



# Non-Work Travel of Women: Patterns, Perceptions and Preferences

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# NON-WORK TRAVEL OF WOMEN: PATTERNS, PERCEPTIONS AND PREFERENCES

## INTRODUCTION

In the face of growing levels of automobile travel, especially for nonwork purposes, two very different strategies are currently proposed for reducing automobile dependence: designing neighborhoods so as to bring activities within walking distance of home, and using telecommunications to provide the opportunity to participate in activities—work and nonwork—from home. The goal of both land use and telecommunications strategies is to increase accessibility, by expanding the choices available to individuals as to how they meet their daily responsibilities—and both types of strategies may have special implications for the nonwork travel of women.

Given that women generally face greater constraints on travel than men, due to greater time pressures and greater concerns about personal safety, women may stand to benefit even more than men from the increase in accessibility that these strategies provide. If women take greater advantage of opportunities to participate in activities closer to or in the home, the argument for these two strategies for reducing automobile dependence are strengthened: not only do they increase the opportunity for both men and women to drive less, they provide women with new alternatives for meeting the demands of their daily lives. In fact, the implications of these strategies for individuals may be more important than their implications for total travel.

This paper asks the question of whether women, when presented with the choice, are more likely than men to participate in nonwork activities close to or in the home and explores differences in perceptions and preferences that may explain gender differences in the response to these strategies. This discussion builds on the results of two household surveys. The goal of the first survey, distributed in six neighborhoods in Austin, TX, was to test the relationship between urban form and choices about selected nonwork trips, including walking trips, supermarket trips, and local shopping trips. The survey included a series of questions on perceptions about the neighborhood environment and characteristics of local shopping areas.

The goal of the second survey, sent to a random sample of residents in three cities—Austin, Oklahoma City, and San Jose—was to explore the implications for nonwork travel of emerging telecommunications technologies. The survey focused on trade-offs between in-home and out-of-home versions of selected activities—movies, shopping, and banking—and included a series of questions on attitudes about travel, technology, and time. For this paper, both data sets were analyzed with respect to gender differences in travel and activity patterns and potential explanatory factors.

The results of this analysis show minor differences in travel choices between men and women, but significant differences in motivations, feelings, attitudes, and preferences. The differences between women living in different types of households—defined with respect to marital status and the presence of children—often prove to be more significant than the differences between men and women. While it does not, in general, appear that women take advantage of accessibility opportunities more than men do, the results point to important planning considerations. First, the findings of the land use survey are described; the findings from the telecommunications survey follow.

## **LAND USE STRATEGIES**

### **BACKGROUND**

The New Urbanism movement has sparked a rethinking of the ways in which communities are designed. The goal is to create communities that function more like communities of the past—where residents feel a greater sense of community and where residents have an alternative to driving. The latter goal is achieved, in theory, by two strategies: linking shops and services to residential areas to reduce travel distances, and designing streets for people as well as cars to create walking environments that are safe, comfortable, and attractive. These strategies should lead to better accessibility to services and activities—and a better quality of life.

Some of the strongest arguments for this concept focus on the implications of traditional suburban development for those who can't always drive themselves—the young, the elderly, the poor. Without a car, these people are stuck at home or dependent on others to get them around. Transit may work in some situations but tends to be inefficient in suburban areas and may require long walks on busy streets, and those who can't drive may have trouble using transit as well. The new urbanist strategies are also potentially important for women, who make up a disproportionate share of the poor and the elderly and who often bear the greater share of the burden for transporting children or elderly relatives as well as other household chores.

This section addresses the question: how important these strategies are to women, as either a way to save time or as a way of enhancing quality of life? In addressing this question, several underlying issues are considered. Are women more likely than men take advantage of the opportunity to shop close to home, or the opportunity to walk? When they do, is it a way of saving time or something they simply choose to do? How important a role does accessibility to stores or the quality of environment in the neighborhood play in decisions about where to live?

### **SURVEY RESPONDENTS**

Data on choices about walking and local shopping were collected through a mail-out, mail-back survey administered in late May 1995. The survey included sections on supermarket trips, walking trips, trips to local commercial areas, factors influencing residential location choice, and socio-demographic characteristics, as well as questions on feelings about and perceptions of a variety of urban form characteristics. On the order of 1000 surveys were sent to a random sample of individuals in six neighborhoods in Austin: two neighborhoods were traditional pre-WWII neighborhoods, two were “early modern” 1950s neighborhoods, and two were “late Modern” 1970s or more recent neighborhoods.<sup>1</sup> Only one round of the survey was conducted, because of budget limitations and the concern that changes in weather over a period of time, especially the arrival of summer temperatures, would impact the results of the survey. The overall response rate was 25%.

The data were analyzed by gender, and, for women, by household type defined according to marital status (defined as living with a spouse or partner) and the presence in the household of young children (less than 12 years old). The expectation is that women living with a spouse will have fewer household responsibilities because of the possibility of sharing of chores and that women with young children will have more duties and more constraints on their time, all else equal. In interpreting the results of the analysis, it is important to consider factors other than gender and household type that may lead to differences in what women need, want, or are able to do and thus to differences in responses.

Table 1 summarizes socio-demographic characteristics for the different categories of respondents and highlights characteristics that differ significantly between the categories. Men and women differ significantly on three important characteristics. First, women are more likely to be single and living with young children than are men (6% vs. 1% of respondents), and less likely to be living with a spouse but without young children (35% vs. 41% of respondents). Second, women are less likely than men to be working full-time (68% vs. 79% of respondents) and more likely to be working part-time (13% vs. 6%) or not working (20% vs. 15%). Third, women are more likely to live at lower household income levels than men. The household and income differences suggest greater constraints on shopping and travel choices for women, while the differences in work status suggest potentially greater flexibility.

**Table 1**  
Respondent Characteristics for Land Use Survey

			Women by Household Type...			
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
<b>Household Type*</b>						
Single, no kids	41%	38%				
Single, kids	1%	6%				
Spouse, no kids	41%	35%				
Spouse, kids	17%	20%				
<b>Average Age</b>	44.0	43.8	48.8	36.1	49.3	36.9 *
<b>Work Status**</b>						
Full-time	79%	68%	69%	60%	67%	59%
Part-time	6%	13%	7%	8%	16%	22%
Not working	15%	20%	24%	13%	19%	19%
<b>Avg Persons per HH</b>	2.24	2.32	1.5	2.5	2.4	3.7 *
<b>Household Income**</b>						
< \$20,000	10%	10%	16%	28%	3%	4%
\$20,000 to \$39,000	25%	34%	52%	51%	21%	16%
\$40,000 to \$59,000	26%	26%	22%	18%	29%	32%
\$60,000 to \$79,000	18%	15%	6%	5%	23%	25%
>\$80,000	19%	15%	4%	0%	25%	22%
<b>Housing Ownership*</b>						
Owner	66%	67%	56%	58%	76%	77%
Renter	31%	32%	42%	43%	23%	22%
<b>Avg Years in Housing Unit</b>	9.1	8.8	12.3	4.9	9.5	7.2 *
<b>Avg Years in Nhd</b>	10.7	11.3	14.1	6.2	10.7	6.1 *
<b>Neighborhood Type*</b>						
Traditional (pre-WWII)	40%	37%	45%	30%	38%	25%
Early Modern (1950s)	31%	34%	40%	33%	31%	28%
Late Modern (1970s+)	29%	19%	16%	36%	33%	47%
<b>Avg Number of Vehicles</b>	1.8	1.7	1.3	1.1	2.1	2.1 *
<b>Number of Respondents</b>	604	741	298	40	253	149

\* Chi-square shows statistically significant differences (1% level) between men and women.  
 \* Chi-square shows statistically significant differences (1% level) between household types.  
 \* F-Statistic shows statistically significant differences (1% level) between household types.

Some differences between women by household type are also notable. Women with young children, for example, are younger on average than those without young children. It is not clear how age might be linked to choices about walking, however: younger women might be in better health and thus more likely to walk, or older women might be more concerned about staying in shape and thus more likely to walk. Women without young children have lived in their current housing units and neighborhoods longer on average—not surprising given their higher average age. Not surprisingly, women living without spouses live in smaller households, have lower household incomes, are less likely to own their homes, and have fewer vehicles available to the household than those with spouses. Single women with young children are most likely to work full-time and thus probably face the greatest constraints on their time.

The percentages of each category of women by household type living in the three neighborhood types also differs significantly. This is important because the differences in urban form in these types of neighborhoods may influence the kinds of choices residents make about walking and local shopping. Single women without children are more likely to live in traditional neighborhoods, for example, where residents in general are more likely to walk to the store, while married women with young children are more likely to live in recent suburbs, where residents in general are less likely to walk to the store. The distribution of respondents by category across the different neighborhoods is consistent with expectations, but must be considered in interpreting the results that follow. Note that the differences between men and women are not significant.

### **SURVEY RESULTS**

Grocery shopping is one of the most frequent and most local of nonwork trips and one of the most regular household chores; all else equal, shoppers are likely to minimize the distance they have to travel to grocery shop. In the survey, gender differences are significant for supermarket shopping (Table 2). Women were more likely than men to report that they do all or almost all of the grocery shopping for their household (although the average number of supermarket trips per week was not significantly different), and married women with young children make significantly more supermarket trips per week (2.6 on average) than other women and than men (note that they are also less likely to work full-time). For this chore, women carry a disproportionate share of the burden.

When asked about the importance of a list of factors which may influence the choice of which supermarket to shop at, women rated every factor higher on the importance scale than men did, perhaps reflecting the greater burden that grocery shopping represents in their lives. For both men and women, the two most important factors are quality and the distance to the store, suggesting that accessibility is an important consideration. Single women with children rate selection and quality as less important than other women do, perhaps reflecting lower incomes and thus less freedom to be concerned about these factors.

Table 2  
Grocery Shopping Characteristics

	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
<b>Portion of HH's Shopping*</b>						
All or Almost All	55%	79%	90%	88%	68%	75%
About Three-Fourths	8%	9%	3%	8%	15%	12%
About Half	23%	10%	8%	0%	16%	10%
About One-Fourth	9%	2%	1%	5%	2%	3%
None or Almost None	5%	4%	0%	0%	8%	0%
<b>Average Trips per Week</b>	<b>2.4</b>	<b>2.3</b>	<b>2.1</b>	<b>2.4</b>	<b>2.3</b>	<b>2.6<sup>†</sup></b>
<b>Factors in Store Choice</b> (5=important; 1=not important)						
Best quality products	3.9	4.1 <sup>†</sup>	4.1	3.6	4.1	4.2 <sup>†</sup>
Closest to home	3.9	4.0	3.9	4.1	4.1	4.1
Pleasant atmosphere	3.5	3.9 <sup>†</sup>	3.9	3.6	3.9	3.9
Widest selection	3.6	3.8 <sup>†</sup>	3.7	3.5	3.9	3.8 <sup>†</sup>
Best prices	3.5	3.6 <sup>†</sup>	3.5	3.7	3.6	3.6
Shortest lines	3.2	3.5 <sup>†</sup>	3.6	3.2	3.5	3.4
Fewest crowds	3.2	3.5 <sup>†</sup>	3.5	3.2	3.5	3.4
Easiest parking	3.0	3.3 <sup>†</sup>	3.4	3.0	3.4	3.1 <sup>†</sup>
It's on the way home from work/school	2.9	3.3 <sup>†</sup>	3.3	3.5	3.3	3.2

- \* Chi-square test shows statistically significant differences (5% level) between men and women.
- † F-statistic shows statistically significant differences (1% level) between men and women.
- ‡ F-statistic shows statistically significant differences between (5% level) household types.
- § F-statistic shows statistically significant differences between (1% level) household types.

The survey asked about two types of walking trips: strolling trips and walks to a store or local commercial area. Differences for strolling trips—walking for walking's sake—are subtle (Table 3). Men and women take about the same number of strolls per month, on average, and are equally likely to have strolled at least once in the previous month. Differences between women by household type are significant, however: single women with young children take the fewest strolls, on average, and married women with kids are mostly likely to have strolled at least once in the previous month. In both cases, young children may be a reason to go for a walk, but single women are likely to have little free time to spend doing things like strolling while married women, because they are less likely to work full-time and potentially have someone to share chores with, might have more free time.

**Table 3**  
Strolling Trip Characteristics and Motivations

	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
Average Strolls per Month	9.3	9.9	9.5	6.6	10.3	10.8
Percent Strolling at Least Once per Month*	76%	81%	75%	60%	81%	92%
<b>Reasons for Walking*</b>						
Exercise/health	67%	71%	68%	76%	72%	72%
For pleasure/like to	22%	25%	24%	34%	25%	25%
Walk the dog	22%	22%	25%	28%	26%	14%
Get outdoors/fresh air	6%	9%	6%	6%	6%	17%
Be with friends/family	6%	6%	3%	9%	6%	20%
Walk to store	10%	8%	12%	9%	5%	4%
Relaxation	9%	7%	10%	6%	6%	3%
<b>Reasons for Not Walking*</b>						
Not enough time	30%	31%	25%	38%	28%	46%
Don't feel safe	11%	22%	28%	27%	19%	21%
Physical limitations	10%	16%	17%	0%	17%	12%
Exercise elsewhere	27%	14%	15%	0%	17%	4%
Walk elsewhere	12%	12%	16%	7%	11%	0%
Bad weather/too hot	4%	7%	5%	20%	6%	8%
Too much traffic	7%	4%	2%	7%	8%	8%
Too lazy/tired	6%	4%	4%	7%	2%	6%
Don't enjoy walking	5%	2%	2%	0%	2%	0%

\* Chi-square shows statistically significant differences (1% level) between household types.  
\* Chi-square shows statistically significant differences (1% level) between men and women.

In open-ended questions, respondents who walk were asked why they walk and those who don't were asked why they don't. Overall, men and women reported the same reasons for walking, although again the differences between women by household type are significant: married women with children were more likely to report that they walk to be with friends or family. Interestingly, differences in reasons for not walking do differ between men and women: men were more likely to report that they don't walk because they get other exercise (27% vs. 14%), while women were more likely to report that they don't feel safe (22% vs. 11%) or have physical limitations (16% vs. 10%). These results suggest that improving the neighborhood environment to help women feel safer walking there could be an important benefit of the new urbanist strategies.

In order to assess the importance of urban form characteristics in the choice of whether and how frequently to walk, respondents were asked to indicate whether they agreed or disagreed with a series of statements about the quality of the walking experience in their neighborhoods (Table 4). On average, women did not agree as strongly as men that they feel safe walking in their neighborhoods, especially at night. On the other hand, they agreed more strongly that the neighborhood has interesting houses to look at and enjoy doing so, and that they see neighbors they know when walking and enjoy doing so, suggesting that the quality of the walking environment is more important to them. Two significant differences between women by household type are important. First, married women are more likely to agree that they feel safe walking at night than are single women; this may partly reflect differences in neighborhoods in addition to the effect of having a spouse along on walks. Second, women with children are less likely to agree that they feel safe walking where there are no sidewalks, perhaps reflecting their concerns about the safety of their children more than their own safety.

**Table 4**  
Feelings About Walking in Neighborhood

Mean Score on 5-Point Scale (5=agree; 1=disagree)	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
Feel safe walking in day	4.7	4.6 *	4.5	4.4	4.6	4.6
Feel safe walking at night	4.1	3.5 *	3.3	3.2	3.6	3.7 *
Trees give ample shade	4.0	4.0	4.1	3.6	4.0	3.8 *
Feel OK walking when hot	3.0	2.8 *	2.8	2.6	2.8	2.8
Interesting houses to look at	3.8	4.0 *	4.1	4.0	4.1	3.8 ~
Like to look at houses	4.1	4.4 *	4.2	4.3	4.5	4.4
See neighbors when walking	3.1	3.3 *	3.3	3.1	3.5	3.3
See strangers when walking	3.9	3.8	3.8	3.9	3.8	3.8
Like to see people on walks	3.7	3.9 *	3.9	3.8	3.9	3.9
Too much traffic in neighbhd	3.2	3.1	3.1	3.1	3.0	3.0
Feel safe without sidewalks	3.1	2.8	3.1	2.5	3.1	2.6 *

- \* F-statistic shows statistically significant differences (5% level) between men and women.
- † F-statistic shows statistically significant differences (1% level) between men and women.
- F-statistic shows statistically significant differences (5% level) between household types.
- ~ F-statistic shows statistically significant differences (1% level) between household types.

Walks to the store depend on the quality of the walking environment within the neighborhood as well as the distance to the store and the quality of the walking environment around the store. Overall, women walk to the store fewer times per month than men, perhaps reflecting the greater burden of household responsibilities that they bear and thus the less time they have to spend walking when they could drive (2.2 vs. 2.9 trips; Table 5). Single women without children, whose time is likely to be less constrained, walk to the store more times per month than other women, although this may reflect their greater propensity to live in traditional neighborhoods where walking to the store is more likely to be feasible. In fact, within Clarksville, the traditional neighborhood with the highest frequency of walks to the store,<sup>2</sup> single women without children still walk to the store more often on average than other women, but all categories walk more on average in this neighborhood than they do in other neighborhoods. This suggests that household type and neighborhood type both play a significant role.

An important question in understanding the implications of having the option to walk to the store is whether or not these walks replace driving trips. When asked what they would have done had they not been able to walk to the store the last time they did, men and women were equally likely to report that they would have driven, although women were somewhat more likely to report that they simply would have stayed at home. In other words, most walks to the store appear to be substitutes for driving trips, regardless of gender, but a notable share are “induced” trips—ones that would not be made if the walking option did not exist. Because residents sometimes choose to walk to the store when given the option, this must be an option they value and thus one that contributes to quality of life.



**Table 5**  
Walk to Local Store Trip Characteristics

	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
Average Walks to Store per Month	2.9	2.2 *	2.5	2.9	1.9	2.1
Percent Walking to Store at least Once per Month	47%	42%	41%	50%	44%	42%
If not able to walk last time walked to store, would have...						
Driven to same place	65%	63%	61%	61%	67%	62%
Driven to different place	8%	7%	8%	7%	7%	4%
Taken transit	2%	2%	4%	7%	1%	0%
Stayed home	10%	15%	15%	11%	10%	23%
Other	8%	4%	3%	0%	7%	3%
Not sure	11%	9%	8%	14%	8%	8%

\* F-Statistic shows statistically significant difference (5% level) between men and women.

In order to further assess the importance of urban form characteristics in the choice to walk, respondents were asked to indicate whether they agreed or disagreed with a series of statements about the walking environment in local commercial areas (Table 6). On all but one characteristic, the differences between men and women are insignificant. However, women agreed less strongly that they feel safe walking in store areas; this difference may explain the lower average frequency of such walks (Table 5). Differences between women by household type are also insignificant, with the exception of whether the respondent has to walk along a busy street to reach the local commercial area: single women with children agreed most strongly on this question, perhaps reflecting neighborhood differences, or location within the neighborhood, or more basic differences in perception.

**Table 6**  
Feelings About Local Commercial Areas

Mean Score on 5-Point Scale (5=agree; 1=disagree)	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
Stores within walking distance	3.7	3.7	3.7	3.7	3.7	3.6
Local stores meet my needs	3.6	3.7	3.6	3.6	3.7	3.8
Quality of local stores is high	3.4	3.5	3.4	3.3	3.5	3.5
Feel OK walking to local stores	3.9	3.8	3.9	3.7	3.9	3.7
Hard to park at local stores	2.5	2.6	2.6	2.7	2.5	2.6
Have to walk on busy street	3.4	3.6	3.4	4.0	3.6	3.7 *
Have to cross busy street	3.5	3.5	3.5	3.6	3.5	3.7
Feel OK walking in local stores	4.0	3.6 *	3.6	3.4	3.7	3.7

\* F-Statistic shows statistically significant differences (5% level) between household types.

\* F-Statistic shows statistically significant differences (1% level) between men and women.

Respondents were also asked about factors influencing their choice about where to live (Table 7). As for factors influencing choice of supermarket, women rated every factor as more important than men did; this may reflect a greater concern about the choices—or a systematic gender bias in how respondents answer this type of question, a possibility that merits further testing. Statistically significant differences include: affordability of unit, quality of living unit, quality of schools, attractiveness of neighborhood, level of upkeep in neighborhood, and being close to friends or family. Understandably, women without children rated the quality of schools as being less important (although not unimportant) than women with children did. Investment potential is more important to women with spouses—but remember that these women are more likely to own their homes. Single women without children rate attractiveness of the neighborhood as less important than other women did, probably reflecting their lower household incomes and thus greater constraints on residential location choice. Overall, having stores within walking distance was tied for the least important factor and thus appears to be a relatively minor consideration in the residential location choice; the quality and upkeep of the neighborhood were among the highest factors.

**Table 7**  
Factors Influencing Residential Location Choice

Mean Score on 5-Point Scale (5=important; 1=not important)	Women by Household Type...					
	All Men	All Women	Single, No Kids	Single, Kids	Spouse, No Kids	Spouse, Kids
Quality of living unit	4.2	4.5 *	4.5	4.2	4.5	4.4
Affordability of living unit	4.2	4.4 *	4.5	4.3	4.4	4.4
Attractiveness of nbhd	4.1	4.3 *	4.3	3.8	4.4	4.4 †
Level of upkeep in nbhd	3.9	4.2 *	4.2	3.9	4.2	4.2
Close to work	3.3	3.4	3.4	3.2	3.4	3.8
Investment Potential	2.9	3.0	2.6	2.7	3.3	3.3 †
Stores within walking distance	2.8	2.8	2.9	2.5	2.7	2.6
Quality of schools	2.5	2.8 *	2.1	3.8	2.7	3.7 †
Close to friends or family	2.5	2.8 *	3.0	3.1	2.8	2.7

\* F-statistic shows statistically significant differences (1% level) between men and women.  
 † F-statistic shows statistically significant differences (1% level) between household types.

## TELECOMMUNICATIONS OPPORTUNITIES

### BACKGROUND

A number of applications of telecommunications technologies offer the opportunity to reduce travel, by allowing for the substitution of telecommunications for travel. Telecommuting, the substitution of working at home for commuting to the usual work site, is probably the best known and most studied example of this opportunity. Teleshopping and tele-banking would seem to offer similar potential for reducing travel, although the question of substitution is far from resolved. The use of such services may represent an increase in time spent in that activity rather than the elimination of a trip, for example. Nevertheless, the opportunity to participate in an activity from home is an important one, especially for people who are pressed for time.

For women faced with work and household responsibilities, the opportunity to shop or bank from home is potentially an effective strategy for coping. Time saved by not have to travel to the store or the bank is time available for doing other chores—or for leisure activities. Women concerned about safety in public places may prefer the option to bank or shop from home rather than expose themselves to real or perceived dangers. On the other hand, women who spend much of their time at home already, because they don't work or are taking care of children, for example, may value simply getting out of the house and thus prefer the out-of-home versions of shopping, banking, and other activities.

This section addresses the question of whether women are more likely than men to take advantage of the opportunity to bank or shop from home, thereby saving time and hassle. In addressing this question, it is important to determine not only if women make greater use of the in-home versions of these activities but if by doing so, they reduce the numbers of trips they make outside of the home. Decisions about the use of in-home or out-of-home versions of these activities will depend on the characteristics of the different versions, but also on the underlying preferences and attitudes of the individual. Although both technologies and attitudes will evolve over time, an analysis of the current situation provides general insights into the ways in which characteristics of technologies and attitudes of potential users influence the use of technologies.

### SURVEY RESPONDENTS

Data on the use of in-home and out-of-home versions of selected activities—movie watching,<sup>3</sup> shopping, and banking—were collected through a mail-out, mail-back survey administered in August, 1995. The survey included questions about the use of currently-available versions of these activities as well as a series of attitudinal questions and questions on socio-demographic characteristics. The survey was sent to a random sample of 1000 individuals in each of three cities—Austin, Oklahoma City, and San Jose.<sup>4</sup> Although a follow-up postcard was sent out as a reminder to complete the survey, the overall response rate was only 16%. The results are thus unlikely to provide an accurate picture of the choices and attitudes of the entire population, but may provide a basis for beginning to understand the kinds of trade-offs that individuals make.

The data collected through this survey were analyzed by gender and, for women, by household types, where household type was defined by the presence and age of children (this survey did not include a question as to marital status). Three household types were defined: those with no children, those with children under the age of ten (including households that also have children over age ten), and those with children over age 10 only. Note that the number of respondents in each of the latter two categories is small, so that the potential for unrepresentative results is high. It is expected that women with young children, all else equal, will be somewhat more likely to take advantage of the opportunity to do something at home rather than make a trip to do it because of the potential time savings.

All else is not equal, however. Characteristics for the different categories of respondents are presented in Table 8. Average age does not differ significantly for men versus women, but, not surprisingly, women with young children are younger themselves on average. Education levels do not vary significantly, but work status does: women are less likely to work full time and more likely to not work, while among women, those with young children are most likely to not work. Women are more likely to live at lower household incomes and less likely to live at higher household incomes than men. Respondents are not distributed evenly across the three cities, with a higher portion of women without children and a lower portion of women with older children living in Austin, consistent with the relatively young demographics of Austin.

**Table 8**  
Respondent Characteristics for Telecommunications Survey

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
Average Age	45.9	43.7	46.7	35.5	45.0 <sup>f</sup>
Education					
< high school	3%	2%	2%	2%	4%
high school/GED	24%	31%	34%	22%	31%
college degree	50%	52%	50%	50%	46%
graduate degree	24%	15%	13%	16%	19%
Work Status <sup>a</sup>					
Full-time	76%	66%	71%	66%	65%
Part-time	3%	9%	7%	10%	15%
Retired	19%	10%	14%	2%	8%
Not working	2%	13%	9%	22%	12%
Student Status					
Full-time student	4%	4%	4%	6%	0%
Part-time student	10%	10%	11%	12%	12%
Household Income <sup>a</sup>					
<\$20,000	6%	9%	9%	10%	12%
\$20,000 to \$39,000	20%	35%	33%	30%	31%
\$40,000 to \$59,000	28%	23%	24%	24%	15%
>\$60,000	46%	33%	30%	38%	42%
Average Person per HH	2.6	2.5	1.9	3.5	3.2 <sup>a</sup>
Average Vehicles	2.3	2.0 <sup>a</sup>	2.0	2.0	2.0
Subscribe to On-Line Service	25%	18%	17%	16%	25%
City					
Austin	38%	43%	49%	38%	31%
Oklahoma City	35%	28%	24%	34%	39%
San Jose	27%	29%	29%	30%	31%
Number of Respondents	271	200	123	51	26

<sup>a</sup> Chi-square shows statistically significant differences (1% level) between men and women.  
<sup>b</sup> F-statistic shows statistically significant differences (1% level) between men and women.  
<sup>c</sup> F-statistic shows statistically significant differences (1% level) between household types.

## SURVEY RESULTS

The distribution of respondents by frequency of shopping in stores for items other than groceries did not differ significantly between men and women (Table 9). Differences on factors encouraging and discouraging store shopping were significant, however. Respondents were asked to indicate to what degree a series of factors encouraged them to shop in a store and to what degree a second series of factors discouraged them from shopping in a store. As in the land use survey, the average scores for women are higher than those for men on nearly every factor. Women rated the following factors as more strongly encouraging them to shop in a store than men did: getting out of the house, enjoy that particular store or center, can do multiple things on a shopping trip, and feel like spending money. On the other hand, women rated the following factors as more strongly discouraging them to shop in a store than men did: too many

people or too crowded, and don't have enough time. Differences between women by household type are also interesting. For example, women with young children gave higher ratings than other women to "getting out of the house" and "can do multiple things" as factors encouraging store shopping; this suggests both a need to escape the house for awhile and the need for efficient use of time.

**Table 9**  
Store Shopping Characteristics and Motivations

	Women by Household Type...				
	All Men	All Women	No kids	Kids < 10 yrs	Kids 10-18 yrs
<b>Store Shopping Frequency</b>					
Never	2%	1%	1%	0%	0%
< once per month	18%	17%	16%	16%	18%
1-3 times per month	35%	44%	45%	45%	35%
Once per week	27%	24%	23%	22%	35%
> once per week	18%	16%	16%	16%	12%
<b>Factors Encouraging Store Shopping (5=encourages; 1=does not encourage)</b>					
Lots of variety and choices	4.2	4.4	4.3	4.4	4.5
Able to compare prices	4.3	4.3	4.3	4.5	4.4
Able to handle items	4.3	4.3	4.3	4.4	4.4
Can do multiple things	3.8	4.2 <sup>a</sup>	4.1	4.4	4.1
Enjoy that store/center	3.0	3.4 <sup>a</sup>	3.4	3.4	3.2
Getting out of the house	2.7	3.0 <sup>a</sup>	2.9	3.3	2.7
Feel like spending money	2.3	2.7 <sup>a</sup>	2.8	2.9	2.3
Being around people	2.1	2.2	2.3	2.2	1.8
<b>Factors Discouraging Store Shopping (5=discourages; 1=does not discourage)</b>					
Too many people/crowds	3.8	3.9 <sup>a</sup>	3.7	4.2	4.2 <sup>a</sup>
Don't have enough time	3.1	3.5 <sup>a</sup>	3.4	3.6	3.4
Poor service in stores	3.4	3.4	3.3	3.5	3.7
Difficulty parking	3.1	3.3	3.3	3.3	3.7
Difficulty getting there	2.7	2.8	2.8	2.7	3.1
Hate to shop	2.9	2.5 <sup>a</sup>	2.3	2.5	3.2 <sup>a</sup>

<sup>a</sup> F-statistic shows statistically significant differences (5% level) between men and women.  
<sup>b</sup> F-statistic shows statistically significant differences (1% level) between men and women.  
<sup>c</sup> F-statistic shows statistically significant differences (5% level) between household types.

In contrast, patterns of catalog shopping do not differ by gender or household type (Table 10). Women make purchases from catalogs somewhat more frequently than men, although the differences are not statistically significant. The impacts of catalog shopping on shopping travel are also consistent across categories of respondents. When asked what they would have done if they hadn't found the last item they purchased from a catalog, most respondents said they would have waited until the next trip to a store to buy that item or would simply not have bought it. This suggests that most catalog shopping represents additional shopping rather than a substitute for trips to a store. Women with young children, however, were more likely to say that they would not have bought the item, perhaps suggesting more impulse buying for this segment. Just over half the respondents, for all categories, reported that they have sometime made a trip to the store because of an item they saw in a catalog, suggesting that catalogs sometimes induce additional shopping travel. These results suggest that women are not using catalog shopping as a way of saving time.

**Table 10**  
Catalog Shopping Frequency and Travel Impacts

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
<b>Frequency of Purchases</b>					
Never	19%	13%	14%	10%	15%
< once per year	20%	17%	16%	22%	8%
1-3 times per year	38%	53%	54%	48%	58%
Once per month	17%	15%	14%	18%	12%
> once per month	5%	0%	2%	2%	8%
<b>If hadn't found last item purchased, would have...</b>					
Made trip to store	18%	18%	18%	21%	22%
Waited until next trip to store	40%	41%	47%	23%	48%
Not bought item	33%	31%	28%	43%	17%
Other	0%	5%	5%	5%	8%
Can't remember last time	6%	5%	3%	8%	4%
<b>Ever made trip to store because of catalog?</b>	<b>58%</b>	<b>53%</b>	<b>52%</b>	<b>55%</b>	<b>54%</b>

Shopping channels serve a more limited purpose than either store shopping or catalog shopping, given the limited range of products sold this way. Most respondents reported having access to a shopping channel (Table 11), but most of those who have access reported that they never watch it. Fewer than a third reported ever buying an item from a home shopping channel, but nearly twice the percentage of women as men reported having done so. When asked what they would have done if they hadn't seen the last item they purchased from a home shopping channel, most respondents said they would not have bought the item, suggesting a high degree of impulse buying (the number of respondents for this question is very small, however). As with catalogs, women are not using shopping channels as a way of saving time.

Gender differences are also insignificant for banking habits. The frequency of visits to bank tellers is consistent across categories of respondents, with the greatest share of respondents making trips to the bank one to three times per month. Respondents were asked to indicate to what degree a series of factors encouraged them to complete a transaction with a teller (rather than other ways) and to what degree a second series of factors discouraged them from doing so. As for all other questions of this type, the average scores for women are higher than those for men on nearly every factor, although most differences are not statistically significant. The most important factors encouraging teller transactions for all respondents are: get problems solved quickly, can do multiple transactions, transaction can't be done other ways, and get proof of transaction. The most important factors discouraging teller transactions are: long lines, charges for using a teller, and transaction done more easily other ways.

**Table 11**  
Shopping Channel Frequency and Travel Impacts

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
Access to Home Shopping Channel*	70%	77%	73%	84%	88%
Frequency of Shopping Channel Watching*					
Never	76%	69%	71%	74%	54%
< once per month	18%	19%	19%	20%	21%
1-3 times per month	4%	4%	5%	2%	0%
Once per week	3%	2%	1%	2%	8%
> once per week	1%	6%	4%	2%	17%
Ever Made a Purchase from Home Shopping Channel*	17%	30%	26%	27%	60%
Number of Purchases Made	3.2	3.8	2.9	2.8	5.9
If hadn't seen last item purchased, would have...					
Made trip to store	0%	3%	0%	0%	11%
Waited 'til next trip to store	17%	6%	0%	0%	22%
Not bought item	57%	71%	82%	76%	44%
Other	10%	12%	12%	13%	11%
Can't remember last time	17%	9%	6%	13%	11%
Ever made trip to store because of item on TV?	6%	6%	4%	6%	16%

\* Chi-square shows statistically significant differences (1% level) between men and women.

**Table 12**  
Traditional Banking Characteristics and Motivations

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
Frequency of Bank Teller Visits					
Never	6%	6%	7%	8%	6%
< once per month	26%	31%	34%	28%	19%
1-3 times per month	32%	33%	32%	36%	31%
Once per week	29%	22%	20%	24%	27%
> once per week	6%	6%	7%	4%	15%
Factors Encouraging Bank Teller Visits (5=encourages; 1=does not encourage)					
Can do multiple transactions	3.5	3.7	3.6	3.6	3.8
Can't be done other ways	3.2	3.6*	3.5	3.6	3.7
Get proof of transaction	3.4	3.6	3.5	3.3	3.6
Problems solved quickly	3.4	3.5	3.4	3.5	3.5
Get to deal with person	3.1	2.9	2.9	2.7	3.0
Used to doing it that way	2.8	2.8	2.9	2.8	2.8
Factors Discouraging Bank Teller Visits (5=discourages; 1=does not discourage)					
Long lines	3.8	3.8	3.4	4.1	4.0*
Charges for using a teller	3.1	3.2	3.2	3.3	3.2
Done more easily other ways	3.0	3.1	3.0	3.4	2.8
Hard to park	2.6	2.8	2.7	2.9	3.0
Too far away	2.6	2.7	2.4	2.9	3.0*
Too hard to get there	2.4	2.6	2.4	2.7	2.9

\* F-statistic shows statistically significant differences (1% level) between men and women.

\* F-statistic shows statistically significant differences (1% level) between household types.

\* F-statistic shows statistically significant differences (5% level) between household types.



**Table 13**  
ATM Use Frequency and Travel Impacts

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
Have ATM card	80%	78%	80%	77%	73%
Ever use ATM card	86%	80%	79%	84%	75%
<b>Frequency of ATM card Use at Own Bank</b>					
Never	13%	17%	18%	14%	20%
< once per month	17%	20%	24%	17%	7%
1-3 times per month	36%	35%	31%	39%	47%
Once per week	18%	17%	17%	14%	27%
> once per week	15%	12%	12%	17%	0%
<b>If unable to use ATM last time, would have...</b>					
made trip to bank	49%	49%	49%	54%	41%
waited 'til next trip	19%	9%	11%	3%	12%
done it by phone	2%	2%	3%	0%	0%
done it by mail	2%	2%	1%	3%	0%
cashed checked elsewhere	25%	33%	31%	34%	35%
done it by computer	1%	1%	0%	3%	0%
other	3%	5%	5%	3%	12%

Similarly, use of ATMs do not differ across respondent categories either. Most respondents have an ATM card, and most use it at some time. The most frequently used ATMs are at the respondent's own bank, suggesting that the use of ATMs does not eliminate a trip to the bank, but provides a quicker and easier way to complete certain transactions (like withdrawals) than visiting a teller. Consistent with this interpretation, when asked what they would have done had they not be able to use the ATM the last time, most respondents said they would have made a trip to the bank (which they often would have done anyway to use the ATM). Most of the others said they would have cashed a checked somewhere else. These results suggest that ATMs save time and hassle for bank customers but not necessarily travel.

Telephone banking services also offer the potential to save time, although some transactions—especially getting cash—are not easily accomplished this way. Differences between men and women in access to and frequency of use of such services are not significant (Table 14). For both men and women, the use of telephone banking services appears to substitute for a trip to the bank on a large share of occasions: 40% of respondents said they would have made a special trip to the bank if they had not been able to use the telephone service on the last occasion. Close to a third of respondents said they would have waited until their next trip to the bank, however, suggesting that telephone services may sometimes increase the frequency of banking transactions. In other words, telephone services sometimes save time (by eliminating a trip to the bank) but may sometimes mean more time spent on banking (by increasing accessibility to the bank).



**Table 14**  
Telephone Banking Services Frequency and Travel Impacts

	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
<b>Access to Phone Service</b>					
Yes	67%	68%	69%	68%	65%
Don't Know	19%	24%	23%	28%	15%
<b>Frequency of Phone Service Use</b>					
Never	29%	27%	31%	14%	32%
< once per month	30%	32%	33%	34%	21%
1-3 times per month	21%	26%	24%	29%	32%
Once per week	11%	9%	9%	9%	11%
> once per week	9%	8%	2%	14%	5%
<b>If unable to use phone service last time, would have...</b>					
made trip to bank	39%	40%	38%	43%	43%
waited until next trip to bank	25%	33%	36%	30%	29%
made trip to ATM	8%	8%	7%	7%	14%
waited until next trip to ATM	9%	3%	0%	7%	7%
done it by mail	7%	7%	10%	3%	0%
done it by computer	1%	2%	2%	0%	7%
other	11%	8%	8%	10%	0%

The likelihood that individuals will use telecommunications-based, in-home versions of different activities depends partly on their attitudes about a variety of factors, including how they feel about using technology, having to drive, and being around people. Respondents were asked to indicate whether they agreed or disagreed with a series of statements reflecting different attitudes. Using factor analysis, these statements were grouped into six factors: pro-technology, anti-congestion, social/interactive, home body, time pressure, and technology insecurity.<sup>5</sup> The results show some notable differences between men and women (Table 15). For example, men agree more strongly on average that they'll spend money for the latest technologies. Women score higher, on average, on the social/interactive factor, indicating that they agree more strongly that they prefer to spend free time with friends and that they enjoy walking. On the other hand, women agree more strongly that they never have enough time, and that they worry about privacy with computers. These results suggest that women may be less likely to use new technologies and substitute in-home versions of activities for out-of-home versions, although feeling greater time pressure may encourage time saving decisions.

## CONCLUSIONS

The results of the land use and telecommunications surveys for the most part show relatively minor differences between men and women in their choices about travel in and around their neighborhoods and their use of in-home versus out-of-home versions of shopping and banking. The more significant differences between men and women appear in their motivations, feelings, and attitudes. The results also show that is important to consider not just gender but the structure of the household: in many

TABLE 15  
Attitudes

Mean Score on 5-Point Scale (5=agree; 1=disagree)	All Men	All Women	Women by Household Type...		
			No kids	Kids < 10 yrs	Kids 10-18 yrs
<b>Pro-Technology</b>					
Technology makes my life easier	3.9	3.8	3.8	4.0	3.5
I feel comfortable using computers	3.9	3.8	3.8	4.0	3.7
Technology helps me save time	3.9	3.8	3.8	4.0	3.5
I'll spend money for latest technologies	3.2	2.9 *	2.8	3.0	3.0
I have trouble using new technologies	-2.2	-2.4	-2.4	-2.2	-2.7
<b>Anti-Congestion Factor</b>					
I really hate waiting in lines	4.0	4.1	4.0	4.3	3.8
Traffic drives me crazy	3.4	3.5	3.4	3.8	3.6
I believe people should drive less	3.4	3.3	3.3	3.3	3.9
I enjoy being in busy places	-2.7	-2.6	-2.7	-2.5	-2.7
I enjoy driving, even around town	-3.5	-3.5	-3.8	-3.6	-3.1
<b>Social/Interactive Factor</b>					
I enjoy walking	3.6	3.9 *	3.9	4.1	3.8
I like to interact with other people	3.8	3.8	3.9	3.7	3.9
I prefer to spend free time with friends	3.3	3.5 *	3.6	3.5	3.5
<b>Home Body Factor</b>					
I prefer to spend free time at home	3.6	3.7	3.7	3.7	3.5
I get bored staying home all day	-3.1	-2.8	-2.8	-2.8	-3.0
<b>Time Pressure Factor</b>					
I wish I had more free time	3.9	4.0	4.0	4.2	4.1
I never have enough time	3.3	3.6 *	3.6	3.9	3.6
<b>Technology Insecurity Factor</b>					
I worry about my privacy with computers	3.2	3.5 *	3.5	3.4	3.9
I worry about credit card fraud	3.1	3.2	3.2	3.2	3.2
Technology will change society for worse	2.2	2.3	2.4	2.2	2.3

Note: negative sign means statement reflects attitude opposite to overall factor.

\* F-statistic shows statistically significant differences (1% level) between men and women.

\* F-statistic shows statistically significant differences (5% level) between men and women.

cases, women living in different types of households differed more in their choices and their underlying preferences than women overall differed from men. The differences identified point to specific concerns that should be addressed in either land use or telecommunications strategies. Creating walkable environments, where residents have the option to walk to the store or can enjoy a stroll through the neighborhood, helps everyone, both men and women, both single and married women, both women with children and women without children. Creating accessibility environments, where residents are within walking distance or a short driving distance of needed activities, helps everyone.

For the most part, gender, marital status, and the presence of children are not significantly associated with the frequency with which one walks or the likelihood that one walks. But motivations, feelings, and attitudes do vary, with safety a significantly greater concern for women than for men. Land use strategies—new urbanist or otherwise—must address this concern and work to create environments that are safer both in fact and in perception for women and their children.

Providing the option to bank or shop or take care of some other chore from home rather than having to travel outside the home also helps everyone. For the most part, gender and the presence of children are not significantly associated with the frequency of the use of alternative versions of either shopping or banking. And, for the most part, neither women nor men are using in-home versions of banking or shopping as a substitute for out-of-home versions, although this may change as technologies evolve and as the in-home versions improve. But attitudes do differ between men and women, with women somewhat less comfortable with or interested in technology and somewhat more interested in being with other people. Telecommunications strategies may prove to be less important to women than to men, despite the greater time pressures that women often feel.

## NOTES

<sup>1</sup>The primary purpose of the survey was to test for differences in travel choices between neighborhoods of different types. Results of this analysis are summarized in Susan Handy, "Urban Form and Pedestrian Choices: A Study of Austin Neighborhoods," forthcoming in *Transportation Research Record*.

<sup>2</sup> See Susan Handy, "Urban Form and Pedestrian Choices: A Study of Austin Neighborhoods," forthcoming in *Transportation Research Record*.

<sup>3</sup>The data for movie-watching were not analyzed by gender. Results of the overall analysis are summarized in Susan Handy, "The Impacts of Telecommunications Technologies on Nonwork Travel Behavior," Southwest Region University Transportation Center, the University of Texas at Austin, August 1996.

<sup>4</sup>These cities were selected based on two variables: high-tech culture (San Jose and Austin high, Oklahoma City low) and traffic congestion (San Jose high, Austin and Oklahoma City low). It was hypothesized that a high-tech culture and a high level of congestion might be associated with greater use of in-home, telecommunications-based versions of activities.

<sup>5</sup> For more detail about this analysis, see Susan Handy, "The Impacts of Telecommunications Technologies on Nonwork Travel Behavior," Southwest Region University Transportation Center, the University of Texas at Austin, August 1996.