



Local shopping as a strategy for reducing automobile travel

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Abstract. Suburban development in the US is widely criticized for its contribution to automobile dependence and its consequences. Not surprisingly, then, a return to more urban-style development, where potential destinations are closer to home, is often put forth as a strategy for reducing automobile dependence. This paper evaluates the possibility that providing local shopping opportunities will help to reduce automobile dependence by exploring how residents of existing neighborhoods make use of the local shopping opportunities currently available to them. Using both quantitative and qualitative evidence for six neighborhoods in Austin, TX, we address two sets of questions. First, to what degree do residents choose local shopping over more distant opportunities and why? What are the implications for vehicle travel? Second, to what degree do residents choose to walk rather than drive to local shopping and why? What are the implications for vehicle travel? The results of this exploration suggest that local shopping will not prove a particularly effective strategy for reducing automobile dependence in the typical US city by either reducing travel distances or encouraging alternative modes of travel. Residents of such places choose more distant stores enough of the time that they increase total driving significantly, and they don't choose alternative modes enough of the time that they reduce total driving significantly. But while local shopping may not do much to reduce driving it does give residents the option to drive less and this option is something residents clearly value. Local shopping does not show great promise as a strategy for reducing automobile use, but it does show promise as a strategy for enhancing quality of life in neighborhoods, at least partly by making driving once again a matter of choice.

1. Introduction

Suburban development in the US is widely criticized for its contribution to automobile dependence and its consequences. A coalition lead by the Bank of America in 1995 listed increased dependence on the automobile as one of the effects of increased sprawl in California in the preceding ten to twenty years; this dependence means that one dollar out of every five that Californians earn goes towards buying and maintaining cars (*Beyond Sprawl* 1995). Work by Newman and Kenworthy (1989) is widely cited as demonstrating the connection between the extremely low densities of US cities and the extremely

high consumption of gasoline by their residents relative to cities elsewhere in the world. Critics of sprawl agree that the current trend “virtually ensures that the automobile will remain the only form of transportation that ‘works’ in a sprawl-type setting” (LILP 1995).

Not surprisingly, then, a return to more urban-style development is often put forth as a strategy for reducing automobile dependence. In particular, the efforts of the Congress for the New Urbanism have garnered significant attention from researchers, planners, and developers, as well as the popular press. Places like Celebration, Florida, built by Disney Co. according to new urbanism principles, have been called a solution not just to automobile dependence but also the decline of neighborliness and civic responsibility, even teenage boredom and violence (e.g. Hamilton 1999). Celebration’s planners set out “to bring back a way of life lost when suburbs appeared and cars became the only way to get to distant stores, school and work” (Riddle 1999). A recent article in *Time* magazine, entitled “Saving Suburbia,” asks: “Everybody, at least once in his life, wants to live in a nice small town, right? One with sidewalks, neighbors waving from their porches and a bustling central square within biking distance of your house?” (Padgett 1999).

The key to reducing automobile dependence, according to this concept, is to bring destinations back within walking (and biking) distance and ensure safe and attractive connections for pedestrians. Targeted destinations include schools, transit stops, civic facilities, and commercial centers – the elements that might make up a “bustling central square.” A gridded network provides direct connections between residential and shopping areas. Design guidelines minimize building setbacks and pavement for streets and parking, making shopping areas more comfortable for pedestrians. Together these strategies may reduce driving not only by encouraging alternatives – walking, biking, and transit – but also by reducing the distances that residents drive when they still get in their cars. The question is, does it work?

This paper evaluates the possibility that providing local shopping opportunities will help to reduce automobile dependence by exploring how residents of existing neighborhoods make use of the local shopping opportunities currently available to them. Using both quantitative and qualitative evidence, we address two sets of questions:

- To what degree do residents choose local shopping over more distant opportunities? What factors influence this choice? What are the implications for vehicle travel?
- To what degree do residents choose to walk rather than drive to local shopping? What factors influence this choice? What are the implications for vehicle travel?

The results of this exploration suggest that while residents greatly value local

shopping opportunities, these opportunities do little to reduce automobile use.

2. Theory and evidence

The demand for travel is generally assumed to be derived from the demand for activities. People travel in most cases not because they want to travel but because they want or need to participate in an activity at their destination. If so, it is reasonable to assume that travelers will opt to minimize the time and cost of travel. For the case of shopping, this assumption leads two hypotheses: that local stores will be selected over more distant stores, and that faster modes, such as driving, will be chosen over slower modes, like walking. Whether local shopping can be an effective strategy for reducing automobile dependence thus depends on the degree to which the first hypothesis holds true and second holds false. Theory and existing evidence both suggest that while time-minimization does dominate decisions about destination and mode, other factors can outweigh time, leading travelers to sometimes select more distant destinations and sometimes slower modes.

Models of travel behavior, for example, suggest that the minimization of travel cost, especially travel time, dominates decisions about destinations and modes. The gravity model, used to predict trip distribution at an aggregate level, reflects a decline in trips between pairs of zones as the distance between zones increases. Utility maximization models, used to predict destination and/or mode choice at a disaggregate level, general include travel cost as disutility, reducing the probability of more distant destinations or slower modes being chosen. But, these models also show that travel cost is not the only factor nor always the most important factor, especially in choosing a destination. All else equal, consumers will choose the closest destination and the fastest mode, but the greater "attractiveness" of a more distant destination may entice the traveler to make the longer trip.

Theories of shopping behavior suggest that the type of good being purchased also influences the willingness of a shopper to travel. Holton (1958) established the now commonly-used distinction between "convenience" and "comparison" goods. Convenience goods are those "which the consumer usually purchases frequently, immediately, and with a minimum of effort," meaning that the shopper will generally minimize travel time to shop for these goods. Food shopping is assumed to fall into this category. Comparison goods, also called "shopping goods," are defined as those "which the customer, in the process of selection and purchase, characteristically compares on such bases as suitability, quality, price and style"; for these goods, shoppers will be willing to travel farther and to more than one store to find what they're

looking for. Travel time is generally assumed to play a dominant role in decisions about convenience shopping and an important but not dominant role in decisions about comparison shopping. Supporting this assumption, Handy (1992) found a greater negative coefficient for travel time in a gravity model formulation for convenience shopping trips than for comparison shopping trips.

Other researchers point to additional complexities in shopping behavior. Robinson and Vickerman (1976), for example, concluded that the amount households travel for shopping is primarily influenced by what shopping facilities are available where but that most shoppers perceive a more limited set of choices than is actually available. In other words, it's not a given that residents will even perceive local shopping areas as an option. Even if they do, local shopping areas must provide more than just the right products and services. Tauber (1972) explored the question of why people shop and hypothesized that the motivation to shop includes some factors unrelated to the actual buying of products, in other words, that consumers derive utility from the activity of shopping itself, not just the products purchased. In his interviews with shoppers, he found a wide variety of both personal motives for shopping, including physical activity and sensory stimulation, as well as social motives. His findings suggest that the attractiveness of shopping destinations depends on their ability to satisfy these kinds of motivations. Many other researchers have demonstrated the importance of "image" in choices about where to shop (e.g. Nevin & Houston 1980; Fotheringham & Trew 1993). As these studies show, close proximity is not enough to ensure that residents will make use of local shopping areas.

Two recent studies further call into question the importance to shoppers of minimizing travel time – and their ability to do so even when they mean to. Mokhtarian and Salomon (1999) contest the "conventional wisdom" that travel is a derived demand and explore cases in which travel itself is the activity, what they call "undirected travel." The results from their attitudinal survey of 1900 residents of the San Francisco Bay Area showed that respondents tended to confound their utility for the activities conducted at the destination and those conducted while traveling with the utility of travel itself. Still, the results revealed a surprising affinity for travel, with up to a quarter of respondents reporting that they like trips for activities that most people consider chores, for example. The vast majority of respondents said that they travel for reasons such as "to explore new places," or "to see beautiful scenery," or "just for the fun of it," all reasons that suggest "excess" travel over what is necessary. They conclude that individuals possess "an intrinsic desire to travel" and that the destination is sometimes ancillary to the travel. These results suggest that shoppers may be perfectly happy driving to a farther destination if they value the travel itself and not just the shopping

– bad news for the local shopping strategy. But the results also seem to suggest, though less directly, that shoppers may opt for walking over driving if they value travel by foot more than travel by car, even if walking is slower.

Another recent study, by Ampt and Rooney (1998), shows that even when households intend to minimize travel time, they don't always make the choices that would do so. In applying the technique of "travel blending," they analyze the travel patterns of individual households and identify ways the household can reduce driving without changing lifestyle. Recommended strategies include planning activities and travel in advance, using different modes on different occasions, doing as many things as possible in the same place or on the same journey, and making small sustainable changes over time. They focus on "blending," meaning "making sensible choices about journeys for which the car will remain appropriate" rather than eliminating the car altogether. In initial applications of this technique in Sydney and Adelaide, the researchers found that participants reduced their car use by up to 26 percent. Again, the implications for the local shopping strategy are both bad and good. Shoppers drive more than they need to, but given some prodding to think about choices that will lead to less driving they will sometimes make those choices. However, the fact that most of the 26 percent reduction in driving comes from a decrease in the number of trips rather than distance suggests that local shopping may not make much difference – shoppers are more likely to reduce driving by reducing the frequency of their trips than by switching to closer destinations.

3. Methodology

To evaluate the possibility that local shopping can help to reduce automobile dependence, we made use of data from a larger study of the impact of neighborhood design on travel behavior. In this study, we selected six middle-income neighborhoods in the Austin, TX area that vary in the opportunities they provide residents for shopping locally: two "traditional" neighborhoods, developed in the early part of the century; two "early-modern" neighborhoods, mostly developed between 1950 and 1970, and two "late-modern" neighborhoods, developed after 1970. The era of development is also correlated with the location in the region: the traditional neighborhoods lie just beyond the downtown area, the two early-modern neighborhoods are with a few miles of downtown, and the two late-modern neighborhoods are ten to fifteen miles from downtown. We assumed that both the style of development and the location in the region would influence the opportunities available for local shopping.

To evaluate local shopping opportunities, we completed an inventory of businesses in and around each neighborhood, initially through field observa-

Table 1. Summary of urban form characteristics.

	Traditional			Early modern		Late modern	
	Old West Austin	Travis Heights	Zilker	Cherrywood	Wells Branch	Tanglewood	
Stores within 1/2 miles	256	174	168	238	40	55	
Average miles to nearest store ^a	0.4	0.4	n/a	0.5	0.8	0.9	
Percent within 1/2 miles of store ^a	82%	46%	n/a	50%	23%	8%	
Average miles to nearest foodstore ^a	0.4	0.9	n/a	0.6	0.9	0.9	
Type of stores ^b	Practical, speciality	Speciality	Practical, regional	Practical, regional	Practical	Practical	
Types of shopping areas	Main street	Main street	Arterial strip	Arterial strip	Arterial node	Arterial node	

^a Based on a sample of households from the neighborhood travel survey.

^b For example, "practical" includes food stores, drug stores, video rental; "speciality" includes antique stores, gift stores; "regional" includes big box retail, motels.

tions and later updated using digitized yellow pages (Handy & Clifton 2000). The numbers of establishments of different types per 1,000 residents within various distances from the neighborhood boundaries reveal notable differences and similarities. However, the inventory alone provides only the most basic evaluation of local shopping opportunities. Through field observations we also characterized the nature of local businesses – size, quality, design, etc. (Handy et al. 1998). In addition, we evaluated the quality of the connections between residential areas and commercial areas – sidewalks, shade, scenery, etc.

Major findings of this analysis include (Table 1):

- The traditional neighborhoods have more local shopping opportunities for residents than the other types of neighborhoods. Their stores tend to be small and locally-owned, and range from the practical (e.g. food stores) to specialty shops (e.g. antique stores). Local shopping is pedestrian-oriented, though residential areas may be separated from commercial by arterials.
- The early modern neighborhoods have lots of local shopping opportunities as well. They tend to have larger stores, more chain stores, and many businesses that draw from the passing traffic rather than local residents. Local shopping is almost entirely automobile-oriented, located along arterials with few pedestrian connections to the neighborhood.
- The late modern neighborhoods generally have fewer local shopping opportunities, especially within a two-mile radius, reflecting their greater distance from downtown. Businesses are almost entirely found in strip centers at the intersections of major arterials and are dominated by national chains. These commercial areas also have few pedestrian connections to the neighborhood.
- Although neighborhoods developed in the same era share many characteristics, they may also differ in significant ways. For example, Old West Austin residents are much more likely to be within walking distance of stores and are much closer on average to a food store than residents of Travis Heights.

We used two complimentary methods to understand the use of local shopping areas: a household travel survey and focus groups with neighborhood residents. First, we conducted a mail-out, mail-back survey in late May, 1995. The survey included sections on supermarket trips, walking trips, trips to local commercial areas, and socio-demographic characteristics, as well as questions on feelings about and perceptions of a variety of neighborhood characteristics. Approximately 1,000 surveys were sent to a random sample of individuals in each neighborhood. The overall response rate was 25 percent, raising some concern about how well the sample represented all residents of the neighborhoods. A comparison of the characteristics of the respondents to the characteristics of all residents shows some notable differences (Table 2).

Table 2. Survey respondent characteristics vs. neighborhood population characteristics.

	Traditional		Early modern		Late modern	
	Old West Austin	Travis Heights	Cherry-wood	Zilker	Wells Branch	Tangle-wood
<i>Neighborhood population characteristics – 1990 census</i>						
Population	4,311	5,666	4,137	4,741	5,005	5,650
% male	52%	51%	50%	50%	50%	50%
% female	48%	49%	50%	50%	50%	52%
Median age	30.7	31.7	33.7	33.3	28.6	28.7
Avg year in unit	5.3	7.4	10.5	9.2	3.2	4.6
Avg Vehs/HH	1.4	41.5	1.5	1.4	1.9	1.9
Persons/HH	1.59	1.94	2.02	2.02	2.53	2.65
Median income	\$21,910	\$24,551	\$28,206	\$25,359	\$38,862	\$34,873
<i>Survey respondent characteristics^a</i>						
Number	281	245	226	220	204	192
Response rate	27%	27%	28%	24%	24%	21%
% male	54%	50%	57%	58%	55%	55%
% female	46%	50%	43%	42%	45%	45%
Median age ^b	43.3	43.8	44.0	46.5	42.0	44.3
Avg year in unit	8.6	9.3	12.4	11.2	6.2	9.1
Avg Vehs/HH	1.6	1.8	1.6	1.8	1.9	2.4
Persons/HH	2.1	2.1	2.1	2.2	2.6	2.7
% HH w/kids < 12	14%	17%	21%	16%	36%	29%
Median income ^c	\$50,749	\$53,377	\$42,749	\$48,469	\$59,146	\$69,889
% < \$20,000	13%	8%	19%	10%	3%	3%
% > \$100,000	10%	9%	4%	6%	4%	9%

^a Differences between neighborhood significant at 1% level for all characteristics except gender.

^b For adults.

^c Estimated based on reported income ranges.

Respondents were somewhat more likely to be male, to have lived in the neighborhood longer, to live in larger households, to own more vehicles, and to have higher incomes. While some of these differences may be attributable to changes between the 1990 Census and the 1995 survey, they suggest a potential bias towards automobile use among survey respondents. The differences in respondent characteristics between neighborhoods may also lead to differences in travel behavior; however, the focus of this discussion is on overall patterns of travel rather than differences between neighborhoods. The role of socio-demographic factors in explaining travel behavior can be tested through multivariate models, as presented below.

In order to estimate the distance from home to supermarket or local store for each of the survey respondents, we developed a computerized network

of streets and locations. The distances and travel times along the street network from each residential location to each commercial area and supermarket were calculated using the network skim function in TRANPLAN.¹ Although this process gave a reasonable estimate of the actual travel distances, accuracy was limited by the inability of the address-matching process to precisely locate residences along a street, by imprecision in the representation of the local street network, and by the practical need to use assumed rather than actual speeds for each street. Because commercial areas were represented as points in the network, travel distances from homes to local commercial areas were generally overestimated. Estimated travel distances and times were added to the survey database, enabling an analysis of the effect of distance or time on travel choices. We assumed that travel distances were the same for both pedestrians and drivers.

To explore other factors behind the patterns of choices seen in the travel survey, we conducted focus groups in each of the neighborhoods in February of 1997. Participants were recruited from the respondents to the household travel survey and using a snow-ball technique to identify additional participants. We held the focus group meetings in community facilities (church, school, or community center) in each of the neighborhoods on weeknights. For Old West Austin and Cherrywood, we recruited enough participants to hold two separate discussions at the same time; in the other neighborhoods, one discussion was held. Although focus groups do not constitute a random or statistically significant sample, this method is ideally suited to generating insights into the motivations and attitudes behind travel behavior. The comments of focus group participants shed light on factors other than distance that influence the choice to shop at local stores or to walk rather than drive and reveal the logic behind the decisions residents make.

4. Use of local shopping

Local shopping areas may reduce travel by giving residents the opportunity to travel shorter distances than they otherwise would. But to what degree do residents take advantage of the local shopping opportunities available to them? What factors influence this choice, and what are the implications for vehicle travel? Travel behavior theory suggests that whether residents make use of local shopping opportunities available to them depends not just on travel distance but also whether local shops are of the type they need and the quality they want. If they are, residents have little reason to travel farther to shop. If they aren't, residents can make do with what is available locally, travel farther to get what they need or want (assuming they have the resources to do so and there are more distant alternatives), or do without, thereby gener-

Table 3. Use of local shopping areas.

	Traditional			Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood		
Percentage of residents using local business frequently ^a								
Supermarket	24%	32%	46%	31%	44%	55%	38%	
Grocery	44%	20%	21%	25%	19%	20%	26%	
Restaurant	11%	28%	10%	17%	14%	6%	15%	
Discount store	3%	11%	22%	20%	13%	12%	13%	
Convenience store	8%	15%	10%	8%	17%	5%	10%	
Drug store	21%	14%	5%	14%	1%	1%	9%	
Laundromat/Cleaners	10%	7%	5%	4%	11%	9%	7%	
Video store	5%	4%	13%	3%	5%	6%	6%	
Bakery	8%	17%	2%	5%	0%	0%	6%	
Hardware store	1%	4%	3%	3%	3%	22%	5%	
Percent using no local business frequently	9%	9%	12%	11%	9%	8%	10%	
Percent using one local business frequently	23%	21%	26%	31%	30%	30%	27%	
Percent using at least two local businesses frequently	68%	69%	62%	58%	60%	63%	64%	

^a Differences between neighborhoods significant at 1% level.

ating the same, more, or less travel, respectively. Our analysis of the survey data and focus groups results shows that residents value the opportunity to shop locally and take advantage of this opportunity but that they are rarely fully satisfied with local stores.

First, it is interesting to see which local businesses residents use most frequently. While the businesses named most frequently by survey respondents are similar for each neighborhood, the frequency with which respondents named them varies across the neighborhoods (Table 3). Supermarkets, or in the case of Old West Austin a grocery store, are the businesses named most frequently by residents of all neighborhoods. Other businesses used frequently include restaurants, Laundromat/cleaners, and discount stores. Video stores and bakeries were among the most frequently named businesses in three neighborhoods. Interestingly, only in Wells Branch did respondents name gas stations or fast food places among the top five, although other neighborhoods also have these businesses.

We explored in more depth choices about food shopping, generally the most frequent kind of shopping trip. As a type of convenience shopping, distance should play a dominant role in the choice of supermarket, at least according to theory. Both the survey and the focus groups show a surprisingly frequent use of supermarkets and other food stores (such as a small grocery store or a health food store) beyond the nearest one, however, generating significant levels of vehicle travel. These findings were strikingly similar across neighborhoods (although the differences are often statistically significant), despite important differences in the alternatives available to residents in each neighborhood.

Local food stores

While most residents usually shop at the closest food store (not counting convenience and discount stores), many do not and most at least sometimes shop at more distant food stores. The food store that survey respondents named as their “usual” food store was not always the closest one – not even usually the closest one in some neighborhoods (Table 4).² Just over one-third of Old West Austin respondents usually shop at the closest food store, probably because the closest stores are either Fresh Plus, a small grocery store, or Whole Foods, a health food supermarket. Only 22 percent of Cherrywood respondents usually shop at the closest supermarket, reflecting the mixed feelings about that store that focus group respondents expressed. If residents are not choosing the closest food store, then factors other than distance must come into play, as discussed below.

In addition, very few residents shop at only one food store, whether the usual store is the closest one or not. On average, respondents said they shopped

Table 4. Food shopping trips.

	Traditional		Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood	
Percentage naming closest foodstore ^a as usual	31%	43%	26%	n/a	48%	60%	34%
Different foodstores ^a visited in 30 days	3.0	2.7	3.3	3.2	2.5	2.4	2.7
Percent visiting in 30 days . . .							
1 foodstore ^a	7%	13%	8%	6%	16%	24%	12%
2 foodstores ^a	20%	25%	20%	20%	38%	33%	25%
3 foodstores ^a	37%	36%	25%	32%	26%	25%	31%
4 or more foodstores ^a	36%	26%	46%	42%	20%	18%	32%
Average trips in 30 days to . . .							
Supermarket	4.1	7.8	11.2	8.4	9.8	13.0	8.2
Small grocery store	4.0	0.7	1.3	1.4	0.5	0.9	1.7
Convenience store	1.4	2.1	1.0	1.1	1.3	1.9	1.6
Discount warehouse	0.3	0.3	0.2	0.4	0.7	0.6	0.4
Central market	1.9	1.2	1.8	1.2	0.5	0.5	1.3
Whole foods	3.5	2.4	1.6	2.1	0.7	0.6	2.0
Total food trips in 30 days	15.2	14.4	17.1	14.6	13.5	17.4	15.2
Supermarket trips as % of all food shopping trips	27%	54%	65%	58%	73%	75%	54%

Differences between neighborhoods significant at 1% level for all questions.

^a Includes supermarkets, grocery stores, central market, and whole foods.

at 2.7 different food stores within the last month, ranging from 2.4 different food stores on average in Tanglewood to 3.3 different food stores in Cherrywood, where 25 percent of respondents shopped at three different food stores and another 46 percent shopped at four different food stores in a period of a month (Table 4). Residents shop at many different kinds of food stores, from small grocery stores and convenience stores to discount warehouses. Two stores in central Austin have a particularly strong draw: Whole Foods, the Austin-based national chain of health food stores, and Central Market, an upscale supermarket noted for its high quality food, cooking classes, restaurant, and musical entertainment. Residents of Old West Austin live closest to Whole Foods and shop there most often, but also make frequent use of a neighborhood grocery store; their average number of food shopping trips equals the average for all survey respondents, but supermarkets make up barely one-quarter of these trips.

Factors influencing food store choice

Why do residents often choose more distant stores as their usual one, and why do they usually choose to shop at more than one store? To better understand the range of factors influencing the choice of food store, the survey asked respondents to indicate whether a list of factors potentially influencing their usual choice of food store were important or not. Residents in all neighborhoods gave proximity to home a high rating, consistent with the assumption that shoppers will tend to minimize distance, but respondents also indicated that other factors were equally important to their choice – quality of products, pleasant atmosphere, widest selection, fewest crowds, shortest lines, etc. (Table 5). The focus group discussions provided further elaboration of the complexity of factors influencing the choice of food store.

Convenience, often at odds with other factors such as low prices or quality products, still wins out for many residents. For example, a number of focus group participants from Old West Austin said they were willing to pay higher prices for the convenience of a local grocer. One resident in the neighborhood said, “Well, and even if they’re a little more expensive, I don’t mind paying that just to keep them there.” One resident of Travis Heights uses his local supermarket despite the fact that he is not satisfied with it: “I don’t like it very much, but it’s the closest big supermarket, so it’s convenient.” Another Travis Heights resident added, “We go to the closest supermarket because we can get everything we need at once. We’d rather be able to go to Whole Foods or Central Market, but with the limited time and the kids it is too inconvenient for us to do that.” A Wells Branch resident said, “The closest supermarket is much more limited, but you can pop in after work. On my way home from work I can just drive straight in, grab a few things

Table 5. Factors influencing choice of usual food store.

	Traditional		Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood	
Average score on a 5-point scale (5 = extremely important; 1 = not at all important) . . .							
Best quality products	4.1	3.8	4.0	4.1	4.0	4.1	4.0
Closest to home	3.9	4.0	3.9	3.7	4.1	4.3	3.9
Pleasant atmosphere	3.9	3.5	3.7	3.7	3.9	4.0	3.7
Widest selection	3.6	3.5	3.9	3.7	3.7	3.8	3.7
Fewest crowds	3.5	3.1	3.2	3.2	3.6	3.6	3.3
Shortest lines	3.5	3.1	3.3	3.2	3.6	3.7	3.7
It's on the way home from work/school	3.1	2.9	3.2	2.8	3.3	3.6	3.1
Best prices	3.1	3.4	3.8	3.3	3.9	4.0	3.6
Easiest parking	3.0	3.0	3.1	2.9	3.4	3.6	3.2

Differences between neighborhoods significant at 1% level for all factors.

and go home. It's much more convenient for me. You don't have all the congestion to deal with . . . in and out in 20 minutes." These comments suggest that some residents make do with the closest alternative even if they see it as less than ideal.

A variety of other factors may lure shoppers to more distant food stores. For example, prices and ease of parking were more important to respondents of the late-modern neighborhoods than to respondents of the other neighborhoods. Since residents of these neighborhoods are also more likely to drive, it is not surprising that ease of parking influences supermarket choice; a focus group participant explained her choice of supermarket by saying, "That parking lot is more user friendly." Many residents also put weight on fewer crowds and shorter lines, according to the survey results; in the focus groups, one participant said of her usual store, "There's hardly anybody in there and that's why I like it." The importance of atmosphere and other intangible qualities should not be discounted. In the focus group discussion, one participant asserted, "My wife uses our supermarket because she says it has personality." Other participants responded similarly: "Our supermarket is much less like a warehouse . . . I would rather pay an extra nickel for that ambiance." Another added, "My supermarket plays better music!" The sense of ownership these comments reflect suggests that allegiance is also an important factor.

To explore the relative importance of possible factors influencing the choice to shop at the closest store, we estimated a series of binomial logit models for the choice of usual food store (whether the usual store was the closest or not) as a function of socio-demographic characteristics and distance to the closest store. None of the estimated models correctly predicted more than 56 percent of the observed values, and all but two variables proved statistically insignificant. The results are interesting, nevertheless. The models suggested that women are less likely to shop at the closest food store, perhaps because they are more concerned about factors other than distance such as prices and quality (and, conversely, that men are more concerned about distance); on the choice factors listed in Table 5, women rated all factors except "closest to home" as more important than men did. In addition, the models suggested that the greater the distance to the closest store, the more likely residents are to shop at the closest store. In other words, if the closest store is relatively close, residents are more willing to bypass it for a more distant store; if the closest store is relatively far, residents are less willing to bypass it. The result is a Catch-22 of sorts for neighborhood grocery stores and smaller supermarkets: smaller stores can be closer to residents on average because they require a smaller market area but because they are smaller they may also be less attractive to residents than a larger store somewhat farther away.

In addition to not always choosing the closest store, residents use different

Table 6. Implications of food store choice.

	Traditional			Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood		
Average miles to . . .								
Closest supermarket	1.7	0.9	0.6	n/a	0.9	0.9	1.1	1.1
All supermarket used	2.7	1.4	1.3	n/a	1.9	1.5	1.7	1.7
Central market	3.1	5.3	2.4	n/a	12.6	12.4	6.7	6.7
Average number of supermarket trips in 30 days	4.1	7.8	11.2	8.4	9.8	13.0	8.2	8.2
Total miles if all trips to closest supermarket	13.9	14.0	13.4	n/a	17.6	23.4	18.0	18.0
Actual total miles for all supermarket trips	22.0	21.2	28.0	n/a	38.0	38.0	28.4	28.4
Percent difference	58%	51%	108%	n/a	115%	62%	57%	57%
Average trips to central market in 30 days	1.9	1.2	1.8	1.2	0.5	0.5	1.3	1.3
Total miles for trips for central market in 30 days	11.8	12.7	8.6	n/a	12.6	12.4	17.4	17.4
Usual mode for food shopping trips . . .								
Drive	80%	96%	89%	94%	100%	98%	92%	92%
Walk	19%	2%	5%	3%	0%	2%	6%	6%
Bike/Bus/Other	0%	2%	7%	3%	0%	1%	2%	2%
Average food shopping trips per week	2.7	2.1	2.4	2.2	2.0	2.4	2.3	2.3
Average driving trips for food shopping	2.2	2.0	2.1	2.0	2.0	2.3	2.1	2.1

food stores on different occasions depending on their needs at the time. An example from the Old West Austin neighborhood: “There are little fill-ins, just grab something for dinner or whatever, just hit the Fresh Plus, no big deal. For the big weekly load and all the basics, it would be Randall’s on Exposition [Road], or if we are really going all out, the one over on Bee Caves [Road], the big one. Then if we are going to get some produce, nice meats or what have you, Whole Foods or Central Market.” The story was the same in the Zilker neighborhood: “I go to Whole Foods for fresh vegetables, meat and stuff like that. For packaged goods I go to either Foodland or HEB. Sometimes I go to Sun Harvest or Wheatsville Co-op, where I am a member.” A Travis Heights participant described his grocery shopping this way: “We shop mainly at Whole Foods because I work nearby there and we like to buy organic vegetables. We go to HEB maybe once a week for an emergency or to pick up laundry soap, paper products, and stuff like that where it’s obviously cheaper than going to Whole Foods.” Rarely does one store satisfy all their needs on all occasions.

To explore the relative importance of possible factors influencing the use of multiple food stores, we estimated a series of linear regression models for the total number of food stores visited within 30 days. None of the socio-demographic variables proved significant but dummy variables for the neighborhoods did. This result suggests that the options available to residents in each neighborhood, in terms of what stores with what characteristics are located where, is the primary influence on the number of different stores they choose to patronize. We can conclude that Cherrywood residents, for example, shop at the highest number of different stores on average because they don’t like the closest supermarket (according to focus group participants) and they have many alternatives not much farther away, while Tanglewood residents shop at the smallest number of different stores on average because they have two large supermarkets close by but no other stores within a few miles. Of course, this model still explained only a small portion of the variation in the number of food stores visited.

Implications of food store choice

The fact that not all residents choose the closest food store as their usual food store and that most residents sometimes shop at food stores other than the usual one means that, on average, residents are traveling more than, in theory, they need to. For example, respondents from Wells Branch made 9.8 trips on average to supermarkets per month (Table 6). If they were to shop only at the closest supermarket, which is 0.9 miles away on average, their total (two-way) distance to supermarkets would be about 17.6 miles per month. But because they also choose to shop at more distant stores, they average 38

miles per month – almost 115 percent more miles. In Cherrywood, the difference is similar: 13.4 miles per month if respondents shopped at the closest store only, versus 28 miles because they also shop at more distant stores. Across all neighborhoods, residents may be traveling 57 percent more than they would if they shopped at only the closest store.

The fact that residents of the late-modern neighborhoods travel as far as they do to shop at Whole Foods and Central Market as often as they do is also striking – and adds considerably to the total amount of traveling for food shopping that residents do. Whole Foods is about 15 miles from Wells Branch and 9 miles from Tanglewood; Central Market is almost 13 miles from Wells Branch and just over 12 miles from Tanglewood. At an average frequency of a trip to Central Market every other month, residents are driving, on average, an extra 12 miles per month round trip just to shop at Central Market.³ Even if these trips replace a trip to the regular supermarket, the extra travel will be significant.

Of course, if the trips to Central Market or other more distant food stores are made in conjunction with trips to other destinations (such as work trip to downtown), it is possible that shopping at these more distant destinations does not itself generate additional travel. Comments in the focus groups suggest that this is sometimes – but not always – the case. A resident of Travis Heights said that where he shops “depends what part of town I’m in.” In this case, shopping at a more distant store does not add significantly to the resident’s total travel for food shopping. Other times, however, residents make an excuse to shop at a more distant store or take advantage of shopping at a more distant store to do other things in that part of town. A resident of Tanglewood explained, “We like that Randall’s over there a lot. We’ll drive over there a lot of times to get groceries but we generally combine several things at once when we go out there.” In this case, shopping at a more distant store can be blamed for increasing a resident’s total travel for food shopping.

But having a supermarket or grocery store nearby may not reduce driving even if residents use it. When the distance to the store is short, residents may go more often, partly offsetting advantage of shorter distance. Respondents from Old West Austin, with a small grocery store in the center of the neighborhood and Whole Foods on the perimeter, are only 0.4 miles on average from the nearest food store (although they are 1.7 miles from the nearest supermarket), compared to 0.6 miles for Cherrywood respondents and nearly one mile for Travis Heights, Wells Branch, and Tanglewood respondents. Respondents from Old West Austin reported making more trips to a food store each week than residents of the other neighborhoods – nearly three trips per week on average. One focus group participant from Old West Austin explained the frequency of her shopping trips this way: “I like that option, to buy food daily and not have to stock up a week ahead of time. You can

be more spontaneous, you can respond to ‘what am I hungry for today?’ and just go get it and cook it.”

Of course, residents of Old West Austin are more likely to choose walking over driving than residents of other neighborhoods, so that the average number of driving trips to food stores is about equal across neighborhoods. The problem of carrying groceries may help to explain the link between walking and more frequent trips, since a limited amount of groceries could be carried on each walking trip. Few survey respondents from the other neighborhoods said they usually do anything but drive to the supermarket. One Wells Branch resident defended his choice to drive: “It is too far to walk, and then I would have to carry something heavy back.” A parent in Travis Heights explained, “One of the reasons we don’t walk to HEB is that our children eat far too much food to carry it back,” and later explained further, “we have such a limited time.” A resident of Zilker said “I like to walk to bookstores . . . but I don’t walk for groceries.”

5. Use of alternative modes

Local shopping may also reduce automobile dependence by enabling or encouraging the use of modes other than driving, particularly walking. In some places, transit may also be an option, but most used transit systems are not designed to serve short-distance shopping trips. This seems to be the case in Austin: almost no respondents said that they usually take the bus to local shopping areas, while 18 percent said they usually walk (Table 7). We thus focused on walking as an alternative to driving. To what degree do residents take advantage of opportunities available to them to walk to local stores? What factors influence this choice, and what are the implications for vehicle travel? It is clear that a necessary condition for walking to the store is that the stores are within an acceptable walking distance. It is less clear what a reasonable walking distance is and what factors beyond distance create a sufficient condition for walking. In our analysis of survey data and focus group results, significant differences between neighborhoods suggest important factors influencing the choice to walk to the store.

Walking trips

Not surprisingly, the usual mode of travel to local stores reported by survey respondents is strongly correlated with their distance to local stores: in neighborhoods where respondents live farther away from local shopping, a smaller proportion of residents say they usually walk there (Table 7). In Old West Austin, where 82 percent of respondents live within a half mile of local

Table 7. Use of alternative modes.

	Traditional			Early modern			Late modern			Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood				
Usual mode to local stores . . .										
Drive	57%	83%	82%	83%	98%	97%			81%	
Walk	42%	15%	12%	16%	2%	3%			17%	
Bike	1%	1%	4%	0%	0%	0%			9%	
Bus	1%	1%	0%	1%	0%	0%			0%	
Other	0%	1%	1%	1%	0%	0%			0%	
Average walks to local stores in 30 days	6.4	2.1	2.1	1.7	0.7	0.9			2.5	
Percent walking to stores at least once in 30 days	79%	44%	48%	39%	22%	21%			44%	
Average walks to local stores for those living within . . .										
1/4 mile	11.2	4.8	2.7	n/a	n/a	9.3			8.1	
1/4 mile to 1/2 mile	4.4	2.4	1.4	n/a	0.8	2.3			2.7	
1/2 mile to 3/4 mile	5.7	1.3	2.9	n/a	0.5	0.6			2.1	
3/4 mile to 1 mile	1.0	0.4	0.9	n/a	1.3	1.2			1.1	

Differences between neighborhoods significant at 1% level for all questions.

shopping, 42 percent of respondents said they usually walk to local shops and stores, while in Travis Heights, where only 46 percent of respondents live this close to shopping, only 15 percent of respondents said they usually walk. In both early-modern neighborhoods, somewhat more than 15 percent of respondents said they usually walk or bike to local shops. In the late-modern neighborhoods, neither walking nor biking is prevalent – over 97 percent of respondents said they usually drive to local commercial areas.

The survey also asked residents about the frequency with which they walk to a local store or commercial area (Table 7). On this question, the differences between the neighborhoods were also dramatic and again correlated with distance to local shopping. Respondents in late-modern neighborhoods walk to a store less than once per month on average. Respondents in Zilker averaged about 1.7 times per month and respondents in Cherrywood and Travis Heights averaged about 2 times per month. Respondents in Old West Austin, in contrast, averaged over 6 times per month or more than once per week, and nearly 80 percent of respondents said they walked to a store at least once in the last 30 days. Old West Austin differs significantly from the other traditional neighborhood, Travis Heights, in this respect.

Factors influencing walking choice

Why such a dramatic difference in Old West Austin? More households in Old West Austin are within walking distance of shopping areas but that doesn't explain it all. According to the survey results, residents who live within a quarter mile of a local commercial area walk to the store more frequently than their neighbors (Table 7). But the average frequency for those living within a quarter mile of a store varies significantly between neighborhoods, ranging from a high of 11.2 walks per month for residents of Old West Austin to a low of 2.7 walks per month for Cherrywood residents. Both the survey, which asked respondents whether they agreed with a series of statements about their local shopping areas (Table 8), and the focus groups suggest some of the factors that may explain this difference.

One important factor besides distance is the quality of the connection between residential and commercial areas, in particular whether residents would have to cross a busy arterial to reach the store (Table 8). In the focus groups, residents of several neighborhoods stressed this problem. Travis Heights residents, for example, like to walk to the shops in their neighborhood but cited South Congress Avenue as a dangerous obstacle and expressed their desire for more pedestrian-friendly elements such as a traffic island or a longer light at the crosswalks. Said one Travis Heights resident: "Getting back and forth across Congress is not a simple thing any more." Old West Austin residents, who do not have to cross an arterial to reach most local businesses

Table 8. Perceptions about local commercial areas.

	Traditional		Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood	
Agreement on a 5-point scale (5 = strongly agree; 1 = strongly disagree) that . . .							
Store factor:							
Local stores meet my needs	4.0	3.4	3.7	2.4	3.6	4.1	3.6
The quality of local stores is high	4.2	3.0	3.4	2.4	3.5	4.0	3.4
Walking incentive:							
The closest store is within a reasonable walking distance	4.5	3.4	4.1	3.4	3.0	3.5	3.7
It is hard to park at local stores	2.4	2.8	2.7	2.2	2.6	2.6	2.6
Walking comfort:							
I am comfortable walking around local shopping areas	4.3	3.6	3.7	3.6	3.9	3.9	3.9
I feel safe walking from my house to local stores	4.5	3.7	3.7	3.8	3.5	3.4	3.8
I have to walk along busy streets to access local stores ^a	3.0	3.9	3.8	3.1	3.8	3.7	3.5
I have to cross a busy street to access local stores ^a	3.0	4.2	4.1	3.0	4.1	2.8	3.5

^a Responses inverted in calculating factor score.

Differences between neighborhoods significant at 1% level for all questions.

but would have to cross an arterial to reach Whole Foods and several other popular destinations, expressed similar concerns: “You can’t go across Lamar [Blvd.]. You can’t go across Sixth Street. I mean you can, but you’re taking your life into your hands.” One resident’s strategy for crossing the street is to “run like hell.”

Whether or not pedestrians feel comfortable walking around local shopping areas is also an important factor, suggesting that design and pedestrian infrastructure can influence the choice to walk. One Cherrywood resident said, “When you get there, there’s no place for pedestrians. It’s all parking lot.” Another added, “I usually drive. The fact is, the only real concentration of retail we have is an automobile-oriented shopping center.” A third complained that “there’s no back way into it.” Zilker residents said they don’t feel safe walking along their commercial arterial, despite the sidewalk: “You’ve got the car speeding past on one side . . . and if you want to get to the business, you have to walk through the parking lot where the cars are milling around.” The unattractive environment also makes a difference: “Lamar Boulevard is just an ugly street and it’s really busy . . . it’s really hard for people to walk,” one Zilker resident said.

In most neighborhoods, only the hardiest of walkers overlooks the negatives. Among the six neighborhoods, Old West Austin was the only exception, a place that may actually encourage a walk to the store. In the survey, Old West Austin respondents agreed strongly with positive statements about their local shopping areas and disagreed with negative statements. In the focus groups, residents discussed design elements that make it easier to walk: “everything is geared toward pedestrians . . . you can walk to the store. It’s a small scale grid [the street layout]”; “I like it if they [local businesses] don’t have huge parking lots, because you don’t want to be walking across that asphalt . . . Most of them are really street oriented. You don’t have to walk through a parking lot to get to the door.” Another resident said, “I feel comfortable walking to any of the businesses in the neighborhood.”

To test the importance of distance relative to these factors and to demographic characteristics in explaining the frequency of walking to the store, we developed a series of linear regression models (Table 9). First, responses on the questions about characteristics of the local shopping areas were combined into three “urban form” factors: stores (quality high, meets needs), walking incentive (within walking distance, hard to park), and walking comfort (comfortable walking around area, safe walking to area, walk along busy streets, cross busy street). These factors reflect respondents’ perceptions about the local shopping area as both consumers and pedestrians. Second, models were estimated using different combinations of possible explanatory variables. In addition to distance to the nearest store, variables tested included a variety of socio-demographic characteristics, the three urban form factors, and the

Table 9. Models for frequency of walks to the store.

Variable	Model 1		Model 2		Model 3	
	Coef.	Signif.	Coef.	Signif.	Coef.	Signif.
Age	-0.04	0.00	-0.04	0.00	-	-
Worker	-	-	-	-	-	-
Kids < 5 years	-1.00	0.04	-0.83	0.07	-	-
Female	-0.77	0.02	-0.87	0.01	-	-
Income	-0.32	0.01	-0.33	0.01	-	-
Miles to store	-3.81	0.00	-2.42	0.00	-2.89	0.00
Stores	0.76	0.00	0.61	0.00	-	-
Walking incentive	0.54	0.01	0.61	0.00	-	-
Walking comfort	0.91	0.00	0.35	0.10	-	-
Strolling freq.	0.11	0.00	0.11	0.00	0.12	0.00
Old West Austin	-	-	3.25	0.00	3.99	0.00
Constant	0.23	0.86	0.94	0.45	2.24	0.00
R square		0.24		0.29		0.25

frequency of strolling around the neighborhood, included to reflect the respondent's basic preference for walking. Dummy variables for the neighborhoods were also included in some models to test for the importance of additional characteristics of the neighborhood or of the residents of the neighborhood not captured by other explanatory variables.

Model 1 shows that distance to the store is highly significant as a predictor of trip frequency: each mile of distance means a reduction of nearly four trips per month – or about one trip per quarter mile of distance. This model also shows that respondents who are older, live with young children, are women, or have higher incomes tend to walk to the store less frequently than others. Each of the factors representing characteristics of the local shopping area is also significant predictor of shopping frequency: the more positively respondents rated these factors, the more likely they were to walk. Finally, the frequency of strolling around the neighborhood (rather than walking to the store) is also significant, suggesting the importance of preference for walking in explaining the frequency of walking to the store. Together these variables account for just 24 percent of the variation in walking frequency, however.

In addition to these variables, Model 2 includes the dummy variable for the Old West Austin neighborhood, the only neighborhood variable that proved significant. This variable increases the explanatory power of the model to

29 percent and suggests that the other variables fail to capture important characteristics of either the neighborhood or its residents in explaining their relatively high frequency of walking to the store. Model 3, which includes only distance to the store, strolling frequency, and the Old West Austin variable, has slightly higher explanatory power than Model 1. What is different about Old West Austin or its residents? One possibility is self-selection: that residents who like to walk to the store consciously seek out a neighborhood where they have that option. In fact, when asked about the importance of different factors in their decision about where to live, survey respondents from Old West Austin were significantly more likely to rate “stores within walking distance” an important factor. In other words, Old West Austin appears to attract a greater share of residents who like to walk to the store, thus explaining at least in part their greater tendency to do so.

Other evidence also points to the importance of attitude in the choice to drive or not. For example, one focus group participant said, “I try to avoid getting into my car unless I absolutely have to,” while another one said, “I am NOT going to ride the bus. Period.” Indeed, comments by residents of the late-modern neighborhoods suggest that they don’t generally even consider walking to the store, whether because of distance or design or preferences. Said one woman in Tanglewood, “I guess I never even thought about it. I just jump in the car.” A Wells Branch resident said, “I usually drive [to the convenience store] but it’s not more than a block to a block and a half away. Usually I stop on the way back from somewhere else.” A Wells Branch resident described it this way: “I don’t know. I guess you are so attuned to just get into your vehicle and drive to your destination as quickly as possible and get back. If you are actually going out for a walk or some exercise, you are at a slower pace and a different mindset. You just actually enjoy yourself.” All of these residents, however, walk frequently within the neighborhood.

The role of attitudes and preferences can also be seen in the choice of Old West Austin residents to grocery shop more frequently and to walk to the grocery store more frequently. A resident explained his choice to walk to the nearby grocery store even if prices are higher: “With Whole Foods located on the edge of the neighborhood, even if the prices are a little higher, I think it’s great. So, I can live without driving in my neighborhood. I can get everything I need by foot.” Another resident explained, “I always walk to the grocery store, and if I have too many groceries I just take a cab,” instead of driving herself to begin with. Sometimes the decision to drive has more to do with attitudes about the store that is within walking distance than about walking itself. One Travis Heights resident explained his decision to drive, “I think the only thing we don’t walk to is the supermarket because there’s not really a good one within walking distance.” Having a store within walking distance is not enough to ensure that residents will choose to walk there,

Table 10. Alternative to last walk to store.

	Traditional			Early modern		Late modern		Total
	Old West Austin	Travis Heights	Cherrywood	Zilker	Wells Branch	Tanglewood		
If unable to walk, percent of respondents who would have . . .								
Driven to same place	64%	67%	63%	58%	68%	67%	64%	
Driven to different place	8%	6%	12%	10%	9%	2%	8%	
Stayed at home	13%	11%	13%	12%	14%	15%	13%	
Taken transit	2%	2%	2%	3%	0%	3%	2%	
Other	2%	6%	2%	4%	4%	4%	4%	
Not sure	10%	9%	10%	13%	6%	8%	10%	
Average walks to local stores in 30 days	6.4	2.1	2.1	1.7	0.7	0.9	2.5	
Average miles to nearest store ^a	0.37	0.44	0.48	n/a	0.75	0.93	0.57	
Estimated savings in miles driven in 30 days ^a	3.4	1.3	1.5	n/a	0.8	1.2	2.1	

^a Differences between neighborhoods significant at 1% level.

let alone shop there. Given an alternative, residents will often choose an alternative.

Implications of walking choice

It's tempting to assume that when someone walks to the store, they do so instead of driving – that walking substitutes for driving. If so, every walk to the store means a little less driving and a little less gas consumed and a little less pollution emitted. But, people may sometimes walk to the store solely as an excuse for walking; they may not have really needed to go there and would not have gone if the only choice had been driving. Figuring this out is not easy or straightforward, however. Showing that Old West Austin residents, who walk to the store more than residents of other neighborhoods, also drive less than residents of other neighborhoods isn't enough – maybe they drive less for other reasons altogether. To get more directly at the issue of substitution, the survey asked respondents to think back to when they last walked to a store and what store they walked to. Then, for this trip, the survey asked them to speculate on what they would have done had they not been able to walk that day, for whatever reason.

When asked what they would have done had they not been able to walk that day, three-fourths of respondents in all neighborhoods said that they would have driven to that store or another store, rather than not making the trip, or taking transit, or some other alternative (Table 10). In other words, most of the walks to stores did in fact appear to substitute for driving. This suggests that if residents are given the opportunity to walk to the store, they will at least sometimes choose to walk rather than drive. Of course, even under the most optimistic of assumptions, the savings in vehicle-miles will not be great: 77 percent of 6.3 trips per month, in Old West Austin, at 0.4 miles to the nearest store means that residents save on the order of 3.4 miles of driving on average per month. This is better than nothing, but is clearly not a cure-all to problems of automobile dependence. In addition, 13 percent of respondents said they would have stayed at home rather than making a trip, suggesting that the opportunity to walk in some cases induces trips that would otherwise not be made – like when a local store serves as an excuse to walk, the means to the end rather than the end itself.

Participants in the focus groups made several comments that suggest this possibility. Residents often walk both for exercise and to get somewhere, and in some cases, the former motive is the more important one and the destination is simply an excuse to walk. Said one Travis Heights resident, “Often I will opt to walk just for the sake of walking and people-watching up and down Congress [Avenue]” – not likely that this resident would drive on these occasions if he weren't able to walk. As a woman in Tanglewood

said of her husband, “He walks down there a lot. He will walk to the HEB to pick up a few things . . . Makes it part of his exercise.” In these cases, walking trips are not a substitute for driving. In other cases, the motive of getting to the destination is the more important one and provides an opportunity to walk. If that Tanglewood husband really needed something at the store but weren’t able to walk, he would drive there instead. The bottom line is that it is often difficult to separate the motivations and know whether or when walking leads to less driving.

6. Conclusions

It appears, then, that local shopping will not prove a particularly effective strategy for reducing automobile dependence in the typical US city by either reducing travel distances or encouraging alternative modes of travel. Residents of such places choose more distant stores enough of the time that they increase total driving significantly, and they don’t choose alternative modes enough of the time that they reduce total driving significantly.

First, while residents do make use of local stores, their usual choice for something like food shopping is not always the closest store and most residents usually shop at more than one store anyway. Distance factors into their decision about where to shop but many obvious and less obvious factors come into play, including intangibles such as atmosphere and allegiance. To complicate matters, the relative importance of different factors varies not only from resident to resident but also for each resident on different occasions so that one nearby store is unlikely to meet the needs of more than a fraction of all shopping trips and may actually increase the total number of trips. If the closest store could capture a higher share of trips, however, the travel savings could be considerable: total travel for food shopping may be as much as 50 percent higher because of the decision to shop at stores beyond the closest one.

Second, most residents walk to local stores only occasionally, if at all. The one exception was Old West Austin, where residents walk to the store three or more times as frequently on average as residents of other neighborhoods. Shorter distances to local stores explain some of this difference, and the design of local shopping areas also seems to help or hinder. But the attitudes of neighborhood residents explains much of the difference: residents of Old West Austin like to walk to the store and they live there at least partly because they do. In other words, having the option to walk to the store is to some extent an effect of the desire to walk to the store. Simply having the option to walk without also having that desire may not be enough to cause a significant amount of walking. Even when residents walk to the store relatively

frequently, the reduction in driving is likely to be small: the trip distances involved are short and some of the walking trips are made in addition to rather than instead of driving.

But there's another conclusion we can reach: local shopping may not do much to reduce driving but it does give residents the option to drive less and this option is something residents clearly value. Throughout this study, residents expressed the importance to them of local shopping. Said one Old West Austin resident, "I like being close to, well, virtually everything I'm interested in doing except for the occasional movies." Another said, "I love being so close that I can either walk or drive very quickly to just about everything I want to do." A third resident said, "My world is this neighborhood as much as I can make it because it's all here . . . it's just all here." Not only do local businesses provide convenience and the opportunity to walk, they often play an important role in fostering a sense of community in the neighborhood. Local shopping does not show great promise as a strategy for reducing automobile use, but it does show promise as a strategy for enhancing quality of life in neighborhoods, at least partly by making driving once again a matter of choice.

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Notes

1. The TRANPLAN suite of transportation forecasting programs is licensed by the Urban Analysis Group, Danville, CA.
2. The results are reported for the 90 percent of respondents who said they conduct half or more of their household's grocery shopping.
3. Since the completion of this survey, an additional Whole Foods store has opened much closer to Wells Branch and an additional Central Market store has opened only a few miles from Tanglewood.

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