	Young, urban, highly educated and community oriented. This cluster is pro-environment and pro-high density (they live in urban areas and like it).
Homemakers and Older Workers (20.5%)	Older suburbanites who focus on family and home and don't particularly like travel.
Travel Haters (12.1%)	This work-oriented cluster doesn't like travel, does as little as possible and wants to do less of it.
Excess Travelers (19.7%)	Young, urban, highly educated and Adventure Seeking. This cluster is pro-environment and pro-high density, and pro-travel. Not one of the highest income groups, perhaps because they are prioritizing their adventure time over work time and status-seeking.
Adventurous, Car-Oriented Suburbanites (15.2%)	Car-bound, excess travelers, oldest, organized, status conscious, and suburban.
Personality and Lifestyle clusters	
New Family Model (11.0%)	Young families, enjoy traveling for fun but not for work, family/community oriented but not settling down.
Homebodies (8.1%)	Not particularly social, don't really like travel, one of the more neutral clusters compared to the others.
Mobile Yuppies (6.8%)	Young, professional, highly educated, travel lovers.
Transit Advocates (10.0%)	Highly educated, environmentally sensitive, transit-oriented.
Assistant VPs (10.9%)	Suburban, auto-oriented (but not particularly travel loving), older, least educated, frustrated.
Status Seeking Workaholics (9.0%)	Travel most (miles and frequency) for work, auto-bound, enjoy work travel... one of the more extreme clusters - most Status Seeking, Workaholic and not Calm.
Suburban and Stationary (10.8%)	Mostly older, suburban women, calm, don't travel a lot.
Older and Independent (9.4%)	Older, independent, unencumbered (most strongly NOT family/community oriented, entertainment focused.
Middle-of-the-roaders (8.7%)	Most neutral cluster, most strongly family/community oriented.
Travel Lovin' Transit Users (7.1%)	Highly educated urban women, middle income, environmentally sensitive, like short distance travel by bus, strong excess travelers, highest walking share of total miles traveled.
Frustrated Loners (8.1%)	Most extremely frustrated, above average commutes, somewhat transit oriented.

The clusters were evaluated in terms of Travel Liking, Relative Desired Mobility (a desire to increase or decrease the amount of travel), Perceived amount of travel, Objective Mobility, an Excess Travel Indicator and Demographic characteristics. The cluster analysis showed distinct differences in travel behaviors between the clusters.

9-2: CONCLUSIONS

In the previous chapters we have explored the differences and similarities between the six Attitude clusters and the eleven Personality and Lifestyle clusters.

The trends that can be seen throughout the clusters (varying only in degree) are that all (on average) enjoy discretionary travel (to eat a meal or for entertainment purposes), dislike (to some degree) mandatory travel (commuting and traveling for work or school related activities, and taking others where they need to go) and are more neutral about maintenance travel (grocery shopping)[20]. On average, all groups like traveling short-distance in a personal vehicle and walking, and like traveling by plane for long-distances, but do not like the bus and are mixed about trains and BART.

[20] Gärling, et al. (1997 &1998), Hjorthol and Berge (1997) and Reichman (1976) have discussed travel as falling into three categories: travel that is outwardly constrained (mandatory), travel that has no (or very few) external constraints (discretionary), and travel that must be done at some time but allows for flexibility as to when (maintenance). All of these authors use examples of work, leisure and shopping, respectively, and while Gärling (1997) uses these terms, Reichman (1976) uses subsistence, leisure and maintenance and Hjorthol and Berge (1997) use obligatory, optional and an in-between obligatory-optional category, respectively. The trends in the clusters reflect these groupings and show a group-wise connection to travel liking and satisfaction.

The unmistakable and significant differences in liking for travel, perceived amount of travel, Relative Desired Mobility and actual amount traveled between clusters point to the important role that Attitudes, Personality and Lifestyle characteristics play in determining travel behavior.

It is interesting to discuss Attitudes and Personality and Lifestyle characteristics and make connections between these characteristics and travel behavior. However, the importance of understanding the Attitudes and Personality and Lifestyle differences within supposedly homogeneous demographic groups lies in its influence on the models that are used to make policy. The explanatory power of models relying only on demographic variables is limited, therefore predicting reactions to or impacts of policies is likely to be flawed. Policies may not be as successful as predicted or may have unexpected impacts on certain segments of the population. Travel behavior research that accurately identifies and describes Attitude, Personality and Lifestyle characteristics may be the precursor to finding ways to change them.

9-3: RECOMMENDATIONS FOR FURTHER RESEARCH.

As briefly explored in Chapter 8, this thesis is only the beginning of the work with this data. The data set is so rich that it allows for a variety of analyses, including consideration of the interactions between various variables.

Generally, we have shown that Attitudes and Personality and Lifestyle characteristics are important when discussing, explaining and attempting to predict travel behavior. No one set of factors seems to dominate the others in terms of explanatory power. However, it becomes obvious at this stage in the research that the complexity of the interactions between attitudes toward travel, demographic characteristics, indicators of the actual and perceived amounts of travel, and factors of personality and lifestyle that influence travel behavior will ultimately require the application of sophisticated analysis methodologies.

The analysis in this thesis can be incorporated into future research on the same data set in two ways. First, the Attitude, Personality and Lifestyle dimensions identified in the factor analysis can be included as explanatory variables in models of other variables. These dimensions have already been used in this way in models of commute preference (Redmond and Mokhtarian, forthcoming) to evaluate their relationship to the ideal commute time of respondents and individuals' desire to commute more or less than they currently do. Other work is underway to model Perceived Mobility, Objective Mobility, Travel Liking, and Relative Desired Mobility, and Attitude and Personality and Lifestyle variables may be significant in each case. Further, it may be valuable to view Attitudinal variables as dependent, and model them as a function of Personality, Lifestyle, Demographics and perhaps other variables in the data set. Ultimately, it will be important to combine all these single equation models into a multiple-equation structural model, to properly account for the many simultaneous, multi-directional relationships among the variables available to us.

Second, the Attitude and Personality and Lifestyle cluster memberships identified here may be a productive basis for segmenting the data in any of the models described above. We can hypothesize that in trying to predict Relative Desired Mobility, for example, different clusters will weight variables such as Perceived Mobility or Objective Mobility differently. For clusters that love to travel, higher Perceived Mobility may only create a thirst for even greater mobility (i.e. would have a positive coefficient in an equation for Relative Desired Mobility), while for travel-hating clusters, the opposite may be true (as supported by the relationship between RDM and Travel Liking found in Curry, 2000).

Without distinguishing such disparate segments, the resulting models may entirely miss some important relationships because they are finding "average" coefficients that balance out to statistical insignificance across the sample as a whole.

Further research should include a yet-unanalyzed section of the survey that evaluates strategies respondents have adopted and are considering adopting as methods of reducing or easing travel. This section of the survey[21] includes such alternatives as moving home or work to ease the commute, buying a new car or cell phone, and adopting flexible work hours. Further research could consider which of these has been considered or has been adopted in terms of the Attitude and Personality and Lifestyle clusters.

[21] This section of the survey was largely drawn from the examples in Salomon and Mokhtarian (1997).

References:

Aarts, H., B. Verplanken and A. van Knippenberg (1998) "Predicting behavior from actions in the past: Repeated decision making or a matter of habit?" *Journal of Applied Social Psychology,* v.28(15):1355-1374.

Ajzen, I. (1985) From Intentions to Actions: A Theory of Planned Behavior. In *Action Control: From Cognition to Behavior* (J. Kuhl, & J. Beckmann, eds.), pp. 11-39, Springer, Heidelberg.

Ajzen, I. & M. Fishbein (1980) *Understanding Attitudes and Predicting Social Behavior.* Prentice-Hall, Englewood Cliffs, N.J.

Baron, R. A & D. Byrne (1991) *Social Psychology: Understanding Human Interactions, 6th Edition.* Allyn & Bacon, Needham Heights, MA.

de Boer, E. (1986) *Transport Sociology: Social Aspects of Transport Planning,* Pergamon Press, Oxford.

Camstra, R. (1996) "Commuting and gender in a lifestyle perspective." *Urban Studies,* v.33(2):283-300.

Cullinane, S. (1992) "Attitudes towards the car in the U.K.: Some implications for policies on congestion and the environment". *Transportation Research A,* v.26A(4):291-301.

Curry, R. W. *Attitudes toward travel: The relationships among perceived mobility, travel liking, and relative desired mobility.* Master's Thesis, Department of Civil and Environmental Engineering, University of California, Davis, 2000.

Curtis, C. and P. Headicar (1997) "Targeting travel awareness campaigns: Which individuals are more likely to switch from car to other transport for the journey to work?" *Transport Policy,* v.4(1):57-65.

Dumas, J. S. & R. Dobson (1979) "Linking consumer attitudes to bus and carpool usage". *Transportation Research*, v.13A:417-423.

Farley, R. (1986) "The Big "T" in Personality". *Psychology Today,* May, pp. 44-52.

Fishbein, M. & I. Ajzen, (1975) *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research.* Addison-Wesley, Reading, M.A.

Flink, J. (1988) *The Automobile Age.* MIT Press, Cambridge, MA.

Forward, S. (1998) Modes of transport on short journeys: Attitudes and behavior of the inhabitants of Gothenburg. *VTI Report.* Sweden.

Forward, S. (1994) "Theoretical models of attitudes and the prediction of driver's behavior". *Uppsala Psychological Reports no. 434,* Uppsala University, Sweden.

Furnham, A. & J. Saipe (1993) "Personality correlates of convicted drivers". *Personality and Individual Differences,* v.14(2):329-336.

Gärling, T. (1992) The importance of routines for the performance of everyday activities. *Umeå Psychological Reports no.203* University of Sweden, Dept. of Psychology, Umeå, Sweden.

Gärling, T., D. Ettema, R. Gillholm and M. Selart, (1995) "Towards a theory of the intention-behavior relationship with implications for the prediction of travel behavior". 7th WCTR Proceedings, v.1:231-240. Sydney, Australia.

Gärling, T., A. Gärling and A. Johansson, (1997) Households' choice of means for reducing automobile travel, paper presented at the *8th Conference of the International Association of Travel Behavior Research (IATBR),* Austin, Texas, September, 1997.

Gärling, T., R. Gillholm, and A. Gärling (1998) Reintroducing attitude theory in travel behavior research, *Transportation,* v.25:129-146.

Garvill, J. (1997) (draft) Choice of transportation mode: A social dilemma, presented at the *8th Conference of the IATBR,* Austin, Texas, September, 1997.

Golob, T. F. & D. A. Hensher (1998) "Greenhouse gas emissions and Australian commuters' attitudes and behavior concerning abatement policies and personal involvement". *Transportation Research D*, v.3(1):1-18.

Harata, N. (1994) "How can we make car-dependent adults manage their car usage?" *IATSS Research,* v.18(2):22-28.

Hjorthol, R. & Berge, G. (1997) "Environmental consciousness and choice of transport mode: A pilot project on environmental attitudes and everyday travel behavior in two urban areas". *T0I report #350/1997,* Oslo, Norway.

Jones, P.M. (1992) Some recent methodological developments in our understanding of travel behavior, *IATSS Research,* v.16(2):18-29.

Kitamura, R., L. Laidet, P. Mokhtarian, C. Buckinger, and F. Gianelli (1994) *Land Use and Travel Behavior,* Institute of Transportation Studies report: UCD-ITS-RR-94-27, University of California, Davis.

Kuppam, A. R., R. M. Pendyala and S. Rahman (1999) Analysis of the role of traveler attitudes and perceptions in explaining mode-choice behavior. *Transportation Research Record,* v.1676:68-76.

Lewis, D. & L. Goldstein (1983) *The Automobile and American Culture.* University of Michigan Press, Ann Arbor, MI.

Marsh P., & P. Collett (1986) *Driving Passion: The Psychology of the car.* Jonathan Cape, London.

Morehouse, R. E., F. Farley, and J. V. Youngqueist (1990) Type T Personality and the Jungian Classification System, *Journal of Personality Assessment,*1990 v.54(1&2):231-235.

Mokhtarian, P. L. & I. Salomon (forthcoming) How derived is the demand for travel? Some conceptual and measurement considerations. *Transportation Research A.*

Nilsson, M. (1997) Travel behavior and environment. The impact of knowledge and attitudes. Decision-makers' attitudes towards traffic and the environment. Monograph.

Pazy, A., I. Salomon and T. Pintzov (1996) The impacts of women's careers on their commuting behavior: a case study of Israeli computer professionals. *Transportation Research A.* v.30(4):269-286.

Pilling, A., S. Murray and J. Turner (1998) Catching them young. Community-based project to increase transport awareness and influence travel behavior amongst young people. *GMCVO,* Manchester, UK.

Rae, J. B. (1971) *The Road and the Car in American Life.* MIT Press, Cambridge, MA.

Reichman, S. (1976) Travel Adjustments and Lifestyles - a behavioral approach. *2nd International Conference on Behavior and Travel Demand,* Asheville NC, 1975. p.143-152.

Rudinger, G., V. Kahmann, H. Holte, and E. Jansen (1999) Mobility behavior of the elderly: Its impacts on the future of road traffic system, Paper presented at the *European Science Foundation/National Science Foundation conference on Social Change and Sustainable Transport,* March 1999, Berkeley, CA.

Rumar, K. (1989) The role of human behavior: psychological aspects. *Road Safety, First and Foremost a Matter of Responsibility.* International seminar, Hamburg, UNE 1988.

Salomon, I. & P. L Mokhtarian (1998) What happens when mobility-inclined market segments face accessibility-enhancing policies? *Transportation Research D.* vol.3(3):129-140.

Salomon, I. & P. L Mokhtarian (1997) Coping with congestion: Understanding the gap between policy assumptions and behavior. *Transportation Research D.* vol.2(2):107-123.

Stokes, G. & B. D. Taylor (1995) The public acceptability of sustainable transport policies: findings from the British social attitudes study. *Planning for sustainability. Proceedings of seminar B held at the 23rd European Transport Forum,* September 11-15, 1995. v.P389:121-135.

Tertoolen, G., D. van Kreveld and B. Verstraten (1998) Psychological resistance against attempts to reduce private car use. *Transportation Research A,* v.32(3):171-181.

Vlek, C. and L. Steg (1996) Societal reasons, conditions and policy strategies for reducing the use of motor vehicles: a behavioral-science perspective and some empirical data. In *OECD: Towards Sustainable Development, Proceedings of an International Conference,* Vancouver, Canada, March 25-27, 1996.

Wachs, M. and M. Crawford (eds.) (1992) *The Car and the City; the Automobile, the Built Environment, and Daily Urban Life.* University of Michigan Press, Ann Arbor. MI.

Webber, M. (1992) The Joys of Automobility. In *The Car and the City; the Automobile, the Built Environment, and Daily Urban Life,* (Wachs, M. and M. Crawford, eds.), pp.274-284.

APPENDICES

APPENDIX 1: Comparison of Survey Areas: Survey Boundaries vs Kitamura, et al. Boundaries

Neighborhood	Border	Kitamura, et al.	Mobility Survey
North San Francisco	North	California St.	Jackson St.
	East	Divisidaro St.	Steiner St.
	South	Fell St.	Waller St. (+ a few addresses south of Waller St.)
	West	Stanyan St., Fulton (East-West), Arguello Blvd.	4th Ave.
Concord	North	Concord Blvd.	City Boundaries
	East	Farm Bureau Rd., Babel Ln.	
	South	Cowell Road	
	West	Monument Blvd.	
Pleasant Hill	North	Oak Park Blvd., Mayhew Wy.	City Boundaries
	East	Bancroft Rd.	
	South	Contra Costa Canal	
	West	Putnam St.	

APPENDIX 2: Key Demographic Characteristics of Sample Compared to Census

Characteristic		Mobility Survey	1990 Census for Neighborhoods	1990 Census – Total US
% Female		51.8	50.7	52.1
Age distribution in households (%)				
	< 6	5.8	7.1	8.8
	6 - 15	9.1	9.9	14.0
	16 - 18	3.0	2.9	4.2
	19 – 23	5.1	9.9	9.1
	24 – 40	31.1	32.9	25.5
	41 – 64	35.1	26.8	25.8
	65 – 74	6.4	6.2	7.3
	> 74	4.4	4.4	5.2
Household size				
	1 person	25.5	31.8	24.4
	2 persons	39.9	33.6	31.9
	3 persons	16.9	15.7	17.4
	4 persons	12.3	11.3	15.2
	5 persons	3.6	4.9	7.0
	> 5 persons	1.8	2.7	4.2
Household income				
	Less than $15,000	3.9	15.9	24.3
	$15,000 – $34,999	12.6	27.8	33.4
	$35,000 – $54,999	21.4	24.6	22.3
	$55,000 – $74,999	18.3	15.4	10.5
	Greater than$75,000	43.8	16.3	9.5
Number of automobiles available to household				
	0	5.5	16.4	11.5
	1	34.4	38.3	33.8
	2	39.8	31.7	37.4
	3 or more	20.3	13.7	17.3
Distribution of one-way commute time to work				
	Less than 5 minutes	1.8	1.8	3.9
	5 – 9 minutes	5.3	7.4	12.5
	10 – 14 minutes	12.0	13.4	16.1
	15 – 19 minutes	16.8	16.1	17.0
	20 – 24 minutes	13.1	14.3	14.6
	25 – 29 minutes	5.9	5.1	5.6
	30 – 34 minutes	12.8	14.8	12.8
	35 – 39 minutes	3.9	2.7	2.4
	40 – 44 minutes	4.4	4.0	2.9
	45 – 59 minutes	11.6	9.8	6.4
	60 – 89 minutes	9.8	8.4	4.5
	90 minutes or more	2.5	2.3	1.6

Appendices 3, 4 and 5 include the Pattern, Structure, Factor score coefficient and Factor correlation matrices for the Attitude, Personality and Lifestyle factors (respectively). For ease of interpretation in the Pattern and Structure matrices, loadings with absolute values less than 0.2 are not shown (except in those cases where the strongest loading for that variable is less than the absolute value of 0.2). The Pattern matrix in particular is useful in evaluating the interpretability of the factors - variables belong to the factor on which they load most heavily. In some cases one variable will load relatively strongly on more than one factor (for example, consider "Travel time is generally wasted time," which loads positively on the Travel Dislike factor and negatively on the Commute Benefit factor). In these cases the variable can be considered to be influential to the secondary factor, but belongs to the factor on which it loads *most* strongly. The variables in the Pattern matrices are organized to clearly illustrate the composition of each factor, and the variables in the other matrices are arranged in the same order.

APPENDIX 3

APPENDIX 3A: Pattern Matrix of Attitude Variables and Factor Scores
(Commuters only, N=1427)

	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
Traveling is boring	0.621					
I like exploring new places	-0.537					
The only good thing about traveling is arriving at your destination	0.525					
Getting there is half the fun	-0.465					
To improve air quality, I am willing to pay a little more to use an electric or other clean-fuel vehicle		0.641				
We should raise price of gasoline to reduce congestion and air pollution		0.617				
We need more public transportation, even if taxes have to pay for a lot of the costs		0.612				
I limit my auto travel to help improve congestion and air quality		0.372				
We can find cost-effective technological solutions to the problem of air pollution		0.353				
We need more highways, even if taxes have to pay for a lot of the costs		-0.194				
My commute is a real hassle			-0.695			
My commute trip is a useful transition between home and work			0.583			
The traveling that I need to do interferes with doing other things I like			-0.530			
I use my commute time productively			0.467			
Travel time is generally wasted time	0.379		-0.461			
Getting stuck in traffic doesn't			0.419			

	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
bother me too much						
In terms of local travel - I have the freedom to go anywhere I want to				0.511		
In terms of long-distance travel, I have the freedom to go anywhere I want to				0.422		
The vehicles I travel in are comfortable				0.295		
It is nice to be able to do errands on the way to or from work				0.269		
I am willing to pay a toll to travel on an uncongested road				0.212		
Living in a multiple family unit wouldn't give me enough privacy					-0.617	
I like living in a neighborhood where there is a lot going on					0.486	
Having shops and services within walking distance of my home is important to me		0.243			0.401	
I like to have a large yard at my home					-0.323	
I worry about my safety when I travel						0.544
Traveling makes me nervous	0.201					0.537
Traveling is generally tiring for me	0.266		-0.225			0.410
I'd rather have someone else do the driving					0.227	0.329
I tend to get sick when traveling						0.318
I am uncomfortable being around people I don't know when I travel						0.297
I like traveling alone						-0.194

APPENDIX 3B: Structure Matrix of Attitude Variables and Factors (Commuters only, N=1427)

	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
Traveling is boring	0.660		-0.215			0.307
I like exploring new places	-0.544		-0.374			0.315
The only good thing about traveling is arriving at your destination	0.617			0.250		-0.255
Getting there is half the fun	-0.534		0.352			-0.240
To improve air quality, I am willing to pay a little more to use an electric or other clean-fuel vehicle		0.659			0.281	
We should raise price of gasoline to reduce congestion and air pollution		0.612			0.333	
We need more public transportation, even if taxes have to pay for a lot of the costs		0.636			0.374	
I limit my auto travel to help improve congestion and air quality		0.406				
We can find cost-effective technological solutions to the problem of air pollution		0.314				
We need more highways, even if taxes have to pay for a lot of the costs		-0.243				
My commute is a real hassle			-0.655			
My commute trip is a useful transition between home and work			0.554			
The traveling that I need to do interferes with doing other things I like	0.283		-0.562			0.225
I use my commute time productively	-0.211		0.488			
Travel time is generally wasted time	0.505		-0.581		.0225	
Getting stuck in traffic doesn't bother me too much			0.431			
In terms of local travel - I have the				0.529		

	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
freedom to go anywhere I want to						
In terms of long-distance travel, I have the freedom to go anywhere I want to				0.454	-0.248	
The vehicles I travel in are comfortable				0.303		
It is nice to be able to do errands on the way to or from work				0.265		
I am willing to pay a toll to travel on an uncongested road				0.192	0.148	
Living in a multiple family unit wouldn't give me enough privacy		-0.274			-0.641	
I like living in a neighborhood where there is a lot going on		0.256			0.508	
Having shops and services within walking distance of my home is important to me		0.432			0.477	
I like to have a large yard at my home					-0.336	
I worry about my safety when I travel						0.552
Traveling makes me nervous	0.330					0.604
Traveling is generally tiring for me	0.430		-0.366			0.509
I'd rather have someone else do the driving		0.208			0.233	0.336
I tend to get sick when traveling	0.231			-0.212		0.371
I am uncomfortable being around people I don't know when I travel	0.224					0.346
I like traveling alone		0.142			0.131	-0.194

APPENDIX 3C: Factor Score Coefficient Matrix for Attitudinal Factors
(Commuters only, N=1427)

Factor	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
Traveling is boring	0.282	-0.006	0.013	-0.026	-0.012	0.022
I like exploring new places	-0.224	0.046	-0.090	0.125	0.052	-0.014
The only good thing about traveling is arriving at your destination	0.230	-0.030	-0.068	0.065	0.022	0.055
Getting there is half the fun	-0.171	0.007	0.068	-0.041	-0.060	-0.014
To improve air quality, I am willing to pay a little more to use an electric or other clean-fuel vehicle	-0.033	0.304	0.007	0.042	0.022	0.051
We should raise price of gasoline to reduce congestion and air pollution	0.055	0.259	0.011	-0.063	0.061	-0.068
We need more public transportation, even if taxes have to pay for a lot of the costs	0.026	0.272	-0.035	0.006	0.081	-0.051
I limit my auto travel to help improve congestion and air quality	-0.041	0.132	0.048	-0.064	0.003	0.071
We can find cost-effective technological solutions to the problem of air pollution	-0.047	0.114	-0.009	0.103	-0.066	0.020
We need more highways, even if taxes have to pay for a lot of the costs	0.049	-0.063	-0.023	0.076	-0.007	-0.046
My commute is a real hassle	-0.067	-0.011	-0.311	-0.050	-0.004	0.003
My commute trip is a useful transition between home and work	0.025	0.022	0.207	0.072	-0.010	0.044
The traveling that I need	0.029	0.042	-0.175	-0.021	-0.067	0.003

Factor	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
to do interferes with doing other things I like						
I use my commute time productively	-0.019	0.049	0.149	0.016	-0.036	0.015
Travel time is generally wasted time	0.161	0.004	-0.208	0.094	0.021	0.004
Getting stuck in traffic doesn't bother me too much	0.011	-0.013	0.122	-0.082	-0.019	-0.016
In terms of local travel - I have the freedom to go anywhere I want to	-0.007	0.010	0.000	0.328	-0.032	-0.031
In terms of long-distance travel, I have the freedom to go anywhere I want to	0.006	0.004	-0.007	0.249	-0.007	-0.066
The vehicles I travel in are comfortable	0.003	-0.035	0.014	0.158	-0.027	-0.010
It is nice to be able to do errands on the way to or from work	-0.025	0.026	0.035	0.137	0.002	0.026
I am willing to pay a toll to travel on an uncongested road	0.011	-0.002	-0.025	0.107	0.051	0.013
Living in a multiple family unit wouldn't give me enough privacy	-0.039	-0.014	-0.028	0.075	-0.389	0.073
I like living in a neighborhood where there is a lot going on	-0.050	0.018	-0.031	0.054	0.233	-0.003
Having shops and services within walking distance of my home is important to me	-0.073	0.117	-0.017	0.043	0.196	0.101
I like to have a large yard at my home	-0.102	0.031	-0.007	0.051	-0.141	0.100
I worry about my safety when I travel	-0.052	0.007	-0.006	-0.004	-0.057	0.261
Traveling makes me nervous	0.046	0.033	0.037	-0.041	-0.031	0.287

Factor	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
Traveling is generally tiring for me	0.080	0.024	-0.075	0.006	0.045	0.209
I'd rather have someone else do the driving	-0.001	0.037	0.003	-0.020	0.093	0.130
I tend to get sick when traveling	0.026	0.010	0.008	-0.072	0.029	0.110
I am uncomfortable being around people I don't know when I travel	0.023	-0.016	0.015	-0.022	-0.061	0.102
I like traveling alone	0.002	0.031	0.007	-0.006	0.022	-0.061

APPENDIX 3D: Factor Correlation Matrix for Attitudinal Factors (Commuters only, N=1427)

Factor	Travel Dislike	Pro-environmental Policy	Commute Benefit	Travel Freedom	Pro-hi Density	Travel Stress
Travel Dislike	1.000					
Pro-environmental Policy	-0.144	1.000				
Commute Benefit	-0.286	-0.002	1.000			
Travel Freedom	-0.153	0.002	-0.017	1.000		
Pro-hi Density	-0.008	0.378	-0.078	-0.056	1.000	
Travel Stress	0.257	0.097	-0.146	-0.175	-0.101	1.000

APPENDIX 4

APPENDIX 4A: Pattern Matrix of Personality Variables and Factors (N=1904)

	Adventure Seeking (Type-T)	Organizer	Loner	Calm
adventurous	0.776			
variety seeking	0.695			
spontaneous	0.574			
risk taking	0.557			-0.192
like to stay close to home	-0.435			
ambitious	0.422	0.330		-0.217
like moving at high speeds	0.398			-0.345
like being outdoors	0.385			
efficient		0.624		
on time		0.371		
like a routine	-0.355	0.364		
like being alone			0.935	
like being independent	0.250	0.301	0.314	
aggressive	0.162	0.312		-0.599
patient	0.163			0.532
restless				-0.389
like being in charge	0.199	0.363		-0.380

APPENDIX 4B: Structure Matrix of Personality Variables and Factors (N=1904)

	Adventure Seeking (Type-T)	Organizer	Loner	Calm
adventurous	0.791			-0.270
variety seeking	0.693			-0.207
spontaneous	0.582			-0.371
risk taking	0.624			-0.354
ambitious	0.514	0.371		-0.472
like moving at high speeds	0.511			
like to stay close to home	-0.416			
like being outdoors	0.363			
efficient		0.639		
on time		0.355		
like a routine	-0.307	0.338		
like being alone			0.888	
like being independent	0.332	0.378	0.403	
aggressive	0.369	0.345		-0.658
patient				0.472
restless	0.205			-0.421
like being in charge	0.354	0.404		-0.460

APPENDIX 4C: Factor Score Coefficient Matrix for Personality Factors (N=1904)

Factor	Adventure Seeking (Type-T)	Organizer	Loner	Calm
adventurous	0.351	-0.007	0.034	0.037
variety seeking	0.229	-0.052	0.008	0.025
spontaneous	0.135	-0.012	0.029	0.023
risk taking	0.155	-0.066	0.035	-0.089
ambitious	0.099	0.156	0.027	-0.063
like moving at high speeds	0.091	-0.040	0.021	-0.170
like to stay close to home	-0.091	0.103	0.028	0.025
like being outdoors	0.059	0.054	0.004	0.059
efficient	0.018	0.395	0.053	0.085
on time	-0.020	0.162	0.013	0.059
like a routine	-0.091	0.178	0.007	0.008
like being alone	-0.052	-0.062	0.852	-0.004
like being independent	0.061	0.162	0.090	0.016
aggressive	0.008	0.158	0.034	-0.402
patient	0.053	0.101	0.020	0.264
restless	0.005	-0.063	0.013	-0.176
like being in charge	0.025	0.166	0.049	-0.167

APPENDIX 4D: Factor Correlation Matrix for Personality Factors (N=1904)

Factor	Adventure Seeking (Type-T)	Organizer	Loner	Calm
Adventure Seeking (Type-T)	1.000			
Organizer	0.088	1.000		
Loner	0.133	0.168	1.000	
Calm	-0.303	-0.030	-0.114	1.000

APPENDIX 5A: Pattern Matrix of Lifestyle Variables and Factors (N=1904)

	Frustrated	Family/ Community Oriented	Status Seeking	Workaholic
I often feel like I don't have much control over my life	0.720			
I am generally satisfied with my life	-0.618			
Work and family do not leave me enough time for myself	0.357	0.262		0.203
I wouldn't necessarily have to like my work that much, as long as I made enough money	0.214	-0.037		
I feel that I am wasting time when I have to wait	0.160			0.156
I'd like to spend more time with my family and friends		0.585		
My family and friends are more important to me than my work		0.472		-0.233
I'd like to spend more time on social, environmental, or religious causes		0.418		
Occasionally, I'd be willing to give up a day's pay to get a day off work		0.273		
To me, the car is a status symbol			0.698	
A lot of the fun of having something nice is showing it off			0.518	
To me, the car is nothing more than a convenient way to get around			-0.411	
The one who dies with the most toys wins			0.410	
I'm pretty much a workaholic				0.652
I'd like to spend more time on work		-0.164		0.373
I generally try to spend some time each week just on myself				-0.178
I don't like to stay in one place for long				0.171

APPENDIX 5B: Structure Matrix of Lifestyle Variables and Factors (N=1904)

	Frustrated	Family/ Community Oriented	Status Seeking	Workaholic
I often feel like I don't have much control over my life	0.713			0.208
I am generally satisfied with my life	-0.580			
Work and family do not leave me enough time for myself	0.430	0.290		0.284
I wouldn't necessarily have to like my work that much, as long as I made enough money	0.222			
I feel that I am wasting time when I have to wait	0.223			0.202
I'd like to spend more time with my family and friends		0.587		
My family and friends are more important to me than my work		0.480		-0.270
I'd like to spend more time on social, environmental, or religious causes		0.419		
Occasionally, I'd be willing to give up a day's pay to get a day off work		0.284		
To me, the car is a status symbol			0.693	
A lot of the fun of having something nice is showing it off			0.536	
To me, the car is nothing more than a convenient way to get around			-0.382	
The one who dies with the most toys wins	0.203		0.453	0.216
I'm pretty much a workaholic				0.640
I'd like to spend more time on work				0.366
I generally try to spend some time each week just on myself				-0.223
I don't like to stay in one place for long				0.183

APPENDIX 5C: Factor Score Coefficient Matrix for Lifestyle Factors (N=1904)

Factor	Frustrated	Family/ Community Oriented	Status Seeking	Workaholic
I often feel like I don't have much control over my life	0.477	0.040	0.005	0.068
I am generally satisfied with my life	-0.295	0.051	-0.008	0.012
Work and family do not leave me enough time for myself	0.170	0.165	-0.040	0.148
I wouldn't necessarily have to like my work that much, as long as I made enough money	0.084	-0.023	0.065	-0.007
I feel that I am wasting time when I have to wait	0.072	0.051	0.010	0.084
I'd like to spend more time with my family and friends	0.043	0.378	0.010	0.006
My family and friends are more important to me than my work	-0.031	0.272	0.009	-0.136
I'd like to spend more time on social, environmental, or religious causes	-0.011	0.220	-0.061	0.053
Occasionally, I'd be willing to give up a day's pay to get a day off work	-0.036	0.131	-0.039	-0.059
To me, the car is a status symbol	0.022	0.051	0.475	0.051
A lot of the fun of having something nice is showing it off	0.062	-0.014	0.258	0.017
To me, the car is nothing more than a convenient way to get around	0.049	0.053	-0.164	0.059
The one who dies with the most toys wins	0.068	-0.051	0.196	0.074
I'm pretty much a workaholic	0.015	-0.021	0.019	0.484
I'd like to spend more time on work	-0.005	-0.071	-0.012	0.191

Factor	Frustrated	Family/ Community Oriented	Status Seeking	Workaholic
I generally try to spend some time each week just on myself	-0.052	0.043	-0.015	-0.086
I don't like to stay in one place for long	0.016	0.051	0.028	0.082

APPENDIX 5D: Factor Correlation Matrix for Lifestyle Factors (N=1904)

Factor	Frustrated	Family/ Community Oriented	Status Seeking	Workaholic
Frustrated	1.000			
Family/ Community Oriented	0.091	1.000		
Status Seeking	0.179	-0.110	1.000	
Workaholic	0.311	-0.068	-0.151	1.000

APPENDIX 6: Attitude and Personality and Lifestyle Cluster Membership Cross-Tabs

Attitudes → / Personality and Lifestyles ↓	Affluent Professionals	Transit-using Urbanites	Home-makers and Older Workers	Travel Haters	Excess Travelers	Adventurous, Car-Oriented Suburbanites	Total
New Family Model							
Count	**42**	**26**	**25**	**14**	**58**	**45**	**210**
% within P/L clusters	20.0	12.4	11.9	6.7	27.6	21.4	100.0
% within Att. clusters	12.6	9.1	6.4	6.1	15.5	15.5	11.0
Proportion of % within clusters to % of sample	1.15	0.83	0.58	0.55	1.41	1.41	
Homebodies							
Count	**22**	**31**	**25**	**44**	**19**	**13**	**154**
% within P/L clusters	14.3	20.1	16.2	28.6	12.3	8.4	100.0
% within Att. clusters	6.6	10.9	6.4	19.1	5.1	4.5	8.1
Proportion of % within clusters to % of sample	0.82	1.34	0.79	2.36	0.63	0.56	
Mobile Yuppies							
Count	**23**	**8**	**9**	**3**	**56**	**31**	**130**
% within P/L clusters	17.7	6.2	6.9	2.3	43.1	23.8	100.0
% within Att. clusters	6.9	2.8	2.3	1.3	14.9	10.7	6.8
Proportion of % within clusters to % of sample	1.02	0.41	0.34	0.19	2.20	1.57	
Transit Advocates							
Count	**40**	**57**	**36**	**16**	**30**	**12**	**191**
% within P/L clusters	20.9	29.8	18.8	8.4	15.7	6.3	100.0
% within Att. clusters	12.0	20.0	9.2	7.0	8.0	4.1	10.0
Proportion of % within clusters to % of sample	1.20	2.00	0.92	0.70	0.80	0.41	

Attitudes → / Personality and Lifestyles ↓	Affluent Professionals	Transit-using Urbanites	Home-makers and Older Workers	Travel Haters	Excess Travelers	Adventurous, Car-Oriented Suburbanites	Total
Assistant VPs							
Count	**32**	**20**	**74**	**42**	**15**	**25**	**208**
% within P/L clusters	15.4	9.6	35.6	20.2	7.2	12.0	100.0
% within Att. clusters	9.6	7.0	18.9	18.3	4.0	8.6	10.9
Proportion of % within clusters to % of sample	0.88	0.64	1.74	1.68	0.37	0.79	
Status Seeking Workaholics							
Count	**37**	**13**	**40**	**12**	**27**	**42**	**171**
% within P/L clusters	21.6	7.6	23.4	7.0	15.8	24.6	100.0
% within Att. clusters	11.1	4.6	10.2	5.2	7.2	14.5	9.0
Proportion of % within clusters to % of sample	1.24	0.51	1.14	0.58	0.80	1.62	
Suburban and Stationary							
Count	**34**	**25**	**65**	**36**	**23**	**23**	**206**
% within P/L clusters	16.5	12.1	31.6	17.5	11.2	11.2	100.0
% within Att. clusters	10.2	8.8	16.6	15.7	6.1	7.9	10.8
Proportion of % within clusters to % of sample	0.95	0.81	1.54	1.45	0.57	1.73	
Older and Independent							
Count	**40**	**16**	**33**	**9**	**40**	**40**	**178**
% within P/L clusters	22.5	9.0	18.5	5.1	22.5	22.5	100.0
% within Att. clusters	12.0	5.6	8.4	3.9	10.7	13.8	9.3
Proportion of % within clusters to % of sample	1.29	0.60	0.91	0.42	1.15	1.48	
Middle-of-the-roaders							
Count	**22**	**21**	**39**	**29**	**25**	**30**	**166**
% within P/L clusters	13.3	12.7	23.5	17.5	15.1	18.1	100.0

Attitudes → / Personality and Lifestyles ↓	Affluent Professionals	Transit-using Urbanites	Home-makers and Older Workers	Travel Haters	Excess Travelers	Adventurous, Car-Oriented Suburbanites	Total
% within Att. clusters	6.6	7.4	10.0	12.6	6.7	10.3	8.7
Proportion of % within clusters to % of sample	0.76	0.85	1.15	1.45	0.77	1.19	
Travel Lovin' Transit Users							
Count	**19**	**28**	**14**	**5**	**56**	**14**	**136**
% within P/L clusters	14.0	20.6	10.3	3.7	41.2	10.3	100.0
% within Att. clusters	5.7	9.8	3.6	2.2	14.9	4.8	7.1
Proportion of % within clusters to % of sample	0.80	1.38	0.50	0.31	2.10	0.68	
Frustrated Loners							
Count	**22**	**40**	**31**	**20**	**26**	**15**	**154**
% within P/L clusters	14.3	26.0	20.1	13.0	16.9	9.7	100.0
% within Att. clusters	6.6	14.0	7.9	8.7	6.9	5.2	8.1
Proportion of % within clusters to % of sample	0.82	1.73	0.98	1.07	0.86	0.64	
Total							
Count	**333**	**285**	**391**	**230**	**375**	**290**	**1904**
% within P/L clusters	17.5	15.0	20.5	12.1	19.7	15.2	100.0
% within Att. clusters	100.0	100.0	100.0	100.0	100.0	100.0	100.0