



Video Transit Training for Older Travelers: A Case Study of the Rossmoor Senior Adult Community, California



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VIDEO TRANSIT TRAINING FOR OLDER TRAVELERS: A CASE STUDY OF THE ROSSMOOR SENIOR ADULT COMMUNITY, CALIFORNIA

The transit-use video referred to in this publication is available online at:
www.path.berkeley.edu/path_downloads/Video/IMR/Rossmoor-Final.mpg

March 2007

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EXECUTIVE SUMMARY

The United States faces the imminent challenge of providing transportation services to a new and vastly larger population of older travelers. There are currently about 34 million senior citizens, and this population is expected to more than double by the year 2030, comprising 20 percent of the nation's population.¹ The next generation of older travelers, baby boomers aged 45 to 64, are most likely to live in the suburbs (52 percent) and less likely to live in urban (27 percent) or rural (21 percent) areas.² It is well known that activity destinations are less likely to be accessible by transit in suburban areas than urban ones because of differences in intensity of land use. However, in both urban and suburban environments older people travel most frequently by auto (74 percent in urban areas and 91 percent in the suburbs) and much less frequently by transit (8 percent in urban areas and less than 1 percent in the suburbs).³ Cognitive and physical limitations associated with aging can lead to declines in driving performance and safety, particularly after the age of 75. Moreover, driving cessation and reductions in out-of-home activities are significantly related to serious health problems, including heart disease, strokes, fractures, and cognitive impairments.⁴

In response to driving difficulties, older travelers might be expected to turn to transit; however, many cannot for the simple reason that transit services are not available in their neighborhoods.⁵ Nevertheless, there is evidence that a significant number of older travelers would not use transit even if services were improved.⁶ For many older individuals, using transit is a new or unfamiliar experience that presents numerous physical and cognitive challenges.⁷ As a result, older adults may require additional instruction and information on how to use transit. Both national and state studies on senior transit use have recommended the development of “mobility planning and training programs”⁸ and “education and outreach programs”⁹ to address the transit-related information needs of older travelers.

In this study, the principles of social learning and marketing are applied to develop a transit training video for residents of the Rossmoor senior adult community in Walnut Creek (East San Francisco Bay Area, California).¹⁰ The video features familiar community members successfully navigating specific concerns and problems, as identified in the literature review and focus groups, related to available transit to key community destinations. Residents were recruited to complete surveys before and after viewing the video. The results of surveys completed before reviewing the video provide some insight into respondents' travel-related experiences, preferences, and constraints:

- Approximately 90 percent use autos as their primary travel mode, are able to drive, and have a vehicle available for their household's use; however, these proportions tend to decline with respondents' age.
- Before moving to Rossmoor, about 60 percent had lived in a community where they used transit with some regularity; this proportion tends to increase with respondents' age.

- Approximately 13 percent use transit as their primary travel mode, and 36 percent use it two or more times a week.
- Most participants indicated that transit travel time, lack of door-to-door service, and transfers are significant barriers to transit use; as a result, the most popular improvements are more frequent service, better connections, and more direct routes.

In addition, comparisons were made of the results of the surveys completed before and after viewing the video to explore the video intervention's effectiveness for promoting transit use among older travelers:

- The video messages that educated viewers about how to obtain information on transit schedules, costs, and payment generated a significant and positive attitudinal change; however, those that addressed difficulties with reading schedules and climbing stairs did not, perhaps because these tasks require a level of physical ability that cannot be fully addressed by the video.
- After viewing the video, respondents indicated a significant and positive change in transit use to the specific destinations portrayed in the video; however, results are mixed for transit travel to more general destinations that are not explicitly portrayed in the video.
- The video also educated viewers about a broader range of information sources, such as the Internet and 511.org (a free phone and Web service that consolidates area transportation information). After viewing the video, respondents indicated a significant and positive change in their future stated use of these information sources.

Future research is recommended to examine changes in actual transit use after viewing the video, for example, by employing control groups and longitudinal analyses, and to compare the relative effectiveness, in cost and behavioral change, for example, of the transit training video to other social learning and marketing interventions.

INTRODUCTION

The United States faces the imminent challenge of providing transportation services to a new and vastly larger population of older travelers. There are currently about 34 million senior citizens, and this population is expected to more than double by the year 2030, comprising 20 percent of the nation's population.¹ The next generation of older travelers, baby boomers aged 45 to 64, are most likely to live in the suburbs (52 percent) and less likely to live in urban (27 percent) or rural (21 percent) areas.² It is well known that activity destinations are less likely to be accessible by transit in suburban areas than urban ones because of differences in intensity of land use. However, in both urban and suburban environments older people travel most frequently by auto (74 percent in urban areas and 91 percent in the suburbs) and much less frequently by transit (8 percent in urban areas and less than 1 percent in the suburbs).³ Cognitive and physical limitations associated with aging can lead to declines in driving performance and safety, particularly after the age of 75. Moreover, driving cessation and reductions in out-of-home activities are significantly related to serious health problems, including heart disease, strokes, fractures, and cognitive impairments.⁴

In response to driving difficulties, older travelers might be expected to turn to transit; however, many cannot for the simple reason that transit services are not available in their neighborhoods.⁵ Nevertheless, there is evidence that a significant number of older travelers would not use transit even if services were improved.⁶ For many older individuals, using transit is a new or unfamiliar experience that presents numerous physical and cognitive challenges.⁷ As a result, older adults may require additional instruction and information on how to use transit. Both national and state studies on senior transit use have recommended the development of "mobility planning and training programs"⁸ and "education and outreach programs"⁹ to address the transit-related information needs of older travelers.

In this study, the principles of social learning and marketing are applied to develop a transit training video for residents of the Rossmoor senior adult community in Walnut Creek (East San Francisco Bay Area).¹⁰ This location was selected as the number of senior communities is on the rise in California, and residents in these locations may have distinct travel patterns and needs. Programs based on social learning and marketing theory have been used recently in Australia, Seattle, and Portland to reduce auto travel and encourage transit, walking, and cycling travel. Preliminary results suggest that these programs have changed travel behavior and are very cost effective.

This report begins with a literature review on the demography and mobility of older adults, transit barriers and preferences, and relevant social learning and marketing theory applications. Second, the authors review the study methodology. Next, exploratory focus group findings are presented, capturing residents' experiences and transit perceptions. Third, the authors review the survey results and discuss the video's effectiveness. Finally, conclusions are provided.

LITERATURE REVIEW

In this section, the authors review three key areas of literature relevant to this study: demography and mobility of older adults, transit barriers and perceptions, and social marketing and learning applications.

DEMOGRAPHY AND MOBILITY OF OLDER ADULTS

Numerous sources document the demographic trends driving the growing challenge of providing transportation services to a new and larger generation of older travelers.¹¹ In the United States, there are approximately 34 million senior citizens at present, and this population is expected to more than double by the year 2030, comprising 20 percent of the nation's population.¹² In California, 3.5 million people are currently over the age of 65; this constitutes 12 percent of the total state population.¹³ By the year 2040, the senior population is expected to grow by 172 percent (from 2000), and most of this growth is expected to occur in the next 20 years.¹⁴

Although auto use is lower in urban areas than in suburban and rural ones, it is still the most commonly used travel mode of seniors. According to an analysis of the 1995 National Personal Transportation Survey (NPTS), driving a car was the mode of choice for 53 percent of all trips made by older people in urban areas, 70 percent in suburban areas, and 66 percent in rural areas. The second most common mode for seniors was as a passenger in an auto: 21 percent in urban and suburban environments and 25 percent in the rural environment.¹⁵ In total, older individuals used the car for 74 percent of all trips in the city and 91 percent of total trips in the suburbs and countryside. Public transit constituted only 8.2 percent of all senior trips in urban areas and less than 1 percent in suburban and rural areas.¹⁶

Until the age of 85, private-car travel accounts for nearly 90 percent of all trips. In the 85-and-older cohort, travel by private car decreases by about 10 percent, and walk and taxi modal shares increase.¹⁷ Nevertheless, across successive cohorts, there is an increasing shift from driving a private car to becoming a passenger in an auto.¹⁸

Older individuals often find certain driving situations exceptionally challenging. After the age of 75, driving performance begins to decline because of increased stimulus-reaction time, declines in visual cognitive performance, and medication effects.¹⁹ Car crash statistics indicate that the fatality rate of seniors increases between the ages of 55 and 70, and this increase occurs exponentially after the age of 65.²⁰ McKnight identifies specific mental processes that are exceptionally difficult for senior citizens while driving: attention sharing, judging gaps in traffic, conducting visual searches, navigation, and motor control.²¹ Attention sharing is frequently a required skill for making left-hand turns because the driver must watch multiple events at once.²² A survey of older travelers in San Diego, California, also found that the greatest perceived driving challenges involved making left-hand turns and managing yield

situations.²³ Motor control deficiencies involve events like misapplications of the accelerator or wide swings around corners.²⁴

As a result of physical, cognitive, and financial challenges, driving cessation—either forced or voluntary—is inevitable for older travelers who live long enough. Aside from cessation caused by a discrete event such as a crash or an illness, there also appears to be a process of cessation. Focus groups, conducted in Florida, Maine, and Maryland, suggest that older drivers begin the cessation process by restricting trip variety and increasing trip chaining.²⁵ Recreational trips, which are also the types of trips that older travelers are likely to value most highly, are generally the first trip types to be eliminated.²⁶ Personal driving is typically replaced by passenger trips that are provided by a family member or friend. Many seniors appear to dislike the feelings of dependence that accompany increases in these trips.²⁷

Other research that examines the consequences of driving cessation has focused on the health changes people experience once they stop driving. A core study in this area by Marottoli et al. reviews past research and concludes that after adjusting for socio-demographic and health-related factors, driving cessation is still associated with a further decrease in out-of-home activities.²⁸ The direct health effects of driver cessation are associated with a more inactive lifestyle, which increases the risk of heart disease, stroke, and fractures.²⁹ More recently, a decrease in out-of-home activities has been linked to declines in cognitive abilities as well.³⁰

TRANSIT BARRIERS AND PREFERENCES

A number of studies in recent years have attempted to explore the reasons why older travelers do not take transit, even if it is available to them.³¹ In general, the study results suggest a number of significant concerns:

- Lack of direct service to local destinations
- Limited transit service hours during off-peak periods and on weekends
- Multiple transit connections
- Transit service that is not prompt or reliable
- Physical discomfort related to climbing stairs, paying fares, walking to and standing at stops, and standing during bus rides
- Fear of crime, including while waiting for buses after dark, using park-and-ride lots, and riding on buses after dark
- Difficulty understanding how to use transit

Many of these studies have also recommended strategies to encourage transit use among older individuals. It appears that while all transit users respond favorably to service improvements, seniors may place more value on enhancements to their physical and psychological comfort, safety, and access to local destinations.³² Recommendations have been made to improve information access by making maps and schedules available at bus stops and improving

general and real-time telephone information.³³ In addition, service limitations may be addressed through shared-ride, demand-responsive services.³⁴ Friendly and patient transit drivers may make the transit experience for older riders more pleasant and comfortable.³⁵ Finally, Burkhardt et al. note that older travelers may be less familiar with transit and may have physical and cognitive challenges that make it more difficult to use. As a result, older travelers may need a higher level of support (e.g., information and assistance) to increase their transit use.³⁶ Burkhardt et al. recommend “developing mobility planning and training programs to help older persons make a transition from driving to public modes of travel.”³⁷ A recent report sponsored by the California Department of Transportation on the use of public transit by nontraditional riders also recommended the development of “senior education and outreach programs.”³⁸

APPLICATIONS OF SOCIAL LEARNING AND MARKETING THEORY

Social learning theory emphasizes a continuous interaction among behavior, personal factors, and environmental determinants and bridges the gap between cognitively oriented, rational decision-making models and behavioral theory. The relative influence of each factor is different for various settings and behaviors. The environment can influence behavior by making it easier for individuals to act. A distinguishing feature of learning theory is that “symbolic, vicarious and self-regulatory processes assume a prominent role.”³⁹ For instance, an individual might observe another person’s behavior, reproduce it, and in replicating it, reinforce the modeled behavior.

Kotler et al. define social marketing theory as “the use of marketing principles and techniques to influence a target audience to voluntarily accept, reject, modify, or abandon a behavior for the benefit of individuals, groups, or society as a whole.”⁴⁰ Social marketing builds upon and employs several social learning theory principles. For instance, media (e.g., modeling videos and articles) can be used to stimulate learning by targeted groups, and modeling can help develop an individual’s sense that he or she can perform a new behavior. Similarly to social learning theory, social marketing supports a gradual or dynamic approach to behavioral adoption of a new product, concept, or service. Individuals move through definable stages in adopting a new product.⁴¹ There are four stages in Andreasen’s social marketing behavioral adoption process: (1) precontemplation, (2) contemplation, (3) action, and (4) maintenance.⁴²

In the field of transportation, there have been a number of applications that test aspects of social learning and social marketing theories. One study tested the effect of different types of information, such as storytelling and fact sheets, on knowledge and attitudes related to carpooling.⁴³ At five employment sites (645 employees), the “story-based intervention was compared to a fact-sheet-based intervention and to a control.”⁴⁴ The results indicated that participants who received the information, regardless of its type, “felt more comfortable with their carpool knowledge and felt that they had adequate knowledge to guide them in discussions and problem solving” and “the more interesting text was associated with greater

perceived knowledge, greater confidence and comfort with knowledge, and increased willingness to try carpooling.”⁴⁵

Another study explored the effect of three interventions (information, task assignment and control, and feedback) on the attitudes, social norms, and behavior of mail-van drivers in a Netherlands postal district.⁴⁶ The objective of the interventions was to change driving behavior to reduce energy consumption. A field experiment was conducted to test the effectiveness of the interventions. The information intervention included an instructional film and a booklet. The task assignment and control intervention included additional information, commitment, and follow-up with respect to driving behavior and energy consumption. The feedback intervention included weekly information on the change in energy consumption by the drivers. The study indicated that “attitudes, social norms, and reported behavior changed, and energy savings of more than 7 percent were achieved compared with a control group.”⁴⁷

Another study employed modeling techniques in a television campaign to promote gasoline conservation behaviors in three New South Wales (Australia) cities.⁴⁸ The program was implemented in two cities for four weeks, and the third city was the control. Before-and-after surveys were administered to about 400 randomly selected respondents in each of the two cities. The campaign used two different themes. The first, saving money, tested the effectiveness of economic incentives. The second, good citizenship, tested the effect of social norms on behavior. “The results showed that the pro-petrol conservation films, regardless of theme (saving money or good citizenship), had small but statistically significant effects on most measures of attitudes and beliefs, intention to save petrol in the future, and self-reported conservation behavior.”⁴⁹

Shaheen developed several informational media: a brochure, a video, and a trial clinic to introduce a new car sharing service, and found that willingness to use the service was influenced by the amount and type of exposure.⁵⁰ Informational media were used to teach targeted groups, and behavioral modeling (e.g., the video and clinic) was used to develop participants’ confidence in adopting new behaviors. Participants who only read the brochure lost interest over time, while a large majority of those who read the brochure, watched the video, and participated in the clinic stated that they would use the carsharing service.

More recently, programs like TravelSmart in Australia, Seattle, and Portland draw on the social learning concept of self-efficacy by emphasizing personal involvement to change behavior. The hypothesis is that greater participant engagement or interaction produces a stronger motivation to change behavior. For example, children are given decals for bicycles and lunch boxes to encourage awareness of and changes in travel behavior. To encourage transit use, program participants have been offered system experience and motivation (or promised rewards). Preliminary results of these pilot programs suggest that they have changed travel behavior and that the interventions can be very cost effective.

ROSSMOOR SENIOR ADULT COMMUNITY

The Rossmoor senior adult community was founded in 1963. It is located in suburban Contra Costa County near the City of Walnut Creek, California. As of 2005, the community had a population of 9,233 with 6,700 rental units on 2,200 acres of land. The types of residences included in this community are cooperatives, condominiums, and single-family developments. To be eligible to live in the community, at least one household member must be 55 years of age or older. Residents' income tends to be higher than the average for their age cohort. Community facilities include three clubhouses, a medical center, a gymnasium, and pools. The community also supports a newspaper and a television broadcasting channel. Most residents in the community have access to a personal vehicle. In addition, residents can access the Rossmoor bus (fixed-route and dial-a-bus, after-hours services) within Rossmoor and to connect to the County Connection bus system⁵¹ that takes travelers to locations outside of Rossmoor including downtown Walnut Creek and the local Bay Area Rapid Transit (BART) district rail transit station.

METHODOLOGICAL APPROACH

Researchers began the study with two exploratory focus groups with older individuals from the Rossmoor community in October 2005. The focus groups were conducted to explore participants' use, experience, and perceptions of transit (or self-efficacy). In addition, the groups explored factors influencing transit-related self-efficacy, including physical and cognitive challenges, transit familiarity, and peer transit perceptions. Finally, participants were asked to respond to and suggest alternative interventions that might address factors that negatively influence transit-related self-efficacy.

Based on the literature and focus groups, the authors developed an informational transit training video specific to Rossmoor (vs. a more general transit video). The video features older individuals from the community who are relatively well-known and liked. It shows how these residents successfully navigate specific concerns and problems related to traveling by available transit methods to key destinations (downtown Walnut Creek, John Muir Medical Center, and the nearest BART station).

Researchers conducted three video showings during the months of June and July 2006, in which survey instruments were distributed before and after participants watched the video. The surveys assessed respondents' experience, use, and perceptions of transit before and after seeing the video. Participants were recruited from the community by distributing flyers announcing the showing and a gift certificate lottery incentive. One hundred and twenty-nine surveys were completed.

The instruments used for the focus groups and in the surveys are included as Appendices A, B, and C.

FOCUS GROUP FINDINGS

At the start of the focus groups, researchers administered an intake questionnaire to identify demographic attributes of respondents. Participants in the two focus groups included 6 men and 16 women. Most are between the ages of 65 and 85; are married; have a college education; and use a mobile phone, the Internet, e-mail, or a combination of the three. The median income of the participants is \$50,000 a year.

The focus group moderator asked participants to share their travel experiences. Prior to moving to Rossmoor, nine participants traveled primarily by auto; eight traveled largely by auto but used transit to commute to work; and three lived in large cities (New York and San Francisco) and almost solely traveled by transit. Since moving to the Rossmoor community, most travel primarily by auto and only use BART to go to San Francisco. Four participants noted that they do not use transit much, but they do “walk a lot.” However, most reported that they are “highly confident” taking transit during the day; three conveyed medium confidence, and one indicated a low confidence level. Most stated that they are less comfortable taking transit at night unless traveling in a group.

Many of the transit attributes favored by participants are common to all travelers and not just older adults, including fast travel times, low travel costs, safety, and comfort. More specifically, focus group participants identified the following positive attributes of transit as compared to the automobile:

- Avoiding congested and busy roadways
- Faster travel times to certain destinations
- Saving money on parking, bridge tolls, and gas
- Avoiding parking in areas where it is difficult or limited
- Relaxing (i.e., do not have to drive and can read or work)
- Safer at night
- Better for the environment (e.g., air quality)

Participants also noted that transit access is very important, particularly when an individual has no car and cannot drive due to a medical condition or revoked license. The merits of transit were discussed largely in the context of challenging driving situations, such as congestion, fast roadway speeds, and impaired night vision.

Focus group participants also described transit attributes that they do not like. One category of general dissatisfaction is transit service. Most participants had the following criticisms of it:

- Transit frequently does not go when or where they want to go
- Making transit connections is difficult
- Direct service to key destinations is lacking

Individuals also expressed concerns regarding their physical comfort, safety, and security on transit, including the following:

- Carrying large or many packages on transit
- Climbing stairs
- The operational status of station elevators
- Lack of comfortable seating on transit and at stations and stops (e.g., bikes and passengers who occupy senior seating areas)
- Locked station restrooms
- Limited security on transit and at stations and stops, particularly at night

Focus group participants suggested a number of transit-service-related improvements:

- Improved transit connections (particularly to BART)
- More frequent service
- Senior fare discounts
- Shorter walking access and egress to transit stops or stations (door-to-door services)

Participants also suggested improvements that would address their physical concerns regarding transit use:

- Upcoming stops should be clearly announced by drivers
- Clear transit signs are needed at stops, stations, and different station levels
- Drivers should be more helpful and sensitive to older travelers' physical limitations
- Seats should be comfortable (i.e., not hard or slippery)
- Seats should have seat belts
- Equipment is needed for wheelchair access
- Steps should be shallow rather than deep

They made a number of suggestions to improve older travelers' knowledge and confidence using transit. These included improved transit information and dissemination:

- Better fare and schedule information (e.g., "exact fare so seniors can be prepared," bus schedules at stops, and clearly printed bus schedules)
- Personal communication of information (e.g., staffed information booths at BART and no automated telephone recordings)
- Information available from a person on the phone or station booth, the Internet (e.g., "MapQuest for transit"), and brochures

It is interesting to note that none of the participants had ever heard of 511.org, an Internet source for transit services.⁵² The focus group results indicate that in-person communication is an important component of effective information access. Participants also had a number of

thoughts about how older travelers might be able to “practice” using transit and begin to feel more confident about it. These include the following:

- Transit training classes in which a small group is escorted on transit trips by a trainer
- Taking a transit trip with a friend
- An instructional video on the Rossmoor channel that takes viewers through all the particular details of trips from Rossmoor to specific destinations (in this study, researchers implemented this recommendation)

Based on these focus group findings and the literature review, the instructional video was selected as the intervention for this study. As discussed previously, focus group participants suggested this approach and the literature review indicated that it could be effective at changing behavior. In addition, the Rossmoor community currently runs a transit training class. The training video was thought to be a cost-effective complement to this training class. Currently, the Rossmoor community is using this video to recruit and train community residents.

SURVEY RESULTS

Researchers analyzed survey data for 129 respondents who watched the transit training video in the summer of 2006. This section reviews sample demographics, tripmaking behavior, auto use, current and prior transit use, perceived response to possible transit barriers and suggested improvements, and video response.

DEMOGRAPHICS

Survey respondents are predominantly female (73.6 percent). Most are between the ages of 75 and 84 years old (52 percent), but many are ages 65 to 74 (24.8 percent) or 85 years of age or older (20.8 percent). On average, respondents have lived in Rossmoor for 7.5 years and live in a household with 1.4 members. Nearly equal proportions of respondents are either married or widowed, and the rest are single or divorced. There is wide variation in the highest education level completed; the most common degrees are high school (36.5 percent), college (26.2 percent), and masters (19.0 percent). Most participants have a moderate income (pre-tax in 2005): 36.6 percent had an income of \$20,000 to \$49,999, 19.5 percent of \$50,000 to \$79,999, and 19.5 percent over \$110,000. Over 50 percent of respondents use a mobile phone, e-mail, and the Internet, but only 4.1 percent use a personal digital assistant.

TRIPMAKING AND AUTO USE

Respondents actively engage in a variety of nonwork trips, including shopping (95.8 percent), running errands (78.3 percent), and social engagements (70 percent). Fewer travel to work (3.3 percent) or doctors' offices (21.7 percent) at that frequency. Respondents also reported traveling two or more days per week by personal auto (86 percent), walking (46.3 percent), and transit (36.3 percent).

Participants are most likely to use an auto as their primary transportation mode (89.6 percent), drive (88.5 percent), and have one driver and auto in their household (58.3 and 74.6 percent, respectively). For each successively older cohort, respondents are less likely to use an auto as their primary mode and have drivers and autos in their households. Overall, the vast majority of respondents have the means to travel by auto. The number who did not drive is approximately equal to those who use transit as their primary mode of transportation. A two-sided chi square test was conducted to detect whether there was a significant association between using transit as one's primary transportation mode and current driving status, and a significant association was found ($p=0.000$). However, the lambda measure for these two variables was 0.548 ($p=0.019$), indicating only a moderate association between using transit as one's primary transportation mode and current driving status.

PRIOR AND CURRENT TRANSIT USE

Prior to moving to Rossmoor, 59 percent of respondents stated that they had never lived or worked in a community in which they used transit with some regularity (one or more times a week). However, this percentage decreases over the age of 85; approximately two-thirds of respondents aged 65 to 84 and over one-half of those 55 to 64 had never lived in a community in which they regularly used transit.

Approximately 13 percent stated that transit is their primary travel mode. Moreover, 36.3 percent use transit two or more times a week. The Rossmoor bus is used most frequently (18.2 percent), followed by BART (10.7 percent) and the County Connection bus (7.4 percent). In this study, it appears that survey respondents use transit far more frequently than the national averages for urban and suburban regions, perhaps because of the higher quality transit services available in their community.

POTENTIAL TRANSIT BARRIERS AND IMPROVEMENTS

Two sets of survey questions explored participants' response to transit barriers and improvements to promote transit use. Respondents were first asked to indicate which improvement(s) to transit would increase their comfort using transit. As shown in Table 1, the most popular improvements are more frequent schedules (50.5 percent), better connections (48.6 percent), more direct routes (44.8 percent), and easy-to-read schedules (38.1 percent). Less popular improvements include later schedules (21.9 percent), better safety measures (15.2 percent), and more seating (8.6 percent).

Respondents were also asked to indicate whether they strongly agreed, agreed, were neutral, disagreed, or strongly disagreed (on a scale of +2 to -2) with a number of potential transit barriers. The weighted averages of the scaled responses are also presented in Table 1. Interestingly, the weighted scale is negative (i.e., respondents on average did not agree that the statement reflected a transit barrier) for all but three transit service attributes: travel time, lack of door-to-door service, and transfers. These results suggest that respondents are rather "transit savvy" and live in a community with a relatively high quality transit service. Most respondents reported using transit services at least once (approximately 70 percent use the Rossmoor bus, 60 percent use the County Connection bus, and 50 percent use BART). The weighted scores for stairs on buses and trains (-0.26) and stations (-0.60) may reflect knowledge of the Rossmoor bus, the County Connection bus, and BART trains in the area, which do not have steep steps.

Table 1 Response to Possible Barriers and Transit Improvements (n=105)

Questions and Possible Responses	Analysis
What would increase your level of comfort taking transit?	Percent of Respondents^a
More frequent schedule	50.5%
Better connections between different transit options	48.6%
More direct routes	44.8%
Easy-to-read schedules	38.1%
Later schedules	21.9%
Better safety measures	15.2%
More seating available	08.6%
What prevents you from using transit more frequently?	Weighted Average Score^b
Takes too long	0.72
No door-to-door service	0.28
Must transfer	0.17
Not easy to get to stops/stations	-0.06
Schedules hard to read	-0.19
Difficult to climb station stairs	-0.26
Do not know how to get information	-0.30
Difficult to pay fare	-0.46
Difficult to step on and off bus/train	-0.60
Unfriendly service	-0.74
Unsafe	-0.76

a. Sum is more than 100% because multiple answers were possible.

b. strongly agree = -2; agree = -1; neutral = 0; disagree = 1; strongly disagree = 2

Respondents were also asked to indicate which resources they use to obtain information about transit. The most commonly used resources are paper schedules, the Rossmoor bus information line, and brochures. Less commonly used resources are family or friends, the Internet, transit training classes, and the 511 information line and Website.

Table 2 Sources Used to Find Transit Information (n=105)

Source	Percent of Respondents ^a
Paper schedule	52.4%
Rossmoor bus transportation information line	43.8%
Brochures	36.2%
Ask family or friend	19.0%
Internet	17.1%
Transit training	10.5%
511 transit line or Website	09.5%

a. Sum is more than 100% because multiple answers were possible.

TRANSIT-TRAINING-VIDEO RESPONSE

In the transit training video, researchers attempted to address a number of potential barriers to transit use, including finding transit information, reading transit schedules, fare payment, bus and train steps, and transit costs for the three services available to the Rossmoor community (the Rossmoor bus, County Connection, and BART). As indicated in Table 1, on average, the results of the pre-video survey indicate that respondents do not consider these to be significant transit barriers. Thus, the video would likely have had little effect on participants who did not perceive those attributes as transit barriers. The distribution of responses indicates that approximately one-half of participants perceive these factors as barriers (strongly disagree or disagree) or are uncertain if they are (neutral).

Overall, approximately 30 to 65 percent of those respondents who perceived the specified factors as transit barriers indicated some positive change in perception after viewing the video. The messages that educated viewers on how to obtain information on transit schedules, costs, and payment appeared to generate the most positive change, but those that addressed difficulties reading schedules and climbing stairs did not. A one-sided binomial test also indicated a statistically significant ($\alpha=0.05$) difference between respondents who had negative perceptions before and after the video and those who had negative or neutral perceptions before and positive perceptions after viewing the video message on obtaining information on transit schedules ($p=0.014$), costs ($p=0.014$), and payment ($p=0.029$). The difference is insignificant for difficulty reading schedules ($p=0.421$) and climbing stairs ($p=0.421$). This last result may be explained by the video intervention's quality or the respondents' physical abilities (i.e., vision or walking), which are necessary conditions to read schedules and climb stairs. The video did portray transit accommodations for certain disabilities, but the level of these adjustments would not have met the needs of all respondents across transit services.

The transit training video takes viewers through specific transit steps for three services (Rossmoor bus, County Connection, and BART) to make trips from Rossmoor to downtown Walnut Creek, the John Muir Medical Center, and a nearby BART station. Before viewing the video, participants were asked if they had previously used any of these transit services to go to the destinations presented in the video or other locations. After viewing the video, respondents were asked if they would use these transit services to go to specific destinations more frequently and if they would use transit instead of driving to frequent destinations. The results are presented in Figure 1. The positive change in stated use is greater than a continued negative response to transit use for the destinations specified in the video and frequent destinations (with the exception of BART). In general, predicted transit travel to video destinations reveals a somewhat greater improvement than travel to frequent destinations.

In addition, for each transit service and destination pair described in Figure 1, a one-tailed binomial test was conducted between the proportion of respondents who did not use a service and destination before and after viewing the video and those respondents who did not use a service and destination before but indicated that they might after viewing the video. The results show a statistically significant ($\alpha=0.05$) difference for the Rossmoor bus ($p=0.034$) to

frequent destinations; the County Connection bus to frequent destinations ($p < 0.001$), downtown Walnut Creek ($p < 0.001$), and the John Muir Medical Center ($p < 0.001$); and BART to a nearby station in the video ($p = 0.004$), but not BART to other frequent destinations ($p = 0.381$).

Prior to watching the video, participants were also asked what sources they used to obtain transit information (Table 2). After watching the video, they were asked what sources of information were best suited for their personal transit use. The change in transit resources used (and to be employed in the future) before and after viewing the video is presented in Figure 2. The results indicate a positive change across all categories; however, the greatest changes are for the Internet and 511.org (both are featured in the video). The greatest negative change in resources used before but not after the video are asking a friend or family member, paper schedules, and the Rossmoor information line.

In addition, a one-tailed binomial test was conducted for each information source described in Figure 2 to determine if there is a significant difference between the proportion of respondents who selected an information source only after viewing the video and the remaining respondents. Statistically significant ($\alpha = 0.05$) differences are revealed for paper schedules ($p = 0.001$), the Rossmoor bus transportation information line ($p = 0.003$), the Internet ($p = 0.042$), a transit training class ($p = 0.017$), and the 511 phone line or Website ($p = 0.002$). No statistically significant differences appear for brochures ($p = 0.136$) and friends or family ($p = 0.119$).

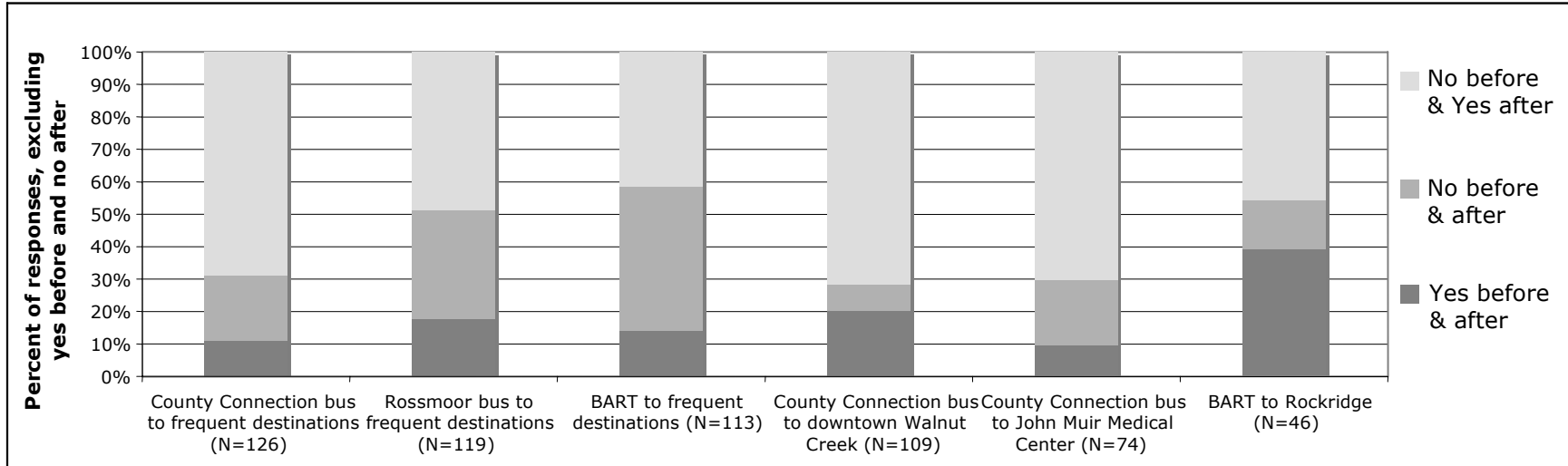


Figure 1 Change in Respondents' Stated Use Before and After Viewing Video

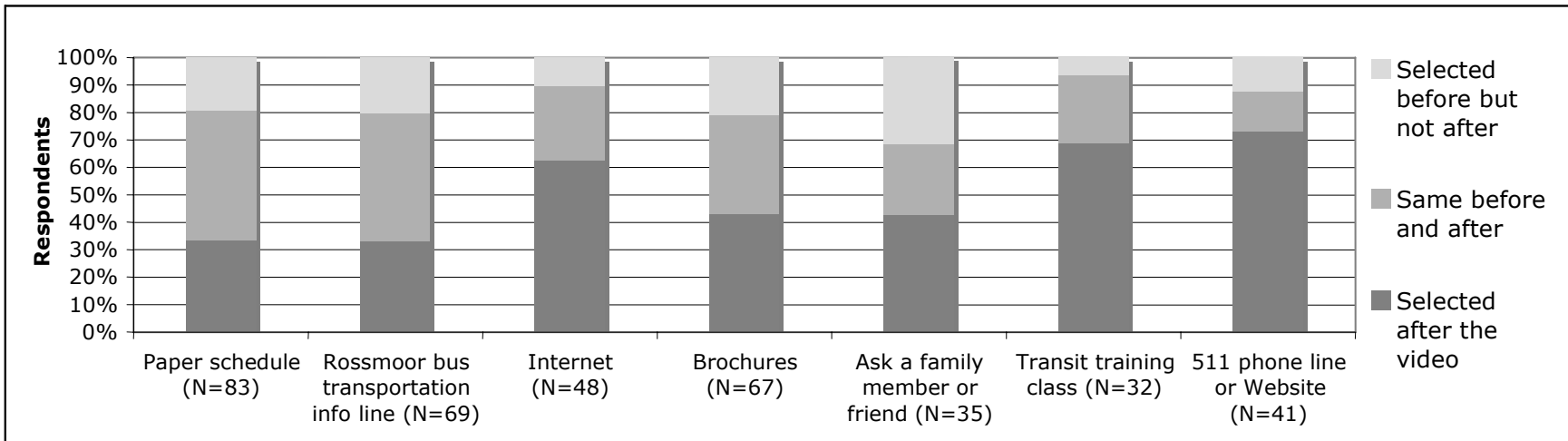


Figure 2 Change in Sources Used for Transit Information Before and After Viewing Video

CONCLUSIONS

In this study, the authors applied principles of social learning and marketing to develop a transit training video for residents in the Rossmoor retirement community in Walnut Creek, California. The video features familiar community members successfully navigating specific concerns and problems, as identified in the literature review and focus groups, related to available transit to key community destinations. Residents were recruited to complete surveys before and after viewing the video. Survey results provide some insight into respondents' travel-related experiences, preferences, and constraints:

- Approximately 90 percent use autos as their primary travel mode, are able to drive, and have a vehicle available for their household's use; however, these proportions tend to decline with respondents' age.
- Before moving to Rossmoor, about 60 percent had lived in a community where they used transit with some regularity; this proportion tends to increase with respondents' age.
- Approximately 13 percent use transit as their primary travel mode, and 36 percent use it two or more times a week.
- Most participants indicated that transit travel time, lack of door-to-door service, and transfers are significant barriers to transit use; as a result, the most popular improvements are more frequent service, better connections, and more direct routes.

In addition, survey results were also evaluated to explore the video intervention's effectiveness for promoting transit use among older travelers:

- The video messages that educated viewers about how to obtain information on transit schedules, costs, and payment generated a significant and positive attitudinal change; however, those that addressed difficulties reading schedules and climbing stairs did not, perhaps because these tasks require a level of physical ability that cannot be fully addressed by the video.
- After viewing the video, respondents indicated a significant and positive change in transit use to the specific destinations portrayed in the video; however, results are mixed for transit travel to more general destinations that are not explicitly portrayed in the video.
- The video also educated viewers about a broader range of information sources, such as the Internet and 511.org. After viewing the video, respondents indicated a significant and positive change in their future stated use of these information sources.

Future research is recommended to examine changes in actual transit use after viewing the video, for example, by employing control groups and longitudinal analyses, and to compare the relative effectiveness, in cost and behavioral change, for example, of the transit training video to other social learning and marketing interventions.

APPENDIX A

FOCUS GROUP PROTOCOL

Protocol for Mineta Transportation Institute Focus Groups

The Elderly and Public Transit: Minimizing Barriers and Maximizing Service

2 hours – Focus Group

15 minutes: Pre-Focus Group Information (prior to focus group start)

- Sign-in sheet
- Permission to record (i.e., video and/or audio)
- Consent to participate (focus group participation waiver) – 2 copies
- Intake questionnaire
- Table Tents

5 minutes: Focus Group Overview

- **Moderator Introductions:** My name is [first] [last], and I am a researcher at the University of California, Berkeley. I will be moderating tonight’s focus group. I’d like to thank you all for taking the time to participate in our study.
- **Focus Group Overview and Purpose:** The purpose of this focus group is to identify concerns and barriers to transit use among elderly persons. We have invited you to participate in this focus group today to better understand your experiences as a transit user and to discuss transit features that may improve your traveling experiences.
- **Discussion Guidance:** I want to stress that your participation is entirely voluntary, that you may choose not to answer any of the questions we ask, and that you may leave at any time you choose. We are video taping the session, so that we can produce a written transcript of the discussion. Everything you say here will be kept confidential; we will not identify you by name in the transcript of the meeting or in our research reports. Before we start the discussion, I'd like to lay down a couple of ground rules. First, it is important that we hear from everyone tonight. I'd like to ask that you try to be aware of how much you're talking and make sure that you're giving others a chance to share as well. I may at times suggest that we move on to someone else, so that we use the little time that we have efficiently. Second, it is also important that we get your responses to our questions. If the discussion strays too much from the question I have asked, I may suggest that we return to that question or move on to the next one. Third, to make sure that we can hear what is being said, please refrain from side conversations with your neighbors during the discussion. Most importantly, please tell us whatever it is you're thinking. We are not looking for any particular answers - we're here to hear what you have to say. It's okay to repeat what others have already said if that's what you think, and it's okay to have a completely different response if that's what you think.

- **Participant Introductions:** Before we start the questions, let's go around the room and briefly introduce ourselves. Why don't you say your first name and tell us how long you've lived or worked (or both) in this community.

15 minutes: Participant Introductions & Current Modes

- Participant introductions
 - Ask each participant to introduce him or herself and to describe their primary mode of transportation just before coming to Rossmoor and now.
 - Rossmoor buses
 - City buses
 - Bart, Muni, Caltrans
 - Car
 - Carpool

15 minutes: General Attitudes Toward Transit

- What are reasons why you think people use transit?
 - Avoid traffic
 - Avoid car costs, e.g., maintenance and gas prices
 - Cannot afford their own a car
 - Preserve air quality
 - Do not have a driver's license
 - Are there specific demographic groups that use transit more than others?
 - Racial groups
 - Geographic groups: urban vs. suburban areas
 - Age groups
 - Socioeconomic status: lower income people?
- What do you think are reasons why a driver should or should not use transit?
 - Create a list of (+) and (-) reasons why a driver should take transit
- What do you think are reasons why a senior should or should not use transit?
 - Create a list of (+) and (-) reasons why a senior should take transit

15 minutes: Personal Transit Histories

Each participant should provide a brief history of their transit use

- Primary modes of transportation growing up
- When they began using transit
- How often they use transit
 - e.g., lived in an urban environment and took the bus to school everyday
 - e.g., grew up in the age of the car and parents always took you where you needed to go
- Why don't they use transit more?

10 minutes: Break**20 minutes: Barriers and Transit Features**

- Think about your last trip taking transit (how long ago was this and what was the purpose of your trip?). What were some of the transit features or experiences that made your traveling experience pleasant?
 - Features:
 - Real-time arrival times
 - Transit discounts
 - Electronic display of transit stops
 - Electronic voice-over of transit stops
 - Physical disability services
 - Bus shelters
 - Drivers trained to provide assistance
 - Travel training
 - Experiences:
 - Traveling in a group
 - Friendlier driver
 - Less crowded
 - Easier walk to bus shelter
 - Familiar with where I was going

- Think about your last trip taking transit again. What could have been different that would have made it a more pleasant experience?
 - Drop off closer to my destination
 - Traveling in groups
 - Smart cards – do not deal with change
 - Traveling in a group
 - Friendlier driver
 - Less crowded
 - Easier walk to bus shelter
 - Familiar with where I was going

- What are the primary reasons preventing you from using transit? Comment on physical barriers, concerns, worries)
 - Difficult to read/understand schedule
 - Difficult to pay fare (needed exact change, getting a ticket was confusing)
 - Bus is unreliable; I do not like waiting
 - Unfamiliarity of new places
 - Confused when to get off and where to exit
 - Bus shelters/ lack of
 - Takes too long
 - Not door-to-door
 - Unfriendly drivers
 - Do not know how to use transit
 - Not safe

10 minutes: Self-Efficacy

- On a scale of 1 to 10 (with 10 being very confident and 1 not very confident), how confident do you feel about taking a transit ride by yourself?
- On a scale of 1 to 10 (with 10 being very confident and 1 not very confident), how confident do you feel about taking a transit ride in a group?
- What do you think would increase your confidence of taking transit?
 - Training workshops, user friendly resources, going in groups

25 minutes: Possible interventions or Countermeasures

- Would you be willing to try new methods of obtaining transit information, such as attending workshops, video screenings, using Internet sites (which methods do you think would be most helpful and why)?
- Do you think that a video, showing key transit steps, would provide you with greater confidence?
- (If time allows...) What resources were most helpful when using transit systems in the past? Were there any that you found unhelpful?
 - Educational campaigns
 - Brochures – where did you find them? Were they easy to use?
 - Videos
 - Transit classes/ traveling sessions
 - Learned from a friend
 - 511

5 minutes: Final Questions

- Final report availability
- Incentives

Adjourn and Incentives

APPENDIX B TRANSPORTATION QUESTIONNAIRE

- Do you use a...
- cellular phone
 - Personal Digital Assistant (PDA)
 - e-mail
 - the Internet

What was your household's 2004 pre-tax income?

- Under \$10,000
- \$10,000- \$19,999
- \$20,000 - \$49,999
- \$50,000 - \$79,999
- \$80,000- \$109,999
- More than \$110,000
- Decline to respond

Transportation Characteristics:

Please check the modes of transportation you use more than two days a week.

- Drive Alone
- Carpool
- Bus
- BART
- Bike
- Walk
- Other, please specify_____

Prior to moving to Rossmoor, have you ever lived or worked in a community in which you typically used transit one or more times a week?

- Yes
- No

Do you drive?

- Yes
- No

Is private auto your primary mode?

- Yes
- No

Is transit your primary mode?

- Yes
- No

How many people in your household drive (including yourself)?_____

How many autos are available to your household? _____

Have you ever taken any of the following transportation modes?

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> City Bus | <input type="checkbox"/> Muni |
| <input type="checkbox"/> Rossmoor Bus | <input type="checkbox"/> BART |
| <input type="checkbox"/> Bike | <input type="checkbox"/> Personal car |
| <input type="checkbox"/> Walk | <input type="checkbox"/> Carpool |
| <input type="checkbox"/> Other, please specify _____ | |

What are frequent destinations of yours when you use transit?

- | | |
|---|--|
| <input type="checkbox"/> Work commute | <input type="checkbox"/> Running errands |
| <input type="checkbox"/> Doctor's visit | <input type="checkbox"/> Shopping |
| <input type="checkbox"/> Visiting relatives and friends | <input type="checkbox"/> Leisure travel |
| <input type="checkbox"/> Other, please specify _____ | <input type="checkbox"/> I don't use transit |

Familiarity with Transit:

How would you describe your familiarity with transit?

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Unfamiliar | Somewhat familiar | Familiar | Very Familiar |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

How confident do you feel about undertaking a trip via transit to one of your frequent destinations by yourself?

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Not confident at all | Somewhat confident | Confident | Very Confident |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

How confident do you feel about undertaking a transit ride to one of your frequent destinations in a group?

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Not confident at all | Somewhat confident | Confident | Very Confident |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What would increase your level of comfort of taking transit? Please respond in a few sentences.

What is the primary resource you use to find transit information?

- Paper schedule from the bus station
- Rossmoor bus transportation info line
- Internet
- Brochures
- Ask a family member or friend to help you research
- Transit workshop
- Travel training class
- 511 operator assistance
- Other (Please specify): _____
- _ Not applicable. I don't use transit

Barriers to Transit Use:

What prevents you from using transit more often? (Please respond by checking one of the following response options: I strongly disagree, I disagree, I am neutral, I agree, I strongly agree)

1. It is difficult to read the bus or train schedules

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Transit stations are not easily accessible (bus shelters, BART station, etc)

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. It does not provide door-to-door service

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Involves a transfer to get to my destination

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. The service is unfriendly

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. It is too expensive

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Takes longer to get to my destination than by car

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. It is unsafe

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. I am uncomfortable going to unfamiliar areas

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Friends or family have advised against it

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. It is difficult stepping on or off the bus or train

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. It is difficult using the station stairs

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. It is difficult to purchase tickets or pay the fare (e.g., requires exact change)

Strongly Disagree Disagree Neutral Agree Agree Strongly

14. I do not know where to find information about how to take transit

Strongly Disagree Disagree Neutral Agree Agree Strongly

Thank you very much for your cooperation!

APPENDIX C

VIDEO SURVEY—BEFORE AND AFTER

The Elderly and Public Transit: Minimizing Barriers and Maximizing Service

BEFORE—QUESTIONNAIRE

Survey No. _____.

Please complete this survey prior to the video presentation. This survey is anonymous—please do not write your name on any of these pages.

Thank you for contributing to our research.

In the first section, we would like to learn about your transportation patterns:

- T.1. Please indicate the modes of transportation you use **more than two days per week**. Please check all that apply.
- | | |
|--|--|
| <input type="checkbox"/> County Connection Bus | <input type="checkbox"/> BART |
| <input type="checkbox"/> Rossmoor Bus | <input type="checkbox"/> Personal auto |
| <input type="checkbox"/> Bike | <input type="checkbox"/> Carpool |
| <input type="checkbox"/> Walk | <input type="checkbox"/> Other, please specify _____ |
- T.2. Prior to moving to Rossmoor, have you ever lived or worked in a community in which you typically used transit **one or more times per week**?
- Yes No
- T.3. Do you drive?
- Yes No
- T.4. Is the private auto your primary mode of transportation?
- Yes No
- T.5. Is transit your primary mode of transportation?
- Yes No
- T.6. How many people in your household drive (including yourself)? _____
- T.7. How many autos are available to your household? _____

T.8. Have you **ever** taken any of the following transportation modes? Please check all that apply.

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> County Connection Bus | <input type="checkbox"/> Muni |
| <input type="checkbox"/> Rossmoor Bus | <input type="checkbox"/> BART |
| <input type="checkbox"/> Bike | <input type="checkbox"/> Personal car |
| <input type="checkbox"/> Walk | <input type="checkbox"/> Carpool |
| <input type="checkbox"/> Other, please specify_____ | |

T.9. To what destinations, if any, do you travel **two or more times per week**? Please check all that apply.

- | | |
|---|--|
| <input type="checkbox"/> Work commute | <input type="checkbox"/> Running errands |
| <input type="checkbox"/> Doctor's visit | <input type="checkbox"/> Shopping |
| <input type="checkbox"/> Visiting relatives and friends | <input type="checkbox"/> Leisure travel |
| <input type="checkbox"/> Other, please specify_____ | |

T.10. What transportation modes do you use when traveling to these frequent destinations? Please check all that apply.

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> County Connection Bus | <input type="checkbox"/> Muni |
| <input type="checkbox"/> Rossmoor Bus | <input type="checkbox"/> BART |
| <input type="checkbox"/> Bike | <input type="checkbox"/> Personal car |
| <input type="checkbox"/> Walk | <input type="checkbox"/> Carpool |
| <input type="checkbox"/> Other, please specify_____ | |

The next section will help us understand what modes of transportation you prefer for different types of trips.

S.1. Please respond to the following statement by choosing the answer option that best expresses your opinion:

I feel comfortable driving by myself.

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Agree Strongly |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

S.2. How comfortable do you feel **driving** by yourself to one of your frequent destinations?
Not comfortable at all Somewhat comfortable Comfortable Very comfortable

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--------------------------|--------------------------|--------------------------|--------------------------|

- S.3. How comfortable would you feel taking a **Rossmoor bus** to one of your **frequent** destinations by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. None of my frequent destinations is accessible by Rossmoor buses.
 I do not know this transit provider.
- S.4. How comfortable would you feel taking a **County Connection bus** to one of your **frequent** destinations by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. None of my frequent destinations is accessible by County Connection buses.
 I do not know this transit provider.
- S.5. How comfortable would you feel taking a **BART train** to one of your **frequent** destinations by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. None of my frequent destinations is accessible by BART.
 I do not know this transit provider.
- S.6. How comfortable do you feel **driving** by yourself to **Downtown Walnut Creek**?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable
- S.7. How comfortable would you feel taking a **County Connection Bus** to **Downtown Walnut Creek** by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 I do not know this transit provider.
- S.8. Do you use County Connection buses when going to Downtown Walnut Creek?
 Yes No

- S.9. How comfortable do you feel **driving** by yourself to **John Muir Medical Center**?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable
- S.10. How comfortable would you feel taking a **County Connection bus** to **John Muir Medical Center** by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. I am not familiar with this transit provider.
- S.11. Do you use County Connection buses when going to John Muir Medical Center?
 Yes No
 Not applicable. I never travel to this destination.
- S.12. How comfortable do you feel **driving** by yourself to **Rockridge**?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. I am not familiar with this destination.
- S.13. How comfortable would you feel taking a **BART train** from Walnut Creek to **Rockridge** by yourself?
 Not comfortable at all Somewhat comfortable Comfortable Very comfortable

 Not applicable. I am not familiar with this destination.
 I do not know this transit provider.
- S.14. Do you use BART when going to Rockridge?
 Yes No
 Not applicable. I am not familiar with this destination.
 Not applicable. I never travel to this destination.
- S.15. How confident do you feel about finding transit information when you need it?
 Not confident at all Somewhat confident Confident Very confident

S.16. How would you describe your familiarity with transit?

Unfamiliar	Somewhat familiar	Familiar	Very Familiar
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

S.17. In your opinion, how familiar with transit is the majority of senior citizens?

Unfamiliar	Somewhat familiar	Familiar	Very Familiar
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

S.18. To what destinations, if any, do you take **transit two or more times per week**? Please check all that apply.

- Not applicable. I use transit less often or not at all.
- Work commute
- Doctor's visit
- Visiting relatives and friends
- Other, please specify _____
- Running errands
- Shopping
- Leisure travel

S.19. To what destinations, if any, do you **use transit, but once per week or less often**? Please check all that apply.

- Not applicable. I never use transit.
- Work commute
- Doctor's visit
- Visiting relatives and friends
- Other, please specify _____
- Running errands
- Shopping
- Leisure travel

S.20. What would increase your level of comfort with taking transit? Please check all that apply.

- Better connections between different transit options
- More frequent schedule (shorter waits)
- More direct routes
- Later schedules (e.g., evening and night services)
- Better safety measures (e.g., visible security, better lighting)
- More seating available
- Easy-to-read schedules
- Easier parking at transit stations/bus terminals
- Other. Please specify _____

- I.1. When using transit, what are the **resources you use** to find **transit information**? Please check all that apply.
- Not applicable. I don't use transit
 - Paper schedule from the bus station
 - Rossmoor bus transportation info line
 - Internet
 - Brochures
 - Ask a family member or friend
 - Transit training class
 - 511 transit & traffic information phone line or website
 - Other (Please specify): _____
- I.2. Are you familiar with the following sources of transit information? Please check all that apply.
- County Connection (CCCTA) website
 - BART website
 - 511.org website
 - 511 transit & traffic information phone line
 - Rossmoor bus transportation info line
- I.3. Have you ever participated in a transit training class?
- Yes No
- I.4. How confident do you feel about finding transit information should you need it?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Not confident at all | Somewhat confident | Confident | Very confident |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

This section will help us identify potential barriers to transit use.

This section will help us identify potential barriers to transit use.

What prevents you from using transit/from using transit more often? (Please respond by checking one of the following response options: I strongly disagree, I disagree, I am neutral, I agree, I agree strongly)

1. It is difficult to read the bus or train schedules

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Transit stations are not easily accessible (bus shelters, BART station, etc)

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. It does not provide door-to-door service

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Involves a transfer to get to my destination

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. The service is unfriendly

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. It is too expensive

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Takes longer to get to my destination than by car

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. It is unsafe

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. I am uncomfortable going to unfamiliar areas

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Friends or family have advised against it

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. It is difficult stepping on or off the bus or train

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. It is difficult using the station stairs

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. It is difficult to purchase tickets or pay the fare

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. I do not know where to find information about how to take transit

Strongly Disagree	Disagree	Neutral	Agree	Agree Strongly
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you very much for your cooperation!

**PLEASE DO NOT FILL OUT THE NEXT
PAGES UNTIL AFTER THE VIDEO PRESENTATION.**

**Please complete this part of the questionnaire only after you
finished watching the video presentation.**

Please complete this part of the questionnaire only after you finished watching the video presentation.

AFTER—QUESTIONNAIRE

Please complete this second, shorter questionnaire after the video presentation. Thank you for contributing to our research.

SA.1. Now that you have seen the video presentation, would you consider taking transit more frequently?

- Yes No

SA.2. Which transit options, if any, would you consider taking more frequently. Please check all that apply.

- County Connection bus Rossmoor bus
 BART Other, please specify _____
 Not applicable.

SA.3. How comfortable would you feel taking a **Rossmoor bus** to one of your **frequent** destinations by yourself?

Not comfortable at all Somewhat comfortable Comfortable Very comfortable

-

- Not applicable. None of my frequent destinations is accessible by Rossmoor buses.

SA.4. How comfortable would you feel taking a **County Connection bus** to one of your **frequent** destinations by yourself?

Not comfortable at all Somewhat comfortable Comfortable Very comfortable

-

- Not applicable. None of my frequent destinations is accessible by County Connection buses.

SA.5. How comfortable would you feel taking a **BART train** to one of your **frequent** destinations by yourself?

Not comfortable at all Somewhat comfortable Comfortable Very comfortable

-

- Not applicable. None of my frequent destinations is accessible by BART.

- IA.1. What sources of transit information are best suited for your personal transit use?
- Not applicable. I don't use transit.
 - Paper schedule from the bus station
 - Rossmoor bus transportation info line
 - Internet
 - Brochures
 - Ask a family member or friend
 - Transit workshop
 - Travel training class
 - 511.org website
 - 511 transit information phone line
 - Other (Please specify): _____
- IA.2. Would you use one of the following sources of transit information when planning your next transit trip? Please check all that apply.
- County Connection (CCCTA) website
 - BART website
 - 511.org website
 - 511 transit & traffic information phone line
 - Rossmoor bus transportation info line
 - Not applicable.
- IA.3. How confident do you feel about finding transit information should you need it?
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Not confident at all | Somewhat confident | Confident | Very confident |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please respond to the following questions by checking the answer option that best expresses your opinion.

- BTA.1. It is difficult to read the bus or train schedules.
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Agree Strongly |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

B.7. What was your household's 2005 pre-tax income?

- Under \$10, 000 \$10,000- \$19,999
 \$20,000 - \$49.999 \$50,000 - \$79.999
 \$80,000- \$109,999 More than \$110,000
 Decline to respond

B.8. Do you use a... cellular phone
 Personal Digital Assistant (PDA)
 e-mail
 the Internet

Thank you very much for your cooperation!

ENDNOTES

Executive Summary and Introduction

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6. M. Holmes et al., "Travel Patterns."
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10. The transit-use video *Transit Explained: Getting around the Bay Area* is available online at www.path.berkeley.edu/path_downloads/Video/IMR/Rossmoor-Final.mpg.

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12. Burkhardt et al., “Improving Public Transit.”
13. Scharlach et al., *Strategic Planning Framework*.
14. Ibid.
15. Rosenbloom, “Mobility of the Elderly.”
16. Ibid.
17. Ibid.
18. Ibid.
19. James McKnight, “The Freedom of the Open Road: Driving and Older Adults,” *Journal of the American Society on Aging*, Summer 2003, <http://www.asaging.org/generations/gen27-2/article.cfm> (accessed on July 28, 2006).
20. Enzo C. Cerrelli, “Crash Data and Rates for Age-Sex Groups of Drivers,” National Highway Traffic Safety Administration Research Note, January 1998; NHTSA, *Traffic Safety Facts: 2003 Data: Older Population*, U.S. DOT, <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2003/809766.pdf> (accessed July 28, 2006).
21. McKnight, “Freedom.”
22. Ibid.
23. Holmes et al., “Travel Patterns.”
24. McKnight, “Freedom.”
25. Burkhardt, “Mobility Changes.”
26. Frank Douma and Chandler Duncan, “Using ITS to Better Serve Diverse Populations: Final Report,” *Minnesota DOT Guidestar 2002 Research Project*, August 2004; Demetra V. Collia, Joy Sharp, and Lee Giesbrecht, “The 2001 National Household Survey: A Look into the Travel Patterns of Older Americans,” *Journal of Safety Research*, vol. 34, 2003, 461–470.
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47. Ibid., 417.
48. Geoff J. Syme, Clive Seligman, Steven J. Kantola, and Duncan K. MacPherson, "Evaluating a Television Campaign to Promote Petrol Conservation," *Environment and Behavior*, vol. 19, no. 4, 1987, 444–461.
49. Ibid., 444.
50. Susan Shaheen, *Dynamics in Behavioral Adaptation to a Transportation Innovation: A Case Study of CarLink—A Smart Carsharing System*, University of California–Davis, report no. UCD-ITS-RR-99-16, October 1999, 232.

Rossmoor Senior Adult Community

51. County Connection provides fixed-route and paratransit service throughout the Central Contra Costa communities of Clayton, Concord, Martinez, Pleasant Hill, Walnut Creek, Danville, San Ramon, Lafayette, Orinda, and Moraga, as well as unincorporated communities.

Focus Group Findings

52. 511.org is a free phone and Web service that consolidates Bay Area transportation information, including up-to-the-minute information on traffic conditions, incidents, and driving times; schedule, route, and fare information for the Bay Area's public transportation services; instant carpool and vanpool referrals; bicycling information; and more.

ABBREVIATIONS AND ACRONYMS

BART	Bay Area Rapid Transit
CD-ROM	Compact disc read-only memory
CPRC	California Policy Research Center
DOT	Department of Transportation
ITS	Intelligent transportation systems
MTI	Mineta Transportation Institute
NHTSA	National Highway Traffic Safety Administration
NPTS	National Personal Transportation Survey
PATH	Partners for Advanced Transit and Highways
RAPOC	Research Associates Policy Oversight Committee
TRB	Transportation Research Board
UC	University of California
U.S. DOT	United States Department of Transportation

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Caroline Rodier, Ph.D.

Dr. Caroline Rodier’s research interests include transportation policy and planning, the behavior effects of new technology applications in transportation, elderly travel behavior, and land-use and travel-demand modeling. She is currently a research engineer at California Partners for Advanced Transit and Highways (PATH), headquartered at the University of California–Berkeley. Some of her current projects include a behavioral evaluation of a transit-based smart parking field test; a statewide public opinion survey on automated speed enforcement; a feasibility analysis of a virtual compliance station for commercial vehicles; social marketing interventions to enhance older traveler mobility; and analyses of modeling uncertainty in the context of environmental impact and air quality conformity processes. She has authored 16 journal articles, 29 proceedings articles, and 22 research reports.

PEER REVIEW

San José State University, of the California State University system, and the MTI Board of Trustees have agreed upon a peer view process to ensure that the results presented are based upon a professionally acceptable research protocol.

Research projects begin with the approval of a scope of work by the sponsoring entities, with in-process reviews by the MTI research director and the project sponsor. Periodic progress reports are provided to the MTI research director and the Research Associates Policy Oversight Committee (RAPOC). Review of the draft research product is conducted by the Research Committee of the board of trustees and may include invited critiques from other professionals in the subject field. The review is based on the professional propriety of the research methodology.

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