THE OLDER DRIVER IN OREGON: A SURVEY OF DRIVING BEHAVIOR AND CESSATION Final Report

SPR 639

THE OLDER DRIVER IN OREGON: A SURVEY OF DRIVING BEHAVIOR AND CESSATION Final Report

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by

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16. Abstract				
In a study of older adults and their trav	el patterns in Oregon, a statew	vide mai	l survey and telephone inter	views were
conducted with older drivers and older	adults who had voluntarily ch	losen to	stop driving. The purpose of	f the study
was to determine: (1) the factors that in	if luence driving cessation; (2)	the phy:	sical and emotional barriers	that delay
drivers make relocation decisions on th	e basis of driving cessation: (4)	f(all on a = 5) the w	arning signs that make a driv	nether
driving and (6) whether a crisis situation	on generally forces a driver to	ston dri	ving Completed mail surve	evs included
those from 342 respondents who were	current drivers (184 urban and	1 1 4 1 rur	al plus 17 who did not repo	ort whether
they lived in an urban or rural area) and	d 158 respondents who had vo	luntarily	ceased driving (110 urban	and 37 rural,
plus 11 who did not report their urban/	rural status). Telephone interv	views we	ere completed with 33 urban	drivers, 36
rural drivers, 25 urban ceasers, and 6 ru	aral ceasers. Changes in drivin	ng patter	ns, occurred gradually and l	ate, mostly
for respondents in their late 70's or ear	ly 80's. Among the results of t	the study	y was the finding that those	most likely
to have chosen to stop driving were old	ler, depressed females in poor	er health	who were living in senior h	nousing,
using alternative transportation when a	vailable, making fewer trips, a	and seem	ng fewer limitations associat	ed with
using alternative transportation. Reloca	this study was a cross to tran	sportation	on alternatives was not seen	by most
possible to determine causality (e.g. to	know whether people became	nai, not e depres	sed as a <i>result</i> of ceasing to	drive or
being depressed <i>led</i> them to cease drivi	ing or to know whether poor l	health w	as the result or cause of drive	ving
cessation). Additional research is needed	ed to establish causality, ideal	lv follov	ving groups of individuals in	particular
age cohorts over time, including individ	duals forced to stop driving th	rough th	ne Medically-At-Risk Progra	m. Such
research would enable better understan	ding of the factors affecting d	riving de	ecisions and the effects of th	ose
decisions, and help to signal possible st	trategies to implement to enco	urage th	e use of alternative transpor	tation.
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older drivers, driving cessation. ceasers, aging	, older adults	18. Distri	oution Statement	
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EXECUTIVE SUMMARY

As part of a study of older adults and their travel patterns, the Institute on Aging at Portland State University, with support from the Oregon Department of Transportation (ODOT), undertook a statewide mail survey and telephone interviews with older drivers and older adults who had voluntarily chosen to stop driving. The purpose of the study was to determine: (1) the factors that influence driving cessation; (2) the physical and emotional barriers that delay driving cessation; (3) what opportunities exist for alternative transportation after driving cessation; (4) whether drivers make relocation decisions on the basis of driving cessation; (5) the warning signs that make a driver stop driving; and (6) whether a crisis situation generally forces a driver to stop driving. The information garnered will assist ODOT in planning for the transit needs of the growing population of older Oregonians, both those who drive and those who have chosen to stop driving (who are termed "voluntary ceasers" or "ceasers" here).

This report presents the findings from a review of the literature, from 500 mail surveys, and from 100 telephone interviews conducted with a sample of older adults who indicated on their completed mail survey that they were willing to be called for a follow-up interview. Completed mail surveys included those from 342 respondents who were current drivers (184 urban and 141 rural, plus 17 who did not report whether they lived in an urban or rural area) and 158 respondents who had voluntarily ceased driving (110 urban and 37 rural, plus 11 who did not report their urban/rural status). Telephone interviews were completed with 33 urban drivers, 36 rural drivers, 25 urban ceasers, and 6 rural ceasers.

For the mail survey, both drivers and ceasers were identified using records from 1999 to 2006 that were provided by ODOT, Driver and Motor Vehicle Services. A one-page survey was developed and mailed to a sample of holders of a current driver's license, an expired driver's license, or a state ID card to determine response rates by groups (drivers and ceasers, urban and rural), and therefore the sample size needed. Older adults in rural areas were over-sampled to increase the size of this subgroup and enable comparisons to be made between the experiences of older adults in rural versus urban areas. A survey instrument to address the study's research questions then was developed and mailed in late spring 2007 to those individuals who had indicated a willingness to participate.

The telephone follow-up interviews were conducted to provide elaboration of the transportation experiences of older adults, including: changes in driving patterns with age; reasons and circumstances surrounding ceasing to drive; the impacts of ceasing to drive; the availability, use, and limitations of transit options; and suggestions for transportation planners to better meet the needs of older drivers and non-drivers around the state. These topics were explored through open-ended questions asking participants to talk in greater detail about their transportation experiences and, if applicable, their decision to stop driving. Analysis of the interview data was completed using qualitative analytic software, allowing the researchers to examine, across types of respondents, common themes and differences that emerged from the narrative data.

For both the mail survey and the telephone interviews, the analyses focused on similarities and differences between drivers and ceasers, as well as contrasts between urban and rural drivers, and between urban and rural ceasers.

Numerous research studies have shown that with age, older adults may experience loss of vision, cognition, and reaction and execution abilities to the point that driving may become hazardous. Existing literature has demonstrated that proportionally more seniors die as a result of traffic fatalities than any other age group, and that when vehicle miles traveled are considered, seniors are the second most likely age group to be in an accident; however, recent research questions this latter finding. Although the majority of older drivers do not pose a safety threat, and many choose voluntarily to restrict or cease driving as a result of physical or other issues, previous research has found that some older drivers continue to drive even when they are not able to do so safely. The results of the study described here reflect many of those found in earlier research, but elaborate on the factors contributing to older Oregonians' decisions to continue or to cease driving, the effects of ceasing to drive, and the transportation needs of older Oregonians across geographic (e.g., urban versus rural) areas.

The study's key findings and conclusions are summarized below in the context of the six research questions stipulated by ODOT. As was clearly illustrated, the availability of transportation was not just a practical need, but rather has implications for individuals' quality of life and their ability to function as contributing members of society.

1. WHAT ARE THE FACTORS THAT INFLUENCE DRIVING CESSATION?

- Individuals who had voluntarily chosen to stop driving differed from current drivers with respect to many demographic characteristics. Voluntary ceasers were, on average: 10 years older than the current drivers (ceasers' average age was 84); more likely to be female; more likely to be widowed and to live alone; more likey to have less education and a lower income; less likely to be employed and to volunteer; more likely to live in senior housing; more likely to live in an urban area; less likely to own their residence; more likely to have lower self-rated health status; more likely to have altered their travel due to their health; more likely to be depressed; and more likely to use public transit when it was available.
- Those most likely to have chosen to stop driving were older, depressed females in poorer health who were living in senior housing, using alternative transportation when available, making fewer trips, and seeing fewer limitations associated with using alternative transportation. Results of a logistic regression analysis, used to determine demographic and travel pattern characteristics, were predictive of voluntarily ceasing to drive, but because this was a cross-sectional, not longitudinal, analysis, it was not possible to determine causality (e.g., to know whether people became depressed as a *result* of ceasing to drive or being depressed *led* them to cease driving, or to know whether poor health was the *result* or *cause* of driving cessation).
- An important finding of this study was that some people who generally had ceased to drive reported actual instances of continuing to drive, and other ceasers reported that they would still drive if they felt it was necessary to do so. Key reasons for

continuing to drive beyond the point when one should do so were emergencies, needing to get to medical appointments, and a lack of options other than driving.

2. WHAT ARE THE PHYSICAL AND EMOTIONAL BARRIERS THAT DELAY DRIVING CESSATION?

- Some respondents saw no alternative but to drive; this clearly was a barrier that delays driving cessation (see the findings pertaining to Research Question 3, below).
- There were negative effects of no longer driving, as reported by ceasers, including social isolation (reduced social activities, seeing friends less, reduced work and volunteer activities) and being able to visit places less often.
- Anticipated negative impacts of no longer driving likely influenced drivers' unwillingness to consider ceasing to drive. Current drivers anticipated even greater negative effects of ceasing to drive than ceasers reported had actually occurred.
- Some drivers, who had made changes in their driving, experienced greatly reduced activities, along with a sense of lost independence and discomfort as a result of needing to rely on others for more, or most, of their transportation needs. However, the impact of changes individuals had made in their driving (e.g. deciding to drive less, driving only at certain times of the day and/or only to certain places) was reportedly mild for some drivers.

3. WHAT OPPORTUNITIES EXIST FOR ALTERNATIVE TRANSPORTATION AFTER DRIVING CESSATION?

- There was a lack of awareness, particularly of special transportation options, especially on the part of drivers (urban and rural) and rural ceasers. For drivers, this lack of awareness may have been due in part to their perceived lack of a need for transportation alternatives. About 22 percent of rural drivers and 17 percent of urban drivers stated they did not know if special transportation was available in their community. Among ceasers, 27 percent of those living in rural areas and 10 percent of urban ceasers reported that they did not know if special transportation options existed in their community. Over one-third of both current drivers and voluntary ceasers were not aware of transportation options other than driving or relying on friends and family, even when it is likely that such options were available. For drivers, this lack of awareness was due in part to their lack of need.
- In rural areas, especially, there was a reported lack of transportation options other than driving or relying on family and friends. Nearly one-half (49%) of rural drivers reported that no public transportation was available in their community and 19 percent said no special transportation services were available. (This compared to 15% and 4% of urban drivers, respectively). Among rural ceasers, 57 percent reported that there was no public transportation, and 32 percent said there were no special transportation services in their community (compared to 13% and 6%, respectively, of urban ceasers). The decline

in rail and bus services in the past few years was reported by rural residents, as was the fact that, although many coastal communities and inland areas of the state have very high percentages of older adults, there are few services. At the same time, rural drivers and ceasers alike were cognizant of the economic disincentive to provide public and special transportation in the state's rural areas and small towns.

- Few drivers viewed the transit options available to them as *viable* alternatives to driving, and few of the urban drivers and ceasers alike *used* the transit options available for regular daily travel. Key limitations seen in the transportation alternatives available included a lack of service or limited service, and scheduling and reliability issues with dial-a-ride, appointment-based programs. Distance to stops, infrequent service, lack of service on evenings and weekends, and insufficient routes also limited the use of public transportation. Users and non-users of either public or special transportation did not differ with respect to the limitations in transit that they cited, except that 63 percent of non-users of either form of transit stated that it was just easier to drive, compared to 42 percent of users.
- More than 40 suggestions for transportation improvements for older adults were provided, with overall better public transportation topping the list. Among the other frequent recommendations were improved dial-a-ride and on-call services, as well as enhanced bus service, including more routes, more frequent service, more stops, and better transit connections (between bus, rail, taxi, and van). More and frequent screening of older adults who continued to drive was commonly suggested, as were infrastructure improvements that would enhance overall mobility and use of transit, such as better sidewalks, lighting, and covered benches at all stops. Because driving and having transportation options are seen as crucial to quality of life, study participants identified the need for older adults themselves to be actively involved in transportation planning and decision-making.

4. DO DRIVERS MAKE RELOCATION DECISIONS ON THE BASIS OF DRIVING CESSATION?

- The vast majority of both current drivers and ceasers had not considered and/or would not consider relocating in order to have better access to public transportation. Over 80 percent of both urban and rural drivers, and more than 85 percent of urban and rural ceasers, reported that they had not/would not consider relocating for this purpose. Most of those interviewed mentioned satisfaction with their homes and communities as the reason they would not relocate, although some had already moved to be near children, services, or to retirement communities. Among current drivers, some said they just had not had to consider relocating yet, and a small number said they might do so should they (or their spouse's) ability to drive change. Rural drivers were the group most likely to say that they would or might consider this.
- If relocation *were* to be considered, factors seen as key in the decision-making process included access to public transportation and a setting where one could meet all of one's daily needs (e.g., shopping, medical care). For rural drivers, access to

friends and family was also considered to be an important factor in their relocation decision. The most common ways in which older drivers and ceasers reported that they would research relocation options (or had already done so) included asking friends and family, calling or visiting specific locations/facilities, using the Internet, and contacting local agencies. Among ceasers, finding a specialized retirement facility that provided transportation for residents was an important factor in their search.

5. WHAT ARE THE WARNING SIGNS THAT MAKE A DRIVER STOP DRIVING?

- Individuals who had ceased driving most often reported doing so due to poor vision. Other key reasons included feeling they were not a safe driver, having someone else available to drive them, and losing confidence in their driving. Having too many accidents or citations, not being able to afford driving, and not wanting to go out were mentioned least often by ceasers as reasons for having stopped driving.
- Drivers gave greater importance to each of the various health and personal factors, which were listed, as possible reasons for ceasing to drive than did ceasers reporting on their actual experience. This finding is similar in nature to that in which drivers anticipated more negative impacts of driving than ceasers actually reported experiencing. It could be that ceasers did not recall all of the factors that went into their decision, or that drivers overestimated what actually would cause them to cease driving, should the time come to do so.
- Current drivers cited numerous factors as reasons that would cause them to stop driving. Those rated as most important included: having too many accidents, not seeing themselves as a safe driver, having their doctor or family or friends advise them to stop driving, having too many citations, losing confidence in their driving, getting confused while driving, no longer wanting to drive, poor vision, taking medication that affects driving, and no longer feeling able to afford driving.
- The most frequently cited anticipated reasons for stopping driving differed somewhat between respondents to the survey and those interviewed by telephone. The most common factors that would cause them to stop driving, as reported by drivers interviewed by telephone, included health/medical issues, a decline in vision, diminished reflexes and coordination, and having a friend or family member advise one to stop. Among rural drivers, another important consideration was seeing oneself as a hazard to others. Among ceasers, health/medical issues were cited most frequently by urban ceasers, followed by loss of confidence, poor vision, and having an accident or hitting something. Poor vision was mentioned most often by the rural ceasers who were interviewed.
- The most common changes in driving made by the older adult drivers in urban and rural areas alike were avoiding traffic congestion and avoiding rush hour. Most drivers had made several changes in their driving behavior and did so gradually over time. Other common changes included reduced night driving and avoiding bad weather.

6. WAS THERE A CRISIS SITUATION THAT FORCED THE DRIVER TO STOP DRIVING AND, IF SO, WHAT WAS IT?

• In general, various health/physical and personal changes which occurred gradually over time, rather than a crisis, were found to lead to changes in driving patterns, including ceasing. These changes occurred most often over a period of one to two years, with a majority of all of those interviewed saying changes had occurred in four years or less. Most of the changes identified occurred when the driver was between the ages of 75 and 80.

1.0 INTRODUCTION

1.1 OVERVIEW OF THE STUDY

The Oregon Department of Transportation (ODOT) is currently interested in learning more about the transportation needs of older adults, aged 65 and over, across the state. Included in that interest are the factors that affect older adults' decisions to continue or to cease driving, the perceived availability of alternate forms of transportation options and the willingness to use those options.

With the sponsorship of ODOT, in the spring and summer of 2007, the Institute on Aging at Portland State University conducted a study of persons aged 65 and over, including those who were still driving (termed "drivers") and those who had voluntarily ceased to drive (termed "ceasers"). Both drivers and ceasers were identified using records from 1999 to 2006, provided by ODOT, Driver and Motor Vehicle Services. A one-page survey was developed and mailed to a sample of holders of a current driver's license, an expired driver's license, or a state ID card to determine response rates by groups (drivers and ceasers, urban and rural), and therefore the needed sample size. A larger mail survey was then developed and sent in late spring 2007 to those individuals who had indicated a willingness to participate in the longer survey. A total of 488 completed surveys were returned.

In addition to the survey data, ODOT requested that more detailed, qualitative information be gathered via a telephone interview to provide an elaboration of the transportation experiences of older adults in the state. The interview subjects were selected from among those who completed the mail survey and who indicated their willingness to be called for a follow-up interview by telephone. A total of 100 telephone interviews were completed with these individuals in May and June 2007.

The information garnered from the mail survey and the telephone interviews will assist ODOT in planning for the transit needs of the growing population of older Oregonians, both those who drive and those who have ceased.

1.2 PROBLEM STATEMENT

As of January 2002, the Oregon Department of Transportation reported 428,305¹ drivers aged 65 and over (Personal communication, Vince Van Der Hyde, August 15, 2007). This number will continue to grow as Oregon's population ages. To prepare for the transportation needs of older adults in Oregon, greater understanding is needed of the: reasons for voluntary driving cessation

¹ This number represents a total of all drivers, aged 65 and over, who lived in Oregon at some point during the reporting period.

among older adults; reasons for continued driving among older adults who should not drive due to safety concerns; and impacts of ceasing to drive on older Oregonians.

A preliminary literature review found no Oregon-specific study or any other statewide examination of either the reasons for voluntary driving cessation by aging drivers, or their transportation needs after ceasing to drive. In addition, little or no data were found comparing current elderly drivers with former drivers in the same population. Few studies had examined alternative transportation needs, especially across geographic (e.g., urban versus rural) areas.

1.3 OBJECTIVES OF THE STUDY

In an effort to understand and plan for the transportation needs of Oregon's aging population, the Oregon Department of Transportation commissioned the Institute on Aging at Portland State University to conduct a study of persons aged 65 and older. The study was to address six questions:

- 1. What are the factors that influence voluntary driving cessation?
- 2. What are the physical and emotional barriers that delay driving cessation?
- 3. What opportunities exist for alternative transportation after driving cessation?
- 4. Do drivers make relocation decisions on the basis of driving cessation?
- 5. What are the warning signs that make a driver stop driving?
- 6. Was there a crisis situation that forced the driver to stop driving and, if so, what was it?

The results of the study were intended to be useful for ODOT in developing the *Oregon Transportation Plan* for the Public Transit Division and the Department of Human Services to use in developing programs for alternative transportation services for older adults after driving cessation. In addition the results were also intended to be useful for ODOT's Research Unit for answering questions related to driving cessation and alternative transportation posed by the Oregon Legislature, ODOT staff, and staff of other state and local governments.

1.4 ORGANIZATION OF THE REPORT

This report provides an analysis of both the mail survey and the telephone interview data collected from older drivers and those no longer driving in both rural and urban areas of Oregon. Similarities and differences in the views and experiences of drivers versus ceasers are examined based on the survey and the interview data, and as, or where appropriate, those similarities and differences are compared between rural and urban members of each of those two groups. An extensive literature review is provided in Chapter 2. Chapter 3 describes the methodology used in the study. Chapter 4 constitutes the bulk of the report and presents the findings. Chapter 5 summarizes the findings, highlighting key themes, as well as differences where they exist,

between urban and rural drivers and ceasers, and between the survey and the telephone interview data.

The appendices contain the survey instruments for the three phases of the study: Appendix A includes a copy of the cover letter and short one-page survey; Appendix B includes the cover letters and longer mail surveys for both drivers and ceasers, as well as resulting data from each question; and Appendix C includes copies of the telephone interview surveys conducted for the third phase of the study.

2.0 REVIEW OF THE LITERATURE

2.1 AGING OF THE POPULATION

The number of persons aged 65 and older will increase dramatically over the course of the next twenty years due to the aging of the baby-boom generation (defined as those born between 1946 and 1964). According to the Administration on Aging's (AoA) *A Profile of Older Americans:* 2005 (AoA 2005), the population of those aged 65 and older increased 9.3 percent from 1994 to 2004 (from 33.0 to 36.3 million). During that same period, those aged 46-54, a group that includes a large part of the baby-boomer population, increased 39 percent. Overall, in 2004, one in eight Americans, or 12.4 percent of the U.S. population, was aged 65 years or older. Future predictions by the AoA (2005) indicate that by 2030, there will be nearly twice as many individuals aged 65 or older (71.5 million) in comparison to 2004. This will represent an increase of 7.6 percent in persons aged 65 and over, and will result in one in five persons, or 20 percent of the entire population, being 65 years of age or over (*AoA 2005*). In Oregon, 447,408 residents currently are aged 65 or older, and the state is home to over 1.2 million baby boomers (*U.S. Census 2005*).

The proportion of Oregonians who are 65 years of age and older is similar to, although slightly higher than, the proportion of those 65 years and older in the general U.S. population (Table 2.1) (*U.S. Census 2000*). In Oregon, 12.8 percent of the population was 65 years of age or older in 2000; in the U.S., it was 12.4 percent. The ratio of the number of males to females generally declines with age and is considerably lower for the 65+ population, compared to those aged 45 to 54. For example, in the United States, among those aged 45 to 49, there are 96.8 males for every 100 females, compared to only 69.8 males for every 100 females among those aged 65 and older. In Oregon, the disparity is somewhat smaller, with 98.4 males for every 100 females among those aged 65+ (*U.S. Census 2000*).

Geographic Area	Per	rcent Of To	tal Populat	tion		Male To Fe	emale Ratio	
	45 to 49	50 to 54	55 to 64	65+	45 to 49	50 to 54	55 to 64	65+
United States	7.2	6.2	8.6	12.4	96.8	95.5	91.8	69.8
Oregon	8.0	6.9	8.9	12.8	98.4	98.8	96.2	74.2
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 Table 2.1: Aging Demographics for Oregon versus the United States.

Source: US Census 2000, SFT 1, Table P8. 'Total Population by Age'.

According to the State of Oregon's Office of Economic Analysis, the population of Oregonians aged 45 to 64 is expected to grow by a total of 26.49 percent between 2000 and 2010 (2000). The population of people aged 65 and older in Oregon is projected to increase by 18.29 percent in the same decade.

Table 2.2 shows the projections for each of these age groups through 2013.

YEAR		AGES 45-64		6 45-64 AGES 65+			
	Population	Change fro vear or	om previous [•] decade	Population	Change fro vear or	m previous decade	
		Number	Percent	1	Number	Percent	
2001	846,655	29,702	3.64	441,507	2,502	0.57	
2002	875,385	28,729	3.39	443,771	2,264	0.51	
2003	902,527	27,142	3.10	447,878	4,107	0.93	
2004	928,965	26,438	2.93	452,708	4,830	1.08	
2005	956,919	27,953	3.01	459,861	7,153	1.58	
2006	984,801	27,882	2.91	469,115	9,254	2.01	
2007	1,008,560	23,760	2.41	480,358	11,243	2.40	
2008	1,026,589	18,028	1.79	495,787	15,429	3.21	
2009	1,044,358	17,769	1.73	510,735	14,948	3.01	
2010	1,060,856	16,498	1.58	526,006	15,271	2.99	
2011	1,074,586	13,730	1.29	541,412	15,406	2.93	
2012	1,075,614	1,028	.10	569,454	28,042	5.18	
2013	1,079,697	4,083	.38	595,268	25,814	4.53	

Table 2.2: Growth of Oregon's Aging Population 2001-2013.

Source: State of Oregon Office of Economic Analysis, *Short-Term State Population Forecast through 2013*, 2000. Appendix C: Population Forecasts by Age and Sex, State of Oregon.

2.2 DRIVING SAFETY AND OLDER ADULTS

By 2030, the number of those who are 65 years of age or older and who drive automobiles is expected to double (*Rosenbloom 2003*). By 2050, it is estimated that 15 percent of all drivers will be 65 years of age or older, which is equal to approximately 50 million drivers aged 65+ on U.S. roadways (*Anstey et al. 2005; Carr 2000; Carr, Shead, and Stroandt 2005; Rosenbloom 2003*). Indeed, the demographic of who is driving on U.S. roadways is simply one impact of the aging of the baby-boom generation.

One major concern raised in the literature is the number of fatalities of older drivers due to auto accidents. In fact, older drivers are three times more likely to die from injuries attributed to vehicle accidents than younger drivers (Cobb 1998; Stewart et al. 1993). The gerontological literature has also reported that when vehicle miles traveled are accounted for, older drivers are second only to 18 to 25 year-old drivers in the number of traffic accidents they cause. A recent study in Holland, however, questions the methodology of past research (Langord, Methorst, and Hakamies-Blomqvist 2005). That study found that when drivers over age 75 are compared with all other drivers who drive the same or a similar number of kilometers each year, older drivers cause the fewest number of accidents. According to Langord et al. (2005), more research needs to be done in reference to older drivers and crash involvement to determine whether there is a need to increase licensure requirements for this population group. Tay (2006) addressed this issue and created a theoretical model using crash data, assumptions of self-regulation by older drivers, and population estimates. His model revealed that increasing the licensure requirements for older adults would have an insignificant impact on the number of vehicle accidents. Tay's findings suggest that efforts to restrict the licenses of older adults or to increase licensure requirements based upon chronological age may be ineffective.

Single-occupancy vehicles are the most commonly used form of transportation in the U.S. (*Giuliano, Hu, and Lee 2003; Kostyniuk and Shope 2003; Rosenbloom 1993*); American society has become deeply dependent on this form of transportation (*Kelsey and Janke 2005*). The automobile has changed personal transportation for today's seniors and baby-boomers alike. The baby-boom generation is reported to be even more independent, healthier, while also wanting to and able to live out their lives in their own homes (*Lin 2003*).

Questions, however, are being raised as to: the safety of older drivers, what steps can be taken to improve driving safety among this population, what factors result in some older drivers voluntarily ceasing to drive, and the transportation needs of these older adults. There is little literature that indicates why some drivers choose to voluntarily cease driving, or that compares those who choose to continue driving and those who voluntarily cease. This review of the literature will examine the problems experienced by older drivers, what is known about voluntary cessation and its consequences, and alternative transportation needs for older individuals post driving cessation.

Understanding the senior population of drivers is important for several reasons, but one of the most crucial is safety. Older drivers, particularly those 80 years of age and older, tend to limit the total number of vehicle miles they travel; however, they are three times more likely to die from injuries attributed to a vehicle accident. In fact, approximately 3,000 older drivers die each year in the U.S. due to the injuries they receive as a result of a traffic accident and another 100,000 are injured in automobile accidents (*Cobb 1998; Dellinger et al. 2001; Stewart et al. 1993*). The rate of accident fatalities for older adults is a concern, but so too is the fact that accidents can involve other cars, pedestrians, and cyclists. As the population of drivers continues to age, a better understanding of the problems faced by older drivers is imperative, particularly as the rate of mass transit usage among the elderly has remained stagnant for at least the past two decades (*Giuliano et al. 2003*).

The increase in numbers of older drivers must be examined and planned for to ensure the safety of public roadways for all and to provide for the transportation needs of older Oregonians. Several studies have been done concerning how aging impacts driving ability; a review of that literature will help to give perspective on the challenges to be faced as a result of the aging of our population of drivers.

2.3 CHALLENGES FACED BY OLDER DRIVERS

A number of studies have examined the challenges faced by older drivers. Older drivers face four main challenges to driving that younger drivers typically do not experience, these include: sensory and perceptual changes, cognitive changes, response and execution changes, and the effects of medication(s) on one's driving abilities (*Klavora and Heslegrave 2002*). Examples of issues affecting an individual's ability to drive safely include: the negative effects of poor eyesight, the taking of prescription drugs, and the onset of dementia (*Anstey et al. 2005; Cobb 1998; Hopkins et al. 2004; Kakaiya, Tisovec, and Fulkerson 2000; Keefe et al. 2002; Klavora and Heslegrave 2002; Odenheimer et al. 1994; Reger et al. 2004*).

With age, vision becomes impaired due to lens-protein changes and a decrease in lens density. These two changes can cause nighttime driving to be harder for older drivers, making reading traffic signs more difficult, and making it more difficult for older drivers to recover from glare. Older drivers have also been found to not track moving objects as well than younger drivers (*Trick et al. 2005*). This reduced ability to track moving objects can lead to an increased risk for traffic accidents. In addition, the prevalence of ocular diseases, such as cataracts, glaucoma, macular degeneration, and corneal disease, increases with age, also putting older drivers at greater risk of having an accident due to visual impairment.

Previous research has found that vision problems are the most common reason given for driving cessation among older adults (*Dellinger et al. 2001*); however, a study by Keefe et al. (*2002*) found that some older adults with vision limitations continue to drive. This same study revealed that older drivers with impaired vision do tend to reduce their amount of driving, thus limiting the likelihood of getting into an accident. The researchers noted that older drivers often do not drive at night, avoid driving during rush hour, and reduce the number of vehicle miles traveled in order to compensate for decreased visual acuity. Although vision appears to be a key problem for drivers as they age, there is no consensus as to which vision tests are best able to predict driving ability, nor which type of vision (dynamic, binocular, or color) is most important for driving safety (*Wood 2002*).

Cognitive changes can also occur in older adults. Studies have shown that some older people with dementia continue to drive, even when their cognitive deficits have limited their ability to drive safely (*Hopkins et al. 2004; Klavora and Heslegrave 2002*). This is important because higher rates of accidents have been linked to cognitive impairment. The results from a meta-analysis that investigated existing research on dementia and driving ability concluded that dementia does lead to poor driving, as assessed by both on-road and off-road tests (*Reger et al. 2004*). Hopkins et al. (2004) found that the number of drivers with dementia had increased in Ontario, Canada, by over 50 percent, from 15,000 in 1986 to 34,000 in 2000. That study concluded that drivers in the early stages of dementia may pose no significant risk to roadway safety; however, as the disease progresses, they do pose greater risks, particularly on more heavily traveled roads.

Slower reaction time and the ability to effectively execute driving tasks have also been linked to decreased muscle and joint strength as drivers age. These changes suggest that as older drivers loose motor control and strength, they are less able to drive safely and more likely to get into accidents (*Stewart et al. 1993*).

Another important factor which may affect driving ability among older adults concerns medications. Here, however, there is conflicting evidence. A study in Florida (*Stewart et al. 1993*) found that the 50 most commonly prescribed drugs to seniors did not negatively impact their ability to drive safely. This finding, however, is contrary to the conventional wisdom that the use of medications, particularly those that can affect vision or motor function, will impact driving ability (*Klavora and Heslegrave 2002*).

Although many older adults compensate for the decreased physical functioning that typically accompanies the aging process, the majority of older Americans continue to drive because many live in rural areas or suburban areas with limited access to public transportation (*Cobb 1998*). In

terms of which age group is more likely to cause accidents, Cobb (1998) noted that the answer depends on how the question is asked. Crash involvement rates are highest among the youngest drivers and the lowest rates are among the elderly. If, however, one looks at crash involvement rates taking into account the number of miles traveled, although the youngest drivers still have the highest rates, the elderly have the second-highest rates. This is because older adults generally do not drive as many miles as do younger drivers, but for the miles they do travel, they have a high incidence of traffic accidents.

2.4 FACTORS LEADING TO VOLUNTARY CESSATION OF DRIVING

Previous research has shown that the decision to voluntarily cease driving is influenced by the age of the driver and their gender, as well as by medical and non-medical self-reported reasons (*Brayne et al. 2000; Dellinger et al. 2001; Ragland et al. 2004*). With the anticipated increase in the number of older drivers on Oregon roadways in the next 20 years, it is important to understand what leads some to cease driving and the effects of that decision.

Bailey (2004) used the 2001 National Household Transportation Survey data to look at aging Americans' mobility patterns and found that more than one-in-five (21%) Americans over the age of 65 did not drive for reasons including declining physical and cognitive limitations, safety concerns, and having no car or no access to a car. Over half of non-drivers 65 and older stayed at home because they had no transportation options.

A study done in Great Britain of seniors aged 84 and older found that a minority of these seniors (8.4%) were still driving (*Brayne et al. 2000*). Those who did continue to drive automobiles had no physical or cognitive limitations aside from some hearing loss (22.6%), while the non-drivers often cited poor health (48.5%) as the primary reason for having stopped driving (*Brayne et al. 2000*). This study is consistent with the theory of selective optimization and compensation (*Baltes and Baltes 1990*), which states that as we age, we:

- 1. Select (or deselect) certain activities based upon our physical and cognitive abilities,
- 2. Optimize what we can do, and
- 3. Compensate to accomplish tasks in new ways.

This theory is supported by the fact that some drivers voluntarily deselect driving as a form of transportation due to physical limitations.

At the same time, there also is evidence that not all older drivers who have physical and cognitive limitations choose to cease driving (*Dellinger et al. 2001*). A study of 1,950 seniors living in southern California found that while medical or physical limitations were the most common self-reported reasons for ceasing, other elders, with a greater number of medical conditions and more physical limitations, continued to drive (*Dellinger et al. 2001*). In fact, the number of medical conditions and the decision to cease driving were found to be inversely correlated, meaning that those who were most limited in their ability to drive tended to continue to do so (*Dellinger et al. 2001*). Among those who had ceased to drive, the medical reasons cited most often were poor vision and cardiovascular problems. While vision was the most

common self-reported reason for driver cessation, vision itself has been shown to be correlated with increased risk of accident only after age 70 (*Dellinger et al. 2001; Ragland, Satariano, and MacLeod 2004*).

Dellinger et al. (2001) also found other non-medical reasons given for driving cessation, including loss of confidence, trouble with licensing, concern about being in an accident, fear of crime, and not being able to pay for vehicle upkeep. In addition, gender has been found to be a factor; specifically, several studies have shown that women are more likely to cease driving at an earlier age than are their male counterparts (*Dellinger et al. 2001; Ragland et al. 2004*), despite being physically and cognitively able to continue (*Stewart et al. 1993*).

A recent study by Carr, Shead, and Storandt (2005) compared older drivers who had dementia to those who had dementia but who had voluntarily ceased driving. The researchers expected to find that those who had ceased driving were more cognitively challenged than those who had continued to drive. Instead, they found no significant difference in impairment between the two groups; in fact, on some measures, such as word fluency and mental control, the non-driver group actually scored higher than the driver group. Taken together, these studies suggest that some seniors see their physical or mental limitations as reasons to discontinue driving, while others do not. There is no consensus as to why some drivers with dementia choose to cease driving while others do not.

Little intervention research aimed at identifying ways to help older drivers more realistically gauge their driving ability has been conducted. An exception is a study by Eby et al. (2003), which developed a self-assessment driver evaluation workbook and an on-road test. Respondents were asked to answer questions that were formulated to assess their individual driving. The three categories were health, driving experiences, and driving attitudes. In post-survey interviews, most of the respondents believed the workbook was highly educational and 14 percent claimed they discovered limitations to their driving ability that they had not previously noted. The researchers concluded that not only was the workbook a good educational tool, but it provided a tool for families to discuss driving despite physical or cognitive limitations. Kostyniuk and Shope (2003), for example, found that 33 percent of drivers who anticipated problems in their ability to drive reported that they would continue to drive regardless. An educational intervention may be one method of increasing the number of seniors who voluntarily choose to cease driving.

2.5 OUTCOMES OF DRIVING CESSATION

Some research has examined the impacts of driving cessation on older adults. Among the outcomes found include susceptibility to depression and to isolation. Specifically, researchers have demonstrated a correlation between driving cessation and increased depressive symptoms, and also between driving cessation and a reduction of activities outside the home (*Fonda et al. 2001; Marottoli et al. 2000; Ragland et al. 2005*). Even reductions in driving, or partial cessation, were shown to increase the likelihood of depression. Furthermore, the presence of a spouse did not mediate depressive symptoms of those who cease to drive. It is important to note that the depressive symptoms did not precede driving cessation; thus, there appears to be a causal

relationship between cessation and driving, with cessation being the catalyst (*Ragland et al.* 2005). The likelihood of depression as an outcome to driving cessation (either total or partial) indicates the possible utility of transitional programs that, by assisting seniors to adjust from being drivers to non-drivers, would help deter the onset of depression (*Fonda et al.* 2001).

One factor that may influence whether a senior who ceases driving becomes depressed is the amount of activity she or he has outside the home. It is now well understood that activity and social interaction can impact a person's health (*Marottoli et al. 2000*) and Marottoli et al. found driving cessation to be strongly associated with a decline in activity outside the home. These findings suggest that driving cessation can lead some seniors to a more isolated existence. Programs that help in the adjustment from driver to non-driver, along with increased public transportation options, may be valuable ways to keep seniors who cannot drive active in their communities and, thus, help to preserve their health.

It should be noted that none of the studies, cited above, examined the impact of mandatory driving cessation. Cessation that is mandatory in nature may well have greater, or different, impacts for those older drivers who are required to forfeit their driving privileges, as opposed to the impacts experienced by drivers who have chosen voluntarily to stop driving. Because Oregon's *Medically At-Risk Driver Program* has a mandatory cessation component, further research is needed to study the impact of driving cessation on those who, through ODOT's, Driver and Vehicle Services enforcement of regulations, to forfeit their driving privileges.

2.6 ALTERNATIVE TRANSPORTATION NEEDS OF OLDER ADULTS

Little research exists on the mobility needs of non-driving seniors in the U.S.. Indeed, although speculation is common in the literature about the need to increase transit availability for seniors, there is little evidence that seniors would use public transportation if it were available, and furthermore little evidence that seniors use it in areas where it is already available (*Giuliano et al. 2003*). Rosenbloom (*2003*) argued that seniors are more mobile now, than at any other time in U.S. history, due to land-use patterns that support decentralized living (specifically, suburban developments). Rosenbloom (*2003*) further argued that decentralization fosters a greater dependence on single occupancy vehicle travel, especially where public transportation is not available. The number of transportation choices available to seniors can improve their ability to leave their homes and be active in their community.

The American Public Transportation Association (2005) released findings from a cross-sectional telephone survey of 404 U.S. older adults showing that nearly all respondents (98%) reported maintaining their independence was extremely important, and 82 percent worried that they would be stranded and unable to get around when they can no longer drive. Two-thirds (66%) believed that their community needed to provide more transportation options for older adults, such as easy-access buses and senior mini-van services. Results showed that respondents would use public transportation on a regular basis if transit services were convenient and easily accessible (80%), took them to many of the destinations that they seek (75%), and if stops were located near businesses that offer senior discounts (68%).

However, a study done in Michigan found that most seniors in that state would not take public transportation, even if it were an option, and that for seniors whose communities already provided public transportation, the majority were unaware of the service (*Kostyniuk and Shope 2003*). Furthermore, of the seniors surveyed, only 2.5 percent used public transportation at all, while most relied on rides from either family or friends. Similarly, although the Administration on Aging (2005) reported that 82 percent of older respondents considered public transportation a better alternative than driving alone, especially at night, most (63%) respondents reported that even when public transportation was available, they did not use it.

A 2004 study by the American Association of Retired Persons (AARP) found that although transit use is often an option for urban seniors, seniors living in rural areas face particular mobility difficulties if they are non-drivers. Rural transportation providers often must cover vast service areas, with relatively few riders, making reliable and cost-effective strategies a challenge. In rural areas, 31 percent of transit trips were found to be made by older adults – a much higher proportion than in non-rural areas (*AARP 2004*).

Coughlin (2001) performed a study using focus groups to generate information about the perceptions and preferences for transportation options among adults aged 75 and older. Suburban drivers and non-drivers, as well as urban non-drivers, noted that mobility was a critical element of overall life satisfaction, both for meeting the daily necessities of life and for maintaining social connections. A strong preference was expressed for use of the personal automobile for transportation, whether respondents were drivers or non-drivers. Alternatives such as public transportation, walking, taxis, and senior vans all were seen as less attractive alternatives. Urban non-drivers seemed most flexible in the mode of transportation that they would consider, especially in regard to public transportation. Persons in the suburbs had little information about transportation alternatives to the automobile in the community.

Ernst and McCann (2005) reviewed laws that promote non-motorized mobility and laws that place age-based restrictions on driver's license renewals. Four states (California, Colorado, Maine, and Oregon) promote the mobility options of public transit, walking, and bicycling for all state residents. Ernst and McCann (2005) concluded that better transit, walking, and bicycling systems for everyone would allow older people to transition seamlessly from driving to other travel modes, or to supplement their driving by using these alternatives modes, thereby reducing their loss of independence and enhancing their mobility. They also concluded that this would allow individuals to remain integrated with the rest of their communities as they shared buses, trains, bike lanes, and sidewalks with the general population. However, empirical evidence to support these conclusions does not yet exist.

2.7 CONCLUSION

Existing literature reveals that with age, older adults may experience loss of vision, as well as reaction, execution, and cognitive abilities to the point that driving may become hazardous. Proportionally more seniors die as a result of traffic fatalities than any other age group; and when vehicle miles traveled are considered, seniors are the second most likely age group to be in an accident.

Some, but not all, older adults who experience physical or cognitive difficulties choose voluntarily to restrict or cease driving. Although the majority of older drivers do not pose a safety threat, previous research has found that some older drivers continue to drive even when they are not able to do so safely. Additional research concerning the factors affecting the decision to cease or to continue driving is needed.

Furthermore, greater understanding of the impacts of driving cessation – particularly the loss of independence, reduced activity outside the home, and the increased risk of depression and isolation – is needed, as are ideas for ways in which the needs of older drivers who must transition to non-driver status can be met. Programs that may assist older drivers who forfeit their licenses include mental health counseling and educational forums on how to access alternative transportation options, although little evaluative research exists on the effectiveness of these programs. Some research studies also have suggested ways to make it easier for older adults to drive longer. Ideas include larger traffic signs and stop lights, better lighting, driver education, and self-assessment tests (*Baggett 2003; Eby et al. 2003; Kelsey and Janke 2005*).

The remainder of this report describes a study designed to address some of these research needs, specifically in Oregon. In particular, the factors that influence voluntary driving cessation and keep older adults in Oregon driving beyond the time that it is safe for them to do so, along with the availability of and use of alternative transportation options, and the factors affecting use, are examined.

3.0 METHODOLOGY

3.1 OVERVIEW

This study consisted of three phases. The first phase involved a short screening survey sent to a sample of older adults in Oregon. The purpose of the survey was to assess their willingness to respond to a longer survey about the transportation behaviors and needs of older adults. The second phase involved developing and mailing the larger survey, which included a request for volunteers to participate in a follow-up telephone interview. The third phase consisted of conducting telephone interviews with a sample of those respondents to the second mail survey, who volunteered to be interviewed.

The study began with the development and mailing of a short one-page survey to 2,000 randomly selected persons aged 65 or older in the State of Oregon. This sample consisted of current drivers, persons with expired drivers' licenses, and state ID card holders. Persons who had been mandated to stop driving under Oregon's *Medically At-Risk Driver Program* were excluded from the sample, as the focus of this study was on the factors affecting voluntary, not mandatory, cessation of driving. This sample was further segmented (disproportionately, so as to have approximately equal groups) by a *rural* versus *urban* designation, as defined by the U.S. Census (*Gibson* 1998). The one-page survey was meant to determine the response rate by groups (e.g., current drivers versus those who had voluntarily ceased driving, urban versus rural) that could be anticipated for the larger survey and to develop a list of approximately 1,500 potential respondents.

Due to a low response from both the expired license holders and the state ID card holders, the one-page survey was mailed to an additional 3,601 persons with expired licenses or ID cards. From the two mailings combined, a total of 1,154 persons indicated they would be willing to complete the longer mail survey.

Two versions of the second mail survey were developed: one for those who had voluntarily ceased driving (called "ceasers") and the other for those who were still driving (called "drivers"). A total of 488 completed surveys were returned. At the end of the mail survey, respondents were asked if they would be willing to be interviewed by telephone so that the researchers could learn more about their experiences or thoughts about transportation for older Oregonians. A sample of those willing to be interviewed was selected, two versions of the interview guide were developed (for ceasers and for drivers), and 100 telephone interviews were completed.

3.2 SAMPLE SELECTION

3.2.1 Response-Rate Determination Survey

The sample sizes originally stipulated for this study were based on one of its initial goals – to compare older adults who voluntarily ceased driving (ceasers) with those who were referred for mandatory cessation ("mandatory ceasers"). Through 2004, there were a minimum of 1,500 individuals under the mandatory referral program; therefore, an initial sampling goal for the study was to identify 1,500 voluntary ceasers. Although mandatory ceasers were eventually eliminated from examination in the present study, achieving a similar sample size facilitates future comparative studies of mandatory and voluntary ceasers. Thus, the present study involved an examination of driving behavior and voluntary, not mandatory, cessation among older adults in Oregon.

To identify the sample, ODOT's Driver and Motor Vehicle Services provided data files containing three different populations of individuals aged 65 and over – those with: (1) Oregon driver licenses; (2) Oregon identification cards; or (3) expired Oregon driver licenses. From these data, cases dating from 1999-2006 were selected to represent the standard license renewal period.

In order to determine the rate of voluntary ceasers within the three sampling populations (driver's licenses, ID cards, and expired licenses), as well as the rate of response by group that could be expected to take the survey (i.e., current driver, ceaser), a one-page survey was sent to 2,000 individuals. As described in Section 3.3.1 below, in this brief response-rate determination survey, individuals were asked whether they were currently driving in Oregon or not, and whether they would participate in a mail survey about older adults and transportation in Oregon.

Because of ODOT's interest in similarities and differences between urban and rural drivers, and between drivers and ceasers, the 2,000 individuals were randomly selected from a total of 61,874. First, a proportional sample was developed based on the three populations, and then a disproportional sample was created based on the designation of the area of each individual's residence as defined as *urban* or *rural* in the 2000 Census. For this disproportional sample, individuals were stratified by zip code, and then each zip code was given an *urban* or *rural* designation; if 50 percent or more of the population had been designated in the 2000 U.S. Census as urban, the zip code was classified as urban.² Cases having zip codes without this designation (e.g., zip codes created after the 2000 Census) were excluded from the sample. See Table 3.1 for details.

² An *urban area* is all territory, population, and housing units in urbanized areas and in places of more than 2,500 persons outside of urbanized areas. "Urban" classification cuts across other hierarchies and can include zip codes located in metropolitan or non-metropolitan areas. For the 2000 Census, there were two types of urban areas: *urban clusters* and *urbanized areas*. An *urban cluster* was defined for Census 2000 as a densely settled territory that has at least 2,500 people, but fewer than 50,000. An *urbanized area* was defined as an area consisting of a central place(s) and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together has a minimum residential population of at least 50,000 people. A *rural area* was defined as all territory, population and housing units not classified as urban. "Rural" classification cuts across other hierarchies and also can include zip codes located in metropolitan as well as non-metropolitan areas.
	Pop	oulation	Total	Percent	Sample
	Proportio	onal Sample By T	ype Of Licens	sure/Id (199	9-2006)
Ex	pired		9,867	16	320
ID	cards		8,821	14	286
Licenses			<u>43,186</u>	<u>70</u>	<u>1,394</u>
		Total	61,874	100	2,000
	Di	sproportional San	nple By Urbar	n-Rural Stra	ta
ч	Rural		1,665	17	160
ire	Urban		8,040	<u>83</u>	<u>160</u>
Expi		Subtotal	9,705	100	320
		[Missing zip] ^a	[162]		
s,	Rural		969	11	143
arc	Urban		<u>7,697</u>	<u>89</u>	<u>143</u>
\mathbf{O}		Subtotal	8,666	100	286
Π		[Missing zip] ^a	[155]		
s	Rural		7,299	17	697
nse	Urban		35,093	83	<u>697</u>
ice		Subtotal	42,392	100	1,394
Г		[Missing zip] ^a	[794]		
		Total	60,763		2,000
	[Excludin	g missing zips] ^a			

 Table 3.1: Sample – First Mailing.

^a Missing zip" refers to addresses with new zip codes, created since 2000, that did not have an urban-rural designation available. Individuals for whom urban-rural designation could not be determined were excluded from the sample.

The results of the first mailing are shown in Table 3.2. Of the 2,000 surveys mailed, 236 were returned as undeliverable. Of the remaining 1,764 cases, 888 responses (50%) were received. Of those who responded, 607 (68%) indicated that they were willing to participate in the larger mail survey. Of those 607 respondents, 14 (all with current licenses) were eliminated from the sample because proxies responding on their behalf indicated that the individual named could not participate due to mental or cognitive disability. Thus, based on this first mailing, 593 potential respondents for the larger mail survey were identified: 528 with current licenses, 18 whose licenses had expired, and 47 with ID cards.

Among the 593 initial mail respondents, there were approximately equal proportions of urban and rural individuals in each category (expired license, ID card, current license) who replied to the one-page survey. Individuals with current licenses were more likely to respond than were holders of state ID cards, or those with expired licenses. Although not depicted on Table 3.2, the response to this mailing confirmed that individuals holding ID cards and those whose licenses had expired indeed, generally, had ceased driving.

Among the respondents, purported willingness to participate in the larger survey was highest among drivers (79%), considerably lower among state ID card holders (39%), and even lower among respondents with expired licenses (23%). With respect to urban/rural differences, willingness to participate was about equal for urban and rural drivers, but urban individuals holding either expired licenses or ID cards were less likely to say they would be willing to participate in the larger survey than were their rural counterparts.

	Category	Sample	Resp	onse	Willing to	Willing to Participate		
			Replies	Percent	Replies	Percent		
p	Rural	160	40	25	12	30		
cpire	Urban	<u>160</u>	<u>37</u>	<u>23</u>	<u>6</u>	<u>16</u>		
Εx	Subtotal	320	77	24	18	23		
ds	Rural	143	60	42	25	42		
ID Card	Urban	<u>143</u>	<u>62</u>	<u>43</u>	<u>22</u>	<u>35</u>		
	Subtotal	286	122	43	47	39		
SS	Rural	697	338	48	255	75		
cense	Urban	<u>697</u>	<u>351</u>	<u>50</u>	<u>287</u>	<u>82</u>		
Li	Subtotal	1,394	689	49	542	79		
e	Total Mailed	2000	888		607	68		
ldm	Returned as undeliverable	-236						
al Sar	Eliminated (ineligible with licenses)				-14			
To	Adjusted Total	1,764	888	50	593	68		

Table 3.2: Response and Participation Rates – First Mailing.

Based on the results from this first mailing, it was clear that to meet the study objectives, the number of individuals who had ceased driving and who would be willing to participate in the larger survey would have to be increased. Thus, a second mailing was sent to 3,600 state ID card holders (Table 3.3). Holders of expired licenses were not included in this additional mailing because, in the first survey, the number who agreed to participate in the larger survey was so low (23 out of 320).

C	ategory		Sample	Resp	onse	Willing to I	Participate
				Replies	Percent	Replies	Percent
cds	Rural		827	144	17	134	93
) Cai	Urban		<u>2,773</u>	<u>674</u>	<u>24</u>	<u>451</u>	<u>67</u>
Ξ		Subtotal	3,600	818	23	585	71
Re	eturned as u	ndeliverable	-468				
El	iminated					-24	
	Ac	ljusted Total	3,132	818	26	561	71

Table 3.3: Response and Participation Rates – Second Mailing.

Of the 3,600 one-page surveys mailed in the second mailing, 468 (13%) were returned as undeliverable. Of the remaining 3,132, 818 (26%) responses were received; among those, the rate of willingness to participate was 72% (585 out of 818). However, 24 people were eliminated due to mental or cognitive disability, resulting in 561 voluntary ceasers who were eligible and agreed to complete the larger survey. When combined with the 47 individuals holding ID cards and the 18 individuals with expired licenses, identified in the first mailing, the sample of voluntary ceasers who indicated willingness to participate in the larger mail survey numbered 626. Thus, with the 528 drivers (holders of current licenses) who, in the first mailing,

had indicated willingness to participate, the total sample consisted of 1,154 individuals who agreed, initially, to be a part of the study by completing a mail survey. Of the 528 individuals who held a current Oregon Driver's License, 253 identified themselves as living in a rural area of Oregon and 275 said they lived in an urban area. Of the 608 individuals who held Oregon State Identification Cards, 154 reported they lived in a rural area and 454 said they lived in an urban area. Of the 18 respondents who held an Oregon Driver's License that had expired, 12 reported living in a rural area and 6 in an urban area.

3.2.2 Mail Survey of Driving Behavior and Ceasing Among Older Adults

The study's mail survey of driving behavior and cessation was developed and sent to the 1,154 individuals who had agreed to be part of the study via the one-page response-rate determination survey described above. A total of 534 responses were received, as shown in Table 3.4; another 75 surveys were returned as undeliverable, for a response rate of 49.5 percent (534/1,079).

	Sample		Returned	Deceased	Other	Usable
			Surveys		Problems	Surveys
U	Driver		185		1	184
rbaı	Ceaser		<u>116</u>	<u>4</u>	<u>2</u>	<u>110</u>
D		Subtotal	301	4	3	294
ural	Driver		141			141
	Ceaser		<u>64</u>	<u>12</u>	<u>15</u>	<u>37</u>
Å		Subtotal	205	12	15	178
vn	Driver		17			17
knov	Ceaser		<u>11</u>			<u>11</u>
Un		Subtotal	28			28
San	nple Total		534	16	18	500

Table 3.4: Disposition – Mail Surveys.

Of the 534 completed surveys, 34 were not included in the analyses. These surveys were not useable based on the following reasons:

- Multiple respondents had provided answers (n=1).
- Persons other than the one to whom the survey was addressed completed the survey (n=5).
- The respondent had ripped off the last page of the survey containing his/her survey ID number and urban-rural designation (n=3).
- A note attached to the survey indicated the person was unable to respond (n=5).
- The returned survey was completely blank (n=4).

• The potential respondent had died (n=16; all were ceasers – 4 urban and 12 rural; in 2 cases we learned of this through phone calls to our office, in which a spouse notified us that because the respondent had died, the spouse had completed the original response-rate determination survey and then the mail survey itself).

The final sample of respondents whose surveys were included in the analysis, then, was 500: 342 respondents who were current drivers (184 urban and 141 rural, plus 17 who did not report whether they lived in an urban or rural area) and 158 respondents who had voluntarily ceased driving (110 urban and 37 rural, plus 11 who did not report their urban-rural status).

3.2.3 Follow-up Telephone Interviews with Drivers and Ceasers

Among the 500 usable mail surveys received, 190 respondents (38%) indicated that they would be willing to participate in a follow-up telephone interview. Those who were willing provided a telephone number and an indication of the days and times it would be convenient to call. Staff compiled these surveys, entered selected information from them into a spreadsheet, and copied selected portions of the surveys to be referred to in the interviews. From the call list, names were selected and provided to the interviewers.

As shown in Table 3.5, of the 190 individuals who agreed to be called, 130 were contacted, each at least once (e.g., one attempt made). A total of 246 calls were required to complete 100 interviews.

Disposition	Number Of Calls	Percent Of Total Calls
The number was not in service, had been disconnected, or yielded a recording indicating that it was no longer an active number	2	.8
The number rang, but no one answered; always an answering machine; always busy; the protocol requires 10 calls to non-answering numbers	24	10.0
An answering machine was reached at the telephone number	95	39.0
Those unable to participate due to death, self-defined health reasons or deafness	6	2.0
Contact was made with the household, but not necessarily the designated respondent; by the end of the field period, the case neither yielded a refusal or completed interview	12	5.0
The interview was interrupted, but not terminated; the field period ended before the full interview could be completed	2	.8
Caller, on contact, refused to participate in the study	4	2.0
Informant discontinued survey and would not complete	1	.4
An interview was completed with the designated respondent	100	40.0
Total	246	100

Table 3.5: Disposition – Telephone Contacts.

Due to time constraints, it was not possible to wait until all surveys were received and then randomly choose the sample. Instead, as surveys were returned, the list of names for a given time period was compiled and distributed to interviewers. Two weeks into the interview process, however, an analysis of completed interviews, by rural/urban and driver/ceaser, was done and it was noted that few interviews with rural ceasers had been completed. Extra effort was made to

reach more of these respondents in subsequent calls. Even with this approach, interviews were completed with only six rural ceasers. Completed interviews by type are shown in Table 3.6.

1 a	ole 3.0. Sam	pie – Telep	mone muerviews
R	espondent T	'ype	Completed Interviews
S	Rural		36
rive	Urban		<u>33</u>
ā		Subtotal	69
rs	Rural		6
case	Urban		<u>25</u>
Ŭ		Subtotal	31
Т	otal Sample		100

 Table 3.6: Sample – Telephone Interviews

3.3 INSTRUMENT DEVELOPMENT

3.3.1 Response Rate Determination Survey

As noted in the above description of the study's sample, to determine what response rate could be expected for each subgroup to be surveyed as a part of the larger mail survey to be conducted of older adults and their travel patterns, an initial response-rate determination survey was created. Although this initial survey was originally proposed as a postcard, the team realized that to maintain respondent confidentiality, it would be necessary to have the survey returned in an envelope. As a result, the response-rate determination survey was designed as a one-page survey, in 14-point font. The survey packet included a cover letter on ODOT stationery that was signed by an ODOT official. The one-page survey (Appendix A), and a return envelope was addressed to the Institute on Aging at Portland State University. The packet was mailed in an ODOT envelope. In an effort to enhance response rate, per Dillman's (2007) recommendations, stamps were placed by hand on each return envelope, rather than using a postage meter.

The one-page response-rate determination survey instrument consisted of questions eliciting the following information: whether the respondent currently drove motor vehicles on Oregon roads and, if not, if they ever had driven on Oregon roads; if they would be willing to participate in a larger survey of older adults concerning transportation in Oregon; if the address to which the survey was mailed was the respondent's preferred address and, if not, what that address was; and, if someone other than the named respondent was completing the survey, why the original respondent was not able to respond. The draft survey instrument was reviewed by ODOT's Technical Advisory Committee (TAC) and approved for mailing.

Each potential respondent was assigned a four-digit code for response-tracking purposes. As indicated in Section 3.2.1, the first mailing of the response-rate determination survey went to 2,000 persons aged 65 and older in Oregon. A supplemental sample of 3,600 state ID card holders and individuals with expired licenses then was drawn, due to low response rates from these groups, and the one-page survey was sent to those individuals as well.

3.3.2 Mail Survey of Driving Behavior and Ceasing Among Older Adults

The mail survey, *Driving Behavior and Cessation Among Older Adults in Oregon*, consisted of two versions. One version was developed for individuals who indicated in their response-rate determination survey that they were current drivers (drivers) and the other version for those who no longer were driving or who had never driven on Oregon roadways (ceasers). Drafts of both versions (driver and ceaser) of the instrument were reviewed by ODOT's Technical Advisory Committee, and comments and suggestions made by that group were integrated into the final versions. Given the study population, the final versions were printed in 14-point font to enhance readability. Each version consisted of 36 questions (Appendix B).

The two versions of the survey instrument were identical with respect to the questions on: demographic characteristics; depression; frequency of use of different modes of transportation; types and number of trips taken; whether or not a health problem had limited the respondent's travel; and knowledge and use of public transportation alternatives available in the respondent's community.

These general questions then were followed by a series of questions about changes in driving that were parallel, but not identical, for the two groups. Specifically, drivers were asked to report on changes they had made to their driving *in the previous year* and to speculate on what the health-related and/or personal reasons they *believed* would make them stop driving. Ceasers were asked the same questions, but phrased differently to reflect their situation. Specifically, ceasers were asked what changes they had made in their driving *in the year before they stopped driving* (offering an historical perspective), and what health and personal experiences had *actually* caused them to cease driving.

The next section of both versions of the instrument concerned the impact of driving cessation. In particular, drivers were asked to speculate on the impact they *anticipated* that driving cessation would have on their lives, whereas ceasers were asked about the *actual* impact cessation had had on their lives.

The final section of both versions of the instrument concerned vehicle ownership and miles driven. Drivers were asked how much longer they expect to drive and ceasers were asked how long it had been since they had stopped driving. Both drivers and ceasers were asked if they keep a vehicle to be driven by themselves or others, and how many miles they and/or others had driven the vehicle in the last year. At the end of the survey, both drivers and ceasers were given space to add additional comments and each respondent was asked if he or she would be willing to participate in a follow-up phone interview.

3.3.3 Follow-Up Telephone Interviews with Drivers and Ceasers

The telephone interview guide consisted of open-ended questions designed to build on, but go beyond, the survey responses regarding changes in driving habits, reasons to stop driving (hypothetical for those still driving, actual for ceasers), and transportation alternatives. In asking about changes in driving habits, for example, the interviewer would refer to the changes the respondents had cited on the survey as those done "always" or "often" (e.g., "limit distance I drive") and ask them to talk more about these changes, including over what period of time the changes had occurred and the impact of these changes on their life. The exception to this process was if the individual mentioned only changes that had occurred "sometimes" or "hardly ever," in which case the interviewer asked about any changes noted, regardless of frequency.

Similarly, those interviewed were prompted about their survey response to the availability of alternative forms of transportation in their community. If a person responded that there were no transportation alternatives in their community, the interviewer asked them to reflect on how this impacts their life, how they get around, and, if still driving, to what extent a lack of alternatives might influence their future driving decisions. If the person responded that they did have alternative forms of transportation, the interviewer would discuss whether these alternatives are used, how often, and to accomplish what types of activities. In this way, the interview followed on the mail survey responses, probing for elaboration of the older person's transportation experiences.

Both drivers and ceasers were asked essentially the same questions, but with either a past or future tense. For example, ceasers were asked what changes they had made prior to ceasing to drive and the time period over which these changes had occurred. Drivers, similarly, were asked what changes they have seen in their driving and over what period of time. Ceasers were asked what finally made them stop driving, while drivers were asked what they thought might make them stop at some point in the future.

Although the interviews were anticipated to take 45 minutes to one hour, most averaged 20 to 30 minutes. In some cases, respondents were fatigued or in poor health, and even this length of time proved difficult. Others noted that they had sent in a card agreeing to do the mail survey, had completed the mail survey, and they were not sure they had much more to add. Even with skilled probing by the interviewers, few interviews lasted more than one-half hour. Interviewers' assessments were that an hour-long interview would be difficult for many (with the exception of the young-old) individuals in the population under study.

Each of the interviews was recorded and transcribed for analysis. Copies of the interview guides are included in Appendix C.

3.4 DATA ANALYSIS

3.4.1 Response-Rate Determination Survey

Microsoft *Excel* software was used to track answers from individual respondents. The tracking was aided by four-digit codes assigned to each member of the sample at the beginning of the study. In addition, *SPSS* statistical analysis software was used to determine the overall and subgroup response rates, and to analyze the data from the responses to each item on the *Response Rate Determination Survey*.

3.4.2 Mail Survey of Driving Behavior and Ceasing Among Older Adults

All analyses were performed using *SPSS* statistical software (versions 13 and 15). Descriptive analyses were conducted for all items on both versions (drivers and ceasers) of the survey.

Frequencies and percentages for the responses on each item are provided for each version of the survey instrument (Appendix B). In addition, t-tests and chi-square analyses were conducted, as appropriate, to determine group differences (i.e., ceasers vs. drivers, rural vs. urban ceasers, and rural vs. urban drivers). In this report, *p* values of \leq .05 are reported as indicating a statistically significant difference between groups and are highlighted in the tables using bold type. Respondents' own assessment as to whether they resided in an urban or rural area was used for the purposes of group comparisons, as opposed to the less refined Census designation (see Footnote 1). Logistic regression analysis was conducted to identify the factors that predict driving status (current driver versus voluntary ceaser).

3.4.3 Follow-Up Telephone Interviews with Drivers and Ceasers

Analysis of the interview data was completed using qualitative analytic software, *ATLAS.ti* (*Version 5.0*). This software provides a powerful tool to gain a detailed view, across types of respondents, of common themes and differences that emerge from the narrative data. To analyze the telephone interview data, then, the transcribed interview texts were read, passages of interest were selected, and code words and/or memos were assigned to quotations. Although this process does allow for analysis involving "counting mentions" or responses in the text, here it was not used only in this strictly code-retrieval way; it was used to provide depth and insight, based solidly in what those interviewed said, and to facilitate the selection of key illustrative quotations. Comments made anywhere in the interview that were relevant to a topic were included in the analysis, regardless of whether they were made in direct response to a question.

4.0 FINDINGS

4.1 DEMOGRAPHIC AND PERSONAL CHARACTERISTICS

In this section, the demographic and personal characteristics of respondents to the mail survey are presented. First (Section 3.1.1), respondents are compared with respect to their driving status (current drivers versus ceasers). Next, comparisons are made between drivers who live in urban versus rural areas (Section 3.1.2), and then between urban versus rural ceasers (Section 3.1.3). Statistically significant differences between groups are considered to be those with *p* values of \leq .05. The tables denote statistically significant group differences by highlighting in bold type the p values that are < .05.

4.1.1 Characteristics of Drivers versus Ceasers

As shown in Table 4.1, there were several demographic differences between current drivers and ceasers. For example, drivers were younger than ceasers, with drivers having a mean age of 74.7 years, compared to 84.3 for ceasers. This finding is consistent with previous literature, which has found that driving drops off considerably between the ages of 80 and 85 (*Foley et al. 2002*). The survey findings also were consistent with the literature on the gender balance of drivers and ceasers (*Ragland et al. 2004*), as more women than men were ceasers, and more men than women were drivers. Of the ceasers, 66.7 percent were female, while only 46.1 percent of the drivers were female. Not surprisingly, given the age difference between the two groups, more drivers than ceasers were employed, and more drivers reported that they volunteered.

	Characteristic	D (N	rivers [=342)		C (N	easers (=158)		P Value
		Mean (%)	N =	SE	Mean (%)	N =	SE	-
Ag	ge (in years)	74.7	337	.36	84.3	153	.60	.00
X	Female	46.1	155		66.7	102		.00
Š	Male	53.9	181		33.3	51		
IS	Never married	1.2	4		2.6	4		.00
al Statu	Separated	.9	3		0.0	0		
	Divorced	7.1	24		6.5	10		
arit	Widowed	15.7	53		48.7	75		
Σ	Married/partnered	75.1	254		42.2	65		
	Less than high school	5.4	18		15.0	23		.01
	High school graduate / GED	20.8	70		26.8	41		
ion	Vocational tech training	6.3	21		5.2	8		
Icat	Some college	28.9	97		22.2	34		
Edu	College degree	12.2	41		9.8	15		
	Some graduate/professional school	8.0	27		5.2	8		
	Graduate/professional degree	18.5	62		15.7	24		

 Table 4.1: Demographic Characteristics (Mail Survey) – Drivers versus Ceasers.

Continued

	Characteristic		D	rivers		Ce	asers		P
			(N Moon (%)	N=342)	SF	(IN Moon (%)	=158) N -	SF	value
	Less than \$10,000		Mean (76)	IN = 5	SE	10.5	$1\mathbf{N} =$	SE	00
	\$10,000-19,000		10.8	34		26.3	35		.00
e	\$20,000-29,000		17.1	54		17.3	23		
om	\$20,000-29,000		17.1	55		21.5	23		
Inc	\$40,000-49,000		13.9	44		9.0	12		
	\$50,000-59,000,		12.0	38		3.8	5		
	More than \$60,000		27.2	86		12.0	16		
In	Senior Residence or	Ves	8.6	29		31.6	48		00
C	ommunity	No	91.4	307		68.4	104		.00
	Single detached home	110	83.0	279		55.8	82		.00
be	Attached home		2.7	9		14	2	•	.00
Ty	Apartment		3.6	12		18.4	27		
ы В	Condominium		1.5	5		3.4	5		
elli	Mobile home travel trailer		8.6	29		10.2	15		
Mo	Assisted living residential of	are	0.6	2		10.2	15		
Ц	Nursing home		0.0	0		7	1		
	Nursing nome	Rent	93	31		32.4	46		00
Н	ome Ownership	Own	90.7	303		52.4 67.6	96	SE SE 2.23 1.31 .08 .08	.00
		Rural	56.6	18/		74.8	110	.00 .00 .00 2.23 .78 .05 1.31 .55 .05 1.31 .55 .05 .05 .05 .05 .05 .05 .05 .05 .05	00
L	ocation (Rural/Urban)	Urban	13 A	1/1		25.2	37		.00
M	iles from Town if Located O	utside	8.4	151	71	8.9	<u> </u>	2.23	78
101	nes nom rown, n Located O	1	21.6	69	./1	32.2	46	2.23	.78
		1	21.0	117		30.2	40 56		.03
ODOT Zone (Region) of		2	30.0	75		39.2 14.7	21		
R	esidence	3	23.4	10		14.7	14		
		4	12.3	40		9.0	6		
	moth of Times in Desidence	3	3.9	224	80	4.2	151	1.21	55
	sigti of Thile III Residence	Alono	17.1	554 75	.60	10.5	72	1.51	.55
Li	ving Alone or With Others	Alone an uu/ Oth and	25.1	240		49.7	73		.00
		Employed	/0.9	249		30.3	152		00
Eı	nployment Status	Employed	89.9	303		99.3	132		.00
16	Employed Houng Don Weals	Unemployed	10.1	22	2.44	25.0	1		
	Employed, Hours Per week	V	27.4	32	2.44	23.0	124		
V	olunteer	res	03.4	204		89.9	154	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$.00
If	Valuetaan Hauna nan Manth	INO	30.0	118	2.21	10.1	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	69	
11	volumeer, Hours per Month	5-avaallant)	20.2	120	2.21	1/.0	10	3.34	.08
36	m-Rated Health (rated: 1=poor,	Voc	3.31	351	.05	2.42	106	.08	.00
A	tered Travel Due to Health	I CS No	13.1	43		09.7	100		.00
		NO	80.9	280		30.3	40		00
Sa	tisfied with Life	Yes	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$						
		NO Vaz	4.2	14		13.3	23		00
Li	fe is Empty	$\begin{array}{c c c c c c c c c c c c c c c c c c c $.00					
		NO Vaz	95.8	310		82.7	124		12
A	fraid of Something Bad	res	4.5	13		8.0	12		.13
	-	INO Vac	95.5	212		92.0	138		00
H	appy Most of the Time	res	97.6	322		86.8	152		.00
		INO	2.4	8		13.2	20		
D	epression (negative score on	Yes	9.1	30		26.0	- 39		.00
or	e or more of the 4 items	No	90.9	299		74.0	111		
<u>a0</u>	uvej	Vac	16.1	24		21.2	20		00
W I T	nen Available, Use Public	res	10.1	54 177		31.3	50		.00
11	ansportation	No	83.9	177		68.8	66		

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

Marital status was another way in which drivers and ceasers differed, with ceasers much more likely to be widowed and drivers more likely to be married. This difference, which has not been previously noted in the literature on travel patterns among older adults, is likely due, in part, to the age difference between the two groups.

Individuals who had voluntarily ceased driving also were less educated and reported a lower household income than did drivers, possibly due to their greater age and the fact that more were females. Also, ceasers reported lower self-rated health status and were more likely to have altered their travel outside of their home due to their physical health. These findings were consistent with those of Fonda et al. (2001) and Marottoli et al. (2000). The association between ceasing driving and having worse health and altered travel patterns that was due to health concerns, could be due to the fact that, again, ceasers were older than drivers, but it could also be due to gender and/or marital status, as ceasers were more likely to be women and to be living alone (specifically, more likely to be widowed).

Another health-related difference is important to note between ceasers and drivers. Specifically, ceasers' self-reported mental health was poorer, as measured on a four-item depression screen. These four items asked respondents whether or not they: (1) were satisfied with life; (2) felt their life was empty; (3) were afraid something bad was going to happen to them; and (4) were happy most of the time. The first and fourth items were reverse-coded so that a negative response on any of the four items (e.g., NOT satisfied with life, did feel their life was empty, were afraid something bad was going to happen to them, or were NOT happy most of the time) indicated depression. Ceasers were much more likely to be depressed than were drivers, with 27 percent scoring negatively on at least one of the screening items, compared to nine percent of drivers. This higher rate of depression was consistent with the findings of other studies in the literature on driving cessation (e.g., *Marottoli et al. 2000*).

With regard to place of residence, individuals who had voluntarily ceased driving were more likely than drivers to live in age-segregated residences, such as assisted living facilities, to not live in a single detached home (although over one-half of them did), and to rent rather than own their dwelling. Consistent with the differences in marital status, many more ceasers than drivers lived alone. Both of these findings, again, are likely related to the greater age of those who have ceased driving.

Interestingly, more drivers than ceasers reported that they resided in a rural area and more ceasers reported living in an urban area. Ceasers also were more likely to live in ODOT Transportation Zone 1 and to a lesser degree, Zone 2, and they were somewhat less likely to live in Zones 3, 4, and 5. Zones 1 and 2 are in the most urban areas of the state (the Portland metro area and Willamette Valley, respectively), while, generally, Zone 3 is the coast, Zone 4 is central and southern Oregon, and 5 is eastern Oregon. There are several possible explanations for this urban/rural residence finding. It is the case that generally there is less availability of transportation options, other than driving, in rural areas; perhaps drivers had little choice but to drive, or perhaps ceasers were living in urban areas because of the availability of public transit, or the additional transit available made driving less necessary. It is the case that when public transportation was available, ceasers were more likely to use it. This issue is explored in Section 4.4.3.

4.1.2 Characteristics of Urban versus Rural Drivers

In this section, two groups of drivers, specifically, are compared: those reporting that they live in an urban area and those stating that they live in a rural area. Table 4.2 presents the results of this comparison. Statistically significant differences between urban and rural drivers were found with respect to eight variables: age, marital status, residence in an age-segregated community or housing, type of dwelling, home ownership status, ODOT zone of residence, whether or not respondents lived alone or with others, and for those who volunteered, the number of hours per month that they volunteered. Specifically, older drivers in rural areas were younger, more likely to be married or partnered, less likely to live in communities or housing designed for seniors, more likely to live with others, and more likely to be living in a single detached home and to own that home. They also volunteered more hours per month. Rural drivers, not surprisingly, were less likely to live in ODOT Zones 1 and 2, and more likely to live in Zones 3, 4, and 5.

	Characteristic	Urba	n Drivers		Rural	Drivers		Р
		(N	(=184)	CE	(N=	=141)	CE	Value
	a (in years)	Mean (%)	$\mathbf{N} =$	<u>5E</u> 40	$\frac{\text{Mean}(\%)}{73.3}$	N = 140	<u>SE</u> 51	00
A	Eemale	75.0	104	.49	/3.3	140	.31	.00
Sex	Mala	45.4	83		49.3	69		.50
	Male	54.6	100		20.7	71		
tus	Never married	1.1	2		1.4	2		.03
Sta	Separated	0.5	1		1.4	2		
tal	Divorced	9.8	18		4.3	6		
arit	Widowed	20.1	37		10.6	15		
Σ	Married/partnered	68.5	126		82.3	116		
	Less than high school	4.9	9		5.7	8		.71
	High school graduate / GED	20.8	38		20.0	28		
on	Vocational tech training	4.4	8		7.9	11		
cati	Some college	29.5	54		27.1	38		
Educ	College degree	12.0	22		12.9	18		
	Some graduate/professional school	7.1	13	-	10.0	14	•	
	Graduate/professional degree	21.3	39		16.4	23		
	Less than \$10,000	1.7	3		1.5	2		.79
	\$10,000-19,000	12.6	22		8.5	11		
Je	\$20,000-29,000	15.4	27		16.9	22		
con	\$30,000-39,000	16.6	29		19.2	25		
Inc	\$40,000-49,000,	12.6	22		15.4	20		
	\$50,000-59,000	14.3	25		10.0	13		
	More than \$60,000	26.9	47		28.5	37		
In	Senior Residence or Yes	12.5	23		3.6	5		.01
Co	mmunity No	87.5	161		96.4	135		
0	Single, detached home	80.4	148		87.1	122		.01
ype	Attached home	2.7	5		2.9	4		
[50	Apartment	6.5	12		0.0	0		
linĝ	Condominium	2.7	5		0.0	0		
wel	Mobile home, travel trailer	6.5	12		10.0	14		
Ď	Assisted living, residential care	1.1	2		0.0	0		
	Nursing home				—	I —	l	

Table 4.2: Demographic Characteristics (Mail Survey) – Urban versus Rural Drivers.

Continued

Characteristic		Urba (N	n Drivers (=184)	5	Rural (N	Drivers	8	P Value
		Mean (%)	N =	SE	Mean (%)	N =	SE	
U	Rent	12.8	23		5.7	8		.04
Home Ownership	Own	87.2	157		94.3	133		
Miles from Town, if Located O	Dutside	2.4	11	.88	9.0	131	.79	.00
	1	31.3	55		9.9	13		.00
ODOT Zone (Region) of	2	38.6	68		33.6	44		
DDOT Zone (Region) of	3	18.8	33		29.8	39		
Residence	4	6.8	12		19.1	25		
	5	4.5	8		10.0	10		
Length of Time in Residence		15.8	182	1.08	18.3	140	1.23	.12
Living Alone or With Others	Alone	31.6	56		14.1	19		.00
Living Alone of with Others	or w/ Others	68.4	121		85.9	116		
Employment Status	Employed	1.5	112	.07	1.4	106	.08	.29
Employment Status	Unemployed							
If Employed, Hours Per Week	_	27.6	19	3.36	28.3	12	3.67	.89
Volunteer	Yes	62.6	107		65.9	89		.55
Volunteer	No	37.4	64		34.1	46		
If Volunteer, Hours per Month	l	23.4	65	3.61	15.9	47	2.44	.09
Self-Rated Health (rated: 1=poo	r, 5=excellent)	3.3	177	.07	3.4	138	.08	.22
Altered Travel Due to Health	Yes	14.3	25		10.5	17		.74
	No	87.5	150		87.7	121		
Satisfied with Life	Yes	96.6	170		95.7	132		.77
Satisfied with Effe	No	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
Life is Empty	Yes	3.4	6		5.1	7		.57
	No	96.6	170		94.4	131		
A fraid of Something Bad	Yes	4.0	7		5.1	7		.78
Tinue of Something Due	No	96.0	169		94.9	131		
Happy Most of the Time	Yes	97.7	172		98.8	136		.70
	No	2.3	4		1.4	2		
Depression (negative score	Yes	7.4	13		10.1	14		.42
on one or more of the 4 items	No							
above)		92.6	162		89.9	124		
When Available, Use Public	Yes	20.1	28		9.5			.07
Transportation	No	79.9	111		90.5	6		

Note: Data on urban-rural status were missing for 17 drivers.

4.1.3 Characteristics of Urban versus Rural Ceasers

As shown in Table 4.3, only a few significant differences emerged between urban and rural ceasers with respect to their demographic characteristics. Specifically, rural ceasers had incomes more in the middle range, with fewer in the lowest and highest income brackets. They also were more likely to own rather than rent their residence, which generally was a single detached home (although the differences in type of dwelling approached, but did not achieve statistical significance at the $p \le .05$ level). Rural ceasers also were less likely to live in a community or facility designed for seniors. This latter finding may be more an artifact of the availability of such housing, as in general there are more senior-specific facilities or communities in urban environments than in rural environments. The average age of both urban and rural ceasers was 84 years, and both rural and urban ceasers were more likely to be women than men.

	Characteristic	1	Urba	n Ceasers	5	Rura	l Ceasers		Р
			(N	N=110)		(N	N=37)		Value
			Mean (%)	N =	SE	Mean (%)	N =	SE	
A	ge (in years)		84.5	109	.66	83.6	37	1.37	.57
ex	Female		64.5	71		72.2	26		.43
\mathbf{N}	Male		35.5	39		27.8	10		
ns	Never married		3.6	4		0.0	0		.38
itat	Separated		0.0	0		0.0	0		
al S	Divorced		8.2	9		2.7	1		
arit	Widowed		48.2	53		48.6	18		
Σ	Married/partnered		40.0	44		48.6	18		
	Less than high school		15.6	17		13.5	5		.38
	High school graduate / GE	D	28.4	31		16.2	6		
uc	Vocational tech training		5 5	51		5.4	2		
atio	Some college		19.3	20		25.1	12		
quc	College degree		18.5	20		55.1 12.5	15		
Щ	Some graduate/profession	al sahaal	9.2	15		13.5	5		
	Some graduate/professional		5.5	6		5.4	2		
	Graduate/professional deg	ree	17.4	19		10.8	4		01
	Less than \$10,000		13./	13		3.0			.01
d)	\$10,000-19,000		27.4	26 15		21.2 18.2	 		
) U	\$20,000-29,000		13.8	13		18.2	15		
Inc.	\$40,000-29,000		9.5	0		43.3	15		
Inc	\$40,000-49,000, \$50,000-59,000		9.5 4 2	у Д		3.0	1		
In S Cor	More than \$60,000		15.8	15		3.0	1		
In	Senior Residence or	Yes	38.9	42		16.2	6		.01
Со	mmunity	No	61.1	66		83.8	31		
	Single, detached home		47.7	51		79.4	27		.06
/pe	Attached home		1.9	2		0.0	0		
Ţ	Apartment		22.4	24		5.9	2		
gui	Condominium		4.7	5		0.0	0		
vell	Mobile home, travel traile	r	10.3	11		8.8	3		
Ď	Assisted living, residentia	l care	12.1	13		5.9	2		
	Nursing home	I _	0.9	2		0.0	0		
Но	me Ownership	Rent	38.8	38		17.1	6		.04
<u> </u>		Own	62.0	62	17.52	82.9	29	74	10
MI	les from Town, if Located (33.9	20	17.53	5.6	35	./4	.18
		1	37.3 41.2	20 42		22.9	12		
OĽ	OOT Zone (Region) of	2	41.2	42		34.3 25.7	12		
Re	sidence	<u>з</u>	6.9	11		23.7 11.4	9 - 1		
Residence		5	3.9	4		57	2		
Le	ngth of Time in Residence	. ~	13.4	108	1 41	23.1	37	3.05	.01
		Alone	50.5	52		43.2	16		.57
Liv	ing Alone or With Others	or w/ Others	49.9	51		56.8	21		
Ees	mlarmant States	Employed	1.5	48	.12	1.8	21	.26	.32
En	ipioyment Status	Unemployed							
IfI	Employed, Hours Per Week		25.0	1		0.0	0		
Vo	lunteer	Yes	89.5	94		88.9	32		
٧Ŭ	iunicei	No	10.5	11		11.1	4		

Table 4.3: Demographic Characteristics (Mail Survey) – Urban versus Rural Ceasers.

Continued

Characteristic		Urba (N	n Ceaser I=110)	Rural (N	Р			
		Mean (%)	N =	SE	Mean (%)	N =	SE	Value
If Volunteer, Hours per Month		20.5	12	4.14	9.0	4	1.29	.02
Self-Rated Health (rated: 1=poo	r, 5=excellent)	2.4	106	.10	2.5	37	.17	.48
Altered Trevel Due to Health	Yes	70.5	74		70.3	26		1.00
Altered Haver Due to Health	No	29.5	31		29.7	11		
Satisfied with Life	Yes	83.5	86		86.5	32		.80
	No	16.5	17		13.5	5		
Life is Emote	Yes	17.9	19		17.1	6		1.00
Life is Empty	No	82.1	87		82.9	29		
A fraid of Something Pad	Yes	9.5	10		2.8	10		.29
Allaid of Something Bau	No	90.5	95		97.2	35		
Hanny Mast of the Time	Yes	86.8	92		86.5	32		1.00
Happy Most of the Time	No	13.2	14		13.5	5		
Depression (negative score	Yes	86.8	92		86.5	32		1.00
on one or more of the 4 items above)	No	13.2	14		13.5	5		
When Available, Use Public	Yes	36.7	29		7.7	1		.05
Transportation	No	63.3	50		92.3	12		

Note: Data On Urban-Rural Status Were Missing For 11 Ceasers.

4.1.4 Comparison of Survey and Telephone Respondents

To determine whether respondents, with whom telephone interviews were conducted, differed with respect to their demographic characteristics from the full sample of respondents to the mail survey, analyses were conducted to compare the two groups (all mail survey respondents with all individuals interviewed by telephone). T-test and chi-square analyses, as appropriate, revealed no statistically significant differences between the groups on any of the characteristics described in this section (i.e., "age" through "use of public transit when available").

4.2 VEHICLE OWNERSHIP AND DRIVING EXPECTATIONS

The following subsections examine similarities and differences in vehicle ownership and driving expectations, first, between urban and rural drivers, and then between urban and rural ceasers, using the data from the mail survey. In this section, comparisons between drivers and ceasers are not made, given the different circumstances of the two groups and thus the lack of comparability of the data.

4.2.1 Urban versus Rural Drivers

Drivers were asked about vehicle ownership and their expectations concerning how long they believe they will continue to drive. As shown in Table 4.4, the analyses revealed that rural drivers were statistically more likely to own a private vehicle for them or for others to drive than were urban drivers (100% of rural drivers owned a vehicle compared to 96% of urban drivers).

Characteristic	:	Urban D	orivers	Rural D	rivers	P
		(IN=1)	84) NT	(IN=1)	41) N	value
		Percent	N=	Percent	N=	
Keeps Vehicle for Self or Others to	Yes	96.6	171	100.0	134	.03
Drive	No	3.4	6	0.0	0	
Miles Driven Self in Last Year	100 or less	1.2	2	2.3	3	.01
	101-500	1.8	3	3.8	5	
	501-1,000	12.9	22	3.0	4	
	1,001-5,000	28.1	48	23.3	31	
	5,001-10,000	31.0	53	26.3	35	
	10,001-20,000	19.9	34	30.1	40	
	Over 20,000	5.3	9	11.3	15	
Miles Others Drove Respondent's	100 or less	43.4	72	35.1	46	.43
Vehicle in Last Year	101-500	15.7	26	15.3	20	
	501-1,000	10.8	18	12.2	16	
	1,001-5,000	15.7	26	15.3	20	
	5,001-10,000	12.7	21	16.0	21	
	10,001-20,000	1.8	3	5.3	7	
	Over 20,000	0.0	0	0.8	1	
How Long Expects to Drive	Less than a year	0.0	0	0.8	1	.21
	1-5 years	12.3	21	6.8	9	
	More than 5 years	33.9	58	40.6	54	
	Don't know	53.8	92	51.9	69	

 Table 4.4: Vehicle Ownership and Driving Expectations (Mail Survey) – Urban versus Rural Drivers.

Note: Data on urban/rural status were missing for 17 drivers.

Rural and urban drivers also differed with respect to the number of miles they had driven, with rural drivers, not surprisingly, driving significantly more miles than did urban drivers. Similarly, rural drivers allowed other people to drive their vehicles for significantly more miles than did urban drivers. These findings likely reflect the greater distances needed to travel in more rural parts of the state for trips to the store, to church, or other outside-the-home activities (i.e., accessing medical care) than is the case for urban drivers.

4.2.2 Urban versus Rural Ceasers

Ceasers were asked, in the mail survey, how long it had been since they had voluntarily ceased driving and whether there had been any situations in which they needed to drive since then. If so, they were asked to describe those situations. They also were asked if they owned a vehicle prior to ceasing to drive and, if so, what happened to it (e.g., if they sold or donated their car once they stopped driving, or kept it for others to use). Finally, they were asked if they currently kept a vehicle and, if so, how many miles others had driven it in the last year.

As shown in Table 4.5, the analyses revealed no statistically significant differences between urban and rural ceasers on the questions of length of cessation, whether respondents had needed to drive once they had made the decision to stop driving, vehicle ownership before ceasing to drive, and what happened to the vehicle. There was a significant difference between urban and rural ceasers with respect to whether or not they currently kept a vehicle, with rural ceasers much more likely to do this than urban ceasers. Only five ceasers (one rural and four urban) had driven since deciding to stop. Three provided their reasons: one cited the need to drive a neighbor to the hospital for a medical emergency; one drove down the driveway to get the mail; and one wrote that she had decided to give up driving in general, but did drive to the grocery store and to see friends.

Characteristic		Urban C	easers	Rural C	Р	
		(N=1)	10)	(N=3	37)	Value
		Percent	N=	Percent	N=	
How Long Since Stopped Driving	Less than 1 year	7.9	8	8.1	3	1.00
	1-5 years	68.3	69	67.6	25	
	More than 5 years	23.8	24	24.3	9	
	Don't know	0.0	0	0.0	0	
Has Driven Since Deciding To Stop	Yes	4.1	4	2.9	1	.74
	No	95.9	93	97.1	34	
Owned Vehicle Before Ceased	Yes	100.0	96	100.0	35	
Driving	No	0.0	0	0.0	0	
If yes, What Did with Vehicle	Sold	43.6	41	19.4	7	.04
	Kept for others to					
	drive	40.4	38	58.3	21	
	Gave away	16.0	15	22.2	8	
Currently Keeps Vehicle	Yes	42.6	40	69.7	23	.01
	No	57.4	54	30.3	10	
Miles Others Drove Respondent's	100 or less	7.1	3	8.0	2	.44
Vehicle In Last Year	101-500	21.4	9	28.0	7	
	501-1,000	16.7	7	16.0	4	
	1,001-5,000	26.2	11	28.0	7	
	5,001-10,000	23.8	10	8.0	2	
	10,001-20,000	0.0	0	8.0	2	
	Over 20,000	4.8	2	1.0	1	

 Table 4.5: Vehicle Ownership and Driving Expectations (Mail Survey) – Urban versus Rural Ceasers.

Note: Data on urban/rural status were missing for 11 ceasers.

4.3 TRAVEL PATTERNS AND USE OF ALTERNATIVE TRANSPORTATION

4.3.1 Types of Transportation Used

4.3.1.1 Drivers versus Ceasers

All respondents to the mail survey were asked to report on the various modes they used for travel. This question was meant to discover similarities and differences between drivers and ceasers in their use of alternative transportation options, and between urban and rural residents within both groups.

T-tests of group means (drivers versus ceasers) revealed significant ($p \le .05$) differences between drivers and ceasers with respect to use of each type of transportation. Table 4.6 reports the mean frequency of use by group for each type of transportation mode. Drivers were much more likely to use a personal vehicle, to walk, and to ride a bicycle than were ceasers, with the dominant mode of transportation being the personal vehicle. Ceasers

relied on family, friends, and their churches for a majority of their travel, and were more likely than drivers to use all forms of transportation other than a personal vehicle, bike, or walking.

A total of 18 respondents wrote a comment in the space provided under "other" concerning the type of transportation mode they use. Three of the additional comments came from rural drivers, and 15 came from ceasers -3 rural and 12 urban. The most common written comment (noted by 4 respondents) was that the facility in which they lived provided transportation. Another three respondents wrote that family members provided rides or transportation, and two wrote that they hired a person to meet their transportation needs. Other comments included taking Amtrak and flying.

Type Of Mode Used ^a		Drivers (N=342)		Ceasers (N=158)			P Value
	Mean	N=	SE	Mean	N=	SE	
Personal vehicle	3.8	331	.04	1.3	152	.07	.00
Rides from family	1.5	331	.04	2.9	152	.10	.00
Rides from friends	1.2	331	.03	1.6	152	.07	.00
Rides from church transportation							
program	1.1	331	.03	1.3	152	.06	.01
Taxi	1.0	331	.01	1.2	152	.05	.00
Bike	1.2	331	.03	1.0	152	.02	.00
Walk	2.0	331	.05	1.5	152	.07	.00
Scooter/motorized wheelchair	1.1	331	.02	1.3	152	.06	.00
Public bus	1.1	331	.02	1.3	152	.06	.01
Special bus for elderly and disabled	1.0	331	.01	1.4	152	.07	.00
Volunteer transportation program	1.0	331	.01	1.1	152	.03	.01
Other	1.7	37	.15	2.4	19	.30	.06

Table 4.6: Use of Transportation by Type (Mail Survey) – Drivers versus Ceasers.

Frequency of use was measured using the following scale: Rarely/Never = 1, Sometimes = 2, Often = 3, All/Most of the time = 4. Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

4.3.1.2 Urban versus Rural Drivers

For the most part, urban and drivers reported similar frequencies of use of the various transportation modes (see Table 4.7). The three statistically significant differences that emerged were that urban drivers, compared with rural drivers, were more likely to take the taxi, public bus, and special bus for elderly and disabled persons. The mean differences were of little practical significance, however.

TYPE OF MODE Used ^a	URE	BAN DRIV (N=184)	ERS	RUF	RAL DRIV (N=141)	/ERS	P VALUE
	Mean	N=	SE	Mean	N=	SE	
Personal vehicle	3.8	177	.05	3.8	138	.05	.82
Rides from family	1.5	177	.06	1.5	138	.70	.83
Rides from friends	1.2	177	.04	1.1	138	.03	.14
Rides from church transportation							
program	1.1	177	.05	1.1	138	.04	.63
Taxi	1.0	177	.01	1.0	138	.00	.01
Bike	1.2	177	.03	1.3	124	.05	.11
Walk	2.1	177	.07	1.9	138	.09	.32
Scooter/motorized wheelchair	1.1	177	.03	1.0	138	.02	.27
Public bus	1.1	177	.03	1.0	138	.02	.01
Special bus for elderly and disabled	1.1	177	.02	1.0	138	.00	.01
Volunteer transportation program	1.0	177	.01	1.0	138	.00	.10
Other	1.6	23	.16	1.9	13	.31	.38

Table 4.7: Use of Transportation by Type (Mail Survey) – Urban versus Rural Drivers.

^a Frequency of use was measured using the following scale: Rarely/Never = 1, Sometimes = 2, Often = 3, All/Most of the time = 4. Note: Data on urban/rural status were missing for 17 drivers.

4.3.1.3 Urban versus Rural Ceasers

Among ceasers, there was only one statistically significant difference in frequency of use of the transportation modes (Table 4.8). Specifically, urban ceasers were more likely to take the public bus than were rural ceasers. This may be due to the fact that public transportation is more available in Oregon's urban areas.

Type Of Mode Used ^a	U	Urban Ceasers (N=110)			Rural Ceasers (N=37)			
	Mean	N=	SE	Mean	N=	SE		
Personal vehicle	1.3	105	.09	1.3	37	.14	.88	
Rides from family	2.8	105	.12	3.1	37	.20	.25	
Rides from friends	1.6	105	.08	1.6	37	.16	.97	
Rides from church transportation	1.3	105	.07	1.2	37	.12	.57	
program								
Taxi	1.2	105	.06	1.2	37	.09	.56	
Bike	1.1	105	.03	1.0	37	.03	.65	
Walk	1.6	105	.08	1.3	37	.12	.13	
Scooter/motorized wheelchair	1.4	105	.86	1.2	37	.09	.10	
Public bus	1.4	105	.09	1.0	37	.00	.00	
Special bus for elderly and disabled	1.5	105	.09	1.3	37	.12	.17	
Volunteer transportation program	1.1	105	.04	1.1	37	.07	.50	
Other	1.9	11	.34	3.0	7	.54	.09	

Table 4.8: Use of Transportation by Type (Mail Survey) – Urban versus Rural Ceasers.

^a Frequency of use was measured using the following scale: Rarely/Never = 1, Sometimes = 2, Often = 3, All/Most of the time = 4. Note: Data on urban/rural status were missing for 11 ceasers.

4.3.2 Types and Frequency of Trips

4.3.2.1 Drivers versus Ceasers

T-tests showed that there were significant ($p \le .05$) differences in the frequency with which different types of trips were taken by drivers and ceasers on all items, with the exception of trips to the pharmacy and "other types" of trips. The finding that ceasers took fewer trips outside the home is consistent with previous studies, which found that those who voluntarily cease driving have reduced activity outside the home and that ceasers are more isolated than drivers (*Marottoli et al. 2000*). The one exception is that ceasers reported significantly more trips to medical appointments than did drivers. The fact that ceasers were on average 10 years older than drivers in this sample may account for the greater frequency of medical trips. Table 4.9 shows that in this study, ceasers consistently took fewer trips of all kinds, from grocery shopping to outdoor activities, except for medical appointments.

The last item of this question included space for additional written comments on the types of trips made. A total of 14 respondents wrote a comment. Three of the comments were made by rural drivers, and 11 were written by ceasers – two rural and nine urban. The most frequent comments pertained to taking trips for exercise (3 respondents), followed by going out with a power chair (2 respondents) and going out to pick up mail (2 respondents).

Type Of Trip ^a	Drivers (N=342)		Ceasers (N=158)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Grocery shopping	3.3	330	.05	2.3	146	.10	.00
Run errands	3.4	330	.06	1.8	146	.10	.00
Visit family/friends	2.5	330	.07	1.8	146	.10	.00
Attend church	2.0	330	.06	1.7	146	.09	.01
Go out to eat	2.5	330	.06	2.0	146	.09	.00
Go to movies, performing arts,							
cultural activities	1.3	330	.04	1.1	146	.03	.00
Just to get out	2.2	330	.08	1.7	146	.09	.00
Attend social functions	1.8	330	.05	1.4	146	.07	.00
Medical/dental appointments	1.4	330	.04	1.6	146	.07	.03
Trips to pharmacy	1.4	330	.04	1.5	146	.07	.18
Trips for work/volunteering	1.8	330	.07	1.1	146	.05	.00
Attend classes, continuing education	1.2	330	.03	1.0	146	.02	.00
Go to the gym/exercise	1.8	330	.08	1.3	146	.07	.00
Outdoor recreation	2.1	330	.08	1.4	146	.09	.00
Other type of trip	3.0	43	.26	2.5	24	.36	.32

Table 4.9: Frequency of Trips Taken by Type (Mail Survey) – Drivers versus Ceasers.

^a Frequency by type was measured using the following scale: Less than 1-3 times a month = 1, 1-3 times a month = 2, Once a week = 3, a few times a week = 4, Daily = 5.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

4.3.2.2 Urban versus Rural Drivers

Urban and rural drivers did not differ with respect to their frequency of use of the various types of transportation. Table 4.10 presents the results of the t-tests to assess differences.

Type Of Trip ^a	U	Urban Drivers (N=184)		R	ural Drive	ers	P Value
	Mean	$\frac{(11-104)}{N=}$	SE	Mean	$\frac{(N-1+1)}{N}$	SE	
Grocery shopping	3.4	177	.07	3.2	138	.08	.03
Run errands	3.5	177	.08	3.3	138	.10	.09
Visit family/friends	2.5	177	.09	2.5	138	.10	.77
Attend church	2.0	177	.08	1.9	138	.10	.51
Go out to eat	2.6	177	.08	2.3	168	.09	.10
Go to movies, performing arts,	1.4	177	05	1.2	120	05	02
	1.4	177	.05	1.3	138	.05	.03
Just to get out	2.3	177	.11	2.2	138	.11	.54
Attend social functions	1.9	177	.07	1.8	138	.08	.28
Medical/dental appointments	1.4	177	.05	1.4	138	.06	.67
Trips to pharmacy	1.4	177	.05	1.5	138	.06	.79
Trips for work/volunteering	1.8	177	.10	1.8	138	.10	.63
Attend classes, continuing education	1.2	177	.04	1.2	138	.05	.82
Go to the gym/exercise	1.8	177	.11	1.7	138	.11	.54
Outdoor recreation	2.0	177	.10	2.3	138	.13	.06
Other type of trip	3.3	22	.39	2.8	18	.36	.42

Table 4.10: Frequency of Trips Taken by Type (Mail Survey) – Urban versus Rural Drivers.

^a Frequency by type was measured using the following scale: Less than 1-3 times a month = 1, 1-3 times a month = 2, Once a week = 3, a few times a week = 4, Daily =5.

Note: Data on urban-rural status were missing for 17 drivers

4.3.2.3 Urban versus Rural Ceasers

Finally, tests for significant group differences were conducted to compare rural and urban ceasers. The results of these analyses, shown in Table 4.11, revealed only one statistically significant difference: urban ceasers were more likely to take trips for the purpose of working or volunteering than were rural ceasers.

Type Of Trip ^a	Urban Ceasers (N=110) Mean N- SE		R	ural Cease (N=37)	ers	P Value	
	Mean	N=	SE	Mean	N=	SE	
Grocery shopping	2.6	101	.12	2.1	36	.63	.25
Run errands	1.9	101	.12	1.6	36	.17	.34
Visit family/friends	1.8	101	.12	1.7	36	.20	.86
Attend church	1.8	101	.11	1.6	36	.14	.20
Go out to eat	1.9	101	.11	2.2	36	.20	.10
Go to movies, performing arts,							
cultural activities	1.2	101	.04	1.1	36	.05	.28
Just to get out	1.7	101	.12	1.7	36	.18	.87
Attend social functions	1.4	101	.08	1.4	36	.13	.90
Medical/dental appointments	1.6	101	.07	1.5	36	.12	.65
Trips to pharmacy	1.6	101	.09	1.4	36	.12	.24
Trips for work/volunteering	1.2	101	.07	1.0	36	.00	.01
Attend classes, continuing education	1.1	101	.03	1.0	36	.00	.10
Go to the gym/exercise	1.2	101	.08	1.4	36	.19	.39
Outdoor recreation	1.5	101	.11	1.3	36	.17	.45
Other type of trip	2.2	18	.41	3.5	4	.87	.20

Table 4.11: Frequency of Trips Taken by Type (Mail Survey) – Urban versus Rural Ceasers.

^a Frequency by type was measured using the following scale: Less than 1-3 times a month = 1, 1-3 times a month = 2, Once a week = 3, a few times a week = 4, Daily =5.

Note: Data on urban-rural residence were missing for 11 ceasers.

4.3.3 Availability and Use of Public Transportation

4.3.3.1 Drivers versus Ceasers

All respondents to the mail survey were asked if their community offered public transportation and/or special transportation for seniors and persons with disabilities. As shown in Table 4.12, the majority of current drivers and ceasers reported that public transportation was available in their community (about 64% of drivers and 65% of ceasers). However, over 26 percent of ceasers and 30 percent of drivers reported that no public transportation services were available in their community. In addition, it is important to note that another 15 percent of ceasers and 19 percent of drivers reported that they did not know whether or not special transportation services were available in their communities in which such transportation services are available to adequately publicize the services and educate older adults about how to use them.

Drivers and ceasers did differ, as might be expected, in their use of public transportation and special transportation services. In particular, ceasers were more likely to avail themselves of both types of services. Not surprisingly, public transportation was used to a greater extent than special transportation services, particularly among drivers.

Availability of Transit Options		Driv (N=3	vers 342)	Ceas (N=1)	P Value	
		Percent	N=	Percent	N=	
Public Transportation is Available	Yes	63.5	193	65.2	86	.59
	No	30.3	92	26.5	35	
	Don't know	6.3	19	8.3	11	
Special Transportation is Available	Yes	70.0	219	70.6	96	.90
	No	10.9	34	14.0	19	
	Don't know	19.2	60	15.4	21	
Use Public Transportation	Yes	16.1	34	31.3	30	.00
	No	83.9	177	68.8	66	
Use Special Transportation Services	Yes	8.8	20	29.9	29	.00
	No	91.2	208	70.1	68	

Table 4.12: Availability and Use of Transit Options (Mail Survey) – Drivers versus Ceasers.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers

4.3.3.2 Urban versus Rural Drivers

As revealed in the mail survey, drivers in urban areas reported significantly greater availability of public transportation and special transportation options in their communities than did rural drivers (about 80% compared to 43%) (Table 4.13). The percentages of both urban and rural drivers who reported that they did not know if public transportation or, especially, special transportation services were available in their communities were noteworthy. Over 17 percent of urban drivers and 23 percent of rural drivers did not know if special transportation services were available. The differences between the two groups' usage of both types of services were not statistically significant and usage was fairly low. Proportionately twice as many urban as rural drivers used public or special transportation services; however, this was probably due to the greater availability of services in urban areas. Looking to the future, one urban driver wrote that there was a bus stop in front of his/her home and, although not using the bus now, "When I have more time, I expect to use it more. My goal is to use the car only once per week."

Questions in the telephone interviews about the availability of alternatives to driving sometimes elicited seemingly contradictory responses. For example, one rural driver said there were no alternatives to driving, then went on to report that a special bus did exist, but that it needed to be scheduled ahead of time and had to drive nine miles to pick her up. In her view, this was not a viable option, and when asked if she would use it, she responded, "*I guess I'm just ready to stay home*." Others knew about options, but had never used them, while still others said there were alternatives, but "*nothing that is convenient for us at this time*."

Only about one-third of the urban drivers and one-fifth of rural drivers interviewed, specifically responded that the transportation alternatives available to them were viable options should they stop driving. Transportation alternatives, however, did not always mean public or private transit services; family and friends were also frequently included.

Availability of Transit Options		Urban D (N=1)	orivers 84)	Rural D (N=14	P Value	
		Percent	N=	Percent	N=	
Public Transportation is Available	Yes	79.8	130	43.3	55	.00
	No	14.7	24	48.8	62	
	Don't know	5.5	9	7.9	10	
Special Transportation is	Yes	78.8	134	59.2	77	.00
Available	No	4.1	7	18.5	24	
	Don't know	17.1	29	22.3	29	
Use Public Transportation	Yes	20.1	28	9.5	6	.06
	No	79.9	111	90.5	57	
Use Special Transportation	Yes	10.5	14	5.9	5	.24
Services	No	89.5	119	94.1	80	

Table 4.13: Availability and Use of Transit Options (Mail Survey) – Urban versus Rural Drivers.

Note: Data on urban-rural status were missing for 17 drivers.

The reported availability of transportation alternatives, other than family and friends, especially in rural areas, was very low. This included coastal and inland areas, even in communities where those interviewed reported large numbers of senior residents. Many drivers, while somewhat aware of transportation options (such as mini-buses or vans for special transportation), were not really sure how they worked or if they would meet their needs if they stopped driving. And, commonly, if aware of these transit services, there was both real dissatisfaction and/or hearsay of dissatisfaction with scheduling and reliability. Examples of issues included that appointments must be made in advance, riders may be picked up early or late to accommodate other passengers, service is unreliable (cancellations or no-shows), service is limited, and the cost is too high.

Among those interviewed, respondents in urban areas were more likely to mention having access to buses and rail lines. They also were more likely to mention having moved to specific housing to have access to in-house buses or shuttle services. However, even when transit was available, these respondents, too, cited issues with use, including the distance to stops, infrequent service (e.g., once or twice per day, no weekend service), and the complexity of transit systems.

As noted above, in many cases, the drivers interviewed had some knowledge of what was available, but often, without having had a need to research or explore these options, they did not know the extent of what was available or how it worked. The following comments from rural drivers are typical of these responses:

- "I've never used them [transportation options], but suppose I would if I quit driving. We have a bus called Cocoa – Central Oregon Council on Aging – and I believe you just call and they'll come get you. And now there's a little private transportation company, and I don't know that much about it, but it goes into Bend; and then another option that we have is a bus. I don't know where it starts, but I think I read in the paper where it was Boise, Idaho, and it will take you to the train. So, there are options; all you need to do is use them."
- "There's no taxi, there's no bus, but there is something, I think. The next town south is Wolf Creek, and Sunny Valley is the one after that; they have a

Sunny/Wolf kind of thing. I've never used it, but I have a friend who drives for them. You have to schedule it, but it's for people that aren't able, and they'll pick you up and take you to your appointment and bring you home. I know that's available since my friend volunteers his time driving, but I don't know if there's a fee. There is one called HASL, out of Grants Pass, and they'll go 70 miles. I've never had to use either one."

• "I think they have one that's in-town only. It used to be free, but I don't know if it's still free or if you pay for it. I see it at the market once in awhile, but to my knowledge it's for senior citizens. They pick them up from point A to point B, but I'm not really sure."

Urban drivers, too, did not always know the specifics, but in general they were more likely to report availability of bus and rail opportunities:

• "They'll take you to medical visits and things like that. I'm sure there is something, but I haven't had occasion to call upon it."

Although one rural driver interviewed reported using a cab occasionally, no others had ever *used* a transit service in their area. Even though two urban drivers said they had no transportation options in their communities, urban drivers, in general, were more likely than rural drivers to have access to transportation options and to have used some form of transit service, even if only for recreation or to avoid parking and gas costs. Few used public transportation or special transit services for everyday travel. Sample comments include:

- "I might use it. It depends on what I was going to town for just for a vacation day or something, just to go down and fool around I might take a bus down for that purpose."
- "I don't think I would take the bus, but it depends on the destination. For example, if I wanted to go to the Rose Quarter or something, I'd take the bus to Max, or drive to Max."
- "No, I don't care for public transportation too much. But, I think I took Max to the city twice in two years, and the Max station is just three blocks from me. So, I have every convenience I really need if I had to use it."
- "I suppose I might use it [public transportation] going downtown to meet someone or shop. I think that would probably take care of it."

4.3.3.3 Urban versus Rural Ceasers

Similar to the findings concerning urban and rural drivers, urban ceasers reported much greater availability of public and special transportation options in their community than did rural ceasers (Table 4.14). About 78 percent of urban ceasers, compared to just 34 percent of rural ceasers, said public transportation was available in their community, and

83 percent of urban ceasers, compared to 41 percent of rural ceasers, said special transportation services were available. Also important to note is that 26 percent of rural ceasers stated they did not know if special transportation services were available in their community.

Availability of Transit Options		Urban (N=1	Ceasers 10)	Rural Control (N=3	P Value	
		Percent	N=	Percent	N=	
Public Transportation is Available	Yes	78.0	71	34.3	12	.00
	No	13.2	12	57.1	20	
	Don't know	8.8	8	8.6	3	
Special Transportation is	Yes	83.3	80	41.2	14	.00
Available	No	6.3	6	32.4	11	
	Don't know	10.4	10	26.5	9	
Use Public Transportation	Yes	36.7	29	7.7	1	.06
	No	63.3	50	92.3	12	
Use Special Transportation	Yes	33.8	26	12.5	2	.24
Services	No	66.2	51	87.5	14	

Table 4.14: Availabilit	v and Use of Transit	Options (Mail Survey	y) – Urban versus Rural Ceasers.
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Note: Data on urban-rural status were missing for 11 ceasers.

As was the case with drivers, considerably more of the urban ceasers, compared to rural ceasers, reported using both types of transportation, although the difference with respect to the use of special transportation services did not reach statistical significance. Again, greater use of transit by urban ceasers is not surprising, given the greater availability of such services in urban areas.

The interview data provide some additional insight into the knowledge and use of transportation alternatives. As might be expected, more of the urban ceasers than rural ceasers who were interviewed, had knowledge of and had used transportation options in their communities. But, as found with urban and rural drivers, even among ceasers there was a lack of knowledge and a perception that transportation services were not viable for them due to scheduling or distance, or that medical issues prevented use, regardless of the options available. This latter view is not surprising, given that the ceasers were likely to be older and more often reported advanced health problems that led to their decision to stop driving.

Of the 20 urban ceasers who discussed their transit options during the interviews, 12 were aware of public transportation options and six reported having used them. Options reported included volunteer-with-government-subsidy, dial-a-bus services, Tri-Met Max, bus and lift services, dial-a-ride options, and hospital van services for medical appointments. Of the six rural ceasers interviewed, five were aware of options (usually dial-a-ride services) that existed in their communities, while one said nothing was available.

Of the twelve urban ceasers reporting awareness of transportation options in their communities, six reported having used them. Of 11 reporting the frequency of use of these options, six said "never," one said "once per year," three said "occasionally," and one said "three times per week." One occasional transit user noted the transit stop is a

one-mile walk from home, so taxis and friends provide additional support. Two other ceasers who did not use alternative transportation mentioned that their family provided 100% percent of their transportation, while two others lived in retirement facilities that provided transportation for medical appointments, shopping, and other activities.

Rural ceasers were also infrequent users of transit options. Of the five interviewed who had service available, two mentioned the inconvenience, scheduling, and limited service of dial-a-ride options. These concerns mirror those found among both urban and rural drivers and reflect frustration with scheduling requirements and performance. Comments included:

- "They don't necessarily come when you want them; they're often half an hour late or something of that sort, not always, but sometimes; and then some of them are limited in how far they will go. So, you make separate arrangements for going and separate arrangements for returning. I belong to Kaiser medical plan, and sometimes I have to go into Portland all the way from where I live to interview with the doctor. That takes an hour drive in, an hour at the doctor, and then I can't depend on it being there to take me when I get ready to go home. Sometimes I've had to call them twice to review the schedule, then sit around for an hour waiting for them to show up. I've kind of given up the public transportation business."
- "It doesn't go where I want to go. I was using it the first year when I quit driving. I was using dial-a-ride, when it got to where they wouldn't come. Every time I called I couldn't get a ride, so I just forgot about it. And, if they take me, they couldn't come get me. They told me I had to call two weeks ahead; that's a long time ahead to know what you're going to do."

One rural ceaser also lived in a retirement facility and primarily used the in-house bus, but had just been accepted for public transit lift service, although she had not yet used it. Two others mentioned they traveled with family or friends.

4.3.4 Limitations of Transportation Options

4.3.4.1 Drivers versus Ceasers

In the mail survey, respondents were asked to indicate which of a list of several possible factors, if any, limited their use of public or special transportation services. Table 4.15 presents the findings comparing drivers' and ceasers' responses.

Factor		Drivers (N=342)		Ceasers (N=158)		P Value
		Percent	N=	Percent	N=	
No Concerns Regarding Public	Yes	35.0	119	14.3	22	.00
Transportation	Not noted	65.0	221	85.7	132	
No Public/Special Transportation	Yes	20.0	68	18.3	28	.71
Available	Not noted	80.0	272	81.7	125	
Easier to Drive	Yes	68.2	232	13.0	20	.00
	Not noted	31.8	108	87.0	134	
Have to Plan Too Far in Advance	Yes	7.6	26	9.7	15	.48
	Not noted	92.4	314	90.3	139	
No Benches at Bus Stop	Yes	4.7	16	4.5	7	1.00
	Not noted	95.3	324	95.5	147	
No Shelter at Bus Stop	Yes	4.4	15	4.5	7	1.00
	Not noted	95.6	325	95.5	147	
No Restroom on Bus	Yes	6.2	21	5.8	9	1.00
	Not noted	93.8	319	94.2	145	
Too Far to Walk to Bus Stop	Yes	7.9	27	12.3	19	.13
	Not noted	92.1	313	87.7	135	
Unsafe Bus Stops	Yes	2.1	7	3.9	6	.24
	Not noted	97.9	333	96.1	148	
Riding Bus is Not Safe	Yes	1.5	5	1.3	2	1.00
	Not noted	98.5	335	98.7	152	
Bus Doesn't Go Where Needed	Yes	15.0	51	13.0	20	.58
	Not noted	85.0	289	87.0	134	
Service Too Expensive	Yes	1.2	4	2.6	4	.26
	Not noted	98.8	336	97.4	150	
Service Not Reliable	Yes	2.4	8	2.6	4	1.00
	Not noted	97.6	332	97.4	150	
Service Takes Too Long	Yes	9.7	33	7.1	11	.40
	Not noted	90.3	307	92.9	143	
Service Not Individualized	Yes	1.8	6	3.9	6	.21
	Not noted	98.2	334	96.1	148	
Service for Return Trip is Too	Yes	3.8	13	4.5	7	.81
Infrequent	Not noted	96.2	327	95.5	147	
Service in General is Too	Yes	7.4	25	5.8	9	.70
Infrequent	Not noted	92.6	315	94.2	145	

Table 4.15: Factors Limiting Use of Transit Options (Mail Survey) – Drivers versus Ceasers.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

The findings reveal that the most common limitation noted by drivers was simply that it was easier to drive (68%). Over one-third of the drivers stated they had no concerns about public transportation, probably because they saw it as irrelevant to them. However, one-fifth of drivers said that no public or special transportation was available where they live. A concern of 15 percent of drivers was that the bus doesn't service the respondent's destination.

The only statistically significant differences between current drivers and ceasers were that drivers were much more likely to report having no concerns that limited their use of public or special transportation, and many fewer ceasers than drivers noted that they didn't use public transportation because it was just easier to drive. Only 14 percent of

ceasers reported having no concerns that limited their use of public transportation, and only 13 percent of them noted, as a limiting factor, the ease of driving as opposed to using transit. A similar percentage of ceasers as drivers noted that no public or special transportation is available (18%). The next two most commonly noted concerns by ceasers were that the bus doesn't go where needed (as with drivers, mentioned by 13%), that it is too far to walk to the bus stop (12%), and that plans for using transit have to be made too far in advance (about 10%).

Respondents were given an opportunity to add written comments concerning other barriers to using public and special transit services, and 21 did so: 3 rural drivers and 18 ceasers – 5 rural and 13 urban. The most common comment written was that more physical assistance was needed in order to take the bus (5 respondents). The next most frequently written comment was that the respondent relied on family instead of the bus or transit system (4 respondents). Two respondents each wrote concerning the lack of weekend service, the lack of a close bus or transit stop, the need for a special bus although none was provided in their area, and that the care facility where they live provides transportation. In addition, one respondent wrote that she or he was unable to leave the home, so using public or special transit services was not possible.

At the conclusion of the survey, some respondents wrote additional comments related to this issue, including:

- "It is very difficult in our small area with just the dial-a-ride service to cover all of the people who need to get around, especially in the winter months."
- "I had an appointment with a senior volunteer ride program for a dental appointment. They called the day before saying they had to cancel. I have not called them again."

4.3.4.2 Urban versus Rural Drivers

In the mail survey, just over a third of both rural and urban drivers indicated that they had no concerns that led them to limit their use of public or special transportation, and the majority of both groups reported that it was easier to drive than use public transportation. As seen in Table 4.15, rural drivers were, not surprisingly, more likely to report that no public or special transportation was available in their community (34%, compared to 9% of urban drivers). There were no other significant differences between the two groups. The greatest concerns that were mentioned were that the bus did not go where needed and the service took too long.

Factor		Urban Drivers (N-184)		Rural Drivers		P Value
		Percent	N=	Percent	N=	value
No Concerns Regarding Public	Yes	33.9	62	37.1	52	.56
Transportation	Not noted	66.1	121	62.9	88	
No Public/Special Transportation	Yes	8.7	16	34.3	48	.00
Available	Not noted	91.3	167	65.7	92	
Easier to Drive	Yes	69.4	127	67.9	95	.81
	Not noted	30.6	56	32.1	45	
Have to Plan Too Far in Advance	Yes	6.0	11	7.9	11	.51
	Not noted	94.0	172	92.1	129	
No Benches at Bus Stop	Yes	6.0	11	2.1	3	.11
	Not noted	94.0	172	97.9	137	
No Shelter at Bus Stop	Yes	6.0	11	2.1	3	.11
	Not noted	94.0	172	97.9	137	
No Restroom on Bus	Yes	8.2	15	3.6	5	.11
	Not noted	91.8	168	96.4	135	
Too Far to Walk to Bus Stop	Yes	8.7	16	7.1	10	.68
	Not noted	91.3	167	92.9	130	
Unsafe Bus Stops	Yes	1.6	3	2.1	3	1.00
	Not noted	98.4	180	97.9	137	
Riding Bus is Not Safe	Yes	1.1	2	1.4	2	1.00
	Not noted	98.9	181	98.6	138	
Bus Doesn't Go Where Needed	Yes	16.9	31	12.9	18	.35
	Not noted	83.1	152	87.12	122	
Service Too Expensive	Yes	0.5	1	2.1	3	.32
	Not noted	99.5	182	97.9	137	
Service Not Reliable	Yes	1.1	2	4.3	6	.08
	Not noted	98.9	181	95.7	134	
Service Takes Too Long	Yes	12.0	22	6.4	9	.13
	Not noted	88.0	161	93.6	131	
Service Not Individualized	Yes	1.1	2	1.4	2	1.00
	Not noted	98.9	181	98.6	138	
Service for Return Trip is Too	Yes	2.7	5	5.0	7	.38
Infrequent	Not noted	97.3	178	95.0	133	
Service in General is Too	Yes	6.0	11	8.6	12	.39
Infrequent	Not noted	94.0	172	91.4	128	

Table 4.16: Factors Limiting Use of Transit Options (Mail Survey) – Urban versus Rural Drivers.

Note: Data on urban-rural status were missing for 17 drivers.

4.3.4.2.1 Limitations in Options

The telephone interviews with both the rural and the urban drivers revealed a range of limitations in the various transit options in respondents' areas (Table 4.17). In rural areas, these included very limited service or no service at all, availability of services only for scheduled appointments, or the need to drive some distance to access another service. Others noted the cancellation of bus service or rail lines to their communities in recent years, further limiting options.

Limitations	Urban Drivers (Mentions)	Rural Drivers (Mentions)
Limited service	7	4
Scheduling and reliability issues	7	6
Distance to access	2	1
Discomfort of seniors	3	
Too complex (transfers, etc.)	2	1
Takes longer	2	1
Transit station parking full when needed	1	
Cost	1	1
No rail service		1

Table 4.17: Factors Limiting Use of Transit Options (Telephone Interview) – Urban versus Rural Drivers.

In urban areas, limited service meant infrequently scheduled stops or, for some, infrequent service combined with complexity of transfers and waits which rendered available transit options unviable:

• "I've just never felt Portland lends itself too well to getting around with mass transit, unless you happened to live really close to a line and don't have to transfer much. I know from my home to my office it's about an hour and 10 minutes by bus, there's at least one transfer, let alone getting to the stop and waiting for buses that may come every half hour, whatever."

In rural areas or smaller towns, limited service more often meant no service at all, or service only on weekdays, weekly, or by appointment (the latter issue is also discussed as a separate scheduling issue). For some rural drivers, limited service meant they had only a subscription ambulance service (three mentions), or would rely on the sheriff in an emergency. Sample comments included:

- "Probably limited access to public transportation is the issue. We have a little bit down here in Southern Oregon; our bus service really isn't very good, and it doesn't exist on the weekends."
- "I think they have a bus that runs from the California border up to Coos Bay – at least I think they do. Maybe it might run once a day or something like that, but as far as making it around town, there are no cabs, no buses or anything like that."
- "We do have a little bus that goes around. It's not public, but a private deal. Then we have the taxi, but that's about it. This is Florence, Oregon."
- "A few taxis, and a kind of elder care, senior bus that goes into the next town sporadically, maybe only a couple times a week, is all we have."
- "There is nothing that really works. They have Rogue Valley Transit District, but it's useless; it doesn't run. For example, it doesn't run on weekends... If I'm not able to drive, the Rogue Valley Transit District

isn't going to help. You have to get one of those non-medical or medical transportation services they have."

For some, even with available transit, the complexity involved in trips, the length of trips, and the distance to access services worked together to inhibit use of transit options.

• "It just happens that my home is just maybe 10 blocks from a bus line, and I know the bus isn't going to come any closer. But if I were a frequent bus rider, I can see where I would like to have buses more frequently, or if I were closer to a bus line and I didn't have to transfer, I suppose there would be times I might avail myself to mass transit. But, for me, it's so inconvenient that I just don't even think about it."

The problems with services that require scheduling were mentioned by both groups of drivers (6 rural drivers and 7 urban drivers). Typically, issues involved needing to schedule ahead, having to go early or stay late to accommodate other riders, trip cancellations, ill-trained drivers, and other problems. Awareness of these issues did not always come from personal experiences, but from hearing about them from others who had used the service. Examples provided include:

- "I do not know the handicapped transportation system with the special buses, the lifts and things that Tri-Met has, or the senior centers have, since I haven't used them myself. But I hear things like they come too late to get somebody to the doctor's appointment that they promised they'd get them to. I hear the negative things, and I don't know anybody that uses them regularly."
- "Like I say, I can't really answer that because we haven't used the transportation here in town, but we had a friend that was in a wheelchair, and she would call a half an hour ahead to get to an appointment on time. She would make an appointment a half an hour early, giving herself half an hour for them to be late."
- "It is a problem, because you're waiting to catch it, and then you get there on Sunday ahead of time, and then you're waiting after church to catch it again to get you home, then you're waiting a long time for that bus to show up again. And, as I said, you can't really depend on the lift, because it requires you having made arrangements the day before, and they're supposed to know what time to come back and get you."

All of these variables contribute to the low reported percentage of use of nondriving alternatives. When asked, only a few of those interviewed could estimate their use of non-driving (and non-family assistance) transportation options (i.e., walking, bus, rail, shuttle, and taxi). Of the 14 urban drivers who could estimate their use, 10 provided a specific description (some in percentages, as requested, others not). Of these, the following estimates of use were given: almost none or very low (two mentions); occasional (two mentions); two to three times per month (one mention); less than 1 percent (one mention); 5 to 10 percent (three mentions); and 20 percent (one mention).

Among rural drivers, only two provided an estimate of using transportation options. Interestingly, although classified as a rural resident, one of these drivers estimated the highest use of urban transit options, driving his car to the rail (Max) station and taking the light rail to attend sports events and other activities in the city. This driver estimated that his use of public transportation, as a percentage of all travel, varied by season, reaching a high of 50 percent during hockey season and a low of 5 percent at other times of the year. For the other rural driver, walking was the main option, making up about 75 percent of all his travel.

4.3.4.2.2 Barriers to the Provision of Transportation Options

Particularly among the rural older adults interviewed, there was a high level of understanding about the barriers to providing transportation. Without being asked directly, 20 rural drivers made 22 comments regarding the challenges to providing transportation in more remote, sparsely populated regions of the state. So, although desirous of some service, especially for medical needs, and sometimes worried about a future in which they cannot drive, the barriers to providing some type of transit service were well known. Some took responsibility for their choice to live in an area without these types of services. Sample comments included:

- "Right in my particular community, I don't think that at this point it would be financially feasible for any type of public transportation to come in. It would be used maybe weekly, and that's not enough. All the people in this community we're in, it's 2, 3, acres, and it's not a high-density population."
- "We used to have a Lane transit bus come up here and people who didn't want to drive took the bus, but then they stopped having the bus, so we don't have that as an alternative. I guess there weren't enough people taking the bus, but it would be good for those of us who are aging to have alternatives like that."
- "I live in a very rural area, and it doesn't make economic sense for the government or a private enterprise to provide me something because where I chose to live does not have those things available. There are 24 houses in a mile and a half; it's a one way, and it's a dead-end street. There's no way we'll ever have public or alternate transportation down there unless we pay for it, and it should not be a responsibility of the government. Nothing else is down here. We have to pay for our own roads, we have a volunteer fire department, the sheriff serves two small towns, it takes him about an hour to get here, and that's all we've got. But, we chose to live here, for one reason, and that is we don't have the urban environment."

- "Well, the population outside the town, the whole county population, isn't very big, and outside of the town and its immediate environment, it's all farm land. So, there are those very small communities in the valley and I think the service probably goes from one of those to another. But, for example, Parkdale is probably just a few hundred people, then there's Dee, and Odell, and that's about it. So until the demographics in the valley change, I don't see that making an increase in public transportation would be reasonable or realistic at all."
- "The town is not financially well off; we have not had a police department for many years, and it's a town where there are a lot of seniors, a lot of retired people, and they just don't have much money here. They're really not able to provide much, I don't think. Even though, for example, we got a street lamp put on our road, a few years ago they cut back on people having their street lamps lit unless they could get together with neighbors and pay for having a lamp lit."

4.3.4.2.3 Who Fills the Gap

The findings from the telephone interviews revealed that family and friends, particularly in rural areas, are available resources for travel assistance to older adults, if needed. Four urban drivers and seven rural drivers noted that their children, other relatives, or friends could and sometimes do provide backup if they need transportation. Two rural drivers and three urban drivers noted that their their spouse takes over when necessary.

- "Well, it would probably be that I'd have to really plan my day. So, if I go into town, I'd have to stay there the best part of the day. Otherwise, we have neighbors that are very, very good, and we could help them and they could help me"
- "All of my children are within 40 miles of me, so when I get so I don't feel safe driving once a week, on the weekends they'll run up, or after school. My daughter-in-law teaches down here, halfway to town, at the little school, so anything I need, I don't worry too much about it."

4.3.4.3 Urban versus Rural Ceasers

A key finding from the mail survey regarding limitations in the use of public transportation and special transportation services is the lack of available transportation options, particularly in rural areas. As shown in Table 4.18, over half of the rural ceasers noted the lack of any public or special transportation options in their communities, compared to only about 8 percent of urban ceasers. Other differences between rural and urban ceasers emerged as well. In particular, rural ceasers noted that service, especially for the return trip, was too infrequent and the service was not reliable. Both urban and rural ceasers alike reported that the bus not going where they needed was a barrier to use, as was having to plan too far in advance in order to use public or special transportation.

Factor		Urban Ceasers (N=110)		Rural Ceasers (N=37)		P Value
		Percent	N=	Percent	N=	
No Concerns Regarding Public	Yes	16.8	18	8.3	3	.28
Transportation	Not noted	83.2	89	91.7	33	
No Public/Special Transportation	Yes	7.5	8	50.0	18	.00
Available	Not noted	92.5	99	50.0	18	
Easier to Drive	Yes	12.1	13	13.9	5	.78
	Not noted	87.9	94	86.1	31	
Have to Plan Too Far in Advance	Yes	9.3	10	13.9	5	.53
	Not noted	90.7	97	86.1	31	
No Benches at Bus Stop	Yes	5.6	6	2.8	1	.68
	Not noted	94.4	101	97.2	35	
No Shelter at Bus Stop	Yes	5.6	6	2.8	1	.68
	Not noted	94.4	101	97.2	35	
No Restroom on Bus	Yes	6.5	7	5.6	2	1.00
	Not noted	93.5	100	94.4	34	
Too Far to Walk to Bus Stop	Yes	15.0	16	5.6	2	.24
	Not noted	85.0	91	94.4	34	
Unsafe Bus Stops	Yes	5.6	6			.34
	Not noted	94.4	101	100.0	36	
Riding Bus is Not Safe	Yes	1.9	2			1.00
	Not noted	98.1	105	100.0	36	
Bus Doesn't Go Where Needed	Yes	15.0	16	11.1	4	.78
	Not noted	85.0	91	88.9	32	
Service Too Expensive	Yes	3.7	4			.57
	Not noted	96.3	103	100.0	36	
Service Not Reliable	Yes	0.9	1	8.3	3	.05
	Not noted	99.1	106	91.7	33	
Service Takes Too Long	Yes	8.4	9	5.6	2	.73
	Not noted	91.6	98	94.4	34	
Service Not Individualized	Yes	3.7	4	5.6	2	.64
	Not noted	96.3	103	94.4	34	
Service for Return Trip is Too	Yes	2.8	3	11.1	4	.07
Infrequent	Not noted	97.2	104	99.9	32	
Service in General is Too	Yes	3.7	4	13.9	5	.05
Infrequent	Not noted	96.3	103	86.1	31	

Table 4.18: Factors Limiting Use of Transit Options (Mail Survey) – Urban versus Rural Ceasers.

Note: Data on urban-rural status were missing for 11 ceasers.

4.3.4.3.1 Limitations in Options

Many of the comments pertaining to the limitations of transportation options were similar to those made about the use of such options. For both urban and rural ceasers, scheduling issues were a barrier, especially the use of dial-a-ride services (Table 4.19). Limited service (especially non-weekend or non-business-hour service) was also an issue, as was the complexity of transfers and distance to access service.

Limitations	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)
Scheduling and reliability issues	6	4
Limited service	5	1
Distance to access	2	—
Difficult to access (steep; no sidewalks)	1	
Discomfort of seniors in using	1	
Too complex (transfers, etc.)	3	1
Takes longer	1	
Cost	1	

Table 4.19: Factors Limiting Use of Transit Options (Telephone Interview) – Urban versus Rural Ceasers.

Scheduling issues were especially challenging, but for some, the availability outweighed the inconveniences. The following comment illustrates this point.

• "They [dial-a-bus] have their disadvantages. They're nice that they pick you up at your residence and take you where you're going and pick you up where you are and bring you back home to your residence, but there's a half-hour window on either side. In other words, you have to be available – say from 12:15 to 12:45 – waiting for the ride when they arrive, and the same on the pick up. If they're late picking you up, if they pass the time window, you have to call a dispatcher and find out whether they forgot you or the bus is just running late. But, it's not very bothersome; you get used to it. It's a great service."

In smaller towns, changing transit options were also seen as factors that limited use and made travel much more complex and challenging, as did very limited service. Two ceasers described these difficult circumstances:

- "I use the bus some, but it doesn't go everywhere I want to, and my one doctor's office, the bus used to go right by it, but they shut down. So, I take taxis, and it's over in Medford, which is 12 miles away, but the taxis won't take me there now. So there's a group at the hospital that run a van out to pick me up; so I get that, and I do take the bus some, and I do a lot of walking... I walk to the grocery store. The bus doesn't come up here; it's half a mile from the grocery store. I walk down and walk back, but my eyes are getting dimmer and dimmer now, so I get down there, then I have to have somebody get my groceries for me, because I'm getting where I can't see what I'm doing."
- "It's only every Monday I get picked up. I have to make doctors' appointments and everything early, for Monday. In case of emergency, they do take me over – there's a volunteer that would take me over to the hospital if I needed to go – but there's no way to get back. They don't go over there and wait; they take me over, and I have to call a neighbor to come get me to bring me back."
4.3.4.3.2 Barriers to the Provision of Transportation Options

Even in urban areas with service available, distance can be a barrier, especially for those with disabilities.

• "It's not particularly a useful option, because somebody would have to pick me up at my house. Because to go and see, for example, Tri-Met, to a light rail or some such, I have to drive with my scooter. It's too far."

As with urban and rural drivers, all of these challenges contributed to the perception among ceasers that the available options are not really viable alternatives to driving and limit actual transit use.

4.3.4.3.3 Who Fills the Gap

As with urban drivers, family and friends filled in much of the gap in transportation for older ceasers. Fourteen urban ceasers and four rural ceasers said that family (including spouse and/or children) provided some, if not all, of their transportation. Six urban and two rural ceasers also mentioned that friends help out. Another used local community support:

• "They have the volunteers with the senior citizen's group here. They volunteer to take me, and other people, once a week to go grocery shopping, that sort of thing."

4.3.4.4 Users versus Non-Users (Drivers and Ceasers)

To learn whether the limitations seen with respect to transportation options varied between actual users of transit and non-users, including both drivers and ceasers, several analyses were conducted. Chi-square analyses were conducted on limitations listed by both users and non-users, comparing the two groups of respondents: those who used either public transportation or special transportation services (n=88) and those who used neither type of transit (n=187). The only significant difference that emerged between users and non-users was that 42 percent of users of either form of transit listed "easier to drive" as a reason which limited their use of transit, compared to 63 percent of non-users of either public transportation or special transportation.

4.3.4.4.1 Users (Drivers and Ceasers)

First, to assess the limitations of public transportation options as perceived by those who actually use public or special transportation, analyses were conducted just with users. Sixty-four respondents answered affirmatively that they used public transportation in their community. Of those, 31 percent reported they had no concerns with public transportation. Similarly, of the 49 respondents who answered affirmatively that they used special public transportation services for seniors and people with disabilities, 24 percent responded that they had no concerns with the service.

As shown in Table 4.20, among users of both public and special transportation services, the most commonly cited barrier to use was that it was easier to drive (42% of public transit users and 37% of special transit users). Transit stops being too far to walk to constituted a barrier for 20 percent of special transportation users and 11 percent of public transportation users. The next most commonly cited limitation was that the bus did not go where they needed to go (reported by 19% of public transit riders and 18% of special services riders). The service taking too long was reported as a limitation by 15 percent of public transit riders and by 10 percent of special services riders.

Barriers To Transit Use	Percent Public	Percent Special	Percent Either/or
	Transit Rider	Services Rider	Rider
	(N = 64)	(N = 49)	(N = 88)
No concerns	31	24	31
No special/public transit available	3	10	7
Easier to drive	42	37	42
Have to plan too far in advance	9	14	11
No benches	3	2	2
No shelter	3	2	2
No restroom	8	6	8
Too far to walk	11	20	15
Bus stop unsafe	6	2	5
Bus ride unsafe			
Bus doesn't go where I need to	19	18	19
Too expensive	5	2	5
Not reliable		2	1
Takes too long	16	10	15
No individualized service	5	4	5
Return service infrequent	3	6	5
Infrequent service in general	6	6	7

Table 4.20: Factors Limiting Use of Transit Options (Telephone Interview) – Users (Drivers and Ceasers).

4.3.4.4.2 Non-Users (Drivers and Ceasers)

The limitations to use of public/special transportation services, as perceived specifically among those who did not use public transit or special transportation services, were examined next (Table 4.21). These limitations were those perceived as barriers to using alternative transportation options on the part of non-riders and, accurate or not, served to inhibit non-riders' use of transportation alternatives. It is important to note that this study did not explicitly attempt to evaluate public or special transit services, or document their availability and implementation. Rather, the study allowed respondents to describe their concerns and report perceived limitations.

Barriers To Transit Use	Percent Non-Public Transit Rider (N = 243)	Percent Non-Special Services Rider (N = 276)	Percent Neither/nor Rider (N = 187)
No concerns	31	34	32
No special/public transit available	5	10	5
Easier to drive	59	61	63
Have to plan too far in advance	9	8	9
No benches	6	5	6
No shelter	6	5	7
No restroom	7	7	7
Too far to walk	10	8	10
Bus stop unsafe	2	3	2
Bus ride unsafe	1	1	2
Bus doesn't go where I need to	16	15	13
Too expensive	1	2	1
Not reliable	2	3	3
Takes too long	11	11	11
No individualized service	3	3	3
Return service infrequent	5	5	5
Infrequent service in general	9	8	9

Table 4.21: Factors Limiting Use of Transit Options (Telephone Interview) – Non-Users (Drivers and Ceasers).

As shown, about one third of non-users had no concerns about public or special transportation alternatives (31% of non-users of public transit and 34% of non-users of special transportation). The main reason given by non-users of public transportation for not using transit was that it was easier to drive (reported by 59%). This was true of non-users of special transit services (61%) as well, although it is important to note that most people who use special transit are not able to use public transit. The most common other barriers to the use of transportation alternatives, as reported by non-users, were that the bus did not go where they needed to go (16% of non-riders of public transit and 15% of non-riders of special transportation), that the bus took too long (11% of each group of non-users), and that the transit stop was too far to walk (10% of non-riders of public transit and 8% of non-riders of special transportation).

4.3.5 Relocation to Have Better Access to Public Transportation

4.3.5.1 Drivers versus Ceasers

Respondents to the mail survey were asked if they had considered, or would consider, moving to a different neighborhood or town to have better access to public transit. The findings were consistent between drivers and ceasers. As shown in Table 4.22, less than 3 percent of each group reported that they definitely had considered this, or would consider this. Another 14 percent of drivers and 10 percent of ceasers said they might consider relocating to have better access to public transit. This finding of low interest in changing residences in order to improve access to public transportation is not surprising, given the consistent finding in the gerontological literature that most seniors want to remain in their current home until death, often referred to as "aging in place."

)		
Would Consider Relocation	Driv (N=3	Drivers (N=342)		Ceasers (N=158)	
	Percent	N=	Percent	N=	
Yes, definitely would/did consider	2.1	7	2.6	4	.44
Might consider	14.4	47	10.3	16	
No, would not consider	83.4	272	87.2	136	

Table 4.22: Consider Relocation to Improve Transit Access (Mail Survey) – Drivers versus Ceasers.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

4.3.5.2 Urban versus Rural Drivers

The findings from the mail survey comparing urban and rural drivers also indicate a high degree of similarity in the two groups of drivers' views (Table 4.23). Only about two percent of either group would definitely consider moving to improve their access to public transportation. Another 15 percent in each group said they might consider this. Alternatively, one rural driver wrote about having moved to a rural area, without public transportation, specifically to live and drive where there was less congestion.

Table 4.23. Con	sider Relocation to I	mprove Transit Access	(Mail Survey) – Urba	n versus Rural Drivers
1 abic 4.20. Con	sider relocation to r	mprove framer recess	(111an Dur (Cy) = 01Da	n versus iturai Dirvers.

Would Consider Relocation	Urban D (N=1	rivers 84)	Rural I (N=1	P Value	
	Percent	N=	Percent	N=	
Yes, definitely would/did consider	1.7	3	2.2	3	.63
Might consider	13.5	24	17.0	23]
No, would not consider	84.8	151	80.7	109]

Note: Data on urban-rural status were missing for 17 drivers.

The drivers interviewed by telephone were also asked a series of questions about relocating to have better access to transportation services. Specifically, they were asked if relocation had been considered (45 of the drivers responded directly with a yes or no response). If it had not, these drivers were asked why it had not been considered. For all, we asked if relocation were a consideration, what factors would be involved in a decision to relocate and how those interviewed might go about researching places with better transit options.

The majority of both rural and urban drivers interviewed -22 rural and 22 urban - said they had not considered or would not consider relocating their place of residence in order to have access to better transit services. Approximately one-half of these individuals gave a reason for not considering relocation. The reasons mentioned are shown in Table 4.24.

Reasons Not To Relocate	Urban Drivers (Mentions)	Rural Driver (Mentions)			
Happy with home/community	7	8			
No need to consider yet	2	1			
Already moved	2	2			
Own my home	1	1			
Would be lonely		1			

Table 4.24: Reasons Not to Relocate (Telephone Interview) – Urban versus Rural Drivers.

Among the reasons for not considering a move for this purpose, the most common was attachment to one's home and community:

- "No, absolutely not [considering relocation]. I'm here; it's as far as I'm going to go. I'm heavily vested in the community in many ways."
- "Oh no, no, no, no, no, no, no. I like my little house on the hill. I have a wonderful view. I'm nicely located in a good little town, and I would not want to move into a senior citizen home or any of that stuff."

If relocation were to be considered, whether now or in the future, transportation options were more often a factor to be considered by urban than by rural drivers (Table 4.25).

Fastars To Consider	Urban Drivers (Montions)	Dunal Drivers (Montions)
Factors To Consider	Utball Drivers (Melitions)	Kulai Drivers (Menuolis)
Access to public transportation options	5	1
Taking care of daily needs	4	3
Access to friends/family	1	6
Access to medical care	1	6
Choosing housing with its own transit service	1	1
Long range need for services	1	1
Access to social/cultural activities		3
Downsize house		1
Doctor advised no driving		1

 Table 4.25: Factors to Consider in Relocation Decision (Telephone Interview) – Urban versus Rural Drivers.

Rural drivers anticipated that in considering a move, access to friends, family, and medical care would be more significant factors to consider. For many of these drivers, a combination of factors would be involved in their consideration.

When asked how they might go about researching where to relocate, seven of the rural drivers and one urban driver said that they had already begun researching options. Several information sources were reported. Among rural drivers, sources mentioned included: visit or call specific sites (5 mentions); friends and family (4 mentions); Internet (4 mentions); local agency (e.g., Chamber of Commerce – one mention); and local senior publications (1 mention). Four rural drivers said they would access multiple resources to research the options. Among urban drivers, sources mentioned included: friends and family (6 mentions); visit or call specific sites (5 mentions); Internet (2 mentions); and a local agency (1 mention).

4.3.5.3 Urban versus Rural Ceasers

As shown by the mail survey, similar to other comparisons, the difference between urban and rural ceasers was not statistically significant with respect to whether or not they had considered or would consider moving to a different neighborhood or town to have better access to public transportation. Table 4.26 depicts the findings.

Would Consider Relocation	Urban C (N=11	easers 10)	Rural ((N=	P Value	
	Percent	N=	Percent	N=	
Yes, definitely would/did consider	2.8	3	2.8	1	.94
Might consider	9.2	10	11.1	4]
No, would not consider	88.1	96	86.1	31]

 Table 4.26: Consider Relocation to Improve Transit Access (Mail Survey) – Urban versus Rural Ceasers.

Note: Data on urban-rural status were missing for 11 ceasers.

Among those interviewed by telephone, of those responding to the question of whether they would consider relocation to improve access to transit, only five of the urban ceasers and three of the rural ceasers said they would do so. One of these, however, while mentioning she would consider it, had already made other arrangements (e.g., to move in with family for reasons other than transit accessibility). Two mentioned that they had already considered it by looking at retirement homes.

Fourteen urban and three rural ceasers said they would not consider relocating. For two of the latter, the ceasers felt that their children would make these decisions if necessary (rather than they making this decision themselves). As shown in Table 4.27, not all of the ceasers who said they would not relocate provided a reason, but of those who did, contentment with one's own home and community and a desire to stay there, as well as having already moved to accommodate their physical needs, were the most common responses. The other reason mentioned, by one respondent, was the need to remain in the community because the individual served as trustee for an estate.

Reasons Not To Relocate	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)			
Happy with home/community	6	1			
No need to consider yet	1				
Already moved	3				
Own my home	1	_			
Decision already for another reason (e.g., to		1			
live with children or family)					
Other reason	1				

 Table 4.27: Reasons Not to Relocate (Telephone Interview) – Urban versus Rural Ceasers.

If relocation were to be considered, whether now or in the future, or if a move had already been made, a range of factors was shown to be important in this decision, including access to transportation (Table. 4.28).

Factors Considered	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)
Access to public transportation options	3	
Access to friends/family	3	
Desire for specialized housing	2	—
Taking care of daily needs	1	
Access to medical care	1	
Opportunities to be with others (reduce isolation)	1	
Downsize house	1	
More walking/within walking distance of needs	1	1
Wheelchair accessible (housing and environment)	1	

Table 4.28: Factors to Consider in Relocation Decision (Telephone Interview) – Urban versus Rural Ceasers.

When asked how they might go about research on relocating, one of the rural ceasers reported having already undertaken this research along with her sister, and both had chosen the same retirement community. Among the urban ceasers, two reported already having begun their research. For one, gathering brochures and visiting retirement communities was the approach. Another's spouse had also visited some retirement facilities to assess their services and gauge distance from these facilities to medical offices.

Other sources of information that might be used/had been used by urban ceasers included: Internet (2 mentions); friends and family (2 mentions); social service agency (1 mention); and call or visit (3 mentions). Two of these urban ceasers mentioned they would use multiple sources of information.

4.4 CHANGES MADE IN DRIVING

Respondents to the mail survey were asked to indicate how often, if ever, they had made various types of changes in the way they drove. Current drivers were asked to respond using the past year as the timeframe; ceasers were asked to recall the changes they had made in the year before they stopped driving. For example, each group was asked how often they avoided driving at night, avoided freeways, drove less frequently, and the like. Response options were on a four-point scale that included: hardly ever (1), sometimes (2), often (3), and most or all of the time (4).

4.4.1 Drivers versus Ceasers

In this section, because of the different timeframes involved, drivers and ceasers are not compared with respect to changes they had made in their driving. Not only may there be differences due to a difficulty in accurately recalling these changes, but it seems likely that in the year immediately preceding stopping driving, ceasers would have implemented more changes to their driving than would have current drivers. Thus, statistical comparisons focus only on similarities and differences between urban and rural drivers.

Although statistical comparisons were not made, as would be expected, a look at the means on both Table 4.29 and Table 4.32 reveals that the means for changes made in driving appeared to be slightly

higher across the board for ceasers than for drivers, indicating that they had made more changes in the year leading up to their decision to stop driving than had been made by current drivers.

At the end of this question, concerning changes made to driving, respondents were given an opportunity to write additional comments. Eight respondents (2 rural drivers and 6 ceasers -1 rural and 5 urban) did so. There was great variety in the comments, and some were not easily interpretable. Four respondents simply reported that they had given up their license. One reported not having a car, one reported "freeway" as a change to their driving, one reported memory problems, and one simply wrote "rural."

4.4.2 Urban versus Rural Drivers

Among drivers, as shown in Table 4.29, the most commonly made changes by both rural and urban drivers were to avoid congested areas and to avoid rush hour.

Change ^a	Urban Drivers (N=184)		Rural Drivers (N=141)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Avoid night driving	2.2	181	.09	2.0	135	.10	.15
Limit distance driving	1.8	181	.08	1.5	135	.07	.01
Avoid left-hand turns	1.3	181	.05	1.2	135	.04	.19
Drive more slowly	1.7	181	.06	1.7	135	.07	.81
Drive less frequently	1.5	181	.06	1.4	135	.07	.35
Avoid rush hour	2.2	181	.08	2.0	135	.09	.07
Avoid bad weather	2.2	181	.08	1.9	135	.08	.03
Avoid unfamiliar roads	1.7	181	.07	1.4	135	.07	.02
Avoid congested areas	2.2	181	.08	2.1	135	.08	.24
Avoid freeways	1.5	181	.06	1.3	135	.06	.02
Other	2.8	8	.45	2.1	7	.55	.41

 Table 4.29: Changes Made in Driving (Mail Survey) – Urban versus Rural Drivers.

^a Responses were provided on a scale from 1 to 4, with 1=hardly ever, 2=sometimes, 3=often, and 4=most or all of the time. Data on urban/rural status were missing for 23 drivers.

Note: Data on urban/rural status were missing for 17 drivers.

Urban drivers were more likely than rural drivers to limit distance driving, avoid bad weather, avoid unfamiliar roads, and avoid freeways. One urban driver mentioned, in her general comments at the end of the survey, that congestion was an issue not only on the roads, but in parking lots. This driver reported having been hit twice in a store parking lot.

As in the mail survey, those individuals who agreed to be interviewed by telephone, and with whom telephone interviews were conducted, were asked about the changes they had made in their driving over time, and also the timeline over which those changes had occurred. As noted in Section 2.2.3, the interviewer used respondents' survey responses to begin the conversation. In some cases, a respondent then contradicted his or her survey responses or, as in one case, mentioned that on the survey he had tried to respond with both himself and his wife in mind. Some added other changes to their driving that they had not included in their responses on the mail survey. For many of those responding, the discussion focused on the specifics surrounding some of the changes they had reported. Table 4.30 shows the number of mentions given by those interviewed for each of the changes in driving discussed in the telephone interviews.

Change ^a	Urban Drivers (Mentions)	Rural Drivers (Mentions)
Limit night driving	10	16
Avoid bad weather	7	5
Avoid rush hour	5	10
Drive less	5	6
Avoid cities/congestion	4	11
Drive more slowly	4	7
Do not drive long distances	3	4
Generally more cautious	2	2
Avoid freeways	1	1
Do not drive if tired/anxious	1	
Limit driving by schools	1	_
Limit left turns	1	—
Take different routes	1	1
Travel more in slower, right lanes	1	—
Adapted vehicle	1	—
Purchased different vehicle		1
Moved to small town	1	
Choose different driving days		1
Leave more distance between cars		1
No longer drive at all	1	

 Table 4.30: Changes Made in Driving (Telephone Interview) – Urban versus Rural Drivers.

^a Here, rather than reporting *the number of individuals* responding to a given theme or response, *the frequency with which the theme is mentioned* is counted. Throughout the report, when an open-ended question was asked, individuals often mentioned several things in response, and may even have returned to the same theme or topic later in the interview. Each time the topic was mentioned, it is cited. The number of mentions thus indicates "strength" of a theme or response in the narrative.

The most common changes across both groups of current drivers involved less night driving, avoiding bad weather, and traffic congestion. Urban drivers were consistent in these responses and many noted more than one change. Six of the 33 urban drivers and six of the 36 rural drivers, however, said they had made no changes in their driving. Two others also noted that any changes were not a result of driving issues, with one urban driver reporting just not going out much as a rule, and one rural driver noting that the price of gas was the key factor in reducing travel. The remainder of those interviewed often reported multiple changes in their driving.

More of the rural drivers mentioned limiting night driving, avoiding rush hour and areas of congestion, and driving more slowly than did urban drivers. Urban and rural differences were also seen in the details of some of the changes mentioned. In describing taking different routes, for example, a rural driver would mention avoiding a mountain pass, while an urban driver would mention avoiding four-way stops in favor of streets with stoplights or well-marked/lighted areas.

Some respondents qualified their response. One of these noted that, while generally limiting night driving, when going on a trip she will, if necessary, get up very early (e.g., 3:00 a.m.), when it is still dark, to get an early start and avoid traffic. Among responses about bad weather, rain was mentioned independently, as well as in combination with other changes (e.g., driving at night under rainy circumstances), as being especially challenging.

For one urban driver, some of the changes being made are in anticipation of aging-related issues and reflect a thoughtful approach to finding and using supports that may be helpful as one ages:

• "I choose different routes to go to my destinations, routes that have lights instead of 4way stop signs or 2-way stop signs. Sometimes I have to go the longer way to get to where I want to go, simply because of the safety factor. Also, even if it's a route that I usually have taken in the past, if it doesn't have the white lines on the sides, now I try to pick routes that have the white lines so I can be sure I'm turning where I think I'm turning. I just try not to go down the really busy streets, I'd rather go around them. And those are the things I've noticed that I've changed the most is the routes and going with lights, and trying to look for streets that have the white lines on the side so I can see them. I don't have any vision problems at this point in my life, but I feel better about driving if I use the helps that are on the highway."

Being asked about changes in driving prompted four urban drivers and one rural driver to report having taken, sometimes multiple times, a course for senior drivers (e.g., *55 Alive*). Comments from all focused on the usefulness of the training. Sample comments included:

- "I did take the 55 Alive class, and because of that, there are a few things I'm a little bit more aware of, such as trying to make right-hand turns instead of trying to turn left at a busy intersection. Although I don't specifically avoid that, I just try to think of it sometimes. I do more thinking about where I'm going."
- "I've been doing it [driving course] every three years, and it's kind of interesting. You find all the dumb habits you've gotten into; it shapes you up for a while. I didn't realize how I was just crumpled up in the car driving away, so now I make myself sit up straighter, be more aware."

4.4.2.1 Timeline for Anticipated Changes

In the telephone interview, as compared with the mail survey, more detail was elicited on the timeline in which the changes reported had occurred. For many older adults, changes in vision, hearing, reflexes, or other areas, resulting in modifications in driving occur gradually, while for others a sudden illness or other health issue may make driving more difficult. Most of the drivers interviewed could identify a timeframe in which changes in their driving had occurred. Table 4.31 summarizes the results of those who could estimate the length of time during which their driving changes have occurred.

Time Period	Urban Drivers (Mentions)	Rural Drivers (Mentions)
1 to 2 years	4	8
3 to 4 years	3	6
5 to 6 years		5
7 to 9 years		2
10 years or more	1	1
Other response (descriptive)	10	7

Table 4.31: Timeframe for Driving Changes (Telephone Interview) – Urban versus Rural Drivers.

Among those still driving (and among ceasers as well, see Table 4.32 in section 4.4.3 below), of those who cited a specific time period over which their driving changes occurred, the most common response was 1 to 2 years, followed by 3 to 4 years. Other responses

included a range of time periods and circumstances. Two rural drivers and one urban driver reported that the changes had been gradual since retirement. Other responses included that the changes were spread over a long period of time (4 mentions), generally gradual (3 mentions), or several years (1 mention). One driver said he had been driving cautiously "forever." Two others noted that vision problems had been a problem much earlier in life, thus changes/adaptations had long been required. Finally, one mentioned that changes had occurred since moving to the country, rather than over some time period of the aging process.

Clearly, changes in driving do occur over a period of time, shorter for some and longer for others. Some changes are due to the circumstances of retirement or moving to a different environment, such as near a golf course or a rural area. For most of the drivers interviewed, it's a process of paying attention to changes and adapting as necessary over time. The following comment exemplifies this process:

• "We didn't specifically state we're going to watch ourselves now and all this. I became more cautious in my driving when I was probably 65, and I kind of checked myself, how I was driving, making sure I was doing everything. Then I noticed how, as I got a little older, the traffic did bother me. It was not that I was afraid. I was not afraid to drive and if I had to, I could. It was just that I became more cautious. The night driving, well I had a little vision problem and correction of glasses helped that, but we still don't like to drive at night. We do, if we go somewhere to a program or something and we have to make it home, but it's only short distances."

4.4.3 Urban versus Rural Ceasers

For ceasers (Table 4.32), in the mail survey, there were no statistically significant differences between the urban and rural groups with respect to the types of changes they had made in their driving in the year before they stopped driving.

Change ^a	Urban Ceasers (N=110)		R	P Value			
	Mean	N=	SE	Mean	N=	SE	
Avoid night driving	2.8	94	.14	3.0	34	.20	.50
Limit distance driving	2.5	94	.14	2.5	34	.22	1.00
Avoid left-hand turns	1.5	94	.10	1.6	34	.16	.42
Drive more slowly	2.1	94	.12	2.1	34	.18	.73
Drive less frequently	2.4	94	.13	2.2	34	.18	.54
Avoid rush hour	2.6	94	.13	2.4	34	.21	.41
Avoid bad weather	2.7	94	.13	2.3	34	.20	.15
Avoid unfamiliar roads	2.5	94	.14	2.2	34	.22	.42
Avoid congested areas	2.6	94	.12	2.7	34	.18	.66
Avoid freeways	2.2	94	.13	2.1	34	.23	.87

Table 4.32: Changes Made in Driving (Mail Survey) – Urban versus Rural Ceasers.

^a Responses were provided on a scale from 1 to 4, with 1=hardly ever, 2=sometimes, 3=often, and 4=most or all of the time Note: Data on urban/rural status were missing for 11 ceasers.

As with the drivers, ceasers interviewed by telephone were asked to describe the changes they had made in their driving prior to stopping and to estimate the time period over which these changes had occurred. The impacts of ceasing to drive were also explored.

Although three urban and two rural ceasers said they had made no changes at all in their driving behavior prior to ceasing to drive, those who had most often mentioned limiting night driving, avoiding rush hour and areas of congestion, driving more slowly, and limiting distances (Table 4.33).

Table 4.55: Changes Made in Driving (Telephone Interview) – Orban versus Kurai Ceasers.							
Changes	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)					
Limit night driving	8						
Avoid bad weather	2						
Avoid rush hour	7						
Drive less	2						
Avoid cities/congestion	2	_					
Drive more slowly	5	1					
Do not drive long distances	5	1					
Avoid freeways	3						
Limit left turns		1					
Adapted vehicle	1						
Avoid unfamiliar roads	1						

 Table 4.33: Changes Made in Driving (Telephone Interview) – Urban versus Rural Ceasers.

Another urban ceaser said he made no changes in his driving due to aging issues, but rather that he gave up his car due to the expense of maintaining it. Two rural ceasers reported that a single event or issue made them stop driving at once, rather than making changes over time to gradually adjust their driving patterns. One of these ceasers reported that after she began experiencing physical changes (e.g., dizzy spells), she just stopped driving, while another said he simply "*parked the car*" after a scare while driving.

For some, changes occurred to the point that they greatly reduced their activities or almost stopped driving by the time they chose to stop completely. Sample comments included:

- "I did stop driving at night, because I just didn't feel comfortable driving around alone after dark, and then coming back into my driveway; and I happen to have an oversized piece of property, so I do not have any close neighbors. It's pretty lonely here, so I had to think of my personal safety. As far as driving was concerned, I thought I was a capable driver, but I only went to places like the bank, grocery store, church, and the post office."
- "I had cataracts coming on my eyes, and I just felt like one of the reasons I quit driving was I didn't want my name up there in big letters: 'This old woman got out there and killed somebody.' I got to where I couldn't really see the street signs clearly until I got right on top of them, and to me it just made better sense to say 'that's enough.' The last two years I drove, I only used 40 gallons of gas each year... I tried to control the distance I drove and usually when I would drive, it was in the mornings when there was less traffic on the road... If I had any driving to do, it was going to the grocery store or

running errands downtown. As far as jumping in the car just to be going, I did very little of that."

4.4.3.1 Timeline of Actual Changes

Among the respondents interviewed, 12 urban and five rural ceasers provided a response when asked to estimate the time period over which they had made changes in their driving before they ceased to drive. As shown in Table 4.34, the most common response was that changes occurred within one to two years prior to stopping.

Tuble ne n Thildrighte for Diffe	ing changes (1 crephone inter (1e w)	
Time Period	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)
Less than 1 year	1	_
1 to 2 years	5	2
3 to 4 years	3	_
5 to 6 years	—	
7 to 9 years	1	—
10 years or more	1	
Other response (descriptive)	1	3

Table 4.34: Timeframe for Driving Changes (Telephone Interview) – Urban versus Rural Ceasers.

Among the "other responses," one urban ceaser said she couldn't remember how long a time passed during which she made changes. Among rural ceasers, one delineated the time period by a series of health incidents, while another said it just occurred gradually. Another described the gradual process as follows:

• "I started having trouble with my eyesight. I had glaucoma and I lost my eyesight in my right eye. I'm 85 years old, and like I told somebody, you're not as alert as you used to be, and your reflexes are not as sharp and everything. So I thought I might as well just quit. I noticed, 'I'm sure I'm doing things,' cause I saw other people doing what I thought was stupid things, and I wondered 'Am I'm doing that stupid thing too and not realizing it?' So, it happened gradually."

4.5 FACTORS AFFECTING DECISION TO CONTINUE OR STOP DRIVING

4.5.1 Continuing to Drive When One Should Stop

The mail survey asked the older adult respondents whether they knew people who should have stopped driving but had not. Of the 457 individuals who responded, 48 percent said that they did. There were no significant differences between drivers and ceasers, between urban and rural drivers, or between urban and rural ceasers. A few of the general comments written at the end of the survey focused on this issue, including those emphasizing the need for older adults to recognize their limitations. Sample comments included:

• "I'm glad I'm no longer licensed to drive. I see too many drivers who are careless and inattentive. I don't want to be involved in their accidents, as most would blame me, 'the little old lady'."

• "I would like to encourage people to recognize that the body begins to shut down as we age, and any signs of difficulty in vision, hearing, or slower reactions should signal that maybe we shouldn't be driving in today's traffic."

The telephone interviews explored in depth the reasons that people continue to drive when they should not. In those interviews, drivers were asked to assess, in their own circumstances, what might keep them driving beyond the point where they probably should stop. Seven urban drivers and five rural drivers said that nothing would keep them driving beyond the point where they should not. Of these, five mentioned that family, friends, or neighbors were available to help, so they would not *need* to drive when they should not. Sample comments from these drivers included:

- "I'm close with family and a lot of good friends, and some of my friends are much younger than I am, so I would feel pretty comfortable in saying, 'Would you mind dropping me off here?' We also have a small bus system in this area that I could ride into Eugene if I wanted to; and that wouldn't be bad. It's something very few people do around here, yet I don't think that would be a bad approach either. I don't think I would be intimidated to ask close friends and my granddaughters, or whoever, to help me out, because we play a pretty good help-each-other-out game."
- "I would hope that I would have good enough judgment to ask a neighbor if my husband is not available to drive me, and he has driven me once in a while when I've been particularly fatigued. If I would be concerned that as I age, I might have a little less thinking. I hope I would be able to recognize that and not drive."

The following conversation between one interviewer and driver exemplifies other comments from those who said they would never, under any circumstance, keep driving beyond when they felt they should stop. In this case, as well, the driver had already considered the options for when he is no longer driving and could not foresee a circumstance where continuing to drive when he should not would arise.

• Driver: "I hope not anything would keep me going. I hope when it's time for me to stop I will stop. I've seen older relatives who didn't stop. It wasn't safe for them, and it wasn't safe for other people."

Interviewer: "Sometimes people say, 'Well, if I had a medical appointment, or I'm responsible for driving other people around,' that they might continue driving. Does that apply to you at all?"

Driver: "No, not if I'm living in this larger city. I'm moving into this larger city hoping to get situated close to the hospital and the clinic that I go to, so that I'll be able to take a short taxi ride to those places when I need to."

The most common reasons the other drivers interviewed said they might continue driving even when they knew they should not included emergencies, lack of any other transportation alternatives, and the need to get to medical appointments (Table 4.35).

Reason	Urban Drivers (Mentions)	Rural Drivers (Mentions)
Emergency	9	10
No other alternatives (to driving one's self)	5	4
Medical appointments	4	5
Not be dependent on others	3	1
Get groceries or other necessities	2	3
Lack of awareness of a problem (in one's driving)	2	—
Neighbor or family need	2	3
Drive spouse to appointments	1	3
Visit family	1	
Go to work (still need to work)		1

 Table 4.35: Reasons to Drive Beyond Point One Should (Telephone Interview) – Urban versus Rural Drivers.

One urban driver described the role that maintaining independence plays in this decision. Another described medical needs that could motivate her to drive when perhaps she should not. In both cases, a lack of options was central to driving beyond the point when one should.

- "I know that a lot of times elderly people don't want to ask their family to help either, when their family might be willing, but I think they don't want to tie somebody else up. So sometimes it's very hard, and maybe those are the people, if there was some kind of reliable public transportation that was more like your disability bus, your lifts, if they had more knowledge and they felt that it was more accessible to them, maybe that would cut down on their driving."
- "If I was not able to get transportation to something vital any other way, I would drive. A doctor's appointment is the one thing I can think of; if I couldn't get to my doctor I would do that. If I couldn't get to the hospital I would do that."

4.5.2 Health and Personal Reasons that Lead to Driving Cessation

4.5.2.1 Drivers versus Ceasers

Respondents to the mail survey were asked about various health and personal reasons that could potentially lead them to stop driving in the future (current drivers) or had actually led them to stop driving already (ceasers). The response scale was based on a four-point scale that included: definitely not (1), probably not (2), probably (3), and yes, definitely (4). Thus, the higher the score, the greater the role played by (or anticipated to be played by) this reason in the decision to stop driving.

As shown in Table 4.36, the views of current drivers versus ceasers, with respect to the extent to which each of the various health issues could lead/had led them to stop driving, differed significantly. Interestingly, current drivers' assessment of *each* of the factors' importance as a reason to stop driving was higher than that of actual ceasers. For example, the mean score of current drivers with respect to poor vision as a reason to stop driving was 3.0, compared to 2.3 for ceasers. Thus, current drivers gave greater importance to each of these health issues as a factor that would cause them to stop driving than did ceasers themselves.

Reason ^a		Drivers (N=342)			Ceasers (N=158)		P Value
	Mean	N=	SE	Mean	N=	SE	
Poor vision	3.0	323	.06	2.3	144	.11	.00
Hearing loss	2.2	323	.05	1.6	144	.08	.00
Heart condition	2.4	323	.06	1.5	144	.08	.00
After stroke	2.8	323	.06	1.6	144	.10	.00
Arthritis	1.9	323	.04	1.5	144	.09	.00
Memory/cognitive problems	2.8	323	.06	1.5	144	.08	.00
Loss of coordination	2.9	323	.06	1.6	144	.08	.00
Loss of strength	2.5	323	.06	1.4	144	.07	.00
Emotional distress	2.3	323	.05	1.3	144	.06	.00
Medication that affects driving	3.0	323	.06	1.5	144	.08	.00
Other chronic conditions	2.1	323	.05	1.5	144	.09	.00
Other	2.9	15	.35	0.9	23	.18	.08

Table 4.36: Health Reasons to	Cease Driving (Mail Survey	y) – Drivers (Anticipated) v	versus Ceasers (Actual).
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^a Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

In addition to the reasons listed on the survey, respondents were given an opportunity to cite other health reasons that caused the person to stop driving or might cause the person to stop driving in the future. Of the 487 total respondents, 28 (2 drivers, both rural, and 26 ceasers – 6 rural and 20 urban) listed additional reasons. The most frequent written comment was that the respondent did not feel safe as a driver, or did not feel safe given the way others drove (8 respondents); one driver wrote that this might be a reason for stopping driving in the future. The next most common reason written was having multiple sclerosis (3 respondents) or Parkinson's disease (3 respondents). Other physical limitations were also noted – such as amputation, diabetes, cataract surgery, macular degeneration, bad joints, unpredictable dizzy spells, and prior surgery – as reasons respondents had stopped driving. One current driver reported that asthma might be a reason to stop driving in the future. Two individuals wrote that they had their license taken away, one by a family member and one by the state. Finally, three people wrote that they decided to not take the license renewal test.

Respondents were also asked about numerous personal issues that might affect a potential future or actual decision to stop driving. Table 4.37 presents the list of issues about which respondents were queried, as well as the average responses by each group – drivers and ceasers. Examples include getting confused while driving, feeling that they weren't a safe driver, getting too many traffic citations, and having a doctor or family member advise them to stop driving. As was the case with the health issues, drivers were more likely to report that each of these issues would probably or definitely cause them to stop driving.

Reason ^a	Drivers (N=342)				P Value		
	Mean	N=	SE	Mean	N=	SE	
Confused while driving	3.2	325	.05	1.4	144	.08	.00
Lost confidence in driving	3.3	325	.05	2.0	144	.10	.00
No longer safe driver	3.5	325	.04	2.3	144	.12	.00
Too many accidents	3.5	325	.05	1.2	144	.05	.00
Too many citations	3.3	325	.05	1.0	144	.01	.00
Could no longer afford	3.1	325	.06	1.2	144	.05	.00
Had someone else drive	2.7	325	.05	2.2	144	.11	.00
Doctor advised to stop driving	3.5	325	.05	1.6	144	.09	.00
Family urged to stop driving	3.3	325	.05	1.8	144	.11	.00
No longer wanted to go out	2.9	325	.05	1.2	144	.06	.00
No longer wanted to drive	3.2	325	.05	2.0	144	.11	.00
Preferred other modes	2.7	325	.06	1.2	144	.06	.00
Other	2.4	11	.41	3.7	11	.27	.01

Table 4.37: Personal Reasons to Cease Driving (Mail Survey) – Drivers (Anticipated) versus Ceasers (Actual).

^a Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely.

Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

4.5.2.2 Urban versus Rural Drivers

Urban and rural drivers' anticipated health reasons for stopping did not differ significantly in the mail surveys. As shown in Table 4.38, poor vision led the list of reasons given by both groups, followed by medication that affects driving, loss of coordination, memory or cognitive problems, and stroke.

Reason ^a	Urban Drivers (N=184)		R	P Value			
	Mean	N=	SE	Mean	N=	SE	
Poor vision	3.1	179	.08	3.0	129	.09	.25
Hearing loss	2.3	179	.07	2.0	129	.07	.21
Heart condition	2.5	179	.08	2.3	129	.08	.25
After stroke	2.9	179	.08	2.6	129	.09	.04
Arthritis	1.9	179	.06	1.8	129	.06	.07
Memory/cognitive problems	2.8	179	.08	2.7	129	.09	.51
Loss of coordination	3.0	179	.08	2.9	129	.10	.50
Loss of strength	2.6	179	.07	2.5	129	.09	.51
Emotional distress	2.4	179	.07	2.2	129	.08	.33
Medication that affects driving	3.1	179	.08	3.0	129	.09	.40
Other chronic conditions	2.2	179	.07	2.1	129	.08	.36
Other	2.5	6	.56	3.5	8	.38	.15

Table 4.38: Health Reasons to Cease Driving (Mail Survey) – Urban versus Rural Drivers (Anticipated).

^a Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely. Note: Data on urban-rural status were missing for 17 drivers.

With respect to drivers' anticipated personal reasons for ceasing to drive, urban and rural drivers' views generally did not differ (Table 4.39). There were, however, two exceptions. More urban than rural drivers noted that having someone else who could drive for them would be a factor in their decision to stop driving themselves. Also, urban

drivers were more likely than drivers living in rural areas to report preferring other modes of travel as a deciding factor.

Reason ^a	Urban Drivers (N=184)		R	P Value			
	Mean	N=	SE	Mean	N=	SE	
Confused while driving	3.3	178	.06	3.2	133	.08	.49
Lost confidence in driving	3.3	178	.06	3.3	133	.07	.76
No longer safe driver	3.6	178	.06	3.4	133	.07	.19
Too many accidents	3.5	178	.07	3.5	133	.08	.81
Too many citations	3.3	178	.08	3.3	133	.09	.85
Could no longer afford	3.1	178	.08	3.1	133	.09	.72
Had someone else drive	2.8	178	.07	2.5	133	.08	.03
Doctor advised to stop driving	3.5	178	.06	3.5	133	.07	.80
Family urged to stop driving	3.3	178	.07	3.3	133	.07	.91
No longer wanted to go out	2.9	178	.07	2.9	133	.08	.96
No longer wanted to drive	3.3	178	.06	3.2	133	.08	.39
Preferred other modes	2.8	178	.08	2.5	133	.10	.01
Other	2.7	3	.88	2.4	7	.53	.82

Table 4.39: Personal Reasons to Cease Driving (Mail Survey) – Urban versus Rural Drivers (Anticipated).

Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely.

Note: Data on urban-rural status were missing for 17 drivers.

The telephone interviews with drivers provided additional details about the factors that current drivers could envision as reasons to stop driving in the future (Table 4.40). Specifically, when asked to speculate about what would stop them from driving, the drivers interviewed provided a range of more than 20 responses. Many of those interviewed said that any one of several reasons could lead them to stop driving. The most common reasons – health or medical issues, vision, diminished reflexes or coordination, and family or friend advises – were reported by both urban and rural drivers. Rural drivers, however, more often than urban drivers, mentioned that perceiving themselves as a hazard to others would lead them to stop driving.

Reasons	Urban Drivers (Mentions)	Rural Drivers (Mentions)
Health/medical issues	16	16
Vision	15	14
Diminished reflexes/coordination	8	7
Friend or family member advises	5	6
Poor judgment or concentration	4	1
Accident or hit something	4	5
Conclude no longer capable	4	3
Hearing	4	2
Getting confused	3	4
Combination of factors	2	4
Perception of self as hazard to others	1	8
Advised by doctor	1	2
Level of traffic	1	—
Having an alternative available	1	1
Trouble getting in and out of car		1

Table 4.40: Reasons to Cease Driving (Telephone Interview) – Urban versus Rural Drivers (Anticipated).

Older adults are keenly aware of the many issues that could lead to the need for them to cease driving, often having seen others who they felt were no longer competent drivers. Most of those interviewed seemed very realistic and cautious about things that might make driving difficult. Their comments reflect concern that they not be a danger, not listen to others when they are advised to stop, or fail to be aware that they are no longer capable. Sample comments included:

- "Well, if it got to the point where, and I'll be honest, it got to the point I felt that I really couldn't drive safely any more, I wouldn't. That is, if my reflexes slowed down or my vision got worse. As an example, I happen to live in Lebanon and I was coming down Main Street one day, and I watched a guy pull out of a parking lot, and he could not turn his neck. So in order to see whether there was anybody coming, he would have to turn his whole shoulder around to see whether they was coming, and that's not what happened. So then I say, 'I'm going to call the police, this guy should have his license taken away,' but on the other hand, I think about the handicaps it would create for him and the fact that I don't know, he might have driven all of his life and never had an accident before. But what does he do, how does he get to the store, the grocery store, the doctor and all that stuff? But those are some of the things I would definitely think about. If I got to the point where I felt I wasn't competent to drive any more, I wouldn't."
- "For example there have been several incidents in the news lately about people with diminished mental capacity still driving, or who got lost and died. Certainly I would hope that my family would see that I didn't drive any more if I developed some kind of dementia, or Alzheimer's."
- "Well, I'd stop if impaired by my eyes, impaired so I didn't feel that I'm fine in driving with my right and left. If I were mentally impaired, if I had a stroke, anything like that, I would not drive, I wouldn't try to drive. When I had surgery, I did not drive for three months, and that was really hard, but I wouldn't drive because I could have driven after two months, but I wanted to make sure I was okay, so I waited another month. And if I were taking some kind of medication, for goodness sake, I sure wouldn't drive."
- "Well, like I say, when my coordination or my sight, my reflexes and stuff change, or if I had a stroke or something where that it affected me that way, I'd stop. As far as if I lost an arm, that wouldn't bother me, I can drive one-armed, but the clearness of vision, or if I forget that stop at a red light and don't know where I'm going from there, that's a problem. But I can still plan a trip, and move with traffic safely, but I don't know exactly how to explain it to you. If the doctor told me there was a medical reason, if I had fainting spells or anything like that, it would be time to quit."

4.5.2.3 Urban versus Rural Ceasers

As was the case with the current drivers who responded to the mail survey, urban and rural respondents who had stopped driving reported similar health reasons for having

made the decision to cease driving. Poor vision was the health reason receiving the highest score on the part of both groups, as shown in Table 4.41.

Reason ^a	Urban Ceasers (N=110)		R	P Value			
	Mean	N=	SE	Mean	N=	SE	
Poor vision	2.3	102	.13	2.4	33	.23	.77
Hearing loss	1.7	102	.10	1.6	33	.15	.57
Heart condition	1.6	102	.11	1.2	33	.10	.01
After stroke	1.6	102	.12	1.5	33	.19	.62
Arthritis	1.6	102	.11	1.4	33	.13	.15
Memory/cognitive problems	1.5	102	.09	1.6	33	.19	.37
Loss of coordination	1.6	102	.10	1.5	33	.15	.44
Loss of strength	1.5	102	.09	1.4	33	.13	.59
Emotional distress	1.3	102	.08	1.2	33	.06	.18
Medication that affects driving	1.5	102	.10	1.4	33	.14	.52
Other chronic conditions	1.5	102	.10	1.5	33	.18	.90
Other	3.8	16	.19	3.3	4	.75	.35

Table 4.41: Health Reasons to Cease Driving (Mail Survey) – Urban versus Rural Ceasers (Actual).

^a Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely.

Note: Data on urban-rural status were missing for 11 ceasers.

The urban and rural ceasers who responded to the mail survey also differed little in their responses pertaining to personal reasons for having stopped driving (Table 4.42). The one exception was that rural ceasers were more likely than urban ceasers to report having had someone else who could drive them as a factor in their decision-making process. However, both this reason and feeling that they were no longer safe drivers were the top-mentioned reasons by both urban and rural ceasers.

Reason ^a	Urban Ceasers (N=110)		Rural Ceasers (N=37)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Confused while driving	1.5	99	.10	1.4	35	.14	.89
Lost confidence in driving	1.9	99	.12	2.2	35	.22	.22
No longer safe driver	2.2	99	.14	2.5	35	.23	.27
Too many accidents	1.2	99	.06	1.2	35	.08	.86
Too many citations	1.0	99	.00	1.1	35	.05	.08
Could no longer afford	1.2	99	.07	1.1	35	.07	.57
Had someone else drive	2.0	99	.13	2.8	35	.23	.00
Doctor advised to stop driving	1.6	99	.11	1.5	35	.17	.99
Family urged to stop driving	1.8	99	.13	1.9	35	.23	.82
No longer wanted to go out	1.2	99	.07	1.1	35	.08	.55
No longer wanted to drive	1.9	99	.13	2.3	35	.22	.14
Preferred other modes	1.2	99	.08	1.2	35	.12	.83
Other	3.6	8	.38	4.0	2	.00	.65

Table 4.42: Personal Reasons to Cease Driving (Mail Survey) – Urban versus Rural Ceasers (Actual).

Items measured as follows: 1=Definitely not, 2=Probably not, 3=Probably, 4=Yes definitely. Note: Data on urban-rural status were missing for 11 ceasers.

The telephone interviews with ceasers shed further light on the reasons behind their decision to stop driving. When asked the main reason they had stopped driving, health and medical issues were most commonly mentioned by urban ceasers, while vision was

most often mentioned by rural ceasers (Table 4.43). These two factors, along with a loss of confidence or sense of safety, having an accident, or having a friend or family member advising the driver to stop, were the most common reasons offered.

Reasons	Urban Ceasers (Mentions)	Rural Ceasers (Mentions)
Health/medical issues	8	1
Loss of confidence/sense of safety	5	1
Vision	4	3
Accident or hit something	4	—
Friend or family member advises	3	
Perception of self as hazard to others	2	
Physical changes along with cost of gas and	1	
maintenance	Ī	—
Financial issues	1	—
Could not pass driving test	1	—
Advised by doctor	1	1
Just did not want to drive	1	—
Stopped by police for erratic driving	_	1
A scare or near accident		1
Trouble getting in and out of car	1	

 Table 4.43: Reasons to Cease Driving (Telephone Interview) – Urban versus Rural Ceasers (Actual).

Among the medical issues mentioned that led to ceasing to drive were arthritis, stroke, Parkinson's disease, and long-term disabilities combined with aging-related deficiencies.

Some of those interviewed mentioned losing confidence in their driving and thus had decided not to continue, even when they could have, legally, if desired. The following comment illustrates this type of awareness:

• "I'm not really sure, I just had a feeling that if I ever hit anything, I wouldn't be able to live through it, and I just felt like I shouldn't drive any more. I still had my license, it was still good for four years, but I didn't drive. I just didn't want to hit somebody, or an animal, or have something happen... I think I could have driven a little longer, I really do. I just didn't feel good about it, but the eye doctor did say I could still drive."

For another, the event leading to ceasing to drive was a difficult and emotional one:

• "I didn't stop on my own. What happened was the police noticed I was driving erratic and stopped me, took my keys, and called the family. Then he notified the DMV, and they took my license – so it wasn't me that decided."

This respondent actually represented a sampling anomaly, as mandatory ceasers were excluded from the sample provided by ODOT, Driver and Motor Vehicle Services. Still, when asked what made him keep driving prior to being forced to quit, he noted that he knew he should have stopped a year prior, but he lived in an area (out of state) where there was no option but to continue to drive.

4.6 PREDICTORS OF DRIVING STATUS

To determine which variables, *taken together*, predicted continuing to drive versus ceasing, logistic regression was used to analyze the data from the mail survey. The variables included in the analysis are listed in Table 4.44. These variables were selected because they had emerged in the review of the literature as being important factors related to continuing to drive or ceasing, or because the bivariate analyses (t-tests or chi-square analyses) revealed differences between drivers and ceasers.

Table 4.44. I reactors of Driving Status.							
Variables			SE	Wald	Df	Sig.	Exp (B0)
Age in years		13	.03	19.25	1	.00	.88
Sex	1=male, 0=female	-1.00	.46	4.78	1	.03	.37
Married/partnered	1=yes, 0=no	92	.89	1.07	1	.30	.40
Education	1=low, 7=high	04	.12	.12	1	.73	.96
Income	1=low, 7=high	.10	.14	.50	1	.48	1.10
In senior housing	1=yes, 0=no	-1.22	.61	3.95	1	.05	.30
Residence ownership	1=yes, 0=no	24	.62	.14	1	.71	.79
Urban or Rural Residence	1=rural, 0=urban	16	.45	.13	1	.72	.85
Living alone	1=yes, 0=no	1.01	.86	1.37	1	.24	2.74
Employed	1=yes, 0=no	17.37	6626.81	.00	1	1.00	34929998.00
Volunteer	1=yes, 0=no	1.41	.59	5.66	1	.02	4.08
Self-rated health	1=poor, 5=excellent	.54	.24	4.94	1	.03	1.71
Depressed	$1=yes on 1 \ge of 4$ screening items, 0=no	-1.45	.56	6.68	1	.01	.24
Frequency of use of alternative transportation ¹	low to high	64	.11	31.33	1	.000	.53
Frequency of trips ²	low to high	.19	.04	20.68	1	.000	1.21
Limitations on use of public transportation ³	0=none	.28	.13	4.60	1	.03	1.33

Table 4.44: Predictors of Driving Status.

¹ Use of alternative modes of transportation = sum of answers to the items comprising Question 21, Types of Transportation Used, except the first ("personal vehicle as driver") and last ("other") items were omitted.

 $\frac{1}{2}$ Frequency of trips = sum of responses to the items in Question 22, Frequency of Various Types of Trips, except for the last item, "other." $\frac{1}{2}$ Limitations on use of public transportation" was created by summing the responses to Question 25, except the items "no public/special transportation is available," "I have no concerns", and "other" were omitted.

Number of cases included in analysis: 353 (71%).

In some cases (e.g., self-rated health and having altered travel patterns due to health), one or the other of two variables had to be selected to avoid problems of multicolinearity. In addition, to make it possible to include them in the analyses, summary variables were created for such variables as use of alternative modes of transportation, frequency of trips, and perceived limitations in public transportation.³

³ Use of alternative modes of transportation was created by summing each respondent's answers to the items comprising *Question 21; Types of Transportation Used*, except the first ("personal vehicle as driver") and last ("other") items were omitted. *Frequency of trips* was created by summing the responses to the items in *Question 22; Frequency of Various Types of Trips*, except for the last item, "other." Similarly, *Limitations on use of public transportation* was created by summing the responses to Question 25, except the items "no public/special transportation is available," "I have no concerns," and "other" were omitted.

As shown above in Table 4.44, age, gender, depression, living in senior housing, and use of alternative transportation were significantly *negatively* related to those still driving (driver=1, ceaser=0). Thus, drivers, compared to ceasers, were younger, more likely to be male, less likely to be living in senior housing, less depressed, and used less alternative means of transportation.

Self-rated health, frequency of trips, and perceived limitations in public transportation were significantly *positively* related to still driving. Thus, drivers reported better health, made more trips outside the home, and reported more limitations in public transportation than did ceasers.

These results from the mail survey reveal that those most likely to have voluntarily chosen to cease driving were older, depressed females in poorer health. They were living in senior housing, using alternative transportation, making fewer trips, and seeing fewer limitations in alternative transportation. It is important to note that this is a cross-sectional, not longitudinal analysis; therefore, it is not possible to state which variables come first and lead to which outcomes. For example, it is not possible to know from this analysis whether people became depressed as a *result* of ceasing to drive, or whether being depressed *led* one to choose to cease to drive (although previous literature indicates that depression is an outcome of driving cessation).

4.7 IMPACT OF DRIVING CESSATION

In the mail survey, current drivers were asked to indicate the extent to which they thought each of several possible outcomes would apply to them if they were to choose to stop driving (Appendix B). Individuals who had already stopped driving were asked about the same possible outcomes, but were asked to what extent each outcome actually applied to them. The response options were on a four-point scale that included: definitely not (1), probably not (2), probably (3), and yes definitely (4). Thus, the higher the score, the greater the extent to which the outcome applied to the respondent. Respondents could also indicate if they felt a possible outcome was not applicable to them; in the analysis, these responses were re-classified as "definitely not."

Most, but not all, of the outcomes listed on the survey would generally be perceived as negative changes that could or did result in respondents' lives. Examples include "feel depressed," "have trouble getting to the doctor," and "see my friends less." Others simply were changes and could be perceived either as beneficial or detrimental, such as, "move to senior housing with transportation services," or "use public transportation more."

4.7.1 Expected Impacts – Drivers versus Ceasers

As shown in Table 4.45, among the respondents to the mail survey, the views of current drivers versus ceasers, concerning the extent to which each of the various outcomes might or did apply to them, differed significantly on most of the possible outcomes.

Change ^a	Drivers (N=342)		Ceasers (N=158)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Reduce work/volunteer time	2.3	320	.07	1.9	145	.11	.00
Reduce child-care responsibilities	1.4	320	.05	1.2	145	.06	.01
Feel isolated	2.9	320	.06	1.9	145	.10	.00
See my family less	2.6	320	.06	1.9	145	.10	.00
See my friends less	2.8	320	.06	2.3	145	.11	.00
Move closer to my family	1.9	320	.05	1.6	145	.10	.01
Watch more television	2.5	320	.05	2.5	145	.11	.89
Have places I could no longer visit	3.0	320	.05	2.9	145	.11	.31
Have trouble getting to the doctor	2.6	320	.06	1.6	145	.09	.00
Have trouble getting to church	2.0	320	.06	1.5	145	.09	.00
Hire someone to drive me	2.0	320	.05	1.5	145	.09	.00
Give up some social activities	2.5	320	.06	2.3	145	.11	.06
Feel depressed	2.4	320	.06	1.7	145	.09	.00
Move to a different neighborhood	1.8	320	.05	1.5	145	.09	.01
Use public transportation more	2.3	320	.06	1.5	145	.09	.00
Move to senior housing with transportation services	2.1	320	.05	1.5	145	.09	.00
Other	2.6	10	.45	3.1	7	.55	.46

Table 4.45: Anticipated/Actual Impacts of Ceasing to Drive (Mail Survey) – Drivers versus Ceasers.

^a Responses were on a scale from 1 to 4, with 1= Definitely not, 2=Probably not, 3=Probably, 4=Yes, definitely. Note: Data on urban-rural status were missing for 17 drivers and 11 ceasers.

As was the case when asked about reasons for ceasing to drive, current drivers' assessment of *each* of the outcomes' relevance for them was higher than the assessment of actual ceasers. For example, the average score of current drivers with respect to "feel depressed" as a possible outcome was 2.4, while that of actual ceasers was considerably lower, at 1.7. Thus, current drivers appeared to overestimate the impacts that would result from ceasing to drive, compared to ceasers' actual experience.

Respondents were invited to write comments about other impacts of driving cessation besides those listed in the survey. Three rural drivers and six urban ceasers did so, although three comments were not relevant here. The most common other impact cited was loss of freedom (noted by three respondents), with reliance on family as the next most common response (noted by two respondents). One person wrote that since ceasing to drive, there is more time for email and reading.

4.7.2 Expected Impacts – Urban versus Rural Drivers

Urban and rural drivers who responded to the mail survey had differing expectations concerning the kinds of changes that they would likely experience if they were to stop driving (Table 4.46).

Change ^a	Urban Drivers (N=184)		Rural Drivers (N=141)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Reduce work/volunteer time	2.4	173	.10	2.3	132	.11	.73
Reduce child-care responsibilities	1.4	173	.07	1.4	132	.09	1.00
Feel isolated	2.7	173	.09	3.0	132	.09	.01
See my family less	2.4	173	.08	2.9	132	.09	.00
See my friends less	2.6	173	.08	3.0	132	.09	.00
Move closer to my family	1.8	173	.07	2.1	132	.08	.01
Watch more television	2.3	173	.07	2.6	132	.08	.01
Have places I could no longer visit	2.9	173	.08	3.1	132	.08	.30
Have trouble getting to the doctor	2.5	173	.07	2.8	132	.09	.01
Have trouble getting to church	1.9	173	.08	2.0	132	.10	.84
Hire someone to drive me	2.0	173	.07	2.0	132	.08	.75
Give up some social activities	2.4	173	.08	2.6	132	.09	.12
Feel depressed	2.3	173	.07	2.5	132	.09	.12
Move to a different neighborhood	1.6	173	.06	2.0	132	.08	.00
Use public transportation more	2.6	173	.08	2.0	132	.08	.00
Move to senior housing with transportation services	2.0	173	.07	2.0	132	.08	.75
Other	3.2	5	.58	2.7	3	.88	.62

Table 4.46: Anticipated/Actual Impacts of Ceasing to Drive (Mail Survey) – Urban versus Rural Drivers.

^a Responses were on a scale from 1 to 4, with 1= Definitely not, 2=Probably not, 3=Probably, 4=Yes, definitely. Note: Data on urban-rural status were missing for 17 drivers.

In particular, for all but one of the possible outcomes on which there were significant differences between urban and rural drivers, rural drivers' scores were higher than those of urban drivers. Thus, urban drivers saw driving cessation as having less impact on them than did rural drivers. The one outcome on which urban drivers' average score was higher than that of rural drivers was "use public transportation more." This latter finding is not surprising, given the greater availability of public transportation options in urban areas.

The impacts noted as most likely by rural drivers were having places they could no longer visit, feeling isolated, seeing their friends less, seeing their family less, having trouble getting to the doctor, giving up some social activities. Urban drivers most often reported that they anticipated having places that they could no longer visit, using public transportation more, seeing their friends less, and feeling isolated.

The telephone interviews with current drivers asked about the impacts of the changes drivers had made in their driving behavior, rather than the impacts that they expected would occur if they were to stop driving altogether. The reported impacts of the changes already made in driving ranged from changing the day and time of regular theater tickets, to significant curtailment of activities, and reliance on others for transportation. For seven urban drivers and 11 rural drivers, few or limited impacts had yet been seen as a result of their driving changes. Among urban drivers, while five reported that driving changes had reduced their social activities, only one felt this was a significant negative impact. For some drivers, a spouse took over the driving, while for others the need to adapt involved only a minor shift in attitude or planning, such as doing one's shopping during daylight hours. Sample comments included:

- "I don't think it's changed my life any. It's just something you do, and you get used to it. I go in the morning and get my stuff done, then let them have the streets."
- "Generally I don't look at myself as a driver much differently than I have for years. It hasn't affected me a whole heck of a lot. It's just a practical matter to adjust my needs so I'm not out driving at night unless it's very important that I do that or be there. It doesn't stop me if I have to drive, it's just that I'm not as comfortable driving at night as I used to be."
- "I'm a member of a professional association, and a lot of times they had our Christmas party or other parties in one of the hotels downtown, and for the last three years I just said, 'I'm sorry, no, I'm not going to go.' So yes, it did affect me, but it was not a life threatening or life altering change."

For still others, the impact of changes in driving habits is actually seen as a positive, especially the option in retirement to choose when and how one will travel. As one urban driver noted:

• "Actually, these changes have made my life pretty easy, not driving in the rush hour. Before, when I worked, you drove – and you drove in bad weather or whatever – and now I can pick and choose when I drive."

For others, however, driving changes have had less positive impacts on their lives. Among urban drivers, some impacts may be slight, such as more conscious planning of trips and errands (2 mentions) and less flexibility in travel (2 mentions), while others may be more significant, such as reduced activity (5 mentions, as noted previously) and the need to rely more on others (1 mention).

For rural drivers interviewed, impacts reported included reducing activity in general (3 mentions); fewer nighttime activities (2 mentions), avoiding weekend travel (1 mention), carpooling or driving a distance to access public transportation (1 mention), reduced independence (1 mention), and the need to rely on others (1 mention). As one noted:

• "It's made me less active; I'm more housebound than I was. I love to drive and it makes me feel independent, and since that has been taken away from me or greatly reduced, I feel as if I'm not as free and able to go like I used to be."

4.7.3 Experiences – Urban versus Rural Ceasers

Among the respondents to the mail survey who had ceased driving, there were few differences in terms of the actual impacts of ceasing to drive between those living in rural versus those in urban areas. As shown in Table 4.47, rural ceasers were more likely to report that they had hired someone to drive them, while urban ceasers were more likely to have moved to senior housing with transportation services and to use public transportation more.

Change ^a	Urban Ceasers (N=110)		Rural Ceasers (N=37)			P Value	
	Mean	N=	SE	Mean	N=	SE	
Reduce work/volunteer time	1.8	101	.13	2.1	35	.24	.29
Reduce child-care responsibilities	1.1	101	.05	1.4	35	.17	.10
Feel isolated	1.9	101	.12	2.1	35	.21	.36
See my family less	1.9	101	.12	1.8	35	.20	.50
See my friends less	2.3	101	.13	2.1	35	.21	.42
Move closer to my family	1.6	101	.12	1.5	35	.19	.76
Watch more television	2.5	101	.14	2.4	35	.23	.89
Have places I could no longer visit	2.9	101	.13	2.7	35	.25	.63
Have trouble getting to the doctor	1.6	101	.11	1.6	35	.16	.83
Have trouble getting to church	1.5	101	.10	1.4	35	.15	.69
Hire someone to drive me	1.3	101	.08	2.1	35	.23	.00
Give up some social activities	2.3	101	.13	2.2	35	.23	.85
Feel depressed	1.7	101	.11	1.7	35	.18	.97
Move to a different neighborhood	1.6	101	.11	1.3	35	.15	.20
Use public transportation more	1.7	101	.12	1.1	35	.04	.00
Move to senior housing with transportation services	1.6	101	.12	1.3	35	.15	.11

Table 4.47: Anticipated/Actual Impacts of Ceasing to Drive (Mail Survey) – Urban versus Rural Drivers.

^a Responses were on a scale from 1 to 4, with 1= Definitely not, 2=Probably not, 3=Probably, 4=Yes, definitely. Note: Data on urban-rural status were missing for 11 ceasers.

In their written, general comments at the end of the survey, both rural and urban ceasers noted the impacts that ceasing to drive had on their lives. Examples of these comments included:

- "I realized I could no longer drive and a friend picked me up almost daily until I had my amputation two and one-half years ago. Now, I'm pretty well confined to home and depend on my wife for all transportation."
- "The end of driving is sad."
- *"I've lost my independence. I do not like depending on someone else. At first they are willing to help, but then it gets to be a burden for them."*

The ceasers who were interviewed by telephone provided more details about the impact of ceasing driving on their lives. From some of those respondents, it became clear that the changes people make in their driving behavior may cause some things to be a bit more difficult, but overall they may have minor or no impact, especially if one has a spouse, family, or friends to fill in and assist. As one urban ceaser noted, in reference to changes in driving habits prior to ceasing: *"It made it a little more difficult to get things done I wanted to do, but not too badly."*

Another noted her good fortune in having someone to drive her, but still pointed out negative impacts:

• "I think it was kind of negative. You just are used to doing so much, then you start cutting back. I just stay home more now, watch more television and play cards; that's just about it. I go for my doctor appointments and things like that, but I have a daughter that takes me everywhere I need to go, so I'm very fortunate."

Others of the ceasers found stopping driving to be much more difficult, as it resulted in reduced independence and social activity.

- Stopping, well it took away my sense of mobility. I used to drive to the coast, oh heavens, at least once every two months and see a friend, and I'd drive out to Troutdale, see, Corbett actually, see a cousin, and just I used to love to wander along the back roads. But traffic has just increased so that I realize anyone that has a license has a vehicle, so that kind of compounds the issue, along with the influx of people."
- "The worst thing was giving up my license, because you're independent, and I couldn't get to the golf course any more, and I had to give up golf, and that just about killed me. That was my entertainment, and so that was upsetting, and then moving into where I am is very difficult to adjust to, living with all these people. Giving up driving changed everything. I was used to going to various places, and I even liked going to a show. I was used to going myself, and then when I got so I couldn't drive any more, it was really awful."

Being forced to rely on others was another key negative impact of ceasing to drive. In particular, five of the urban ceasers mentioned this impact. Sample comments included:

- "I just had to depend completely on others after that."
- "Because I have an electric chair, I can get to the store and stuff like that, but to the doctor, stuff like that, I do have to depend on my kids. I have to arrange my appointment accordingly."
- "I have to depend on my husband to do everything. He takes me to church and lets somebody else bring me home is how that happens."
- "Man, when you can't see to drive your car, get around, go places, you have to depend on other people. It's pretty bad. You feel like you're a burden."

4.8 RECOMMENDATIONS FOR IMPROVEMENT

4.8.1 Recommendations of Drivers – Urban versus Rural

At the end of the telephone interview, drivers were asked what changes, if any, they would make to transportation alternatives in their communities, what planners might do, and their priorities. A long list of suggestions was provided and these are summarized in Table 4.48.

These improvements range from more frequent and better screening/testing of older drivers, to improved service enhancement (e.g., frequency, access), to facilities improvement (e.g., benches and covered transit stations), to improved sidewalk and roadway facilities, and focus on traffic safety (e.g., lighting, signage, sidewalk and crosswalk improvements). Some were quite specific, such as testing drivers annually, to more generic, such as "more creative rural options."

Recommendations	Urban Drivers (Montions)	Rural Drivers
Overall better public transportation	7	
On-call taxis/yans (e.g., dial-a-ride)	7	3
Better screening of older drivers (e.g. mandatory testing	6	1
on renewal: testing every three years: annual exams)	0	1
Shuttle bus	6	7
Bus with regular service	4	10
Better sidewalks	4	1
Affordable alternatives	4	1
Better transit connections (e.g., rail, bus, taxi, van easily	3	2
connected)		
More/closer/frequent stops for transit service	3	2
Co-locate transit with senior housing	3	1
Better lighting/reflectors to increase visibility	3	2
Involves older adults in planning	3	3
Longer crosswalk lights (e.g., on demand)	3	1
Creative rural options	2	1
Large print transit guides/ schedules	2	
Increase awareness of options	2	
Covered benches at all stops	2	
More and better bus routes (e.g., generally; local versus	2	1
downtown focus)		
More crosswalks	1	2
Enforcement of crosswalks	1	1
Emergency phones at stops	1	
Adapt transfer stations for better use by seniors	1	
Better alternatives for emergencies	1	1
Improve access to highway for rural owners	1	
More and better bike boulevards, corridors, racks	1	1
Transport to medical facilities	1	_
More places for seniors to sit along sidewalks	1	—
More rail service (statewide)	1	2
Widening and improvement of roads to keep up with	1	1
growth		
Safe options	1	
Better maps for rural and semi-urban locations	—	1
Better overall road and highway planning in the state	—	2
Better signage	—	2
Combine rural areas for bus service	—	1
Continue to work on troublesome intersections	—	1
Develop I-5 corridor public transit	—	<u>l</u>
More treeway on-ramp signals	—	1
Subsidized service	—	1
More transit options between small and large cities	— —	1

Table 4.48: Recommendations for Improvements (Telephone Interview) – Urban versus Rural Drivers.

Many of the suggestions were made by urban and rural drivers alike. For example, when discussing the need for crosswalk enforcement, responses came from those in rural areas and small towns, as well as in busier urban areas. This was especially the case with older adults living in rapidly growing smaller towns and semi-rural areas of the state. Other recommendations, such as better maps for rural and semi-urban locations, were specifically a

rural response. The concern leading to this suggestion was that emergency responders do not have enough information (i.e., good maps) to reach homes effectively. Rural drivers more often suggested an increase in bus service, since so many are without any type of regular transit service.

4.8.2 Recommendations of Ceasers – Urban versus Rural

As with drivers, the last question asked of ceasers in the telephone interview was to provide ideas/suggestions they would give to state and local planners trying to assist older adults who are no longer driving. And, as with drivers, a range of suggestions was provided. Not surprisingly, given the fewer number of rural ceasers and urban ceasers' access to public transportation, the most frequently mentioned suggestions/recommendations for planners included bus-related ideas, such as more regular service, more and better routes, and more frequent stops. As shown in Table 4.49, more shuttle buses and dial-a-ride services were suggested, as well as ensuring affordable, alternative transportation options. Rural ceasers need more transportation services, generally, as well as rail and connected systems that provide creative transit options.

Recommendations	Urban Ceasers	Rural Ceasers
	(Mentions)	(Mentions)
Bus with regular service	4	1
On-call taxis/vans (e.g., dial-a-ride)	3	1
More and better bus routes (e.g., generally; local versus	3	
downtown focus)		
More/closer/frequent stops for transit service	2	1
Shuttle bus	2	—
Affordable alternatives	2	
Overall better public transportation		1
Better sidewalks	1	—
Better transit connections (e.g., rail, bus, taxi, van easily	1	2
connected)		
Longer crosswalk lights (generally; on demand)	1	
Increase awareness of options	1	
Transport to medical facilities	1	_
Assistance with obtaining a scooter	1	
More transit with assistance for seniors	1	_
More retirement communities with transit, sidewalks, other	1	
supports for mobility		
Creative rural options	_	1
More rail service (statewide and local light rail)		1

 Table 4.49: Recommendations for Improvements (Telephone Interview) – Urban versus Rural Ceasers.

General comments written at the end of the mail survey mirror some of the suggestions given in the telephone interviews, such as screening and testing of older drivers, and better transit connections. Examples included:

- "We need taxi service at Max stations. I drive six miles to the nearest station."
- "The DMV would be wise to test a driver every year after, let's say, age 70. It would protect myself and others."

- "I think that drivers should have actual driving tests after the age of 70 and have them more frequently. We live in a community which is highly populated by seniors and it is frightening to see some of the older drivers pulling into traffic."
- "Anyone, including me, should have to take a road test on city streets, freeway, and rural roads, including night driving. There should be no exceptions."

5.0 CONCLUSIONS AND POSSIBLE STRATEGIES FOR ACTION

In this section, the key findings and conclusions from the study are discussed in the context of the study's six key research questions, and possible strategies for action are offered. As was clearly illustrated, having transportation is not just a practical need, but rather has implications for individuals' quality of life and their ability to function as contributing members of society.

1. WHAT ARE THE FACTORS THAT INFLUENCE DRIVING CESSATION?

- Individuals who had voluntarily chosen to stop driving differed from current drivers with respect to many demographic characteristics. Voluntary ceasers were, on average, 10 years older than current drivers (ceasers' average age was 84), more likely to be female, more likely to be widowed and to live alone, more likely to have less education and a lower income, less likely to be employed and to volunteer, more likely to live in senior housing, more likely to live in an urban area, less likely to own their residence, more likely to have lower self-rated health status, more likely to have altered their travel due to their health, more likely to be depressed, and more likely to use public transit when it was available.
- Those most likely to have chosen to stop driving were older, depressed females in poorer health who were living in senior housing, using alternative transportation when available, making fewer trips, and seeing fewer limitations associated with using alternative transportation. Results of a logistic regression analysis, to determine which demographic and travel pattern characteristics, when analyzed as a whole, were predictive of voluntarily ceasing to drive, showed the above, but because this was a cross-sectional, not longitudinal, analysis, it was not possible to determine causality (e.g., to know whether people became depressed as a *result* of ceasing to drive or being depressed *led* them to cease driving, or to know whether poor health was the *result* or *cause* of driving cessation).
- An important finding of this study was that some people who generally had ceased to drive reported actual instances of continuing to drive, and other ceasers reported that they would still drive if they felt it was necessary to do so. Key reasons for continuing to drive beyond the point when one should do so were emergencies, needing to get to medical appointments, and a lack of options other than driving.

This finding, along with that concerning the general need identified for more travel options, especially to medical services, underscores the necessity of finding alternatives to provide essential medical transportation. Clearly, having available options besides driving is important if individuals are to be able to make the choice not to drive any longer under any circumstances.

STRATEGY 1A: Conduct longitudinal research to better understand the factors that lead individuals to cease driving, as well as the impacts of ceasing to drive. Longitudinal research is needed before causality can be established, ideally following groups of individuals in particular age cohorts over time. Because changes in driving behavior appear to begin at about age 75, based on the findings of this study, the age groupings of 70 to 74, 75 to 79, 80 to 84, 85 to 89, and 90+ are suggested, along with random selection of participants. Such a panel study would include individuals who were forced to stop driving through the *Medically-At-Risk Program* and, provided the sample size was large enough, would allow comparisons to be made between them and those who voluntarily chose to stop driving, as well as those who continued to drive.

STRATEGY 1B: Explore the development of local or regional medical transit services, in particular, where these do not exist (especially in rural areas), are not well known, or are not meeting current or anticipated needs. Local representatives of hospitals, clinics, and other health care organizations could gather together and form consortia to jointly address this need.

2. WHAT ARE THE PHYSICAL AND EMOTIONAL BARRIERS THAT DELAY DRIVING CESSATION?

- Some respondents saw no alternative but to drive; this clearly was a barrier that delays driving cessation (see the findings pertaining to Research Question 3, below).
- There were negative effects of no longer driving, as reported by ceasers, including social isolation (reduced social activities, seeing friends less, reduced work and volunteer activities) and being able to visit places less often.
- Anticipated negative impacts of no longer driving likely influenced drivers' unwillingness to consider ceasing to drive. Current drivers anticipated even greater negative effects of ceasing to drive than ceasers reported had actually occurred.
- Some drivers who had made changes in their driving experienced greatly reduced activities, along with a sense of lost independence and discomfort as a result of needing to rely on others for more, or most, of their transportation needs. However, the impact of changes individuals had made in their driving (e.g., deciding to drive less, driving only at only certain times of the day and/or only to certain places) was reportedly mild for some drivers.

STRATEGY 2: Develop a statewide, crosscutting consortium to plan and guide enhanced alternatives to driving and to guide future research. Key players in the consortium would include older adults themselves, representatives from the public transit sector, driver and motor vehicle services, aging and disability services, medical systems, researchers, and others, as appropriate, to help identify solutions to meeting the transportation needs of older adults at both the state and local levels.

Enhanced transportation options are essential to preserving quality of life for older Oregonians who are no longer able to drive and those wishing to drive less over time. Involving older adults themselves, at all levels of service and planning, in identifying solutions to improve existing transportation options, as well as creating new ones, is crucial, as is involving them in the design of future studies of the transportation needs of older Oregonians.

3. WHAT OPPORTUNITIES EXIST FOR ALTERNATIVE TRANSPORTATION AFTER DRIVING CESSATION?

- There was a lack of awareness, particularly of special transportation options, especially on the part of drivers (urban and rural) and rural ceasers. For drivers, this lack of awareness may have been due in part to their perceived lack of a need for transportation alternatives. About 22 percent of rural drivers and 17 percent of urban drivers stated they did not know if special transportation was available in their community. Among ceasers, 27 percent of those living in rural areas and 10 percent of urban ceasers reported that they did not know if special transportation options existed in their community. Over one-third of both current drivers and voluntary ceasers were not aware of transportation options other than driving or relying on friends and family, even when it is likely that such options were available. For drivers, this lack of awareness was due in part to their lack of need.
- In rural areas, especially, there was a reported lack of transportation options other than driving or relying on family and friends. Nearly one-half (49%) of rural drivers reported that no public transportation was available in their community and 19 percent said no special transportation services were available. (This compared to 15% and 4% of urban drivers, respectively). Among rural ceasers, 57 percent reported that there was no public transportation and 32 percent said there were no special transportation services in their community (compared to 13% and 6%, respectively, of urban ceasers). The decline in rail and bus services in the past few years was reported by rural residents, as was the fact that, although many coastal communities and inland areas of the state have very high percentages of older adults, there are few services. At the same time, rural drivers and ceasers alike were cognizant of the economic disincentive to provide public and special transportation in the state's rural areas and small towns.
- Few drivers viewed the transit options available to them as *viable* alternatives to driving, and few of the urban drivers and ceasers alike *used* the transit options available for regular daily travel. Key limitations seen in the transportation alternatives available, included a lack of service or limited service, and scheduling and reliability issues with dial-a-ride, appointment-based programs. Distance to stops, infrequent service, lack of service on evenings and weekends, and insufficient routes also limited the use of public transportation. Users and non-users of either public or special transportation did not differ with respect to the limitations in transit that they cited, except that 63 percent of non-users of either form of transit stated that it was just easier to drive, compared to 42 percent of users.
- More than 40 suggestions for transportation improvements for older adults were provided, with overall better public transportation topping the list. Among the other

frequent recommendations were improved dial-a-ride and on-call services, as well as enhanced bus service, including more routes, more frequent service, more stops, and better transit connections (between bus, rail, taxi, and van). More and frequent screening of older adults who continued to drive was commonly suggested, as were infrastructure improvements that would enhance overall mobility and use of transit, such as better sidewalks, lighting, and covered benches at all stops. Because driving and having transportation options are seen as crucial to quality of life, **study participants identified the need for older adults themselves to be actively involved in transportation planning and decision-making**.

STRATEGY 3A: Develop enhanced marketing and delivery of transportation options, targeted at both older adults and their families and friends. The lack of awareness of transportation options, other than driving or relying on friends and family, points to the need for communities to actively publicize the transportation options available and to educate potential riders concerning their use.

One possibility for raising awareness and use would be to create a service in which one telephone number could be dialed to learn about all possible transportation options available for the type of trip needed. This service would include information about costs, as well as schedules, and would allow the caller to actually schedule the ride, if appropriate. Training in the use of the transportation option (e.g., public transit/bus) could also be arranged by calling this telephone number. This one-stop shopping for transportation could be considered a "mobility management concierge program," but would go beyond existing programs of this type, which only refer the caller to a list of possible services. Some of the services presently provided by Ride Connection in Portland could serve as a model.

STRATEGY 3B: Creative thinking is called for to address the clear deficit in transportation options available to older adults living in rural areas in Oregon. One possibility might be to combine small towns and rural regions into transit regions to pool resources. At a minimum, transportation to medical centers is needed (see Strategy 1B).

STRATEGY 3C: Assess the quality of existing transportation options and determine what, if any, improvements are needed and how to accomplish them. It is unclear at this time whether these perceived issues with existing services are actual issues with quality of services or unfounded, but deeply held, perceptions. This is especially true with demandresponse (dial-a-ride) systems in non-urban areas of the state.

STRATEGY 3D: Provide additional education of older adults, their adult children, and other caregivers concerning reasonable expectations of public and special transportation options (e.g., some wait time is to be expected). In addition, training in how to use transit would be useful where public and special transportation alternatives to driving exist.

STRATEGY 3E: Explore opportunities to connect transit resources to enhance the use of transportation systems. Current systems of private, volunteer, and public transit are not well-linked. Doing so would enable, for example, those not within walking distance to
public transportation (or where no parking exists near the stops) to more effectively use multiple forms of transit to effectively meet their transportation needs.

4. DO DRIVERS MAKE RELOCATION DECISIONS ON THE BASIS OF DRIVING CESSATION?

- The vast majority of both current drivers and ceasers had not considered and/or would not consider relocating in order to have better access to public transportation. Over 80 percent of both urban and rural drivers, and more than 85 percent of urban and rural ceasers, reported that they had not/would not consider relocating for this purpose. Most of those interviewed mentioned satisfaction with their homes and communities as the reason they would not relocate, although some had already moved to be near children, services, or to retirement communities. Among current drivers, some said they just had not had to consider relocating yet, and a small number said they might do so should their (or their spouse's) ability to drive change. Rural drivers were the group most likely to say that they would or might consider this.
- If relocation *were* to be considered, factors seen as key in the decision-making process included access to public transportation and a setting where one could meet all of one's daily needs (e.g., shopping, medical care). For rural drivers, access to friends and family would also be an important factor in their relocation decision. The most common ways in which older drivers and ceasers reported that they would research relocation options (or had already done so) included asking friends and family, calling or visiting specific locations/facilities, using the Internet, and contacting local agencies. Among ceasers, finding a specialized retirement facility that provided transportation for residents was an important factor in their search.

STRATEGY 4A: Efforts to: (a) provide education to create reasonable expectations of transit (see Strategy 3D); (b) provide training concerning how to find and use available transportation options; and (c) approach transportation from a more holistic view, involving developing consortia to pool resources and identify creative options, will be most productive.

STRATEGY 4B: For those who would consider relocating to have better access to transportation services, although likely not the role of ODOT, per se, it would be helpful to have available education as to what to look for in a residential setting (e.g., access to which services would be most beneficial) and training in riding public transportation when it is available. In addition, facilities or neighborhoods which have good access to services and/or public or special transportation could be encouraged to widely advertise these facts in paid advertisements, printed materials distributed to local visitor centers and social service agencies, and on the Internet.

5. WHAT ARE THE WARNING SIGNS THAT MAKE A DRIVER STOP DRIVING?

• Individuals who had ceased driving most often reported doing so due to poor vision. Other key reasons included feeling they were not a safe driver, having someone else **available to drive them, and losing confidence in their driving**. Having too many accidents or citations, not being able to afford driving, and not wanting to go out were mentioned least often by ceasers as reasons for having stopped driving.

- Drivers gave greater importance to each of the various health and personal factors listed as possible reasons for ceasing to drive than did ceasers reporting on their actual experience. This finding is similar in nature to that in which drivers anticipated more negative impacts of driving than ceasers actually reported experiencing. It could be that ceasers did not recall all of the factors that went into their decision, or that drivers overestimated what actually would cause them to cease driving should the time come to do so.
- Current drivers cited numerous factors as reasons that would cause them to stop driving. Those rated as most important included: having too many accidents, not seeing themselves as a safe driver, having their doctor or family or friends advise them to stop driving, having too many citations, losing confidence in their driving, getting confused while driving, no longer wanting to drive, poor vision, taking medication that affects driving, and no longer feeling able to afford driving.
- The most frequently cited anticipated reasons for stopping driving differed somewhat between respondents to the mail survey and those interviewed by telephone. The most common factors that would cause them to stop driving, as reported by drivers interviewed by telephone, included health/medical issues, a decline in vision, diminished reflexes and coordination, and having a friend or family member advise one to stop. Among rural drivers, another important consideration was seeing oneself as a hazard to others. Among ceasers, health/medical issues were cited most frequently by urban ceasers, followed by loss of confidence, poor vision, and having an accident or hitting something. Poor vision was mentioned most often by the rural ceasers who were interviewed.
- The most common changes in driving made by the older adult drivers in urban and rural areas alike were avoiding traffic congestion and avoiding rush hour. Most drivers had made several changes in their driving behavior and did so gradually over time. Other common changes included reduced night driving and avoiding bad weather.

STRATEGY 5A: Understanding the reasons older adults see as key in their decision to stop driving can help family members and professionals alike better make the case for voluntary ceasing of driving when that is appropriate. Given the somewhat different findings in the mail survey versus the telephone interviews, further research with a larger sample would be helpful in pinpointing the most important actual reasons for ceasing to drive and in identifying drivers' anticipated reasons for ceasing to driving.

STRATEGY 5B: Education is needed of older adults themselves, their adult children, and medical and social service professionals as to why people ultimately choose to stop driving and what alternatives to driving exist.

6. WAS THERE A CRISIS SITUATION THAT FORCED THE DRIVER TO STOP DRIVING AND, IF SO, WHAT WAS IT?

• In general, various health/physical and personal changes which occurred gradually over time, rather than a crisis, were found to lead to changes in driving patterns, including ceasing. These changes occurred most often over a period of one to two years, with a majority of all of those interviewed saying they had occurred in four years or less. Most of the changes identified occurred when the driver was between the ages of 75 and 80.

STRATEGY 6A: Explore the implementation of shorter license renewal periods, as long license renewal periods will fail to detect changes in older drivers' abilities. A shorter license renewal time (e.g., four rather than eight years) might address this issue.

As of July 2007, 14 states had shorter renewal periods for older adults than for their general population, and 17 states, including Oregon and the District of Columbia, had some safety-related special provision(s) for older drivers (*U.S. Driver Licensing Procedures 2007*). These provisions include the inability to renew one's license by mail after a certain age (5 states), vision screening (9 states, including Oregon and the District of Columbia), a required road test (Illinois, New Hampshire) or a reaction test (District of Columbia). The District of Columbia's provisions are the most extensive. There, at age 70 or the nearest renewal date thereafter, applicants must complete a vision test and a reaction test may be required. Applicants also must provide a statement from a practicing physician certifying that they are physically and mentally competent to drive. (*U.S. Driver Licensing Procedures 2007*).

STRATEGY 6B: Research should be conducted as to whether the vision test required in Oregon every eight years for drivers aged 50 and older is effective in screening older drivers and detecting changes in their driving abilities. Given the relatively later age at which significant changes in driving occur, the eight-year interval may be reasonable until age 70 or 75; at that point, more frequent testing might be warranted.

STRATEGY 6C: Consider more frequent testing, beyond that required for standard license renewal, especially for drivers considered to be at higher risk of having accidents. Previous research has reviewed the types of testing recommended (*Baggett 2003*), but there is disagreement as to the effectiveness and cost of these screening tools. Thus, additional research is needed to identify the most efficient and effective screening and assessment tests and testing intervals, as well as possible approaches to their implementation in Oregon.

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APPENDIX A: PHASE I – SHORT MAILING SURVEY INSTRUMENTS

COVER LETTER FROM ODOT



Department of Transportation Research 200 Hawthorne Ave., Ste. B-240 Salem, OR 97301-5192 (503) 986-2700 Fax:(503) 986-2444

March, 2007

File Code:

Dear Friend:

The Oregon Department of Transportation (ODOT) is interested in finding out more about the transportation needs of older people in Oregon. We are contacting you because your name was randomly selected as an Oregon resident who is aged 65 or over. We are writing to ask you to participate in a study being conducted for us by the Institute on Aging at Portland State University (PSU).

The information requested will be returned directly to the Institute on Aging at PSU and will be strictly confidential. No information identifiable to you or anyone else will be provided to ODOT or to any other state agency. Your participation is completely voluntary and will not affect the services you receive from ODOT or PSU in any way.

At this time, would you please help us by filling out the enclosed sheet and returning it in the addressed, pre-stamped envelope? If you agree, the Institute on Aging at PSU then will contact you with a follow-up survey. You do not need to write your name. We have given each participant a unique four number code that will help us identify you and to ensure your confidentiality.

Thank you very much for considering this request; we would greatly appreciate your participation. If you have any further questions about this study please call the Institute on Aging at PSU, at (503) 725-5150.

Sincerely yours,

Administrator, Public Transit Division

734-2263 (10/06)

OREGON DEPARTMENT OF TRANSPORTATION'S SURVEY OF OLDER ADULTS

Please check ($\sqrt{}$) your best answer to each question, and then return this sheet in the pre-stamped envelope provided, or to PSU-IOA, P.O. Box 751, Portland, Oregon 97207.

1. Do you drive motor vehicles on Oregon roads?

If NO, have you ever driven on Oregon roads?

- 2. Would you be willing to participate in a follow-up survey about older and transportation adults in Oregon?
- 3. Is the address this survey was mailed to your preferred address?

If you answered NO, what is your preferred address?

Yes	No

Yes	No

Yes	No

Yes	No

Please check here if you are not the person to whom this is addressed, and indicate below why this person is unable to respond.

A mental or cognitive disability prevents the person from responding.

A physical disability prevents the person from responding.



The person has moved.

Other:

Please return by April 6, 2007.

APPENDIX B: PHASE II – LONGER MAILING SURVEY INSTRUMENTS

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS MAIL SURVEY: COVER LETTER TO CURRENT DRIVERS

May 1, 2007

Dear Friend:

Thank you for your response to the Institute on Aging at Portland State University and for volunteering to participate in this survey about the transportation needs of older people in Oregon.

The information requested will be returned directly to the Institute on Aging at Portland State University and will be strictly confidential. No information identifiable to you or anyone else will be provided to ODOT or to any other state agency. Your participation is completely voluntary and will not affect the services you receive from the Oregon Department of Transportation or Portland State University in any way. In addition, although you volunteered to be part of this survey, you are in no way obligated to participate.

You do not need to write your name on the survey. We have given each participant a unique four number code that will let us know you have returned your survey and ensure your confidentiality.

At this time, please fill out the enclosed survey and return it in the addressed, prestamped envelope.

Thank you very much for considering this request; we would greatly appreciate your participation. If you have any further questions about this study please feel free to contact me at (503) 725-5150.

Sincerely yours,

Dr. Margaret Neal, Director

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS MAIL SURVEY: CURRENT DRIVERS

Note: The original survey, as was the introductory letter preceding it, was in 14 point typeface for ease of reading by the recipient, but has been reduced for purposes of this report. Survey results follow each question and are italicized. In the cases of complex tabulations (i.e., zip codes), full data are not reported. Percentage totals do not equal 100% due to rounding.

		N=	Percent/Mean
First, j	please answer some general questions.		
1.	What is your date of birth?		
	Mean Age Missing Total	337 5 342	75 2%
2.	What is your sex?		
	Male Female <i>Missing</i> <i>Total</i>	181 155 6 342	53% 45% 2%
3.	What is the zip code where you live?		
	Various responses covering state		
4.	Are you currently:		
	Married/partnered Widowed Divorced Separated Never married <i>Missing</i> <i>Total</i>	254 53 24 3 4 4 342	74% 16% 7% 1% 1% 1%

5. What is your highest level of education?

7.

8.

9.

Less than high school graduate	18	5%
High school graduate or GED	70	21%
Vocational/technical training	21	6%
Some college, but no degree	97	28%
College degree	41	12%
Some graduate or professional school	27	8%
Graduate or professional degree	62	18%
Missing	6	2%
Total	342	

6. Do you live in a community or facility specifically designed for seniors (for example people aged 50+, 60+, or 65+) or people with disabilities?

Yes	29	9%	
No	307	90%	
Missing	6	2%	
Total	342		
Which type of dwelling do you live in?			
Single family detached home	279	82%	
Attached home	9	3%	
Apartment	12	4%	
Condominium	5	2%	
Mobile home, travel trailer	29	9%	
Assisted living or residential care facility	2	1%	
Nursing home	0	0%	
Missing	6	2%	
Total	342		
Do you own or rent?			
Own	303	89%	
Rent	31	9%	
Missing	8	2%	
Total	342		
How would you describe the area where you live?	?		
Rural	141	41%	→ 9a.
City/Town	184	54%	
Missing	17	5%	
Total	342		
9a. How far is your residence from the closest	t town?	miles	
Mean	151	8.4	
Missing	101		
	171		

10.	How (Note	long have your lived in your current residence? :: If less than 1 year, please write "0."))	_ years	
		Mean	334	17.1	
		Missing	8	2%	
		Total	342	_,.	
11.	Do yo	ou live alone or with others?			
		Alone	75	22%	
		With others	249	73%	\rightarrow 11a.
		Missing	18	5%	
		Total	342		
	11a.	How many other people live in your househo	old?		→ 11b.
		Mean	230	1.5	
		Missing	112	33%	
		Total	342		
	11b.	Please specify their relationship to you. (Che	eck all	that apply):	
		Spouse/partner	250	73%	
		Sibling	2	1%	
		Child	20	6%	
		Grandchild	11	3%	
		Other relative	4	1%	
		Friend	3	1%	
		Other non-relative	4	1%	
		Missing	7	2%	
		Total	335		

12. Thinking about the total combined income from all sources for all persons in this household, what was your annual gross (before taxes) household income last year?

Less than \$10,000	5	2%
\$10,000-\$19,000	34	10%
\$20,000-\$29,000	54	16%
\$30,000-\$39,000	55	16%
\$40,000-\$49,000	44	13%
\$50,000-\$59,000	38	11%
\$60,000 +	86	25%
Missing	26	8%
Total	342	

13.	Are you currently emp	oloyed?
	2 2 1	2

		Yes	34	10%	→ 13a.	
		No	303	89%		
		Missing	5	2%		
		Total	342			
	13a.	How many hours <u>per week</u> do you wo	ork? hou	rs		
		Mean	32	27.4		
		Missing	310	91%		
		Total	342			
14.	Do y	ou currently volunteer for any organizat	tion (work with	out pay)?		
		Yes	118	35%	→ 14a.	
		No	204	60%		
		Missing	20	6%		
		Total	342			
	14a.	How many hours per month do you vo	olunteer? h	ours		
		Mean(n=123)	120	20.2		
		Missing	222			
		Total	342			
15.	How	How would you currently describe your physical health?				
		Poor	8	2%		
		Fair	51	15%		
		Good	133	39%		
		Very good	110	32%		
		Excellent	29	9%		
		Missing	11	3%		
		Total	342			
16.	Has your physical health caused you to alter travel outside of your home?					
		Yes	43	13%		
		No	286	84%		
		Missing	13	4%		
		Total	342			
17.	Are y	ou basically satisfied with your life?				
		Yes	316	92%		
		No	14	4%		
		Missing	12	4%		
		Total	342	. •		

18. Do you feel that your life is empty?

20.

Yes	14	4%
No	316	92%
Missing	12	4%
Total	342	

19. Are you afraid that something bad is going to happen to you?

Yes	15	4%
No	315	92%
Missing	12	4%
Total	342	
Do you feel happy most of the time?		
Yes	322	94%
No	8	2%
Missing	12	4%
Total	342	

The questions on the next several pages are about your travel patterns and the transportation services in your area.

21. For each item below, please mark the box that most closely captures the frequency with which you use the type of transportation described. How often do you use:

TYPE OF TRANSPORTATION N=331	ALL/MOST OF THE TIME	OFTEN	SOMETIMES	RARELY/ NEVER
Personal vehicle as driver	281 (82%)	27 (8%)	16 (5%)	7 (2%)
Rides from family	15 (4%)	17 (5%)	89 (26%)	210 (61%)
Rides from neighbors or friends	2 (1%)	4 (1%)	42 (12%)	283 (83%)
Rides through church	9 (3%)	0	11 (3%)	311 (91%)
Taxicab	0	0	6 (2%)	325 (95%)
Bicycle	4 (1%)	8 (2%)	36 (11%)	283 (83%)
Walk	26 (8%)	72 (21%)	106 (31%)	127 (37%)
Scooter/Motorized Wheel chair	3 (1%)	2 (1%)	3 (1%)	323 (94%)
Public Bus	0	4 (1%)	21 (6%)	306 (90%)
Special bus for seniors or people with disabilities	0	1 (<1%)	9 (3%)	321 (94%)
Volunteer transportation program	0	1 (<1%)	2 (1%)	238 (96%)
Other (please specify): n=37	2 (1%)	5 (2%)	10 (3%)	20 (6%)
Missing		11	3%	

REASON FOR TRIP	DAILY	A FEW	ONCE A	1-3 TIMES	LESS
N=330		I INIES A WEEK	WEEK	AMONIH	1 HAN 1 3 TIMES
		WEEK			A MONTH
Grocery shopping	11 (3%)	158 (46%)	94 (28%)	48 (14%)	19 (6%)
Run errands	30 (9%)	177 (52%)	50 (15%)	31 (10%)	42 (12%)
Visit family/friends	12 (4%)	68 (20%)	66 (19%)	102 (30%)	82 (24%)
Attend church	1 (<1%)	35 (10%)	105 (31%)	12 (4%)	177 (52%)
Go out to eat	5 (2%)	66 (19%)	80 (23%)	106 (31%)	73 (21%)
Go to movies, performing arts,	1 (<1%)	4 (1%)	17 (5%)	63 (18%)	245 (72%)
cultural activities					
Just to get out	29 (9%)	51 (15%)	40 (12%)	61 (18%)	149 (44%)
Attend social functions	1 (<1%)	27 (8%)	38 (11%)	107 (31%)	157 (46%)
Medical/dental appointments	1 (<1%)	3 (1%)	10 (3%)	101 (30%)	215 (63%)
Trips to pharmacy	0	3 (1%)	18 (5%)	100 (29%)	209 (61%)
Trips for work/ volunteering	16 (5%)	33 (10%)	28 (8%)	41 (12%)	212 (62%)
Attend classes, continuing	0	10 (3%)	6 (2%)	13 (4%)	301 (88%)
education					
Go to the gym/exercise	18 (5%)	51 (15%)	11 (3%)	6 (2%)	244 (71%)
Outdoor recreation	22 (6%)	54 (16%)	31 (9%)	51 (15%)	172 (50%)
Other (please specify): $n=43$	11 (3%)	10 (3%)	5 (2%)	1 (<1%)	16 (5%)
Missing			12	4%	

22. How often do you take the following kinds of trips from your residence? (Again, please mark the box that mostly closely describes the frequency of your trips.)

23. To your knowledge, are there any public transportation services, such as public bus service, available in your community?

Yes	193	56%	→ 23a.
No	92	27%	
Don't know	19	6%	
Missing	38	12%	
Total	342		

23a. Do you use those public transportation services?

Yes	34	10%
No	177	52%
Missing	131	38%
Total	342	

24. To your knowledge, are there special transportation services available for seniors or people with disabilities in your community?

Yes	219	64%	→ 24a.
No	34	10%	
Don't know	60	18%	
Missing	29	9%	
Total	342		

24a. Do you use those special transportation services?

Yes	20	6%
No	208	61%
Missing	114	33%
Total	342	

25. Which of the following, if any, limit your use of public/special transportation services? Please check <u>all</u> that apply:

No public/special transportation is available	68	20%
I have no concerns	119	35%
It is easier to drive	232	68%
Have to plan travel too far in advance	26	8%
No benches at bus stop	16	5%
No shelter at bus stop	15	4%
No restroom on bus	21	6%
Too far to walk to the bus stop	27	8%
The bus stops are not safe	7	2%
Riding the bus is not safe	5	2%
Bus doesn't go where I need to go	51	15%
Service is too expensive	4	1%
Service is not reliable	8	2%
Service takes too long	33	10%
Service is not individualized	6	2%
Service for the return trip is too infrequent	13	4%
Service, in general, is too infrequent	25	7%
Other (please specify below):	34	10%
Missing	2	1%
Total	342	

26. Have you considered, or would you consider, moving to a different neighborhood or town to have better access to public transportation?

Yes	7	2%
Maybe	47	14%
No	272	80%
Missing	16	5%
Total	342	

27. Sometimes older people make changes in the way they drive. In the past year, how often have you done the following; please mark the box that best describes your response.

DRIVING CHANGE N=330	ALL/ MOST OF THE TIME	OFTEN	SOMETIMES	HARDLY EVER
Avoid or limit driving at night	67 (20%)	51 (15%)	69 (20%)	143 (42%)
Limit distances I drive	26 (8%)	32 (9%)	73 (21%)	199 (58%)
Avoid or limit left hand turns	7 (2%)	14 (4%)	27 (8%)	282 (83%)
Drive more slowly	14 (4%)	44 (13%)	96 (28%)	176 (52%)
Drive less frequently	14 (4%)	31 (9%)	56 (16%)	229 (67%)
Avoid driving during rush hour	52 (15%)	61 (18%)	84 (25%)	133 (39%)
Avoid or limit driving in bad weather	42 (12%)	57 (17%)	105 (31%)	126 (37%)
Avoid or limit driving on unfamiliar roads	20 (6%)	29 (9%)	70 (21%)	211 (62%)
Avoid heavy traffic and congested areas	48 (14%)	58 (17%)	125 (37%)	99 (29%)
Avoid driving on freeways	15 (4%)	18 (5%)	45 (13%)	252 (74%)
Other (please specify): n=16	5 (2%)	3 (1%)	1 (<1%)	7 (2%)
Missing	•	12	4%	

28. People sometimes stop driving for health-related reasons. Please mark the box to indicate to what extent each of the following health reasons could, in the future, lead you to stop driving.

HEALTH REASON N=323	YES DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT
Poor vision	135 (40%)	104 (30%)	44 (13%)	40 (12%)
Hearing loss	22 (6%)	87 (25%)	138 (40%)	76 (22%)
Cardiovascular or heart condition	40 (12%)	119 (35%)	95 (28%)	69 (20%)
After suffering a stroke	89 (26%)	127 (37%)	44 (13%)	63 (18%)
Arthritis	7 (2%)	46 (14%)	168 (49%)	102 (30%)
Memory or cognitive problems	89 (26%)	130 (38%)	45 (13%)	59 (17%)
General loss of coordination	114 (33%)	123 (36%)	32 (9%)	54 (16%)
General loss of strength	51 (15%)	130 (38%)	78 (23%)	64 (19%)
Emotional distress	30 (9%)	110 (32%)	104 (30%)	79 (23%)
Medication that may affect driving	138 (40%)	99 (29%)	33 (10%)	53 (15%)
Other chronic medical condition (e.g. diabetes)	26 (8%)	89 (26%)	108 (32%)	100 (29%)
Other (please specify): $n=15$	8 (2%)	2 (1%)	1 (<1%)	4 (1%)
Missing	·	19	6%	•

Missing

19

29. Sometimes older people stop driving for other reasons. Please mark the box to indicate to what extent each of the following <u>personal reasons</u> could, in the future, lead you to stop driving.

REASON	YES	PROBABLY	PROBABLY	DEFINITELY
N=325	DEFINITELY		NOT	NOT
If I got confused while driving	148 (43%)	140 (41%)	10 (3%)	27 (8%)
If I lost confidence in my driving	154 (45%)	142 (42%)	8 (2%)	21 (6%)
If I no longer felt I was a safe	201 (59%)	101 (30%)	8 (2%)	15 (4%)
driver				
If I had too many accidents	225 (66%)	67 (20%)	5 (2%)	28 (8%)
If I had too many traffic citations	185 (54%)	91 (27%)	14 (4%)	35 (10%)
If I could no longer afford to	144 (42%)	111 (33%)	31 (9%)	39 (11%)
drive				
If I had someone else to drive	64 (19%)	139 (41%)	74 (22%)	48 (14%)
me				
If my doctor advised me to stop	211 (62%)	86 (25%)	6 (2%)	22 (6%)
driving				
If my family urged me to stop	155 (45%)	129 (38%)	14 (4%)	27 (8%)
driving				
If I no longer wanted to go out	89 (26%)	161 (47%)	33 (10%)	42 (12%)
If I no longer wanted to drive	142 (42%)	136 (40%)	22 (6%)	25 (7%)
If I preferred other modes (e.g.	82 (24%)	129 (38%)	38 (11%)	76 (22%)
bus, taxi, etc.)				
Other (please specify): $n=11$	3 (1%)	3 (1%)	0 (0%)	5 (2%)
Missing	•	17	5%	•

30. Do you know people who should have stopped driving but have not?

Yes	151	44%	→ 30a.
No	167	49%	
Missing	24	7%	
Total	342		

30a. Why do you think they did not stop/have not stopped driving?

Various responses

31. Do you keep a vehicle to be driven by yourself or others at your residence(s)?

Yes	318	93%	
No	7	2%	SKIP→ 34
Missing	17	5%	
Total	342		

32. How many miles do you estimate <u>you</u> drove in the last year?

Less than 100 miles	6	2%
101 to 500 miles	9	3%
501 to 1,000 miles	26	8%
1,001 to 5,000 miles	82	24%
5,001 to 10,000 miles	91	27%
10,001 to 20,000 miles	80	23%
Over 20,000 miles	25	7%
Missing	23	7%
Total	342	

33. How many miles do you estimate <u>others</u> drove your vehicle in the last year?

Less than 100 miles	123	36%
101 to 500 miles	49	14%
501 to 1,000 miles	39	11%
1,001 to 5,000 miles	47	14%
5,001 to 10,000 miles	44	13%
10,001 to 20,000 miles	10	3%
Over 20,000 miles	1	<1%
Missing	29	9%
Total	342	

34. How long do you expect to keep driving?

Less than a year	1	<1%
1 to 5 years	32	9%
More than 5 years	115	34%
Don't know	172	50%
Missing	22	6%
Total	342	

35. Stopping driving affects people differently. Please mark the box to indicate the extent to which you think each of the following might apply to you if you were to choose to stop driving.

N=320	YES	PROBABLY	PROBABLY	DEFINITELY	
	DEFINITELY		NOT	NOT	
Reduce work/ volunteer time	86 (25%)	76 (22%)	20 (6%)	138 (40%)	
Reduce childcare responsibilities	30 (9%)	17 (5%)	18 (5%)	255 (75%)	
Feel isolated	116 (34%)	101 (30%)	43 (13%)	60 (18%)	
See my family less	80 (23%)	106 (31%)	67 (20%)	67 (20%)	
See my friends less	85 (25%)	128 (37%)	59 (17%)	48 (14%)	
Move closer to my family	20 (6%)	56 (16%)	114 (33%)	130 (38%)	
Watch more television	43 (13%)	126 (37%)	88 (26%)	63 (18%)	
Have places I could no longer	110 (32%)	139 (41%)	32 (9%)	39 (11%)	
visit					
Have trouble getting to the	70 (21%)	103 (30%)	101 (30%)	46 (14%)	
doctor					
Have trouble getting to church	42 (12%)	50 (15%)	80 (23%)	148 (43%)	
Hire someone to drive me	20 (6%)	71 (21%)	116 (34%)	113 (33%)	
Have had to give up some social	55 (16%)	132 (39%)	60 (18%)	73 (21%)	
activities					
Feel depressed	46 (14%)	100 (29%)	95 (28%)	79 (23%)	
Move to a different	13 (4%)	60 (18%)	95 (28%)	152 (44%)	
neighborhood					
Use public transportation more	40 (12%)	118 (35%)	61 (18%)	101 (30%)	
Move to senior housing with	25 (7%)	74 (22%)	106 (31%)	115 (34%)	
transportation services					
Other (please specify): $n=10$	4 (1%)	2 (1%)	0 (0%)	4 (1%)	
Missing	•	22	6%	•	

Missing

6%

Original items had a "not applicable" response option. "Not applicable" responses have been recoded to "definitely not."

36. If there is anything else that you would like us to know about your thoughts concerning driving, or that you would like to clarify, please use the space below for your comments.

We are interested in talking with people to learn more about their experiences or thoughts about transportation for older Oregonians. We will do a follow-up phone interview with some of those who reply to this survey and are interested.

If you would be willing to have your name added to the list of people we may call for a followup interview, please indicate this by checking the box below and telling us what day and time are most convenient for you and the best phone number we can reach you.

Yes, I would like to add my name to the list of potential participants for the follow up phone survey. The best day(s) to reach me is/are: (please circle):

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

The best time to call me is: (please circle one)

Morning Afternoon Evening

The best phone number to reach me at is:

[Note: To protect your confidentiality, the code number on this survey tells us your name, so you do not need to write it here.]

Thank you again for your participation. Please mail this survey promptly in the addressed, pre-stamped envelope provided.

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS MAIL SURVEY: COVER LETTER TO CEASERS

May 1, 2007

Dear Friend:

Thank you for your response to the Institute on Aging at Portland State University and for volunteering to participate in this survey about the transportation needs of older people in Oregon.

The information requested will be returned directly to the Institute on Aging at Portland State University and will be strictly confidential. No information identifiable to you or anyone else will be provided to ODOT or to any other state agency. Your participation is completely voluntary and will not affect the services you receive from the Oregon Department of Transportation or Portland State University in any way. In addition, although you volunteered to be part of this survey, you are in no way obligated to participate.

You do not need to write your name on the survey. We have given each participant a unique four number code that will let us know you have returned your survey and ensure your confidentiality.

Please fill out the enclosed survey and return it in the addressed, pre-stamped envelope.

Thank you very much for considering this request; we would greatly appreciate your participation. If you have any further questions about this study please feel free to contact me at (503) 725-5150.

Sincerely yours,

Dr. Margaret Neal, Director

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS MAIL SURVEY: CEASERS

Note: The original survey, as was the introductory letter preceding it, was in 14 point typeface for ease of reading by the recipient, but has been reduced for purposes of this report. Survey results follow each question and are italicized. In the cases of complex tabulations (i.e., zip codes), full data are not reported. Percentage totals do not equal 100% due to rounding.

		N=	Percent/Mean
First, j	please answer some general questions.		
1.	What is your date of birth?		
	Mean Age	153	84.3
	Missing	5	3%
	Total	158	
2.	What is your sex?		
	Male	51	32%
	Female	102	65%
	Missing	5	3%
	Total	158	
3.	What is the zip code where you live?		
	Various responses covering state		
4.	Are you currently:		
	Married/partnered	65	41%
	Widowed	75	48%
	Divorced	10	6%
	Separated	0	0%
	Never married	4	3%
	Missing	4	3%
	Total	158	

5. What is your highest level of education?

7.

8.

9.

Less than high school graduate	23	15%
High school graduate or GED	41	26%
Vocational/technical training	8	5%
Some college, but no degree	34	22%
College degree	15	10%
Some graduate or professional school	8	5%
Graduate or professional degree	24	15%
Missing	5	3%
Total	158	

6. Do you live in a community or facility specifically designed for seniors (for example people aged 50+, 60+, or 65+) or people with disabilities?

	Yes	48	30%	
	No	104	66%	
	Missing	6	4%	
	Total	158		
Whic	h type of dwelling do you live in?			
	Single family detached home	82	52%	
	Attached home	2	1%	
	Apartment	27	17%	
	Condominium	5	3%	
	Mobile home, travel trailer	15	10%	
	Assisted living or residential care facility	15	10%	
	Nursing home	1	1%	
	Missing	11	7%	
	Total	158		
Do yo	ou own or rent?			
	Own	96	61%	
	Rent	46	29%	
	Missing	16	10%	
	Total	158		
How	would you describe the area where you live?			
	Rural	37	23%	→ 9a.
	City/Town	110	70%	
	Missing	11	7%	
	Total	158		
9a.	How far is your residence from the closest t	own?	miles	
	Mean	47	8.9	
	Missing	111	70%	
	$T \rightarrow 1$	150		

10.	How long have your lived in your current residence? years (Note: If less than 1 year, please write "0.")				
		Mean	151	16.3	
		Missing	7	4%	
		Total	158		
11.	Do yo	ou live alone or with others?			
		Alone	73	46%	
		With others	74	47%	→ 11a.
		Missing	11	7%	
		Total	158		
	11a.	How many other people live in your househo	old?		→ 11b.
		Mean	69	1.6	
		Missing	89	56%	
		Total	158		
	11b.	Please specify their relationship to you. (Che	eck all	that apply):	
		Spouse/partner	63	58%	
		Sibling	4	3%	
		Child	18	11%	
		Grandchild	7	4%	
		Other relative	5	3%	
		Friend	2	1%	
		Other non-relative	8	5%	
		Missing	3	2%	
		Total	158		

12. Thinking about the total combined income from all sources for all persons in this household, what was your annual gross (before taxes) household income last year?

Less than \$10,000	14	9%
\$10,000-\$19,000	35	22%
\$20,000-\$29,000	23	15%
\$30,000-\$39,000	28	18%
\$40,000-\$49,000	12	8%
\$50,000-\$59,000	5	3%
\$60,000 +	16	10%
Missing	25	16%
Total	158	

13.	Are y	ou currently employed?				
		Ves	1	1%	→ 13a.	
		No	152	96%	7 10ui	
		Missing	5	3%		
		Total	158	270		
		10,00	150			
	13a.	How many hours <u>per week</u> do you work?	hou	irs		
		Mean	1	25		
		Missing	157	99%		
		Total	158			
14.	Do y	ou currently volunteer for any organization (v	work with	out pay)?		
		Yes	15	10%	→ 14a.	
		No	134	85%		
		Missing	9	6%		
		Total	158			
	14a.	How many hours per month do you volunte	er? h	ours		
		Mean	16	176		
		Missing	142	17.0		
		Total	158			
15.	How	How would you currently describe your physical health?				
		Poor	27	17%		
		Fair	61	39%		
		Good	42	27%		
		Very good	12	12%		
		Excellent	4	3%		
		Missing	5	3%		
		Total	<i>158</i>	570		
16.	Has your physical health caused you to alter travel outside of your home?					
	2	Ves	106	67%		
		No	100	20%		
		Missing	40	2970 10/		
		Total	158	4/0		
		10141	150			
17.	Are y	ou basically satisfied with your life?				
		Yes	127	80%		
		No	23	15%		
		Missing	8	5%		
		Total	158			

18. Do you feel that your life is empty?

20.

Yes	26	17%
No	124	79%
Missing	8	5%
Total	158	

19. Are you afraid that something bad is going to happen to you?

Yes	12	8%
No	138	87%
Missing	8	5%
Total	158	
Do you feel happy most of the time?		
Yes	132	84%
No	20	13%
Missing	6	4%
Total	158	

The questions on the next several pages are about your travel patterns and the transportation services in your area.

21. For each item below, please mark the box that most closely captures the frequency with which you use the type of transportation described. How often do you use:

TYPE OF	ALL/MOST	OFTEN	SOMETIMES	RARELY/
TRANSPORTATION	OF THE			NEVER
<i>N=152</i>	TIME			
Personal vehicle as driver	12 (8%)	4 (3%)	1 (1%)	135 (86%)
Rides from family	76 (48%)	19 (12%)	24 (15%)	33 (21%)
Rides from neighbors or friends	10 (6%)	13 (8%)	42 (27%)	87 (55%)
Rides through church	7 (4%)	4 (3%)	14 (9%)	127 (80%)
Taxicab	4 (3%)	1 (1%)	18 (11%)	129 (82%)
Bicycle	0	1 (1%)	4 (3%)	147 (93%)
Walk	7 (4%)	10 (6%)	29 (18%)	106 (67%)
Scooter/Motorized Wheel chair	9 (6%)	4 (3%)	10 (6%)	129 (82%)
Public Bus	8 (5%)	5 (3%)	7 (4%)	132 (84%)
Special bus for seniors or people with disabilities	8 (5%)	10 (6%)	22 (14%)	112 (71%)
Volunteer transportation program	1 (1%)	1 (1%)	9 (6%)	141 (89%)
Other (please specify): n=19	5 (3%)	5 (3%)	1 (1%)	8 (5%)
Missing		6	4%	

REASON FOR TRIP	DAILY	A FEW	ONCE A	1-3 TIMES	LESS
N=146		TIMES A	WEEK	A MONTH	THAN
		WEEK			1-3 TIMES
					A MONTH
Grocery shopping	1 (1%)	25 (16%)	41 (26%)	23 (15%)	56 (35%)
Run errands	2 (1%)	16 (10%)	19 (12%)	18 (11%)	91 (58%)
Visit family/friends	5 (3%)	14 (9%)	13 (8%)	21 (13%)	93 (59%)
Attend church	0	9 (6%)	36 (23%)	9 (6%)	92 (58%)
Go out to eat	2 (1%)	17 (11%)	26 (17%)	29 (18%)	72 (46%)
Go to movies, performing arts,	0	0	1 (1%)	16 (10%)	129 (82%)
cultural activities					
Just to get out	5 (3%)	13 (8%)	6 (4%)	24 (15%)	98 (62%)
Attend social functions	1 (1%)	8 (5%)	7 (4%)	22 (14%)	108 (68%)
Medical/dental appointments	2 (1%)	4 (3%)	7 (4%)	50 (32%)	83 (53%)
Trips to pharmacy	0	3 (2%)	20 (13%)	30 (19%)	93 (59%)
Trips for work/ volunteering	0	4 (3%)	2 (1%)	2 (1%)	138 (87%)
Attend classes, continuing	0	0	2 (1%)	1 (1%)	143 (91%)
education					
Go to the gym/exercise	3 (2%)	7 (4%)	2 (1%)	1 (1%)	133 (84%)
Outdoor recreation	6 (4%)	9 (6%)	1 (1%)	6 (4%)	124 (79%)
Other (please specify): $n=24$	6 (4%)	3 (2%)	1 (1%)	2 (1%)	12 (8%)
Missing	1	1	12	8%	1

22. How often do you take the following kinds of trips from your residence? (Again, please mark the box that mostly closely describes the frequency of your trips.)

23. To your knowledge, are there any public transportation services, such as public bus service, available in your community?

Yes	86	54%	→ 23a.
No	35	22%	
Don't know	11	7%	
Missing	26	17%	
Total	158		

23a. Do you use those public transportation services?

Yes	30	19%
No	66	42%
Missing	62	39%
Total	158	

24. To your knowledge, are there special transportation services available for seniors or people with disabilities in your community?

Yes	96	61%	→ 24a.
No	19	12%	
Don't know	21	13%	
Missing	22	14%	
Total	158		
24a. Do you use those special transportation services?

Yes	29	18%
No	68	43%
Missing	61	39%
Total	158	

25. Which of the following, if any, limit your use of public/special transportation services? Please check <u>all</u> that apply:

No public/special transportation is available	28	18%
I have no concerns	22	14%
It is easier to drive	20	13%
Have to plan travel too far in advance	15	10%
No benches at bus stop	7	4%
No shelter at bus stop	7	4%
No restroom on bus	9	6%
Too far to walk to the bus stop	19	12%
The bus stops are not safe	6	4%
Riding the bus is not safe	2	1%
Bus doesn't go where I need to go	20	13%
Service is too expensive	4	3%
Service is not reliable	4	3%
Service takes too long	11	7%
Service is not individualized	6	4%
Service for the return trip is too infrequent	7	4%
Service, in general, is too infrequent	9	6%
Other (please specify below):	46	29%
Missing	4	3%
Total	158	

26. Have you considered, or would you consider, moving to a different neighborhood or town to have better access to public transportation?

Yes	4	3%
Maybe	16	10%
No	136	86%
Missing	2	1%
Total	158	

27. Sometimes older people make changes in the way they drive. In the year before you stopped driving, how often did you do the following? Please mark the box that best describes your response.

DRIVING CHANGE	ALL/ MOST	OFTEN	SOMETIMES	HARDLY
N=137	OF THE TIME			EVER
Avoid driving at night	70 (44%)	16 (10%)	14 (9%)	37 (23%)
Limited distances I drove	50 (32%)	17 (11%)	18 (11%)	52 (33%)
Avoided left hand turns	11 (7%)	9 (6%)	20 (13%)	97 (61%)
Drove more slowly	26 (17%)	20 (13%)	39 (25%)	52 (33%)
Drove less frequently	34 (22%)	26 (17%)	27 (17%)	50 (32%)
Avoided driving during rush hour	47 (30%)	27 (17%)	24 (15%)	39 (25%)
Avoided driving in bad weather	45 (29%)	26 (17%)	28 (17%)	38 (24%)
Avoided driving on unfamiliar	42 (27%)	24 (15%)	18 (11%)	53 (34%)
roads				
Avoided heavy traffic and	40 (25%)	33 (21%)	32 (20%)	32 (20%)
congested areas				
Avoided driving on freeways	35 (22%)	16 (10%)	19 (12%)	67 (42%)
<i>Other (please specify):</i> $n=7$	7 (4%)	0	0	0
Missing	·	21	13%	

28. People sometimes stop driving for health-related reasons. Please mark the box to indicate to what extent each of the following <u>health reasons</u> led you to stop driving.

HEALTH REASON N=144	YES DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT
Poor vision	48 (30%)	16 (10%)	15 (10%)	65 (41%)
Hearing loss	12 (8%)	15 (10%)	23 (15%)	94 (60%)
Cardiovascular or heart condition	13 (8%)	7 (4%)	13 (8%)	111 (70%)
Suffered a stroke	24 (15%)	4 (3%)	7 (4%)	109 (69%)
Arthritis	16 (10%)	10 (6%)	10 (6%)	108 (68%)
Memory or cognitive problems	13 (8%)	11 (7%)	10 (6%)	110 (70%)
General loss of coordination	11 (7%)	20 (13%)	13 (8%)	100 (63%)
General loss of strength	10 (6%)	9 (6%)	15 (10%)	110 (70%)
Emotional distress	7 (4%)	2 (1%)	14 (9%)	121 (77%)
Medication that may affect driving	12 (8%)	14 (9%)	7 (4%)	111 (70%)
Other chronic medical condition (e.g. diabetes)	16 (10%)	9 (6%)	8 (5%)	111 (70%)
Other (please specify): n=23	19 (12%)	2 (1%)	0	2 (1%)
Missing		14	9%	

29.	Sometimes older people stop driving for other reasons. Please mark the box to indicate to
	what extent each of the following personal reasons led you to stop driving.

REASON N=144	YES DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT
I got confused while driving	11 (7%)	10 (6%)	10 (6%)	113 (72%)
I lost confidence in my driving	28 (18%)	24 (15%)	7 (4%)	85 (54%)
I no longer felt I was a safe driver	48 (30%)	16 (10%)	7 (4%)	73 (46%)
I had too many accidents	3 (2%)	3 (2%)	6 (4%)	132 (84%)
I had too many traffic citations	0	0	3 (2%)	141 (89%)
I could no longer afford to drive	4 (3%)	4 (3%)	5 (3%)	131 (83%)
I had someone else to drive me	44 (28%)	15 (10%)	5 (3%)	80 (51%)
My doctor advised me to stop driving	21 (13%)	7 (4%)	2 (1%)	114 (72%)
My family urged me to stop driving	36 (23%)	3 (2%)	5 (3%)	100 (63%)
I no longer wanted to go out	6 (4%)	4 (3%)	4 (3%)	130 (82%)
I no longer wanted to drive	32 (20%)	19 (12%)	6 (4%)	87 (55%)
I preferred other modes (e.g. bus, taxi, etc.)	7 (4%)	4 (3%)	1 (1%)	132 (84%)
Other (please specify): n=11	10 (6%)	0	0	1 (1%)
Missing	1	14	9%	1

30. Do you know people who should have stopped driving but have not?

Yes	66	42%	→ 30a.
No	73	46%	
Missing	19	12%	
Total	158		

30a. Why do you think they did not stop/have not stopped driving?

31. How long has it been since you stopped driving?

Less than a year	12	8%
1 to 5 years	101	64%
More than 5 years	35	22%
Don't know	1	1%
Missing	9	6%
Total	158	

32.	Since	then, have there been any situations in which you've had to drive?				
		Yes No Missing Total	5 136 17 158	3% 86% 11%	→ 32a.	
	32a.	Please describe the situation(s) where y	ou had to driv	ve below	/:	
33.	Befor	e you stopped driving did you own your o	own car?			
		Yes	140	89%	\rightarrow 33a.	
		No	0	110/	SKIP→ 35.	
		Missing Total	18 158	11%		
		10101	150			
	33a.	What did you do with your car when yo	ou stopped dri	iving?		
		Sold it	52	33%		
		Kept it for others to drive	62	39%		
		Gave it away	25	16%		
		Missing	19	12%		
		Total	158			
34.	Do yo	ou <u>currently</u> keep a vehicle to be driven by	y others?			
		Yes	0		SKIP→ 34a.	
		No	0			
		Missing	158	100%		
		Total	158			
35.	34a.	How many miles do you estimate other	s drove your	vehicle i	n the last year?	
		Less than 100 miles	6	4%		
		101 to 500 miles	16	10%		
		501 to 1,000 miles	12	8%		
		5,001 to 10,000 miles	19 13	12%0 80/2		
		10 001 to 20 000 miles	13	070 1%		
		Over 20,000 miles	3	2%		
		Missing	87	55%		
		Total	158			

N=145	YES	PROBABLY	PROBABLY	DEFINITELY
	DEFINITELY		NOT	NOT
Reduced work/ volunteer time	35 (22%)	10 (6%)	5 (3%)	95 (60%)
Gave up child-care	9 (6%)	1 (1%)	2 (1%)	133 (84%)
responsibilities				
Feel isolated	24 (15%)	27 (17%)	9 (6%)	85 (54%)
See my family less	28 (18%)	19 (12%)	14 (9%)	84 (53%)
See my friends less	40 (25%)	31 (20%)	11 (7%)	63 (40%)
Moved closer to my family	27 (17%)	2 (1%)	2 (1%)	114 (72%)
Watch more television	54 (34%)	23 (15%)	7 (4%)	61 (39%)
There are places I can no longer	75 (48%)	20 (13%)	7 (4%)	43 (27%)
visit				
Have trouble getting to the	17 (11%)	11 (7%)	14 (9%)	103 (65%)
doctor				
Have trouble getting to church	18 (11%)	6 (4%)	11 (7%)	110 (70%)
Hired someone to drive me	18 (11%)	4 (3%)	6 (4%)	117 (74%)
Have had to give up some social activities	42 (27%)	29 (18%)	4 (3%)	70 (44%)
Feel depressed	18 (11%)	19 (12%)	13 (8%)	95 (60%)
Moved to a different neighborhood	20 (13%)	2 (1%)	6 (4%)	117 (74%)
Use public transportation more	19 (12%)	7 (4%)	3 (2%)	116 (73%)
Moved to senior housing with	24 (15%)	1 (1%)	1 (1%)	119 (75%)
transportation services				
Other (please specify): $n=7$	5 (3%)	0	0	2 (1%)
Missing		13	8%	

Stopping driving affects people differently. Please mark the box to indicate the extent to 36. which you think each of the following applies to you since you stopped driving.

Missing

8%

Original items had a "not applicable" response option. "Not applicable" responses have been recoded to "definitely not."

37. If there is anything else that you would like us to know about your thoughts concerning driving, or that you would like to clarify, please use the space below for your comments.

We are interested in talking with people to learn more about their experiences or thoughts about transportation for older Oregonians. We will do a follow-up phone interview with some of those who reply to this survey and are interested.

If you would be willing to have your name added to the list of people we may call for a followup interview, please indicate this by checking the box below and telling us what day and time are most convenient for you and the best phone number we can reach you.

Yes, I would like to add my name to the list of potential participants for the follow up phone survey. The best day(s) to reach me is/are: (please circle):

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

The best time to call me is: (please circle one)

Morning Afternoon Evening

The best phone number to reach me at is:

[Note: To protect your confidentiality, the code number on this survey tells us your name, so you do not need to write it here.]

Thank you again for your participation. Please mail this survey promptly in the addressed, pre-stamped envelope provided.

APPENDIX C: PHASE III – TELEPHONE INTERVIEW INSTRUMENTS

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS TELEPHONE INTERVIEW: CURRENT DRIVERS

[Introduction (includes informed consent):]

My name is ______, and I am working with the Institute on Aging, Portland State University, for the Oregon Department of Transportation on the study of older people and transportation in Oregon. You recently completed and returned a survey to us about your travel patterns and experiences and agreed to a follow-up interview by phone. That is the reason for my call. Is this a good time for us to talk? The interview will take about 45 minutes to 1 hour.

[If not, record time for call back: _____]

[Once call resumes:]

Before we begin, I want to assure you that your participation is voluntary and you can stop at any time. And, if I ask a question that you would prefer not to answer, we can just skip over it. Your answers are confidential. If you have questions about the study, I can give you the phone number of the project director or the person at the university in charge of research studies.

Do you have any questions? May we continue?

[Interviewer: review respondent's survey and determine the extent to which they have made changes in driving or travel. This will help you to frame the probing follow-ups to the questions below.]

Before I begin the questions, I know that on the survey you gave us answers to questions regarding your travel patterns and how you get to where you need to go. Some of the things I make ask you may seem the same, but what I'd like you to do in this interview is "tell me the story" – that is, provide more detail in some of the areas covered in the survey.

- 1. What types of changes have you made so far in how you drive? How have these changes affected your life? [Q27]
- 2. Over what period of time have these changes occurred?
- 3. In the mail survey, you mentioned some reasons [Q 28-29] that might lead you to stop driving. [Interviewer will remind respondent of those items to which they responded, "yes, definitely" on the survey; if no "yes definitely responses, then remind of "probably" responses].

What final thing or things might make you give up driving?

- 3a. [*If person mentions an accumulation of factors rather than one thing:*] Would you tell me more about that?
- 4. What things might keep you driving beyond the point when you think maybe you really should stop? [*If person is not sure, interviewer probes:* "Sometimes older people say that they need to drive other people, take care of someone, drive friends, get to medical appointments themselves things like that which might keep them driving even when they think maybe they should stop. Do any of these apply to you?"]
- 5. [Ask only if "yes" to Q 23 on survey (has alternative forms of transportation available):] You mentioned on the survey that you have other transportation choices in your community.
 - 5a. How much of your travel do you do using these other transportation options? [*Probe depending on survey answers regarding public and special needs transit, volunteer services, other.*]
 - 5b. For what types of activities/trips?
 - 5c. What percent of your travel is done using non-driving alternatives?
 - 5d. Do you see these other forms of travel as viable alternatives for you should you decide to stop driving?
- 6. [Ask only if "no" to Q 23 on survey (does not have alternative forms of transportation available):] You mentioned on the survey that there are no alternatives to driving, no other forms of transportation, in your community.
 - 6a. How does this impact you, if at all, at this time?
 - 6b. How do you think this might affect your decisions about driving in the future?
- 7. What changes, if any, would you make to transportation alternatives in your community to better meet your needs?
- 8. Have you considered making a decision to relocate to a community with better access to public transportation based on changes in your driving or possibly no longer driving?
 - 8a. [*If yes:*] How would you go about making this decision?

- 8a1. What sources of information might you consult? [*Probe: research communities, have friends or family do so, contact agencies in new communities, other.*]
- 8b. [*If no:*] Would you consider relocating for this reason? [*If no, skip to Q.9*]
 - 8b1. What would be the important factors in making a decision to relocate based on options for persons no longer driving?
 - 8b2. What sources of information might you consult? [*Probe: research communities, have friends or family do so, contact agencies in new communities, other.*]
- 9. Next, if you were asked to help state or local planners who were trying to better assist older adults who are no longer driving, what suggestions would you give them? [*Probe: transit alternatives; better sidewalks and crosswalks; longer lights; other.*]
 - 9a. From these suggestions, what would you tell them was your highest priority for their planning?
- 10. Do you have anything else that you would like to share about your driving and the future of your driving or travel in your community?

Those are all of my questions. I do appreciate your willingness to both complete the survey and also to share more of your story with us. Your responses are very important to the Oregon Department of Transportation as they plan for the future transportation needs of Oregon's older adults. Thank you again!

OREGON DEPARTMENT OF TRANSPORTATION OLDER DRIVERS TELEPHONE INTERVIEW: CEASERS

[Introduction (includes informed consent):]

My name is ______, and I am working with the Institute on Aging, Portland State University, for the Oregon Department of Transportation on the study of older people and transportation in Oregon. You recently completed and returned a survey to us about your travel patterns and experiences and agreed to a follow-up interview by phone. That is the reason for my call. Is this a good time for us to talk? The interview will take about 45 minutes to 1 hour.

[If not, record time for call back: _____]

[Once call resumes:]

Before we begin, I want to assure you that your participation is voluntary and you can stop at any time. And, if I ask a question that you would prefer not to answer, we can just skip over it. Your answers are confidential. If you have questions about the study, I can give you the phone number of the project director or the person at the university in charge of research studies.

Do you have any questions? May we continue?

[Interviewer: review respondent's survey and determine the extent to which they have made changes in driving or travel. This will help you to frame the probing follow-ups to the questions below.]

Before I begin the questions, I know that on the survey you gave us answers to questions regarding your travel patterns and how you get to where you need to go. Some of the things I make ask you may seem the same, but what I'd like you to do in this interview is "tell me the story" – that is, provide more detail in some of the areas covered in the survey.

- 1. What types of changes in your driving did you make prior to your decision to stop driving? How did these changes affect your life? [Q27]
- 2. Over what period of time did these changes occur?
- 3. What finally thing or things made you decide to stop driving? [Q28 Q29]

- 3a. [*If person mentions an accumulation of factors rather than one thing:*] Would you tell me more about that?
- 4. Do you think that you may have gone on driving longer than you probably should?
 - 4a. If yes, what things kept you driving beyond the point when you thought you really should stop?

[If person is not sure, interviewer probes: "Sometimes older people say that they need to drive other people, take care of someone, drive friends, get to medical appointments themselves – things like that – which keep them driving even when they think maybe they should stop. Did any of these apply to you?"]

- 5. [*Ask only if "yes" to Q 23 on survey (has alternative forms of transportation available)*]: You mentioned on the survey that you have other transportation choices in your community.
 - 5a. How much of your travel do you do using these other transportation options? [*Probe depending on survey answers regarding public and special needs transit, volunteer services, other.*]
 - 5b. For what types of activities/trips?
 - 5c. What percent of your travel is done using non-driving alternatives?
 - 5d. Have these other forms of travel been viable alternatives for you since you decided to stop driving, i.e., have they been able to fill the gap?
 - 5d1. If no, why not?
- 6. [Ask only if "no" to Q 23 on survey (does not have alternative forms of transportation available)]: You mentioned on the survey that there are no alternatives to driving, no other forms of transportation, in your community.
 - 6a. How do you cope with no longer driving, e.g., how do you get to appointments, social activities, go shopping, etc.?
 - 6b. How does not having transportation alternatives impact you?
- 7. What changes, if any, would you make to transportation alternatives in your community to better meet your needs?

- 8. *[ASK ONLY IF "yes" or "maybe" to Q26:]* In the survey you said that you have considered or might consider making a decision to relocate based to have better access to public transportation.
 - 8a. [*If yes:*] How did you go about this consideration?
 - 8a1. What sources of information did you consult? [*Probe: research communities, have friends or family do so, contact agencies in new communities, other.*]
 - 8a2. Did you choose to move?

If not, why not?

- 8b. If maybe: How might you go about considering such a move?
 - 8b1. What would be the important factors in making a decision to relocate based on options for persons no longer driving?
 - 8b2. What sources of information might you consult? [*Probe: research communities, have friends or family do so, contact agencies in new communities, other.*]
- 9. Next, if you were asked to help state or local planners who were trying to better assist older adults who are no longer driving, what suggestions would you give them? [*Probe: transit alternatives; better sidewalks and crosswalks; longer lights; other.*]
 - 9a. From these suggestions, what would you tell them was your highest priority for their planning?
- 10. Do you have anything else that you would like to share about your decision to stop driving and the future of travel in your community?

Those are all of my questions. I do appreciate your willingness to both complete the survey and also to share more of your story with us. Your responses are very important to the Oregon Department of Transportation as they plan for the future transportation needs of Oregon's older adults. Thank you again