

TRANSPORTATION IN MICHIGAN: OLDER ADULTS AND CAREGIVERS

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Introduction

Most countries around the globe are experiencing an aging of the population, due to decreased fertility, increased longevity, and the aging of the baby boomers (Global Action on Aging, 2010). Although global aging results, in part, from improved public health, medical care, and technology, it also creates new societal challenges. One challenge is how to maintain older adult safety and mobility in an aging society.

Mobility enables people to engage in the activities needed to not only survive, but also to enjoy life. In most Western Nations and in the United States (US) in particular, mobility is closely linked with the ability to drive a personal automobile. However, as people age, they begin to experience age-related health conditions that can make it difficult to safely operate an automobile (Eby, Molnar, & Kartje, 2009). At the same time, if driving is limited or stopped completely, an individual's need to get around still remains. Further, having to stop driving has been linked with a number of negative consequences including depression and a drop in overall well-being (e.g., Fonda, Wallace, & Herzog, 2001; Marottoli et al., 1997; Ragland, Satariano, & MacLeod, 2005). Thus, the challenge of maintaining safe mobility in an aging society has been characterized by four complementary and interdependent goals (Eby & Molnar, 2010): (1) to understand and better manage the effects of medical conditions and medications on skills needed for safe driving; (2) to develop and identify procedures and tools for determining fitness to drive; (3) to help those who are able to drive safely continue to do so; and (4) to identify and provide community mobility support to those who are no longer able or choose not to drive.

Like the rest of the world and the US, Michigan's population is aging. Currently, Michigan is ranked 31st in the nation in terms of residents age 65 and older with 12.3% of the population in this age group, and is ranked 23rd in terms of the population of residents over 85 years (Friss-Feinberg, Newman, Gray, Kolb, & Fox-Grage, 2004). The subgroup age 85 and older is one of the fastest growing segments of the population. The oldest-old population is projected to grow rapidly after 2030, when the baby boomers begin to move into this age group (He, Sengupta, Velkoff, & DeBarros, 2005).

Thus, Michigan is facing the challenge of how to maintain safe mobility for its older adult residents. One purpose of this literature review is to support the development of two statewide surveys related to older adult transportation: one administered to older adults (age 70 and older) in Michigan; and one administered to caregivers who provide transportation assistance or other support to an older adult in Michigan. The second purpose of this review is help the Michigan Department of Transportation (MDOT) determine measures and programs that might be useful to implement in Michigan. This review covers several topics developed in collaboration between the University of Michigan Transportation Research Institute (UMTRI), MDOT, and the Michigan Senior Mobility Workgroup (comprised of representatives of state and local organizations interested in promoting safe mobility for older adults). These topics are: older adult travel patterns; promising approaches to maintaining older adult mobility; a review of Michigan-specific older driver transportation services and programs; and caregiver issues.

Older Adult Travel Patterns

Older adults travel patterns have been changing over the past few decades. Today, older adults drive later into life and take more daily trips than they did in the past (Hu & Reuscher, 2004). Although older adult men and women take fewer daily trips than their younger counterparts and are more likely to try to avoid certain driving situations such as driving in bad weather, at night, or in rush hour (e.g., see Bauer, Adler, Kuskowski, & Rottunda, 2003), this does not imply that they no longer want to travel

(Rosenbloom, 2004). Efforts to help older drivers maintain their community mobility should build on an understanding of where, when, how, and why older adults travel. The following sections examine the characteristics of older adults' trips, including frequency, length, time-of-day, purpose, and travel mode. Unless otherwise specified, "trips" refers to trips by any mode of transportation, not just automobile trips.

Frequency of Trips

Surveys in the US report that older adults take an average of 3 to 4 trips per day. For example, in 2001, older adults across the US took 3.4 trips per day compared to 4.4 trips per day by younger adults (Collia, Sharp, & Giesbrecht, 2003). The reduced trip taking of older adults relative to younger adults is due in part to the greater likelihood that older adults are retired and free from having to provide transportation to their children, as well the general lack of transportation alternatives in many communities for those who are unable or choose not to drive themselves. Older men took more daily trips than women, averaging 3.9 person trips in 2001 versus 3.2 average person trips for women (Collia et al., 2003). A smaller survey of older adults by the AARP found similar results, with respondents 50-74 years of age reporting that they took an average of 3.5 trips the previous day (Ritter, Straight, & Evans, 2002).

The frequency of trip taking appears to be associated with several factors. Adults age 75 and older in urban areas take more trips during the course of the week, along with males, those in better health, those with higher education and/or a driver's license (Lynott, 2009). Even urban non-drivers make more trips than both suburban drivers and non-drivers due in part to greater access to public transportation and destinations (Coughlin, 2001), as older adults in urban areas walk or use transit more than rural seniors (Rosenbloom, 2004). In one study, almost 79% of urban older adults took daily trips outside their home 5 or more days a week, and 52% went out 7 days a week (Babka, Zheng, Cooper, & Ragland, 2008). In contrast, rural older adults in another study who took trips took an average of 3.0 trips per day, and the total study sample took an average of 2.0 trips per day (Foster, 1995).

Older adults experiencing serious health issues are likely to have reduced weekly travel outside the home (Lyman, McGwin, & Sims, 2001). Older, disabled adults leave home about 4 days a week, translating to 6 million disabled older adults in the US taking trips outside the home almost every day (Sweeney, 2004). Increased age (often associated with increased prevalence of medical conditions) is also related to a decline in trip-making. A study of adults age 75 and older found they took between 1 to 6 trips per week (Coughlin, 2001) and an AARP survey reported those age 75 and older took an average of 2.5 trips per day (Ritter et al., 2002), a full trip less than those age 50-74. However, even at an advanced age, older drivers take more trips than non-drivers. One study showed drivers over age 70 took about 6 trips a week, while non-drivers took about 2 trips a week (Burkhardt, 1999). In addition, older adults with a driver's license take more trips than older non-drivers, even after age 85 (Rosenbloom, 2004).

Adults age 65 and older in Michigan make fewer daily trips than younger adults. According to the 2005 Michigan Travel Counts, women made more daily trips than men until age 65 and older, when women made an average of 2.6 trips a day and men 3.1 trips per day (Michigan Department of Transportation, MDOT, 2006). The 2009 Travel Counts Comparison Report showed that adults age 65 and older accounted for more trips in the SEMCOG and Northern Lower Peninsula regions than adults age 55-64, and were found to take the least amount of trips in the southern lower peninsula (2.5 trips/day)(MDOT, 2010). Consistent with other surveys, those in urban areas took more trips than those in rural areas

(MDOT, 2006) as adults age 55 and older living in the rural areas of Michigan took the fewest number of trips (MDOT, 2005).

Trip Length

Older men and women take shorter trips than younger drivers both in terms of time and distance traveled, although older adult trip lengths have increased from prior decades. In 1983, older men and women traveled an average of 12.0 person miles per day; in 2001 older men and women traveled 27.5 person miles per day (Hu & Reuscher, 2004), with men traveling farther and for longer periods of time than women (Collia et al., 2003). Although the increase in older adults' daily trips and distance within their own age group could mean better overall mobility, it could also be due to decreased access to the destinations of interest to older adults (Rosenbloom, 2003). A survey in rural and small urban areas found that 44% of older adults traveled between 1 and 5 miles to their most "frequent destination", 32% traveled 6 miles or more, and 13% traveled more than 20 miles (Mattson, in press). Indeed, the 2001 National Household Travel Survey found rural older adults over age 80 traveled more miles than their urban counterparts (Pucher & Renne, 2005).

Michigan's older adults also travel fewer minutes and miles compared to younger adults. Men and women between ages 36-64 spent an average of 79.9 and 70.5 minutes per day traveling, respectively, whereas men and women age 65 and older spent an average of 57.8 and 46.5 minutes per day traveling, respectively. Average weekday trip duration for older men was about 19 minutes, down from 22 for men in the 21-35 and 36-64 age groups. Women age 65 and older took weekday trips that averaged about 18 minutes in length, higher than the women in the 21-35 and 36-64 age groups who averaged about 17 minutes (MDOT, 2006).

Time of Day

Older adults also travel most frequently at nonpeak hours (Benekohal, Michaels, Shim, & Resende, 1994; Hanson, 2004; Hildebrand, Myrick, & Creed, 2000). For this reason, the usual operational hours of traditional public transit may not be responsive to the older adults' preference to travel on weekends and between 9 AM and 3 PM on weekdays (Coughlin, 2001). Sixty percent of older adults' trips in 2001 were taken between the hours of 9 AM and 4 PM (Collia et al., 2003) and older drivers were found to make the most trips between 9 AM and 1 PM (Rosenbloom, 2003).

Trip Purpose

It has been estimated that in the US, 50% of non-drivers age 65 and older cannot travel due to lack of transportation options, especially in rural areas and sprawling suburbs (Bailey, 2004). Not surprisingly, one study found that older non-drivers take 15% fewer trips to the doctor, 59% fewer trips shopping and to restaurants, and 65% fewer social/family/religious trips than older drivers (Bailey, 2004).

Understanding the reasons that people take trips is important to ensure that alternative transportation options are responsive to where older adults need and want to go.

Although older adults may be more likely to have medical conditions that can affect their ability to travel than younger people, less than 5% of their trips are for medical purposes (Rosenbloom, 2009). Most often, both rural and urban older adults travel for shopping, social/recreation and personal business purposes (Hanson, 2004; Hough, Cao, & Handy, 2008). The 2001 National Household Travel Survey revealed older adults took the most daily trips for social and recreation (19.4%), shopping (18.3%) and family/personal business (17.5%) purposes (Collia et al., 2003). A survey of older drivers' trip purposes

showed similar results: the respondents' most recent trips were for shopping (49%), personal business (15%), social/recreational (12%), work (8%) and medical/dental (7%) (Benekohal et al., 1994). Older men take 23% more non-work trips than younger men; women take fewer non-work trips than younger women; and minorities take fewer trips than Whites (Rosenbloom, 2003). However, as age increases, trips made for recreational purposes decline (Bauer et al., 2003) and suburban older adults who do not drive make more trips for medical reasons and less trips for shopping purposes than suburban drivers (Coughlin, 2001).

As found in the US in general, Michigan older adults are more likely to take trips for shopping, social/recreation purposes, and personal business. Michigan's 2005 Travel Counts found that men age 65 and older report the most frequent daily trips for personal business (average .83 person trips per day), shopping (.74), social/recreational purposes (.73), picking up, dropping off or accompanying another (.35), work (.33) and religion (.11). Women over 65 took the most daily trips for shopping (.73), followed by personal business (.67), social/recreational (.62), picking up, dropping off or accompanying (.30), work and religion (.15). Neither men nor women traveled for school/childcare purposes. Both men and women age 65 and older took fewer trips for work purposes than younger adults and more trips for religious/ community reasons (MDOT, 2006).

Travel Mode

The personal automobile is by far the most preferred method of transportation for younger and older adults alike, as either drivers or passengers. In fact, in 2001 older adults took 89% of their trips in the personal vehicle in the US overall (Collia et al., 2003). Even most disabled older adults get from place to place via the private automobile. One survey found nearly 56% of disabled older adults drove a private vehicle in the last month, 70% rode as a passenger, and 38% walked (Sweeney, 2004). Only small percentages of disabled older adults used the taxicab (8%), paratransit (7%), public bus (6%) or private/chartered bus (5%) in the previous month (Sweeney, 2004). Trends in Michigan are similar to the national picture. For example, a statewide Michigan survey found that the majority of urban and suburban older adults rely on the private automobile, primarily as the driver (Zhou & Lyles, 1997). Transit use made up only a small percentage of total travel and only applied to those living in urban areas. As a result, older adults in suburban and rural areas, and small cities tended to take fewer trips than older adults in urban areas and traveled more miles in a day, thus reducing their driving less. In another study of Michigan older adults, 60% of those surveyed reported that they did not use public transportation (Kostyniuk & Shope, 2003).

Once older adults have stopped driving, many rely on family and friends to drive them. In fact, it has been estimated that 75% of older adults who no longer drive rely on friends and family to drive them (Rosenbloom, 2001). One survey found that 13% of older adults ride-share as their usual mode of transportation, especially those age 75 and older and/or in poor health, and 43% ride-share more than once per month (Ritter et al., 2002). Another survey found that 70% of disabled older adults traveled as passengers in the private automobile (Sweeney, 2004). However, getting rides from others can be associated with feelings of dependence, guilt, and embarrassment for older adults (Glasgow & Blakely, 2000; Ritter et al., 2002).

Although public transit use among both urban and rural older adults has declined since the eighties (Glasgow, 2000), there are segments of the population that are more likely to use public transit. Studies suggest that among these groups are women, minorities, and those of advancing age, low-income, or living in urban areas (Babka et al., 2008; Mattson, in press; Rosenbloom, 2004). One possible

explanation for this finding is that women, low-income, and minorities are more likely to cease driving (Rosenbloom, 2001) and public transit is less available in rural areas, potentially inhibiting rural older adults from making all of their desired trips (Mattson, in press). Public transit and other alternatives to driving including paratransit, private transit, walking, and biking are discussed in more detail in the section on Michigan transportation services and programs later in this review.

Promising Approaches to Maintaining Safe Mobility

Maintaining safe mobility for older adults is a multifaceted problem. On one hand, there are great benefits to society, as well as older drivers themselves, to keep them driving for as long as they can safely do so. On the other hand, it is inevitable that for most older adults there will come a time when they can no longer safely drive to the locations that are important for both daily living and quality of life. Indeed, researchers have estimated that on average women will outlive their ability to drive safely by 10 years, and men will outlive their ability to drive safely by 6 years (Foley et al., 2002). Thus, solutions for safe mobility for older adults must address a number of issues: formulating approaches to keep people driving safely even after they begin to experience health related declines in critical driving skills; developing valid and reliable tools to evaluate when skills have declined to a level that driving is no longer safe; and determining how best to provide transportation alternatives to older adults once they cannot or choose not to drive.

This section covers promising approaches related to older adult safety and mobility. Some of these approaches are actual programs, while others are resources and technologies. There are also research studies that point to how promising approaches should be formulated. Because most approaches have not been formally evaluated, we consider a promising approach to be one that shows special promise for enhancing the safety and mobility of older adults using criteria developed by Molnar et al. (2007). The promising approaches are organized by general topic: screening and assessment; education and training; exercise and rehabilitation; advanced vehicle technology; and roadway design. Because alternative transportation options are discussed later in this review (under Michigan transportation services and programs), they are not included in this section to avoid redundancy.

Screening and Assessment

An important topic for older adult safety and mobility is the evaluation of an older person's fitness to drive. In the past, many people used the terms screening and assessment interchangeably when they applied them to driver evaluation. Current researchers and practitioners, however, distinguish between the two concepts while recognizing that both are important for evaluating driver fitness. A recent consensus-based workshop, the *North American Driver License Policies Workshop* (Molnar & Eby, 2008), defined screening and assessment in the following way:

“Screening and assessment represent different and distinct domains of driver evaluation. Screening is the first step in a multi-tiered process and should not be used to make licensing decisions. Assessment provides the basis for identifying reasons for functional deficits, determining the extent of driving impairment, recommending license actions, and identifying options for driving compensation or remediation” (pg. 2).

Driver screening tools are generally inexpensive and relatively quick and easy to administer. Driver assessment, on the other hand, requires professional administration, can be expensive, and is most

often quite detailed and time consuming. Failing a screen does not necessarily mean that a driver is unsafe to drive. Rather, the screening result means that driver assessment should be completed. Ideally, screening and assessment procedures should be used together to ensure that all but the unsafe drivers can continue driving while minimizing the financial burden on drivers, health care professionals, and licensing agencies.

There are three settings in which screening and assessment can take place (Eby, Molnar, & Kartje, 2009). The first is the home and larger community. Police, family, friends, and the drivers themselves can all engage in driver screening. The second is clinical locations where physicians, occupational therapists, and other health care professionals can participate in screening and in many cases conduct in depth driver assessments. The final setting is the licensing agency. As drivers renew their licenses and conduct other business, licensing agency personnel can perform screening activities. Because these agencies are solely responsible for making decisions about driving privileges, they also are closely involved in the driver assessment process.

Research continues to develop best practices for facilitating the older adult driver screening and assessment process. Here we discuss some of the more promising programs and tools for driver screening and assessment.

Self-Screening

Self-screening is the process by which an older driver can gain awareness of driving related issues by administering a screening tool to themselves. Among the potential benefits of self-screening are that: it is a relatively nonthreatening form of screening so more people may be willing to be screened; because it is nonthreatening, people may engage in screening at an earlier point in their driving careers; and because self-screening tools are easily administered they can be widely and cheaply disseminated, providing the opportunity for nearly any driver to screen themselves (Eby, et al., 2003). A number of self-screening tools are available for the older driver, most of which are simple paper and pencil booklets (see Eby, Molnar, & Kartje, 2009 for a list). Three tools have received recent attention as promising approaches: *Driving Decisions Workbook* (Eby et al., 2003); *Roadwise Review* (Staplin & Dinh-Zarr, 2006); and *SAFER Driving: The Enhanced Driving Decisions Workbook* (Molnar et al., 2010).

The *Driving Decisions Workbook* is a paper and pencil questionnaire that is completed by the older driver only. The workbook is divided into five topic areas that are related to safe driving behaviors—on-the-road, seeing, thinking, getting around, and health. Readers circle the answers that best describes their situation. Feedback (information and suggestions on dealing with a specific problem) is provided based on how people answer questions. The workbook also contains a general question and answer section with additional information and resources. In preliminary evaluation, the workbook was found to correlate positively with driving ability as measured by an on-road driving test, as well as several functional tests (Eby et al., 2003). The evaluation also found that people liked the workbook, thought it would be useful for family discussions, and it took about 30 minutes to complete. In addition, results showed that the workbook reinforced what older drivers already knew about age-related declines, helped them discover changes in themselves they had not been aware of before, and encouraged them to make changes in driving and to seek further evaluation. The workbook is available free of charge at: <http://deepblue.lib.umich.edu/handle/2027.42/1321>.

The *Roadwise Review* is a computer-based self-screening instrument that presents several tests for users to complete. While most tests can be done alone, some require the help of another person to

administer. The *Roadwise Review* was developed by AAA and transportation safety researchers (Staplin & Dinh-Zarr, 2006). The tests assess the following abilities: leg strength, head and neck flexibility, high-contrast visual acuity, low-contrast visual acuity, working memory, visualization of missing information, visual search, and visual information processing speed. The program identifies potential problem areas and suggests ways to correct them. Myers et al. (2008) conducted a process evaluation of the *Roadwise Review* and found that people liked the program but some had difficulties using the software and working with the second person to administer some tests. Bédard, Riendeau, Weaver, and Porter (2009) compared scores on the *Roadwise Review* to scores from an on-road driving evaluation in 30 older drivers. The study found that scores on the *Roadwise Review* (number of mild or serious problems identified) did not correlate significantly with scores on the on-road test, Useful Field of View, or trail making test. The authors concluded that the study indicates a lack of congruence between the findings of the *Roadwise Review* and actual performance using standardized approaches. The program can be downloaded from the AAA Foundation for Traffic Safety free of charge at: <http://www.seniordrivers.org/driving/driving.cfm?button=roadwiseonline>.

The *Self-Awareness and Feedback for Responsible Driving (SAFER Driving)* tool is a web-based self-screening program for older drivers. *SAFER Driving* was developed to improve upon previous self-screening tools by focusing entirely on symptoms of declining health that affect driving, rather than the medical conditions or medications that produce these symptoms. Older adults answer questions on the website and receive individualized feedback that is intended to increase awareness of declines in functioning that affect driving, as well as recommendations for ways to change driving given certain problems, further evaluation by a health care professional, and ways the vehicle can be modified to enhance safe driving (Eby et al., 2008a). Molnar et al. (2010) evaluated *SAFER Driving* with 68 participants aged 65 and older. The researchers reported that participants overwhelmingly found the tool to be useful, thought it was easy to use in the web-based format, would recommend it others, and thought it would help older adults talk about driving concerns with their families. *SAFER Driving* outcomes also correlated with driving problems as measured by an on-the-road driving evaluation with a certified driving rehabilitation specialist. The tool is available for free at: <http://www.um-saferdriving.org>.

Family Screening

Family members and friends are frequently the first to notice problems with an older adult's driving abilities. Family and friends may directly observe problems with driving; they may notice new scrapes or dents in the older driver's vehicle and/or older drivers themselves may share information that may indicate there are problems. When a family member or friend notices a potential problem, he or she is, in effect, screening the older driver and is often placed in the position of deciding what to do about his or her concerns. A study of drivers age 50 and older found that about two-thirds identified a friend or family member as the person they would most likely listen to about driving concerns (Coughlin et al., 2004; D'Ambrosio et al., 2007). In a different study, focus groups with older drivers and the adult children of older drivers found that both of these groups agreed that the families should have the responsibility of talking to the older driver about driving reduction and cessation (Eby, Molnar, Kostyniuk, & Shope, 1999). However, these conversations rarely took place and were generally ineffective when they did. Family members also reported that they did not know where to find information on aging and driving.

Fortunately, a number of good resources have been developed (AAA Foundation for Traffic Safety, 2006; American Occupational Therapy Association, AOTA, 2002; Hartford Financial Services Group, 2007; Land

Transport NZ, 2006; New York State Office for the Aging, 2000; Pennsylvania Department of Transportation, 2006; Spreitzer-Berent, 1999). As described in a recent book (Eby, Molnar, & Kartje, 2009), each of the guides provides a wealth of information and, collectively, they provide several general recommendations:

- **Recognize:** Mobility is important for the driver; the driver has unique needs and resources; and talking about driving problems is uncomfortable for everyone.
- **Observe:** Look for clues or “warning signs” that indicate potential driving problems. Consult an expert, such as a driving rehabilitation specialist, if unsure if something is a warning sign.
- **Communicate:** Open, honest, and direct communication is paramount, while remembering that communication involves good listening as well as talking.
- **Encourage:** A formal clinical assessment with a medical professional is the first step in maintaining safe mobility for older adults experiencing driving problems. Follow up advice should be carefully considered.
- **Assist:** If assessment shows that the older adult needs to limit or stop driving, family members and friends can assist them in transitioning to non-driving mobility options.

Police Screening

Law enforcement officers often have contact with older drivers in situations where they can directly observe driving difficulties. Thus, police officers have a unique opportunity to screen older drivers for potentially unsafe driving. Indeed, in a large majority of jurisdictions, police officers refer a greater number of older adults for reassessment than any other stakeholder group (Meuser, Carr, & Ulfarsson, 2009). There are some resources available to help law enforcement officers interact with older drivers. The National Highway Traffic Safety Administration (NHTSA, 2004) has developed a law enforcement educational module on this topic called the Older Driver Law Enforcement Course. This course is taught by an instructor and has three key messages: **be sensitive** to the special needs of older adults and declines that occur from age-related medical conditions; **write the citation where appropriate** as citations help the licensing agencies identify potential problem drivers; and **make a referral** to the licensing agency where appropriate so that the drivers can receive appropriate intervention. This course has not been evaluated, and NHTSA is currently developing it into an interactive website so that it can receive wider distribution.

NHTSA (2005) has also collaborated with a number of organizations involved with aging drivers, including the National Sheriff’s Association Traffic Safety Committee, to develop and publish a review of law enforcement programs focused on older driver safety. This publication, called *Turning the Corner...and Still Driving*, addresses older adult driving issues, promising approaches and keys to successful programs, and resources/contacts.

Recently, the Older Driver Education & Research Team (2007) at the Washington University School of Medicine, developed *Health, Functional Status, & Older Driver Safety: A Curriculum for State Highway Patrol Driver Examiners & Troopers*. This publication presents a complete curriculum for training police officers about the special issues related to older drivers including: red flags of concern; the process of reporting drivers to the licensing agency; how to fill out the required forms; crash statistics; problem maneuvers for older drivers; medical conditions and driving; and a wealth of other information. An evaluation of the curriculum is planned.

Physician Screening and Assessment

As the number of older drivers increases, older adults and their families will increasingly rely on physicians for guidance on safe driving. Physicians will have the challenge of balancing their patients' safety against their needs for mobility and independence, as well as the confidentiality and quality of the physician-patient relationship. According to the American Medical Association (AMA), physicians have an ethical responsibility to recognize and address impairments in patients' driving abilities (Wang et al., 2003). For many physicians, however, driving issues are often overlooked or not discussed for a number of reasons: driver screening and assessment is viewed as being beyond the scope of medical care (Bogner et al., 2004; Marottoli, 2008); there is concern that if they address driving issues, their patients will not disclose medical problems for fear of losing their driving privileges (Redepenning, 2006; Taylor, Chadwick, & Johnson, 1995); physicians are aware that screening and assessment tools have not been found to be strongly linked with crash risk and are, therefore, reluctant to use them (Marottoli, 2008); some physicians are unaware of these tools (Marottoli, 2008); and physicians are concerned that if they evaluate for driving fitness, they will jeopardize their relationships with patients (Molnar et al., 2005). A number of tools exist for helping physicians and other medical personnel evaluate older drivers. The *Physician's Guide to Assessing and Counseling Older Drivers* was developed by the AMA and NHTSA (Carr et al., 2010) to provide physicians with information to address the issue of safe mobility in the older patient population. This guide presents a flow-chart for physician screening, assessment, and remediation titled, "Physician's Plan for Older Drivers' Safety" (PPODS). In this model, screening is the first step in identifying at-risk drivers and involves careful observation of the patient. Physicians are also advised to be alert to "red flags" such as any medical condition, medication, or symptom that can impair driving skills either temporarily or permanently. If this screening is positive, indicating that the patient may be an unsafe driver, the guide recommends that the physician perform a formal assessment called the "Assessment of Driving-Related Skills" (ADReS).

ADReS is an assessment battery that includes several tests of functional abilities. The individual tests have been validated as measures for the specific ability they measure and some have been shown to be related to driving performance. Work has shown that inter-rater reliability among various practitioners administering ADReS is high (Posse, McCarthy, & Mann, 2006). Other work addressed the specificity and sensitivity of ADReS administered by a sample of physicians (McCarthy & Mann, 2006). This study compared results of ADReS to the outcomes of a behind-the-wheel road test with a driver rehabilitation specialist. The study found that ADReS successfully identified all participants who failed the road test but also identified 70% of the total sample as being in need of an intervention. Thus, ADReS classified many people as being problem drivers when they were not. This result is supported by a cross-sectional study that evaluated the proportion of older drivers admitted to an emergency department who had potential driving problems as defined by ADReS (Fender et al., 2007). Until further research on ADReS is conducted, its value as an assessment battery is unclear.

Several efforts in Canada have resulted in guides and instruments to aid physicians in evaluating patients for fitness to drive. One such effort is the guide developed by the Canadian Medical Association (CMA, 2006) called *Determining Medical Fitness to Operate Motor Vehicles: CMA Driver's Guide*. The guide provides detailed information about medical conditions, medications, alcohol, and driving as well as advice to physicians on screening and assessment. Despite this detail, the CMA guide has been criticized for providing overly broad recommendations (Hogan, 2005) and for not being evidence-based; that is, based on empirical research linking recommendations to decreased crash risk (Molnar et al., 2005).

Another effort in Canada by the Dementia Network of Ottawa resulted in the development of the Driving and Dementia Toolkit for primary care physicians (Byszewski et al., 2003). This toolkit consists of background information regarding the older driver and dementia, as well as a list of local resources and how to access them. The toolkit also includes two sets of screening questions, one for the driver and another for the driver's family member. An evaluation by the developers of the toolkit (Byszewski et al., 2003) showed that after using the toolkit, physicians' knowledge and confidence regarding dementia and driving significantly increased; physicians were likely to report that they would start following the strategies presented in the toolkit, and physicians were quite satisfied with the toolkit. However, as with other physician tools, the toolkit has been criticized for providing overly broad recommendations (Hogan, 2005) and not being evidence based (Molnar et al., 2005). The screening questions are based on clinical experience and consensus and need to be validated to determine the relationship to driving and traffic safety measures. The toolkit can be found at: http://63.151.41.176/rgap/dementia/task_force_en.asp.

Licensing Agency Screening and Assessment

Licensing agencies play an important role in the driver evaluation process, including both screening and assessment. Because all drivers must eventually renew their license in person in most jurisdictions, licensing agencies have the opportunity to screen, and if necessary assess, older drivers. Recent studies have investigated several aspects of the licensing agencies' role in maintaining safe mobility among older people.

The California Department of Motor Vehicles (DMV) recently published a report on the development of the California Three-Tier Driving-Centered Assessment System (Hennessy & Janke, 2009). The authors reported that the three-tier system takes a "driving-centered" approach to assessment (taking into account when, where, why, and how an individual drives), as opposed to the current "driver-centered" approach (identification of high-risk drivers) used by most licensing agencies. The proposed system includes three tiers. The first tier is a brief completion of four screening tools: Snellen test of visual acuity, test of contrast sensitivity, recalling social security number (cognitive screen), and DMV counter-person observations of physical limitations. Those who pass these screens can renew their license after successful completion of a rules-of-the-road test. Those who fail the screen proceed to the second tier where they take a computer-administered assessment of perceptual-response time (processing speed). Those who fail this assessment must participate in an on-road evaluation (Tier 3). This evaluation not only considers a driver's abilities, but also the level of risk for making a driving error in that driver's normal driving. For example, a driver with poor contrast sensitivity may be deemed "driving well" if he or she appropriately avoids low contrast driving conditions. The three-tier system is currently being evaluated.

Licensing agencies are responsible for assessing drivers who have been referred to them as potentially unsafe, known as driver referrals. Meuser, Carr, and Ulfarsson (2009) examined the crash history and licensing outcomes for older drivers who were referred in Missouri as medically impaired. The study focused on 4,100 drivers age 50 and older reported in the years 2001-2005. In Missouri, reported drivers, in most cases, must submit a physician's evaluation within 30 days of being reported (or 60 days if an extension is requested). Depending upon what this evaluation indicates, the reported driver may be given a licensing action (full/restricted/revoked license) or required to be further evaluated. The authors found that of reported drivers, most reports came from police officers (30%), followed by license office staff (27%), physicians (20%), family members (16%), and others (7%). The average age of reported drivers was 80 years. When compared to control drivers, the crash involvement of reported

drivers was four times higher. About one-half of reported drivers did not submit a physician evaluation after being reported and subsequently had their license revoked. Most of the remaining reported drivers either failed to schedule further testing or failed the testing. Of the reported drivers in this study, 96.5% retired from driving at some point during the process.

Education and Training

Education and training play an integral role in older driver safety and mobility. Although related, education refers to the transfer of knowledge, while training refers to the acquisition of skills through hands-on instruction and practice. Education programs related to older drivers have been around for nearly two decades. For example, AARP (1992) released its *Older Driver Skill Assessment and Resource Guide: Creating Mobility Choices* in 1992 and the AAA Foundation for Traffic Safety (1994) published *Driver 55 Plus: Check your Own Performance* in 1994. Today there are hundreds of education/training programs and resources related to older driver safety and mobility.

Information about many of these programs has been organized into searchable databases that are accessible through the Internet. Three websites are the most comprehensive to date. San Diego State University's Center for Injury Prevention Policy and Practice and the California Office of Traffic Safety developed *ElderSafety.org: Facilitating Safe Mobility for Seniors*. This website includes information targeted at several players in the driver evaluation process including families and health care providers as well as a searchable database of statewide programs (http://www.eldersafety.org/Resources/Programs_State-Wide.html). Programs can be searched under the following headings: aging services, alternative transportation, collaboration, community education, consumer awareness, driver education programs, drive function research, driving safety evaluations, health care provider resources, law enforcement, occupational therapy, pedestrian safety, policy reports, public information, self-screening tools, traffic engineering, and walkable/livable communities.

The AAA Foundation for Traffic Safety developed a comprehensive website for older drivers, their families, researchers, and alternative transportation providers called *SeniorDrivers.Org*. This site contains a variety of resources and educational materials organized into the following topics: general safe driving information, measuring your driving skills/needs, education and training, planning for continued mobility, other useful resources. This latter section contains two searchable databases of programs and practices related to older drivers—one titled *Licensing Policies and Practice* and the other titled *Noteworthy Initiatives*. These databases can be accessed at: <http://lpp.seniordrivers.org/lpp/>.

The Michigan Center for Advancing Safe Transportation throughout the Lifespan (M-CASTL) has developed a website called *Promising Approaches for Promoting Lifelong Community Mobility* based on two publications that were developed in collaboration with AARP and the Michigan Office of Highway Safety Planning, respectively (Molnar et al. 2003; 2007). This website discusses in detail several areas that hold promise for promoting safe mobility for older adults: driver screening and assessment, education and training, vehicle design and advanced technology, roadway design, transitioning from driving to other transportation options, transportation coordination, and alternative transportation options. For each of these sections, the authors discuss why the topic is important and the criteria for qualifying as a promising approach in that area. More than 200 programs can be searched using keywords. The website can be found at: <http://www.m-castl.org/promising-approaches/>.

As may be clear from the descriptions of these websites, educational and training programs have been developed for a wide range of stakeholders including: the older driver, the older driver's

family/caregiver, the general public, physicians, licensing agencies, traffic engineers, urban/city planners, occupational therapists, law enforcement, alternative transportation providers, and practitioners who work with older adults. It is beyond the scope of this review to discuss promising approaches in each of these areas. Here we focus on two areas that we think are most relevant to this literature review: the older driver and the older driver's family member or caregiver.

For the Older Driver

Two recent publications have reviewed several programs available for older drivers (Eby et al., 2009; Molnar et al., 2007). These programs span a wide range of content, formats, and organizations. Table 1 contains information on some example programs from the US identified as promising approaches by Molnar et al. (2007). Note that a wide variety of topics and approaches is contained in this list. For all of these programs, it would be useful to know if they reduce the risk of a motor vehicle crash or improve the mobility of older adults. Although many of these programs and resources have been found to improve knowledge (see e.g., Eby et al., 2003; Marottoli, 2007; Owsley et al. 2004), improve self-reported driving behaviors (McCoy et al., 1993; Owsley et al., 2004) and improve on-road driving scores (Bédard et al., 2004; Marottoli, 2007), they have not been found to reduce roadway injuries or crashes (Berube et al., 1995; Korner-Bitensky, Kua, von Zweck, & van Benthem, 2009; Ker et al., 2005; Kua et al., 2007; Nasvadi & Vavrik, 2007; Owsley et al., 2004). Note that most programs have not been formally evaluated to determine traffic safety or mobility outcomes. Further research is needed.

Table 1: Example Promising Approaches for Educational Programs/Resources for Older Adults			
Name	Organization	Web Site	Description
Driver Safety Program	AARP	http://www.aarp.org/family/housing/driver_safety_program/	Information, articles, and news.
Mature Driver Improvement Program	National Driver Safety Services, LLC	http://www.maturedrivercourseonline.com/	Online paid course that covers driving environment, risk awareness, impaired driving, driving emergencies, physical conditioning and defensive driving.
Safe Driving for Mature Operators	AAA Exchange	http://www.aaaexchange.com/Main/Default.asp?CategoryId=14&SubCategoryId=72&ContentID=325	Hands-on course addressing specific needs of drivers age 55 and older and designed to improve everyday driving skills and knowledge.
Super Seniors	Illinois Secretary of State	http://www.cyberdriveillinois.com/services/services_for_seniors/superseniors.html	Hands-on training for driver license renewal for older adults.
CarFit	AAA; AARP; and Amer. Occupational Therapy Association	http://www.car-fit.org/	A hands-on educational program that uses a 12-point checklist to help older drivers determine how well they fit into their vehicles.

Coaching the Mature Driver	National Safety Council	http://www.nsc.org	An interactive course that reviews driving techniques and skills that can offset the effects of declining driving abilities.
DriveWell	American Society on Aging	http://www.asaging.org/asav2/drivewell/	Informational course to promote older driver safety and community mobility.
GrandDriver	AAMVA	www.granddriver.info/	Information and links to several courses, tools, and other resources.
Project Safe R.O.A.D.s	Onondaga County Department for Aging and Youth	http://www.ongov.net/Aging_and_Youth/SafeRoads/older/home.html	Informational website covering several aspects of aging and mobility.
Adapting Motor Vehicles for People with Disabilities	NHTSA	http://ntsa.dot.gov	A brochure that provides information about the process that individuals should go through when they are in need of adaptive vehicle equipment.

For the Family and Caregivers

Many of the family and caregiver older driver screening tools discussed previously also serve as educational resources. Several recent studies provide information that is useful for developing programs to help family members and caregivers address driving and the transition to non-driving with older adults.

A study from Canada (Friedland & Rudman, 2009) explored the role of the family and physician advice in getting older adults to self-regulate driving more effectively. The study utilized data from focus groups with adults age 55-64, older adult drivers (age 66-92), older adult former drivers (age 65-94), and family physicians. The study found that: older drivers expected to hear driving advice from others (either family or physician); older drivers were open to constructive advice to reevaluate driving practices; older drivers wanted to hear the advice gradually rather than simply being told to stop driving; all participants reported a reluctance to discuss driving at all; and older adults expected to hear about their driving problems from their family, but families tended to not have these conversations.

Kostyniuk, Molnar, and Eby (2009) explored the conditions under which family members did or did not talk with older adults regarding driving problems. The researchers analyzed data from a statewide telephone survey of older adults in Michigan. The study found that family members were more likely to express concerns if the older adult: had been involved in a recent crash, was uncomfortable merging onto freeways in heavy traffic, was uncomfortable driving 200 miles in a familiar area, avoided driving in inclement weather, showed declines in physical functioning, or was male. The authors concluded that further research was needed to better understand the interactions and dynamics of adult children and their aging parents with respect to driving.

A study from Massachusetts (D'Ambrosio, et al. 2009) examined the issue of communication about driving problems among caregivers and drivers with dementia. The authors analyzed data from a

questionnaire administered to a random sample of caregivers attending a session to educate caregivers on how to cope with drivers with dementia. The study found: about two-thirds of caregivers had spoken to the driver with dementia about driving; about one-third thought that the dementia patients would know when to stop driving; one-half thought the family member would decide when the driver should stop driving; and about 10% had either taken away keys or disabled a vehicle to prevent the driver from driving. When asked about reasons why the caregiver had not talked with the driver with dementia, fear about family conflict was commonly reported. Finally, when asked about plans to address the driving issue with the driver with dementia, about 20% of caregivers indicated that they would eventually talk with the driver; 9% said they would sell the car; and small percentages of others said they would use other strategies. The authors concluded that there was a need to educate and support caregivers to provide them with the information they need to be better informed about driving and dementia.

Exercise and Rehabilitation

As discussed previously, declining physical and cognitive abilities can result in declines in skills that are critical for safe driving. It is well known that exercise and other forms of rehabilitation can help restore, or slow the decline of, functional abilities. Researchers have recently begun to explore whether exercise and rehabilitation programs can help improve driving skills and, ultimately, improve traffic safety. The two areas that have received the most research attention are physical fitness and cognitive rehabilitation programs.

Fitness

Fitness programs help older people drive more safely by improving range of motion, strength, and stamina. Research has shown that fitness programs that are specific and intense can help older drivers extend their driving lifetime (Marottoli et al., 2007; Ostrow, Shaffron, & McPherson, 1992). For example, Marottoli et al. (2007) investigated the effects of an exercise program on on-road driving performance. The program involved an occupational therapist visiting older drivers (age 70 and older) weekly for 3 months and guiding them through a graduated exercise program targeting stamina, flexibility, coordination, and speed of movement. Results showed that participants found the program acceptable and maintained their driving performance (as measured through an on-road driving test), while a control group declined in performance.

Another study investigated the effects of an 8 week stretching and exercise program on driving performance (Ostrow, Shaffron, & McPherson, 1992). Subjects in the program group (age 60-85) performed prescribed exercises at home and self-reported their exercise activity. The study found that when compared to a control group who did not exercise, participants in the exercise program increased shoulder and trunk flexibility, while flexibility decreased in the control group. The driving performance analysis showed that drivers in the program were significantly better than controls on “observing” (checking mirror, turning to check blind spots) and “vehicle handling” (parallel parking) than control subjects. There was no difference in performance on the other seven driving measures investigated.

Recent work investigated the effects of an exercise program on improving abilities related to safe driving in older adults (Marmeleira, Godinho, & Fernandes, 2009), as compared to a control group who did not receive the program. The program lasted 12 weeks with 3 hours of exercise per week. The exercise activities primarily involved participants walking in an open gymnasium while doing certain visuospatial tasks (e.g., maintaining several balloons in the air). All participants were tested on a series of functional

abilities before and after the program. When compared to the control group, participants in the exercise program showed significant improvement in most of the functional areas that were measured. Inasmuch as the functional abilities are related to safe driving, the authors concluded that exercise can help improve the driving safety of older adults.

Given these promising results and the fact that exercise programs have many other benefits other than improving driving performance, much more research should be conducted in this area. In addition, these results suggest that older drivers who are concerned about declining abilities should consider starting an exercise program that is appropriate for their level of fitness and functioning, and approved by their physician if appropriate.

Cognitive Rehabilitation

Recent research has established that some cognitive functioning can be improved through cognitive training (see e.g., Ball et al., 1988, 2002; Delahunt et al., 2008). Whether these improvements can also improve driving performance is less clear. For example, Roenker, Cissell, Ball, Wadley, and Edwards (2003) studied the effects of speed-of-processing training and simulator training on driving performance on an open-road test. The experimental group all had decreased perceptual/attention functioning while the control group did not. The program used a driving simulator to train older drivers on simple and choice reaction time. Simple reaction time was trained by having the subject brake as quickly as possible in response to simulated brake lights. Choice reaction time was measured by having the subjects react to simulated traffic signs. Based on what the sign contained, the subject braked, turned the steering wheel, or did nothing. Results indicated that the experimental group showed improved reaction time after training. As compared to a group of subjects who did not receive training, simulator-trained drivers improved driving performance (measured by on-road evaluation) on only two of the driving measures (turning and signal use) investigated. These improvements, however, had dissipated in an 18 month follow-up. Although the selection of subjects in this study makes it difficult to interpret the results, it seems that more work in this area is warranted.

Other studies have examined the effects of cognitive speed of processing training on driving outcomes. One of these studies combined data from two longitudinal studies of older drivers. Participants in the project who showed reduced speed of processing ability based on a cutoff were randomly assigned to speed of processing training or a control condition (Edwards, Delahunt, & Mahncke, 2009). The study found that when compared to the control group, those who completed 80% or more of the training program were 40% less likely to stop driving over the subsequent 3 years. The other study examined the impact of cognitive speed of processing training on driving exposure and difficulty (Edwards, Myers, Ross, Roenker, Cissel, McLaughlin, & Ball, 2009). As with the previous research, the 134 drivers who showed poor cognitive processing speed were randomly assigned to either receive cognitive processing speed training or to a control group. The study found that control group participants reported greater declines in driving exposure, geographic space, and driving difficulty over the subsequent 3 years when compared to those who received cognitive processing training.

Seidler et al. (2010) conducted a study to assess the effects of a cognitive training program on several factors including driving performance. The study had two aims: 1) determine whether a 5-week working memory training program improved working memory performance for young and older adults, and 2) determine whether benefits associated with the program transferred to other tasks including driving. The study involved recruiting both young (mean age = 21 years) and older adults (mean age = 68 years) and randomly assigning them to the training program or to a knowledge training control condition. The

cognitive training program used a dual n -back task, which involved remembering simultaneously presented visual and auditory sets of information. The participant's task was to remember n stimuli back in the set and respond if the current stimulus matched. A different response was given if the match was auditory or visual. The n was changed depending on how well the participant was performing this very difficult memory task. A session lasted about 20-25 minutes and participants participated in 17 to 25 sessions. Performance was measured by the final n for each session. Participants in the control group trained on trivia and vocabulary for 23-minute sessions. The study found that both age groups improved on the n -back task over the course of the training program, although older adults performed less well overall. This training transferred to other measures of working memory. The training also seemed to show transfer to complex motor tasks including driving performance as measured on a driving simulator. The authors caution that these results are preliminary.

Advanced Vehicle Technology

There has been great progress in electronic, satellite, and communication technologies in the past few decades. This progress has allowed for the development of advanced technology systems for vehicles that have the potential to increase the safety and mobility of older drivers (see e.g., Caird, 2004). Advanced vehicle technology systems have been developed to help drivers navigate (e.g., global-positioning-system-based route guidance), avoid crashes (e.g., collision avoidance systems), and summon emergency help in the event of a crash (e.g., automatic crash notification). The usefulness of these technologies for older adults has recently begun to be empirically investigated. Designers are aware that poorly designed technological systems could increase distraction and crash risk for older drivers. To be beneficial to older drivers, vehicle technology will need to be carefully designed to ensure that safety is enhanced rather than reduced (Henderson & Suen, 1999; Stamatiadis, 2001).

One challenge to designing safe advanced technologies for older drivers is that research shows older adults sometimes use vehicle technology differently than younger people (Caird, 2004; Dingus et al., 1997; Eby & Kostyniuk, 1998; Kostyniuk, Streff, & Eby, 1997; Stamatiadis, 1998; Wochinger & Boehm-Davis, 1995). For example, in an evaluation of navigation assistance applications, Kostyniuk, Streff, and Eby (1997) found that older drivers used the system more frequently than young people, entered a greater number of destinations into the system, and utilized the technology with a "co-pilot." Research has also found that older drivers take much longer to learn how to use technology (Caird, 2004; Kostyniuk, Streff, & Eby, 1997). Understanding these patterns of use for the various advanced technologies being developed is crucial for optimizing the benefits of advanced technology for all users (Vrkljan & Polgar, 2007).

Route Guidance

Route guidance systems combine global positioning system (GPS) vehicle location information with electronic mapping software to provide drivers with real-time instructions to a location as they drive. Route guidance systems have been well-researched and several are available as an aftermarket addition to vehicles. Route guidance systems have the potential to help older drivers in several ways including helping them travel to unfamiliar places; reducing the cognitive workload of reading maps, instructions, and street signs while driving; and increasing feelings of safety while driving. Several studies have examined older drivers' use or potential use of route guidance systems (Dingus et al., 1997; Eby & Kostyniuk, 1998; Eby & Molnar, 1998; Kostyniuk, Eby, Christoff, & Hopp, 1997a, 1997b; Oxley, Barham, & Ayala, 1995; Vrkljan & Polgar, 2007). Collectively, these studies show that older adult drivers: use the

route guidance systems frequently; report minimal distraction, but more than reported by younger drivers; travel to places they would not have without the system; report increased feelings of safety, confidence, attentiveness, and relaxation when using the system; take much longer to learn how to use the system than younger people; have more difficulty than younger drivers reading the displays; more frequently use the system with a co-navigator than reported by younger drivers; and would not buy a system that was marketed to “old” people. Given the fairly low cost of commercially available systems, the positive regard drivers have for them, and the fact that they seem to be safe, route guidance systems are a very promising advanced technology for helping to maintain safe mobility for older adults.

Crash Warning Systems

The US Department of Transportation and private industry have had a strong focus on the development of systems that warn drivers of potentially dangerous situations so that they can take appropriate evasive actions or, if appropriate, not perform a maneuver. These crash-warning-system technologies use vehicle-based sensors to determine when potentially hazardous traffic situations are arising and then warn the driver in some way. Some systems also take over partial control of the vehicle such as applying the brake. There are three main crash warning systems available for automobiles: forward collision warning, intelligent cruise control, and lane departure warning systems.

Forward collision warning systems use radar at the front of the vehicle to determine the changing distance to the vehicle ahead. When this distance gets dangerously small, the system will warn the driver using some signal and, with some systems, begin braking the vehicle. Studies investigating the safety benefits of forward collision warning systems have found: driver acceptance was high when the system did not give too many false alarms, older drivers were more forgiving of false alarms, older drivers benefited as much as or more than younger drivers, and older participants drove more slowly than younger drivers and maintained longer headways from the next vehicle (Cotté, Meyer, & Coughlin, 2001; Dingus, et al., 1997; Ervin et al. 2005; Kramer et al., 2007; Maltz & Shinar, 2004). Forward collision warning systems have the potential for extending an older adult’s safe driving period.

Intelligent cruise control (ICC) is a system that has a forward sensor that can detect traffic in front of the vehicle, a headway-control algorithm, and an interface with a throttle that can change the vehicle speed to maintain certain headways (Fancher et al., 1998; Hoedemaeker & Brookhuis, 1998). With these systems, the driver selects a headway length and the vehicle will stay that time/distance from the vehicle in front without the driver having to use the brake or throttle. Studies of ICC in simulators, test-tracks, and in naturalistic driving have found: safety-related outcomes such as driving speed did not differ when using ICC; the vehicle lane position, however, was more variable when using ICC; driver workload and stress were reduced when using ICC; drivers trusted that the system would work properly; and older drivers were overwhelmingly pleased with the system (Fancher et al. 1998; Rudin-Brown & Parker, 2004; Stanton & Young, 2005). Thus, ICC has the potential for reducing the driving workload for older drivers.

Lane departure warning (LDW) systems can help drivers avoid drifting off the road crashes by warning drivers when the vehicle moves out of a lane without the use of a lane-change signal (LeBlanc et al., 2006). LDW systems use cameras pointed at the roadway on each side of the vehicle and video-analysis software to determine the vehicle’s lane position. Warnings are usually linked so that, for example, a drift to the right is accompanied by a warning presented on the right portion of the vehicle. Studies of LDW systems have found: the LDW system significantly reduced the number, time, length, and area of lane departure events among drowsy drivers; the system encouraged drivers to stay closer to the center

of the lane, use their turn signals more often when changing lanes, and reduced the frequency of lane excursions; and all drivers, including older adults, liked the system (LeBlanc et al., 2006; Rimini-Doering, Altmueller, Ladstaetter, & Rossmeier, 2005). We conclude that a LDW system could have great benefit for older drivers, particularly those who are taking medications that can produce drowsiness.

Automatic Crash Notification

Automatic crash notification (ACN) systems employ wireless telephones that automatically contact emergency medical services personnel in the event of a crash and transmit the vehicle location (Williams, 2002). Some systems can also transmit details about crash type or severity, giving emergency personnel a general idea of the type of injuries they will encounter (Champion et al., 2003). Although these systems are not intended to facilitate mobility, they can aid in saving lives by getting emergency personnel to crash scenes more quickly. Several studies have demonstrated the safety benefits and efficacy of ACN systems (Berryman, 2004; Clark & Cushing, 2002; Kianianthra, Carter, & Preziotti, 2000; Ram, Talmor, & Brasel, 2005). No research has directly considered the safety benefits of ACN systems for older drivers, but these systems would undoubtedly be useful for this age group. One concern, however, is that the crash severity and potential injury severity information sent to emergency personnel may not take into account the increased frailty of older adults.

Roadway and Infrastructure Design

It has long been recognized that our roadways have not been designed, in general, with the older road user in mind. Many organizations have recognized that improvements to the roadway and infrastructure that better accommodate the common functional declines associated with aging are needed. A strong proponent of this view is the US Federal Highway Administration (FHWA). FHWA began an initiative about 15 years ago that resulted in the publication of the *Older Driver Highway Design Handbook* (Staplin, Lococo, & Byington, 1998). Included in the handbook are recommendations for geometrics, signing, and pavement markings in four major areas of roadway design – intersections, interchanges, roadway curvature and passing zones, and construction/work zones. A revised version of this booklet called the *Highway Design Handbook for Older Drivers and Pedestrians* was published a few years later (Staplin, Lococo, Byington, & Harkey, 2001). The FHWA website (http://safety.fhwa.dot.gov/older_users/) states that another revised version of the handbook will be available sometime in 2011.

The FHWA has developed a 1-day classroom training workshop to review the numerous guidelines and recommendations contained in the *Highway Design Handbook for Older Drivers and Pedestrians*. According to the FHWA (2010), the workshop interactively discusses functional declines associated with aging and how modifications to the roadway system can make it easier for both older adults, and all people, to drive. The training program has not been formally evaluated.

Along these same lines, AARP has been addressing the FHWA handbook from the perspective of city/urban planning. Recently, Lynott and Taylor (2009) discussed research on AARP's ongoing efforts to encourage states to implement the FHWA's roadway engineering guidelines for older drivers and pedestrians. The paper reported on a series of activities to consider the FHWA guidelines from the perspective of the planning concept known as "complete streets." According to the paper, complete streets are those that are designed for the safety and comfort of all road users, regardless of age or ability. Thus, pedal cyclists, pedestrians, wheelchair users and motor vehicle occupants are all considered users of the roadway. The project sought to determine whether the FHWA guidelines for

older drivers work and whether they hinder other roadway users. The study involved a literature review, a telephone questionnaire, an on-line questionnaire, a summit of national leaders, and a webinar. Among other results, the study found the following strengths of the FHWA handbook guidelines: the handbook presents low-cost solutions backed by empirical data, it provides a process for prioritization of efforts, and most of the handbook recommendations satisfy the complete streets paradigm. The study also reported the following weaknesses: although the recommendations are based on empirical data, these data are for older drivers and not for other road users; the handbook does not challenge current highway design practice of designing roadways for drivers of personal vehicles at the expense of other roadway users; there are few recommendations based on different land uses; the effects of speed on various proposed roadway treatments are not addressed; and the handbook contains contradictory statements. Michigan enacted complete streets legislation August 1, 2010 and became the 14th state to do so. This legislation will help the state and local communities build roads and pathways that are safer and more accessible for all types of road users.

A number of other recent studies have addressed the effectiveness and feasibility of roadway infrastructure and design changes in relation to older adult safety and mobility. Eby et al. (2008b) has reviewed many of these studies and provided the following general conclusions:

- Collectively, improvements in roadway design can serve to make the roadway more forgiving not only to older drivers, but also to the general population of drivers on the road. In addition, design improvements at intersections can benefit older pedestrians who are considerably more likely than younger pedestrians to be killed by automobiles.
- Even with good legibility, drivers of all ages sometimes do not understand what the words used on signs mean. Educational efforts are needed to improve sign comprehension among older drivers.
- Even when pavement markings are conspicuous and legible, research has found that pavement markings are difficult for many people to understand. Public information and education programs need to be developed to improve pavement marking comprehension.
- Comprehension of signals other than the familiar three-light traffic control device is often poor. Signal comprehension should be addressed in educational programs for older drivers.
- The intersections of roadways are more dangerous for older drivers than for drivers younger than age 65.
- Research needs to be done on countermeasures intended to help reduce the risk of intersection crashes including: advanced vehicle technology (such as collision avoidance systems); education and training programs; and intersection modifications, such as the more frequent use of roundabouts.
- Roundabouts can reduce the total number of injury crashes by up to 50% and fatal crashes by up to 70%. These safety benefits were found for drivers of all ages.
- Research should address the lack of familiarity of US drivers with roundabout design and signage.
- Educational and training programs should be developed to help traffic engineers better understand how roadways and infrastructure can be modified to help older drivers use the roadway system.

Michigan Transportation Services and Programs

This section provides an overview of various types of transportation services and programs in Michigan that serve older adults, including information on specific services and programs in the state. To the extent possible, program information is presented by MDOT region. There are six MDOT regions in Michigan. Region 1 – Bay contains Arenac, Bay, Clare, Genesee, Gladwin, Gratiot, Huron, Isabella,

Lapeer, Midland, Saginaw, Sanilac, and Tuscola Counties. Region 2 – Grand contains Ionia, Kent, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, and Ottawa Counties. Region 3 – Metro contains Macomb, Oakland, St. Clair, and Wayne Counties. Region 4 – North contains Alcona, Alpena, Antrim, Benzie, Charlevoix, Cheboygan, Crawford, Emmet, Grand Traverse, Iosco, Lake, Leelanau, Manistee, Mason, Missaukee, Montmorency, Ogemaw, Osceola, Oscoda, Otsego, Presque Isle, and Wexford Counties. Region 5 – Southwest contains Allegan, Barry, Berrien, Branch, Calhoun, Cass, Kalamazoo, St. Joseph, and Van Buren Counties. Region 6 – Superior contains Alger, Baraga, Chippewa, Delta, Dickenson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft Counties. Region 7 – University contains Clinton, Eaton, Hillsdale, Ingham, Jackson, Lenawee, Livingston, Monroe, Shiawassee, and Washtenaw Counties.

A recent analysis of transportation services for older adults in Michigan (Michigan Office of Services to the Aging, 2005) concluded that Michigan has an extensive transportation network for older adults, with every county having form of older adult transportation service. At the same time, the report concluded that gaps in and barriers to services remain, largely due to lack of funding, particularly in some rural areas, as well as lack of coordination among transportation providers. Included in the analysis were over 465 agencies providing transportation to Michigan residents, with many serving primarily older adults. Several agency types were represented including public transit and paratransit providers. These are discussed more fully below. Because the focus of this literature review is on older adults, transportation services that primarily serve younger populations, such as vanpool or transportation to work programs, are not included in this section. Information about these types of services can be found on the MDOT website (e.g., see http://www.michigan.gov/mdot/0,1607,7-151-11056_11266---,00.html).

Public Transit

Public transit falls under the umbrella of public transportation which refers to any transportation service provided using public funds. Traditional public transit typically operates on a schedule with predetermined stops along a specified route, and can include buses, subways, light-rail, or commuter rail (Suen & Sen, 2004). Fixed route bus service is characterized by printed schedules or timetables, designated bus stops where passengers board and alight, and the use of larger vehicles (Alan M. Voorhees Transportation Center, 2005). As described by the Michigan Office of Services to the Aging (2005), strengths of public transit include its use for various kinds of trips, relative low cost, and required linking to complementary paratransit, thereby increasing access. Barriers to use include lack of convenience (e.g., waiting time, longer travel time than car), limited to curb to curb, lack of familiarity, fear of public transit, and lack of availability in all areas, especially rural areas.

While use of public transit has traditionally been low, numerous efforts have been undertaken at the federal, state, and local levels to identify barriers to use and make public transit more “senior friendly” – that is, available, affordable, accessible, acceptable, and adaptable (Beverly Foundation, 2010). Older adults are more likely to use public transit if a bus stop exists within 5 blocks of where they live (Kim & Ulfarsson, 2004). The farther the bus stop is, the more difficult it becomes for older adults to reach it, not only because of difficulty walking, but also inadequate sidewalks, poor lighting, and lack of rest areas (Ritter, Straight, & Evans, 2002). More bus stops, with adequate lighting and rest areas along the way, or using shuttle vans in areas with many older adults, could lead to increased use (Peck, 2010). However, even if numerous bus stops exist within reasonable distances, older adults are often unfamiliar with how to use public transit and therefore do not ride. Clear, accessible information on

public transit riding, fares, routes, and schedules appears to be an important part of attracting riders. Providing older adults with information about transit before they stop driving and offering travel training are two approaches that may help increase use of public transit (Cevallos, Skinner, Joslin, & Ivy, 2010). In fact, some studies have found that public transit use did increase among older adults after they had received such training (Shaheen, Allen, & Liu, 2009; Stepaniuk, Tuokko, McGee, Garrett, & Benner, 2008).

Michigan has a total of 79 Public Transit agencies operating throughout the state. Of these, 20 are considered urbanized public transit agencies and the remaining 59 are non-urbanized public transit agencies. These public transit agencies represent the “backbone” of the transportation network for older adults, accounting for almost three-quarters of the trips taken by this segment of the population (Michigan Office of Services to the Aging, 2005). Information about each of the 79 agencies is contained in Appendix A. For each agency, a brief overview of the system is provided, along with system characteristics (population served, number of employees, number of total vehicles and lift-equipped vehicles, days and hours of operation), and a summary of fiscal year 2009 system data (miles, vehicle hours, passengers, total eligible expenses). All data are from the Michigan Department of Transportation (see http://www.michigan.gov/mdot/0,1607,7-151-9625_21607-31837--,00.html). For further descriptions of Michigan’s public transit agencies, as well as discussion of transportation coordination in the state, see MDOT’s State Long Range Transportation Plan 2005-2030 (MDOT, 2006).

Paratransit

Paratransit means “alongside transit” and includes all public and private mass transportation between private auto and conventional transit (Suen & Sen, 2004). Paratransit typically refers to demand response transportation services (i.e., modes of transportation that pick up at the door and delivery to the destination, usually upon request), but also includes subscription bus services, shared-ride taxis, and car pooling and van pooling (Alan M. Voorhees Transportation Center, 2005). Paratransit is characterized by flexible routing and the use of relatively small vehicles that provide door-through-door, door-to-door, curb-to-curb or point-to-point transportation (Bruff & Evans, 1999). It is more flexible than conventional fixed-route services but more structured than the use of personal automobiles, with individuals requesting services between certain locations at a certain time, usually requiring a reservation.

Paratransit includes two general categories of services: Americans with Disabilities Act (ADA) complementary paratransit and all other demand responsive services. With regard to the first category, public transportation agencies are required by the ADA to provide paratransit services for individuals of all ages who cannot reach or use fixed-route buses because of a functional impairment (Bailey, 2004). Public transportation agencies can also contract with taxis to provide complementary paratransit to accommodate people with disabilities and in some cases, specialized transit services are available to provide door-to-door transportation in the form of vans operated by human service and nonprofit agencies.

The second group of paratransit services encompasses a variety of demand response services, including what are often referred to as supplemental transportation services (STPs; a term coined by the Beverly Foundation, 2001), as well as specialized transit. STPs are community-based transportation programs organized to meet the specialized mobility needs of older adults through trip chaining, transportation escorts, door-through-door service, and other means of personal support. They are intended to complement or supplement existing transportation services, by reaching out to older adults with special

community mobility needs. Information has been collected on over 1,300 such programs since 2000 through an annual survey conducted by the Beverly Foundation (2010). These programs vary considerably in terms of where they are located, how they are organized, ridership, trip purpose, use of escorts, type of vehicle, rider fees, drivers, and funding. However, survey findings indicate that the majority operate in either rural areas or a mix of rural/urban, are non-profit, operate door-to-door service for older adults or individuals with disabilities, are used for medical purposes, operate during the daytime, employ paid and volunteer drivers, require either same day or 24 hour notice, and are funded through grants or fees/donations from riders. Common among STPs are volunteer ride programs that use private cars and other vehicles and are operated by private resources or volunteer drivers (Winter Park Health Foundation, 2006). Such programs may also be more affordable than public transportation, although they tend to have restricted hours and requirements for advanced scheduling. Specialized transit programs are those operated by health and human services providers such as hospitals, senior centers, nursing homes, and adult day services for clients, patients, or customers.

One limitation of many STPs and specialized transportation programs is that trips are limited to medical appointments. One study found that 45% of STPs in the US only provide rides for medical appointments (The Beverly Foundation, 2001). Trips for medical reasons are clearly important and older adults are more likely than younger adults to take such trips. At the same time, older adults actually take more trips for shopping, social/recreation, personal business, and family reasons (Benekohal, Michaels, Shim, & Resende, 1994; Colli et al., 2003; Foster, 1995). While many transportation programs recognize that longer hours, a larger service area, more and better-accessible vehicles, better compensation for drivers, and more staff members (e.g. marketing specialists) could increase the effectiveness of their programs (The Beverly Foundation, 2001), funding is always a challenge. One promising program that has been replicated in several communities around the US is the Independent Transportation Network (ITN), which provides door-to-door transportation by employing both paid and volunteer drivers using their own vehicles to transport older adults 24 hours a day, 7 days a week (Eby, Molnar, & Kartje, 2009).

Paratransit in Michigan is funded, in part, through several federal initiatives under the Safe, Accountable, Flexible Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005. Two federal programs are of note with regard to older adults: Elderly and Persons with Disabilities Program (Section 5310) and the New Freedom Program (Section 5317). As described by MDOT, Section 5310 provides funds to meet the special transportation needs of older adults and people with disabilities. Funds are apportioned to the states annually by a formula based on the number of elderly persons and persons with disabilities in each state. Projects are funded at up to 80% of net project costs. Eligible recipients include private nonprofit agencies, public bodies approved by the state to coordinate services for older adults and people with disabilities, or public bodies that certify to the state that no nonprofit agencies are available in an area to provide the service. Section 5317 funds are intended to encourage services and facility improvements to address the transportation needs of individuals with disabilities that go beyond those required by ADA. This program provides a new formula grant program for associated capital and operating costs. A list of FY 2011 Section 5317 recipient agencies is contained in Appendix B.

Among the state programs funding passenger transportation, a few have a special focus on older adults and the disabled. MDOT funds the Specialized Services Program which provides operating assistance to private, nonprofit agencies, and public agencies providing transportation services primarily to older adults and people with disabilities. Guidelines for operating assistance stipulate that funds are to be used for operating assistance, including purchase of service and vehicle leases (see http://www.michigan.gov/documents/special_18094_7.pdf). As described by MDOT, the amount of operating assistance is subject to the level of need, the level of local coordination and commitment,

funding availability, and legislative appropriation for specialized services. Capital assistance is funded with state and federal funds through the Federal Transit Administration (FTA) Section 5310 program. For applications to be considered for the FTA 5310 program, coordination/consolidation of existing transportation services must be thoroughly addressed. Any vehicle being requested under this program must also be included in the coordination plan for the county or multi-county region. Agencies within an urbanized Metropolitan Planning Organization's (MPO) geographic area must include these requests in the MPO's Transportation Improvement Program (TIP). Nonurban projects must be placed in the statewide TIP by MDOT. Specialized service providers in the state include not only local transit agencies (whose primary mission is transportation) but also social service agencies who offer a broad array of services such as rehabilitation, vocational training, and housing services (MDOT, 2006). Although 40 specialized transportation providers currently receive funding directly from MDOT, up to 100 additional agencies receive funding as subcontractors to one of these directly funded agencies. A list of FY 2010 Section 5310 recipient agencies is contained in Appendix B.

Information about paratransit services available through public transit agencies is contained in Appendix A, referenced in the above section. Information on selected supplemental transportation programs and specialized transit is presented in Appendix C. For each program or service, a brief description is provided, as well as the source or sources from which the information was compiled. The programs/services in Appendix C are not intended to be an exhaustive list of all such programs in the state. There are estimated to be close to 400 such programs in Michigan (not including the public transit agencies) and it is beyond the scope of this literature review to catalog each one. Many of the programs highlighted in the table are those that have been recognized by the Beverly Foundation or that have responded to one of their surveys of supplemental transportation programs (see e.g., Beverly Foundation, 2010). Only those programs that are still in operation and for which information on transportation services is available have been included. As a complement to Appendix C, the reader is referred to the document Michigan's Senior Transportation Network: An Analysis of Transportation Services for Older Adults in Michigan (Michigan Offices of Services to the Aging, 2005), a more comprehensive inventory of transportation programs in the state. Finally, a list of those specialized transportation services funded specifically through MDOT for FY 2011 is contained in Appendix B.

Voucher Programs

One type of program that can cut across public and paratransit services is a transportation voucher program in which vouchers are given out for one or more transportation options (ranging from formal to informal services). Most voucher programs in the US can be found in rural areas. Pilot transportation voucher programs have been undertaken in several areas of Michigan. A transportation voucher program was piloted in eight counties in Michigan (Antrim, Baraga, Jackson, Kalkaska, Muskegon, Newaygo, Shiawassee, and Wayne) between 2005 and 2008, with support from the Michigan Developmental Disabilities Council. An important outcome of the pilot was an implementation guide, including a toolkit for other communities (for links to these documents, see <http://www.ucpmichigan.org/our-programs/public-transportation-advocacy/other-transportation-projects/creating-a-transportation-voucher-system>). The biggest challenge for each participating county has been finding financial support to sustain their program. A voucher program was also piloted in Washtenaw County through the Robert Wood Johnson Foundation, with a 2008 evaluation calling for further expansion of the program to rural parts of the county.

Private Transit

Private transit services such as taxis are also available in many communities (Beverly Foundation, 2001). When used as private transit, taxis can either be booked by telephone or hailed on the street, with the capacity to carry multiple passengers (Suen & Sen, 2004). Taxi and limousine companies offer rides directly to the public. Companies often contract with public transit-paratransit operators and other community organizations to offer regularly scheduled rides.

The private transportation of passengers for compensation of any type is a regulated industry in Michigan and a license is required. As described by MDOT, the department regulates the commercial business activities of private motor common carriers of passengers for compensation pursuant to *Act 432 of 1982 (the Motor Bus Transportation Act)*, and *Act 271 of 1990, (the Limousine Transportation Act)*. The division issues Certificates of Authority (a business license) to carriers who meet legal safety and insurance requirements. Registered vehicles are issued a decal designating compliance with the law when they pass an annual safety inspection. Complaints of illegal operations/non-compliance are investigated and enforcement action taken as necessary. Certain fees, forms and reports are required. A list of currently authorized limousine carriers with vehicles that seat 9 or less can be found at: <http://mdotwas1.mdot.state.mi.us/public/licensedcarriers/carriers.cfm?type=L>. A limousine is defined by the state as any private vehicle, regardless of body style, that is used to transport 15 or fewer passengers, including the driver, in exchange for compensation of any kind. A list of currently authorized commercial bus carriers can be found at: <http://mdotwas1.mdot.state.mi.us/public/licensedcarriers/carriers.cfm?type=B>.

Walking and Bicycling

For older adults who are relatively physically fit, walking or bicycling may be viable means of getting around for local neighborhood travel, as well as a means of maintaining physical and functional health. However, the frequency of walking among older adults in the US is quite low – in one study, only 6% of adults age 65 and older made trips by foot, compared to about half of adults age 75 and older in Holland and Germany (Pucher & Dijstra, 2003). Bicycling is even more limited among older Americans and little has been done in the US to address the need for a safe infrastructure for either walking or bicycling, including sidewalks, road crossings, and traffic signals for pedestrians, and bicycle lanes and road crossings for bicyclists. Without attention to these infrastructure issues, walking and bicycling will continue to hold risk for the older adult population, given their growing numbers in the population and their susceptibility to injury. Making communities bicycle friendly – that is, providing safe accommodation for cyclists and encouraging residents to bike for transportation and recreation – involves concerted efforts in a number of areas including engineering, education, encouragement, enforcement, and evaluation and planning (League of American Bicyclists, 2010).

One initiative intended to promote biking in communities is the designation of communities as bicycle friendly by the League of American Bicyclists. A bicycle friendly community is considered to be one that welcomes cyclists by providing safe accommodation for cyclists and encourages people to bike for transportation and recreation (League of American Bicyclists, 2010). Current bicycle friendly communities in Michigan (and their designation as platinum, gold, silver, or bronze award winners) include Ann Arbor (silver), and Houghton, Lansing, Marquette, Portage, and Traverse City (all bronze).

Another major initiative with implications for making communities more pedestrian and bike friendly is Complete Streets (see <http://www.completestreets.org/>). Complete Streets legislation (Public Acts 134 and 135) was signed into law in Michigan on August 1, 2010, with complete streets defined as roadways planned, designed, and constructed to provide appropriate access to all legal users in a manner that

promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle (http://www.michigan.gov/mdot/0,1607,7-151-9623_31969_57564---,00.html). According to supporters, the legislation will encourage communities to include a plan for pedestrians and bicyclists when renovating streets. As required by the legislation, a Complete Streets Advisory Council has been set up, comprised of representatives from 18 statewide government and non-government stakeholder agencies, overseen by MDOT, to provide guidance on the development, implementation, and coordination of Complete Streets policies throughout the state. Prior to passage of the statewide legislation, several Michigan communities, including Lansing, Flint, Jackson, and Midland, had adopted local resolutions/ordinances or non-motorized transportation plans.

Powered Wheelchairs, Scooters, Golf Carts, and Neighborhood Electric Vehicles (NEVs)

One option that has gained in popularity among individuals who find walking or bicycling difficult or undesirable is the use of small motorized vehicles such as powered wheelchairs, scooters, and golf carts. Powered wheel chairs are about the size of manual wheelchairs, they operate at 2-3 mph and have a range of a few miles. Scooters are small three or four wheeled vehicles somewhat larger than power wheelchairs and normally operate up to 4 mph, with range of 10-20 miles. Golf carts are generally restricted to bike paths or dedicated lanes on sidewalk because they are not compatible with traffic on normal roads. Unfortunately, the safety of these forms of transportation is a concern (Whelan et al., 2006).

Transportation Coordination

Central to successful efforts to provide older adults with a broad array of transportation options is the coordination of transportation services and programs among federal, state, and local agencies. To that end, it is vital that individual transportation services and programs within communities and regions be viewed as part of a system (Eby, Molnar, & Kartje, 2009). In addition, it is important to understand where there might be gaps and where there might be opportunities for improved coordination and collaboration. Communities, working in concert with state and federal agencies, can then work toward ensuring that a “family of services” is available to members of the community, with particular attention to meeting the transportation needs of more vulnerable members such as older adults and people with disabilities. Strategies that have been found to be effective in promoting and facilitating transportation coordination include: establishing broad-based coalitions and partnerships; coordinating planning through ongoing relationships with planning and development agencies; leveraging funding from a variety of sources; paying careful attention to the specific objectives and regulations of federal transportation programs, given that much of the funding originates with federal programs aimed at unique needs of individual populations; and integrating new technologies into operations to improve efficiency and responsiveness to users (US Department of Health and Human Services, 2005).

Caregiving

About 35 million Americans were age 65 and older in 2000 (12% of the total population). Over the next 40 years, there will be a dramatic increase in the average age of the older population. For example, 4.2 million persons were age 85 and older in 2000, and further declines in mortality could lead to a five-fold increase in the number by 2040. This could have a significant impact on health and long-term care because the use of formal and informal services is strongly correlated with age (White House Conference on Aging, 2005).

In the US, it is estimated that 43.5 million adults provide unpaid care to someone age 50 or older, with 36 million providing care for those age 65 and older (National Alliance for Caregiving (NAC) and AARP, 2009a). While this care is unpaid, its value has been estimated at \$350 billion annually (Houser & Gibson, 2007). Caregivers¹ provide daily or episodic support, and assist with activities of daily living (ADLs) such as bathing, dressing, and eating. Caregivers also assist with instrumental activities of daily living (IADLs) such as banking, shopping, and managing medications. A study performed by the NAC and AARP (2009a) found on average caregivers assist with two ADLs and four IADLs. There has been a slight increase in the proportion of caregivers of those age 50 and older who provide assistance with any IADL (98% in 1997 to 100% in 2009). The most frequently reported IADL performed is providing transportation, such as driving or coordinating transportation for a care receiver (84%). The proportion of caregivers assisting with transportation has increased from 79% in 1997 to the current rate of 84% (NAC & AARP, 2009a).

Research suggests that society is not equipped to provide good community mobility options for those who need them (Dickerson, et al., 2007). Accessible public transportation does not exist in all areas of the country, and is often not geared toward the needs of older adults. Where these systems are available, they are not designed to carry people to residential areas, places of worship, or medical facilities, essentially, places commonly visited by older adults. More than half of all non-drivers age 65 and over stay at home on a given day because of limited or complete lack of transportation options (Bailey, 2004). Older adults living in rural areas face special transportation challenges because of the limited public and paratransit services available, and the long distances they must often travel to reach health and social services or participate in social and other enrichment activities. Greater geographic dispersion of rural areas creates greater transportation needs. Due to the lack of access to transportation in rural areas, caregivers tend to be the primary driver for many older people living in such areas. In addition, older adults living in rural areas may be more vulnerable than their urban or suburban counterparts – they are more likely to be older (age 85 and older), poorer, and in worse health than in those in urban and suburban areas (Molnar, Eby, St. Louis, & Neumeyer, 2007).

In the absence of other options, providing transportation to older adults often becomes the responsibility of a caregiver. Indeed, one third of older adults who do not drive rely on family and friends for their transportation while others rely on public and volunteer transportation options to maintain mobility and independence (Administration on Aging, 2004). Caregivers provide transportation to a variety of places, including medical appointments, shopping, social activities, and religious services. For many caregivers, providing transportation works out to be the most trustworthy and cost-effective solution to meeting the transportation needs of their care receiver. For others, providing adequate transportation to the care receiver is a very challenging task. Problems with transportation are among the most troublesome issues for caregivers, and challenges are even greater when the care receiver has mobility problems. The difficulties encountered with providing transportation to someone with limited mobility, such as handling a wheelchair or other assistive device and physically helping the care receiver into and out of the vehicle, may cause some family caregivers to stop transporting their care receiver or only transport them for the most essential appointments which can have a negative effect on the general well-being of the care receiver.

¹ In this report, *caregiving* denotes care that is provided by a family member or friend rather than by a professional who is reimbursed for services.

The NAC and AARP (2009a) report that caregivers have increased their use of outside transportation services for the person they help, from 17% in 2004 to 30% in 2009. The use of outside transportation services helps to provide the care receiver with more options and flexibility when scheduling a trip, as well as to ease the burden of primary transportation responsibility for the caregiver. This help may come in many forms including: paratransit (demand response services including ADA transit services); specialized transit services (e.g., those operated by health and human service providers); and supplemental transportation programs (e.g., operated by private sector transit services, community groups, and volunteer groups).

Caregiver and Care Receiver Demographics

Michigan has an estimated 1.3 million caregivers (Friss-Feinberg, Newman, Gray, Kolb, & Fox-Grage, 2004). Caregivers in Michigan provide approximately 1.4 billion hours of their time to meet the needs of relatives or friends who are unable to meet these needs themselves. This commitment results in \$13.4 billion in economic value. While caregivers are a diverse and ever-changing group, the following discussion provides an overview of the demographics of caregivers that give assistance to someone over age 50, as well as demographic information regarding care receivers. The following statistics are based on the most recent survey of caregivers conducted by the National Alliance for Caregiving and AARP (2009a). In addition to the overall statistics, there have been several differences found within various racial subgroups and these findings will also be mentioned. For a closer look at the differences in caregiving by race and ethnicity, see NAC and AARP (2009b).

Gender and Race

In the US, caregivers who provide assistance to someone over age 50 are predominately White (76%), while 1 in 10 is African-American, 1 in 10 is Hispanic, and 2% are Asian-American. The majority of both caregivers and care receivers are female (67% and 68%, respectively), however, Asian-American caregivers are almost equally likely to be men or women.

Marital Status and Living Arrangements

Fifty-nine percent of caregivers and 30% of care receivers are married, and nearly half of all care receivers are widowed. Care receivers most often live in their own household (58%) and nearly half live alone. One in 5 reports living in the caregiver's household and approximately one-half of caregivers live within 20 minutes of the care receiver's home. As caregiver age increases, it is more likely that the caregiver and care receiver live in the same household.

Education and Income

An overwhelming 95% of caregivers in this study have attained at least a high school diploma. Furthermore, over a quarter of caregivers have graduated from college (26%), and 20% have attended graduate school. Asian-Americans are more likely to be college graduates than other caregiving subgroups. Just over half of all caregivers providing care to someone age 50 or older have an annual household income above \$50,000 (55%). However, African-American and Hispanic caregivers are more likely to have an annual household income less than \$50,000 (59% and 56%, respectively), while Asian-American caregivers have a relatively high annual income. Approximately three-fourths of caregivers continue to work at a paying job while also caregiving. Younger caregivers (between ages 18 and 49) are more likely to have worked while caregiving compared to caregivers over the age of 50. Also, caregivers

with an annual income above \$50,000 are more likely to have worked while caregiving than those with an annual income below \$50,000.

Caregiver/Care Receiver Relationship

Caregiving is primarily a family issue, with nearly 90% of caregivers providing care to a relative. Overall, 70% of caregivers provide care to one person over the age of 50, and most often provide care to their mother (36%). The relative that provides care is most often one that has the closest relationship to the care receiver, and those who are more closely related to the care receiver provide greater amounts of care, as measured by the types of assistance provided, the time spent performing care tasks, and the length of time they are willing to persist in the caregiving role. Therefore, spouses tend to provide the most care to their partner (Montgomery, Rowe, & Kosloski, 2007). In the absence of a spouse, a daughter is most likely to assume the role. In fact, daughters are twice as likely as sons to become the primary caregiver (Campbell & Martin-Matthews, 2003). It has also been found that daughters are much more likely than sons to care for a parent when the parent's functional level declines to a level that requires assistance with ADLs (Brody, Litvin, Hoffman, & Kleban, 1995). Therefore, female caregivers provide more hours of care and provide a higher level of care than males.

Age

The average age of caregivers and care receivers has increased throughout the last 7 years. The current average ages of caregivers and care receivers are 50 and 77 years old, respectively, compared to 48 and 75 years in 2004. Furthermore, the proportion of caregivers between the ages of 50 and 64 has increased by 12% since 2004, while the proportion of caregivers between the ages of 18 and 49 has decreased. Given the increase in age for care receivers, it naturally follows that the proportion of respondents listing Alzheimer's disease or dementia as the main reason their care receiver needs care is rising (22% in 1997 vs. 30% in 2009). In fact, the general processes of aging and Alzheimer's disease/dementia are the two main reasons caregivers assist their care receivers.

Caregiver Health

Caregivers tend to describe their health as excellent or very good (59%), and three-fourths believe their caregiving role has not affected their health. However, 16% of caregivers describe their health as fair or poor, and the same proportion believes that fulfilling their caregiving role has made their health worse. While it is encouraging to note that the majority of caregivers in this study reported positively on their health, studies have shown that caregiving has the potential to negatively affect not only the health of a caregiver, but also several other domains of the caregiver's life (see e.g., Montgomery, Rowe, & Kosloski, 2007).

Caregiver Level of Burden

Caregiver burden has been defined as "a multidimensional response to physical, psychological, emotional, social, and financial stressors associated with the caregiving experience" (Kasuya, Polgar-Bailey, & Takeuchi, 2000). Caregiving has the potential to impact the health, work, family relationships, and finances of the caregiver. There is a wide variety and level of intensity of care given which results in a differential impact on each individual. Both societal and individual differences can have an effect on caregiver burden. For example, the effects on the caregiver's health are moderated by individual

differences in resources and vulnerabilities, such as socioeconomic status, prior health status, and level of social support. Older caregivers, people of low socioeconomic status (SES), and those with limited support networks report poorer psychological and physical health than caregivers who are younger and have more economic and interpersonal resources (Schulz & Sherwood, 2008). It has also been found that caregivers with higher SES face fewer stressors not specific to caregiving and have better access to the health care system (Brodaty, Thomson, Thompson, & Fine, 2005); therefore they have better overall health.

The NAC and AARP (2009a) found that more than half of caregivers have a medium to high level of burden. This is correlated with the age of the caregiver as well as their health status. This study also found over 50% of caregivers rated their emotional stress level as moderate to high. Those more likely to rate their emotional stress level as high are: females, those in poorer health, those that live with their care receiver, and those who care for someone with Alzheimer's disease (NAC & AARP, 2009). In addition to a higher stress level for those caring for an individual with dementia, evidence suggests that higher levels of depression are also associated with caregivers assisting individuals with dementia. Studies have shown that about 30% of dementia caregivers suffer from depression, and more than 40% report high levels of emotional stress as a result of caregiving (Covinsky et al., 2003). The Alzheimer's Association (2006) reports that more than 80% of Alzheimer's disease caregivers frequently experience high levels of stress and almost half report that they suffer from depression.

Existing research suggests that the physical health of the caregiver is compromised when caregivers are psychologically distressed (Pinquart & Sörensen, 2007). Caregivers with increased caregiving responsibilities face greater levels of caregiver stress, which may place their physical health at risk. Researchers have documented several adverse health outcomes related to caregiving, including elevated blood pressure, impaired immune systems, and potential increased risk for cardiovascular disease (Lee, Colditz, Berkman, & Kawachi, 2003). Given these findings, it is not surprising that older spouse caregivers who experienced caregiver-related stress have higher mortality rates than non-caregivers of the same age (Schulz & Beach, 1999). Caregiver burden is also associated with illness and decreased quality of life (Schulz, Boerner, Shear, Zhang, & Gitlin, 2006). Differences in health outcomes between ethnic subgroups have also been identified. Pinquart and Sörensen (2005) found that ethnic minority caregivers have poorer physical health than do White caregivers.

Caregiving can be especially burdensome if the caregiver feels that he or she had no choice in taking on the caregiving role (NAC & AARP, 2009a,b). Caregiving is often a shared responsibility, but is rarely shared equally. Among caregivers who say another unpaid caregiver provided help in the last 12 months, only one in 10 say they split care equally (NAC & AARP, 2009a). Because of this, caregiving can be an especially time consuming activity for the primary caregiver. The burden of caregiving responsibilities has been shown to influence the quality of the relationship between caregivers and care receivers, caregiver health, and the decision to institutionalize the care receiver (Pinquart & Sörensen, 2007). About half of all caregivers say that as a result of caregiving, they have less time for friends or other family members (NAC & AARP, 2009a). The amount of time devoted to caregiving activities varies greatly. The NAC and AARP (2009a) found that 48% of caregivers provide 8 hours or less of care per week, but 10% provide more than 40 hours of care per week. On average, caregivers provide 19 hours of care per week, however, older caregivers (65 and older) report spending an average of 31 hours per week caregiving, increasing to 43 hours per week if the care receiver lives with the caregiver. Further research indicates that the amount of time spent providing care increases substantially for older adults with varying degrees of cognitive impairment. Individuals age 70 and older with no dementia received 4.6 hours of care per week, compared with 13.1 hours per week for those with mild dementia, 22.0

hours per week for those with moderate dementia, and 46.1 hours per week for those with severe dementia (Langa et al., 2001). While caregiving is a very fluid role in which people move into and out of over time, the average length of caregiving is approximately 4 years.

Financial Impact

Although the majority of caregivers report low financial hardship resulting from caregiving, 43% report at least some hardship and 10% report high levels of hardship (NAC and AARP, 2009a). Caregivers more likely to experience financial hardship from caregiving are similar to those who experience physical strain and emotional stress. These subgroups are based on caregivers' health, income, perceived choice of caregiving, level of burden, and living with the care recipient (NAC & AARP, 2009a).

As previously discussed, approximately three-fourths of caregivers have worked while caregiving. Although there has not been an increase in the proportion of those who say they have worked while caregiving, there has been an increase in the proportion who say they have had to make a workplace accommodation due to caregiving. According to NAC and AARP (2009a), 64% of caregivers report going into work late, leaving early, or taking time off to meet the needs of their care receiver. MetLife Mature Market Institute (2006) has estimated that the costs of lost productivity in the US due to caregiver accommodations are \$17.1 billion annually. Additionally, caregivers that have to take time out of the work force to care for a family member may lose wages and fail to accrue savings and benefits, which may place them at economic risk over their lifetimes. The MetLife Mature Market Institute (1999) found that as a result of caregiving, caregivers lost a lifetime estimated average of \$566,433 in pre-taxable wage wealth, \$25,494 in Social Security wealth and \$67,202 in pension wealth. Combined, the result is a loss in total pre-taxable wealth of approximately \$659,000 per person over a lifetime.

A recent case study of a large corporate US employer (Albert, Schulz, & Colombi, 2010) found that employees providing care for others reported poorer physical and mental health than employees not providing care. The study estimated that health care costs for those employees providing care was about 8% higher than for those not providing care. The researchers extrapolated these data to the general US business sector and estimated that unpaid caregiving costs employers about \$13 billion annually.

Programs to Assist Caregivers

As a result of increases in life expectancy, as well as the aging of the baby boomer generation, demand for family caregiving to the older population is likely to increase. Most older individuals prefer to remain in their own homes and live in the community for as long as possible. This can be a benefit in terms of the costs saved by delaying institutionalization of an older adult. The growing demand for care provided in the home has focused the attention of federal and state governments on efforts to expand programs that provide services and supports to family caregivers.

The federal government has established programs and initiatives that provide direct supports to caregivers, such as respite care, education and training, tax relief, and cash assistance. These benefits are targeted at family caregivers to reduce stress and financial hardship, and to improve caregiving skills. Other federal programs and initiatives provide home- and community-based long-term care services and supports to the care receiver. These programs can indirectly benefit caregivers in relieving caregiver burden by either supplementing the informal care they are providing or substituting with paid support (Administration on Aging, 2010). A national survey found that caregivers tend to support the following

caregiving-related policies: a tax credit of \$3,000, respite services, a voucher program which pays them a minimum wage to be a caregiver, and transportation services (NAC & AARP, 2009a).

The Michigan Office of Services to the Aging (OSA) is the state agency with primary responsibility for administering federal and state programs for Michigan's 1.8 million older adults. Along with the Michigan Commission on Services to the Aging, OSA oversees a network of 16 Area Agencies on Aging (AAAs) that partner with 1,150 service providers across the state (Michigan Office of Services to the Aging, 2010). In 2009, \$96.4 million was spent providing services to older adults and caregivers in Michigan. About 41% came from the federal government, 30% from state government, and 29% from local sources. Caregivers were supported with 832,471 hours of respite care, adult day care, counseling, training, and support groups, and 61,373 home-delivered meals as a form of respite care (Michigan Office of Services to the Aging, 2010).

Studies have shown that programs that assist caregivers can reduce caregiver depression, anxiety, and stress and enable them to provide care longer, thereby avoiding or delaying the need for costly institutional care (Bookwala et al., 2004; Schulz et al., 2002). The following are examples of different types of programs, resources, and assistance available to caregivers and care receivers.

Older Americans Act

Congress passed the Older Americans Act (OAA) in 1965 in response to concern by policymakers about a lack of community social services for older adults. The OAA funds a number of programs and activities to support family caregivers of older individuals (age 60 and older) directly through information and referral services, respite, and caregiver training and support. The OAA also provides indirect services that can assist caregivers through the delivery of other home- and community-based services and supports (Administration on Aging, 2010).

National Family Caregiver Support Program

In 2000, the Administration on Aging established the National Family Caregiver Support Program (NFCSP). This program provides grants to states and territories, based on the proportion of population age 70 and over, to fund a variety of programs that assist informal caregivers in providing care to their care receivers (Administration on Aging, 2011). Types of services the NFCSP provides include: information to caregivers about available services, assistance to caregivers in gaining access to the services, individual counseling, organization of support groups, caregiver training, respite care, and supplemental services (Administration on Aging, 2011). These services work in conjunction with other state and community-based services to provide a coordinated set of supports.

Home and Community-based Care

Home and community-based care encompasses a range of preventive and supportive health and social services that are provided to older individuals so that they may remain independent in their own homes and communities. Some home and community-based services are funded by federal and state tax dollars. Many organizations also offer services on a private pay basis. Examples of home and community-based care are: transportation, homemaker services, adult day centers and senior center activities. Some of these services are detailed below. These services can assist caregivers indirectly by allowing them to continue working, and directly by providing brief respite from caregiver responsibilities or helping to alleviate caregiver burden. When compared to other states, Michigan spends much less on

home-based care. Michigan currently spends 80% of its Medicaid long term care dollars on institutional care, and only 20% on home-based care, even though most people prefer services at home (Alban, 2011).

Area Agencies on Aging

Area Agencies on Aging (AAAs) were established under the Older Americans Act in 1973 to respond to the needs of Americans 60 and over in every local community (National Association of Area Agencies on Aging, 2011). Funding for AAAs in Michigan comes from the Older Americans Act, the state Older Michiganians Act, and the Medicaid program. AAAs also receive \$1 million from local governments (Alban, 2010). AAAs provide assistance to older adults and caregivers in need of information and resources and provide a range of home and community-based care services that allow older adults to maintain their lifestyle outside of institutionalized care. While AAAs do not provide direct services, they are a link between service providers and older adults and caregivers. Examples of services include: home delivered meals, chore services, respite care for caregivers, legal assistance, transportation and much more. There are 16 AAAs in Michigan that serve Michigan's 83 counties. Most are private nonprofit organizations created by county and local governments, and most cover multi-county regions (Alban, 2010). See <http://www.mi-seniors.net/regionmap/> to identify local AAAs by county.

MI Choice

MI Choice is a statewide Medicaid program that enables eligible adults who meet income and asset criteria to receive Medicaid-covered services like those provided by nursing homes, and allows the individual to stay in their own home or another residential setting, thereby avoiding or postponing costly institutional placement. This program partners with family caregivers to offer assistance and decrease caregiver burden. MI Choice costs an average of \$48/day compared with an average nursing home cost of \$185/day (Alban, 2011). The reduction in cost can be very beneficial for the older adult and caregiver, as well as the state. In 2010, 11,000 adults in Michigan were able to remain in their own homes with assistance from MI Choice. MI Choice also specializes in transitioning individuals out of nursing homes and back into their homes and the community. Michigan is a national leader in nursing home transitions with more than 1,500 people transitioned out of a nursing home in 2010 (Alban, 2011). Approximately 70% of the residents that transition from the nursing home get services through MI Choice. Currently, 14 AAAs administer MI Choice.

Internet Resources

The internet provides a wealth of information about caregiving and allows access to resources that are available near the caregiver. There are also several websites (see e.g., www.caregiver.org, www.nfcacares.org, www.michigan.gov/miseniors) that help to educate and assist caregivers.

Eldercare Locator

The Eldercare Locator, a public service of the Administration on Aging, provides users with the information and resources that will help older adults live independently and safely in their homes and communities. This service links those who need assistance with state and local area agencies on aging and community-based organizations that serve older adults and their caregivers. The Eldercare Locator began telephone operation in 1991 and the website was launched in 2001 (Administration on Aging, 2010).

Respite Care

Respite care programs provide companionship, supervision, and/or assistance with ADLs for older adults in the absence of the primary caregiver. Respite care can be regularly scheduled or used as needed by the caregiver, and can take place within the home or within the community. Respite care programs are often offered through community agencies, home health companies and residential care facilities. Some facilities also offer overnight respite care. In-home respite care can include: homemaker services, home delivered meals, home health aides, and personal care services.

Adult Day Centers

Adult day centers are a form of respite care that takes place in the community. Adult day centers have planned programs of activities designed to promote well-being through social and health related services. Adult day centers can be public or private, non-profit or for-profit. Program participants in Michigan must: require regular supervision in order to live in their own home or the home of a relative, require a substitute caregiver while their regular caregiver is unavailable, and have difficulty, or be unable to perform without assistance, ADLs (Michigan Office of Services to the Aging, 2011). This service is for people who do not need full-time care but cannot be left alone for long periods of time. It also provides caregivers temporary relief from their caregiving role.

Support Groups

Structured and informal groups allow caregivers to meet others in similar situations. These groups are available in many communities to allow individuals facing similar problems to cope through the sharing of experiences, practical suggestions, and emotional support. Support groups are available in person, but if the caregiver has difficulty leaving the care receiver for extended periods of time, online communities, message boards and forums can also provide support. Many support groups also provide the option of placing the participants' care receiver in respite programs during the meeting time. Support groups can be general (family members or children of aging parents) or disease specific (e.g., Alzheimer's disease, diabetes).

Caregiver Training

Caregiver training programs are intended to provide assistance to caregivers in understanding and coping with a range of issues associated with caregiving. Training programs include educational programs pertaining to techniques for providing personal care services to care receiver. These programs help to ensure that the caregiver is properly trained to provide adequate care to their care receiver.

Other programs are available to educate caregivers on specific diseases affecting their care receiver and strategies to manage caregiving. One example is the Creating Confident Caregivers (CCC) Program, which is supported in part, by the Administration on Aging through its Alzheimer's Disease Demonstration Grants to states and is available in select counties throughout Michigan. This is an educational training program for family members who are caring for a person with a dementia related illness. The CCC training program helps to reduce caregiver stress by providing caregivers with tools and information to make the task of caregiving less burdensome and more rewarding. In this program, caregivers learn about the disease of dementia, how it impacts their care receiver, strategies to manage difficult behaviors, and how to manage their own well-being.

Transportation Assistance

Transportation services exist throughout Michigan but services and availability are dependent upon the community in which the care receiver lives. Transportation services allow older adults who can no longer or choose not to drive access to community services, health care providers, and shopping. Services are offered through any or all of the following modes of transport: demand-response, volunteer drivers, or public transit systems (Michigan Office of Services to the Aging, 2011).

Conclusions

One purpose of the literature review was to help support the development of two questionnaires that will be administered statewide in Michigan. One of these questionnaires will explore transportation and mobility issues of older Michigan residents and one will explore the issues of providing care and transportation assistance to older Michigan residents from the perspective of the caregiver. The review identified a number of individual, social, and environmental factors that impact transportation choices and patterns. The review made it clear that for both questionnaires we need to not only ask about transportation choices, preferences, and need, but also to explore motivations, resources, awareness, and other factors that may influence use of various community transportation options.

In addition, it is clear that caregivers play a critical role in helping older adults maintain community mobility. At the same time, little is known about the factors that enable caregivers to provide sustained care to older adults, particularly in the context of providing transportation assistance. The caregiving questionnaire provides an opportunity to explore more fully not only the barriers to providing transportation assistance, but also the resources and strategies available for reducing caregiver burden. Also of interest is the extent to which caregivers are aware of transportation options and resources in Michigan. The questionnaire will also allow us to develop a Michigan-specific profile of caregivers who provide transportation assistance to older residents in the state. Additionally, the questionnaire will help us gain a better understanding of the level and type of transportation assistance that is provided in Michigan.

The second purpose of the literature review was to help MDOT determine measures and programs that might be useful to implement in Michigan. The review covered several programs and practices that are considered promising approaches for maintaining older adult safety and mobility. Although many of these approaches are not under the direct purview of MDOT, they represent opportunities for partnerships with various state organizations. It is clear from the literature review that promoting safe transportation for older adults will require a multidisciplinary effort and MDOT has the opportunity to take a leadership in helping Michigan make significant progress on this pressing societal issue.

The review contains a detailed discussion of Michigan transportation services and programs. Findings from this section are useful for thinking about where there may be gaps and overlapping services throughout the state. As MDOT plans for the future, this information will be important in decisions about funding and resources distribution, particularly for programs targeting older adults and people with disabilities.

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Appendix A: Michigan Public Transit Systems by MDOT Region

MICHIGAN PUBLIC TRANSIT SYSTEMS BY MDOT REGION*

Region/Public Transit Agency	System Profile	System Characteristics			FY 2009 System Data
		Population Served/ Employees	Total Vehicles/ Lift Equipped	Days/Hours of Operations	
Region 1-Bay					
Bay Metropolitan Transportation Authority	Bay Metro was started in 1974 to provide public transportation to Bay City's urbanized area. During FY 1992, the agency changed to an Act 196 transportation authority. In addition, the system also provides countywide service and service to Arenac. The basic service is a combination of line-haul and demand-response utilizing 62 vehicles.	112,932/ 103	61/ 60	M-F 6:00 AM - 6:30 PM	Miles: 1,380,435 Vehicle Hours: 76,572 Passengers: 545,673 Total Eligible Expenses: \$6,947,764
Flint Mass Transportation Authority	The Mass Transportation Authority (MTA) service area is Genesee County. The majority of transportation services are still provided in the Flint urbanized area, however service has expanded to include regional routes. MTA currently operates 13 primary fixed-routes and 8 suburban service centers which provide curb to curb service to the community. The primary routes provide regular service throughout the City of Flint and adjacent areas. The suburban service centers in addition to providing commuter service to and from the City of Flint, also provide demand/response service within the communities.	425, 028/ 450	287/ 152	M-SAT 6:30 AM - 11:30 PM SUN 9:30 AM - 7:00 PM	Miles: 8,837,568 Vehicle Hours: 488,818 Passengers: 5,675,019 Total Eligible Expenses: \$20,437,162
Saginaw Transit Authority Regional Services	The Saginaw Transit System operates ten fixed routes from the Rosa Parks Transfer Plaza in Saginaw. Lift service providing curb to curb transportation to Saginaw's physically challenged, senior citizens and general public. One of the routes provides Saginaw college students with transportation to Saginaw Valley State University, with transfers to Delta.	127,000/ 80	45/ 45	M-F 5:00 AM - 8:00 PM Sat 8:00a.m - 6:00 PM	Miles: 938,799 Vehicle Hours: 56,539 Passengers: 1,054,559 Total Eligible Expenses: \$6,717,544
Alma Dial-A-Ride	Alma Dial-A-Ride has provided demand response service to the residents of the Alma area since 1975. The present demand response service area includes Alma, St. Louis, Gratiot Community Airport, and portions of Pine River Township. The Alma Transit Center is also a sales agency for intercity tickets and information.	13,600/ 9	10/ 6	M-F 7:30 AM - 8:00 PM	Miles: 87,842 Vehicle Hours: 6,450 Passengers: 53,552 Total Eligible Expenses: \$582,315
Caro Transit Authority	In May 1988, the Almer and Indianfields Townships Board and the Caro Village Council created the Caro Transit Authority (CTA). CTA assumed responsibility for transportation service on October 1, 1988. Known locally as "Thumbbody Express,"	9,358/ 14	12/ 9	M-F 6:00 AM - 6:00 PM SAT 9:00 AM - 1:00 PM	Miles: 216,486 Vehicle Hours: 7,990 Passengers: 60,686 Total Eligible Expenses:

	the demand/response service is operated by the Human Development Commission. "Thumbody Express" enjoys a very high level of local support.				\$821,934
Clare County Transit Corporation	Clare County Transit Corporation (CCTC) began its dial-a-ride service in 1981. The purpose of the transit corporation is to provide transportation service for the people of Clare County, particularly the elderly and handicapped, coordinated through a central dispatch center using a combination of demand-response and reserved trips. We cover 570 square miles. Wheelchair lifts are available as well as prescription/package delivery.	31,252/ 40	32/ 20	M-F 6:00 AM - 10:00 PM By 24 Hour Reservation SAT 8:00 AM - 5:00 PM SUN 8:00 AM - 3:00 PM By 24 Hour Reservation	Miles: 675,537 Vehicle Hours: 36,707 Passengers: 156,460 Total Eligible Expenses: \$1,428,857
Gladwin City/County Transit	Gladwin City/County Transit (GCCT) began providing service to the City of Gladwin in 1975. In 1981, Gladwin County joined the city to provide countywide service. GCCT provides demand-response service to the city's of Beaverton and Gladwin as well as the immediate surrounding areas. Flexible route and fixed schedule service is provided five times daily to out-county areas.	23,879/ 40	19/ 15	M-F 7:00 AM - 6:00 PM	Miles: 491,947 Vehicle Hours: 31,034 Passengers: 102,041 Total Eligible Expenses: \$1,385,938
Greater Lapeer Transportation Authority	The Greater Lapeer Transportation Authority (GLTA) commenced operation in March 1987 as a nonurban demand-response transit system. GLTA is a political subdivision of its incorporators, and serves the same geographic area: the City of Lapeer and the townships of Elba, Lapeer, Mayfield, Deerfield Township area, and Oregon (Lapeer County, MI). Additionally, GLTA has the authority, by statute, to provide service throughout the county. GLTA is governed by a 8 member Board of Directors and is managed by an executive director.	36,490/ 28	21/ 21	M-F 6:00 AM - 8:00 PM SAT 9:00 AM - 3:00 PM	Miles: 566,540 Vehicle Hours: 40,261 Passengers: 174,661 Total Eligible Expenses: \$1,754,795
Huron Transit Corporation	The Huron Transit Corporation, known as TAT (Thumb Area Transit) was established in 1981 to service the residents of Huron County. TAT is a nonprofit corporation operated by the county of Huron and managed by a transit director. TAT offers public transit service throughout Huron County, serves five area school districts, and operates in a demand/response mode.	35,150/ 29	28/ 28	M-F 6:00 AM - 6:00 PM SAT 9:00 AM - 5:00 PM	Miles: 729,266 Vehicle Hours: 38,985 Passengers: 184,313 Total Eligible Expenses: \$1,571,838
Isabella County Transportation Commission	Dial-A-Ride service began in the City of Mt. Pleasant in March 1974. The Isabella County Transportation Commission (ICTC) was established in 1977 between the county and the City of Mt. Pleasant, and transit service is now countywide. ICTC	59,890/ 69	39/ 39	M-SAT 6:30 AM - Midnight SUN 8:00 AM - 5:00 PM	Miles: 1,252,053 Vehicle Hours: 118,402 Passengers: 557,405 Total Eligible Expenses:

	covers an area of 575 square miles.				\$4,131,932
Midland County Connection	County Connection is a demand/response transit system operated for and supervised by the County of Midland. Services are county-wide, and available to all residents of Midland County except those within the city of Midland, depending on destination. County Connection provides curb-to-curb transportation services for Midland County residents to and from work, school, medical appointments, and shopping.	41,189/ 37	20/ 17	M-F 5:00 AM-11:00 PM	Miles: 872,135 Vehicle Hours: 39,186 Passengers: 62,735 Total Eligible Expenses: \$1,731,206
City of Midland Dial-A-Ride	In 1974 the City of Midland started it's Dial-A-Ride, providing demand-response service to its residents. Midland Dial-A-Ride currently is authorized to provide mass transportation within the city limits only. Midland's system is managed and administered by City of Midland staff.	41,685/ 30	14/ 13	M-F 6:30 AM - 10:30 PM SAT 9:00 AM - 8:00 PM SUN 8:30 AM - 6:00 PM	Miles: 492,291 Vehicle Hours: 37,342 Passengers: 142,314 Total Eligible Expenses: \$1,702,493
Sanilac Transportation Corporation	County-wide transportation is provided by the County Board of Commissioners. The service is operated by the Sanilac Transportation Corporation (STC). STC works closely with human services agencies to meet the transportation needs in the county.	45,000/ 19	13/ 13	M-F 6:00 AM - 6:00 PM	Miles: 459,664 Vehicle Hours: 20,656 Passengers: 112,946 Total Eligible Expenses: \$1,140,196
Region 2-Grand					
	Harbor Transit operates in a 10.6 square mile area. The system serves the City of Grand Haven, the Village of Spring Lake, the City of Ferrysburg, and is contracted to serve portions of Grand Haven Charter Township and Spring Lake Township. Harbor Transit is administered by the City of Grand Haven and policy direction is provided by a local Advisory Committee, which is composed of representatives of the participating units of governments. Each governmental unit contributes financial support for Harbor Transit through a special elected mill (one mill per community - perpetual) and general fund. Services provided by Harbor Transit include demand-response public bus transit, contractual services, and trolley transportation.	28,902/ 28	15/ 14	M-F 6:00 AM - 6:00 PM SAT 9:00 AM - 4:00 PM SUN 8:00 AM - 1:00 PM By 24 Hours Advance Reservation Trolley - Memorial Day Weekend to Labor Day Daily 11:00 AM - 10:00 p.m	Miles: 247,933 Vehicle Hours: 19,230 Passengers: 125,700 Total Eligible Expenses: \$1,460,857
Interurban Transit Partnership – The Rapid	The Rapid is an independent authority serving the greater Grand Rapids metro area. Fixed route bus service is available throughout the six-city service area of Grand Rapids, East Grand Rapids, Grandville, Kentwood, Walker, and Wyoming. Contracted service is provided to the townships of Ada, Alpine, Byron, Cascade, and Gaines. Under a contract with Grand Valley State University, The Rapid provides service	451,597/ 308	195/ 195	M-F 5:45 AM - 11:15 PM SAT 6:30 AM - 9:30 PM SUN 8:15 AM - 6:45 PM Not all routes	Miles: 6,884,285 Vehicle Hours: 517,950 Passengers: 8,666,364 Total Eligible Expenses: \$32,486,075

	between the Allendale and downtown Grand Rapids facilities, along with a number of routes in and around the campuses. County Connection, a demand response system serves all of Kent County. Additional services include paratransit, a suburban connector service called PASS, car and vanpooling assistance, and tailored services to increase transportation alternatives for local employers and employees. The Rapid is a transit district organized under Public Act 196 and is governed by a 15-member Board of Directors, appointed by the cities in the service area. The Rapid is responsible for the planning, construction, and operation of public transportation services and facilities within its district.			operate at all times. Hours for other services vary depending on program.	
Macatawa Area Express (MAX) Transportation Authority	The Macatawa Area Express Transportation Authority is a local transit system that serves the Holland/Zeeland area in Western Michigan. MAX operates seven fixed routes, six days a week, Monday through Saturday, as well as demand response service. All buses in the fleet are equipped with lifts and bike racks. Seniors and ADA Card holders ride free on the fixed routes.	71,572/ 47	26/ 26	M-F 6:00 AM - 7:00 PM SAT 8:00 AM - 7:00 PM	Miles: 828,601 Vehicle Hours: 68,005 Passengers: 313,822 Total Eligible Expenses: \$3,543,687
Muskegon Area Transit System	The Muskegon Area Transit System (MATS) was originally formed in 1969 as the Muskegon County Metropolitan Transportation System (MCMTS). In 1972, MCMTS absorbed the operation of another public transit organization, the Muskegon Area Transit Authority (MTA), and became the Muskegon Area Transit System. MATS is a Department of Muskegon County and is authorized to provide public mass transportation services within Muskegon County. MATS currently operates service on nine fixed-routes with a 100 percent accessible fleet utilizing 10 buses during maximum peak service and serving the urbanized areas consisting of the cities of Muskegon, Muskegon Heights, Roosevelt Park and Norton Shores and Muskegon Township. MATS also provides paratransit services to meet the public demand.	170,200/ 40	23/ 23	M-F 7:00 AM - 6:00 PM SAT 10:00 AM - 6:00 PM	Miles: 534,484 Vehicle Hours: 39,841 Passengers: 617,828 Total Eligible Expenses: \$2,417,897
Belding Dial-A-Ride	Belding Dial-A-Ride was established as a demand-response system in 1975, and serves the City of Belding residents.	6,049/ 10	5/ 4	M-F 6:30 AM - 6:00 PM SAT 9:00 AM - 2:00 PM	Miles: 45,558 Vehicle Hours: 4,797 Passengers: 26,663 Total Eligible Expenses: \$227,681
Big Rapids Dial-A-Ride	The City of Big Rapids Dial-A-Ride system was established in 1975 to provide demand-response transportation services to 11,000 city residents and 12,000 Ferris State University	10,849/ 12	7/ 6	M-F 6:30 AM - 6:30 PM SAT 9:00 AM - 5:00	Miles: 100,361 Vehicle Hours: 8,621 Passengers: 61,842 Total

	students. Senior citizens and disabled persons comprise over one third of the annual ridership.			PM	Eligible Expenses: \$377,870
Greenville Transit	(none on website)	8,573/ 9	7/ 7	M-F 6:00 AM - 6:00 PM SAT 9:00 AM - 5:30 PM	Miles: 88,774 Vehicle Hours: 9,411 Passengers: 30,072 Total Eligible Expenses: \$278,123
Ionia Dial-A-Ride	The Ionia Dial-A-Ride was established in 1980 and is operated by the City of Ionia. It serves the residents of the city, and through contractual agreements provides transportation to the Townships of Berlin, Easton, Ionia, and Orange. Ionia Dial-A-Ride is a combined demand-response and advance reservation system.	14,789/ 16	9/ 7	M-F 6:30 AM - 6:00 PM SAT 9:00 - 1:00 PM	Miles: 106,393 Vehicle Hours: 8,192 Passengers: 49,588 Total Eligible Expenses: \$441,277
Mecosta Osceola Transit Authority (MOTA)	Mecosta County initiated public transportation services in 1978 and provides countywide services in this northwestern lower Michigan area. The system operates in a 556-square mile area (excluding the City of Big Rapids). Through a coordination effort to provide more efficient and effective rural public transportation services, Osceola County (adjacent county) in 1987 began contracting with Mecosta County to provide public transportation services in Osceola County. Collectively, MOTA services a two county population of approximately 63,000 and includes a total service area of 1,070 square miles. Nearly 90% of riders are elderly and/or disabled.	49,119/ 8	9/ 8	M-F 5:30 AM - 6:00 PM	Miles: 271,700 Vehicle Hours: 11,021 Passengers: 54,533 Total Eligible Expenses: \$569,183
Region 3-Metro					
Detroit Department of Transportation	The Detroit Department of Transportation (DDOT), which is the largest bus transit carrier in Michigan, offers service to residents of the City of Detroit, as well as 23 surrounding communities. DDOT provides service along 44 fixed-route bus lines. The system carries approximately 80 percent of the region's bus passengers, which includes commuters, students, senior citizens, and persons with disabilities. DDOT also offers the Detroit Metro Lift ADA Complementary Paratransit Service. Metro Lift serves all trip purposes, origins and destinations for ADA certified passengers in the DDOT service area within 3/4 mile of an operating fixed route.	1,768,526/ 1,532	507/ 507	M-SUN 24 Hour Service (Depending on Route)	Miles: 21,111,840 Vehicle Hours: 1,490,186 Passengers: 38,630,014 Total Eligible Expenses: \$171,297,998
Detroit Transportation Corporation	The Detroit Transportation Corporation is owner and operator of the Detroit People Mover (DPM). The DPM is the largest municipal rail system in the state of Michigan. It is a fully automated light rail system that operates clockwise on an	100,000/ 86	12	M-THUR 6:30 AM -12 Midnight FRI 6:30 AM - 2:00 AM	Miles: 470,514 Vehicle Hours: 42,256 Passengers: 1,978,246 Total Eligible Expenses:

	<p>elevated single track 2.9 mile loop in Detroit's central business district. Round trip on the system is approximately 15 minutes, and trains arrive approximately every 3 to 4 minutes. Fare is 50¢ per ride, and children 5 and under ride free.</p> <p>The DPM system provides connections between the municipal complexes, courts, and administrative offices of several levels of government, Joe Louis Arena, Ford Field, Comerica Park, Greektown, Cobo Convention and Exhibition Center, major hotels, and commercial, banking and retail districts. Close proximity of the Detroit People Mover to the stadia, theatre district, the Detroit Riverwalk and the Rosa Parks Transit Center make reaching your destination downtown easily accessible to other Downtown destinations. The integration of eight of the thirteen People Mover stations into pre-existing structures links over 9 million square feet that can be traversed unimpeded by outside elements. 12 of the 13 stations are handicapped accessible, and each vehicle has two wheelchair securement positions. The system regularly carries approximately 2,000,000 riders per year.</p>				\$12,394,823
Blue Water Transportation Commission	The Blue Water Area Transportation Commission (BWATC) offers service to the residents of the City of Port Huron, the City of Marysville, and Fort Gratiot, Port Huron and Burtchville Townships. BWATC provides transportation to anyone in its service area including many senior citizens and persons with disabilities. In addition BWATC provides transportation throughout St. Clair County for various non-profit agencies as well as countywide transportation broker services.	53,588/ 84	37/ 37	M-F 6:15 AM -10:00 PM SAT 8:15 AM - 6:00 PM	Miles: 2,517,901 Vehicle Hours: 163,212 Passengers: 1,128,606 Total Eligible Expenses: \$7,984,097
Suburban Mobility Authority for Regional Transportation (SMART)	The Suburban Mobility for Regional Transportation (SMART) is the suburban bus system operating in 75 communities of Macomb, Oakland and Wayne Counties covering more than 1,200 square miles. The authority operates over 283 fixed route buses and 350 paratransit vehicles. SMART is responsible for the planning, construction and operation of the public transportation facilities and services within four counties of southeastern Michigan (Wayne, Oakland, Macomb, and Monroe); excluding the City of Detroit in which this responsibility belongs to the Detroit Department of Transportation. SMART is also the fiduciary for state and federal grant funds passed on to communities in Wayne, Oakland, Macomb and Monroe counties, including areas that	1,590,766/ 1,018(996 FT and 22 PT)	389/ 389	M-SUN 22 Hours A Day	Miles: 17,094,061 Vehicle Hours: 904,744 Passengers: 12,666,653 Total Eligible Expenses: \$93,065,469

	do not contribute financially to SMART services and operation.				
Region 4-North					
Antrim County Transportation	Antrim County Transportation (ACT) was established in 1977 to make public transit services available to all citizens of Antrim County.	23,110/ 14	16/ 15	M-F 6:00 AM - 6:00 PM	Miles: 279,415 Vehicle Hours: 11,788 Passengers: 47,243 Total Eligible Expenses: \$668,661
Bay Area Transportation Authority	Bay Area Transportation Authority (BATA) was established on February 1, 1985, combining the former Leelanau County Public Transit (formed November 16, 1981) and the City of Traverse City Dial-A-Ride (formed May 28, 1974). BATA, an Act 196 authority, comprises all of Leelanau and Grand Traverse Counties as of June 1, 1998. In addition to its regular service, BATA provides transportation for the senior center, and essential transportation for persons with disabilities. BATA provides both demand-response and line haul service.	98.773/ 90	60/ 58	M-S 6:00 AM - 12:30 PM SUN 7:30 AM - 12:30 PM	Miles: 1,852,077 Vehicle Hours: 122,345 Passengers: 511,274 Total Eligible Expenses: \$5,726,938
Beaver Island Transportation Authority	The Beaver Island Transportation Authority was formed in 1993 to meet the needs of the traveling public between Beaver Island, Michigan and Charlevoix, Michigan. The Authority took possession of the M/V Emerald Isle in 1997 offering round trip passage between its two port cities, her service was added to the current M/V Beaver Islander, which is owned and operated by the Beaver Island Boat Company. On behalf of the Beaver Island Transportation Authority, the Beaver Island Boat Company operates the Emerald Isle. The Beaver Island Transportation Authority, which was incorporated by St. James Township, consists of a 5 member Board of Directors and meets monthly to plan, promote, and improve the transportation system for the greater Beaver Island Area.	The Greater Beaver Island Area	1/ 1	April - December	Passengers: 24,177 Total Eligible Expenses: \$477,168
Benzie Transportation Authority (The Benzie Bus)	Benzie County, located in northwestern lower Michigan initiated county wide on demand service on January 2, 2007. The Benzie Transportation Authority (The Benzie Bus) is an Act 196 transit system that operates in a service area of approximately 316 square miles. In cooperation with the Council on Aging and other local agencies, seniors and persons with disabilities comprise approximately 1/2 of our ridership. We continue to have cooperative efforts with adjoining transit agencies to offer Benzie County residents services to Grand Traverse County and hope to implement travel to Mainstee County in 2008. We have seen an increase from 1,150	15,998/ 32	21/ 19	M-F 6:00 AM - 10:00 PM SAT 7:00 AM - 6:00 PM	Miles: 693,457 Vehicle Hours: 37,261 Passengers: 67,474 Total Eligible Expenses: \$1,602,824

	passengers in our first month to over 5,700 in January 2008.				
Cadillac/Wexford Transit Authority	The Cadillac/Wexford Transit Authority (CWTA) is a county-wide demand-response system that operates Monday through Friday from 5:00 AM - 6:00 PM and Saturday from 10:00 AM - 4:00 PM Public Transportation services can be reached by contacting Dispatch at 779-0123 or Toll Free 1-866-647-5465. CWTA provides a highly trained staff, is wheelchair accessible and is currently located at 1202 North Mitchell Street.	31,876/ 44	20/ 20	M-F 5:00 AM - 6:00 PM SAT 10:00 a.m - 4:00 p.m	FY 2008 System Data Miles: 530,250 Vehicle Hours: 33,621 Passengers: 134,239 Total Eligible Expenses: \$1,810,719
Charlevoix County Public Transit	Charlevoix County Public Transportation (CCPT) is county operated and began countywide demand-response public transportation on June 28, 1980, with five buses. In addition to its regular service, CCPT provides essential transportation for seniors and disabled residents. Currently CCPT receives local millage funding to support public transportation.	24,073/ 20	17/ 17	M-F 6:00 AM - 6:00 PM	Miles: 333,447 Vehicle Hours: 20,965 Passengers: 79,271 Total Eligible Expenses: \$1,106,140
Crawford County Transportation Authority	The Crawford County Transportation Authority has been providing safe, dependable transit services to the citizens of Crawford County and the City of Grayling since 1976. It is one of the first countywide systems in Michigan. The system prides itself on providing an extremely high level of service to a relatively low, sparsely populated county, which results in a high per capita level of ridership.	14, 226/ 26	17/ 16	M-F 6:00 AM - 6:00 PM	Miles: 476,735 Vehicle Hours: 25,755 Passengers: 109,474 Total Eligible Expenses: \$1,456,228
Iosco Transit Corporation	Iosco Transit Corporation (ITC) began operation in 1979 and serves the citizens of Iosco County. ITC provides demand/response service in the cities of Oscoda and Tawas, as well as time share/flexible route services to other areas of the county.	23,996/ 8	7/ 7	M-F 7:00 AM - 5:00 PM	Miles: 181,069 Vehicle Hours: 8,612 Passengers: 33,153 Total Eligible Expenses: \$348,125
Kalkaska Public Transit Authority	Kalkaska Public Transit Authority (KPTA) began operating a county wide public transportation service on October 8, 1984. Kalkaska County is the hub of Northwest lower Michigan. KPTA, provides county wide transportation for the residents of Kalkaska County. Kalkaska Public Transit Authority has a flex route within Kalkaska County that helps students get to and from school each day. Working with the local Commission on Aging we are able to assist the elderly of our county with their transportation needs. In a contract with Munson Medical Center we are able to provide medical trips to their facilities for Kalkaska County residents at no cost to them. Kalkaska County residents have supported the public transportation system by voting in a millage to help provide public transportation for the county residents.	15,191/ 17	21/ 13	M-F 6:30 AM - 6:30 PM	Miles: 191,456 Vehicle Hours: 10,397 Passengers: 103,998 Total Eligible Expenses: \$626,809

Ludington Mass Transportation Authority	Ludington Mass Transportation Authority (LMTA) is an independent transit authority. Established in 1974, LMTA serves residents in the cities of Ludington, Scottville and portions of Pere Marquette and Amber Townships. As a special service, LMTA provides contract service to clients of West Michigan Community Health, Senior Meals Program, Intermediate School District, Ludington area and Scottville Schools.	11,925/ 37	19/ 19	M-F 6:00 AM - 7:00 PM SAT 8:00 AM - 4:00 PM SUN 8:00 AM - 2:00 PM	Miles: 334,860 Vehicle Hours: 30,215 Passengers: 156,209 Total Eligible Expenses: \$1,327,375
Manistee County Transportation	Manistee County initiated countywide public transportation services in 1975 and is operated by Manistee County Transportation, Inc., a private nonprofit corporation, located in northwestern lower Michigan. The transit system operates in a service area of approximately 544 square miles. Services to seniors and persons with disabilities comprise 40 percent of the total ridership. Manistee County presently has a dedicated transportation millage to support public transportation services.	22,164/ 21	22/ 22	M-F 9:00 AM - 5:00 PM SAT Noon - 6:00 PM	Miles: 394,514 Vehicle Hours: 24,768 Passengers: 114,038 Total Eligible Expenses: \$1,422,486
Ogemaw County Public Transportation	Ogemaw County Public Transit (OCPT) is operated by the county of Ogemaw to provide demand-response transit services to the citizens in its area. The system was established in 1980 after four years of providing services as a specialized paratransit agency. OCPT is especially proud of the high usage by the area senior citizens and persons with disabilities, and has received several certificates of appreciation and honors recognizing the significance of the service to the area. OCPT is also known for its operational efficiency and cost-effective measures.	20,230/ 10	9/ 8	M-F 7:30 AM - 4:30 PM	Miles: 279,302 Vehicle Hours: 13,722 Passengers: 50,512 Total Eligible Expenses: \$538,138
Otsego County Bus System	The Otsego County Bus System was established in 1978 as a demand-response system servicing area seniors and persons with disabilities. In 1980, it became a countywide transit system serving all county residents. The Otsego County Bus System has taken an active role in promoting tourism in the area, and has provided a high level of service to handicapper and senior groups in Otsego County.	23,301/ 35	26/ 23	M-F 6:00 AM - 6:00 PM SAT 7:00 AM - 7:00 PM	Miles: 469,919 Vehicle Hours: 31,378 Passengers: 108,121 Total Eligible Expenses: \$1,565,826
Roscommon County Transportation Authority	In 1980, the Rosco Mini-Bus System was established by Roscommon County to serve the residents of the county. This system has seen significant growth by providing efficient, dependable transportation services to all area citizens. Rosco Mini-Bus has been the recipient of a number of community and state awards, and has demonstrated a remarkable safety record in its history.	25,469/ 26	20/ 17	M-F 6:00 AM - 7:00 PM SAT 9:00 AM - 4:00 PM	Miles: 707,508 Vehicle Hours: 32,524 Passengers: 130,450 Total Eligible Expenses: \$1,648,850

Straits Regional Ride	The Straits Regional Ride (SRR) was established in 2000 under the Regional Transportation Program. SRR initially provided a regional public transit link servicing Cheboygan, Emmet and Presque Isle Counties in northern Lower Peninsula. In 2003, SRR completed the regional program and became eligible for State and Federal funding. Currently, SRR is also supporting the Cities of Cheboygan, Mackinaw City and Petoskey with local service as well. The Straits Regional Ride is very involved with promoting mobility and provides an important level of service within the region.	72,297/ 11	14/ 14	M-F 6:00 AM - 5:00 PM	Miles: 320,340 Vehicle Hours: 15,636 Passengers: 40,797 Total Eligible Expenses: \$669,327
Thunderbay Transportation Authority	Thunder Bay Transportation Authority is formed of the City of Alpena, Alpena, Alcona, and Montmorency counties. Formed in 2006 to deliver the service formally provided by the Thunderbay Transportation Corporation.	51,411/ 55	33/ 31	M-TH 7:00 AM - 7:00 PM F 7:00 AM - 9:00 PM SAT 8:00 AM - 7:00 PM SUN 9:00 AM - 6:00 PM	Miles: 683,551 Vehicle Hours: 35,793 Passengers: 118,062 Total Eligible Expenses: \$2,169,326
Yates Township Transportation System	Yates Dial-A-Ride was established in August 1976 as a demand-response system operated by Yates Township in Lake County. Transportation services are also provided to three adjacent townships. In addition to its regular service, Yates Dial-A-Ride provides transportation to the area human service agencies, Senior Center, and essential transportation for its residents with disabilities.	9,381/ 27	26/ 18	M-F 6:30 AM - 6:00 PM SAT 9:00 AM - 4:00 PM	Miles: 513,366 Vehicle Hours: 28,218 Passengers: 210,743 Total Eligible Expenses: \$1,390,508
Region 5-Southwest					
Battle Creek Transit	Battle Creek Transit has provided continuous service since 1932 and operates as a city department. The service is operated from the transit terminal located on W. Michigan Avenue. The terminal houses all vehicles, maintenance, and administrative activities. The service consists of both line-haul and demand-response service. Line-haul service operates on a central hub pulse mode with service available six days a week. The demand-response service, called Tele-transit, operates primarily to accommodate special needs customers but is open to the general public. Battle Creek Transit also oversees the intermodal terminal which accommodates both intercity rail and bus travelers. Located adjacent to the transfer center, a passenger may easily transfer from intercity to local public transit.	53,369/ 36	22/ 22	Tele-Transit: M-F 5:15 AM - 11:30 PM Line-haul: M-F 5:15 AM - 6:45 PM All Services: SAT 9:15 AM - 5:15 PM	Miles: 575,943 Vehicle Hours: 41,960 Passengers: 536,962 Total Eligible Expenses: \$3,302,320
Benton Harbor /	The Twin Cities Area Transportation Authority (TCATA) was	62,215/	23/	WEEKDAYS	Miles: 477,149

Twin Cities Area Transportation Authority	established in 1974 and serves the city of Benton Harbor, City of St. Joseph, Benton Township, part of St. Joseph Township, and Royalton Township.	36	19	Demand Response: 6:00 AM - 6:00 PM Line Haul: 6:00 AM - 10:00 PM SATURDAY Demand Response: 8:00 AM - 4:30 PM Line Haul: 8:00 AM - 10:00 PM	Vehicle Hours: 41,074 Passengers: 172,758 Total Eligible Expenses: \$1,431,211
Kalamazoo Metro Transit System	Kalamazoo Metro Transit System (KMTS) is owned and operated by the City of Kalamazoo under the direction of a Transit Authority Board. Fixed route service is provided within the Kalamazoo urbanized area, including the City of Kalamazoo, the City of Portage, Oshtemo Township, the City of Parchment, Comstock Township, Kalamazoo Township, and Kalamazoo Valley Community College. Demand Response service is provided county-wide.	183,288/ 120	89/ 89	M-SAT 6:00 AM - 10:15 PM	Miles: 2,205,238 Vehicle Hours: 172,802 Passengers: 3,265,659 Total Eligible Expenses: \$12,559,703
Niles Dial-A-Ride	The Niles Dial-A-Ride system started in November 1974, and is operated by a private transit provider under contract to the City of Niles. The service consists of both demand response service and one deviated fixed route. Service is within the City of Niles and the Township of Niles proper. All administration, maintenance, and storage is housed in the same facility.	17,717/ 17	4/ 4	M-F 7:00 AM - 5:00 PM SAT 10:00 AM - 3:00 PM SUN & Holidays Closed.	Miles: 109,002 Vehicle Hours: 9,048 Passengers: 33,299 Total Eligible Expenses: \$402,021
Allegan County Transit	Allegan County Transportation provides advance reservation and limited demand-response services to the residents of Allegan County. The service is in two thirds of the county. The program is funded with State and Federal grants and local funds through agency support.	110,000/ 28	24/ 14	M-F 5:30 AM - 5:30 PM	Miles: 550,784 Vehicle Hours: 24,878 Passengers: 35,817 Total Eligible Expenses: \$1,101,211
Barry County Transit	Barry County began operating Barry County Transit in 1982. They provide curb-to-curb service countywide and demand actuated service to every City Village and Township in the County at least one day per week.	56,755/ 22	11/ 11	M-F 5:30 AM - 5:30 PM	Miles: 215,502 Vehicle Hours: 15,545 Passengers: 74,030 Total Eligible Expenses: \$801,276
Berrien County Public Transportation	The Berrien County system was started in 1983 and is operated by a private transit provider under the trade name of Berrien Bus. The service consists of both semi-fixed route service and demand-response service within the Berrien	79,398/ 23	24/ 23	M-F 5:00 AM - 5:00 PM	Miles: 501,890 Vehicle Hours: 23,651 Passengers: 85,303 Total Eligible Expenses:

	County proper. Service is housed in a facility located in Berrien Springs. The facility provides storage, maintenance, and administration for the system. Additionally, the Buchanan Dial-A-Ride system is operated out of this facility. The service provider operates under a contract with the county government and is monitored by the county transportation coordinator. The system provides tripper service between Niles and Benton Harbor four times each day.				\$1,099,370
Branch Area Transit Authority	The Branch County system started in October 1984 as a demand-response system serving the entire county. Service has evolved to a combination of demand-response and semi-fixed route service. Administration of the system is overseen by an authority board formed under P.A. 196 of 1986.	40,347/ 23	12/ 11	M-F 6:00 AM - 6:00 PM SAT 9:00 AM - 5:00 PM (Specialized Services only) SUN 9:00 AM - 1:00 PM	Miles: 320,884 Vehicle Hours: 20,922 Passengers: 94,627 Total Eligible Expenses: \$1,207,840
Buchanan Dial-A-Ride	Service was first started in 1980. The service is the responsibility of the city and consists of demand-response service within the Buchanan area and regular shuttle service with the larger neighbor community of Niles. The system prides itself on service to the senior and disabled community and strongly supports its bus service.	4,969/ 3	3/ 3	M-F 7:00 AM - 5:30 PM SAT 9:00 AM - 3:00 PM	Miles: 47,330 Vehicle Hours: 3,626 Passengers: 11,882 Total Eligible Expenses: \$175,786
Cass County Transportation Authority	The Cass County system was started in 1988 under a state demonstration program. Cass County is one of the largest hog producing county in the United States and was a major thorough fare for the Underground Railroad during the 1800's. The transit system consists of eleven small buses operated in both the demand-response and semi-fixed route mode. The service is operated by a private for profit company. Oversight is provided by a transit coordinator. Overall administration is provided by a transit authority formed under Michigan P.A. 196.	49,477/ 11	11/ 11	M-F 6:00 AM - 6:00 PM	FY 2008 System Data Miles: 240,541 Vehicle Hours: 10,553 Passengers: 27,510 Total Eligible Expenses: \$506,124
Dowagiac Dial-A-Ride	One of the oldest dial-a-ride services in Michigan, Dowagiac DART began service in June 1975 with a three bus fleet. The service is provided to the community of Dowagiac with service extended out to Southwestern Michigan College. The service is provided by the city administration and is operated from a multi-modal terminal located on an Amtrak line. In its former life, the building was a Grand Truck and Western train station. The building has been preserved and is carefully maintained by the City of Dowagiac	5,662/ 3	3/ 2	M-F 8:00 AM - 5:00 PM	Miles: 42,635 Vehicle Hours: 4,470 Passengers: 22,995 Total Eligible Expenses: \$213,591
Interurban Transit	Saugatuck Township Interurban Transit has been providing	4,193/	6/	M-F 7:00 AM - 6:00	Miles: 139,884

Authority	door-to-door demand-response service since 1980. On January 1, 1990, Interurban officially became an authority. The Interurban operates in the City of Saugatuck, Saugatuck Township, and the City of Douglas.	12	4	PM SAT 9:00 AM - 6:30 PM SUN 9:00 AM - 4:00 PM	Vehicle Hours: 10,438 Passengers: 54,749 Total Eligible Expenses: \$629,533
City of Marshall Dial-A-Ride	The City of Marshall Dial-A-Ride service is owned and operated by the municipality. Dial-A-Ride is a demand-response public transportation service that has been providing safe, affordable and reliable transportation to its residents since its inception in 1974. The service is operated out of the City's Utility Services Building.	7,111/ 8	5/ 5	M-F 7:00 AM - 6:00 PM SAT 9:00 AM - 5:00 PM	Miles: 68,898 Vehicle Hours: 7,535 Passengers: 41,469 Total Eligible Expenses: \$359,500
St. Joseph County Transportation Authority	St. Joseph County Transportation Authority was formed under Michigan P.A. 196 and began service on October 1, 2002. The service was started by combining buses owned by ARCH, Inc. and the Commission on Aging. Until this time, only specialized service was available to the residents of the county. By combining both fleets and restructuring under the Authority Act, service was made available to all residents within the county. The service provided is both contractual and demand response. The demand response service requires a 24 hour advance reservation. The authority also acts as fiduciary agent for two specialized service projects within the county.	62,964/ 13 Full-time, 22 part-time	18/ 16	M-F 6:00 AM - 6:00 PM Sat 6:00 AM - 5:00 PM	Miles: 628,230 Vehicle Hours: 31,230 Passengers: 64,218 Total Eligible Expenses: \$1,182,061
Van Buren Public Transit	Van Buren Public Transit began providing demand-response and advance reservation service to the residents of Van Buren County in 1979. The service is housed in its own facility located in Bangor, Michigan.	76,263/ 27	17/ 13	M-F 6:00 AM - 8:30 PM SAT 8:00 AM - 4:00 PM	Miles: 480,983 Vehicle Hours: 28,289 Passengers: 65,050 Total Eligible Expenses: \$1,153,937
Region 6-Superior					
ALTRAN Transit Authority	Countywide public transit services were initiated in January 1982. The Alger/Marquette Community Action Board was the third-party operator of transit services for Alger County until March 1990. ALTRAN, an Act 196 transit authority, was created in March 1990 to provide the countywide transit services. Senior citizens and handicappers comprise 60 percent of the annual ridership.	9,735/ 23	14/ 10	M-SAT 5:30 AM - 7:00 PM F-SAT evenings 7:00 PM - 2:30 AM Week Nights and Sunday work trip runs only. SAT Church Runs 4:00 PM - 6:00 PM	Miles: 400,811 Vehicle Hours: 22,766 Passengers: 80,640 Total Eligible Expenses: \$754,743
Delta Area Transit Authority	The Delta Area Transit Authority (DATA) initiated countywide public transportation services in 1989. The DATA system is completing the third year of operations, providing transit services to over 38,000 county residents. This system provides	39,984/ 25	16/ 15	M-F 6:00 AM - 6:00 PM	Miles: 414,225 Vehicle Hours: 28,090 Passengers: 114,405 Total Eligible Expenses:

	a high level (64% of ridership) of senior and disabled transportation services.				\$1,240,693
Eastern U.P. Transportation Authority	The Eastern Upper Peninsula Transportation Authority (EUPTA) is a two-county, Luce and Chippewa, transportation system that provides bus and ferry service to the residents of the area. The system was established in 1976, and provides a high level of service to several area human service agencies and employment generated passengers. EUPTA is proud of its community service activities. For example, the system and their drivers donated time to provide transportation for the area's Special Olympic games.	28,526/ 10	8/ 4	M-F 5:00 AM - 11:30 PM	Bus Service Ferry Service Miles: 288,727 Vehicle Hours: 12,553 Passengers: 53,001 790,238 Total Eligible Expenses: \$454,781 \$2,434,752
Gogebic County Transit	Gogebic County Transit (GCT), an Act 196 Authority, has been in operation since 1981. GCT is proud of service it provides for area seniors and persons with disabilities who compose nearly 70% of its ridership. Gogebic County is the seventh largest county by total acreage in Michigan and is able to make transit service available to the entire area. Services to medical complexes allow residents to access rural health care. Local Indian Trails ticket agent.	16,980/ 9	7/ 7	M-F 6:00 AM - 6:00 PM	Miles: 98,160 Vehicle Hours: 7,056 Passengers: 26,162 Total Eligible Expenses: \$444,667
City of Hancock	Demand Service (Door to Door). Operational boundaries include warning light on top of Quincy Hill near Portage Health System, Copper Bowl Lanes in Ripley, Hancock Beach/Campground, and Copper Country Mall in Houghton.	4,323/ 4	4/ 4	M-F 7:00 AM - 5:00 PM	Miles: 63,372 Vehicle Hours: 5,588 Passengers: 20,992 Total Eligible Expenses: \$155,881
Houghton Motor Transit Line	The Houghton Motor Transit Line is operated by the City of Houghton and started service in May, 1982. Senior citizens and persons with disabilities comprise 39 percent of the annual ridership. Service provided from 5 PM to 11 PM, seven days a week when MTU is in session Sept - May.	7,025/ 10	10/9	M-F 7:00 AM - 5:00 PM	Miles: 129,138 Vehicle Hours: 11,414 Passengers: 79,995 Total Eligible Expenses: \$368,464
Marquette County Transit Authority	Marquette County Transit Authority (MARQ-TRAN) was created in 1985 through the consolidation of three public transit systems within Marquette County. MARQ-TRAN currently makes transit services available to all Marquette County citizens. MARQ-TRAN operates both fixed-route and demand-response service to meet the public demand. MARQTRAN operates 365 days per year, 366 during leap years. MARQ-TRAN serves as the Indian Trails ticket agent and tickets are available at MARQ-TRAN's new facility at 1325 Commerce Drive.	64,634/ 45	36/ 25	M-SAT 6:30 AM - 8:00 PM SUN 8:30 AM - 5:00 PM	Miles: 951,412 Vehicle Hours: 48,482 Passengers: 298,595 Total Eligible Expenses: \$2,822,735
Ontonagon County Public Transit	Countywide public transportation services were initiated in July 1981. Ontonagon County Public Transit serves a county	7,517/ 8	6/ 6	M-F 6:00 AM - 6:00 PM	Miles: 140,777 Vehicle Hours: 8,193

	population of approximately 8,854 residents. Seniors and persons with disabilities comprise 57 percent of the annual ridership.				Passengers: 29,445 Total Eligible Expenses: \$554,690
City of Sault Sainte Marie	Sault Ste. Marie's transit service was established in 1974. The system serves the city of Sault Sainte Marie plus operates the International Bridge Bus to Sault Sainte Marie, Ontario.	16,403/ 7	7/ 7	M-F 7:00 AM - 6:00 PM (Demand Response) M-F 7:00 AM - 7:00 PM (International Bridge Bus)	Miles: 85,819 Vehicle Hours: 8,305 Passengers: 28,424 Total Eligible Expenses: \$338,567
Schoolcraft County Public Transportation	Countywide public transit services were initiated in September 15, 1980. Senior citizens and persons with disabilities comprise 52 percent of the annual ridership.	8,175/ 7	9/ 4	M-F 7:30 AM - 5:00 PM SAT-SUN By Appointment	Miles: 172,416 Vehicle Hours: 6,894 Passengers: 33,545 Total Eligible Expenses: \$574,836
Region 7-University					
Ann Arbor Transportation Authority	Ann Arbor Transportation Authority (AATA) provides fixed-route service on twenty-seven local routes. AATA's "A-Ride" uses a combination of taxicabs, vans, and small buses to provide over 150,000 rides a year to persons with disabilities whose disabilities prevent them from using the regular fixed route service and senior citizens.	273,312/ 171	75/ 75	M-F 6:00 AM - 11:00 PM SAT 8:00 AM - 6:15 PM SUN 8:00 AM - 6:15 PM Taxi-operated service for general public and persons with disabilities M-F 11:00 PM - 6:00 AM SAT & SUN 7:00 PM - 6:00 AM	Miles: 3,486,081 Vehicle Hours: 259,370 Passengers: 6,227,927 Total Eligible Expenses: 21,274,048
Lake Erie Transit	Lake Erie Transit was established in 1975 to provide demand/response service to aid seniors and handicappers in the county of Monroe. It also provides general public fixed route service in the city of Monroe and Dial-A-Ride services in Frenchtown and Bedford townships.	135,783/ 68	24/ 24	M-F 7:00 AM - 5:30 PM SAT 10:00 AM - 4:00 PM	Miles: 695,469 Vehicle Hours: 52,000 Passengers: 358,196 Total Eligible Expenses: \$3,555,377
Jackson Transportation Authority	The Jackson Transportation Authority (JTA) has been in existence since the early 1930s. The current fixed route service consists of eight routes that connect the trip generators of the urbanized area of Jackson. Fixed route accounts for 75% of JTA's ridership. The JTA's Demand	150,854/ 70	56/ 56	M-F 6:15 AM - 10:00 PM SAT 10:15 AM - 10:00 PM SUN 7:00 AM - 4:00	Miles: 738,864 Vehicle Hours: 55,762 Passengers: 551,584 Total Eligible Expenses: \$3,772,967

	Response service (Reserve-A-Ride) provides curb to curb service throughout Jackson County and reservations are required. A premium Demand Response service called the "PET" (Paratransit for Employment Training) program provides work related transportation for disabled City of Jackson residents. All other disabled County residents benefit from the JARC (Job Access/Reverse Commute) program providing work related transportation 24 hours per day.			PM P-E-T (SUN-SAT 6:00 AM - 10:00 PM) JARC (24 hours, 7 days a week)	
Capital Area Transportation Authority	The Capital Area Transportation Authority (CATA) is the regional public transportation provider for the Greater Lansing area. Service area includes Ingham, Eaton and Clinton counties. CATA's current funding areas include the cities of Lansing, East Lansing and townships of Lansing, Delhi and Meridian, where over 30 fixed routes operate. Advance-reservation curb-to-curb services are provided for persons with disabilities as well as for residents of Ingham County's outlying areas and Delhi and Meridian Townships. CATA's Clean Commute Options program educates the community about the importance of improving the tri-county's air quality and choosing alternatives to driving alone. CATA also provides all campus bus service to Michigan State University (MSU) with 24/7 campus service availability during Fall and Spring terms.	310,092/ 296	150/134	CATA service hours vary by service type. Customers should call for more detailed information.	Miles: 6,450,482 Vehicle Hours: 459,033 Passengers: 11,353,591 Total Eligible Expenses: \$34,810,146
Adrian Dial-A-Ride	Adrian Dial-A-Ride began service April 7, 1976. This demand-response system provides curb-to-curb service to the residents of the City of Adrian. People residing within Lenawee County also have transportation service. Both the Lenawee County system and Adrian Dial-A-Ride are operated by Quick Service Inc., a private operator. Common dispatch, maintenance, and management ensure optimum coordination and efficiencies to area residents.	22,580/ 12	7/ 7	M-F 6:00 AM - 5:45 PM	Miles: 137,132 Vehicle Hours: 12,915 Passengers: 79,471 Total Eligible Expenses: \$437,049
Clinton Area Transit System	Clinton Transit serves all of Clinton County and is based in St. Johns, the county seat. Clinton Transit operates curb to curb service. Door to door service is available at higher rates. Fares are based on distance traveled by passenger. Half price discounts are available for Seniors and Persons with Disabilities.	67,609/ 38	25/ 25	M-F 6:30 AM - 5:30 PM	Miles: 481,628 Vehicle Hours: 28,628 Passengers: 59,999 Total Eligible Expenses: \$1,256,550
Eaton County Transportation Authority	The Eaton County Transportation Authority (EATRAN) was established in 1980 to serve the residents of Eaton County and in 1989, completed a new 11,600 sq. ft. transportation facility.	103,655/ 40	28/ 27	M-F 6:00 AM - 6:00 PM	Miles: 795,109 Vehicle Hours: 43,232 Passengers: 149,082 Total Eligible Expenses:

					\$2,357,361
Hillsdale Dial-A-ride	The City of Hillsdale started providing transportation service to its city residents June 10, 1975. This demand-response system provides door-to-door service and is operated by the City of Hillsdale with city employees. Maintenance of buses is also performed by the city.	8,744/ 6	6/ 6	M-F 7:30 AM - 4:30 PM	Miles: 65,252 Vehicle Hours: 6,834 Passengers: 44,867 Total Eligible Expenses: \$404,719
Lenawee Transportation Corporation	Lenawee Transportation Corporation is a demand/response and semi-fixed-route transit system operated for and supervised by the county of Lenawee. Services provided are within the county and available to most citizens. Lenawee Transportation provides contract service to the consumers participating in the Community Mental Health programs and Goodwill Industries. Transportation service is also provided for the general public and for other Human Service Agency programs.	70,645/ 12	9/ 6	M-F 6:45 AM - 5:00 PM	Miles: 198,653 Vehicle Hours: 10,186 Passengers: 52,136 Total Eligible Expenses: \$483,934
Shiawassee Area Transportation Agency	Shiawassee Area Transportation Agency (SATA) started operations in January of 2000. SATA was formed under Act 7 by the communities of Owosso, Corunna, Perry, Durand, the Shiawassee Regional Educational Service District (RESA), and Caledonia Charter Township. The system started with a consolidation of vehicles from several private and public agencies. Service is primarily provided in and around the member communities with limited county wide service.	72,000/ 14	15/ 15	M-F 6:00 AM - 6:00 PM Durand and Perry M-F 6:00 AM - 10:00 PM Owosso and Corunna	Miles: 425,883 Vehicle Hours: 25,814 Passengers: 99,292 Total Eligible Expenses: \$922,344
Suburban Mobility Authority for Regional Transportation	The Suburban Mobility for Regional Transportation (SMART) is the suburban bus system operating in 75 communities of Macomb, Oakland and Wayne Counties covering more than 1,200 square miles. The authority operates over 283 fixed route buses and 350 paratransit vehicles. SMART is responsible for the planning, construction and operation of the public transportation facilities and services within four counties of southeastern Michigan (Wayne, Oakland, Macomb, and Monroe); excluding the City of Detroit in which this responsibility belongs to the Detroit Department of Transportation. SMART is also the fiduciary for state and federal grant funds passed on to communities in Wayne, Oakland, Macomb and Monroe counties, including areas that	1,590,766/ 1,018(996 FT and 22 PT)	389/ 389	M-SUN 22 Hours A Day	Miles: 17,094,061 Vehicle Hours: 904,744 Passengers: 12,666,653 Total Eligible Expenses: \$93,065,469

	do not contribute financially to SMART services and operation.				
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*Information compiled from Michigan Department of Transportation: http://www.michigan.gov/mdot/0,1607,7-151-9625_21607-31837--,00.html. Accessed February 15, 2011.

Appendix B: MDOT Administered Transportation Programs for Older Adults and People with Disabilities

Source: MDOT Bureau of Passenger Transportation

Program Descriptions

New Freedom (Federal Transit Administration (FTA) Section 5317)

Program Overview

The New Freedom formula grant program aims to provide additional tools to overcome existing barriers facing Americans with disabilities seeking integration into the work force and participation in society. Lack of adequate transportation is a primary barrier to work for individuals with disabilities. The 2000 Census showed that only 60% of people between the ages of 16 and 64 with disabilities are employed. The New Freedom formula grant program seeks to reduce barriers to transportation services and expand the transportation mobility options available to people with disabilities beyond the requirements of the Americans with Disabilities Act (ADA) of 1990.

Eligible Recipients

States and public bodies are eligible designated recipients. Eligible subrecipients are private non-profit organizations, State or local governments, and operators of public transportation services including private operators of public transportation services.

Eligible Activities

Capital and operating expenses for new public transportation services and new public transportation alternatives beyond those required by the American with Disabilities Act of 1990 (ADA), that are designed to assist individuals with disabilities.

Federal Transit Administration (FTA) Section 5310

Program Overview

This program (49 U.S.C. 5310) provides formula funding to States for the purpose of assisting private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. Funds are apportioned based on each State's share of population for these groups of people.

Funds are obligated based on the annual program of projects included in a statewide grant application. The State agency ensures that local applicants and project activities are eligible and in compliance with Federal requirements, that private not-for-profit transportation providers have an opportunity to participate as feasible, and that the program provides for coordination of Federally assisted transportation services assisted by other Federal sources. Once FTA approves the application, funds are available for state administration of its program and for allocation to individual subrecipients within the state.

Eligible Recipients

States are direct recipients. Eligible subrecipients are private non-profit organizations, governmental authorities where no non-profit organizations are available to provide service and governmental authorities approve to coordinate services.

Eligible Activities

Capital expenses that support transportation to meet the special needs of older adults and persons with disabilities.

Specialized Services (State of Michigan program)

Operating Assistance

These funds are to be used for operating assistance, including purchase of service and vehicle leases. The amount of operating assistance will be subject to the level of need, the level of local coordination and commitment, funding availability, and legislative appropriation for specialized services.

Specialized services operating funds distribution will be determined based upon an annual application process. A local coordination plan is a requirement of the application. As part of the coordination plan, efficiency and effectiveness of the services shall be reviewed by the local coordination committee.

One coordinating agency representing the transit interests of the elderly and persons with disabilities is eligible to receive a grant per county or multi-county region. This agency shall be the applicant for all specialized services funding requests in that county or region, regardless of who actually provides the specialized transit services. In order of priority the coordinating agency must be one of the following:

- a) A public transit agency; or if no public transit agency exists:
- b) A governmental agency; or,
- c) An existing 5310 agency; or,
- d) A non-profit corporation representing specialized services interest.

FY 2010 Section 5310 Program of Projects

Recipient	Description of Project	Total Cost
American Red Cross - GR	(1) Sports Utility Vehicle - expansion	\$30,300
	(2) Full size auto - replacement	\$55,550
American Red Cross - Muskegon	(1) Full size auto - replacement	\$25,250
Area Community Service	(3) 9-passenger vans w/lift - replacement	\$133,320
	(1) cutaway bus - replacement	\$69,015
	(1) medium duty bus w/lift - expansion	\$131,940
Baraga Houghton Keweenaw CAA	(1) 8-passenger van - replacement	\$21,210
	(1) 15-passenger van - replacement	\$26,260
Baragaland Senior Citizens, Inc.	(1) 15-passenger van - replacement	\$24,240
Clare County Transit Corporation	up to (1) medium duty buses w/lifts - replacement	\$46,757
	Up to 1 Medium Duty Replacement Bus	28,030
	Up to 2 Medium Duty Replacement Buses	143,975
	(3) medium duty buses w/lifts - expansion	\$351,850
Community Action Agency of South, Central MI	(1) 8-passenger van - replacement	\$20,200
	(1) 15-passenger van - replacement	\$21,210
Community Inclusive Recreation	(1) cutaway bus w/lift - replacement	\$72,165
Handicappers Info Council	(3) minivans w/lifts - replacement	\$133,320
Hope Network, Inc.	(13) 7-passenger minivans - replacment	\$262,600
	(3) cutaway bus w/lift - replacement	\$196,395
	(1) cutaway bus w/lift - expansion	\$65,465
	(2) med duty w/lift - replacement	\$260,750
Huron Transit Corp	(4) 30' < 35' buses - replacement	\$603,840
Ionia County Comm on Aging	(1) 7-passenger van - replacement	\$25,250
Key Opportunities	(1) 15-passenger van - replacement	\$21,200
Lapeer Team Work	(1) 15-passenger van - replacement	\$22,220
	(1) 15-passenger van w/lift - replacement	\$32,320
Manistee County Transportation	(1) cutaway bus w/lift - replacement	\$115,260
	(3) medium duty w/lift - replacement	\$380,390
Newaygo County Comm on Aging	(3) 9 passenger vans w/lifts - replacement	\$121,200
Northfields Human Service Agency	(2) 8-passenger vans w/lift - replacement	\$68,680
Oceana County Council on Aging	(1) cutaway bus w/lift - expansion	\$66,570
People's Express	up to (1) cutaway bus w/lift - replacement	\$4,442
	Up to 4 Medium Duty Replacement Bus - using	226,440
Pioneer Resources	(4) 7-passenger vans w/ lifts - replacement	\$181,800
	(2) 15-passenger vans - replacement	\$101,000
	(2) cutaway buses w/lifts - replacement	\$134,755
	(2) cutaway buses w/lifts - expansion	\$134,755
	(2) medium duty buses w/lifts - replacement	\$249,175
	(2) 35' < 40 ft. buses - replacement	\$306,000
Region 3B Area Agency on Aging	(1) 7-passenger van w/lift - replacement	\$30,300
Saginaw COA	(1) 7-passenger van w/lift - replacement	\$40,400
	(1) Sedan - replacement	\$20,200
Sanilac Transportation Corp	(2) medium duty buses w/ lifts - expansion	272970
Senior Neighbors	(1) cutaway w/lift - replacement	74555
SMART	up to (1) 7-passenger van w/ lift (NOTA) - expansion	\$10,871
	Up to 8 Medium Duty Replacement Buses;	81,785
	3 Medium Duty Expansion Buses; and up to 1	285,037
	Up to 3 exp and Up to 3 replac <30' buses and 1 Expansion Van	415,499
St. Mary's of MI Guardian Angel	(1) 7-passenger van - expansion	\$25,250
TRICO	(3) 7-passenger vans - replacement	\$60,600
UP Community Services	(1) cutaway bus w/lift - replacement	\$61,925
Western Washtenaw Area Value Exp	(1) medium duty w/lift diesel - replacement	\$98,490
Total FY2011 Program		\$6,392,981

source: Bureau of Passenger Transportation, MDOT

FY 2011 SECTION 5317 NEW FREEDOM PROJECTS

RECIPIENT	DESCRIPTION OF PROJECT	TOTAL AMOUNT
Allegan County BOC	Mobility Management	\$20,000
Caro Transit Authority	Operating	\$39,420
Clinton Aea Transit	Operating (2) minivans	\$100,000 \$82,000
Disability Connection	Operating Mobility Mgt Operating (New)	\$32,000 \$25,300 \$18,744
Gratiot County COA	Operating	\$20,000
Hope Network	Capital - Mobile data terminals	\$400,000
Jackson Transportation Authority	Bus Shelters	\$250,000
Key Opportunities	Operating	\$20,000
Macatawa Area Express TA	Operating Mobility Mgt Mobile Data (AUL)Phase II	\$118,000 \$40,000 \$120,000
Muskegon Co. BOC (MATA) (new)	Mobility Management (8) vans w/lifts (expansion)	\$100,000 \$440,000
Peoples Express	Operating Mobility Mgt - travel training	\$100,000 \$30,000
Pioneer Resources	Operating Mobility Mgt	\$100,000 \$5,000
Saginaw Transit Auth. Regional Services	Operating Marketing (1) 21 foot bus (replacement)	\$50,000 \$10,000 \$60,000
Shiawassee Area Transp Agency	Operating Operating (volunteer driver)	\$46,444 \$69,424
SMART - NOTA	Operating	\$186,068
Twin Cities	Mobility Management	\$75,000
Thunder Bay Transportation Authority	Operating Operating (expansion)	\$466,000 \$184,000
Total FY2011 Program		\$3,207,400

source: Bureau of Passenger Transportation, MDOT

FY2011 SPECIALIZED SERVICES

GRANTEE/ SUBRECIPIENT(S)	DESCRIPTION OF PROJECT	AMOUNT
Allegan County	Operating	\$106,704
ALTRAN Transit Authority	Operating	\$18,763
Ann Arbor Transportation Authority	Operating	\$176,840
Baragaland Senior Citizens, Inc.	Operating	\$14,672
Battle Creek	Operating	\$92,624
Bay Metro Transportation Authority	Operating	\$138,434
Branch Area Transit Authority	Operating	\$27,701
CATA	Operating	\$82,189
Cheboygan County COA	Operating	\$25,000
Chippewa-Luce-Mackinac CAA	Operating	\$25,842
Detroit DOT	Operating	\$377,758
Emmet, County, Friendship Center	Operating	\$93,214
HICPEL	Operating	\$41,213
Houghton, City of	Operating	\$58,172
ITP/The Rapid	Operating	\$463,289
Ionia, City of	Operating	\$21,507
Kalamazoo, City of	Operating	\$60,000
Key Opportunities, Inc. (Hillsdale County)	Operating	\$56,999
Lapeer Teamwork, Inc.	Operating	\$18,216
Lenawee County BOC	Operating	\$15,449
Livingston County	Operating	\$59,862
Marquette County Transit Authority	Operating	\$46,961
Mass Transportation Authority	Operating	\$306,772
Mecosta County BOC	Operating	\$34,431
Menominee/Delta/Schoolcraft CAA	Operating	\$44,290
Missaukee County COA (Volunteer Driver)	Operating	\$17,300
Montcalm County Commission On Aging	Operating	\$13,749
Muskegon County BOC	Operating	\$65,499
Newaygo County COA	Operating	\$32,410
Oceana County BOC	Operating	\$27,828
Oscoda County Area Transit Specialist	Operating	\$49,751
Ottawa County BOC	Operating	\$157,569
Presque Isle County COA	Operating	\$43,411
Saginaw Transit Authority Regional Services	Operating	\$98,924
Shiawasee Area Transportation Authority	Operating	\$78,374
SMART	Operating	\$787,819
St. Joseph County T A	Operating	\$18,690
U.P. COMMUNITY SERVICES, INC.	Operating	\$128,445
Yates Township Dial-A-Ride (Volunteer Driver)	Operating	\$17,048
Total FY2011 Program		\$3,943,719

source: Bureau of Passenger Transportation, MDOT

Appendix C: Selected Supplemental Transportation Programs and Specialized Transportation Programs in Michigan

Selected Supplemental Transportation Programs and Specialized Transportation Programs In Michigan*		
Region/ Selected Programs	Program Description	Source
Region 1-Bay		
Senior Services of Midland, Michigan	Senior Services began in 1963 and offers a variety of services including transportation, home care, adult day care, early memory loss program, home delivered meals, senior centers, caregiver education, support groups, counseling, volunteer and handyman work. Its transportation program serves adults age 60 and older for critical needs such as medical appointments, dementia specific adult day health services, dialysis, grocery shopping and more. Senior Services is unique in providing extensive dementia training to its 75 volunteer drivers, including training on types and stages of dementia and the physical and behavioral changes typical of the disease. The drivers openly discuss transportation challenges and effective techniques with each other. They understand and know what to do if someone becomes agitated, gets disoriented or wants out of the car. A fleet of 10 company cars and handicapped vans has been expanded recently by the addition of a 12 passenger bus which is more efficient due to the larger capacity. The expansion of the transportation department now consists of the adult day program aides who have obtained their chauffeur's licenses and drive the bus. The bus is used during the day for community events and outings. Senior Services recently received a Brookdale Foundation grant for the development of an early memory loss program which will be enhanced by providing transportation to those who are no longer able to drive.	Winner of the 2010 STAR Special Recognition Award to Senior Services; recognized for its extensive dementia training provided to its 75 volunteer drivers. Information compiled from Beverly Foundation (2010).
Carman-Ainsworth Senior Center	Carmen Ainsworth Senior Center is an adult day care located in Flint. Adult day care offers organized daily activities in a community-based setting along with personal care services. The Center coordinates with the transit authority to provide bus services to meet members' daily transportation needs within Genesee County, including all area hospitals. The cost is \$1.50 each way. Rides must be scheduled with the Carman-Ainsworth Senior Center. The Center requests that people make an appointment 24 hours in advance. Same day service is available only if a bus is available at that time. Service hours are: 8:00 AM - 4:00 PM Monday-Friday. There is no service on holidays.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.carman.k12.mi.us/7172109612343733/lib/7172109612343733/January_2010.pdf Accessed March 3, 2011
Sunrise Side Senior Services	The Center does not provide formalized transportation services. It will occasionally pick up seniors to bring them to the Center or take to the doctor but in the latter case, only as part of a home care visit.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from personal communication (phone 989-653-2692).

		No website available.
Region 2-Grand		
The Area Agency on Aging of Western Michigan	The RIDELINK program was organized to meet the need for coordinated transportation for older adults. Prior to RIDELINK, when older adults in the county needed transportation, they had a myriad of services to choose from, but no single access point to call for service. RIDELINK was implemented with the idea that older adults would be able to call one number to take care of their transportation needs. The system maximizes the use of available funds and transportation options geared toward older adults. RIDELINK's call-center operations began on December 29, 2006 and its transportation services began on January 2, 2007. Partner agencies in the project provide curb-to-curb, door-to-door and door-through-door transportation to seniors based on needs identified at the point of registration. Ridelink is a collaboration of five agencies providing transportation for adults 60 and over in Kent County, Michigan. Ridelink agencies include; ACSET- Latin American Services, American Red Cross, Hope Network Transportation, Senior Neighbors and United Methodist Community House. Ridelink is coordinated by The Rapid and the Area Agency on Aging of Western Michigan.	<p>Winner of the 2009 STAR Special Recognition Award for its RIDELINK program (for coordinating transportation for older adults).</p> <p>Information compiled from Beverly Foundation (2009) and: http://www.aaawm.org/ridelink</p> <p>Accessed on March 3, 2011</p>
Hope Network	Hope Network Transportation supports a higher level of independence and quality of life for individuals with disabilities, disadvantages and older adults through its Specialized Transportation Services and Volunteer Transportation System. For its Specialized Transportation Services, Hope Network utilizes a fleet of 63 vehicles, and more than 60 professionally trained staff. Drivers provide door-through-door transportation for older adults and door-to-door transportation for individuals with a disability. Transportation services take individuals to crucial medical appointments, day programming, jobs or other activities in the community. Its Volunteer Transportation System (VTS) was founded in 1997 to address the unmet transportation needs of Medicaid and disadvantaged residents in rural areas. VTS has over 130 active volunteers living in both Michigan and Ohio. These volunteers drive over 1.3 million miles annually, serving over 3,000 people who would otherwise have no access to medical care. Hope Network is a partner in Kent County's coordinated senior transportation network, RideLink . In 2009, Hope Network Transportation Services provided over 248,000 rides totaling more than 2.5 million miles.	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.hopenetwork.org/Support-Services/Transportation.aspx</p> <p>Accessed March 3, 2011</p>
Mecosta County Commission on Aging	Transportation services are provided as part of in-home support services. Qualifying Seniors are transported to and from medical appointments and other limited needs. Volunteer Drivers are trained to transport individual Seniors. DART Tickets are available to qualifying Seniors in Big Rapids. Four vans are available for handicapped, medical and group social trips. The Commission on Aging (COA) is funded by County	<p>Respondent to 2010 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.co.mecosta.mi.us/services.as</p>

	<p>millage, private contributions, memorials, Mecosta & Osceola United Way and the Michigan Department of Transportation. Grant funding through the Older Americans Act, Office of Services to the Aging, Area Agency on Aging of, Title 111B, State Alternative Care, and Senior Center staffing also play an important role in service provision.</p>	<p>p</p> <p>Accessed March 3, 2011</p>
Georgetown Senior Center	<p>The Georgetown Senior Center offers a variety of social, recreational, and educational activities for individuals age 55 and over. The Center offers transportation to Georgetown township residents to locations including the doctor, the store, work or to the senior center? The Center picks up users and takes them where they want to go. Prices range from \$2.50-\$15 depending on the zone of travel. Zones include: Zone A (from a location within Georgetown Township to Senior Center; from Senior Center to a location within Georgetown Township; from a location within Georgetown Township to another Township location); Zone B (cities of Hudsonville or Grandville, or similar distance); Zone C (regularly scheduled trip to Grand Rapids, Zeeland, Wyoming, Allendale, Holland, Cutlerville, Walker, Beltline area, or similar distance; special trip to Grand Rapids, Zeeland, Wyoming, Allendale, Holland, Cutlerville, Walker, Beltline area, or similar distance); Travel to outside these established areas may be arranged by calling ahead.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.georgetown-mi.gov/senior/index.html</p> <p>Accessed February 28, 2011</p>
Mecosta County Commission on Aging	<p>The purpose of the Mecosta County Commission on Aging (COA) is to improve the quality of life of the county's 60-plus population. The agency's goal is to support Seniors in their efforts to remain in their own homes, maintaining independence, health, dignity, and self-respect. Eligibility for services is determined on a priority basis. The Commission on Aging (COA) is funded by County millage, private contributions, memorials, Mecosta & Osceola United Way and the Michigan Department of Transportation. Grant funding through the Older Americans Act, Office of Services to the Aging, Area Agency on Aging of, Title 111B, State Alternative Care, and Senior Center staffing also play an important role in service provision. The Center offers transportation services through its in-home support program. Qualifying Seniors are transported to and from medical appointments and other limited needs. Volunteer Drivers are trained to transport individual Seniors. DART Tickets are available to qualifying Seniors in Big Rapids. Four vans are available for handicapped, medical, and group social trips.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.co.mecosta.mi.us/coa.asp</p> <p>Accessed February 28, 2011</p>
Region 3-Metro		
Jewish Family Service of Metro Detroit of West Bloomfield,	<p>Jewish Family Service of Metro Detroit, incorporated in 1928, is a non-sectarian nonprofit organization that provides a safety net for individuals and families facing difficult life situations. JFS provides several personalized, culturally sensitive social and mental health services, which include geriatric care management, mental health and</p>	<p>Winner of Beverly Foundation's STAR Award for Excellence in 2010 for its flexibility and adaptability in responding to the needs of its passengers.</p>

<p>Michigan (JFS)</p>	<p>substance abuse counseling, meals on wheels, home care, transportation and others. Transportation Services were created to respond to the community need for access to health care and lack of specialized mobility options. The program started with two volunteer drivers using their vehicles, and developed to what is now a staff of eleven drivers, volunteer receptionists, two dispatchers, a service director, and a fleet of thirteen agency-owned vehicles. The program now provides 26,000 to 30,000 rides per year, serving from 987 to 1200 riders annually. The curb-to-curb service was expanded to door-to-door assistance in 1995, and then to door-through-door and wheel-chair assistance in 2005 in response to the needs of fragile older adult riders with dementia and other mental health and cognitive impairment issues. JFS transportation is individualized and has the capacity to respond to people who may have difficulty scheduling rides, remembering appointments, handling money, and/or staying alone in the vehicle. Drivers undergo a defensive driving and a special passenger training provided in partnership with the local transit provider, and dispatchers and volunteers are trained to provide extra reminders to clients regarding their appointments and handle multiple calls from clients with patience and respect. Its sophisticated scheduling and dispatching software allows JFS to keep track of clients' destinations and special needs. Its transportation services are available not only to people with dementia, who are mainstreamed with other passengers, but also to their caregivers and family members, who travelled free of charge, and the number of rides is unlimited. In addition to demand-response scheduling, passengers have an option of subscription rides, allowing them to book on-going trips with one call.</p>	<p>Information compiled from Beverly Foundation (2010).</p>
<p>Macomb County Interfaith Volunteer Caregivers</p>	<p>Located in Warren, Michigan, Macomb County Interfaith Volunteer Caregivers was organized in 1992. It serves a suburban area, and offers transportation as part of a menu of services on a budget of \$46,545. It does not charge for rides, and its major sources of funding include community donations (87%), grants (11%), and rider donations (2%). The program provides rides to 219 senior riders, and involves 158 volunteer drivers, 56% of whom are age 65+. Drivers use their own vehicles to provide curb-to-curb, door-to-door, door-through-door, assistance at the destination, and escort services to passengers. Macomb County Interfaith Volunteer Caregivers maintains linking relationships with a variety of human service agencies as well as transportation services. Words that describe the relationship of its mission to its transportation services are: independence, home, and caregiving. In 2006, the program provided 4,058 rides at an estimated cost per ride of \$12.00. Designed specifically to fill transportation gaps, MCIVC provides rides beyond municipal boundaries, in the early morning for outpatient surgeries, late at night for special social outings, and offers various kinds of assistance at the destination. Thanks to MCIVC's efforts, premature institutionalization was prevented for many seniors.</p>	<p>Winner of 2007 STAR Award by Beverly Foundation.</p> <p>Respondent to 2008 and 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from Beverly Foundation (2007) and: http://www.casscoa.org/homeCare.htm</p> <p>Accessed March 3, 2011</p>

Troy Medi-Go Plus	Troy Medi-Go <i>Plus</i> is a non-profit community organization dedicated to helping Troy senior citizens and adults with disabilities in need of transportation to get to medical appointments and other important destinations. Troy Medi-Go <i>Plus</i> provides door-to-door transportation for Troy residents age 60 and older and persons with disabilities age 18 and older. Troy Medi-Go <i>Plus</i> receives funding and support from: The City of Troy, Michigan; SMART (Suburban Mobility Authority for Regional Transportation); Michigan Department of Transportation; The Beaumont Foundation; Rider and Supporter Donations.	Respondent to 2009 and 2010 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://site.troymedigo.org/ Accessed on March 3, 2011
Matrix Human Services, Reuther Human Services	Reuther Older Adult and Wellness Services (Reuther) was founded in 1953 by the United Automobile Workers as a social program to meet the needs of all retired men and women. Reuther promotes physical and mental well-being, and financial stability for vulnerable low-income seniors. Clients' basic needs are met by case management interventions that provide food, in-home services of homemaking, personal care and chores, as well as medical transportation, and access to vital self-sufficiency supports, Transportation services include transportation for medical appointments and personal business. Medical transportation includes door-to-door transportation to medical appointments.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.matrixhumanservices.org/index.php?option=com_wrapper&Itemid=91 Accessed March 3, 2011
North American Indian Association	Current funding does not allow for transportation program. Will hopefully be getting funding next year to re-instate program.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information from personal communication on March 3, 2011
City of Royal Oak Senior Transportation	The City of Royal Oak Senior or Handicapped Transportation program is available from 9:15 AM - 3:30 PM, Monday – Friday. Calls can be made to the dispatch number (248-246-3914) between the hours of 9:30 AM and 12:30 PM, up to two weeks ahead, to schedule an appointment. Handicapped lifts are available. The transportation boundaries for the program are Nine Mile Rd to Fifteen Mile Rd., between Southfield Rd. and Stephenson Hwy. A fare of \$2 is suggested for each one-way trip. A fare of \$3 is suggested for each round trip. There is a daily shuttle to and from the Senior/Community Center or Salter Community Center, and daily transportation to medical appointments (within above boundaries <u>plus</u> Livernois and Crooks Rd North to 16 Mile Rd., and Dequindre to 11 Mile Rd.). Transportation to other locations within the program boundaries is also provided daily. Transportation to the Northwood Shopping Center is available on Tuesdays, to Meijers on Thursdays, Oakland Mall on the 1 st and 3 rd Wednesday of each month, and Somerset Mall the 2 nd Wednesday of each month.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.ci.royal-oak.mi.us/portal/departments/senior-community-center/transportation Accessed February 28, 2011
The City of	The City of Southfield and SMART (Suburban Mobility Authority Regional	Respondent to 2009 STAR Search/Awards

<p>Southfield</p>	<p>Transportation) work together to improve community transit service to accommodate the needs of Southfield’s senior citizens and those with disabilities. They do this in several ways. Transportation of Southfield Seniors (TOSS), uses lift-equipped vans to transport senior residents (age 60+) who reside in Southfield or Lathrup Village. TOSS accommodates permanently physically challenged persons of any age. For information and arrangements please call (248) 796-4658. A donation of \$5 per round trip is suggested. Additional donations are welcome. In addition to medical appointments, TOSS provides services to local supermarkets and banks, to doctors and other medical appointments. There is also the SMART Connector. Regular scheduled stops for SMART buses have been arranged at more than 25 Southfield locations. Scheduled transportation to theaters, sporting events, shopping, and personal errands are available. For a listing of pickup locations and destinations users can call the Southfield Adult Recreation Center 50+ at (248) 796-4650. Curb-to-Curb bus service is available by appointment. Those requiring regular service through SMART may call their offices at (248) 476-6630 at least two days in advance of the required pickup.</p>	<p>survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.cityofsouthfield.com/Government/CityDepartments/LZ/ParksRecreation/ServicesforSeniors/tabid/507/Default.aspx</p> <p>Accessed February 28, 2011</p>
<p>Transportation Program of the Dublin Senior Center</p>	<p>White Lake Township offers a transportation program. This service is open to the senior and disabled residents of White Lake, Commerce and Wolverine Village. Vehicles are available to transport people to the Dublin Community Senior Center, medical appointments, employment, grocery shopping, pharmacies, malls and more. For information people can call 248-698-3994 Monday – Friday between 8:30am – 12:30 PM Reservations may be taken up to two weeks in advance but no later than one day before. Space may not be available on short notice. \$1 suggested fare for each one-way trip.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.whitelaketwp.com/Committees/SeniorCenter/Newsletters/2005/April%2005%20Newsletter.pdf</p> <p>Accessed February 28, 2011</p>
<p>Region 4-North</p>		
<p>Otsego County Commission on Aging’s (OCCOA) Medical Transportation Program</p>	<p>OCCOA’s Medical Transportation Program offers rides to Otsego County older adults for medical appointments, including those to doctors, labs, dentists, eye care practitioners, and pharmacies. Rides are provided free of charge by Retired Senior Volunteer Program (RSVP) volunteers on an as-needed basis. Those willing to utilize the Otsego County Bus System may obtain free bus tokens from OCCOA for appointments scheduled in Otsego County. The program is limited to Otsego County residents and is targeted toward those who are 60 years of age or older. Availability of rides is based on volunteer availability. Most drivers provide rides to local appointments in Gaylord. There are others who are willing to drive to other locations, including Petoskey, Traverse City, Grand Rapids, Midland/Saginaw/Bay City, Ann Arbor, and Detroit. Because the program is volunteer-based, OCCOA cannot guarantee that an RSVP driver will be available when you need them. However, approximately 75% of requests are filled. The sooner you submit your request for a ride, the more likely a</p>	<p>Respondent to 2010 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.otsegocountycoa.org/medtr ans.cfm</p> <p>Accessed March 3, 2011</p>

	<p>driver will be able to drive you. Participants need to be able to get in and out of the volunteer's vehicle with limited assistance. If you need to be lifted in and out of the volunteer's vehicle, please arrange for a family member or friend to help you. You will need to arrange for similar assistance at the facility to which you are traveling.</p>	
<p>Cheboygan County Council on Aging</p>	<p>The Cheboygan County Council on Aging is a private non-profit 501 C-3 organization incorporated in 1974 to serve the needs of Cheboygan county's senior citizens. Senior transportation services are provided including a van with a handicap lift. Qualifying users include seniors and persons with disabilities within the existing transit service areas of the County of Cheboygan. Services are provided to the following destinations only: doctors appointments and senior centers for meals and recreation. Medical Centers include all Medical Centers in Cheboygan, Indian River, and Wolverine cities.</p> <p>Arrangements must be made 2 working days in advance. In Cheboygan call the Cheboygan Senior Center at (231) 627-7234, Sunday through Thursday, 8:30 AM – Noon. Escorts are available.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.3coa.com/show/transportation.html</p> <p>Accessed March 3, 2011</p>
<p>Friendship Centers of Emmet County</p>	<p>Friendship Center buses help meet the mobility needs of senior citizens for a variety of purposes including doctor's appointments, employment, grocery shopping, volunteering, socialization, and assorted personal care requirements. The buses are lift-equipped to handle wheel chairs and persons with other special needs. Bus service is available Monday-Friday between the hours of 9:00 AM and 4:30 PM Calls are accepted between the hours of 8:30 AM and 5:00 PM Fares for seniors age 60 and older range from \$1.50 one way for in-town rides and \$2.50 one way for out-of-town rides. Routes include: North Route - Monday thru Friday a bus comes down to Petoskey from the Pellston area. The route is determined by rider usage. Riders can come into town and spend the day and return at 2:00 or 4:00; Harbor Springs Route - Call for specific information. The schedule for this bus is determined by rider usage; East Mitchell Route - On Tuesdays and Fridays the bus leaves Petoskey for pick-ups in the eastern part of Emmet County (Maxwell Road; Pickerel Lake Road area). Riders can spend the day in town and return around 3 PM. Rides are also provided to the Casino by reservation. For medical and other appointments, users must call at least one day ahead. For shopping, users can call anytime but are encouraged to plan ahead to be accommodated.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.emmetcoa.org/services/transportation</p> <p>Accessed February 28, 2011</p>
<p>Region 5-Southwest</p>		
<p>Shepherd's Center Escort Transportation -</p>	<p>Escort Transportation is a one-on-one personalized transportation service to health related appointments. Transportation is available Monday through Thursday: There is a limit of two rides per week per individual. A donation to the Shepherd's</p>	<p>Winner of STAR Award for Excellence.</p> <p>Information compiled from:</p>

Kalamazoo, MI	<p>Center of \$5.00 is suggested for a round trip. This may be paid to the driver. Non-Medical escort transportation is a one-on-one personalized transportation service for non-medical needs such as shopping, banking, library, and nursing home visits. Service are available Wednesdays and Thursdays and are limited to two rides a month And 3 hours per trip. A donation to the Shepherd's Center of \$5.00 is suggested for a round trip. This may be paid to the driver. Volunteer drivers provide one to one transportation. The program's goal to assist older adults to remain independent by providing transportation to appointments. Drivers donate their time and use their own vehicles. They remain with the rider and are available to assist as necessary.</p>	<p>http://www.shepherdscenterkalamazoo.com/transportation.php</p> <p>Accessed February 28, 2011</p>
Portage Senior Center	<p>Established in 1979, the Portage Senior Center is the first nationally accredited senior center in Michigan. It is a vital, busy place offering a variety of services and activities that change with the needs and desires of its members. The mission of the Portage Senior Center is to provide, with the help of its members, information and a range of services, activities and volunteer opportunities that promote personal growth, health, friendship and independence for area persons over the age of 50. Transportation to and from the Center via the PSC mini-bus is available to City of Portage residents who are members of the Center. Members are asked to call at least one day in advance to make arrangements. Transportation is also provided for local weekly shopping excursions. A donation of \$3 per round trip is suggested.</p>	<p>Respondent to 2009 and 2010 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.portagemi.gov/Departments/SeniorCitizenServices.aspx</p> <p>Accessed on March 3, 2011</p>
Cass County Council on Aging	<p>The Cass County Council on Aging Home Care department mission is to maintain and improve the quality of life for mature adults (over 60 years of age); by providing 24 hour a day basic in-home care, seven days a week (as staff are available). The staff of bonded and trained Care Givers (Direct Care Workers) cover the entire Cass County providing services to individuals and families on both a short and long term basis. As part of its Home Care Program, the Council provides transportation to out of county medical appointments. The team of volunteer drivers may drive their own cars or drive the handicap accessible van. Transportation is provided to non-Medicaid seniors over 60.</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.casscoa.org/homeCare.htm</p>
North Berrien Senior Center	<p>The North Berrien Senior Center has been committed to serving persons 60 years of age or older and their spouses for over 25 years. The service area primarily consists of the cities of Coloma and Watervliet and the townships of Bainbridge, Coloma, Hager and Watervliet. All area seniors can participate in any of its programs. The North Berrien Senior Center is funded largely through Berrien County millage, Region Four Area Agency on Aging through Title III-B of older America Act, Community Hospital Watervliet, and private donations. In terms of transportation, volunteers donate their time to drive the center's vehicles to bring seniors who live in our service area and are 60 years of age or older to medical appointments, grocery shopping, and rides to the center for lunch. Transportation is available from 9:00 AM - 3:00 PM Monday through</p>	<p>Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation.</p> <p>Information compiled from: http://www.northberrienseniocenter.org/index.html</p> <p>Accessed March 3, 2011</p>

	Friday and is limited to areas of Berrien County.	
Southwest Michigan Planning Commission (SWMPC) Senior Transportation Demonstration Program	In 2008, SWMPC's grant proposal was one of eight selected for funding by the National Center for Senior Transportation. The funds are being used to purchase web-based software for public transit agencies in southwest Michigan to improve customer satisfaction, increase efficiency and lessen staff time spent on generating reports. The project involves 8 public transit agencies and 4 senior agencies and is intended to improve regionalization of services and coordination between agencies. Implementation strategies include: 1) purchasing and implementing a regionalized, web-based program in rural/small transit agencies to allow for efficiencies, improve customer service, and expand services; 2) survey the older adult populations in Van Buren and St. Joseph Counties to inform transportation planning; and 3) pilot a program in Branch County (Senior Connect) to allow seniors to travel on public transit with an escort or mentor without additional charge.	National Center for Senior Transportation 2008 Grant Project Information compiled from: http://www.swmpc.org/ncst.asp Accessed February 28, 2011
Region 6- Superior		
ALTRAN-Alger County Public Transportation	ALTRAN provides dial-a-ride service for all transportation needs. Passengers are asked to make reservations in advance. Same day call ins may not be able to get the scheduled time they request due to advance reservations. Each time someone boards the bus he or she must pay a fare. Children two and under, when accompanied by an adult, ride free. If a personal care attendant is needed, the attendant rides for free.	Respondent to 2010 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.altranbus.com/ Accessed March 3, 2011
Little Brothers – Friends of the Elderly	Little Brothers - Friends of the Elderly is a national network of non-profit, volunteer-based organizations committed to relieving isolation and loneliness among the elderly. Among the direct services offered by the branch in the Superior Region are a local Medical Transportation Program and a Medical Transportation Program to Marquette. Both programs are free of charge. They also have two wheelchair vans available to transport elderly who need assistance. They also offer to stay with the elderly person as needed. Their goal is to make their transportation program special for the elderly.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://houghton.littlebrothers.org/ Accessed March 3, 2011
Hospice of the EUP	The Hospice of the EUP offers transportation services to seniors through its Faith In Action Bridging Program which provides community support through volunteer services to homebound individuals throughout Chippewa County. These services are designed to help clients and their families to maintain their independence, dignity and quality of life. Services include transportation for medical appointments, shopping, errands, and other trips. There is no fee for the service.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: personal communication (906-253-3151) http://www.faithinactionmi.org/hospice_of_chippewa/

		Accessed February 28, 2011
Region 7- University		
Blueprint for Aging – Catholic Social Services of Washtenaw County	The Blueprint for Aging is a collaborative of seniors, family members, nonprofits, businesses, and government agencies working to improve services, care, and quality of life for older adults in Washtenaw County. The Blueprint has developed four initiatives to institute fundamental system changes: 1) foundation building; 2) aging in place; 3) senior leadership; and 4) technological innovations. The Blueprint for Aging website (http://blueprintforaging.org/) provides information about senior resources in Washtenaw County, including transportation services (e.g., Rideconnect, Neighborhood Senior Services Medical Access Program, and Jewish Family Services Patient Partners Program). One of the pilot projects initiated in 2008 involved the development and implementation of a transportation voucher program for seniors. Expansion of the voucher program to rural parts of the county is planned.	Respondent to 2010 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.csswashtenaw.org/index.php?page=blueprint-for-aging and http://blueprintforaging.org/ Accessed March 3, 2011
Jewish Family Services of Washtenaw County	The JFS Transportation Program has grown to include 3 vans, one of which is equipped with a wheelchair lift. The program is designed to provide low-cost transportation for Older Adults and disabled clients to doctor's appointments, grocery stores, work and to events and programs at both the JFS office and Jewish Community Center. JFS carefully selects and hires caring, safe, and professional drivers to provide quality services including door-to-door escorted transportation to our frail older adults needing personal assistance. Detailed information on the program, scheduling and fees is contained in the JFS Car/Van Transportation Program booklet on the website.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.jfsann Arbor.org/services/transportation/ Accessed March 3, 2011
Western-Washtenaw Area Value Express (WAVE)	WAVE is a non-profit service organization that exists to provide affordable transportation to older adults, persons with disabilities, and other transit-dependent individuals in western Washtenaw County. Services include: door-to-door bus service in the Chelsea and Dexter area; inter-urban express bus linking Chelsea with Dexter and Ann Arbor; special trips bus for groups; and LifeLine Services Van program that can drive a western Washtenaw County resident to anywhere within Washtenaw County. These services operate Monday through Friday, with the exception of holidays. Participants call (734) 475-9494 for details or to arrange a ride.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.ridethewavebus.org/ Accessed March 3, 2011
East Lansing Prime Time	The East Lansing Prime Time Seniors' Program mission is to provide welcoming and enjoyable opportunities that meet the educational, leisure, and service interests of East Lansing seniors and to reach out and lend personal support through our many programs. The program is open to all area persons 55+. Transportation programs include a Gold Card Taxi Service which provides taxi fare assistance to seniors age 60+ who live within the boundaries of East Lansing. The card is good for \$20 off taxi fare	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://www.cityofeastlansing.com/PrimeTime/

	each month and a \$10 start fee for the card as well.	Accessed March 3, 2011
Hillsdale County Senior Services Center, Inc.	Hillsdale County Senior Services Center, Inc. offers a Volunteer Transportation program as a service for county residents needing transportation to and from non-emergency medical appointments. To be eligible, users must be a Hillsdale County resident, 60 years of age or disabled (transportation is available to those not disabled and under 60 for a fee). The Senior Center must be notified five working days in advance of the date with time and location of appointment. The transportation Specialist from the Center will return calls with verification of transport which includes pick-up time and the driver's name. The Center also provides Socialization Transportation for special events and to encourage isolated older persons to visit the Center and stay involved in the community. Socialization Transportation is available on Wednesdays, Thursdays and the second Friday of every month for BINGO.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://hillsdaleseniorcenter.org/main/ Accessed March 1, 2011
Milan Senior Activity Center	The Center provides transportation to anyone age 50 and older who resides in the greater Milan area (zip code 48160). Services include door-to-door on demand transportation. A 24-hour advance notification is requests, although shorter notice is accepted. Services are offered Monday, Wednesday, and Thursday from 9 AM to 2 PM. Fees are based on distance traveled with a limit of 20 miles outside of town and range from \$1.00 to \$5.00 each way. Funding for the program comes from the Monroe County Commission on Aging, the city of Milan, and various small grants.	Respondent to 2009 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from personal communication with Center (phone 734-508-6229). Website under construction.
The ARC Shiawassee – Supporting Inclusive Transportation	The ARC Shiawassee – Supporting Inclusive Transportation (SIT) is a pilot transportation voucher program funded by the Michigan Developmental Disabilities Council to help Developmentally Disabled individuals in the rural areas of Shiawassee County gain access to the community by supplementing the costs of transportation. This does not include public transportation such as SATA and Thomas Transportation nor is it intended to replace those existing services. Vouchers can be used to reimburse drivers for taking you places such as Employment, School, Medical, Errands, Social and Leisure, and Civic Involvement. Riders must be able to request on their own to be enrolled and participate in the program or indicate in some other way their interest. Enrollment requests from family or providers will be considered only when it is clear that the potential rider is interested and will benefit. Riders must complete an orientation training designed to ensure they understand how the program works and the designed to help them choose safe drivers. Drivers will be reimbursed for expenses using the voucher system. It is the responsibility of the driver to sign the voucher, therefore validating the accuracy, and to submit it to The Arc Shiawassee for payment.	Respondent to 2008 STAR Search/Awards survey conducted by Beverly Foundation. Information compiled from: http://ucpmichigan.ucplabs.org/uploads/media_items/shiawassee-policies.original.pdf Accessed February 28, 2011
Community Shopping Bus	The Community Shopping Bus Program helps seniors access local shopping centers at a reduced cost. The program was initiated and is sustained through a collaborative	Featured as a case study in the Beverly Foundation's Public Transportation

Program (Capital Area Transportation Authority)	effort with the human service agency. The shopping bus is a 30-foot, low floor bus with cargo compartments. It can carry more than 20 riders and their packages, as well as transport up to three people using wheelchairs. The bus makes regularly scheduled trips between senior housing complexes and local shopping centers. Reservations are not required.	Programs for Seniors (2007). Information compiled from that report.
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*The specialized and supplemental programs contained in this table represent a selected set of such programs rather than an exhaustive inventory. Many have been chosen from the sample of programs that has responded to the Beverly Foundation's STAR Search and STAR Awards Program survey, an annual survey intended to identify transportation programs that meet the 5 "A"s of senior friendly transportation (available, affordable, accessible, acceptable, and adaptable). For a fuller listing of programs by region and county of the state as of 2005 and as a complement to this table, see Michigan Office of Services to the Aging (2005), as well as Appendix B.