

Improving the Safety of Older Road Users

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NCHRP SYNTHESIS 348

Improving the Safety of Older Road Users

A Synthesis of Highway Practice

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Planning and Administration; Highway Operations, Capacity, and Traffic Control; Safety and Human Performance

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FOREWORD

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Highway administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to highway administrators and engineers. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire highway community, the American Association of State Highway and Transportation Officials—through the mechanism of the National Cooperative Highway Research Program—authorized the Transportation Research Board to undertake a continuing study. This study, NCHRP Project 20-5, “Synthesis of Information Related to Highway Problems,” searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an NCHRP report series, *Synthesis of Highway Practice*.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

This synthesis is a “snapshot” of programs and policies in place across the country to improve the safety and mobility of older road users. The report will be useful to U.S. transportation agencies, as well as to others working in this topic area. The scope was intentionally broad, in an attempt to document the range of strategies and related programs underway in roadway engineering, driver licensing, public information and education, and enforcement and adjudication.

This wide-ranging synthesis effort included a review of the literature, beginning with a search of U.S.DOT, National Highway Traffic Safety Administration, FHWA, and Centers for Disease Control and Prevention reports and publications, supplemented by a Transportation Information Systems (TRIS) review. In addition, primarily web-related searches, with follow-up telephone contacts and interviews, were conducted of programs and activities of other agencies and organizations not captured in the published literature. These contacts included the American Society on Aging, American Association of Retired Persons, AAA Foundation for Traffic Safety, American Medical Association, and National Association of Area Agencies on Aging. Individual surveys were developed to gather state-level information from four target sources: state DOTs and state offices of highway safety (24 returns), state motor vehicle departments (34 returns), and state units on aging (18 returns).

A panel of experts in the subject area guided the work of organizing and evaluating the collected data and reviewed the final synthesis report. A consultant was engaged to collect and synthesize the information and to write the report. Both the consultant and the members of the oversight panel are acknowledged on the title page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

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IMPROVING THE SAFETY OF OLDER ROAD USERS

SUMMARY Over the next two decades, the United States will witness tremendous growth in its older road user population. As the “baby boom” generation reaches retirement age, the number of older drivers and pedestrians will swell. Today, one in eight U.S. residents is age 65 or older; by 2030, the number will be one in five. Some states—Florida, Iowa, Pennsylvania, and West Virginia—will reach this number much sooner.

Older road users were elevated to the forefront of transportation safety agendas in 1988 with the publication of *TRB Special Report 218: Transportation in an Aging Society*. In response to this report, both FHWA and NHTSA launched significant new older road user research programs that laid important groundwork for future programmatic activities. In 1995, the U.S. Secretary of Transportation directed the department to begin work on a proactive plan to accommodate the growing number of older road users. The resulting report, *Improving Transportation for a Maturing Society*, was the first to set forth the challenge of “Safe Mobility, for Life.”

The objective of this synthesis report is to document the range of strategies and related programs underway at national, state, and local levels to improve the safety and mobility of older road users. Topic areas addressed include planning for the older road user, roadway engineering and traffic operations, driver licensing, public information and education, and enforcement and adjudication. Omitted from the scope of this report were programs that address alternative transportation for older adults.

Because activities in these important areas are not limited to a single agency, the synthesis incorporates information from a variety of national and state agencies, organizations, and professional associations. Information was also gathered from a review of the literature, Internet searches, personal communications, and from four separate surveys. The surveys were distributed either by mail or electronically through the Internet. In addition to state departments of transportation (DOTs), surveys were sent to state driver license agencies, state highway safety offices, and state units on aging. Results from these four surveys have been incorporated into the report to provide a “snapshot” of older road user programs and activities across the nation.

With regard to planning for an aging road user population, the report identified six states with comprehensive plans in place for improving older road user safety and mobility: California, Florida, Iowa, Maryland, Michigan, and Oregon. Planning activities have also occurred in New York State; Maricopa County, Arizona; and in the Delaware Valley region of Pennsylvania and New Jersey. Ten of the 24 states responding to the state DOT survey indicated that older driver issues are addressed in their strategic highway safety plans and 8 stated that they had formed statewide coalitions to address older driver safety and mobility needs from a broader perspective. Only a few of the states, however, noted involvement of their state health department, department on aging, AARP (formerly the American Association of Retired Persons), or other agencies and organizations in the planning process. Such collaborations are considered a critical component to successful planning for older road user safety and mobility.

Roadways can play an important role in enhancing safety, not only for older road users but for users of all ages. All of the states responding to the engineering portion of the DOT survey reported that they were familiar with FHWA's *Highway Design Handbook for Older Drivers and Pedestrians*, and all but a few had participated in one or more of the FHWA-sponsored Older Driver Highway Design Workshops. However, state responses varied considerably in the extent to which they had implemented various roadway improvements identified as beneficial for older road users.

With regard to driver licensing, a growing number of states have imposed some additional requirements for older adults wanting to renew their driver licenses, including more frequent renewals, vision screening, and/or in-person renewals. Special programs have also been initiated to help identify "at-risk" drivers of any age. In addition, there were examples of more proactive efforts by driver license agencies to reach out to older adults and educate them to make responsible decisions about their driving. This has frequently entailed forming partnerships with other agencies and organizations in the public and private sectors. Driver license programs in California, Florida, Maryland, and Oregon are highlighted in that section of the report.

A fourth area addressed in the report is education and training, as directed toward the older road user, but also to family members and friends, "intermediaries" (e.g., physicians, driver licensing personnel, and social service providers), and the general public. A wide variety of materials and programs has been developed by both government agencies and nongovernmental organizations, and very often by partnerships between the two. The same broad group of partners and stakeholders has been actively engaged in implementing the various initiatives. Clearly, older driver safety and mobility is an issue that generates broad-based interest and support.

The final topic area examined is enforcement, and more specifically, law enforcement and judicial involvement in older driver safety initiatives. Two frequently identified avenues of involvement were participation on state and local advisory committees and identification and reporting of at-risk drivers to licensing authorities. The project also uncovered other areas of activity, ranging from teaching driver safety courses to acquiring help for Alzheimer's patients to serving as spokespersons for statewide advertising campaigns.

Six "good practice" states were identified based on the comprehensiveness, innovation, and long-term commitment of their programs: California, Florida, Iowa, Maryland, Michigan, and Oregon. A concluding chapter identifies common themes emerging from the identified programs and initiatives and makes suggestions for future research and programmatic efforts to improve older road user safety and mobility.

INTRODUCTION

BACKGROUND

One hundred years ago, when automobiles first began rolling off assembly lines in Detroit, the average life expectancy at birth in the United States was 47 years, and only 4% of the population was age 65 or older. A half century later, as the U.S. Congress was voting to fund the Interstate Highway System, average life expectancy had risen to 68 years, and 8% of the population was age 65 or older. Today, the average male born in this country can expect to live to age 75, whereas the average female can expect to live to be 80. One in every eight persons is age 65 or above (“Older Americans 2000: Key Indicators of Well-Being” 2000; “Health, United States, 2003”).

As the “baby boom” generation continues to move toward retirement age and beyond, the proportion of older U.S. residents will swell. The series of charts shown in Figure 1 demonstrate how the growing number of older adults is reshaping the overall age distribution of the U.S. population. By 2030, one of every five U.S. residents will be age 65 or older. Some states—Florida, Iowa, Pennsylvania, and West Virginia—will be reaching this number much sooner (see Figure 2).

Older road users are not necessarily less safe drivers and pedestrians than younger road users. As measured by crash involvements per licensed driver, older drivers are among the safest on our roadways (see Figure 3). However, older drivers do experience higher crash rates per mile driven, and they are much more likely to be seriously or fatally injured in crashes (see Figure 4). This is primarily the result of an increase in the fragility that comes with age; when compared with younger drivers, older drivers are much more likely to be killed or seriously injured in their crashes (Lyman et al. 2002; Li et al. 2003). Adults age 65 or older are also more vulnerable as pedestrians. Although this age group comprises 13% of the U.S. population, it accounted for 21% of pedestrians killed in collisions with motor vehicles in 2003 (*Traffic Safety Facts 2003* 2004).

Overall, older adults accounted for 15.6% of reported U.S. traffic fatalities in 2003 (*Traffic Safety Facts 2003* 2004). Unlike for other age groups, there has been little targeted activity to decrease these numbers. A U.S.DOT analysis of population-based traffic fatality rates over the 20-year period from 1980 to 1999 showed declines in every age group except for older adults (see Figure 5). The report notes that

“Continued safety improvements for our older drivers and pedestrians need to be implemented to counter the potential for a major increase in older driver fatalities by 2030, as the elderly population doubles and drives far more miles than the present older generation” (“Safe Mobility for a Maturing Society . . .” 2003). Although fatality rates have begun to decline over the last 5 years (“Fatality Facts . . .” 2003), there is still much need for progress in light of the huge upcoming demographic changes.

Today’s older adults are healthier, wealthier, and considerably more mobile than older adults of the past. They are also heavily dependent on personal automobiles. According to the most recent National Household Travel Survey, 88% of all trips made by older adults are as drivers or passengers in personal vehicles (Pucher and Renne 2003). When compared with previous travel surveys, the population age 65 and older has increased its number of daily miles traveled and number of trips taken faster than any other age group.

In recognition of the aging road user population and its potential implications for safety on our roadways, the U.S.DOT and many state transportation and highway safety agencies have begun implementing policies and programs to improve older road user safety. In many instances, they have joined with other agencies and with organizations in the private sector to broaden their impact. These activities have been directed at improving the roadway and driving environment to better accommodate older road users, helping older adults to be safer drivers and pedestrians, identifying and assisting unsafe drivers, and providing better alternative transportation for those unable to drive. Although aging is often accompanied by a decline in abilities related to driving, the overriding goal of these programs has been to help older adults continue to drive as long as they can do so safely and to provide viable alternative means of transportation when driving is no longer an option. The purpose of this synthesis report is to provide an overview of these various programs and activities.

SYNTHESIS OBJECTIVE AND SCOPE

The objective of this synthesis project is to document the range of strategies and related programs at the national, state, and local levels directed at improving the safety and mobility of older road users. Topic areas of interest include planning for the older road user, roadway engineering, driver licensing,

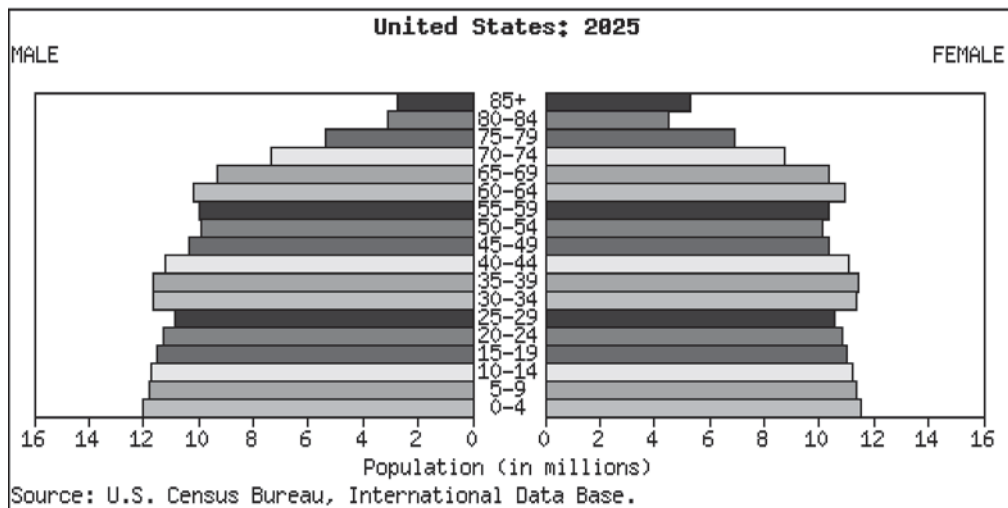
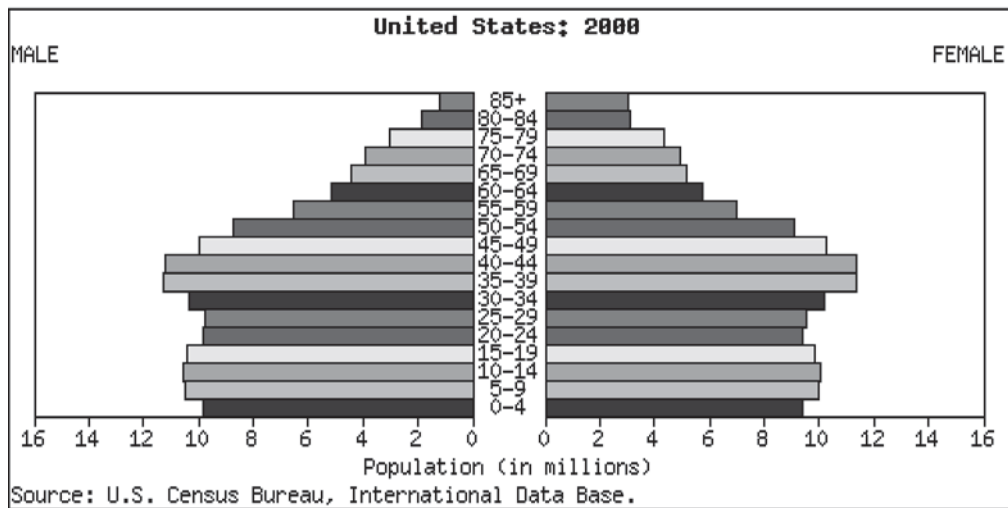
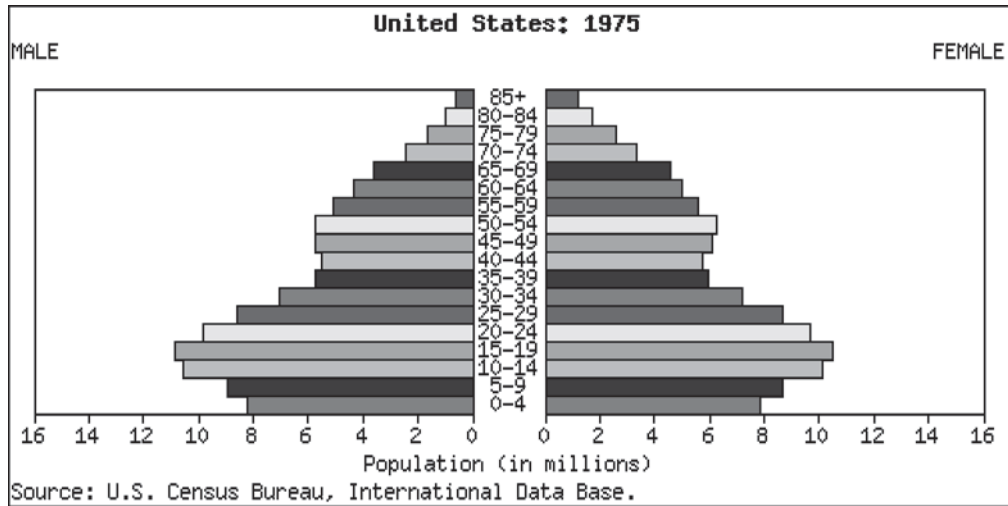


FIGURE 1 The “squaring” of the U.S. population. (Source: U.S. Census Bureau, International Data Base.)

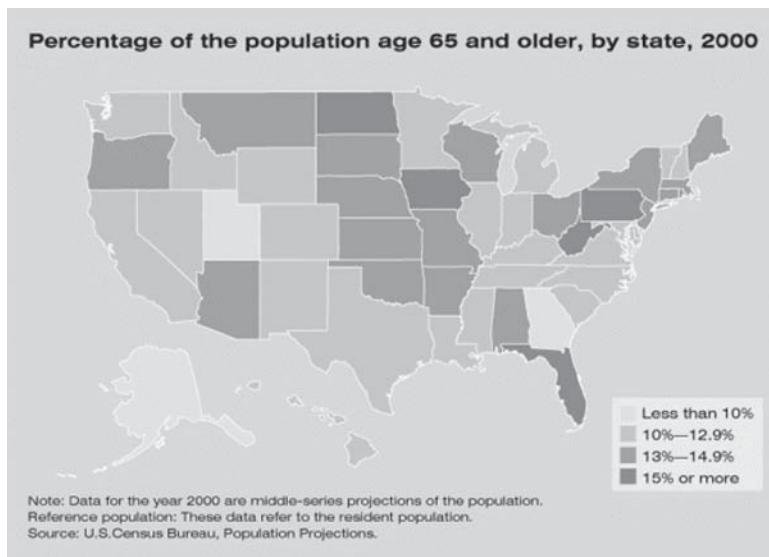


FIGURE 2 Percentage of population age 65 and older, by state, 2000. (Source: National Center for Health Statistics 2000.)

public information and education, and enforcement and adjudication. Omitted from the scope of this synthesis report are programs that address alternative transportation for older adults who cannot drive or who choose not to drive. It was decided by the project panel that this topic merited separate attention. Recognizing that activities in these important areas are not limited to state departments of transportation (DOTs), the synthesis includes information acquired from a variety of national and state agencies, organizations, and professional associations.

SYNTHESIS APPROACH

The project initially involved a review of the literature, beginning with a search of U.S.DOT, NHTSA, FHWA, and Cen-

ters for Disease Control and Prevention (CDC) reports and publications. This was supplemented by a review of published reports and articles on the TRIS (Transportation Information Systems) database, which captures a broader range of published literature. The focus of the literature search was programs and policies to improve the safety of older road users.

This initial effort was followed by a review of programs and activities by other agencies and organizations and by professional associations not captured in the published literature, primarily through web-based searches and follow-up telephone contacts. Examples of contacts included the Administration on Aging, American Association of Retired Persons (AARP), American Automobile Association (AAA) Foundation for Traffic Safety, American Association of Motor Vehicle Administrators (AAMVA), American Medical

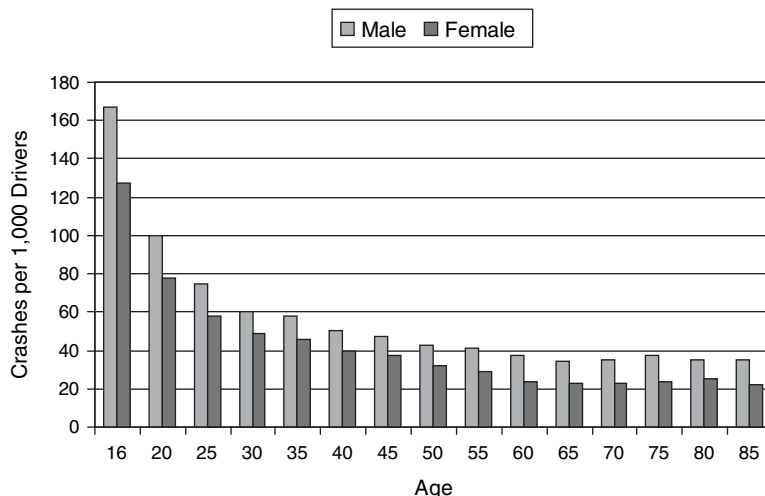


FIGURE 3 Crashes per 1,000 licensed drivers, by age of driver. (Source: Williams and Shabanova 2003).

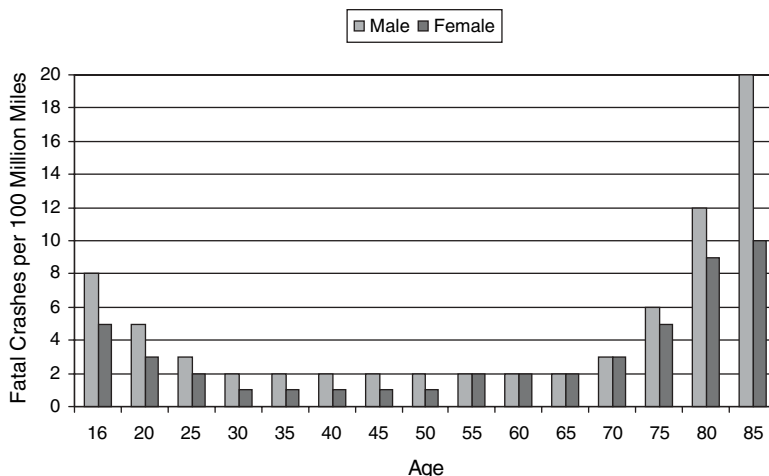


FIGURE 4 Fatal crashes per 100 million miles traveled, by age of driver. (Source: Williams and Shabanova 2003.)

Association (AMA), and National Association of Area Agencies on Aging (N4A). As is typical in this type of endeavor, there was often a snowball effect, with one contact producing leads to further contacts.

Finally, separate surveys were developed to gather state-level information from the following four sources:

- State DOTs (see Appendix A).
- State motor vehicle departments, or DMVs (see Appendix D).
- State highway safety offices (HSOs) (see Appendix F).
- State units on aging (see Appendix H).

The DOT survey was distributed electronically to the TRB-identified contact person in each state, and was also distributed by a member of the project panel. The DMV survey was

mailed to DMV contacts in each state using a mailing list and cover letter provided by AAMVA. The HSO survey was similarly mailed using a listing provided by the Governor’s Highway Safety Association (GHSA). Both the AAMVA and the GHSA mailing lists sometimes contained more than one contact person per state, which could be expected to improve response rates. Finally, the N4A provided a listing for the distribution of the survey to the 51 state offices.

The survey returns were gathered and information entered into a database for tabulations and summarizing.

ORGANIZATION OF REPORT

The following chapter summarizes the most relevant research reports and publications related to older road user safety

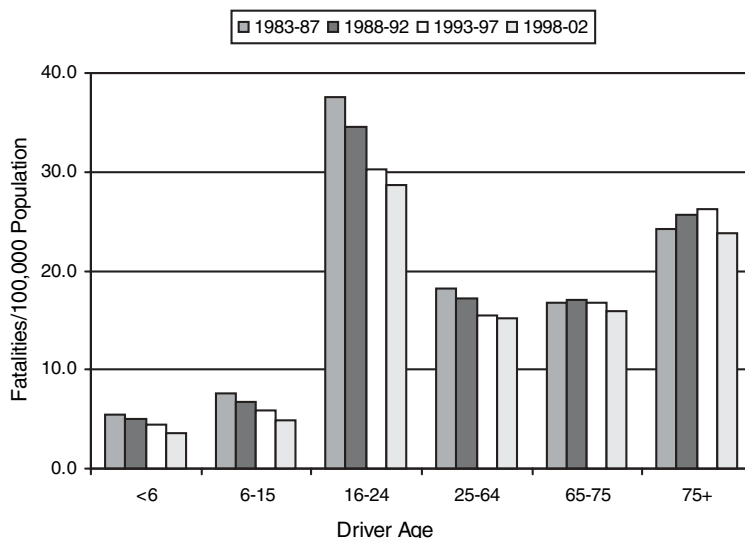


FIGURE 5 Trends in fatalities per 100,000 population, by age of driver. (Source: 1983–2002 FARS.)

programs and initiatives. The remaining chapters each focus on a specific area of intervention: chapter three on planning, chapter four on the roadway and driving environment, chapter five on driver licensing, chapter six on education and awareness, and chapter seven on law enforcement. Chapter eight highlights overall good practices, and chapter nine provides the summary and conclusions.

The results of the various surveys are integrated into the chapters. The DOT survey results appear primarily in chapters three and four, the DMV survey results in chapter five, and the Office of Highway Safety and State Unit on Aging survey results in chapter six, with portions dealing with enforcement incorporated into chapter seven. Detailed results from each of the surveys are contained in the appendices.

REVIEW OF LITERATURE

This chapter summarizes available reports, documents, and articles that provide information on programs and policies to improve older road user safety. Its focus is on recent documents, including web-based reports, providing information on current programs or activities. Research reports and articles are only included if they relate to a specific program or program area. The overall intent of the chapter is to provide an historical background for the remainder of the report and to highlight key reference documents.

The review encompasses activities by the federal government, state and local governments, as well as national non-governmental organizations, professional associations, and other private-sector organizations. In many cases, the referenced documents represent collaborative efforts across agencies, between public and private sectors, and among national, state, and local entities. The review provides a brief description of each identified document. For further details of specific programs or activities (e.g., with respect to roadway improvements or driver licensing), the reader is referred to the appropriate chapter of this report. In keeping with the emphasis of this synthesis on current programs and activities, pertinent web addresses are highlighted at the end of each chapter.

TRANSPORTATION RESEARCH BOARD INITIATIVES

In 1988, TRB published the landmark *Special Report 218: Transportation in an Aging Society*. This report helped to place older road users in the forefront of transportation safety agendas and served as a basis for research and programmatic activities over the ensuing years. Following its publication, both FHWA and NHTSA launched significant new older road user research programs that laid important groundwork for future programmatic activities.

A decade later, TRB embarked on an effort to update *Special Report 218* and convened a conference in Bethesda, Maryland, in November 1999. The commissioned technical papers from this conference are published as “Transportation in an Aging Society: A Decade of Experience” (2004). The papers review accomplishments during the 1990s with respect to both research and implementation, and make recommendations regarding future requirements for meeting the needs of aging road users. The full report is available on the TRB website. Report chapters address the following topic areas:

- Data and characteristics of older drivers;
- Driver programs;
- Mobility solutions;
- Highway design, pedestrian facilities, and land use;
- Vehicle design and intelligent transportation systems;
- Public education and information; and
- Policy.

The published conference proceedings also report on the series of focus groups conducted before the conference to provide input to the development of a national agenda for safe mobility for a maturing society.

FEDERAL GOVERNMENT INITIATIVES

U.S.DOT

In 1995, Secretary of Transportation Peña directed the U.S.DOT to begin work on a proactive plan for accommodating an aging population of users of the nation’s transportation system. The resulting report was *Improving Transportation for a Maturing Society* (1997), which was the first document to set forth the challenge of “Safe Mobility, for Life.”

Building on this foundation, the U.S.DOT launched efforts to develop a national agenda for promoting safe mobility throughout an individual’s typical life span. Drawing from a series of public forums, workshops, and professional gatherings, the DOT further articulated a vision for our future transportation system and identified seven key strategies for achieving this vision (“Safe Mobility for a Maturing Society . . .” 2003). These strategies, reproduced here, outline program areas for improving the safety and mobility of older road users. More importantly, they demonstrate U.S.DOT support to the variety of programs and activities being highlighted in this synthesis document.

Safe Mobility for a Maturing Society: Challenges and Opportunities

1. Safer, Easier-to-Use Roadways and Walkways
 - Promote the use of guidelines and recommendations from the FHWA *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a) through continued training of traffic engineers and

- highway department personnel and by ensuring this guidance is incorporated into standard design manuals.
 - Promote the most cost-effective guidelines for the accommodation of pedestrians.
 - Identify and promote effective land use approaches for accommodating older people's transportation needs. And, develop a clearinghouse of best practices for planners and community developers.
2. Safer, Easier-to-Use Automobiles
 - Evaluate approaches to improve protection of older occupants in crashes.
 - Consider the need for new standards for exterior vehicle designs that are less injurious to pedestrians.
 - Evaluate older driver interactions with vehicle systems that affect the occurrence of crashes.
 - Continue work on specialized vehicle systems to extend the driving capabilities of persons with disabilities.
 3. Improve Systems for Assessing Competency of Older Drivers and Pedestrians
 - Continue to identify characteristics of older drivers who are at higher risk of crashing and those who self-regulate.
 - Develop and evaluate procedures to identify referral, testing, rehabilitation, and regulation programs to improve older driver safety.
 - Develop and evaluate procedures to enable people with functional disabilities to drive, walk, and use transportation options safely.
 - Provide materials to enable professional organizations to conduct in-service training on effective program guidelines.
 4. Better, Easier-to-Use Public Transportation Services
 - Develop and evaluate public transportation best practices for older adults.
 - Develop comprehensive, one-call-does-it-all mobility managers to coordinate local providers and their services.
 - Conduct demonstration programs of innovative transit and supplemental transportation systems for underserved and rural areas.
 - Strengthen the DOT/DHSS (Department of Health and Human Services) Interagency Coordinating Council to identify and remove programmatic barriers to the coordinated delivery of services for older adults.
 - Improve the ease of use of both transit and intercity transportation for older adults.
 5. Targeted State and Local Safe Mobility Action Plans
 - Encourage formation of state and local consortia to address the transportation needs of elderly people.
 - Encourage state and local communities to develop and implement action plans.
 6. Better Public Information
 - Educate older people and their caregivers on how to identify unsafe older drivers and extend safe driving, walking, and use of transit.

- Train transportation, health, and social service personnel to enable the safe mobility and well-being of elderly people.

7. Basic and Social Policy Research

- Determine the relationships between mobility and age-related physical, cognitive, and functional limitations.
- Establish the relationship between lost mobility, aging in place, and societal costs for older people.
- Determine technology's role in improving mobility and safety for functionally limited people as drivers, walkers, and public transportation users.

FHWA

In 1989, FHWA initiated a high-priority national program to determine whether existing highway design standards accommodated the needs and capabilities of older drivers. An outgrowth of this human factors research program is the *Highway Design Handbook for Older Drivers and Pedestrians*, first published in 1998 and revised and updated in 2001 (Staplin et al. 2001a). The *Handbook* provides recommendations and implementation guidelines for engineers to better accommodate the needs and functional limitations of older road users, including drivers and, in the revised version of the handbook, pedestrians. The recommendations are based on recent human factors research findings and are intended to supplement existing engineering standards found in the *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)* (2003) and AASHTO's *A Policy on Geometric Design of Highways and Streets (Green Book)* (2004). They are categorized under the following five topic areas: at-grade intersections, interchanges, roadway curvature and passing zones, construction/work zones, and highway-rail grade crossings. The recommendations were selected to be relatively low cost, especially when implemented as part of new construction, reconstruction, or scheduled maintenance.

To assist states in implementing the new guidelines, FHWA offers training workshops to planners, designers, traffic engineers, and other practitioners through its division offices and state and local DOTs. To date, more than 100 workshops have been conducted in 43 states, the District of Columbia, and Puerto Rico.

FHWA's human factors research program had earlier published two other reports offering guidance on traffic control devices and roadway signage. A 1995 report, *Traffic Operations Control for Older Drivers and Pedestrians* (Knoblauch et al. 1995) describes two studies, one of older adults' understanding of left-turn signalization and the other of response times for stopping at traffic signals. In the first study, it was reported that both older and younger drivers did not understand protected and permitted left-turn signalizations; therefore, education or other program efforts in this area should target all drivers, not just older drivers. The second study showed no significant difference in stopping times for older

and younger drivers encountering yellow traffic signals, and on this basis concluded that there is no need to change the yellow signal phase timing to accommodate older drivers.

The second FHWA report examined older drivers' understanding of symbols and signs, and identified modifications to improve their glance legibility, reaction time, and conspicuity (Dewar et al. 1995). Many of this study's recommendations (minimize complexity, maximize distance between sign elements, use representational rather than abstract symbols, etc.) have since been incorporated into updated revisions of the MUTCD.

These and other research activities laid important groundwork for the *Highway Design Handbook for Older Drivers and Pedestrians* and other important FHWA programmatic efforts to improve safety, not only for older drivers, but for all drivers on our nations' roadways.

NHTSA

NHTSA's stated mission with respect to older road users is to keep them safely mobile through programs directed at reducing traffic-related injuries and fatalities. Through its research and outreach activities, it aims to help aging adults recognize their changing abilities and to adapt their transportation practices appropriately. It also seeks to involve family, friends, licensing officials, and physicians and other health-care providers in identifying potentially at-risk drivers and directing them to safer transportation alternatives (see <http://www.nhtsa.gov/people/injury/olddrive>).

NHTSA has conducted an older driver safety and research program since the early 1980s and in 1988 prepared an action plan identifying specific research needs to address this area of growing concern. Five years later, the agency prepared a Report to Congress (*Addressing Safety Issues* . . . 1993) and released an updated Traffic Safety Plan for Older Persons (1993) that drew on the research carried out to outline specific problem identification, program development, and program evaluation projects for improving older road user safety. The identified projects involved cooperation from other agencies within the DOT (Office of the Secretary of Transportation, FHWA, FTA), as well as other government agencies (National Institutes on Aging, Administration on Aging, CDC) and nongovernmental organizations. Many of the older road user programs and activities described in this report have their basis in these early planning documents.

One of the most significant accomplishments was the publication of the *Safe Mobility for Older People Notebook* (Staplin et al. 1999). This report provided a foundation for the subsequent development of a model driver screening and evaluation program. The primary focus of the report is on tools and techniques for identifying older adults at high risk of crashing. The report identifies programs and procedures

for DMV identification of at-risk drivers (e.g., through observation by counter personnel and analysis of driving records), external referral of at-risk drivers (e.g., by family members or friends, law enforcement officers, or physicians), and self-referral (e.g., through self-evaluation materials or automated testing in public venues). However, the more than 400-page document also reviews the state of the practice with regard to driver rehabilitation and the provision of alternative transportation. Thus, the report was a combination research synthesis and state-of-the-practice snapshot of available programs across North America for identifying at-risk older drivers and intervening to promote their safe mobility. The full report is available electronically from the NHTSA website.

Subsequent to the publication of the *Safe Mobility for Older People Notebook*, NHTSA embarked on a multiyear research project to develop and evaluate a Model Driver Screening and Evaluation Program. This work was carried out in collaboration with AAMVA and the Maryland Motor Vehicle Administration (MVA). Although long-term follow-up was still underway at the time of this synthesis, the final results of the project have been published in a three-volume report that is available on the NHTSA website (Staplin et al. 2003). The report recommends a multifaceted approach to driver licensing that includes

- Internal and external referrals of potential at-risk drivers,
- Tiered screening and assessment at license renewals,
- Driver education and counseling, and
- Driver restriction and remediation.

More recently, NHTSA funded a project to review the state of the practice with respect to state medical advisory boards, or MABs. An interim report from this project provides a detailed summary of MAB practices in all 50 states plus the District of Columbia, and is available on the AAMVA website (Lococo 2003). A second phase of the project developed recommended best practices for licensing drivers with medical conditions and functional impairments (Lococo and Staplin 2005). Results of both reports are detailed in later chapters of this synthesis.

In addition to these larger projects, NHTSA has sponsored the development of a range of programs and safety materials targeting older drivers and family members or friends, often in partnership with other government agencies and with private-sector organizations. It has also linked with the private sector to disseminate its materials and programs. Partnering agencies include the Administration on Aging, FTA, CDC, and state DOTs, MVAs, and offices on aging. A partial list of partnering organizations from the private sector includes AAMVA, AMA, AARP, AAA, AAA Foundation for Traffic Safety, American Society on Aging (ASA), American Occupational Therapy Association (AOTA), Association for Driver Rehabilitation Specialists (ADED), Community Transportation Association of American (CTAA), and N4A. The

outcomes from these many and varied collaborations are all documented in subsequent sections of this report.

OTHER NATIONAL INITIATIVES

AASHTO and NCHRP

Older road user safety is also addressed by AASHTO as part of its Strategic Highway Safety Plan (SHSP). The plan, developed in 1997, identified 22 key emphasis areas for reducing roadway fatalities; reducing crashes involving older drivers was one of these areas (*The Strategic Highway Safety Plan 1997*). To assist states in implementing the plan, NCHRP funded a project under its pooled fund arrangement with state DOTs to develop an implementation guide for each emphasis area. The guideline in the older driver area was published as Volume 9 in the series of reports (Potts et al. 2004).

This report, *A Guide for Reducing Collisions Involving Older Drivers*, identified 5 broad objectives and 19 strategies for a comprehensive approach to reducing older driver crashes and injuries. For each identified strategy there is a brief description of the approach, followed by a table that summarizes available information on the target audience for the strategy, expected effectiveness, keys to success and potential difficulties in implementing the strategy, appropriate measures of effectiveness, organizational and institutional considerations, issues affecting implementation time frame, anticipated costs, training and personnel needs, and legislative and other needs. The guide also provides information on agencies or organizations currently implementing the strategy, and the web-based version of the guide contains “hot links” to available resources and case studies.

- Objective 1. Plan for an aging population
 - Establish a broad-based coalition to plan for addressing the transportation needs of older adults.
- Objective 2. Improve the roadway/driving environment to better accommodate the special needs of older drivers
 - Advance warning signs
 - Advance guide signs and street name signs
 - Increased letter size of roadway signs
 - Longer clearance intervals at signalized intersections
 - Protected left-turn lanes at intersections
 - Offset left-turn lanes at intersections
 - Improved lighting
 - Improved roadway delineation
 - Use of raised channelization
 - Reduced intersection skew angles
 - Improved traffic control at work zones.
- Objective 3. Identify older drivers at increased risk of crashing and intervene to lower their crash risk
 - Strengthen the role of MABs
 - Update procedures for assessing medical fitness to drive

- Encourage external reporting of impaired drivers to licensing authorities
- Provide remedial assistance to help functionally impaired older drivers lower their crash risk.
- Objective 4. Improve the driving competency of older adults in the general driving population
 - Establish resource centers within communities to promote safe mobility choices
 - Provide educational and training opportunities to the general older driver population.
- Objective 5. Reduce the risk of injury and death to older drivers and passengers involved in crashes
 - Increase seat belt use of older drivers and passengers.

Another guidebook in the 22-volume series targets pedestrians (Zegeer et al. 2004), and is also available electronically on the AASHTO Highway Safety Plan website. Although none of the identified strategies in this guide specifically target older pedestrians, many could be expected to especially benefit the older pedestrian. Examples include

- Providing sidewalks/walkways and curb ramps,
- Installing or upgrading traffic and pedestrian signals,
- Constructing pedestrian refuge islands and raised medians,
- Installing traffic calming, and
- Implementing road narrowing measures.

Another recently funded NCHRP project directly relating to older road user safety is a study carried out for the AASHTO Standing Committee on Planning entitled *Elderly Issues in the Transportation Planning Process*. The study involved interviews with transportation planning staff at a cross section of 10 state DOTs and 9 metropolitan planning organizations (MPOs) to gather information on current planning practices with regard to older road user safety and mobility. It also included a review of recent literature related to older drivers and development of recommendations in the highway planning and public transportation areas (see Grimm and Horsley 2004). Findings from this study will be reviewed in greater depth in chapter three.

TCRP and FTA

Although excluded from the scope of this synthesis report, alternative transportation, including public transportation, is a vital component to improving the safety and mobility of older road users. Without viable alternatives to driving, older adults who are no longer capable of operating a motor vehicle safely will either continue to drive, placing themselves and others at risk, or stop driving and suffer health and quality of life consequences that often accompany a loss of mobility.

TCRP, with support from FTA, has recently funded several studies to assist states and local communities in improving public transportation services. *TCRP Report 82: Improving*

Public Transit Options for Older Persons, outlines fundamental changes transit agencies must make to be responsive to the growing older population, and offers specific short-term and long-term strategies for attracting more older riders. Both *Volume I: Handbook* and *Volume II: Final Report* contain case study descriptions of good community practices designed to inspire action (Burkhardt et al. 2002).

TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Services, not only presents the key economic benefits of service coordination, but also provides the basic concepts behind coordination and identifies specific strategies for achieving the economic benefits of coordinated services (Burkhardt et al. 2003). Strategy areas include tapping currently unused sources of funding (such as coordination with Medicaid transportation or school programs), reducing transportation service costs (e.g., by partnering with nontransit agencies to provide services or shifting paratransit riders to fixed-route services), increasing transportation system productivity (e.g., through ride sharing), and expanding transportation services (e.g., through local government or human service agency partnerships). Again, case study descriptions illustrate and support the recommendations offered.

A final TCRP report of particular relevance to the current synthesis effort is *TCRP Report 101: Toolkit for Rural Community Coordinated Transportation Services* (Burkhardt et al. 2004). Recognizing the limited resources available, the authors identify improved coordination as a strategy for expanding transportation services in rural areas. They present the necessary steps for achieving a more coordinated transportation system and identify specific “success strategies” at both the state and local levels. The report draws from an in-depth review of the literature, analyses of large databases, focus groups with the elderly, focus groups and expert interviews with representatives from the transit industry, and case studies showcasing successful efforts across the country to improve travel options for older adults.

All three of these reports are available electronically on the TRB TCRP website identified at the end of this chapter.

Nongovernment Organizations

In addition to these studies supported by traditional transportation safety agencies, numerous national organizations and professional associations have become involved in issues related to older road user safety and mobility, often partnering with the U.S.DOT and its sister agencies, as noted previously, but also on their own as well. Included in this group are

- AAA Foundation for Traffic Safety
- AARP
- AAMVA
- AAA and AAA clubs

- Alzheimer’s Association
- AMA
- AOTA
- ASA
- CTAA
- Emergency Nurses Association
- GHSA
- National Safety Council (NSC)
- N4A
- The Road Information Program (TRIP).

The programs and activities of these organizations are generally more narrowly focused and are discussed later in this report in the appropriate chapter.

OTHER PUBLISHED LITERATURE

A recent University of Michigan Transportation Research Institute (UMTRI) report, *Promising Approaches for Enhancing Elderly Mobility* (Molnar et al. 2003), is an excellent complement to the current synthesis effort. The original intent of the report was to document Michigan programs and practices to help communities implement the state’s Elderly Mobility and Safety Task Force plan developed a few years earlier. However, the authors quickly realized that the document would be more valuable if it were expanded to include programs from across the nation, and if it focused on those programs that had either been proven or showed promise for enhancing elderly mobility. Because safety and mobility are closely linked, many of the programs identified in the Michigan report are relevant to the current effort. The programs are organized under the following five categories:

- Screening and assessment,
- Education and training,
- Vehicle adaptations and advanced technology,
- Roadway design, and
- Alternative transportation.

In addition, the report seeks to motivate community professionals to implement programs and activities, choosing those from among the smorgasbord menu that best meet their needs. Thus, it provides greater background information than typically contained in a synthesis document. The report is available electronically at the UMTRI website. Again, specific programs appearing in the Michigan report are highlighted in subsequent chapters of the current report.

Also related to the current effort, in the fall of 2004, the Michigan Governor’s Traffic Safety Advisory Commission hosted a 4-day conference to showcase “best practices from around the world” with respect to elderly mobility. Sessions were organized around the following five topics: alternative transportation, education and training, housing and land use, roadway design, and screening and assessment. Information presented at this conference is being made available

on CD-ROM by the AAA Foundation for Traffic Safety. Much of the information presented in chapter four with regard to engineering practices for improving older road user safety draws from material specially gathered for presentation at this conference.

Finally, the AAA Foundation for Traffic Safety has funded efforts by the Beverly Foundation to document transportation programs for seniors across the country and to identify best practices in this important area (Beverly Foundation 2004). The results of these activities are available on the AAA Foundation for Traffic Safety website. Links to this and other resource documents highlighted in this chapter can be found under Useful Web Resources at the end of this chapter.

SUMMARY

TRB *Special Report 218: Transportation in an Aging Society* marked the beginning of efforts in this country to address the safety and mobility needs of a growing population of older road users. Since its publication in 1988, the U.S.DOT and its FTA and NHTSA have undertaken significant research, programmatic, and policy initiatives promoting the theme of Safe Mobility, for Life. Other national organizations, including TRB, NCHRP, AASHTO, and a wide range of private, nongovernmental organizations have contributed to the efforts. The result is a strong basis for the many programmatic activities featured in the remainder of this report.

Useful Web Resources

Transportation in an Aging Society: A Decade of Experience, Transportation Research Board, Washington, D.C., 2004 [Online]. Available: http://gulliver.trb.org/publications/conf/reports/cp_27.pdf.

Improving Transportation for a Maturing Society, U.S. Department of Transportation, Washington, D.C., 1997 [Online]. Available: <http://www.volpe.dot.gov/opsad/mature.html>.

“Safe Mobility for a Maturing Society: Challenges and Opportunities,” U.S. Department of Transportation, Washington,

D.C., 2003 [Online]. Available: <http://www.eyes.uab.edu/safemobility/SafeMobility.pdf>.

Highway Design Handbook for Older Drivers and Pedestrians (Staplin et al. 2001a) [Online]. Available: <http://www.tfhrc.gov/humanfac/01103/coverfront.htm>.

NHTSA older driver website: [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive>.

Safe Mobility for Older People Notebook (Staplin et al. 1999) [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive/safe/>.

Model Driver Screening and Evaluation Program (Staplin et al. 2003) [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive/modeldriver>.

Summary of Medical Advisory Board Practices in the United States (Lococo 2003) [Online]. Available: <http://www.aamva.org/Documents/drvSummaryOfMedicalAdvisoryBoardPractices.pdf>.

A Guide for Reducing Collisions Involving Older Drivers (Potts et al. 2004) and *A Guide for Reducing Collisions Involving Pedestrians* (Zegeer et al. 2004) [Online]. Available: <http://safety.transportation.org/>.

Transit Cooperative Research Program reports [Online]. Available: http://trb.org/news/blurp_browse.asp?id=1.

Promising Approaches for Enhancing Elderly Mobility (Molnar et al. 2003) [Online]. Available: <http://www.umich.umtri.edu> (search on report 97337).

Best Practices for Elderly Mobility Conference Proceedings [Online]. Available: <http://www.aaafoundation.org>. (or contact the AAA Foundation to order a CD-ROM).

Supplemental Transportation Programs for Seniors (Beverly Foundation 2004) [Online]. Available: <http://www.aaafoundation.org/pdf/STP2.pdf>.

Massachusetts Institute of Technology AgeLab, Cambridge, Mass. [Online]. Available: http://web.mit.edu/agelab/projects_driving.shtml.

Senior Transportation Safety and Mobility (special issue of the *Journal of Safety Research*, Vol. 34, No. 4, 2003) [Online]. Available: <http://www.sciencedirect.com/>.

The Mobile Elder: Getting Around in Later Life (special issue of *Generations*, the journal of the American Society on Aging, Summer 2003) [Online]. Available: <http://www.generationsjournal.org/gen28-2/home.cfm>.

PLANNING FOR IMPROVED OLDER ROAD USER SAFETY

A first step in addressing the transportation safety and mobility needs of older road users is the development of a strategic plan. The plan should articulate key issues and needs, establish goals, and specify strategies and a timetable for their implementation. A plan can also serve to bring together principal stakeholders in the process. The latter is especially important in addressing the needs of older road users, because no single agency or organization holds ownership over all potential program areas.

This chapter reviews key planning initiatives for improving older road user safety, focusing on the goals and recommendations that have helped guide and prioritize the policies and programs described in the remainder of this report. The identified planning activities are comprehensive in scope, rather than limited to just one or two program areas such as highway design or driver licensing. They are also at various stages of implementation. However, they all have in common the singular goal of improving the safety and mobility of older road users.

FEDERAL GOVERNMENT INITIATIVES

As noted in the literature review in chapter two, the U.S.DOT first identified a national strategic planning goal of Safe Mobility, for Life in its 1997 report, *Improving Transportation for a Maturing Society*. The executive summary to that report states that:

It is in the national interest to keep people operating their personal vehicles as late in years as possible for quality of life reasons; yet we do not want that operation to unnecessarily endanger the individual or the public (U.S.DOT 1997, p. ix).

The report goes on to describe three policy objectives inherent in such a goal: (1) safety, (2) individual mobility, and (3) facilitating the eventual transition to mobility alternatives. Recommended new initiatives included an added emphasis on mobility alternatives, development of countermeasures to better protect older adults' more fragile bodies, development of medical practice parameters and guidelines, and conducting studies to support public policy decisions in such areas as medical conditions or functional disabilities and driving safety.

The 2003 U.S.DOT report, *Safe Mobility for a Maturing Society: Challenges and Opportunities*, further defined the

strategies and programs that will be needed to achieve the vision of safe mobility for life. These strategies, which were listed in chapter two, require all levels of government, the private sector, and the public to join together to help create safe transportation for all ages into the 21st century. Although some of the strategies, such as safer automobiles and better transportation services, are outside the scope of the current synthesis, others coincide with program areas reviewed in subsequent chapters of this document. With respect to planning, the report emphasized that although the federal government "can support, assist, and inform the process . . . meeting the mobility needs of an aging society must first and foremost be a key priority of state and local leaders." Two specific strategies were identified for Action Item 5: Targeted state and local safe mobility action plans:

1. Encourage formation of state and local consortia to address the transportation needs of elderly people.
2. Encourage states and local communities to develop and implement safe mobility action plans.

Obtaining input and leadership from community leaders and citizens representing a broad array of interest groups (social service, medical, transportation, etc.) was viewed as key to the success of this strategy. "To give safe transportation the priority it warrants will require leadership, activism, and consensus building, both political and institutional" (*Safe Mobility* . . . 2003). In support of this approach, the DOT reached out beyond its own agency boundaries to a broad spectrum of other government agencies and professional organizations and individuals in developing its recommendations. Those providing input to the document included the National Institute on Aging, CDC, Administration on Aging, AARP, AAA, AAMVA, AMA, AOTA, and representatives from the automotive industry.

OTHER NATIONAL INITIATIVES

AASHTO is the professional association representing state DOTs. In 1997, AASHTO produced a national SHSP focused on reducing the more than 40,000 motor vehicle deaths occurring annually on U.S. highways (*The Strategic Highway Safety Plan* 1997). Based on an analysis of crash data and the consensus of a specially formed committee, the plan identified 22 emphasis areas for state and local transportation departments to target their efforts. One of these 22 areas was Reducing Crashes Involving Older Drivers.

To assist states in achieving the goals of the SHSP, NCHRP funded a multiyear project to develop guidelines for each of the identified emphasis areas. These guidelines were published in May 2004 (Potts et al. 2004). A link to the plan is available on the AASHTO SHSP website at <http://safety.transportation.org/>.

The guide itself represents an overall planning document for reducing older driver crashes. The identified strategies fall under five main objectives:

1. Plan for an aging population.
2. Improve the roadway/driving environment to better accommodate the special needs of older drivers.
3. Identify older drivers at increased risk of crashing and intervene.
4. Improve the driving competency of older adults in the general driving population.
5. Reduce the risk of injury and death to older drivers and passengers involved in crashes.

Under the first objective, planning for an aging population, there is one key strategy identified: Establish a broad-based coalition to plan for addressing the transportation needs of older adults. The description of the strategy includes a discussion of technical, organizational, and institutional attributes for consideration in implementing the strategy, and identifies agencies that have already undertaken such planning activities. These agencies and their plans are highlighted in the remainder of this chapter. Subsequent chapters identify exemplary practices with respect to the other strategic areas—roadways, driver licensing, and education and public awareness.

NCHRP also recently funded a small “quick response” project on this topic for the AASHTO Standing Committee on Planning. The study included a literature review and telephone survey of transportation planning staff in 10 state DOTs and 9 MPOs to gather information on their efforts to address the needs of older drivers in the transportation planning process. The states and MPOs were chosen to represent a geographically and demographically diverse sample, as well as because of their demonstrated interest in the topic area.

- States—Arizona, Florida, Maryland, Michigan, Oregon, Pennsylvania, Texas, Vermont, West Virginia, and Wisconsin.
- MPOs—Anchorage, Atlanta, Auburn–Pelika, Charleston, Chicago, Colorado Springs, Phoenix–Mesa, Portland, and Richmond–Petersburg.

The telephone survey asked respondents to rate the extent that older road user considerations influenced their transportation planning processes and the extent to which senior

mobility was addressed in both their long- and short-range transportation plans. It also sought information on the degree to which selected traffic engineering practices, licensing procedures, and alternative transportation practices had been adopted, and the extent of coordination with other agencies and organizations, including the formation of coalitions and task forces to address older road user issues.

Results of the effort have been summarized in a final project report (Grimm and Horsley 2004). With respect to overall planning for older adult safety and mobility, the authors identified Florida as the most active of the 10 states surveyed, followed by Oregon, Texas, and Wisconsin. Specific DOT program areas receiving the greatest attention were more visible and easily readable road signage and driver licensing programs for older driver referral, evaluation, and family intervention. MPO programs, on the other hand, were more focused on improving alternative transportation options, often in collaboration with Area Agencies on Aging. The authors concluded that coordinated approaches, based on strong state and local collaborations and drawing from guidance at the federal level, can help other states and MPOs successfully meet the challenges of an aging population.

Increasing coordination and dissemination of information between different agencies with parallel functions has had real benefits at both the state and regional level. While a blanket policy for dealing with the needs of elderly drivers would be unrealistic and hard to implement in the diverse conditions present in different regions of the country, some standardization and guidelines would be helpful to agencies that have only recently begun to plan for older users’ unique needs and limitations. By following the examples of state DOTs and MPOs like those surveyed, and using the most effective methods to implement coordinated strategies, state and regional planners guarantee that their jurisdictions will gain the maximum benefit from their efforts (Grimm and Horsley 2004).

Also at the national level, AARP has continued to advocate greater involvement of older adults in the transportation planning process (*The Policy Book* . . . 2002). Citizen involvement is seen as especially important for creating livable communities where adults can age in place and not be hindered by inadequate transportation to needed goods and services. AARP recommends that states and MPOs

- Implement requirements contained in federal transportation laws and regulations for public participation in transportation planning;
- Consider the impacts of transportation planning decisions on the mobility of older people and people with disabilities; and
- Actively promote public participation by consumers, including older people, in transportation planning activities such as public transportation routing, highway and road siting and design, and investment and deployment of intelligent transportation systems (*The Policy Book* . . . 2002).

STATE AND LOCAL INITIATIVES

A review of the literature, coupled with Internet searches and personal communications, identified the following states or regions as currently or recently engaged in comprehensive older road user planning initiatives. In some cases, the search results have been supplemented by the DOT survey results obtained as part of the current synthesis effort. The following list contains examples of state and local older road user planning documents available on the Internet, or information on how to access them.

- California
Traffic Safety Among Older Adults: Recommendations for California
www.eldersafety.org/oats/oats-brief-1.pdf
- Michigan
Elderly Mobility and Safety Final Plan of Action
<http://www.semcog.org/RegPlan/ElderlyIssues/ActionPlan.htm>
- Oregon
Report of the Older Driver Advisory Committee
http://www.oregon.gov/ODOT/DMV/docs/ODAC_Final_Recommendation_a.pdf
- Iowa
Toolbox of Highway Safety Strategies
<http://www.iowasms.org/toolbox.htm>
- Maryland
Maryland Research Consortium Working Group Goals, Objectives, and Action Steps
Appendix A of Model Driver Screening and Evaluation Program Vol. II Report
http://www.nhtsa.dot.gov/people/injury/olddrive/modeldriver/volume_ii.htm
- Florida
The Effects of Aging on Driving Ability
<http://www.hsmv.state.fl.us/dcl/atriskdriver.pdf>
- Maricopa County (Arizona)
Maricopa Association of Governments Regional Action Plan on Aging and Mobility
<http://www.mag.maricopa.gov/pdf/Elderly-Mobility-Plan.pdf>
- New York State
<http://aging.state.ny.us/explore/project2015/report02/>
- Delaware Valley (Pennsylvania and New Jersey)
Getting Older and Getting Around: Aging and Mobility in the Delaware Valley
http://www.dvrpc.org/publicaffairs/media/release/p2000-02_AgingMobility.htm

Florida

As noted earlier, Florida is a recognized leader in comprehensive planning to address the safety and mobility needs of older road users. An ad hoc older driver task force was established in 1997 under the leadership of the Department of

Highway Safety and Motor Vehicles, together with the Department of Elder Affairs, the Pasco–Pinellas County Area Agency on Aging, and the Florida DOT. From the beginning, the group was research driven and committed to a multi-faceted approach to accomplishing its mission of ensuring “safe mobility for Florida’s elders, which enhances dignity, quality of life, and independence throughout their life span.” In 2003, the ad hoc coalition evolved into the 30+ member, governor-appointed Florida At-Risk Driver Advisory Council. Membership on the council is drawn from state agencies, the medical profession, senior citizen service providers, and senior citizen advocacy groups.

Although the council did not immediately set out to create a strategic planning document, early on it articulated a Senior Safe Mobility Strategic Plan that included the creation of a state transportation safety resource center to serve as a clearinghouse for information on senior safety, development and evaluation of model programs, educational outreach to counties and communities, development of local coalitions and identification of local needs and resources, obtaining grant or seed money to implement model programs state-wide, and securing long-term funding support from local and state sources. More recently, the council contributed to the development of a legislatively mandated report, *The Effects of Aging on Driving Ability* (2004). The report summarizes many of the activities underway in Florida and incorporates recommendations by the At-Risk Driving Council in the following areas:

- Prevention, education, and early recognition of at-risk drivers;
- Assessments;
- Remediation, rehabilitation, and adaptation—community and the environment; and
- Alternatives and accommodations for transportation.

Florida’s activities span the entire range of program areas and are highlighted throughout this synthesis report.

California

California’s Task Force on Older Adults and Traffic Safety convened from February 2000 through June 2002. The task force was funded by grants from the California Office of Traffic Safety and the Automobile Club of Southern California. The 28 task force members included representatives from the California Department of Health Services, Commission on Aging, Highway Patrol, DOT, DMV, Area Agencies on Aging, university research centers, Alzheimer’s research centers, emergency medical services, AAA clubs, NHTSA, and others. The specific charge given the task force was to develop recommendations that would provide direction for the Office of Traffic Safety and other state agencies on improving traffic safety for California’s seniors. The task force’s report, *Traffic Safety Among Older Adults: Recommendations for California*, was released in 2002 (Yanochko 2002).

The following is a list of the report's key recommendations. For each recommendation the report provides goals, action steps, and a time frame for action. It also identifies potential partners for implementing the recommendations and calls for increased funding from both public and private sources. The California Highway Patrol has assumed leadership for implementing the plan.

- Institutionalize a statewide system for the prevention of traffic-related injuries among older adults.
- Institutionalize effective and equitable driver assessment and licensing practices within the California DMV.
- Facilitate older adult risk identification and risk reduction practices.
- Improve the ability of health care and service providers to assess traffic safety risk and minimize the impact of health impairments on safe mobility.
- Establish roadway infrastructure and land use practices that promote safety.
- Promote safer motor vehicle designs.
- Expand the existing research and knowledge base about older adult traffic safety.

Iowa

Iowa's older driver planning initiatives have been carried out under the auspices of the Iowa Highway Safety Management System (SMS), "a diverse partnership of highway safety practitioners in engineering, enforcement, education, and emergency services . . . dedicated to reducing the number and severity of crashes on Iowa's roadways." Iowa was one of the first states to formalize an SHSP, and embraced "sustaining safe mobility in older drivers" as one of its emphasis areas. A *Toolbox of Highway Safety Strategies* (2002) was later developed to provide a list of potential strategies for addressing each identified area.

To further refine its plan of action for older drivers, the Iowa SMS hosted a two-day Safe Mobility Decisions for Older Drivers Forum in June 2002. The forum was convened to raise public awareness, identify key safety improvement strategies, and develop resources to help older drivers make safer mobility decisions. The 200 participants provided input to help shape Iowa's older driver activities in eight key areas: roadways and engineering, drivers, senior services, traffic laws and enforcement, policies and legislation, vehicle design, licensing, and awareness and driver education. Participants also provided valuable feedback on some materials and initiatives already in place, including an educational video and a guide for helping older adults make responsible decisions about driving.

Similar forums are being held regionally across Iowa, with the motor vehicle department collaborating with local agencies on aging to host the forums. In addition, older driver safety and mobility issues have been included in the state's

safety conscious planning initiatives, both within the DOT and within individual MPOs. The Iowa SMS and a specially appointed Older Driver Task Force provide overall direction and leadership to the state's older driver safety and mobility initiatives.

Oregon

Oregon's older driver program has its bases in 1999 legislation requesting that the Oregon DOT study the effects of aging on driving ability. This led to the establishment of a 14-member Older Driver Advisory Committee, which was charged with developing recommendations for the department. The committee's report was completed in September 2000 (*Report of the Older Driver . . . 2000*). Members of the committee concluded that a multifaceted approach was needed to identify and address the issues that pose the greatest risk to public safety. Although many of the committee's recommendations were directed toward identifying drivers at increased risk of crashing, attention was also given to the increasing availability of remedial measures, funding support for alternative transportation, and improvements to the roadway.

In response to the Advisory Committee's recommendation, the Oregon DOT, Driver and Motor Vehicle Services, has implemented a number of programs to improve older road user safety and mobility. These include the Medically At-Risk Driver Program, for identifying drivers with medical conditions and functional limitations that place them at increased risk of crashing, and the Shifting Gears in Later Years program, a broad-based education and outreach campaign to assist older adults in staying safely mobile. These initiatives are described in more detail in later sections of this report.

Maryland

Maryland's older driver safety and mobility activities have been guided by the Maryland Research Consortium, a network of some 35 agency and organization representatives under the leadership of the Maryland MVA. The group was initially organized to support the efforts of NHTSA's Model Driving Screening and Evaluation Program project. However, the consortium quickly assumed added responsibilities and developed a set of goals, objectives, and action steps that went beyond the immediate project and that continue to guide activities in the state. A copy of the consortium's action plan is included as an appendix to Volume II of the *Model Driver Screening and Evaluation Program* final report (Staplin et al. 2003). Since its formation, the consortium has continued to meet on a regular basis to further its mission of providing Maryland's older drivers safe mobility for life. The program has effectively integrated health, social service, and motor vehicle agency functions, enabling functionally impaired drivers who are identified through the DMV screening process to be linked to available rehabilitation and/or alternative transportation options within the community.

Michigan

In Michigan, older mobility safety and planning has been led by SEMCOG, the Southeast Michigan Council of Governments. In 1998, SEMCOG convened an Elderly Mobility and Safety Task Force, which examined data and hosted an Elderly Mobility and Safety Forum to aid in assessing needs and developing a plan of action. *Elderly Mobility and Safety—The Michigan Approach* was published in 1999, making it one of the first truly comprehensive plans (see Bruff and Evans 1999). The SEMCOG plan is also notable because of its strong emphasis on mobility. Elements of the plan include traffic engineering and driver licensing, but also alternative transportation, housing and land use, and health and medicine. The SEMCOG plan has since been adopted statewide in Michigan. A key promoter of the plan has been the Traffic Injury Association, based in Oakland County.

New York State

As part of Project 2015, a statewide initiative by the governor's office to prepare for the impact of the state's aging population, the New York State DOT developed an internal plan for addressing the safety and mobility needs of its aging population. Some two dozen policy issues were evaluated in light of (1) the impact of each on the department's mission, (2) cost-effectiveness, (3) immediacy of need, (4) safety, and (5) risk of not addressing the issue. The three top priorities identified were

- Making the state's transportation system safer for the elderly;
- Improving the mobility options for the elderly non-driver; and
- Making transportation services, maintenance, and operational practices more senior friendly.

A total of 11 action items and anticipated results were identified to meet these priorities. The plan was published as part of the report, *Project 2015: State Agencies Prepare for the Impact of an Aging New York—White Paper for Discussion* (2002).

Maricopa County

The Maricopa (Arizona) Association of Governments (MAG) assembled a 30+ member Elderly Mobility Working Group to develop its *Regional Action Plan on Aging and Mobility* for the Phoenix area (2002). "More than 75 stakeholders participated from cities, state government, transit agencies, senior agencies, health care providers, retirement communities, faith-based groups, and educational institutions." The group identified 25 recommendations for community and agency action in four primary areas: (1) infrastructure and land use, (2) alter-

native transportation modes, (3) older driver competency, and (4) education and training. An Elderly Mobility Stakeholder Group was formed to oversee implementation of the strategies and to act as a forum for discussion on aging and mobility issues.

MAG has now moved into the implementation phase of its Action Plan. An important area of focus has been the development of policies and design guidelines for pedestrian areas, along with a Pedestrian Design Assistance Program that leverages federal funding to design and construct senior-friendly walking facilities. The Maricopa County Area Agency on Aging has also developed *Getting Around: A Transportation and Mobility Guide for Older Adults* that, among other things, contains helpful information on transitioning to bus, driver safety programs, Dial-A-Ride and other paratransit services, adaptive driving, and peer travel training. In addition, MAG has implemented a Senior Friendly Neighborhood Grant Program that guides seniors in assessing the quality of the pedestrian facilities and the streets and intersections in their neighborhoods. Other programs are either underway or planned, maintaining Maricopa County as a leader in planning for the safe mobility of its senior population (DeCindis 2004).

Delaware Valley Regional Planning Commission

The Delaware Valley Regional Planning Commission serves a nine-county area in New Jersey and Pennsylvania, including the city of Philadelphia. In December 1999, the commission released *Getting Older and Getting Around: Aging and Mobility in the Delaware Valley*. The report "reviews the location and scale of the region's current and forecasted elderly population, discusses the implications of aging on mobility, and recommends strategies to improve mobility and enhance the quality of life of the region's elderly." Some of the commission's key recommendations include revising municipal plans and zoning regulations to encourage increased densities; mixed-use communities and service clustering; expanding affordable housing opportunities for seniors; creating more efficient, cost-effective, and accessible transit; improving coordination of existing transportation services, redesigning suburban highways; and encouraging seniors to better plan for their future transportation needs.

STATE SURVEY RESULTS

A copy of the survey sent to state DOTs is contained in Appendix A. The survey had two sections—the first focused on planning and the second on engineering. It was distributed electronically to identified TRB contacts in each state, the District of Columbia, and Puerto Rico. The accompanying cover letter encouraged recipients to involve other individuals as needed to complete the survey. Twenty-four completed

surveys were returned, although two included responses to the engineering questions only. Appendix B provides a state-by-state summary for the 22 state DOTs responding to the planning questions.

The first set of survey questions inquired about comprehensive strategic highway safety planning. Thirteen of the responding states (59%) reported that they had a comprehensive SHSP, and four others (18%) indicated that a plan was under development. Of the 13 states with a plan in place, 8 (Arizona, Connecticut, Florida, Iowa, Maryland, Michigan, Pennsylvania, and Washington) indicated that they addressed older road user safety and mobility. In addition, Missouri and New Jersey both indicated that the plans they were developing would address older road users (see Table 1).

It is not clear whether these efforts represent truly comprehensive SHSPs, as recommended by AASHTO, or whether they are the state's response to the more limited highway safety planning requirements for state 402 funding. One indi-

cator of a more comprehensive plan, especially with respect to older drivers, might be participation of other agencies or organizations in the planning process, because this is a hallmark of the AASHTO SHSP. Six of the eight states with plans addressing older road users and three of the states with plans under development indicated involvement of other agencies or organizations in their planning processes. Most often these included DMVs, state highway patrols, HSOs or traffic safety commissions, FHWA, and NHTSA. However, five states—Connecticut, Florida, Iowa, Missouri, and Pennsylvania—indicated involvement of other agencies and organizations serving older adults. Included in this list were health departments, offices on aging and elder affairs, AARP, and AAA (see Appendix B).

Five states identified specific goals in their plans with respect to older road users. Florida's and Iowa's plans have already been discussed. Washington State identified the following strategy: "Develop a process whereby physicians can assess driving ability and notify the department of licensing if a driver is unsafe because of medical conditions and/or visual capabilities." In Michigan, the focus is on evaluating road treatments identified as beneficial to older drivers: brighter sign legends, enlarged fonts on guide signs, brighter warning signs, and increased edge line and gore pavement markings. Missouri listed five goals for its plan in progress:

1. Expand implementation of the *Older Driver Highway Design Handbook*.
2. Expand and maintain roadway visibility features.
3. Provide older driver self-assessment driving tool during license renewal.
4. Educate older drivers and their caregivers about the driving risks associated with certain prescription drugs and physical conditions.
5. Investigate enhanced driver license testing procedures.

The planning portion of the DOT survey also asked whether the department was engaged in other long-range planning activities to address issues of older road user safety and mobility. California noted its statewide traffic safety plan for older adults described earlier in this chapter, and both Arizona and New Jersey noted statewide efforts to promote healthy aging and safe mobility. In addition to its state level planning activities, the Iowa DOT has encouraged metropolitan and regional planning associations to address aging driver issues as part of their safety conscious planning initiatives. Finally, two states (Michigan and Oklahoma) indicated that their state long-range transportation plans addressed older road user issues.

Several states described collaborations with other agencies or organizations on older road user issues. Eight of the 22 responding states (California, Florida, Iowa, Maryland,

TABLE 1
INCLUSION OF OLDER ROAD USERS IN COMPREHENSIVE STRATEGIC HIGHWAY SAFETY PLANS

States Having a Strategic Highway Safety Plan	Address Older Road Users?	Collaboration with Others in Developing the Plan?
Plans in Place		
Arizona	Yes	Yes
Colorado	No	Yes
Connecticut	Yes	Yes
Florida	Yes	Yes
Iowa	Yes	Yes
Maryland	Yes	No
Michigan	Yes	No
Minnesota	No	No
Mississippi	No	No
New York	No	—
Oklahoma	No	Yes
Pennsylvania	Yes (updating)	Yes
Washington	Yes	Yes
Plans Under Development		
Georgia	?	Yes
Massachusetts	?	Yes
Missouri	Yes	Yes
New Jersey	Yes	?

Note: Based on the 22 responses to the planning portion of the state DOT survey.

Michigan, New Jersey, Texas, and Washington) (36%) had formed state-level coalitions or task forces. The coalitions of California, Florida, Iowa, Maryland, and Michigan were described earlier in this chapter, in conjunction with their statewide planning activities. New Jersey's coalition is led by its DOT, Texas' by its Department of Health, and Washington State's by its Traffic Safety Commission. In addition to these efforts, the New York State DOT supported its Office on Aging in developing a program to assist older drivers and their families, and has also collaborated with the Governor's Traffic Safety Commission on older driver issues.

Asked if they had either a formal or informal liaison with their state office on aging, 10 of the 22 responding states (Arizona, Connecticut, Florida, Iowa, Maryland, Michigan, New Jersey, New York, Pennsylvania, and Virginia) (45%) said that they did. Only Maryland's relationship was considered to be "formal."

Finally, respondents were asked to describe the extent to which MPOs in their state addressed older road user safety and mobility issues in their long-range planning, and the extent to which the MPOs involved Area Agencies on Aging in the development of their plans. These results are summarized in Table 2.

Of the 22 responding states, three (Connecticut, Michigan, and Oklahoma) indicated that most or all of their MPOs

addressed older road user safety issues. Seven more states said that some MPOs did this. The remaining 55% of the responding states either noted that few or no MPOs did this or that they did not know. Results were similar with respect to MPO involvement of Area Agencies on Aging in local long-range planning. Connecticut, Florida, and Oklahoma indicated that most MPOs did this, whereas California, Georgia, and New York responded that some MPOs did this.

GOVERNOR'S HIGHWAY SAFETY OFFICE SURVEY RESULTS

One question on the survey sent to state HSOs dealt specifically with safety planning for older road users (see Appendix F, Question 1, and responses in Appendix G). All 24 jurisdictions responding to this survey noted that they had a highway safety plan, and 9 of the 24 jurisdictions, or 38%, reported that the plan addressed older road user safety and mobility. Table 3 summarizes the reported objectives or strategies. Six of the nine states specifically noted public information and education efforts. Iowa also noted funding for roadway improvement studies, and Massachusetts reported that it was conducting a literature review and baseline crash and injury data analysis for future planning. Tennessee was the only state to cite specific goals for reducing the number of fatal and serious injuries to drivers 65 or older. Further results from the state HSO survey are contained in chapter six.

SUMMARY

The U.S.DOT has articulated a clear policy supporting safe mobility for an aging road user population. However, it recognizes that the necessary actions to accomplish this goal must grow from state and local initiatives—in particular, from coalitions that have joined together to develop and implement comprehensive plans to improve senior safety and mobility. A review of the literature identified six states with comprehensive plans in place—California, Florida, Iowa, Maryland, Michigan, and Oregon. In addition, regional plans were identified in Maricopa County (Arizona) and the Delaware Valley.

The DOT survey provides a "snapshot" of what states are doing with regard to planning for older road user safety and mobility. Questions on the survey focused primarily on comprehensive planning at the state and local level and on the involvement of stakeholders from both the public and private sectors in the planning process.

Just over half of the 22 DOT offices responding to the planning portion of the survey indicated that older road user safety and mobility issues either had been addressed or would be addressed in their state's strategic highway safety plan, and in one-third of the states coalitions or task forces had

TABLE 2
LOCAL PLANNING FOR OLDER ROAD USERS AND INVOLVEMENT OF AREA AGENCIES ON AGING

State	Extent MPOs Address Older Road User Issues	Extent AAAs Involved
Arizona	Some	Few or no
California	Some	Some
Colorado	Unknown	Unknown
Connecticut	Most or all	Most or all
Florida	Some	Most or all
Georgia	Some	Some
Iowa	Unknown	Unknown
Maryland	Unknown	Unknown
Massachusetts	Unknown	Unknown
Michigan	Most or all	Unknown
Minnesota	Few or no	Few or no
Mississippi	Few or no	Few or no
Missouri	Few or no	Few or no
New Jersey	Few or no	Few or no
New York	Some	Some
Oklahoma	Most or all	Most or all
Oregon	Unknown	Unknown
Pennsylvania	Some	Few or no
Texas	Few or no	Few or no
Virginia	Few or no	Few or no
Washington	Unknown	Unknown
West Virginia	Some	Unknown

Notes: AAAs = Area Agencies on Aging; MPOs = metropolitan planning organizations.

TABLE 3
PLANNING FOR OLDER ROAD USERS BY GOVERNOR'S HIGHWAY SAFETY OFFICES

State	Older Road User Goals or Objectives Included in State Highway Safety Plans
Iowa	Provide funding support for pavement marking visibility and signage studies. Address older road users as part of safe communities and overall enforcement/education efforts.
Massachusetts	Conduct literature review to establish state of the practice in the field and compiling baseline crash and injury data for an Older Driver Resource Library.
Michigan	Support to North American Conference on Elderly Mobility Best Practices from Around the World" conference held in Detroit in September 2004.
Nevada	Cooperative project with DMV to provide public information to specific groups including older drivers.
Ohio	Develop senior driver informational program. Goals in 2004 plan include reducing number of senior drivers in error involved in crashes by 2% from the FFY 2002 rate of 19.90 per 1,000 licensed senior drivers and develop a new senior driver program for Ohio motorists (age 56 and older).
South Dakota	Older drivers addressed by a subcommittee of the South Dakota Roadway Safety Committee. Activities include funding for PI&E efforts and for AARP Driver Safety Program instructor training.
Tennessee	Specific objectives include: (1) reduce the number of fatal and injury crash rates for senior drivers by 2%, (2) reduce the number of fatalities where drivers were 65 years of age and older by 1.5%, (3) continue the downward trend for senior drivers involved in alcohol-related crashes, and (4) keep our senior drivers safe and mobile as long as possible.
Texas	Although no specific goals are identified in its SHSP, Texas has undertaken a number of activities and projects, described throughout this report, that address older road user safety.
Puerto Rico	Conduct senior citizens pedestrian and impairment education program to reduce the over-involvement of seniors in traffic crashes and, in particular, pedestrian fatalities.

Notes: PI&E = public information and education; SHSP = State Highway Safety Plan.

been formed to address older driver safety and mobility from a broader perspective. Although collaborations with other transportation and safety agencies were often cited, in the absence of a coalition or task force only a few DOTs had collaborated with their state health department, department on aging, AARP, or other key stakeholders in planning for older road users.

Although all 24 of the HSOs responding to the survey indicated that their states had a highway safety plan, just over one-third of the plans contained objectives or strategies intended especially to benefit older road users.

It should be cautioned that because of the relatively low number of states responding to the two surveys, and because responses were more likely to be received from states active in older road user issues, these results likely overestimate the level of planning initiatives currently underway in the United States with respect to the older road user. Nevertheless, the results summarized document a wide range of activities that can serve as models for other states to draw on.

Useful Web Resources

- “Safe Mobility for a Maturing Society: Challenges and Opportunities” (U.S.DOT 2003) [Online]. Available: <http://www.eyes.uab.edu/safemobility/SafeMobility.pdf>.
- A Guide for Reducing Collisions Involving Older Drivers* (Potts et al. 2004) and *A Guide for Reducing Collisions Involving Pedestrians* (Zegeer et al. 2004) [Online]. Available: <http://www.safety.transportation.org>.
- Elderly Issues in Transportation* (Grimm and Horsley 2004). Available by contacting AASHTO Standing Committee on Highway Traffic Safety.
- NCHRP Project Reports [Online]. Available: http://trb.org/news/blurb_browse.asp?id=2.
- NCHRP Synthesis Reports [Online]. Available: http://trb.org/news/blurb_browse.asp?id=5.
- TCRP Project Reports [Online]. Available: http://trb.org/news/blurb_browse.asp?id=1.
- Best Practices for Elderly Mobility Conference Proceedings Available from AAA Foundation for Traffic Safety.

IMPROVING THE ROADWAY

Roadways can play an important role in enhancing safety. It is only recently, however, that much attention has been given to the special needs and considerations of the oldest users of our nation's roadways. As with vehicles, roadways have traditionally been designed with the younger traveler in mind. However, the aging of the population has necessarily brought about an aging of the "design road user."

Improving roadways can be an expensive undertaking, but the good news is that improvements made in roadway geometrics, signing, pavement markings, traffic control devices, and other aspects of the driving environment will increase safety and ease of travel for all users and not just the older driver or pedestrian. If implemented with new construction or renovation, or only in selected high-crash or high-risk locations, they also need not be excessively expensive undertakings. This chapter reviews activities undertaken by the federal government and by state and local governments to make roadways safer for older road users.

FEDERAL GOVERNMENT INITIATIVES

FHWA has primary responsibility for the safety of the nation's roadways. As noted in the chapter two literature review, FHWA initiated a high-priority older driver program in 1989. The results of this focused research activity provided input to a comprehensive set of recommendations and guidelines for accommodating an aging road user population. The *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a) updates the original handbook released in 1998. The *Handbook* does not establish new standards of practice, but rather is intended to supplement existing standards and guidelines contained in the AASHTO *Green Book*, *MUTCD*, and other commonly accepted guidance documents. A separate publication, *Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians* (Staplin et al. 2001b), is a shortened version of the full report containing only the recommendations and implementation guidelines.

The updated *Handbook* contains more than 100 individual recommendations in five broad program areas. A chapter featuring the new guidelines was prepared for inclusion in *TRB Conference Proceedings 27, Transportation in an Aging Society: A Decade of Experience* (Staplin 2004). It identifies countermeasures for addressing five specific situations posing difficulty for older road users. These five situations are nighttime driving, intersections, freeways, pedestrian crossings, and

highway work zones. The identified countermeasures fall under the categories of static signs, changeable signing, traffic signals, pavement markings, other/raised delineation, geometric design, and traffic operations (see Table 4).

FHWA has now moved into the implementation phase of its older driver program. Currently, it is funding demonstration projects in three states—Arizona, Massachusetts, and Washington—to implement and evaluate selected elements of the *Highway Design Handbook*. The 3-year projects will provide information on the effectiveness of some of the recommended design elements in improving safety, comfort, ease of use, and operations for older road users, as well as for the general population.

To facilitate adoption of the recommended guidelines and practices at the state and local levels, FHWA offers on request a one-day training workshop to transportation planners, engineers, and other practitioners through state DOTs and others. The workshop provides recommendations and guidelines to accommodate the special needs of older motorists in highway design, and identifies modifications to the roadway system that can make it safer and easier for older drivers, as well as all drivers. Interactive methods are used to help participants fully understand the changes that occur with aging, and case studies offer an opportunity to test out new knowledge. To schedule a workshop, states should contact the Safety and Design Technical Services Team at the FHWA Resource Center in Kansas City, Missouri.

As a supplement to the workshops, FHWA recently produced *Travel Better, Travel Longer: A Pocket Guide to Improve Traffic Control and Mobility for Our Older Population* (2003). The small, spiral-bound booklet identifies 35 design elements to maximize safety for older road users. For each element there is a brief statement of the problem being addressed (e.g., older drivers with decreased vision may need extra conspicuity on traffic control devices) and a description of the application. Reference to the appropriate sections of both the 2000 and 2003 editions of the *MUTCD* is provided for those seeking further detail. The specific design elements included in the *Pocket Guide* are listed here.

Intersections and Interchanges

- Signs
 - Signing for left turns on green lights
 - Sign sizes for offset left-turn lanes

TABLE 4
PRACTICAL SOLUTIONS FOR OLDER ROAD USERS IN SELECTED PROBLEM SITUATIONS

Problem Situation	Practical Countermeasure Elements						
	Static Signs	Changeable Signing	Traffic Signals	Pavement Markings	Other/Raised Delineation	Geometric Design	Traffic Operations
Nighttime driving	√			√	√		
Urban–suburban intersections	√		√	√	√	√	√
Freeways	√	√		√	√	√	
Pedestrian crossings	√					√	√
Highway work zones	√	√		√	√		√

From Staplin, L., “Highway Enhancements to Improve Safety and Mobility of Older Road Users: Practical Applications,” In *Conference Proceedings 27, Transportation in an Aging Society: A Decade of Experience*, Transportation Research Board, National Research Council, Washington, D.C., 2004.

- NO TURN ON RED signs
- Letter size for post-mounted street name signs
- Letter size for overhead street name signs
- Redundant and advance street name signs
- Advance notice of cross street
- Street name signs for streets that change names
- CROSS TRAFFIC DOES NOT STOP sign
- Advance traffic control signs
- Intersection lane control signs
- Educational plaques for pedestrians.
- Pavement markings
 - Pavement markings for left-turn lanes
 - Raised pavement markings for curbs in medians and islands
 - Delineators at passive highway–rail grade crossings
 - Wrong-way arrows on ramps
 - Turning path pavement markings.
- Signals
 - Backplate for signals
 - Leading pedestrian interval.
- Curves
 - Raised pavement markings for centerlines of tight curves
 - HILL BLOCKS VIEW warning sign on vertical curves
 - Advance warning for signal obscured by curve.
- Spacing for channelizing devices
- Glare control devices for transition and crossover areas.
- Temporary pavement markings
 - Retroreflective markers for pavement markings.

FHWA also offers courses in designing facilities for pedestrians and bicyclists. Of particular relevance for the older population is “Designing Pedestrian Facilities for Accessibility,” a one-day course for transportation planners and engineers, community planners, and urban designers, as well as for public officials and interested citizens. The course provides information on the characteristics of pedestrians and the pedestrian environment, current legal requirements, FHWA and U.S.DOT policies and funding opportunities, and accessible pedestrian design. A related resource is the publication, *Designing Sidewalks and Trails for Access, Part II: Best Practices Design Guide* (Kirschbaum et al. 2001).

Other pedestrian facility design resources are available on the FHWA-sponsored walkinginfo.org website. Included on this website are links to the *Pedestrian Facilities Users Guide* (Zegeer et al. 2001) developed to assist communities in creating pedestrian friendly environments for residents of all ages, as well as publications from the U.S. Access Board and the *Designing Sidewalks and Trails for Access* report mentioned previously.

Temporary Traffic Control Zones

- Lane closure/lane transition practices
 - Use of flashing arrow panel
 - Sign conspicuity.
- Portable changeable message signs
 - Content of portable changeable message signs
 - Phases of portable changeable message signs
 - Timing of phases of portable changeable message signs.
- Channelization and path guidance practices
 - Retroreflection for cones
 - Retroreflection for tubular markers
 - Retroreflection for vertical panels
 - Traffic control devices for temporary traffic barriers
 - Separating opposing traffic

In addition to these FHWA resources, several NHTSA projects have focused on making intersections safer for pedestrians. *Zone Guide for Pedestrian Safety* (1998) summarizes a process to improve pedestrian safety by identifying small geographic areas where a large proportion of pedestrian crashes have occurred, studying these crashes, and then targeting countermeasures specifically to the occurring problems.

OTHER NATIONAL INITIATIVES

Other national initiatives have built on the FHWA *Highway Design Handbook* (Staplin et al. 2001a). As described in the literature review, many of the roadway and transportation engineering strategies contained in the AASHTO *A Guide for Reducing Collisions Involving Older Drivers* (Potts et al.

2004) draw from the *Handbook* recommendations. Objective 2 of the *Guide* is to “Improve the roadway and driving environment to better accommodate the special needs of older drivers.” The 11 strategies outlined under this objective appeared in chapter two of this report.

For each of the 11 identified strategies, the AASHTO *Guide* contains a detailed description that includes the rationale for the strategy, target audience, available information on expected effectiveness, keys to success, potential difficulties in implementing the strategy, appropriate measures of success, organizational and policy considerations, training and personnel needs, and legislative considerations. Information is also provided on the expected time frame for implementation and the costs for each strategy. Perhaps most importantly, the *Guide* contains information on agencies or organizations currently implementing the strategy and “real life” photographs of how the strategy looks when implemented.

TRIP, a nonprofit organization that researches, evaluates, and distributes economic and technical data on highway transportation issues, drew from its own analysis of the FHWA *Handbook* to develop a list of comprehensive safety improvements for improving older driver safety (*Designing Roadways . . .* 2003). This list appears here. TRIP singled out the Florida DOT for the many roadway safety improvements that had been implemented in that state.

- Signage and lighting
 - Clearer and less complex signage that is easier to follow
 - Larger lettering on signs and larger pavement markings
 - Better street lighting, particularly at intersections
 - Higher-performing retroreflective material in signs and pavement markings for better nighttime visibility.
- Intersections
 - Bright, luminous lane markings and directional signals
 - Overhead indicators for turning lanes
 - Overhead street name signs
 - Adding or widening left-turn lanes.
- Streets and highways
 - Wider lanes and shoulders to reduce the consequences of driving mistakes
 - Longer merge and existing lanes
 - Rumble strips to warn motorists when they are running off roads
 - Curves that are not as sharp
 - Improvements to pedestrian features at intersections
 - Improved intersection design
 - Improved standards for acceptable stopping and reaction sight distances.

STATE AND LOCAL INITIATIVES

The TRIP report described efforts in several states to make roadways safer for older adults. Another very readable account

of state activities in this area was the article, “Prepare Now for Your New Design Driver—A Senior,” in the February 2004 issue of *Better Roads* magazine (Consdorf 2004). States highlighted in the article include Florida, Iowa, Michigan, and Texas.

More recently, organizers of the North American Conference on Elderly Mobility, held in Detroit, Michigan, on September 12–15, 2004, assimilated best practices from state and local transportation departments across the country to showcase in the conference’s Roadway Design sessions. The result was a multipart slideshow featuring contributions from 24 states in six subject areas:

- Traffic signs,
- Traffic signals,
- Pavement markings,
- Geometric design,
- Work zones, and
- Railroad grade crossings.

The content of the presentations in the first four of these areas is summarized here. With respect to traffic signs, the focus was on larger signs and lettering, more conspicuous and easier to read signs, advance road name signs and in some cases supplemental signs, and improved diagrammatic signs placed over lanes. Similarly, the presentation on traffic signals emphasized placement of signal heads where motorists will see them; making signal heads more conspicuous, including use of multiple signal heads; and modifying signal operations to incorporate left-turn phases and all-red signal intervals.

With respect to pavement markings, highlighted improvements included more conspicuous road markings, especially for nighttime and wet weather driving; use of edge lines to help guide the motorist; improved island delineation; and advance notice pavement markings. The featured road and intersection design improvements for older road users were those directed at facilitating turning movements, especially left turns (e.g., by realigning skewed intersections, converting 4-lane roadways to 3-lane roadways, or installing roundabouts); improving sight distance; and adding shoulder and centerline rumble strips.

- Traffic Signs
 - Bigger signs
 - Larger font sizes
 - Internally lit signs
 - Brighter sheeting
 - Overhead signs
 - Advance road name signs
 - Clearview font
 - Supplemental signs
 - Improved diagrammatic signs
 - Other.
- Traffic Signals
 - Far-side signal placement
 - One signal face per lane, centered over lane

- Supplemental signal heads
- 12-in. signal lens
- Light-emitting diode signals
- Back plates
- Red T display (two red lights)
- Left-turn phase
- Prohibit permissive left turns at high-speed intersections
- Flashing yellow arrow for permissive left turn
- Left-turn yield—Blankout sign.
- Pavement Markings
 - 6-in. (or wider) longitudinal lines
 - Contrast pavement markings
 - Raised pavement markers
 - Wet-night retroreflective tape
 - Profiled thermoplastic
 - Painted rumble strips
 - Large beads added to pavement markings
 - Edge lines in parking areas
 - Pavement marking extensions
 - Island delineation
 - Advance notice road markings
 - Staggered STOP line.
- Road and Intersection Design
 - Realign skewed intersections
 - 4-lane to 3-lane conversions
 - Offset left-turn lanes
 - Offset right-turn lanes
 - Indirect left turns
 - Roundabouts
 - Offset left-turn lanes
 - Milled shoulder rumble strip
 - Centerline rumble strip
 - More forgiving crash attenuators.

A shorter, combined version of the presentations given at the North American Conference on Elderly Mobility was presented at a State Safety Engineers Peer Exchange held in Overland Park, Kansas, in October 2004. (For a copy of this presentation, contact the FHWA Michigan office). The Overland Park event was sponsored by the AASHTO Standing Committee on Highway Traffic Safety. Sample roadway treatments showcased in the Overland Park presentation are shown in Figure 6.

The following are highlights of other good state practices for improving roadways for older road users.

California

California has moved quickly to adopt the new recommendations contained in the 2003 *MUTCD*, many of which are especially beneficial to the older road user. By incorporating these guidelines into its own standard of practice, California is ahead of many other states in making its roadways more “elder friendly.”

Florida

As already noted, Florida is a recognized leader in making its roadways safer for older road users. This is important, because Florida leads the nation in the percentage of residents age 65 or older (18.1%, according to the 2000 U.S. Census estimates). The Florida Elder Road User Program was created in 1991 by Florida’s Secretary of Transportation. It drew on the recommendations contained in TRB’s *Special Report 218* and from FHWA research to develop a plan for modifying the state’s highway transportation system to be safer for older road users. The plan that was developed included both short- and long-term improvements. Identified short-term improvements were reflective pavement markers, overhead street name signs, wider pavement markings, advance street name signs, improved pedestrian crossings, and improved work zone safety. Long-term improvements included increasing sign visibility, providing advance notice, and improving intersection design and operation. The Elder Road User Program is clearly outlined in Florida’s Traffic Engineering Manual, and departmental personnel at both the state and local levels receive training in program implementation.

The *Better Roads* article (Consdorf 2004) noted that Florida has already implemented many short-term improvements and is moving toward the more physical and costly long-term improvements. Given the high costs of improvements to the roadway, the director of Florida’s program recommends getting started right away and gradually phasing in improvements over time.

Iowa

When the Iowa Highway Safety Management System formulated its strategic plan for reducing the number and severity of crashes on the state’s roadways, accommodating older drivers was one of the identified focus areas. There were four primary goals:

- Reduce the number of older driver fatalities and severe injuries by addressing specific roadway features known to be most difficult for older drivers;
- Use the older driver as the “design driver” when designing Iowa roadways;
- Improve existing roadway features to accommodate Iowa’s aging drivers; and
- Include alternate transportation systems in Iowa’s life-long safe mobility planning (*Toolbox of Highway Safety Strategies* 2002).

Iowa has committed itself to reviewing and implementing the recommendations found in the FHWA *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin 2001a) and to researching and applying best practices and technologies for assisting older drivers. Some of the many improvements that can be found on Iowa roadways include larger



(a)



(b)



(c)



(d)



(e)



(f)

FIGURE 6 Sample engineering best practices presented at North American Conference on Elderly Mobility, September 12–15, 2004, Detroit, Michigan. (a) Diagrammatic sign—Intersection location (Nebraska); (b) Large street name advance sign (Toledo, Ohio); (c) In-lane pavement markings (a “trailblazing” treatment being used in Ohio); (d) Larger regulatory signs (Mississippi); (e) Larger street name signs (6-in. Clearview font, with high-intensity sheathing, as used in Detroit); (f) Wider longitudinal lines (6 in. in many states, 8 in. in Nevada).

stop signs; wider paved shoulders and shoulder rumble strips; offset left- and right-turn lanes; more and longer rural turn lanes; larger, 8–10 in. letters on selected street name signs; advance street name signs; slower advisory speeds at expressway intersections; bigger and brighter advance curve and chevron signs; brighter and more durable pavement markings; advance stop sign rumble strips; use of florescent yellow sheathing on warning signs; and conversion of selected

4-lane undivided urban streets to 3-lane streets with center two-way left-turn lanes. In 2005, county and city engineers will receive training on the FHWA *Highway Design Handbook for Older Drivers and Pedestrians*. The Iowa SMS staff has hosted statewide and regional forums to obtain broad public input to their planned activities, and has even invited older drivers to participate in their safety audit program to ensure that their roadways are elder friendly.

Michigan

As with Iowa, Michigan has been a leader in implementing roadway improvements of special benefit to older drivers. Much of its effort has gone into evaluating the effectiveness of these improvements. For example, more than \$27 million was spent upgrading intersections in the cities of Detroit and Grand Rapids. Changes have included larger, brighter stoplights; bigger street name signs; brighter reflective markings; upgraded walk lights; and new left-turn lanes (Consdorf 2004). Other initiatives that have undergone evaluation in Michigan include brighter sign legends, enlarged fonts on guide signs, brighter warning signs, and increased edge line and gore pavement markings. By the end of 2004, the state will have completed the widening of reflective pavement markings on all state highways from 4 to 6 in. Michigan is also phasing in 12-in. light-emitting diode signal heads and larger fonts and higher-visibility reflective sheeting for signs.

Texas

Texas has undertaken a number of initiatives to improve the roadway for its growing elderly population. In 1998, it initiated a program to upgrade all roadside highway signs on the state highway system. This program has resulted in increased uniformity with respect to lateral placement and minimum sign height above the roadway, enhanced motorist safety through the use of improved breakaway sign supports, and increased highway sign spacing for enhanced motorist understanding and reaction to messages conveyed by the signs. The program is being continued as part of the Texas DOT's regular installation and maintenance of its roadside highway signs. The department also qualified 203 projects for the Hazard Elimination Program over a 3-year period, including installation of traffic signals and safety lighting and construction of left-turn lanes and medians, both of which have been shown to be especially beneficial for older road users. It developed an improved striping and raised reflective pavement marker policy for use on all Texas highways. Finally, an ongoing project is evaluating sign legibility improvements for older drivers through the use of high-reflective sheeting with larger and easier-to-read sign legends.

In addition (and on the "softer" side), the Texas DOT has awarded a grant to its Cooperative Extension agency to conduct a statewide Safe Communities Management Program. One goal of the project is to help local Safe Community coalitions with a tool to assess their community's roadways with the older driver in mind. Information on the "Older Driver Tool Kit" can be found on the Texas Townsafety website.

STATE DEPARTMENT OF TRANSPORTATION SURVEY RESULTS

Information on current state practices with respect to roadway design and engineering to accommodate aging road users was collected as part of the survey sent to state DOTs. The

survey questions focused primarily on familiarity with and implementation of the recommendations contained in the FHWA *Highway Design Handbook for Older Drivers and Pedestrians* and its companion *Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians* (Staplin 2001b). The full survey is contained in Appendix A. Individual state responses to the survey questions pertaining to roadway engineering are summarized in Appendix C. Survey responses were received from 24 states.

All of the responding states indicated that they were familiar with the FHWA reports, and all but two (Mississippi and Virginia) indicated that they had participated in one or more FHWA-sponsored Older Driver Highway Design workshops. Three states—California, Iowa, and New York—reported that key personnel at the state level were "very knowledgeable" about the recommendations contained in the *Highway Design Handbook*; the vast majority of respondents (19; 79%) mentioned that key personnel were only "somewhat" knowledgeable. The state DOT respondents were less likely to feel that key personnel at the county or local levels were familiar with the recommendations in the *Handbook*: only nine reported that their local counterparts were "somewhat knowledgeable" about the guide, whereas the largest share (13; 54%) reported that they were "not very knowledgeable." The remaining two respondents indicated that they were uncertain about local familiarity with the *Handbook* recommendations.

Survey respondents were also asked to rank, on a scale of 1 to 10, the extent to which the recommendations contained in the *Older Driver Handbook* were being followed by their department, with 1 representing none of the recommendations being followed and 10 representing all of the recommendations being followed. The average reported ranking was 5.1. Six states (Colorado, Connecticut, Florida, Iowa, Maryland, and New York) graded themselves an 8 or higher. Eight more states rated themselves in the middle 5 to 7 range, whereas the remaining 10 states all graded themselves between 2 and 4 (see Figure 7). Several of the respondents noted, both in response to this question and elsewhere on the

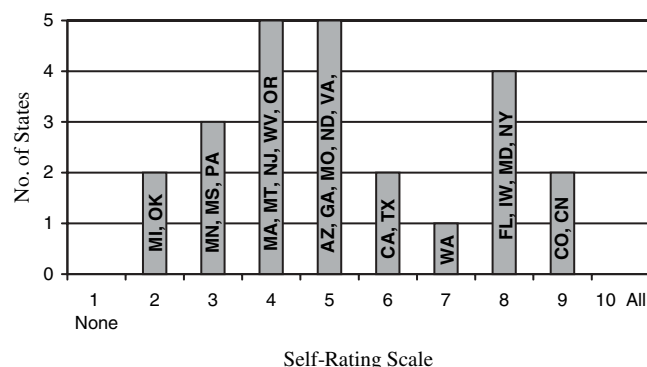


FIGURE 7 States' self-ratings on extent to which they follow recommendations in FHWA *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a).

survey, that they followed *MUTCD* guidelines, and that many of the guidelines in the *Older Driver Handbook* overlapped with those in the *MUTCD* and, in particular, the 2003 edition. Michigan also noted that it was “just getting started” in implementing the recommendations.

Asked to identify what they felt to be the three greatest barriers to implementing the recommendations in the *Older Driver Handbook*, the response most often noted was a lack of resources for implementing the recommendations, which was cited by three-fourths of the survey respondents (see Table 5). The next two most frequently cited barriers were the actual or perceived lack of importance of the issue and inadequate education and training at the state DOT level. Both were cited by approximately half of the respondents. The remaining categories were all mentioned by less than one-third of the respondents. Results with respect to the single greatest barrier to implementing the *Handbook* recommendations followed a similar pattern.

A final section of the survey asked whether state DOTs had modified their guidelines or standards with respect to 13

specific engineering treatments. Responses to this question are summarized in Table 6, with detailed responses appearing in Appendix C. States that reported that they were in the process of either implementing or evaluating specific changes are typically counted as “other” in the table.

A cautionary note is in order regarding these results. The specific wording of the question was, “Please indicate whether your department has modified its guidelines or standards for each of the following engineering treatments to better accommodate the needs and capabilities of older road users.” If a respondent replied “yes,” they were asked to describe the change(s) made. This wording clearly created confusion and a level of uncertainty about the results obtained. Some states responded “no” and noted that they followed the *MUTCD*, whereas others said “yes” and also noted following the *MUTCD*. The specific version of the *MUTCD* was not always specified. Ambiguity also arose because a time frame was not specified for making the described changes, so that a state with a long-term policy in place might respond either “yes” (because they do indeed have such a policy) or “no” (since this policy had not recently been made in con-

TABLE 5
PERCEIVED BARRIERS TO IMPLEMENTING RECOMMENDATIONS CONTAINED IN THE
FHWA HIGHWAY DESIGN HANDBOOK

Barrier to Implementation	States Citing in Top 3		States Citing No. 1	
	<i>n</i>	% ^a	<i>n</i>	% ^b
Lack of resources for implementing	18	75	9	41
Actual or perceived lack of importance of issue	12	50	6	27
Lack of education/training at state DOT level	11	46	3	14
Lack of education/training at local level	7	29	1	5
Lack of adequate standards to accommodate changes	7	29	0	0
Threat of liability for deviation from current practice	2	8	1	5
Other	5	21	1	5

Source: *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a).

^aPercent of all states responding (*n* = 24).

^bPercent of all states responding (*n* = 22). Two states did not prioritize their choices.

TABLE 6
STATE MODIFICATIONS TO ACCOMMODATE OLDER ROAD USERS

Engineering Treatment	No. of States Reporting Modifying Standards or Guidelines		
	Yes	No	Other/ Uncertain
a. Changes to street name signing (larger letter height, advance signing, etc.)	18	4	2
b. Sign retroreflectivity and/or lighting requirements	16	8	0
c. Use of upper- and lowercase letters on overhead signs	14	9	1
d. Use of Clearview font on signs	5	13	6
e. Use of protected-only operations at signalized intersections	14	9	1
f. Use of all-red clearance intervals at signalized intersections	15	8	1
g. Use of advance warning signs (signal ahead, horizontal curve, etc.)	16	8	0
h. Signal timing adjustments to accommodate older pedestrians slower walking speeds	17	7	0
i. Letter size requirements for freeway entrance/exit signing	11	12	1
j. Lane striping or edge line width	12	11	1
k. Improvements to pavement marking contrast	8	13	3
l. Use of raised pavement markings to supplement standard centerline markings	15	9	0
m. Use of post-mounted delineation devices as supplement to chevron alignment signs on horizontal curves	10	13	1

sideration of older drivers). Several respondents, and specifically Texas, noted that changes had been made, but *not* specifically for older drivers.

With these limitations in mind, comments with respect to each item follow. Readers are encouraged to review the summary tables in Appendix C for more specific information about a given state's activities.

- Street name signing—Eighteen of the 24 responding states noted changes in street name signing to benefit older road users. This number included Pennsylvania, which indicated an increase in letter height to 6 in., but not to larger heights for higher-speed, multilane roadways or for overhead signs. Virginia reported that it had a long-term policy requirement for larger than required letter sizes on their street name signs. Michigan (coded under “other”) reported that it was testing use of the Clearview font. In Connecticut, towns are permitted to add street name subplates to their intersection warning signs. Several other states (all coded as “yes”) noted compliance with the *MUTCD*.
- Signing retroreflectivity and lighting—Most states also reported changes in sign retroreflectivity or lighting requirements. Several noted adoption of high-intensity sheeting as standard (Virginia since the 1970s) and increased use of prismatic sheeting on some signs. Connecticut noted the use of light-emitting diodes, and Georgia of wet weather reflective tapes on Interstates. Missouri noted that it was in the process of designing new trusses to allow for retrofitting, and also noted that overhead lighting may become standard again as headlight technology improves and less light reaches overhead signs. (Massachusetts responded “no” and noted following *MUTCD* guidance, whereas California and Oregon both responded “yes” and also comply with *MUTCD*).
- Upper- and lowercase lettering on overhead signs—There was confusion with regard to the question about the use of upper- and lowercase letters on overhead signs, because the survey did not differentiate between freeway signs and street name signs (which was the intent). Thus, Massachusetts and Mississippi both responded “no,” while noting compliance with the *MUTCD*, and California, Colorado, and Oregon responded “yes,” while also noting *MUTCD* compliance. Overall, a majority of states do appear to be using the upper- and lowercase letters on at least some overhead signs.
- Clearview font—Five states (California, Colorado, Oklahoma, Pennsylvania, and Texas) reported use of the Clearview font on signs. Four other states (Maryland, Michigan, New Jersey, and North Dakota, all coded under “other”) reported experimenting with the font or otherwise investigating its use.
- Protected-only intersection signals—A majority of the responding states reported use of protected-only operations at signalized intersections. However, no information was sought on the frequency of use or the circumstances governing such use. Missouri reported that use of protected-only operations was based on traffic speed, volume, and sight distance, and several states linked usage to crash history, independent of older drivers. In addition, Oregon noted that it was moving from protected-only toward permissive-protected signals, whereas Virginia noted that it had abandoned use of the permitted or permissive/exclusive left-turn phasing at many of its intersections.
- All-red clearance intervals—In addition to the 15 states identified in Table 6 as using all-red clearance intervals at signalized intersections, the written comments to this question showed that 6 of the states that responded “no” also employ this treatment. In most cases, this was standard practice in the state and not a change that had been implemented specifically for older road users. Therefore, this particular treatment was employed by the vast majority of the states responding to the survey.
- Advance warning signs—Sixteen states reported the use of advance warning signs to better accommodate older road users. In addition, Minnesota and Mississippi reported its use, but with no specific modification for older drivers, and Massachusetts reported that it followed *MUTCD* guidance in this matter. In addition to the advance warning signs, Missouri and West Virginia reported the use of flashers or beacons in special instances.
- Signal timing adjustments—All but seven states also reported signal timing adjustments to accommodate older pedestrians' slower walking speeds. In most instances this appears to be done on a case-by-case basis. Although North Dakota and Oklahoma both responded “no,” they did indicate doing this where needed to accommodate a larger population of older (or school-age) pedestrians. Massachusetts, which also responded “no,” noted that it followed *MUTCD* guidance.
- Letter size on freeway signing—States were about equally split on whether they had increased letter size requirements for freeway entrance or exit signing, with 11 states responding that they had and 12 responding that they had not. Again, several states that responded “no” to this question indicated compliance with the *MUTCD*.
- Lane striping or edge line width—States were also about equally split on their response to this question. Massachusetts, Michigan, Montana, New York, and Pennsylvania all reported use of 6-in. line markings on at least some roadways. Mississippi did as well, although it reported that it had made the change for the safety and visibility of all motorists and not for older drivers. Missouri indicated that it was evaluating the use of the 6-in. stripe on expressway and freeway lane line applications, whereas California noted that it was discussing the costs of this change, but remains undecided.
- Pavement marking contrast—Only eight states noted improvements to pavement marking contrast, with three

other states reporting that they were studying the issue. California explained that questions about measurement criteria had delayed the introduction of this item in the 2003 *MUTCD*, and that it was awaiting resolution by FHWA.

- Raised pavement markings—A change in guidelines with respect to the use of raised pavement markings to supplement standard centerline markings was reported by 15 states. In addition, Mississippi (coded as “no”), indicated that use of raised pavement markings had been Mississippi DOT policy for the last 10 to 15 years. Use of such markings was typically designated for certain types of roadways and locations.
- Post-mounted delineation—Ten states noted changes in guidelines regarding use of post-mounted delineation devices as a supplement to chevron alignment signs on horizontal curves, and Mississippi (coded “no”) also noted their use statewide, but without specific regard to older drivers. Iowa and Missouri, also coded as “no,” reported using chevrons as stand-alone devices.
- Three states noted “other” changes to accommodate older road users. Massachusetts reported the use of radar drones at construction work zones. Missouri replied that it was in the process of implementing the intermediate reference marker contained in the 2003 *MUTCD* (which will provide location information and also act as a roadside delineator), and also improving the design of its standard roadside delineators to be more durable and provide a larger retroreflective target. Virginia noted that it had been using 12-in traffic signal head sections exclusively since the mid- to late 1970s.

SUMMARY

Through its *Highway Design Guidelines for Older Drivers and Pedestrians* and associated materials and resources, FHWA has provided clear guidance to state and local transportation engineers on roadway improvements to accommodate the aging driver population. Additional resources have been developed to provide guidance with respect to the pedestrian environment, drawing support from American with Disabilities Act (ADA) requirements. Many states have begun

implementing these changes, and some have incorporated them into their standards of practice. California, Florida, Iowa, Michigan, and Texas have been especially active in this regard. However, their progress and that of other states is limited by inadequate funding and by the perceived lack of importance of the issue, especially when compared with other more visible highway safety challenges such as young drivers and alcohol. There is also a need for more education and training, both at the state and local levels. In the absence of adequate resources and training, there are large differences in how states are responding to the needs of their current, and projected, older road user populations.

Useful Web Resources

- Transportation in an Aging Society: A Decade of Experience*, Transportation Research Board, National Research Council, Washington, D.C., 2004 [Online]. Available: http://gulliver.trb.org/publications/conf/reports/cp_27.pdf.
- Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a) [Online]. Available: <http://www.tfhr.gov/humanfac/01103/coverfront.htm>.
- Designing Roadways to Accommodate the Increasingly Mobile Older Driver* (2003) [Online]. Available: <http://www.tripnet.org/OlderDrivers2003Study.PDF>.
- Better Roads* (Consdorf 2004) [Online]. Available: <http://www.betterroads.com/articles/feb04a.htm>.
- A Guide for Reducing Collisions Involving Older Drivers* (Potts et al. 2004) and *A Guide for Reducing Collisions Involving Pedestrians* (Zegeer et al. 2004) [Online]. Available: <http://safety.transportation.org/>
- Designing Sidewalks and Trails for Access* (Kirschbaum et al. 2001) [Online]. Available: <http://www.fhwa.dot.gov/environment/sidewalk2/index.htm>.
- Pedestrian Facilities Users Guide—Providing Safety and Mobility* (Zegeer et al. 2001) [Online]. Available: <http://www.walkinginfo.org/pdf/peduserguide/peduserguide.pdf>.
- Transit Cooperative Research Program reports [Online]. Available: http://trb.org/news/blurb_browse.asp?id=1.
- FHWA Regional Offices and Resource Centers [Online]. Available: <http://www.fhwa.dot.gov/field.html#fieldsites>.
- Texas Community Older Driver Toolkit [Online]. Available: <http://tx.townsafety.com/ACTSweb/ODT/overview.htm>.

DRIVER LICENSING INITIATIVES

The driver licensing process provides states with an opportunity to periodically assess an individual's driving competency and can serve as a venue for distributing educational information and materials such as self-assessment guides, information on how aging can affect driving abilities, and alternative forms of transportation within the community. License examiners are also uniquely positioned to link older adults who are experiencing difficulties driving with more in-depth driver assessment and remediation resources within the community.

A growing number of states impose some additional requirements for older adults wanting to renew their driver's licenses, including more frequent renewals, vision screening, and/or in-person renewals. Some states have initiated special programs to identify at-risk drivers of any age. Others have focused on educating older adults to make responsible decisions about their own abilities to operate a motor vehicle safely. These efforts have frequently entailed forming partnerships with other agencies and organizations in the public and private sectors. This chapter will highlight the many and varied driver licensing initiatives used across the country to improve older road user safety and mobility.

FEDERAL GOVERNMENT INITIATIVES

The recently published *Model Driver Screening and Evaluation Program: Guidelines for Motor Vehicle Administrators* (Staplin et al. 2003) updates earlier NHTSA/AAMVA guidelines for identification of high-risk drivers (Petrucci and Malinowski 1992). The new guidelines draw from the considerable research that had been carried out in the interim on how an individual's functional abilities relate to driving performance, and reflect the results of a comprehensive research project carried out with the cooperation of the Maryland MVA. The guidelines also recognize the importance of addressing mobility as well as safety considerations for the older driver. The key features of the recommended model program are summarized here (adapted from Staplin et al. 2003). Many of the state driver licensing initiatives described reflect elements of the model program.

- A single unit within the DOT or DMV coordinates all activities to detect and intervene with functionally impaired drivers, ideally an MAB or its equivalent in each state.

- Drivers enter the program both through external referrals and through internal (DMV) referrals resulting from periodic reevaluation of functional status.
- All drivers are exposed to education and counseling activities appropriate to their health status—regardless of screening outcome—as part of a multi-tiered approach targeting driving health maintenance as well as crash reduction.
- Program priorities are keeping drivers on the road as long as they are safe, through early identification and assessment, coupled with remediation, counseling, and restriction where needed.
- Broad-based education of the driving public plus more focused training aimed at physicians and the medical community are essential before and during program operation, explaining the link between functional status and driving risk.
- An advisory committee or consortium to help establish and periodically review program procedures should be formed under the auspices of the licensing authority, whose membership includes diverse public- and private-sector groups plus all agencies of the government concerned with transportation, public health, or aging.

NHTSA also collaborated with AAMVA on the first comprehensive review of MAB practices in the United States, including an identification of best practices (see Lococo 2003; Lococo and Staplin 2005). The review of practices report contains a state-by-state summary of procedures in place for determining an individual's fitness to drive personal vehicles, including:

- The organization of the medical program;
- Mechanisms in place for identifying drivers with medical conditions and functional impairments;
- Procedures and medical guidelines used to evaluate fitness to drive;
- Evaluation outcomes, appeals process, and availability of counseling and educational materials; and
- Employee training, driver tracking, and other administrative issues and barriers to program implementation.

The final project report (Lococo and Staplin 2005) contains specific recommendations for state driver licensing authorities with regard to licensing drivers with medical conditions and functional impairments. The recommendations address the role and function of a medical advisory or review

board, legal requirements regarding physician reporting, education of law enforcement officers, requirements for license renewal, restricted licensing, referrals for driver rehabilitation, and other important aspects of a driver medical review program. In addition, AAA has developed a list of Basic Best Practices for Medical Advisory/Review Boards based on the NHTSA study findings (see <http://www.aaanewsroom.net/Files/seniorbestpractices.doc>).

OTHER NATIONAL INITIATIVES

In addition to its collaborations with NHTSA on the aforementioned projects, AAMVA maintains a Driver Licensing and Control Committee that has helped guide its policies with respect to driver licensing. Of special regard to the older driver, AAMVA policy

- Supports periodic reexamination of all drivers, at least once every 4 years, to include a visual screening test and, where appropriate, a written and/or driving test.
- Recommends that drivers whose records show a pattern of either violations and/or crashes be given a diagnostic-type reexamination, as a means for confirming a particular driving problem, as well as to prescribe driver improvement programming to ameliorate the problem.
- Recommends that licensing agencies cooperate with the medical profession, state health agencies, and other entities to encourage reporting of physical and/or mental disabilities that might inhibit safe motor vehicle operation.

A copy of AAMVA policy relevant to the screening and evaluation of drivers and driver license applicants is contained in Appendix D of Volume III of the *Model Driver Screening and Evaluation Program: Guidelines for Motor Vehicle Administrators* (Staplin et al. 2003). Provisions of the Uniform Vehicle Code affecting driver licensing are summarized in Appendix E of that report.

AAMVA has also recently reconstituted its Driver Fitness Working Group. The goals and objectives of this group are:

- To coordinate, conduct, and promote activities to better assess driver fitness, including medical conditions and older driver concerns;
- To evaluate best practices for the screening and assessment of functionally impaired drivers;
- To assist national and international projects whose activities have impacts on DMVs;
- To improve licensing renewal practices that may assist detection of functionally impaired drivers; and
- To evaluate standards for ensuring drivers' continued fitness to drive.

In the wake of the recent NHTSA report on state MAB practices, AAMVA's Driver Fitness Working Group will be seeking to promote greater standardization of the driver medical review process across states.

The AMA has also formulated policy with regard to the reporting of unsafe drivers. In 1999, the AMA Council on Ethical and Judicial Affairs adopted a policy outlining the responsibilities of physicians in reporting potentially unsafe drivers. The policy is available on the AMA website (see the end of this chapter for website address). The report outlines the following conditions for physician notification to the DMV: (1) the patient has identified and documented impairments clearly related to the ability to drive; (2) the patient poses a clear risk to public safety; (3) alternatives to reporting, including remediation and training, driving restrictions, and patient and family counseling, are insufficient; and (4) the patient does not voluntarily comply with the physician's recommendation to discontinue driving.

STATE INITIATIVES

State Driver Licensing Requirements

State-by-state driver licensing requirements are summarized in a number of reports, including the *Model Driver Screening and Evaluation Program* report (Volume III) (Staplin et al. 2003; see Appendix B) and the *Physician's Guide to Assessing and Counseling Older Drivers*, produced by the AMA and NHTSA (Wang et al. 2003; see Chapter 8). However, because requirements can change over time, information of this nature is probably best obtained from a website that is regularly updated, such as that maintained by the Insurance Institute for Highway Safety, AAA, or the National Academy on an Aging Society (see websites listed at the end of this chapter).

At least 22 states have special requirements in place for older adults wanting to renew their driver licenses. Based on a combination of sources, Table 7 identifies states having *additional* license renewal provisions affecting older adults. By far the most common requirement is an accelerated renewal, gen-

TABLE 7
STATES WITH ADDITIONAL AGE-BASED LICENSE
RENEWAL REQUIREMENTS FOR OLDER DRIVERS

Renewal Provision	States with Added Requirements for Older Drivers
More frequent renewals	AZ, CO, HA, ID, IL, IN, IA, KS, ME, MO, MT, NM, RI, SC
In-person renewals	AK, AZ, CA, CO, CN, LA
Vision testing	AZ, DC, FL, ME, MD, MT, OR, SC, UT, VA
Medical report	DC, NV ^a
Written test	DC ^b
Road test	DC, ^b IL, NH,
Other	NC, TN

^a Medical report required only if renewing by mail.

^b May be required (i.e., not mandatory).

erally ranging between 2 and 4 years, and sometimes shortening with age. Thus, for example, the normal length of license renewal in Illinois is 4 years, but decreases to 2 years for drivers age 81 to 86 and to 1 year for drivers 87 and older. Fourteen states have an accelerated renewal provision in place, typically beginning at age 65 to 75.

Ten states also have age-based requirements for vision testing. An example is Florida, which recently amended its law to require drivers over age 79 to pass a vision test at any office or, if renewing by mail, have a special form filed by an optometrist or licensed physician. Note that these are only states that have *special requirements for older drivers*. Excluded from the list are states that require vision testing for *all* license renewal applicants, without additional age-based provisions. A review of the state driver license requirements posted on the National Academy of Aging website showed that 34 states require vision testing as part of their normal license renewal procedure.

Six states require older adults to renew their licenses in person, generally starting at age 65 or 70. Again, these are states that otherwise allow license renewals by mail. Only two states, Illinois and New Hampshire, require older adults to pass a road test when renewing their license, both starting at age 75. The District of Columbia recently enacted legislation specifying that a road test as well as written test may be required at age 75. The District of Columbia also requires a medical report for drivers after age 70, as does Nevada for drivers age 75 or older who choose to renew by mail.

In a few instances, states have passed laws making it *easier* for older adults to renew their licenses. In Tennessee, licenses issued to people 65 and older do not expire, and license fees are reduced for drivers age 60 and older. In North Carolina, drivers age 60 and older who take the road test are not required to parallel park. Several states (Maryland, Massachusetts, Minnesota, and Nevada) have passed laws specifying that age alone cannot be used as a basis for driver reexamination.

State Programs and Initiatives

The following program descriptions represent the types of activities underway at the state level with respect to driver licensing.

Maryland

Maryland was the site of the research activities for the development of the national Model Driver Screening and Evaluation Program, described earlier. Led by its MVA MAB and the Maryland Research Consortium, Maryland continues to provide a model driver licensing program that incorporates a multi-tiered driver screening and assessment process, coupled with a broad-based program of education, counseling,

and training and remediation. MAB physicians review an average of 7,000 cases per year for medical fitness to drive. When evaluating an individual, the goal is always to recommend the least restrictive action that will enable that person to continue to provide for his or her own safe mobility. A team of trained nurse case managers facilitate the process.

The MVA has also worked hard to develop resources within the state to assist older adults in maintaining their driving abilities. Three training courses have been developed for instructors at local driving schools: a low vision course, a course in adaptive vehicle equipment, and an “older driver tune-up.” Instructors successfully completing one or more courses are certified by the MVA, and the MVA and others then refer clients to them for assistance. The MVA is also working with the ADED to support increased opportunities for driver educators and other professionals to be trained as driving rehabilitation specialists. The philosophy underlying all of the Maryland MVA’s efforts is to assist older adults in remaining safely mobile for as long in life as possible.

Oregon

Oregon requires all drivers to respond to a series of medical questions on the driver license renewal application, and drivers over age 50 must also pass a vision test. Beginning in June 2003, the state began phasing in a new program of mandatory physician reporting. The Medically At-Risk Driver Program evolved from the recommendations of the state’s Older Driver Advisory Committee formed in 1999 (*Report of the Older Driver Advisory Committee* 2000). As a result of the committee’s report, legislation was enacted in 2001 stating that determination of an individual’s fitness to drive cannot be based solely on the diagnosis of a medical condition, but must be based on the “actual effect of a cognitive or functional impairment on the person’s ability to safely operate a motor vehicle.” Subsequently, a Medical Working Group was formed to identify those cognitive and functional impairments likely to affect driving safety and physicians responsible for reporting them. Work was also carried out to develop a training program for physicians, procedures for managing license suspensions under the new program, procedures for reinstatement of licenses, and a public outreach campaign. The Medically At-Risk Driver Program was phased in over a one-year time frame, and since June 1, 2004, has been operational statewide.

Along with increased reporting by physicians, Oregon has also encouraged greater reporting of at-risk drivers by family members and friends, making information available on its website. Individuals of any age who are referred by family members, physicians, law enforcement officers, or judges can be called in for reexamination. Currently, approximately 2,500 drivers each year undergo reexamination. The process begins with a meeting with a specially trained driver counselor, who determines which tests are required. The driver

then has 60 days to pass all tests to retain a valid driver's license. Depending on the results of the testing, special restrictions may be tailored to the individual driver.

Oregon's Medically At-Risk Driver Program is accompanied by extensive public information and education efforts carried out by the Oregon DMV and described in greater detail in chapter seven of this report.

California

The California DMV has been a leader in developing and evaluating programs for improving driver safety, with a special focus on identifying drivers of any age who have acquired visual, mental, or other functional impairments that might affect their driving ability. Still under development and testing is a three-tiered driver assessment system. In the first tier, all driver license renewal applicants (as well as drivers referred because of physical or medical conditions) are required to pass a written knowledge test, a cognitive screen, and tests of visual acuity (Snellen eye chart) and contrast sensitivity (the ability to distinguish varying shades of gray letters on a white background). Applicants are also observed for physical impairments that might affect driving ability. Drivers passing this first tier of testing are allowed to renew their license, whereas those who fail undergo a second tier of testing that includes a computer-based test of information processing ability.

The third tier of testing, for those failing the first and second tiers, consists of the Supplemental Driving Performance Evaluation road test. This test was developed by the California DMV and is already being used to evaluate drivers referred for reexaminations. Information about the road test is available on the California DMV website. DMV staff receives special training to conduct the tests that includes instruction in evaluating drivers with visual, mental, or physical limitations. The California DMV has also undertaken driver improvement and education programs that are described in later chapters of this report.

Florida

As noted in chapter two, the Florida Department of Highway Safety and Motor Vehicles (DHSMV) has led efforts in that state in addressing the safety and mobility of older road users. The department's Transportation Lifetime Choices initiative has identified three primary goals: (1) extend years of safe driving by older motorists, (2) encourage positive education to influence drivers' self-regulation, and (3) generate suitable alternatives to driving. An initial priority area for the DHSMV has been early recognition and assessment of potentially at-risk drivers through driver license issuance and renewal procedures and through referrals to the department. With regard to the former, the department conducted research to evaluate several potential driver assessment tools in a tiered driver

licensing approach similar to that being taken in California and Maryland. Although no single tool was found to positively predict crash risk, the combination of assessment methods was shown to have promise for identifying high-risk drivers. The department also helped fund Florida Senior Safety Resource Centers, which provide more comprehensive voluntary assessments of driving ability.

The Florida DHSMV has also conducted extensive campaigns to train law enforcement officials in identifying and reporting potentially at-risk drivers. It recently implemented a pilot program in Duval County (Jacksonville area) to educate law enforcement, the judicial system, medical professionals, social service providers, DHSMV employees, and the general public about how to recognize and report an unsafe driver. All forms for reporting an at-risk driver are readily available on the department's website. The Florida Driver License Examiner's Manual deals extensively with driver limitations, including visual observations to identify a potentially at-risk driver. Once an at-risk driver is identified, the Florida DHSMV has partnered with other agencies and with private-sector organizations to ensure that appropriate remediation options and/or transportation alternatives are communicated to the driver. These programs are described in later chapters of the report.

Other State Initiatives

In addition to these more comprehensive programs, a number of other state DMVs have programs or policies in place to improve the safety of older drivers. Although certainly not comprehensive, the following list highlights some of these:

- Iowa has a Senior Drivers Workbook available on its website that contains a practice driver license test for older drivers.
- Illinois allows its seniors to renew their licenses in conjunction with a 2-h Rules of the Road class offered at senior centers and other sites statewide.
- The Wisconsin DMV website contains extensive education and awareness information for older drivers, including information on aging or impaired drivers, driving with a disability, driving with a medical condition, mature drivers, and medically impaired drivers.
- Utah was one of the first states to restrict driver licenses based on defined levels of functional ability within medical condition categories (see Vernon et al. 2001). The program is described on the Utah Department of Public Safety, Driver License Division website.
- In Pennsylvania, a campaign to increase physician reporting of older drivers resulted in a fourfold increase in the number of physician reports. Of those reported, 72% had impairments significant enough to merit temporary or permanent recall of their driving privileges (as reported in Staplin et al. 2003).

STATE DEPARTMENT OF MOTOR VEHICLE SURVEY RESULTS

Given that information on licensing requirements was available from other sources, the survey developed for distribution to state motor vehicle departments focused on services and programs offered to older drivers, license examiner training, and reevaluation of referred drivers. A copy of the survey and accompanying cover letter is contained in Appendix D. The survey was mailed to identified driver license contacts in each state using a list developed by the AAMVA. Responses were received from 34 U.S. jurisdictions. Detailed state-by-state responses to the survey are contained in Appendix E and summarized here.

Information and Assistance to Older Drivers

Fourteen of the 34 responding jurisdictions (41%) indicated that they made information on older road user safety available on their websites. Table 8 contains a listing of the reported sites provided by 12 of the states. Although all contain useful information, the Oregon, California, Florida, Virginia, and Wisconsin websites are especially informative.

Just under half of the respondents (16; 47%) stated that they also provided educational materials for older road users (pamphlets, brochures, etc.) at their licensing offices. These were sometimes developed by the DMV, but often included a mix of DMV-developed materials and materials developed jointly with other agencies or organizations. For example:

- California distributes brochures about its Mature Driver Improvement Course for drivers 55 or older; the AARP Driver Safety Program; its driver reexamination process and driver safety administrative hearing process; how to report a potentially unsafe driver; the ADA; and for

family members, a brochure entitled *Tips You Can Give to a Mature Driver*.

- Michigan distributes a brochure it developed, *Driving for Life: A Guide for Older Drivers and their Families*.
- Missouri distributes the brochure, *Driving & Dementia*, which it developed in collaboration with the Alzheimer's Association.
- Oregon distributes information on its Shifting Gears in Later Years program, including a brochure entitled *How's My Driving?* and another entitled *Retiring from Driving*. It also has a colored poster encouraging older drivers to Protect Yourself and Other Drivers—Know Your Limits. Family members are encouraged, in a light-hearted manner, to talk with their parents about their driving: “Your parents had ‘the talk’ with you. Now it’s time to return the favor,” and also, “If you can talk to your kids about sex, you can talk to your parents about driving.”

Approximately half of the responding DMVs also said that their agency provided guidance or assistance to older drivers or former drivers in accessing alternative forms of transportation. In some cases (e.g., in Florida and Alaska), this information was made available through the agency’s website. In Massachusetts, a 30-min Powerpoint presentation on the topic was developed as part of the Elder Outreach Program that is presented statewide. Several of the respondents noted that information on alternative transportation was available if requested by the renewal applicant, or to drivers who were undergoing reevaluations.

Asked if their agency coordinated with other state agencies or with organizations in the private sector to make information or programs available to older road users and their families, 21 states (62%) responded that they did. Identified partners included state health departments, social services,

TABLE 8
STATE DMV WEBSITES PROVIDING INFORMATION TO OLDER DRIVERS AND/OR THEIR FAMILIES

State	Website
Alaska	www.state.ak.us/dmv (click on “senior citizen information”)
California	www.dmv.ca.gov (click on “senior driver information”)
District of Columbia	www.dmv.dc.gov (GrandDriver link to be added)
Florida	www.hsmv.state.fl.us/dtl/tlc.html
Illinois	www.sos.state.il.us/home.html
Massachusetts	www.mass.gov/rmv (click on “medical affairs”)
Michigan	www.michigan.gov/sos (click on “older driver”)
Oregon	www.oregonsafemobility.org
Pennsylvania	www.dmv.state.pa.us/pdotforms/misc/Pub_345.pdf www.dmv.state.pa.us/pdotforms/fact_sheets/fs-pasen.pdf
Virginia	www.dmvnow.com/webdoc/general/safety/maturedriver/index.asp
Washington	www.dol.wa.gov/drivers.htm#senior
Wisconsin	www.dot.wisconsin.gov/drivers/drivers/aging/index.htm

and state offices on aging, along with AARP, AAA, National/State Safety Council, Alzheimer's Association, hospitals and driver rehabilitation centers, and other private-sector organizations. In some cases outreach was limited to providing information brochures or booklets; however, several states provided more comprehensive programs or services. Examples include:

- The Florida DHSMV, Division of Driver Licenses, has partnered with more than 40 state agencies, medical professionals, senior citizen advocacy groups, and providers of services to senior citizens to address mature driver issues in the state. Sample initiatives include development of the Transportation Lifetime Choices program; sharing of booklets and brochures among partners; joint development of a comprehensive approach to licensing with assistance from the Florida At-Risk Driver Advisory Council; and pilot projects to test new approaches to assess driver capabilities, conduct medical referral training, educate DHSMV employees in aging sensitivity, etc.
- In 1998, the Massachusetts Registry of Motor Vehicles began offering its Elder Outreach Program. Representatives from the registry have presented the program at assisted living, hospital rehabilitation, AARP, and other settings across the state. The program includes a 30-min PowerPoint presentation followed by a question-and-answer period.
- Michigan indicated that it networks with driver training instructors when dealing with special needs applicants and also partners with rehabilitation agencies to help drivers maintain their driving privileges.
- Wisconsin coordinates with its Health and Family Services office, Department of Aging, and the Alzheimer's Association, Epilepsy Foundation, Diabetes Association, and other health advocacy groups in providing information on state driving laws, how to report a medically impaired driver, restricted licenses, and a phone number to call for further assistance.

The DMVs were specifically asked if local driver license offices provided assistance to older adults or their families in the following four areas:

- Identifying driver "refresher" courses (e.g., AARP or AAA courses) available locally,
- Identifying local resources for more in-depth assessment of driving skills,
- Identifying local resources for driver training or remediation, and
- Identifying available transportation alternatives when driving is no longer an option.

Table 9 summarizes results for the 34 responding jurisdictions. Twenty-one (62%) of respondents indicated that

TABLE 9
EXTENT LOCAL OFFICES OFFER ASSISTANCE TO OLDER DRIVERS AND THEIR FAMILIES

Do Local Driver License Offices Assist in Identifying:	States Responding Yes	
	No.	Percent ^a
Driver refresher courses	21	62
Resources for driving assessment	11	32
Resources for training or remediation	19	56
Available alternative transportation	17	50

^aPercent of 34 responding states.

local offices in their state provided information on driver refresher courses, and nearly as many (19; 56%) noted that at least some local offices offered information on driver training or remediation options in the area. One-half of the respondents (17) replied that local offices provided information on alternative transportation options in the area. The California Driver License Manual [December 2003 (Rev. 67)] specifically encourages examiners to inform customers about transportation alternatives within the community.

Alternative Transportation

You should be knowledgeable about alternative transportation available in the customer's community. Even if your decision is to grant an area restriction, it is advisable to provide the customer with information on services available within the community.

The Department of Aging has established a network of Area Agencies on Aging which administers programs for the elderly. Transportation service is included.

- Give the customer the appropriate phone number for the Area Agency on Aging.
- This list is also available on the Department of Aging website at www.aging.state.ca.us.

Assistance with regard to driving assessments was less common, reported by just under one-third of the states (11). Several respondents noted that this type information was available on request, and one state (Florida) mentioned that local information could be accessed from the agency's central website. The following states indicated that information was available locally in all four of these areas: Alaska, Florida, Iowa, Maryland, Massachusetts (through their medical affairs office), Montana, South Dakota, Vermont, Virginia, and Wyoming.

Driver License Examiner Training and Outreach

One section of the DMV survey inquired about any special training provided to license examiners in areas of particular relevance for older drivers. These areas include observational approaches for identifying potentially at-risk drivers, declines in visual or cognitive function that might affect driving ability, medical conditions or medication use and driving, and approaches for counseling older adults who must

surrender their licenses. Respondents were asked to rate the level of training examiners received in each of these areas on a scale of 1 (no training) to 5 (comprehensive training).

Responses to this set of questions were somewhat ambiguous, because (1) not all states have in-person driver license renewals, and (2) states vary in the extent to which they rely on local “line examiners” versus more specially trained assessment personnel to assume such responsibilities (as is the case in California and Maryland). The intent in asking these questions (and presumably the manner in which they were interpreted by the respondents) was with respect to training routinely provided to branch office examiners.

With these caveats, Table 10 provides an average level of training with respect to each of the identified areas, and also lists states that self-rated themselves as either a 4 or a 5 in each area. States were most likely to give themselves high ratings with respect to observational approaches for identifying potentially at-risk drivers and medical conditions that might affect driving abilities. Close behind was training in age-related declines in visual function. States generally self-rated lower on training directed at cognitive declines, medications that can adversely affect driving ability, and counseling drivers who must surrender their licenses. States that self-rated themselves as either a 4 or 5 for all six topics included Alabama, Illinois, Montana, Nevada, Texas, and Vermont. Florida noted that it has developed training programs for its employees and is planning statewide concentrated training on aging sensitivity and the medical referral process to enhance current core examiner training.

Respondents were also asked to self-rate their states with respect to the extent driver license examiners are present at local gatherings such as senior centers, health fairs, etc., concerning older road user safety issues and the extent that they engaged in other public education activities, such as hosting booths at shopping malls or serving on community advisory panels. Response categories to both questions included

“often,” “occasionally,” “rarely/not at all,” or “uncertain/do not know.”

In general, license examiners were not reported to be very active in these areas. Approximately two-thirds of the respondents reported that their examiners were rarely or never present at local gatherings or engaged in other such educational activities. States reporting that their examiners often engaged in such activities included Florida, Illinois, Iowa, Massachusetts, and Pennsylvania (with regard to presentations at local gatherings), and Florida, Illinois, and Iowa (with regard to other educational activities).

Medical Referral Process

A final topic area examined on the survey was referrals for reevaluation of fitness to drive. All but two states were able to provide an estimate (or in some cases the specific count) of the number of drivers referred annually for reevaluation. These numbers (detailed in Appendix E) ranged from a low of 149 in Vermont to a high of 29,185 in California. Approximately half of the states also maintained data on the age of reported drivers and were able to report (or estimate) the percentage of referred drivers who were age 65 or older. These percentages ranged from a low of 36% in Virginia to a high of 95% in Nebraska (but may be affected by the particular subset of drivers being reported; e.g., nonalcohol referrals). On average, approximately two-thirds of the referred drivers were age 65 or older.

States also provided information on the source of referrals for driver reevaluations (see Table 11). The large majority of referrals came from either law enforcement personnel (37% on average) or medical professionals (35% on average). Family or friends accounted for approximately 13% of the referrals, whereas the remaining categories tallied only small percentages of the total.

TABLE 10
TRAINING PROVIDED TO DRIVER LICENSE EXAMINERS

Area of Training	Average Reported Level of Training on Scale of 1 to 5 ^a	States Self-Rating as a 4 or 5
Observational approaches for identifying potentially at-risk drivers applying for license renewal	3.0	AL, FL, GA, IA, KS, MO, MT, NV, ND, SD, TX, VA, WI, WY
Age-related declines in visual function that may affect driving ability	2.8	AL, AR, FL, GA, IA, KS, MA, MT, NV, TX, VA
Age-related declines in cognitive function that may affect driving ability	2.3	AL, GA, KS, MT, NV, TX, VA,
Medical conditions that may affect driving ability	2.9	AL, FL, GA, IA, KS, MA, MT, NV, OH, TX, VA, WY
Medications that may affect driving ability	2.3	AL, IA, KA, MA, MT, NV, OH, TX, VA
Counseling older adults who must surrender their license	2.1	IA, KS, MT, NV, WY

^a1 = “no training” and 5 = “comprehensive training.”

TABLE 11
SOURCES OF REFERRAL TO STATE
LICENSING AUTHORITIES FOR DRIVER
REEVALUATIONS

Referral Source	Average Percentage of All Referrals
Law enforcement	36.9
Medical professionals	34.9
Family or friends	13.1
Crash/violation records	2.6
Self	2.4
Courts	2.0
Other	8.1
Total	100.0

SUMMARY

With support from AAMVA, AMA and others, NHTSA has led efforts to develop improved driver licensing programs that support its vision of safe mobility for life. A primary focus has been on developing effective procedures for assessing medical fitness to drive. Once again, however, individual states have needed to take the lead in developing and implementing programs and materials for their aging driver population. Driver education and awareness has been an important component of these programs. To accomplish their goals, DMVs have frequently collaborated with other state agencies, including departments of health and aging, and with AARP, AAA, and other private-sector organizations. States whose licensing programs were highlighted in this chapter were Maryland, Oregon, California, and Florida; however, many of the 34 states responding to the DMV survey provided good examples of practices and materials that others might emulate.

Useful Web Resources

- Model Driver Screening and Evaluation Program* (Staplin et al. 2003) [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive/modeldriver>.
- Summary of Medical Advisory Board Practices in the United States* (Lococo 2003) [Online]. Available: <http://www.aamva.org/Documents/drvSummaryOfMedicalAdvisoryBoardPractices.pdf>.
- AAA Basic Best Practices for Medical Advisory/Review Boards [Online]. Available: <http://www.aaanewsroom.net/Files/seniorbestpractices.doc>.
- American Medical Association [Online]. Available: <http://www.ama-assn.org/ama/pub/category/5494.html> or <http://www.ama-assn.org/> (search on “older drivers”).
- State driver licensing laws:
<http://www.agingsociety.org/agingsociety/links/driverLicense.html>.
http://www.hwysafety.org/safety_facts/state_laws/older_drivers.htm.
<http://www.aaapublicaffairs.com/> (link from Mature Driver page).
http://www.iihs.org/safety_facts/state_laws/older_drivers.htm.
- Iowa Senior Drivers Workbook [Online]. Available: <http://www.iamvd.com/ods/> (link to Senior Driver’s Information Guide).
- Oregon Safe Mobility Program [Online]. Available: <http://www.oregonsafemobility.org>.
- Utah Medical Review Program [Online]. Available: <http://driverlicense.utah.gov/medical/index.html>.
- Florida Transportation Lifetime Choices Program [Online]. Available: <http://www.hsmv.state.fl.us/ddl/tlc.html>. (See Table 9 for state DMV older road user websites.)

EDUCATIONAL APPROACHES FOR IMPROVING OLDER ROAD USER SAFETY

This chapter covers a broad range of programs and materials, all focused on informing and influencing older road users and/or those who might intervene to promote their safety. The four primary audiences for such materials are:

- Older road users themselves,
- Family members or friends of an older road user,
- Intermediaries or those working with or otherwise encountering older adults (physicians, law enforcement personnel, social service providers, driver license agencies, etc.), and
- The general public.

In many cases, the boundaries between these target audiences are blurred. For example, an informational booklet on dementia and driving may be written for family members and caregivers, but may also be used by the dementia patient or by social service providers working with patients and their families.

Given the large and rapidly growing volume of materials and programs that address older road user safety and mobility concerns, a totally comprehensive accounting is beyond the scope of this report. The programs identified and reviewed in this chapter have either been developed and promoted nationally (by the federal government or by national organizations and associations) and/or have been tried at the state or local level and identified as promising. The reader is also referred to a recent UMTRI report that reviews promising approaches for enhancing elderly mobility (Molnar et al. 2003).

Table 12 provides a sampling of available programs and materials. Although most have not been formally evaluated and proven effective for reducing crashes, improving driving performance, changing driving habits, or otherwise affecting the safety of older road users, they are generally considered critical components of a comprehensive approach to improving older road user safety and mobility. In addition, many of the individual programs or program components have demonstrated effectiveness in achieving their goals; that is, they may convey important information, increase knowledge and awareness, or provide feedback on functional abilities important to driving. The table is roughly organized by target audience, beginning with the more specific programs directed toward older road users, then progressing through family

members and other intermediaries, and lastly to the general population.

FEDERAL GOVERNMENT INITIATIVES

NHTSA's stated mission with respect to older road users is to help them remain safely mobile for as long as possible. To this end, it has teamed with others to develop educational materials and programs for older drivers in general, as well as for specific subpopulations of older adults who may be at increased risk of crashing. The booklet *Driving Safely While Aging Gracefully*, developed in partnership with the USAA Educational Foundation and AARP, is a good example of the former. The nine *Driving When You Have . . .* brochures, on the other hand, are each directed at a particular at-risk group, such as drivers with diabetes or cataracts.

NHTSA is currently collaborating with a broad range of partners to develop, evaluate, and disseminate educational resources to improve the safety of older road users. Some of these programs and materials target older adults directly; others target intermediaries, such as physicians, caregivers, licensing authorities, and transportation service providers. Rather than trying to instigate change itself, NHTSA's general approach has been to work through national organizations and professional associations to promote "peer to peer" education. For example, it joined with the AMA to develop the *Physician's Guide to Assessing and Counseling Older Drivers*. This and many other examples are included in Table 12 and described later in this chapter.

OTHER NATIONAL INITIATIVES

There have also been a number of nongovernmental key players in recent efforts to improve older road user safety. Some have been active in the field for years, whereas others have more recently joined the effort. Included among these lead organizations and professional associations are:

- AARP,
- AAA (formerly American Automobile Association),
- AAA Foundation for Traffic Safety,
- AAMVA,
- AMA,

TABLE 12
SELECTED PROGRAMS AND MATERIALS FOR OLDER ROAD USERS AVAILABLE NATIONALLY

Name	Format/Type	Target Audience	Description	Source/Availability
Driver Safety Courses				
AARP Driver Safety Program	Classroom course	General older driver population	Eight hour driving safety and refresher course for older adults.	AARP Information available at www.aarp.org
AAA Safe Driving for Mature Operators	Classroom course	General older driver population	Eight hour driving safety course “designed to improve everyday driving skills and knowledge as it relates to the effects of aging.” Part of AAA’s Driver Improvement Program series of courses.	AAA Schedule and locations for course offerings available from local AAA clubs. Also see www.aaapublicaffairs.com
Coaching the Mature Driver	Classroom course	General older driver population	Includes traditional classroom program, CD-ROM or video self-instruction, and a confidential self-assessment program.	National Safety Council, Ithaca, Ill. Information available on website at www.nsc.org
Driver Self-Assessment Tools				
<i>Roadwise Review—A Tool to Help Seniors Drive Safely Longer</i>	Interactive CD-ROM, instruction book	General older driver population	Home-based software for older adults to test their own performance on eight measures of functional ability related to driving safety.	AAA National and Local AAA clubs Due for release January 2005 See www.aaapublicaffairs.com
<i>Drivers 55+: Check Your Own Performance</i>	Self-evaluation booklet	General older driver population	Contains 15 questions to help older road users gauge their driving fitness, along with a scoring system and recommendations for improving or restricting driving.	AAA Foundation for Traffic Safety Website: http://seniordrivers.org
<i>Older Driver Skill Assessment and Resource Guide</i>	Self-evaluation booklet	General older driver population	Includes quick tests for reaction time, attention, and vision. Offers tips for safer driving and encourages planning for stopping driving.	AARP Available from their website at www.aarp.org
<i>Driving Decisions Workbook</i>	Self-evaluation booklet	General older driver population	Goal of workbook is to increase drivers’ self-awareness and general knowledge about driving-related declines in abilities, and recommend compensation and remediation strategies for extending safe driving.	University of Michigan Transportation Research Institute. Copies available at www.umtri.umich.edu/library/pdf/2000-14.pdf
<i>Am I a Safe Driver?</i>	Self-evaluation	General older driver population	Designed to help drivers assess their own skills and increase self-awareness of driving safety.	AMA http://www.ama-assn.org/ama1/pub/upload/mm/433/am_i_a_safe_driver.pdf
Other Programs and Materials for Older Road Users				
Car Fit	One-on-one intervention program	Older adult driving population	A 12–15-min assessment of how well a car “fits” its driver, measured by ability to reach pedals, proper adjustment of mirrors, distance of body from the steering wheel, etc. A “turn-key” program conducted with assistance from certified driver rehabilitation specialists.	Due for release in 2005 jointly by ASA, AAA, and AARP
<i>Getting Around: Safe Mobility for Mature Adults</i>	Powerpoint presentation, brochure	Older adults (drivers and pedestrians)	Powerpoint slide presentation discusses all aspects of highway safety, including drinking and driving, safety belt use, and pedestrian safety, along with making decisions about when to curtail or stop driving and healthy walking. Brochure reinforces the program, but also stands alone.	Emergency Nurses CARE Information available on their website at http://www.ena.org/encare/institute/healthy_aging/default.asp
<i>Driving Safely While Aging Gracefully</i>	Booklet	General older driver population	Describes how changes in vision, physical fitness, and reflexes can affect driving safety, and offers tips for counteracting these changes.	NHTSA and USAA Educational Foundation http://www.nhtsa.dot.gov/people/injury/olddrive/
<i>Safe Driving for Older Adults</i>	Brochure	General older driver population	Four-color brochure based on the <i>Driving Safely</i> booklet above.	NHTSA and USAA Educational Foundation http://www.nhtsa.dot.gov/people/injury/olddrive/
<i>Driving When You Have. . . Cataracts Glaucoma Macular Degen. Stroke Arthritis Parkinson’s Dis. Sleep Apnea Diabetes Seizures</i>	Individual brochures	General older driver population and specific at-risk subgroups	Each brochure presents information on a specific medical condition common among older persons that can increase crash risk, including information about symptoms of the condition, how the symptoms can affect driving, suggested steps for increasing driving safety if faced with the condition, and available resources.	NHTSA http://www.nhtsa.dot.gov/people/injury/olddrive/

TABLE 12 (Continued)

Name	Format/Type	Target Audience	Description	Source/Availability
Flexibility Fitness Training Package	Brochure, video	General older driver population	Brochure describes why fit people make better drivers and illustrates exercises to increase neck, shoulder, trunk, back, and overall body flexibility. Video demonstrates the exercises.	AAA Foundation for Traffic Safety, senior driver website: www.seniordrivers.org
<i>Stepping Out—Mature Adults: Be Healthy, Walk Safely</i>	Booklet	Older adults (pedestrians)	Encourages older adults to follow safe practices when walking, whether for transportation or for promoting health.	NHTSA http://www.nhtsa.dot.gov/people/injury/olddrive/
<i>Straight Talk for Mature Drivers</i>	Brochures	Older drivers and specific at-risk subgroups	Individual brochures address meeting the challenge of aging and driving, vision, medications, common driving mistakes, stopping driving, and buying and maintaining a vehicle.	Available from AAA offices or can be ordered from their website at www.aaapublicaffairs.com
Assistance for Family Members and Friends				
<i>How to Help an Older Driver</i>	Booklet	Family members and friends of older drivers	A guide for families to help them help their loved ones make responsible decisions about driving and plan for their safe transportation.	AAA Foundation for Traffic Safety website: http://seniordriver.org
<i>When You Are Concerned . . .</i>	Booklet	Family members and friends of older drivers	A more detailed guide for family members of an at-risk driver, incorporating specific suggestions for how to deal with difficult situations.	New York State Office on Aging Available online at http://aging.state.ny.us/caring/concerned/index.htm
<i>At the Crossroads: A Guide to Alzheimer's Disease, Dementia, and Driving</i>	Booklet	Older drivers with dementia and their families	Designed to help persons with dementia and their families maximize independence while minimizing driving risk. Provides suggestions for monitoring, limiting, and stopping driving.	Joint project of The Hartford, AARP, and MIT AgeLab. Available at http://web.mit.edu/agelab/ Also, see "We Need to Talk . . . Family Conversations with Older Drivers."
Driving and Dementia Fact Sheet and Information	Web-based materials	Older drivers with dementia and their families	Website maintains a fact sheet on driving and other information on driving and dementia, including a position statement on care and patients' rights.	Alzheimer's Association See website at http://www.alz.org/Resources/FactSheets/drivingEI.pdf
Materials for Other Intermediaries				
<i>Physician's Guide to Assessing and Counseling Older Drivers</i>	Guidebook	Physicians and other health professionals	Designed to educate physicians about older driver safety and assist them in assessing their patients for medical fitness to drive. Provides reference information and resources.	Wang et al. 2003. Available from AMA website: www.ama-assn.org Can also locate through links on NHTSA and AAMVA websites
<i>ASA/CDC Road Map to Driving Wellness</i>	Print materials	Community health professionals	Part of a multi-phase "Live Well, Live Long" initiative providing strategies and materials for community professionals to use in their health promotion programs.	ASA, with support from CDC http://asaging.org/cdc
American Occupational Therapy Association	Professional association	Occupational therapists	AOTA provides information and resources to encourage and train occupational therapists to develop a specialty in driver rehabilitation.	See AOTA website at http://www.aota.org/olderdriver/
Association for Driver Rehabilitation Specialists	Professional association	Professionals working in driver education/training and vehicle modifications	ADED provides information and support to its membership and offers a driver assessment and rehabilitation certification program.	See ADED website at http://driver-ed.org
Supplemental Transportation Programs for Seniors (STPs)	Report	Community officials and aging service providers, as well as the general public	Report provides detailed information on more than 400 STPs across the country, and can serve as a resource for those wanting to implement their own programs.	Beverly Foundation report available on the AAA FTS website at http://www.aaafoundation.org/pdf/STP2.pdf Also available from seniordrivers.org
Programs for Increasing Community Awareness				
AAMVA GrandDriver Program	Media and print	Older drivers, family members, general population	Comprehensive public information and education campaign that includes TV and radio public service announcements, billboards, print ads, brochures, and a speaker's bureau. Designed to promote awareness of older driver safety issues.	Program information available at http://www.GrandDriver.org or through the AAMVA website
"DriveWell" Community Toolkit	3-ring binder with print materials, video, etc.	Aging service providers	Each kit includes a video, powerpoint presentation, talking points, and brochures and other materials for increasing community awareness.	ASA, in partnership with NHTSA. Expected availability early 2005.
Academy for Educational Development "Community Conversations"	Print	Aging service providers and community activists	A social marketing campaign for increasing community awareness of mobility issues affecting seniors. Includes a community survey, sample press release, talking points for community forums, etc.	AED, with ASA and CDC. Expected availability early 2005. See http://www.aed.org/SocialMarketingandBehaviorChange/ This material will be blended with the "Drive Well" project above.

- Alzheimer's Association,
- AOTA,
- ASA,
- ADED, and
- N4A.

The programs of these groups also appear in Table 12 and are highlighted here.

Driver Safety Courses

AARP's Driver Safety Program, perhaps better known to many by its former name of 55 Alive, recently celebrated 25 years in the field. Although the course is now open to drivers of all ages, 85% of its graduates are age 65 or older. A total of 36 states plus the District of Columbia allow insurance companies to offer graduates of the 2-day, 8-h course a discount on their auto insurance premiums (Greenberg 2004). The program supports AARP's goals of promoting both independent living by seniors and community service. Evaluations of the program have generally shown favorable changes in reported behaviors and attitudes among course graduates, along with somewhat lower rates of traffic violations. However, there have been no demonstrated reductions in crashes.

Another popular classroom course for older drivers wanting to refresh their driving knowledge and skills is the Safe Driving for Mature Operators course, which is offered by AAA clubs in most states. As with the AARP course, it is generally taught in two half-day sessions for a total of 8 h of interactive instruction. The course is "designed to improve everyday driving skills and knowledge as it relates to the effects of aging."

A final nationally available driver safety course is Coaching the Mature Driver, offered by the NSC. Instructors for the course are trained and certified by NSC. Similar to the two courses above, Coaching the Mature Driver entails roughly 8 h of classroom instruction over 2 days. Course topics include a self-appraisal, safety belts and air bags, physical changes with age, multiple-lane highway driving, city driving, pedestrian safety, driving on rural roads, special considerations, and a self-appraisal review.

Driver Self-Assessment Tools

A new self-assessment tool developed by AAA is *Roadwise Review—A Tool to Help Seniors Drive Safely Longer*. It consists of a CD-ROM and instruction booklet that guide the user through a series of computer-based exercises designed to evaluate visual, mental, and physical abilities important for driving. The tool draws on research carried out for NHTSA's Model Driver Screening and Evaluation Program (Staplin et al. 2003). The eight areas evaluated are:

- Leg strength and general mobility
- Head/neck flexibility
- High-contrast visual acuity
- Low-contrast visual acuity
- Working memory
- Visualizing missing information
- Visual search
- Visual information processing speed.

Users receive feedback on their performance in each area, along with suggestions for maintaining safe driving skills. Roadwise Review is being made available through state AAA offices at a nominal cost.

An earlier AAA product is the booklet *Drivers 55+: Check Your Own Performance*, which was developed in 1994 and is based on research funded by the AAA Foundation for Traffic Safety. It contains a 15-question self-rating form, followed by suggestions for improvement corresponding to each question. This was one of the first attempts to involve older adults in assessing their own driving strengths and weaknesses, and it remains a popular product on the AAA Foundation for Traffic Safety's seniordrivers.org website.

AARP has also developed a self-assessment guide for older adults. The *Older Driver Skill Assessment and Resource Guide* is a 24-page booklet containing a series of exercises encouraging users to consider whether changes in reaction time, attention, or vision may be increasing their risk of crashing, and suggesting approaches to help compensate for changes. The guide also encourages drivers to place themselves along a lifetime "Driving Continuum" and begin to think about the possibility that they may some day need to give up their keys.

As another example in this area, the UMTRI recently developed the *Driving Decisions Workbook*, a self-assessment tool that guides users through a series of questions to increase their awareness of declines in abilities that could affect driving performance. The workbook has five sections: on the road, seeing, thinking, getting around, and health. For each area, recommendations (feedback) are offered for compensating or remediating identified deficiencies (Eby et al. 2000). A preliminary evaluation of the *Workbook* demonstrated that scoring was associated with on-road drive-test performance and with several measures of functional ability that have been shown to predict driving performance (Molnar et al. 2003).

A final example of a self-assessment tool is the Am I a Safe Driver? checklist developed by the AMA. This one-page form appears in the *Physician's Guide to Assessing and Counseling Older Drivers* and is also available on the AMA website, along with other resource materials for both the patient and his physician.

Other Programs and Materials for Older Adult Audiences

Car Fit Program

The ASA, AAA, and AARP are together piloting a new approach for reaching out to older drivers that is based on assessing how well older adults “fit” their cars. A 12 to 15 min “car fit exam” protocol has been developed with input from certified driving rehabilitation specialists. Seniors are invited to bring their car to a central location, such as a senior center, where a trained volunteer works with the driver to check for problems getting into and out of the vehicle, ability to reach the pedals and to see over the hood of the car, correct positioning of seat belts, proper alignment, and use of side mirrors, etc. The driver is referred for professional evaluation and assistance if indicated. The Car Fit program is viewed as a “turn key” program that will provide an opportunity to educate participants about other safety resources for older drivers within the community. Car Fit was recently pilot tested in 10 sites and is scheduled for distribution in late 2005.

Emergency Nurses CARE

Emergency Nurses CARE, or EnCARE, is a program of the Emergency Nurses Association, an organization for nurses, emergency medical technicians, paramedics, and other emergency healthcare professionals. The program offers primary injury prevention education to the public and advocates for improved safety legislation. Two programs are offered for older adults: Take CARE I addresses safe medication use and falls prevention, whereas Take CARE II addresses safe driving decisions and pedestrian safety. Each program is presented by a trained volunteer using a PowerPoint slide presentation and includes information on drinking and driving, safety belt use, and pedestrian safety, along with making decisions about when to curtail or stop driving. The program also discusses physical fitness, including healthy walking guidelines. A 14-page pamphlet, *Getting Around: Safe Mobility for Mature Adults* is designed to accompany the program. The brochure can also be distributed on its own; for example, in emergency departments or physician office waiting rooms.

Other Brochures and Booklets for Older Road Users

Table 12 lists a variety of other educational brochures, videos, websites, etc. that target the older road user, including materials developed by many of the agencies and organizations already noted. The materials are generally readily available and can be used as “stand alone” pieces of information (e.g., for distribution at driver license offices) or incorporated into larger programs addressing older road user safety.

Assistance for Family Members and Friends

The AAA Foundation for Traffic Safety’s booklet, *How to Help an Older Driver*, provides some of the same information as found in its *Drivers 55+* guide, but packaged for family members or friends of an older driver. The booklet contains sections on how aging affects driving, medications and driving, ways to assess an older driver’s skills, and approaches for helping an older driver cope with declining skill, including when to decide to retire from driving. *How to Help* also describes steps that can be taken if an older adult resists advice to stop driving, and provides web links to driver licensing and motor vehicle departments in each state.

Another resource that was developed by the New York State Office for the Aging, but which has been picked up and used nationally, is the booklet, *When You Are Concerned—A Handbook for Families, Friends, and Caregivers Worried About the Safety of an Aging Driver* (LePore 2000). This 50-page booklet provides more detailed information about how to help an at-risk driver through the process of stopping driving. Topics covered include keeping track of a loved one’s situation, finding help, initiating a family discussion, coping, and getting around without driving. NHTSA is currently working on two shorter brochures (one for family members and friends and another for the older adult) based on this guide.

A number of resources are available for families and friends of drivers with Alzheimer’s disease or other forms of dementia. AARP recently collaborated with researchers at the Massachusetts Institute of Technology’s AgeLab and The Hartford to produce *At the Crossroads: A Guide to Alzheimer’s Disease, Dementia, and Driving*. This guide is intended as a tool to help individuals with Alzheimer’s and their caregivers determine when it is time to stop driving. Topics include assessing concerns about driving behavior, monitoring driving, easing the transition from driver to passenger, seeking help from outside sources, understanding how family relationships affect the decision, and advice from caregivers who have made this decision. Quotes from patients and their families appear throughout the booklet, offering an immediate connection with the target audience. For example: “Our children talked to him about possibly not driving. They don’t know it, but he cried that night. Driving is extremely important to him. I don’t want to strip him of his dignity.”

More recently, AgeLab teamed with The Hartford to produce, *We Need to Talk . . . Family Conversations with Older Drivers*. This 20-page booklet provides answers to a series of questions to help families have more meaningful conversations about older driver safety; questions such as, “Are older drivers at risk?,” “Do family conversations make a difference?,” and “When faced with a discussion about driving abilities, with whom do older adults choose to talk?” Answers to the questions are drawn from a national survey, focus groups with older adults, and interviews with family caregivers of persons with dementia.

Another resource for families and friends of an older driver with Alzheimer's or other dementia are materials developed by the Alzheimer's Association. The organization has developed a position statement with regard to driving and dementia and has produced a fact sheet on driving.

Materials for Other Intermediaries

Physicians

The *Physicians' Guide to Assessing and Counseling Older Drivers* was a cooperative venture between the AMA and NHTSA (Wang et al. 2003). It contains an overview of the safety of older drivers, provides guidance in formally assessing driver function, and identifies the following "red flags" for medically impaired driving:

- Acute events (heart attack, stroke or other traumatic brain injury, seizure, etc.).
- The patient's own concern or concern of a family member.
- History of chronic medical conditions affecting level of function (cataracts, macular degeneration, glaucoma or other visual disorders; heart disease; dementia, Parkinson's, or other neurological disorders; etc.).
- Medical conditions with unpredictable and/or episodic events (syncope, angina, seizure, hypoglycemic attack, sleep attack, or cataplexy, etc.).
- Medications, both prescription and nonprescription, that can impair driving ability (antidepressants, antihistamines, antihypertensives, narcotic analgesics, etc.).
- Review of symptoms requiring further workup (fatigue or weakness, shortness of breath, chest pain, muscle weakness, loss of sensation, etc.).
- If prescribing a new medication or new course of treatment.

The *Guide* also suggests interventions, discusses the role of driver rehabilitation specialists, and makes suggestions for counseling patients for whom it is no longer safe to drive. Additional chapters in the report provide information about the legal and ethical responsibilities of physicians, state-by-state driver licensing requirements and reporting laws, and listings of medical conditions and medications that may impair driving.

To encourage physician use of the *Guide*, the AMA has developed a Training of Trainers program with support from NHTSA. The program is "designed to educate physicians and other health care professionals on the public health issue of older driver safety and train them on assessing and counseling patients for medical fitness to drive." The AMA website maintains a listing of program offerings.

Community Health Professionals

The ASA, working jointly with the CDC, recently unveiled a new website intended to "enhance the capacity of national, state, and local organizations in serving the health promotion and disease prevention needs of older adults." The website contains links to five separate health promotion modules, one of which focuses on driving wellness. The modules provide comprehensive background information on older driver safety and wellness, along with guidance for organizing and implementing a community awareness and action program. The latter includes detailed outlines for three 2-h courses, links to materials and handouts, and suggestions for integrating driving safety into ongoing programs and activities.

Occupational Therapists and Driver Rehabilitation Specialists

Occupational therapists assist persons of all ages with disabilities or medical conditions that affect their ability to perform everyday activities of daily living. Currently, however, relatively few are trained to provide driving rehabilitation, including behind-the-wheel instruction and use of adaptive equipment. AOTA recently initiated a major program to encourage and train more occupational therapists to become certified driver rehabilitation specialists. The association's website provides extensive information and resources, including links to certification programs and continuing education online course offerings. Its "Toolkit for Professionals" includes information on adaptive equipment, web resources, client education, setting-up referral pathways, driver refresher courses, and brochures and fact sheets. The website also maintains a directory of driver rehabilitation programs in each state.

ADED offers support to professionals from all backgrounds working in the field of driver education and training, including developers and distributors of specialized vehicle equipment. The ADED website contains a description of the Driver Rehabilitation Specialist Certification process, along with a study guide and list of references. It also has links to a series of fact sheets regarding the following:

- Driving after a stroke,
- Driving and Alzheimer's/dementia,
- Driving after a traumatic brain injury,
- Driving after a spinal cord injury,
- Driving with rheumatoid arthritis,
- Driving with multiple sclerosis,
- Driving after a limb amputation,
- Aging and driving,
- Driving and spina bifida, and
- Driving and cerebral palsy.

Although geared toward driver rehabilitation specialists, the fact sheets provide useful information for family members, caregivers, and older adults themselves facing such challenges.

Driver rehabilitation programs can be housed in a variety of settings, including hospitals or other medical facilities, universities, and independent, community-based businesses. Not all programs employ the services of a certified driver rehabilitation specialist, although those based at medical facilities generally do. The AOTA website maintains a searchable database of driver rehabilitation programs and specialists in vehicle adaptation. Some exemplary programs that have served as models for others are described later in this chapter.

A key consideration in promoting driving assessment programs is their cost, because Medicare or other insurance generally does not cover the cost of an assessment unless it is prescribed by a physician (e.g., for evaluation following a stroke, head injury, or other acute medical event). For a comprehensive evaluation, including both clinical and on-road components, costs typically will run several hundred dollars. As an alternative, and in locations where no formal driving assessment programs are available, local driving schools will sometimes provide these services, either on their own or in collaboration with a local physician (Stutts and Wilkins 2003).

Supplemental Transportation Programs

Supplemental Transportation Programs, or STPs, are community-based transportation programs that complement or supplement exiting transportation services (Beverly Foundation 2004). These programs fill a gap between public transit systems that are nonexistent in many rural or suburban areas, and paratransit systems that are costly to provide and for which many seniors do not qualify. As such, STPs are especially beneficial for the nondriving older adult. Although technically beyond the scope of the current synthesis effort, STPs are a key resource for keeping older adults safely mobile. A recently updated report available on the AAA Foundation for Traffic Safety website catalogs more than 400 community-based transportation programs available to seniors, providing information on their hours of operation, rider fees, availability of escorts, vehicle type used, etc. (Beverly Foundation 2004).

Programs for Increasing Community Awareness

AAMVA GrandDriver: Getting Around Safe and Sound

The GrandDriver program was developed by the AAMVA in response to requests by its membership. The comprehensive social marketing campaign was designed to educate the public, especially older drivers and their adult children, about the effects of aging on driving ability and the importance of families discussing driving. It was piloted in Washington, D.C., over a 6-month period from April 1 to September 30, 2003. During this time, campaign messages received extensive publicity through paid television and radio advertisements, print advertisements, billboards, brochures, and an active speakers'

bureau. Robert Butler, founding director of the National Institute on Aging, served as honorary spokesperson for the campaign. Results of pre- and post-campaign surveys showed an increase in awareness of the "GrandDriver" name, as well as of skills needed for safe driving. One unique aspect of the program, which proved highly effective, was training older adults to use the District of Columbia's MetroRail (rapid transit) system. Based on these positive results, AAMVA has packaged GrandDriver for broader distribution and plans to support other DMVs in implementing the program. Information on the program is available on the GrandDriver website or through the AAMVA website. Other partners in the program included NHTSA, Administration on Aging, AARP Driver Safety Program, AAA, Washington Metro Area Transit Authority, and the National Association of Area Agencies on Aging (Figure 8).

DriveWell Toolkit

NHTSA has partnered with the ASA to develop the DriveWell Community Toolkit for promoting older road user safety and mobility at the community level. DriveWell is directed toward aging service providers to use as a teaching tool in public forums. It contains background information, talking points, a PowerPoint presentation, video, brochures, and other supporting materials. To disseminate the Toolkit, NHTSA recruited volunteers to serve on a speaker's bureau in each of its 10 regions. The national rollout of the program was scheduled for early 2005.

Academy for Educational Development Community Conversations

A partner project to the DriveWell Toolkit described previously is the Older Driver Safety Mobility Project, also referred to as "Community Conversations." This project was a joint undertaking by the Academy for Educational Development, ASA, and CDC. Recently pilot-tested in five communities, the program uses a pre-survey of older community residents, followed by a public discussion of the survey results and a post-survey to gauge changes in attitudes and behaviors. It is intended to be a social marketing tool for motivating communities to begin addressing the transportation safety and

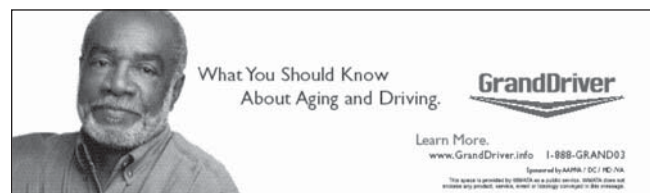


FIGURE 8 The GrandDriver campaign was developed by AAMVA to provide information to the public about aging and driving.

mobility of older residents, especially with regard to providing alternatives to driving. Current plans are to fold this program into the DriveWell program.

As a final example activity, the N4A announced competition in the fall of 2003 for 10 to 12 mini-grants ranging from \$2,000 to \$3,000. The one-year grants are being awarded to member Area Agencies on Aging to “initiate, enhance, or evaluate an older driver safety program/training/activity in which their agency participates.”

STATE AND LOCAL INITIATIVES

This section highlights selected state and local initiatives with regard to driver assessment and information and education programs for improving older road user safety. Again, a comprehensive listing of such activities is beyond the scope of this report. Rather, the intent is to provide examples of a range of program types and offerings, with the goal of stimulating additional such programs and activities in other states and communities. The programs have been offered by state health departments, state and Area Agencies on Aging, hospitals, traffic safety groups, and various public and private partnerships (programs housed in state driver license offices were discussed in chapter five).

Driver Evaluation and Training Programs

Mature Driver Retraining Workshop (Michigan Traffic Improvement Association)

The Michigan Traffic Improvement Association (TIA) offers seniors a 2½-day, 10-h driver safety program that includes the standard classroom instruction, but in addition tests participants’ visual acuity, peripheral vision, depth perception, glare recovery, reaction time, and useful field of view. A unique feature of the program is an optional behind-the-wheel driving assessment conducted in the participant’s own vehicle. The assessments were originally offered on a trial basis, but owing to positive feedback from participants as well as instructors they have become a standard feature of the course. Approximately 25 courses are offered each year, reaching some 500 to 550 older Michigan drivers. The paid instructors are trained and certified by TIA. Because of strong financial support from a variety of public and private agencies and organizations, TIA is able to offer the course at a cost to participants of only \$20 (actual per-student cost is \$100 to \$125) (Rich 2004; F. P. Cardimen, Jr., personal communication, Sept. 2004).

Older Driver Evaluation Program (Ohio State University)

The Ohio State University Medical Center offers a comprehensive, individualized driving evaluation. The program was one of the first to actively promote itself to older adult driv-

ers, and it has reached out to local hospitals, driving schools, law enforcement, licensing agencies, and others to encourage referrals of at-risk drivers who might benefit from its services. It also maintains a comprehensive transportation resource guide to assist seniors in accessing alternative transportation in the area. In addition to the comprehensive driving evaluation, components of the Ohio State University Medical Center program include:

- Medical history review
- Driving history review
- Cognitive screening
- Vision screening
- Assessment of functional status
- Analysis of medications
- Review of alcohol use
- Review of sleep habits
- Reaction time analysis
- Assessment of threat recognition
- Driving simulator experience
- On-the-road driving test
- Alternative transportation information
- Educational opportunities
- Remediation opportunities.

Information and Education Programs and Materials

Mature Driver Improvement Course (California)

The California DMV encourages state drivers ages 55 and older to participate in a 7-h (minimum 400-min) driving safety course offered by approved driver improvement schools and instructors. The course covers California motor vehicle laws; defensive driving; and the effects of medication, fatigue, alcohol, and visual or auditory limitations on driving ability. The maximum fee for the course is \$20, and with successful completion participants receive a certificate that qualifies them for reductions in their car insurance premiums for 3 years.

You Decide Senior Driving Awareness Program (Michigan)

Seniors living in a six-county area in Michigan are able to participate in the You Decide Senior Driving Program, offered by Area Agency on Aging 1-B. The program was begun in 1997 and has spread to senior centers throughout a five-county region. Its goal is to empower seniors to make their own responsible mobility decisions. A series of monthly programs is offered at local senior centers, with invited speakers to lead discussions on topics chosen by the seniors themselves (e.g., medications and driving, using the public transportation system, vision and driving, and licensing and insurance). The second half of the program allows seniors time to discuss issues among themselves and/or to receive additional one-on-one support and guidance. The program reaches approximately

700 to 800 seniors per year. The Area Agency on Aging that developed the program has prepared a manual to facilitate implementation by other Area Agencies on Aging (*You Decide: Senior Driving Program Manual*, undated). It also conducted an evaluation that showed that the program was meeting its primary goals (*You Decide: Senior Driving Awareness Program—Evaluation*).

Choices—Not Chances Initiative (Iowa)

The Iowa DOT has developed a video and a series of booklets based on the *Resources for Wise Choices* document that resulted from its state and regional forums. The booklets include:

- *Older Drivers and Risk—Why Be Concerned About Safe Mobility?*
- *Driver License Renewal in Iowa*
- *Senior Drivers Workbook—Practical Driving Tips and a Self-Quiz*
- *Driving with Diminished Skills—Normal Aging Changes and Dementia or Alzheimer’s Disease*
- *Driving Retirement—Planning and Making it Work.*

The *Choice Not Chances* video addresses all of these topics in a friendly way and is used by local driver license examiners when speaking before groups.

SafeRiders Program for Older Adults and “On the Road in Texas” Public Service Announcements (Texas)

From 1993 to 2002, the Texas Highway Safety Office joined with the Texas Department of Health to provide statewide educational training, presentations, and materials to older adults. Traffic safety messages addressed occupant protection, airbags, walking mobility and safety, bicycle safety and bicycle helmet use, and recreational vehicles. For the past several years, the state’s On the Road in Texas initiative has provided prerecorded messages to more than 247 radio stations across the state. Life-saving traffic safety topics, tips, and laws, in English and Spanish, reach 2 million listeners each week in an entertaining and informative way. The radio messages are timely, seasonal, and address current events and issues, including those aimed at older drivers, passengers, and pedestrians.

Driving Decisions in Later Life (Pacific Northwest Extension Agency)

The Oregon State University Extension, Washington State University Extension, and University of Idaho Cooperative

Extension System, which together form the Pacific Northwest Extension office, developed *Driving Decisions in Later Life* (Schmall et al. 2003). The 22-page booklet provides guidance to family members faced with helping an older adult make responsible decisions about driving. First produced in 1998, it was updated in 2003 to incorporate recent resource and reference material, including the *Physician’s Guide to Assessing and Counseling Older Drivers* (Wang et al. 2003). Except for reference to an Oregon DOT program and Pacific Northwest Extension publications, the guide presents a universal message and could be easily adapted for use by other states.

Circuit Court of Cook County Mature Driver Programs (Illinois)

The Circuit Court of Cook County, Illinois, the largest court system in the country, developed the Drive Wise, Stay Alive traffic safety awareness campaign under a grant from the Illinois DOT Division of Traffic Safety. In 2001, a new component was added to the program with the goal of raising awareness about changes in physical health that can affect the ability to drive safely. Senior citizen groups were invited to contact the Court’s Community Safety Initiative group to schedule participation in the program. A speaker was then arranged to address the gathering. Under a 2003 grant, the court developed a video and accompanying booklet, *Keeping the Keys: Mobility, Freedom, Choice* (2002). The new materials emphasize the physical changes that occur with aging and encourage readers to take charge of their medications. The material also incorporates a 15-question self-assessment taken from the Australian Capital Territory *Older Drivers Handbook*. Although funding for the program ended in 2003, the court has been able to continue offering the program at no cost to local senior centers. Each program is specially tailored to the needs of the site, with past speakers including occupational therapists, nurses, adaptive vehicle equipment distributors, and transportation providers.

Super Seniors Program (Illinois)

Illinois also offers seniors the opportunity to participate in its Super Seniors program. Under this program, seniors can attend a free, 2-h Rules of the Road Review course to update their knowledge and give them confidence to obtain or renew their driver’s license. The course includes a review of safe driving techniques and Illinois driving laws, along with a practice exam. Participants also have the option of taking the vision screening test required to obtain a license, which is valid for up to 90 days for license renewal. At some sites they are even able to renew their license. The programs are sponsored by local organizations and are offered more than 3,000 times annually at about 600 locations statewide (see <http://www.sos.state.il.us/departments/seniors/supersenior.html>).

Driving Safely As You Get Older (Pennsylvania)

The Pennsylvania DOT incorporated portions of the AARP *Self-Assessment and Resource Guide* and other tests of physical function into *Driving Safely As You Get Older: A Personal Guide*. The booklet is distributed at driver license offices statewide. Along with testing abilities related to driving, the guide offers suggestions for addressing any identified limitations and gives tips on using the new safety features in cars.

Older Adult and Family Assistance Programs

Erie County Help Networks

In Erie County, New York, more than 30 agencies and organizations have joined to form the Erie County Older Driver Family Assistance Help Network. The network supplies information about available services, helps caregivers with problem-solving, works to remove barriers to services, and helps caregivers to assist an at-risk driver to either drive safely or step away from the wheel. Its stated goal is safe mobility for all Erie County residents. The network draws inspiration from the *When You Are Concerned* booklet developed by the New York State Office for the Aging (LePore 2000). The Help Network website contains a wealth of information and is a model for any community based program seeking to address the many and various needs of older road users.

Driving Decisions for Seniors (Oregon)

In Oregon, a single individual, Ethel Villeneuve, led a grassroots effort to assist seniors in making appropriate transportation choices. Her program relies heavily on volunteers and is currently funded solely through donations. Volunteers are trained to facilitate bimonthly support groups, where older adults can meet and discuss issues related to driving and meeting transportation needs through means other than driving. A signature activity of the program is group rehearsals, in which participants gain experience in using alternative means of transportation in a friendly and supportive environment. For example, they may gather at a designated bus stop for a communal ride to a favorite shopping destination. A recent evaluation of the program showed that it helped seniors to competently manage their own mobility decisions (Molnar et al. 2003).

Comprehensive Programs

Senior Safety Resource Centers (Florida)

Florida's Senior Safety Resource Centers, serving the Tampa Bay region of the state, seek to provide "one-stop" services for helping older adults remain safely mobile. Key components of the centers include:

- State-certified, community-based nonprofit status;
- Mobile outreach;

- Training, educational programs, and services to aging drivers, at-risk drivers, and their families;
- Tiered driver skill assessments;
- Mobility counseling; and
- Referrals to other diagnostic or intervention services.

The centers rely heavily on community partnerships to achieve their goals. The Getting in Gear program was an initial testing of the concept. Led by the Tampa Bay Area Agency on Aging, the program offers tiered screening of driver functional abilities in conjunction with case management services that includes counseling, rehabilitation, referrals, medical care, and information on adaptive equipment. The program also offers mobility management services to help participants with functional losses develop a plan for meeting their transportation and mobility needs. Although fees are charged for some of the more comprehensive screenings and evaluations, most of these services are made available at no cost to area residents.

HIGHWAY SAFETY OFFICE AND STATE UNIT ON AGING SURVEY RESULTS

Both the State Highway Safety Office (HSO) and the State Unit on Aging (SUA) surveys primarily addressed efforts to educate and inform older road users and related audiences (family members, physicians, social service agencies, etc.). The HSO survey was sent to all state offices of highway safety using a mailing list provided by the GHSA. Responses were received from 22 states, the District of Columbia, and Puerto Rico. A copy of the survey can be found in Appendix F, and a state-by-state summary of survey results in Appendix G.

The brief SUA survey (see Appendix H) was distributed using a mailing list provided by N4A. A total of 18 states responded to this survey, whose results are summarized in Appendix I.

N4A is a national nonprofit membership organization representing the 57 state and territorial government agencies on aging. The SUA administers, manages, designs, and advocates for benefits, programs, and services for the elderly and their families and, in many states, for adults with physical disabilities. The term "State Unit on Aging" is a general term: the specific title and organization of the unit varies from state to state. State units, in turn, oversee Area Agencies on Aging, which have primary responsibility for administering programs within communities or regions.

N4A conducted a survey of all Area Agencies on Aging in early 2004 to gather information on transportation programs and services offered. This survey, however, focused entirely on alternative transportation. Ideally, the current synthesis report on older road user safety and mobility programs would have surveyed all Area Agencies on Aging, because it is at

the local level that such programs are typically carried out. However, such a large survey was beyond the scope of the project. As a compromise, a brief survey was developed and distributed to just the 50 SUAs. Summaries of results from both surveys follow.

HSO Survey

Collaboration with Other Agencies and Organizations

Survey results with respect to safety planning (Question 1) were presented in chapter three. Results with respect to collaborations with other agencies and with public- or private-sector organizations on older road user safety issues are summarized in Table 13. One-half (12) of the 24 responding jurisdictions reported that their offices collaborated with other state agencies on older road user safety issues. Agencies named included the DMV, DOT, Highway Patrol/State Police, Office of Public Safety/Traffic Safety, Department of Aging/Elder Affairs, Office of Health/Human Services Department, and governor's office. Some of the activities described were development of educational materials, participation on working groups, communication across agencies, strategic planning, and promoting safer walking and bicycling.

One-half (12) of the responding states also indicated that they collaborated with public- or private-sector organizations. Those named included AARP, AAA (auto club), insurance

companies, universities, AMA, and Citizens for Safety. Nine (38%) indicated that they had established a liaison with their state office on aging, with two of these (Michigan and Puerto Rico), described as formal liaisons.

Finally, nine state respondents (38%) indicated that some type of coalition or task force had been formed in their state to address safe mobility for older citizens in a more comprehensive way. In Iowa and Michigan, comprehensive plans are being developed with extensive HSO involvement. In Nevada, activity is primarily occurring at the community level through the formation of Community Partnership Organizations, and in New Jersey, the Ocean County Community Traffic Safety Program has established a Senior Safety Task Force. In South Dakota, efforts have been led by the Roadway Safety Committee that is coordinated by the Office of Highway Safety. The Department of Aging is leading a coalition in Idaho, whereas AARP and AAA have assumed leadership in Tennessee. Ohio's HSO has worked through its strong Safe Communities network, whereas in Washington State the DMV formed a coalition primarily to address issues of mandatory retesting.

Program Support

Information gathered with respect to programmatic activities is summarized in Table 14. Fourteen states (58%) indicated that their HSO had engaged in public information and education activities addressing some aspect of older road user safety. Sample activities included development and distribu-

TABLE 13
STATE HIGHWAY SAFETY OFFICE COLLABORATIONS TO ADDRESS OLDER ROAD USER SAFETY ISSUES

State	Collaboration with Other State Agencies	Collaboration with Public/Private Organizations	Liaison with State Office on Aging	State Coalition(s)
Alabama	No	No	No	No
Arkansas	No	No	No	No
Dist. of Columbia	Yes	No	No	No
Georgia	No	Yes	No	No
Idaho	No	No	No	Yes
Illinois	No	—	Yes	No
Iowa	Yes	Yes	Yes	Yes
Kentucky	No	No	No	No
Massachusetts	No	No	No	No
Michigan	Yes	Yes	Yes	Yes
Nevada	Yes	Yes	Yes	Yes
New Jersey	No	No	No	Yes
New Mexico	No	Yes	Yes	No
Ohio	Yes	No	Yes	Yes
Oklahoma	Yes	Yes	Yes	No
South Carolina	Yes	Yes	No	No
South Dakota	Yes	Yes	No	Yes
Tennessee	No	No	No	Yes
Texas	Yes	Yes	No	No
Vermont	No	No	No	No
Utah	Yes	Yes	Yes	No
Washington	Yes	Yes	No	Yes
West Virginia	No	No	No	No
Puerto Rico	Yes	Yes	Yes	No

TABLE 14
STATE HIGHWAY SAFETY OFFICE PROGRAM ACTIVITIES RELATED TO
OLDER ROAD USERS

State	Older Road User PI&E Activities	Law Enforcement Activities	Support to Local Programs
Alabama	No	No	No
Arkansas	No	No	No
Dist. of Columbia	Yes	No	Yes
Georgia	Yes	No	Yes
Idaho	No	No	No
Illinois	Yes	No	Yes
Iowa	Yes	Yes	Yes
Kentucky	No	Yes	No
Massachusetts	No	No	No
Michigan	Yes	Yes	Yes
Nevada	Yes	No	Yes
New Jersey	Yes	No	Yes
New Mexico	No	No	Yes
Ohio	Yes	Yes	Yes
Oklahoma	Yes	No	Yes
South Carolina	Yes	No	No
South Dakota	Yes	Yes	Yes
Tennessee	No	No	No
Texas	Yes	Yes	Yes
Vermont	No	No	No
Utah	Yes	No	No
Washington	No	No	Yes
West Virginia	No	No	Yes
Puerto Rico	Yes	Yes	Yes

Note: PI&E = public information and education.

tion of brochures and other educational materials, participation in conferences, development of a driving decision guide and video (Iowa), radio public service announcements (New Jersey and Texas), and pedestrian safety campaigns (Puerto Rico). In addition, the District of Columbia noted its recent participation in the GrandDriver Program, described earlier in this chapter.

Fifteen responding states (63%) had also provided financial support in the past 5 years to local programs or activities addressing older road user safety and mobility issues. Examples of the types of activities supported include:

- The GrandDriver Program (District of Columbia).
- Driving simulators taken to homes and activity centers that cater to older road users (Georgia).
- An educational program offered through the court system (Cook County, Illinois).
- A 2-day Senior Mobility Forum (Iowa).
- Statewide distribution of Walk Safely Senior Kits (New Jersey).
- Purchasing vans for transporting elderly and disabled adults (New Mexico).
- High-visibility signage on roadways (Ohio).
- Support for aging conferences, staff attendance at workshops (Oklahoma, Puerto Rico).
- Training for AARP instructors (South Dakota).
- Safe Riders Program, Older Driver Tool Kit (Texas).
- Support for AARP/driver safety programs and individual class attendance (Washington, West Virginia).

In addition, Michigan noted a broad range of activities, which were described earlier in this chapter.

Finally, seven respondents indicated that they had engaged in activities with law enforcement personnel. These activities will be highlighted in chapter seven.

Barriers to Increased Attention to Older Road Users

A final question on the survey asked respondents what, in their opinion, is the greatest barrier to increased attention to older road users by the highway safety community. The two most frequently cited barriers were a lack of funds and conflicting priorities (e.g., seat belts, alcohol, and young drivers). Mention was also made of the general lack of awareness of and interest in older driver safety. Several respondents noted that young drivers, drunk drivers, and unbelted drivers accounted for the greatest share of their highway fatalities. Sample quotes included:

- “Lack of funding to directly address the concern . . . Still need to focus on 16–34 year-olds who are biggest problem.” (Illinois)
- “Limited funds that are committed to seat belt and impaired driving.” (Arkansas)
- “Other programs loom as larger safety problems. Perhaps we need more awareness of the problem. We realized we had a senior pedestrian problem . . . [but] haven’t put

nearly enough resources into senior safety programs.” (New Jersey)

- “Lack of dedicated funds. This population doesn’t contribute significantly to the total fatalities we see [compared to DUI (driving under the influence), lack of seatbelt, etc.]” (Washington State)

SUA Survey

Ten of the 18 states responding to the SUA survey indicated some level of involvement in safety programs for older road users, and several others indicated indirect involvement through their local Area Agencies on Aging. Most frequently mentioned were providing information or brochures, making referrals to appropriate agencies, promoting AARP and other driver safety programs, participation in conferences, and involvement on committees or task forces. Some of the more notable activities included:

- Seeking DOT and other funding for pilot studies to use signage and other safety measures to improve intersection and roadway safety in three communities/Area Agencies on Aging. (Illinois)
- Participation in the state Older Driver Coalition. (New Hampshire)
- Participation in the At-Risk Driver Work Group. (Oregon)
- Development of a report for the Commission on Aging on Elder Driver Safety. (Rhode Island)
- Charter member of the ROADS (Reassessment of Aging Drivers Skills) Consortium. (West Virginia)

Several of these activities were described earlier in this or other chapters. Collaborating partners often cited were AARP, DOT, and DMV, as well as Area Agencies on Aging and other state and community agencies and services organizations. In West Virginia, the SUA had also collaborated with a geriatric center, the Alzheimer’s Association, the Older Americans Assistance Program, and the State Police.

Nine SUAs were aware of older driver programs in which Area Agencies on Aging in their state had been involved; two additional states (Delaware and Rhode Island) do not have Area Agencies on Aging. Partnering with AARP to promote driver safety classes at senior centers and community centers was again frequently cited. In addition

- The Missouri Department of Health and Senior Services described a number of programs in which its Area Agencies on Aging were involved. They include lobbying to improve edge markings on secondary roadways (by The Silver Haired Legislative Delegates), hosting a presentation by someone well known in the area on Older Drivers and Their Independence, educating transportation planning staff about senior driving issues, and production of a video (now rather dated) titled *Driving and Dementia Don’t Mix* that had aired on local cable

network and had been used by Alzheimer’s Association chapters across the country.

- In Washington State, the Pierce County Area Agency on Aging catalogs and provides information to others about nationwide best practices in safe driving for older road users, and publicizes driving safety activities in its senior’s newspaper.

Asked specifically if their (state) office made information on driving safety available to older adults or to their family members and friends, 11 of the 18 states (61%) responded that they did. A noteworthy example here is the Pennsylvania Department of Aging, which had partnered with the Pennsylvania DOT to produce the booklet, *Talking with Older Drivers: A Guide for Family and Friends*. Four states (Delaware, Illinois, New Hampshire, and Pennsylvania) also reported making information on safe walking available. The New Hampshire aging unit is participating in a statewide coalition initiative promoting liveable, walkable communities.

Nine state offices (38%) indicated that they provide assistance to family members or friends concerned about an older adult’s safety behind the wheel. For most, this involved providing information and/or making a referral (e.g., to Easter Seals, AARP or other driver safety course, or a geriatric assessment clinic). Often a case manager is involved in the process. Illinois noted that it used a number of resources available from the Administration on Aging website.

The following four SUAs indicated that their websites addressed older road user safety:

Illinois—<http://www.state.il.us/aging/> (follow links).

Kansas—<http://www.agingkansas.org/kdoa>.

Ohio—<http://goldenbuckeye.com>.

Pennsylvania—<http://www.aging.state.ps.us>.

SUMMARY

This chapter provides examples of many evaluation, education, and training and support programs and resources at the national, state, and local levels that have as their general goal improving safety and mobility for older road users. As noted at the outset of the chapter, relatively few have undergone rigorous evaluation; nevertheless, they are core components of many states’ efforts to promote lifelong safe mobility. The programs and materials described in this chapter were developed and implemented by a broad range of agencies and organizations in both the public and private sectors. Many have also involved active collaborations between and among these agencies and organizations.

Included in the program descriptions in this chapter are driver safety courses and driver assessment programs, materials for self-assessment of driving capabilities, as well as more general programs and materials to educate drivers and their

families about changes that occur with aging and steps that can be taken to extend safe driving. Target audiences include older drivers themselves; family members and friends of older drivers; physicians, health care professionals, and other “intermediaries”; and the community at-large. Although some of the programs and materials, such as AARP’s Driver Safety program, the former 55-Alive, have been around for some time, many more are relatively new ventures, developed in response to the growing number of older drivers traveling on the nation’s streets and highways and being injured and killed in traffic crashes.

Useful Web Resources

American Society on Aging [Online]. Available: <http://www.asaging.org>.

American Medical Association [Online]. Available: <http://ama-assn.org>.

Alzheimer’s Association [Online]. Available: <http://www.alz.org>.

AAA Foundation for Traffic Safety [Online]. Available: <http://www.seniordriver.org>.

American Occupational Therapy Association [Online]. Available: <http://www.aota.org/olderdriver>.

Association for Driver Rehabilitation Specialists [Online]. Available: <http://www.driver-ed.org>.

NHTSA older driver information [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive>.

Florida Getting in Gear Program [Online]. Available: <http://www.agingcarefl.org/services/programs/gear>.

Erie County, N.Y. Help Networks [Online]. Available http://www.erie.gov/depts/seniorservices/older_driver/.

MIT AgeLab [Online]. Available: <http://web.mit.edu/agelab/>.

See Table 12—Source/availability for selected education and evaluation programs and materials for older road users.

Also of general interest: Pedestrian and Bicycle Information Clearinghouse [Online]. Available: <http://walkinginfo.org> and <http://bicyclinginfo.org>.

LAW ENFORCEMENT AND OTHER JUDICIAL PROGRAMS

Law enforcement officials can play a key role in identifying at-risk older drivers. They are also respected spokespersons for delivering educational materials and messages to older adults about how they can improve their safety as drivers, passengers, or pedestrians. Because of their familiarity with driving conditions within a community and their investigations of crashes, law enforcement officials can also help to identify potential problem locations where changes in roadway design or traffic operations (signage, signaling, pavement markings, etc.) can improve safety.

Most of the work of law enforcement officials is carried out at the local level and without special emphasis on older road users; therefore, it is not as well documented as some of the other program areas addressed in this synthesis report. However, law enforcement, as well as the judiciary, is an important link in a comprehensive program to improve safety and mobility for older road users. This chapter will highlight the range of programs and activities that law enforcement officials across the country have engaged in to promote older road user safety and mobility.

FEDERAL GOVERNMENT AND NATIONAL INITIATIVES

NHTSA maintains strong ties with the law enforcement community. The committed participation of law enforcement is critical to the success of countless highway safety programs, policies, and initiatives, from promoting seat belt use and discouraging drunk driving to enforcing speed limits and reporting on crashes. Along with engineering and education, enforcement is a cornerstone of NHTSA's safety initiatives.

In the late 1990s, NHTSA initiated a research project to involve law enforcement officers in its efforts to identify at-risk older drivers. Drawing from the growing body of literature on risk factors for older driver involvement in traffic crashes, the brochure *Older Drivers: Cues for Law Enforcement* was developed (1998). The brochure identifies specific cues an officer should look for when investigating a crash or making a traffic stop—cues that might suggest that a driver requires further evaluation. For example, does the driver know what time of day and day of the week it is, is his appearance disheveled, or does he have difficulty finding and removing his/her driver's license (see Figure 9). The brochure also identifies ways an officer might intervene to assist an

older adult in need of help, such as by making a referral to a local assistance agency or seeking additional information and support from family members. The *Older Drivers: Cues for Law Enforcement* brochure was field tested by Florida State Troopers in Pinellas County, Florida, and has since been used by law enforcement agencies across the country.

In 2003, NHTSA published *A Compendium of Law Enforcement Older Driver Programs* (Ticer 2003). The *Compendium* was compiled by a sergeant with the Arizona Department of Public Safety who was participating in NHTSA's Officer Leadership Program. It drew from responses to an NHTSA request for information, along with Internet searches and follow-up telephone interviews. The report, available on the NHTSA website, provides brief descriptions of programs in place in communities and cities in 28 states, along with contact information for further information about the program.

A very frequently cited activity in the *Compendium* was teaching or facilitating one of the available driver safety courses for older adults, such as the AARP, AAA, or NSC courses. Law enforcement agencies were also frequently active in TRIAD programs, partnerships with senior groups to reduce the victimization of seniors. Another frequently noted activity was educating law enforcement officers about Alzheimer's disease and other aspects of aging to increase their awareness and sensitivity to issues affecting older adults' safety and mobility.

There were also many creative and unique programs described in the *Compendium* that other communities might emulate. Following are noteworthy examples:

- Senior citizen volunteers with the San Diego, California, Police Department teach a 2-h class, Look Out Before You Step Out, in an effort to reduce pedestrian fatalities and injuries. Community safety officers also offer "Awareness Training" presentations for older drivers and pedestrians that are tailored to local streets and conditions.
- The TRIAD partnership in Shelton, Connecticut, has implemented a "Yellow Dot" program. Seniors fill out a yellow card with important medical information and place it in the glove compartment of their car. A yellow sticker on the rear window of the car alerts first responders in an emergency to the presence of the card.

Safe Operation Detection Cues

- Does the driver know the current:
 - time of day?
 - day of the week?
 - month of the year?
 - year?
- Does the driver recall where they are coming from?
- Does the driver know their destination?
- Is the driver far from their residence?
- Does the driver:
 - have difficulty communicating?
 - stumble over words?
 - ramble in short, unattached, meaningless sentences or explanations of their driving ability?
- Is the driver's clothing:
 - disheveled?
 - non-matching?
 - incomplete or too much for existing weather conditions?
- Does the driver exhibit poor personal hygiene?

(EXAMPLE: Urine/feces stains on clothing, on the person, in the motor vehicle.)
- Does the driver launch into accusations of perceived victimization by criminals?
- Does the driver appear to be suffering from dementia such as Alzheimer's Disease?
- Is the driver wearing an identification bracelet or necklace indicating dementia that would affect safe driving mobility?
- Does the driver have large amounts of prescription medicines, prescribed by different doctors, visible in the motor vehicle?
- If the driver is out of the motor vehicle or exits the motor vehicle, do they have difficulty finding and removing driver's license, motor vehicle registration, insurance card from wallet/purse or producing other requested documents.
- Do they take a long period of time to walk a short distance, stumble/fall, shake excessively, or lack coordination when accomplishing simple tasks?



Front of Card

Back of Card

FIGURE 9 Cue card from NHTSA's *Cues for Law Enforcement* brochure.

- The Creative Light Program, created by a sergeant with the Pasco County, Florida, Sheriff's Office, provided flashing beacons to pedestrians crossing a particularly dangerous section of highway at night, to make them more visible to motorists.
- A deputy sheriff in Seminole County, Florida, developed a class especially for law enforcement officers. The *Graying of America: How It Will Affect the Delivery of Law Enforcement Services* has been taught to law enforcement agencies nationwide.
- By presenting safety talks at a local bingo hall, the Crime Prevention Unit with the Alsip (Illinois) Police Department is able to reach 100 to 200 seniors at a time.
- The Chicago, Illinois, and Newton, Massachusetts, police departments both assisted the Alzheimer's Association in producing *Safe Return and Law Enforcement, Saving Lives Together*, a video to help train police officers in how to interact with Alzheimer's patients.
- An officer with the Waltham, Massachusetts, Police Department developed S.A.F.E., the Senior Academy for Education. This popular, 15-h course for seniors addresses both driver and pedestrian safety.
- The Missouri State Highway Patrol assisted the Maryville University Occupational Therapy Program with the development of a training video, *Partners for Safe Driving: A Guide for Law Enforcement and Licensing Agency Professionals*.

These examples highlight only a few of the many programs described in *A Compendium of Law Enforcement Older Driver Programs*, but clearly demonstrate the vital role that

law enforcement agencies can have in helping to address the safety and mobility needs of older adults.

The Alzheimer's Association has been an especially strong partner in addressing the driving and mobility concerns of persons with Alzheimer's and other forms of dementia. The *Safe Return and Law Enforcement, Saving Lives Together* video noted earlier was produced by the association specifically to engage the support of the law enforcement community in preventing Alzheimer's patients from endangering themselves and others on the roadway (see *Safe Return . . .* 1995). The association's training program for law enforcement officers addresses issues such as medical reporting and the use of Global Positioning System technology to locate lost patients. These and other materials for law enforcement officers can be ordered from the association's website.

In addition to law enforcement officers, a second potential point of contact for impaired older drivers is the court system and, in particular, judges. The National Judicial College provides education and training opportunities to judges through short courses offered at its facilities in Reno, Nevada. Two of its courses are of particular relevance to the older driver: *Traffic Issues in the 21st Century* and *Sentencing Motor Vehicle Law Offenders*. The traffic issues course has included special sessions to provide participants with an overview of aging driver trends and factors contributing to older driver crashes. One session incorporated "aging sensitivity" training in which participants wore special glasses to experience what it is like to have glaucoma, macular degeneration, or vision loss as a result of stroke. Another session provided information on approaches for assessing driving skills and assisting older adults in "keep-

ing the keys.” The second course, Sentencing Motor Vehicle Law Offenders also incorporated a session that focused on the special problems of cognitively impaired older drivers and appropriate sentencing options when these drivers appear before the courts. Both courses were provided with funding support from NHTSA (S. Samson, personal communication, Feb. 2005).

STATE AND LOCAL INITIATIVES

Additional state and local law enforcement programs and activities were uncovered in the course of preparing the current synthesis report. As noted earlier, many states and communities have established TRIADS, or partnerships between law enforcement and various public and private agencies and organizations, to address issues and concerns of senior citizens. Through TRIADS, law enforcement gains a better understanding of the fears and concerns of seniors and coordinated responses to these needs are developed. At the community level, TRIAD programs are often implemented by a S.A.L.T. (Seniors and Law Enforcement Together) Council. Although a primary focus of TRIADS has been crime prevention, their scope extends to all areas of importance to seniors, including traffic safety.

Florida has an especially active TRIAD organization that has partnered with the DHSMV in many of its older road user safety initiatives. Florida’s DHSMV has also developed a train-the-trainer program to educate the law enforcement community about the important role it can play in identifying and referring at-risk drivers of any age. Beyond simply referring to DHSMV, officers are encouraged to link the individual to an appropriate social service agency or the Area Agency on Aging to access needed assistance. Medical referrals are one component of DHSMV’s larger Mature Driver Transportation Lifetime Choices program, described elsewhere in this synthesis report.

Florida has also taken the lead in educating judges and their staffs about the special needs and concerns of older adults. The Elder Justice Center is a special program available to adults over the age of 60 entering the court system. It provides guidance and referrals, ensures access to the courts and its various programs, and informs the court about the special needs of older clients. In Tampa, Florida, volunteers at the Elder Justice Center have also received training to serve as court monitors. In this capacity, they make random visits to wards of the court (persons who have been declared legally incapacitated) to ensure that they are being well treated and cared for.

In the fall of 2003, the Florida DHSMV conducted a pilot project in Jacksonville designed to increase public awareness of how to recognize and report an unsafe driver. The identified target audience for the campaign included law enforcement, the judicial system, medical professionals, social service providers, DHSMV employees, and the general public. A key strategy in the campaign was the training of law

enforcement officials, using a 15-min roll-call video on how to recognize and report an unsafe driver. Teleconference and media training sessions were also employed to educate judicial staff, judges, and traffic hearing offices. The project led to increased support from the law enforcement community in recognizing and responding to the problem of unsafe drivers.

In Illinois, the Circuit Court of Cook County received funding from the Illinois DOT to develop a comprehensive traffic safety initiative as part of the Safe Communities initiative. Although the Safe Community grant funding officially ended in September 2003, the court has been able to continue its program entirely with court resources. The project, which involves specially tailored programs hosted by local senior centers, was described in the previous chapter. The program remains a model for court involvement in traffic safety initiatives.

Before the Alzheimer’s Association developed its *Safe Return* video to educate law enforcement officers about the special needs of persons with dementia, health professionals in Ocean County, New Jersey, had recognized the important role that law enforcement officials can play in identifying potential dementia cases and bringing them to the attention of the health community before a traffic crash or other tragedy has occurred. The Safe Outreach for Seniors or S.O.S. program is a good example of law enforcement commitment to proactive efforts to protect vulnerable elderly populations (Howell and Macaluso 2001).

In California, the Highway Patrol (CHP) has assumed the leadership role in implementing the state’s comprehensive plan for improving traffic safety among older adults, developed in 2002 by a statewide task force (Yanochko 2002). The law enforcement working group of the task force also recently revised the California DMV’s Request for Reexamination form (DS 427), making it easier for officers to provide accurate information to the DMV driver safety offices responsible for conducting driver reexaminations. CHP is also developing a policy for their officers for when and how to refer drivers to the DMV for reexamination.

As a final example of law enforcement involvement in programs to improve the safety of older road users, Highway Patrol Troopers in Texas are the official spokespersons for that state’s On the Road in Texas program. Described in chapter six, the program involves radio and television public service messages, reaching more than 2 million listeners each week. Although the messages address a wide variety of traffic safety topics, many of the issues are of special concern to older drivers, passengers, and pedestrians.

STATE SURVEY RESULTS

Only two survey questions focused specifically on the involvement of law enforcement in older road user safety initiatives.

The DMV survey contained the question, “Is your agency involved in any programs or activities with state or local law enforcement agencies addressing older road user safety and mobility?” and the Governor’s Highway Safety Office (HSO) survey asked a similar question, “Has your office engaged in any activities with law enforcement or judicial personnel related to older road user safety and mobility?” (see Question 4 in Appendix E and Question 8 in Appendix G).

Nine of the 34 responding state driver license offices indicated that they had collaborated with law enforcement agencies in addressing older road user safety needs. Responses from these nine states are summarized in Table 15. Although there are many described activities related to the reporting of unsafe drivers, of special note are the CHP’s leadership role in implementing the recommendations of that state’s comprehensive traffic safety plan (noted earlier); the contribution of law enforcement to Iowa’s state and regional older driver forums; and the many, varied activities of the Florida law enforcement community, also described earlier in this chapter.

Seven of the 24 respondents to the HSO’s survey also described collaborations with law enforcement agencies. These results were more varied and included participation on

task forces and planning committees, involvement in driver safety education courses (as frequently noted in the Compendium of Law Enforcement Older Driver Programs), and other public education initiatives (see Table 16).

It should be emphasized that this information was reported by state driver licensing and highway safety agencies and not by law enforcement agencies directly. Thus, results are limited to collaborations identified with these two state agencies. More information would likely have been obtained if law enforcement agencies had been surveyed directly. However, the Compendium report referenced earlier provides a comprehensive survey of law enforcement activities in this important area.

SUMMARY

The programs and activities highlighted in this chapter show law enforcement and the courts to be important partners in maintaining the safe mobility of seniors. This is especially the case for older persons suffering cognitive or physical impairment. Law enforcement personnel are closely linked to their communities and can be effective and knowledgeable spokes-

TABLE 15
EXAMPLE OF LAW ENFORCEMENT PARTICIPATION IN DMV OLDER ROAD USER SAFETY AND MOBILITY INITIATIVES

State	Law Enforcement Participation
California	CHP is an active participant in the state’s Task Force on Older Adults and Traffic Safety and has assumed leadership responsibilities in implementing the Task Force’s recommendations.
Florida	Many initiatives identified, including the statewide TRIAD, Florida Highway Patrol Public Affairs Officers Mature Driver Outreach, Florida Crime Prevention Officers, and medical referral education/how to report an unsafe driver initiatives.
Iowa	Law enforcement is participating in state and regional older driver conferences. Driver license supervisors are involved with SALT.
Maryland	Reporting of unsafe drivers for reevaluation.
Michigan	Michigan State Police Office of Highway Safety Planning partners with the Office of Traffic Safety on elderly mobility planning issues; participation in training programs for reporting drivers for reevaluation.
Nebraska	No specific programs described.
Oklahoma	Reporting of unsafe drivers for reevaluation.
Utah	Reporting of unsafe drivers for reevaluation.
Virginia	Virginia Association of Chiefs of Police collaborated with the Department for the Aging to develop a brochure on <i>Dementia and the Older Driver</i> .

TABLE 16
EXAMPLE OF LAW ENFORCEMENT PARTICIPATION IN GOVERNOR’S HIGHWAY SAFETY OFFICE OLDER ROAD USER SAFETY AND MOBILITY INITIATIVES

State	Law Enforcement Participation
Iowa	Representation on Older Driver Task Force and active participant in the Iowa Senior Mobility Forum.
Kentucky	Officers trained to teach the AAA Mature Driver Program.
Michigan	Law enforcement represented on both the statewide Task Force and the Elderly Mobility Workgroup.
Ohio	Participation in older driver education activities that are supported through GHSO grants.
South Dakota	Partners with the Office of Highway Safety to provide training and education at annual state AARP conferences as well as to community advocacy groups.
Texas	Spokespersons for the On the Road in Texas program.
Puerto Rico	Older driver and pedestrian safety issues addressed in training programs provided by the Puerto Rico Traffic Safety Commission for law enforcement, prosecutors, and judicial officers.

persons and community partners. They both contribute a new dimension to older road user safety programs and help to tie together other dimensions.

Useful Web Resources

“Cues for Law Enforcement” (1998) [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive/cuesindex.html>.

“A Compendium of Law Enforcement Older Driver Programs” (Ticer 2003) [Online]. Available: <http://www.nhtsa.dot.gov/people/injury/olddrive/LawEnforcementOlderDriver03/index.htm>.

Alzheimer’s Association [Online]. Available: <http://www.alz.org/Resources/Resources/rtrlwand.asp>.

The National Judicial College [Online]. Available: <http://www.judges.org>.

“Safe Outreach for Seniors” manual [Online]. Available: <http://www.elderabusecenter.org/pdf/newsletter/news42.pdf>.

GOOD STATE PRACTICES IN OLDER DRIVER SAFETY PROGRAMMING

This chapter briefly highlights older driver safety programming in six states: California, Florida, Iowa, Maryland, Michigan, and Oregon. These six states have been singled out because of their comprehensive approach, innovation, and demonstrated long-term commitment to improving safety and mobility for older road users. All have appeared repeatedly in earlier chapters of this report.

CALIFORNIA

California was one of the first states to convene a formal task force to address the safety and mobility needs of its growing elderly population and is one of the first to produce a set of comprehensive recommendations for achieving safe mobility. The state has also moved forward with implementing many of the identified action items, drawing support from both the public and private sectors. The California DMV, a long-time innovator in highway safety research and programming, has worked to develop a tiered approach to driver license screening, and has reached out to older drivers through special driver safety programs and a variety of educational materials. Caltrans, the California DOT, is ahead of most other state DOTs in adopting the recommendations included in the FHWA *Highway Design Handbook for Older Drivers and Pedestrians* (Staplin et al. 2001a) and in the 2003 update to the *MUTCD*. The implemented standards and changes in practice should benefit all road users, but especially older adults.

FLORIDA

Florida has perhaps the most long-standing roadway improvement program specifically focused on the special needs of older road users. The 1991 Florida Elder Road User Program included both short- and long-term improvements, many of which later appeared in the FHWA *Handbook*. State transportation engineers regularly receive training in implementing the designated improvements that benefit both older drivers and pedestrians. The state also reaped early benefits from its ad hoc elderly driver coalition, with strong leadership from the DHSMV, long before it became an official governor-appointed At-Risk Driver Advisory Council. Early coalition members set the tone for broad-based public/private collaborations in meeting the needs of older road users. The coalition was also successful in obtaining financial support to develop and evaluate new programs and initiatives,

including its Safety Resource Centers that provide “one-stop” access to resources for addressing the full range of transportation safety and mobility issues facing aging adults. More so than any other state, Florida has integrated all the key players and stakeholders into its effort to improve safety and mobility for older road users.

IOWA

Iowa’s older driver safety and mobility initiatives have been carried out under the extensive partnerships of its Highway Safety Management System. This has provided firm support for a broad-based program encompassing engineering, education, enforcement, and emergency services. Iowa has also sought broad public input to its planning activities, as well as feedback on initiatives already in place. The open approach has generated positive coverage from the media and increased public awareness of issues facing older road users. Behind the scenes, the Iowa DOT has quietly pursued roadway design and traffic operation improvements of special benefit to its large elderly population.

MARYLAND

The hallmark of Maryland’s program is helping individuals continue to drive as long as they can do so safely. At a very modest cost, the state’s MAB involves physicians in reviewing individual cases and recommending the least restrictive path for allowing a person with medical or functional limitations to continue to provide for his or her own safe mobility. The state’s Model Driver Screening and Evaluation Program, initiated as part of an NHTSA-funded research project, has indeed become a model for the nation. Even though it is supported by a broad-based consortium of stakeholders, the Maryland program is clear evidence of the valuable role state MABs can play in creating a system supportive of lifelong safe mobility.

MICHIGAN

Michigan was the first state to develop a comprehensive plan to address the safety and mobility needs of older road users. Elderly Mobility and Safety—the Michigan Approach was created in 1999 by the Elderly Mobility and Safety Task Force of the Southeast Michigan Council of Governments

(SEMCOG). The plan reflects SEMCOG's broader planning interests and is one of the few to directly address related issues of land use, housing, and alternative transportation. It has since been adopted statewide as "The Michigan Approach." Michigan has also benefited from efforts beyond SEMCOG. The Traffic Improvement Association of Oakland County offers its Mature Driver Retraining Workshops statewide. The safety program is unique in that it incorporates both classroom and behind-the-wheel evaluations in a 10-h, 2½ day course. In addition, the Area Agency on Aging, serving a six county region in the Detroit area, offers a Senior Driving Awareness Program at local senior centers. In the fall of 2004, Michigan hosted the North American Conference on Elderly Mobility, a forum for showcasing best practices from around the world with respect to alternative transportation, driver education and training, housing and land use, roadway design, and driver screening and assessment.

OREGON

The Oregon Older Driver Advisory Committee was formed in response to state legislation and charged with developing recommendations for responding to aging driver issues. The committee's recommendations were reported in 1999. How-

ever, it is Oregon's activities in response to these recommendations that most stand out. The state's Medically At-Risk Driver Program is one of the most comprehensive in the nation and one of the few that requires physician reporting of selected medical conditions or functional impairments. The Shifting Gears in Later Years program addresses the public information and education needs of the state's older population. Information on both programs is available on user-friendly websites, along with extensive resources for downloading.

SUMMARY

Although exemplary programs clearly exist in other states, these six states have been highlighted because of the comprehensiveness and overall commitment they have brought to addressing the safety and mobility needs of older road users. Ideally, one would identify "good practices" in specific program areas as well—good practices with regard to planning for older road users, implementation of roadway improvements, driver licensing, public education, and enforcement programs. However, there are still many unknowns in this relatively new area of focus, and very little basis for judging the relative merits of the many programs, policies, and activities identified in this report.

CONCLUSIONS

This report has provided a “snapshot” of programs and policies in place across the nation to improve the safety and mobility of older road users. Given the projected aging of the population over the next 20 to 30 years, and older adults’ greater vulnerability to injury and death from traffic crashes, it is critical that states and communities begin constructing a transportation system that accommodates a very different “design user” than has been the norm. This is especially critical in the United States, where transportation is dominated by the personal automobile.

The scope of the synthesis included national, state, and local policies and programs in five key areas: planning, roadway and traffic engineering, driver licensing, education, and enforcement. Given this breadth, it was not possible to capture all of the details within each area. However, it is believed that enough detail has been provided to inspire and challenge states and communities to expand their activities to improve older road user safety and mobility.

To accomplish the goals of this synthesis, short surveys were developed for four target audiences: state departments of transportation (DOTs), state motor vehicle departments, Governor’s Highway Safety Offices (HSOs), and state units on aging. The response rate was highest for the motor vehicle department survey, yielding responses from 34 jurisdictions. The Governor’s HSO and DOT surveys each yielded 24 returns, whereas the state units on aging survey produced 18 returns. To some extent, the lower than desirable response rates may reflect the “novelty” of the topic area for some of the targeted audiences. Nevertheless, the surveys that were returned generated a wealth of information for incorporation into the report. A literature search, Internet search, and follow-up telephone contacts and interviews yielded additional information.

Not unexpectedly, much of the reported activity has occurred quite recently. Each of the older road user planning documents highlighted was prepared since 1999, and FHWA’s Older Driver Highway Design Workshops have all been conducted since 1998. In addition, many of the national organizations that appear so prominently in this synthesis report—American Association of Retired Persons (AARP), American Automobile Association (AAA), American Association of Motor Vehicle Administrators, American Medical Association, Alzheimer’s Association, American Occupational Therapy Association, and others—have only recently taken on the challenge of “Safe Mobility, for Life,”

set forth in the 1997 DOT report, *Improving Transportation Safety for a Maturing Society*.

The following themes stand out across the many programs and initiatives highlighted in this document:

- The challenge of providing safe mobility for an aging population does not rest with any single agency or organization. Rather, it cuts across public and private sectors and across national, state, and local boundaries.
- Some of the greatest successes have resulted from partnerships across and among government agencies and private-sector organizations; for example, driver license offices working with the medical community, planning departments with senior groups, and law enforcement with community safety programs. To some extent this has always been characteristic of traffic safety programs; however, it is especially evident with respect to programs for the older road user.
- As a corollary to the previous item, the most effective *comprehensive* programs to improve safety for older road users involve multiple partners and strong working coalitions, including input and participation from the public; that is, the older adults themselves.
- At the same time, there is a need for strong leadership to guide and motivate action. In some cases, this may be a single individual in a single agency or organization; in other cases, it may result from departmental or legislative policy.
- Although the federal government, and more specifically the U.S.DOT (including NHTSA and FHWA), has provided strong overall guidance and support for older road user safety and mobility initiatives, ultimately it is at the state and local levels where programs are activated.
- Although some very successful programs and policies have been implemented, it is clear that no single program can solve the problem. That is why this synthesis report encompassed planning, engineering, driver licensing, education, and enforcement initiatives.
- Finally, there are many states doing many good things for the older road user. California, Florida, Iowa, Maryland, Michigan, and Oregon were all identified as “good practice” states, and other states also figured prominently in this report. However, there are still many states and many communities where older road user safety and mobility is not being directly addressed.

Currently, with regard to raw numbers, older road users do not stand out as a pressing highway safety problem, at least not when compared with other problem areas such as the young driver, the impaired driver, or the unbelted occupant. This point was emphasized by DOTs as well as HSO respondents. However, older road users *are* a problem when one considers their increased risk of serious or fatal injury and their expected growth in numbers over the next two to three decades. A recent study by the Insurance Institute for Highway Safety predicted that by the year 2030 one in four drivers killed in crashes will be age 65 or older.

The following research and programmatic suggestions are offered to better prepare the transportation safety community for the future:

- Given that many of the changes needed to improve safety and mobility for older road users require changes in agency policies or programs, as well as financial backing, it is important that state and local initiatives have “top down” commitment and support from the highest level of involved agencies.
- Although many policies and programs have been described in this synthesis report, few have been formally evaluated. To persuade more agencies and organizations to engage in older road user safety initiatives, evidence of the effectiveness of these programs in reducing crashes and injuries and/or increasing mobility, health, and quality of life is needed.
- To the extent possible, efforts should focus on identifying and promoting programs that benefit *all* road users and not just the elderly. Also, to promote greater interest in older road user safety initiatives, consideration could be given to widening the identified target audience and/or not defining the audience specifically on the basis of age (e.g., as AARP has done with its Driver Safety Program).
- Opportunities for individuals from different professional backgrounds to come together to exchange ideas and

identify common areas of interest with respect to older road users could be fostered at the national, state, and local levels. Broad-based coalitions, cross-disciplinary conferences, and special issues of journals and other publications targeting professionals in the field can all help to create opportunities for future collaborative efforts.

- Related to the previous recommendation, public input should be sought at all levels of program development, from the initial planning stage to materials development to program implementation and evaluation.
- Safer roadways are a critical component to improving older road user safety. DOTs might ensure that traffic engineers at both the state and local levels are knowledgeable of highway design and traffic operation practices for maximizing the safety of older road users. Regular participation in available FHWA training workshops is encouraged.
- If the United States is to be prepared for the expected large growth in elderly road users over the coming decades, states must immediately begin to plan for an aging road user population, improve their roadways, modify the driver licensing process, and educate the public about their responsibilities as road users.

The aging road user population creates both safety and mobility challenges. Addressing these challenges will require a comprehensive and multifaceted approach. This synthesis report has reviewed activities in five important areas: comprehensive planning, roadway design and traffic engineering, driver licensing, driver education and improvement, and enforcement/adjudication. In each of these areas, activities have taken place at the national, state, and local levels. Most notably, they have been carried out by a diverse mix of government agencies and private-sector organizations. Bringing these resources together will be the key to meeting the challenge of providing safe mobility, for life.

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APPENDIX A

State DOT Survey

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Project 20-5, Topic 35-10 IMPROVING THE SAFETY OF OLDER ROAD USERS

STATE DOT SURVEY

The growing number of older road users, combined with their risk of injury and death in roadway crashes, are pressing societal concerns. This survey is being sponsored by the National Cooperative Highway Research Program to help identify strategies for improving the safety of older road users. Separate surveys are being sent to motor vehicle departments (DMVs), governor's highway safety offices, and state agencies on aging.

The focus of the survey is on **older road users**, and in particular **older drivers and pedestrians**. We are seeking information on planned or implemented programs, activities, policies, and/or legislation aimed at improving the safety of older road users. This synthesis will NOT address programs intended primarily to provide transportation to those who cannot drive.

The questions below address the areas of planning and engineering. Given the broad scope of the survey, it is likely that more than one person will be involved in its completion. In the space below, please provide names and contact information for those contributing to the survey.

Please return the completed survey and any supporting materials or documentation by (date) to:

Dr. Jane Stutts
University of North Carolina
Highway Safety Research Center
730 Airport Road, Campus Box 3430
Chapel Hill, NC 27599-3430

A return address label has been enclosed for your convenience.

If you have any questions, please feel free to contact Dr. Stutts by telephone at (919) 962-8717, or by e-mail at jane_stutts@unc.edu.

Respondent Information

Name:	Title / Department	Phone:	E-mail

PLANNING

1. Does your state have a comprehensive strategic highway safety plan? Yes No

If yes,

1a. Does the plan address older road user safety and mobility? Yes No

If yes,

1b. Please list below any goals or objectives included in the plan that specifically address older road users. *(Alternatively, attach paper copy with your completed survey or provide a web-based reference.)*

1c. Did your department collaborate with any other agencies or organizations in developing these goals and objectives? Yes No

If yes, please identify key agencies below:

2. Has your department engaged in any **other long-range planning** activities to address issues of older road user (including pedestrian) safety and mobility? Yes No

If yes,

2a. Please describe this effort and list below any goals or objectives developed as part of the plan. *(Alternatively, attach paper copy with your completed survey or provide a web-based reference.)*

2b. When did this activity take place? _____

2c. Did your department collaborate with any other agencies or organizations in this planning activity? Yes No

If yes, please identify key agencies below:

3. Are there (other) occasions where your department has collaborated with **other state agencies** on older road user safety issues? Yes No

If yes, please describe below:

4. Has your department collaborated with **public or private sector organizations** (e.g., AARP, medical society, etc.) in addressing older road user safety issues? Yes No

If yes, please describe below:

5. Does your department have any formal or informal liaison with your state office on aging?
 No
 Yes, informal
 Yes, formal

6. Some states have formed coalitions, task forces, etc., to address safe mobility for older citizens in a more comprehensive way. Are you aware of any such effort in your state, current or past? Yes No

If yes, please describe, indicating who is taking (or took) the lead in this effort:

7. To what extent do metropolitan planning organizations in your state address older road user safety and mobility issues in their long-range planning?
 Most or all MPOs do this
 Some MPOs do this
 Few or no MPOs do this
 Uncertain/do not know

8. To what extent do metropolitan planning organizations in your state involve **area agencies on aging** in the development of their local transportation improvement program or other long-range planning?
 Most or all MPOs do this
 Some MPOs do this
 Few or no MPOs do this
 Uncertain/do not know

ENGINEERING

9. Is your department familiar with the FHWA *Highway Design Handbook for Older Drivers and Pedestrians*, and its companion *Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians*? Yes No

If no, skip to Question 15.

15. Please indicate whether your department has modified its guidelines or standards for each of the following engineering treatments to better accommodate the needs and capabilities of older road users. If yes, please describe the change(s) made.

Engineering Treatment	Modified?		Description or Comment
	Yes	No	
a. Changes to street name signing (larger letter height, advance signing, etc.)			
b. Sign retroreflectivity and/or lighting requirements			
c. Use of upper- and lowercase letters on overhead signs			
d. Use of Clearview font on signs			
e. Use of protected-only operations at signalized intersections			
f. Use of all-red clearance intervals at signalized intersections			
g. Use of advanced warning signs (signal ahead, horizontal curve, etc.)			
h. Signal timing adjustments to accommodate older pedestrians' slower walking speeds			
i. Letter size requirements for freeway entrance/exit signing			
j. Lane striping or edgeline width			
k. Improvements to pavement making contrast			
l. Use of raised pavement markings to supplement standard centerline markings			
m. Use of post-mounted delineation devices as a supplement to chevron alignment signs on horizontal curves			
n. Other changes? Please describe.			

THANK YOU!

Please use the space below to provide any additional comments or information, and be sure to include copies of relevant materials with your completed survey.

APPENDIX B

State DOT Survey Results for Planning for Older Road Users

State	1. Does your state have a comprehensive strategic highway safety plan?			
	1a. If yes, does plan address older road user safety and mobility?			
	1b. Identified goals or objectives for older road users.			1c. Other agencies or organizations collaborated with to develop plan.
Arizona	Yes	Yes	Yes—2 goals listed	GOHS, DPS, FHWA, FMCSA
California	No	—	—	—
Colorado	Yes	No	Do consider, but not shown to be problem	NHTSA, FHWA, Dept. of Revenue, DMV
Connecticut	Yes	Yes	NHTSA plan has age analysis, but older population not a big safety concern	DMV, AARP, AAA, Health Dept., Police Dept., State Agency Workgroup (8 agencies)
Florida	Yes	Yes	Yes—Sustain proficiency in elder drivers	Department of Highway Safety and Motor Vehicles, Dept. of Elder Affairs, Dept. of Health, others
Georgia	Initiated	—	—	Other agencies to be included
Iowa	Yes	Yes	See SMS Toolbox	Depts. of Public Safety, Insurance, Elder Affairs, Public Health, EMS, AAA, AARP, MPOs/RPAs, county engineers, other SMS membership
Maryland	Yes	Yes	(no specific objectives)	No
Massachusetts	Initiated	—	—	DOT, GHS Bureau, Public Safety, others
Michigan	Yes	Yes	Goals include safety, basic mobility, and transportation services coordination	No
Minnesota	Yes (pending approval)	No	—	No
Mississippi	Yes	No	—	No
Missouri	Initiated	Yes	Yes—5 goals listed	Dept. of Health, SHP, Highway Safety, NHTSA, FHWA, Motor Carriers, Revenue, AAA, others
Montana	—	—	—	—
New Jersey	Initiated	Yes	Yes—3 goals listed	Other agencies may be included
New York	Yes	All ages	See Gov's. Traffic Safety Committee website	None identified
North Dakota	—	—	—	—
Oklahoma	Yes	No	Yes	Traffic Safety Forum—FHWA, FMCSA, DOT, Safe Kids, Chiefs of Police, AAA, DPS
Oregon	No	—	—	—
Pennsylvania	Yes	New plan in process	Yes	Dept. of Health, Dept. of Aging, AARP, AAA, others
Texas	No	—	—	—
Virginia	No	—	—	—
Washington	Yes	Yes	Assessment and reporting by physicians	State Patrol, Licensing, Traffic Safety Commission, AAA, Assoc. or Washington Cities
West Virginia	No	—	—	—

Idaho and Guam also responded to the survey, but indicated they did not have programs in place yet.

GOHS = Governor's Office of Highway Safety (Arizona); RPA = regional planning affiliation (Iowa); DPS = department of public safety.

State	2. Engaged in any other long-range planning for older road users?			
		2a. Goals and objectives developed		2c. Other agencies or organizations collaborated with?
			2b. When did this take place?	
Arizona	Yes	Gov. Committee— “Aging 2020 Plan Executive Order”	2004	Dept. of Economic Security, Dept. of Health, others
California	Yes	Developed statewide plan for older drivers and pedestrians	2002–2003 (currently implementing)	Statewide task force—CHP, DMV, Dept. of Aging, AARP, AAA, Commission on Aging, Dept. Health Services, EMS Authority, SF Dept. of Public Health, Calif. AAA, Center for Injury Prevention Policy and Practice
Colorado	No	(see above)	(annual planning)	Dept. of Revenue, DMV, various other state and local agencies
Connecticut	No	—	—	—
Florida	Yes	Promote alternative transportation options; Promote Elder Road User program at local level	2003–2004 2005–2006 (planned)	Florida Dept. of Highway Safety and Motor Vehicles/At-Risk Driver Advisory Council; City and county agencies; At-Risk Driver Advisory Council members (AARP, physicians, agencies on aging, others)
Georgia	No	—	—	—
Iowa	Yes	Local Safety Conscious Planning events	2003	MPOs and RPAs, DPS/Gov’s. Traffic Safety Bureau, Iowa SMS
Maryland	No—Long range planning covered by SHA and HSO plans.			
Massachusetts	No	—	—	—
Michigan	Yes (SLRTP)	(see above)	2001, 2002	Yes—Many agencies and organizations invited to provide comment and input to the plan
Minnesota	No	—	—	—
Mississippi	No	—	—	—
Missouri	No	—	—	—
Montana	—	—	—	—
New Jersey	Yes	Promote mobility, safety, and health	—	Departments of Transportation, Health & Senior Services, Education, State
New York	Yes	Attached. Also see www.nysgtsc.state.ny.us/senr-ndx.htm	2002	Yes—NYS Office of the Aging (lead agency, DMV)
North Dakota	—	—	—	—
Oklahoma	Will be in 2005–30 SLRTP	—	2004–2005	No
Oregon	No	—	—	—
Pennsylvania	No	—	—	—
Texas	No	—	—	—
Virginia	No	—	—	—
Washington	No	—	—	—
West Virginia	No	—	—	—

SLRTP = statewide long-range transportation plan.

State	State DOT collaborations on older road user issues:				MPO involvement	
	3. With other state agencies	4. With public or private sector	5. Liaison with state office on aging	6. Formed state coalition or task force?	7. Extent address ORU issues	8. Extent involve AAAs in planning
Arizona	Yes—GOHS, DPS	Yes—AAA, medical societies, others	Yes, informal	No	Some do	Few or no
California	Yes—California Pedestrian Safety Task Force 1997–present	See #2	No	Yes—DOT led Pedestrian Safety Task Force	Some do	Some do
Colorado	Normal interagency work and through research questionnaires	Yes—Medical Society, AARP	No	No	Unknown	Unknown
Connecticut	DOT/Bureau of Public Transp. ex-officio member of Commission on Aging	Yes—see 1c response	Yes, informal	No	Most or all	Most or all
Florida	Yes—Dept. of Health, Dept. of Elder Affairs, DHSMV	At-Risk Driver Advisory Council members	Yes, informal	Yes—led by DHSMV	Some	Most or all
Georgia	No	No	No	—	Some	Some
Iowa	Yes—DOT/Driver Services, DPS, Transit, Elder Affairs	Yes—County Engineers Assoc., AARP, local Agencies on Aging, others	Yes, informal	Yes—Iowa SMS Older Driver Task Force	Unknown (at least one does)	Unknown (at least one does)
Maryland	Yes (see #6)	Yes—local traffic safety coordinators work with AAA, AARP, AOA	Yes, formal	Yes—1996 partnership with MVA to create MD Res. & Dev. Consortium, led by Med. Review Board	Unknown	Unknown
Massachusetts	No	No	No	No	Unknown	Unknown
Michigan	Yes—part of Elderly Mobility Work Group	Yes—planning a joint conference	Yes, informal	Yes—OHS Planning is leading	Most or all	Unknown
Minnesota	No	No	No	No	Few or no	Few or no
Mississippi	No	No	No	No	Few or no	Few or no
Missouri	No	No	No	No	Few or no	Few or no
Montana	—	—	—	—	—	—
New Jersey	Yes—DHHS Division of Aging & Human Services, DMV	Yes—AAA, AARP, senior housing, others	Yes, informal	Yes—NJDOT leading	Few or no	Few or no
New York	—	Yes—Gov's. TSC grant programs	Yes, informal	No	Some	Some
North Dakota	—	—	—	—	—	—
Oklahoma	No	No	No	No	Most or all	Most or all

Oregon	No	No	No	No	Unknown	Unknown
Pennsylvania	No	Yes—EMS, med. profession	Yes, informal	No	Some	Few or no
Texas	Yes—state task force to address engineering, driver performance/ retesting, education	Yes	No	Yes—Dept. of Health lead agency	Few or no	Few or no
Virginia	No	No	Yes, informal	No	Few or no	Few or no
Washington	—	Yes—AAA WA on HSP	No	Yes—Wash. Traffic Safety Commission	Unknown	Unknown
West Virginia	No	Yes—National Federation of the Blind	No	No	Some do	Unknown

TSC = Technical Societies Council (New York); HSP = Highway System Plan (Washington State).

APPENDIX C

State DOT Survey Results for Engineering for Older Road Users

State	9. Familiar with FHWA <i>Highway Design Handbook for Older Drivers and Pedestrians</i> and its companion?											
	10. Participated in FHWA Older Driver Highway Design workshop(s)?											Other*
	11. How knowledgeable are state level personnel of recommendations in the <i>Handbook</i> ?										Threat of liability	
	12. How knowledgeable at county or local level personnel?									Lack of resources		
	13. Extent recommendations followed on scale of 1=None to 10=All						Lack of state DOT educ./ training	Lack of local educ./ training				
14. Three greatest barriers to implementing recommendations:						Actual/perceived lack of importance			Lack of standards in place	Lack of resources		
Arizona	Yes	Yes	Somewhat	Somewhat	5	2				3	1	
California	Yes	Yes	Very	Not very	6			X	X	X		
Colorado	Yes	Yes	Somewhat	Somewhat	9			2	3	1		
Connecticut	Yes	Yes	Somewhat	Somewhat	9	3	2	1				
Florida	Yes	Yes	Very	Not very	8	1-local			3	2		
Georgia	Yes	Yes	Somewhat	Not very	5			2	3	1		
Iowa	Yes	Yes	Very	Somewhat	6		3		2	1		
Maryland	Yes	Yes	Somewhat	Not very	8		3		1	2		
Massachusetts	Yes	?	Somewhat	Not very	4	1		3		2		
Michigan	Yes	Yes	Somewhat	Unknown	2	3		2		1		
Minnesota	Yes	Yes	Somewhat	Not very	3	1		2				3
Mississippi	Yes	?	Somewhat	Not very	3	1		2				3
Missouri	Yes	Yes	Somewhat	Not very	5	X	X			X		
Montana	Yes	Yes	Somewhat	Not very	4		2		3	1		
New Jersey	Yes	Yes	Somewhat	Somewhat	4	1				2	3	
New York	Yes	Yes	Very	Somewhat	8					1		2
North Dakota	Yes	Yes	Somewhat	Not very	5	1			3	2		
Oklahoma	Yes	Yes	Not very	Not very	2		2			1		3
Oregon	Yes	Yes	Somewhat	Somewhat	4							1
Pennsylvania	Yes	Yes	Somewhat	Not very	3	1		3		2		
Texas	Yes	Yes	Somewhat	Not very	6					1		
Virginia	Yes	No	Somewhat	Unknown	5	2		1		3		
Washington	Yes	Yes	Somewhat	Somewhat	7					1		
West Virginia	Yes	Yes	Somewhat	Somewhat	4	3	2	1				

Other responses from states:

Minnesota and Mississippi—Change is not easily accepted.

New York—Length of time needed to change standards.

Oklahoma—Conflicting priorities and standards.

Oregon—Credibility of document questionable, some suggestions unrealistic and unnecessary.

X = Barrier identified, but not prioritized by the respondent.

State	Engineering Treatments to Better Accommodate Older Road Users:		
	a. Changes to street name signing	b. Signing retroreflectivity or lighting requirements	c. Use of upper- and lowercase letters on overhead signs
AZ	No	No	Yes
CA	Yes—Adopting 2003 <i>MUTCD</i>	Yes—Adopting 2003 <i>MUTCD</i>	Yes—Adopting 2003 <i>MUTCD</i>
CO	Yes	Yes	Yes—Follow <i>MUTCD</i> standards
CT	Yes—Towns permitted to add street name subplates to intersection warning signs	Yes—LEDs used. Brighter sheeting used for STOP and WRONG WAY/DO NOT ENTER signing	Yes—Already using, so no modification made specifically for older drivers
FL	Yes	No	Yes
GA	Yes	Yes—Wet weather reflective tapes on Interstates	Yes
IA	Yes	Yes	—
MD	Yes	Yes	Yes
MA	Yes	No—Follow <i>MUTCD</i> guidance	No—Follow <i>MUTCD</i> guidance
MI	(Just purchased Clearview font and are going to do test section)	Yes	No
MN	No—Were already at larger size for overhead signs	Yes—Went to ASTM-Type IX (VIP) sheeting	No
MS	Yes—Adopted 2003 <i>MUTCD</i>	No	No—Has always used (per <i>MUTCD</i>)
MO	Yes—Heights/sign sizes as large as practical for street mast arms to hold. Advanced signs not standard, but are optional for obscured locations	Yes—Upgrading to high-intensity prismatic sheeting on majority of standard signs. In process of upgrading all work zone signs as well. New trusses being designed to allow retrofit. As headlight technology improves and less light reaches overhead signs, lighting may be made standard again	Yes—Standard on signs that do not convey messages that require action These signs use all caps
MT	Yes—Changed from 4 in./3 in. to 6 in./4 in. for street name signs	No	No
NJ	Yes—Mast arm mounted signs at traffic signals	Yes—Type IX sheeting. Lighting of all signalized intersections	
NY	Yes—Changed from 4 in. to 6 in. on most conventional highways pending changes to NYS <i>MUTCD</i>	Yes—Pending policy mandating use of Type IX sheeting for certain critical signs	No
ND	Yes—Using larger letters on street name signs. Do not use advance street name signs	No—All signs required to be retroreflective. All overhead signs are lighted	No—Use uppercase letters only on the cardinal direction legend
OK	No	No	Yes
OR	Yes—Complying with <i>MUTCD</i>	Yes—Complying with <i>MUTCD</i>	Yes—Complying with <i>MUTCD</i>
PA	Increased to 6 in., but technically did not implement 8 in. for higher speed multilane roadways or 12 in. for overhead street name signs	Yes—Standard type sheeting is now Class H	Yes
TX	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers
VA	Yes—Policy implemented spring 2003 re: letter size and use of advance signs. 10+ year policy requiring letter sizes on standard street name signs be larger than required by <i>MUTCD</i>	Yes—Have used high-intensity sheeting on all signs, as a minimum, since 1970s. Use prismatic sheeting on select categories of signs	Yes—Standard practice
WA	Yes	No	No
WV	No	Yes—Use of Diamond grade sheeting for legend on green and white expressway guide signing	Yes—Have incorporated in signing specs for many years

State	Engineering Treatments to Better Accommodate Older Road Users:		
	d. Use of Clearview font on signs	e. Use of protected-only operations at signalized intersections	f. Use of all-red clearance intervals at signalized intersections
AZ	No	Yes	Yes
CA	Yes	—	—
CO	Yes	Yes—Based on accident history, not older drivers	Yes—Benefit to safety of the intersection, not based on older drivers
CT	No	Yes—Already using for safety and capacity reasons at some intersections. No modification specifically for older drivers	Yes—Already using for safety reasons. No modification specifically for older drivers
FL	No	Yes	Yes
GA	No	Yes	Yes
IA	—	Yes	Yes
MD	(Experimenting)	Yes	Yes
MA	No	No—Some in existence	Yes—Standard practice
MI	(Just purchased, and are going to do a test section)	No	Yes—Currently being updated
MN	No	No	No
MS	No	No—Use statewide, but have not modified specifically for older drivers	No—Use statewide, but have not modified specifically for older drivers
MO	No	No—Use based on traffic speed, volume, and sight distance	No—All-red implemented as a standard. Yellow clearance is normally 4–5 s and all-red typically used if additional clearance time is required
MT	No	No	No
NJ	(Under consideration)	No—Used in site-specific, high-density senior community areas	No—NJDOT standard
NY	No	No	No
ND	(Are investigating its use)	No—Use based on either capacity analysis or crash history	No—Have been using for a long time
OK	Yes	Yes	Yes
OR	Unknown	Yes—But moving from protected-only toward permissive-protected	No—Some cities are using. Use occasionally, but not everywhere
PA	Yes—But only for signs using upper/lowercase legend	Yes—SOL 470-98-28 in. Left-turn signal phasing in	Yes—Pedes. Publ. 149 in. Traffic Signs, Design Handbook in. (for all drivers)
TX	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers
VA	No	Yes—Have abandoned use of permitted or permissive/exclusive left-turn phasing at many locations. Still employed at some low-speed intersections	Yes—Used extensively since mid 80s. Aware that aggressive motorists have become dependent on this as another opportunity to misuse the signal's control of the intersection
WA	No	Yes	Yes
WV	No	Yes—Particularly high-speed intersections	Yes—Particularly high-speed intersections

State	Engineering Treatments to Better Accommodate Older Road Users:		
	g. Use of advanced warning signs (signal ahead, horizontal curve, etc.)	h. Signal timing adjustments to accommodate older pedestrians' slower walking speeds	i. Letter size requirements for freeway entrance/exit signing
AZ	Yes	Yes	Yes
CA	Yes—Adopting 2003 <i>MUTCD</i>	Yes—Adopting 2003 <i>MUTCD</i> , which allows walking speeds <3 ft/sec	Yes—Adopting 2003 <i>MUTCD</i>
CO	Yes—Follow <i>MUTCD</i> standards	Yes—Identified locations for elder populations	Yes—Follow <i>MUTCD</i> standards
CT	Yes—Already using for safety reasons. No modification made specifically for older drivers	Yes—Used on case-by-case basis for crossings used by elderly or physically impaired and at school crossings	No
FL	Yes	Yes	Yes
GA	Yes	Yes	No
IA	No—Use statewide, but have not modified specifically for older drivers	No	—
MD	Yes	Yes	Yes
MA	No—Follow <i>MUTCD</i> guidance	No—Follow <i>MUTCD</i> guidance	No—Follow <i>MUTCD</i> guidance
MI	Yes—Have always done some of this	Yes—When aware they are in the area, adjust the timing	No
MN	No—Use statewide, but have not modified specifically for older drivers	Yes—At site-specific locations	No
MS	No—Use statewide, but not modified specifically for older drivers	No	No
MO	Yes—Signals/flashers utilized in special instances that require additional notification to a situation	Yes—Allow a walking speed of 3.5 ft/sec to be used for calculating pedestrian signal timing if population of the particular area warrants its use	Yes—Letter size recently increased for guide signs on expressway and freeway applications expressly for the aging driver
MT	No	(Yes)—Considered in signal timing settings	No
NJ	No	Yes—In selected areas	No
NY	Yes—Changed to text legend to symbols for certain warning signs, pending change to NYS <i>MUTCD</i>	Yes	Yes—Increase legend sizes (text and symbols) on grade-separated highway entrances, pending changes to NYS <i>MUTCD</i>
ND	No—Install where engineering study or <i>MUTCD</i> requires	No—Adjust where required to accommodate either older or school aged pedestrians	No—Follow <i>MUTCD</i> guidelines
OK	Yes—Use in accordance with <i>MUTCD</i> guidelines	No—In areas where a larger population of older pedestrian are present, use slower walking speeds to determine timing	Yes
OR	No	Yes—Only in locations where there is a demonstrated high population of slower walkers	No—Complying with <i>MUTCD</i>
PA	Yes—At discretion of districts	Yes—Use to lower walking speeds for elderly pedestrian (Publ. 149)	Yes
TX	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers
VA	Yes—Use liberally	Yes—Where verified as needed	No
WA	Yes	No	Yes
WV	Yes—Use of advanced warning—signal ahead in combination with amber beacon. Particularly on high speed facilities or at other locations with limited sight distances	No—Use of count down pedestrian signals	No

State	Engineering Treatments to Better Accommodate Older Road Users:			
	j. Lane striping or edgeline width	k. Improvements to pavement marking contrast	l. Use of raised pavement markings to supplement standard centerline markings	m. Use of post-mounted delineation on curves as supplement to chevron signs
AZ	Yes	No	Yes	Yes
CA	(No)—Still discussing costs and are undecided at this time	No—Questions about measurement criteria delayed introduction of this in the 2003 <i>MUTCD</i> and we are waiting for resolution by FHWA	Yes	Yes
CO	Yes—Follow <i>MUTCD</i> standards	Yes—Use for better visibility, not based on elderly drivers	No—Due to snowy weather conditions	Yes
CT	No—But expressway skip line width increased to 6 in.	No	No	(Trial use only)
FL	Yes	Yes	Yes	No
GA	No	Yes	Yes	Yes
IA	(Under study)	Yes	Yes—Selected areas	No—Use stand-alone chevrons and larger/ brighter chevrons at problem curves
MD	Yes	Yes	Yes	Yes
MA	Yes—Incorporated 6 in. markings as standard on state highways	No	Yes—Current policy directive for some state highway locations	Yes—Standard practice for some state highway locations
MI	Yes—First year with 6 in. edgelines	(Currently evaluating)	No	Yes
MN	No	No	No	No
MS	No—Gone to 6 in., but for safety and visibility of all motorists	No	No—Use has been MDOT policy for last 10–15 years	No—Use statewide, but not modified specifically for older drivers
MO	Yes—Evaluating use of 6 in. strip on expressway and freeway lane line applications. Provide centerline stripe on all roads maintained. Have increased miles with edgeline stripe	(Currently evaluating application of contrast markings on concrete where white pavement markings are most difficult to see)	Yes—Have used on Interstate routes for many years. Now incorporating other non-Interstate 4-lane, divided routes into program	No—Chevrons used as stand-alone devices, with exception of using an arrow panel on turns
MT	Yes—Changed 4 in. to 6 in. stripe in corridors with over involvement of older driver crashes	No	No	No
NJ	No—Under consideration	No	No—NJDOT standard on controlled access freeways	No
NY	Yes—Increased width of lane lines and edgelines on freeways from 4 in. to 6 in.	No	No	No
ND	No—Use 4 in. edgelines and lane strips	No	No—Do not use because of concern with snow plowing	No—Chevrons used as a supplement to delineators
OK	No—4 in. minimum	(Currently conducting research)	Yes—Along freeways and narrow bridge sections	No
OR	No	No	Yes	No
PA	Yes—Standard width for lane lines on multilane roads is 6 in.; 4 in. for other longitudinal lines except on case-by-case basis; Modified skid lines. Width of edgeline optional to districts	Yes—Added black contrast markings	Yes—At select locations on two-way roadways. Raised pavement markings are standard for lane lines on all freeways	Yes

TX	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers	Yes—Modified for safety issues, not only for older drivers
VA	Yes—Selected locations, with number growing particularly in last 3–5 years	Yes—Use contrast around markings or between skip lines at selected locations	Yes—Use on most all Interstate and arterial routes, some primary and a few secondary routes	No
WA	No	No	Yes	Yes
WV	No	No	Yes—On freeways and other facilities with fog problems	No

APPENDIX D

State Motor Vehicle Department Survey

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Project 20-5, Topic 35-10 IMPROVING THE SAFETY OF OLDER ROAD USERS

STATE MOTOR VEHICLE DEPARTMENT OFFICE SURVEY

The growing number of older road users, combined with their risk of injury and death in roadway crashes, are pressing societal concerns. This survey is being sponsored by the National Cooperative Highway Research Program to help identify strategies for improving the safety of older road users. Separate surveys are being sent to state transportation departments (DOTs), governor’s highway safety offices, and state agencies on aging.

The focus of the survey is on **older road users**, and in particular **older drivers and pedestrians**. We are seeking information on planned or implemented programs, activities, policies, and/or legislation aimed at improving the safety of older road users. This synthesis will NOT address programs intended primarily to provide transportation to those who cannot drive.

The questions below address the areas of driver licensing and motorist education and awareness. Given the broad scope of the survey, it is likely that more than one person will be involved in its completion. In the space below, please provide names and contact information for those contributing to the survey.

Please return the completed survey and any supporting materials or documentation by (date) to:

Dr. Jane Stutts
University of North Carolina
Highway Safety Research Center
730 Airport Road, Campus Box 3430
Chapel Hill, NC 27599-3430

A return address label has been enclosed for your convenience.

If you have any questions, please feel free to contact Dr. Stutts by telephone at (919) 962-8717, or by e-mail at jane_stutts@unc.edu.

Respondent Information

Name:	Title / Department	Phone:	E-mail

1. Does your agency make older road user safety and/or mobility information available on its website? Yes No

If yes, please provide this website address: _____

2. Does your agency provide educational materials for older road users (pamphlets, brochures, etc.) at its licensing offices? Yes No

If yes, were these materials:

- Developed by your agency
- Developed by someone else
- Combination of above

IMPORTANT! Please attach a copy of these materials with your completed survey.

3. Does your agency provide guidance or assistance to older drivers or former drivers in accessing alternative forms of transportation? Yes No

If yes, please describe *and attach copies of relevant materials*: _____

4. Is your agency involved in any programs or activities with state or local law enforcement agencies addressing older road user safety and mobility? Yes No

If yes, please describe *and attach copies of relevant materials*: _____

5. Does your agency coordinate with other state agencies and/or organizations in the private sector to make information or programs available to older road users and/or their families? Yes No

If yes, with whom do you coordinate? _____

What type of information/program do you provide? _____

6. Is your agency engaged in any other activities or programs to improve road user safety and mobility? Yes No

If yes, please describe below:

7. Do local driver's license offices provide information and/or assistance to older adults or their families with regard to:

7a. Identifying driver "refresher" courses (e.g., AARP or AAA courses) available locally? Yes No

7b. Identifying local resources for more in-depth assessment of driving skills? Yes No

7c. Identifying local resources for driver training or remediation? Yes No

7d. Identifying available transportation alternatives when driving is no longer an option? Yes No

8. On a scale of 1 to 5, where **1 represents no training** and **5 represents comprehensive training**, to what extent do license examiners in your state receive training with regard to:

Level of Training

8a. Observational approaches for identifying potentially at-risk drivers applying for license renewal (e.g., what to look for when approaches the counter, how responds to questions) 1 2 3 4 5

8b. Age-related declines in visual function that may affect driving ability 1 2 3 4 5

8c. Age-related declines in cognitive function that may affect driving ability 1 2 3 4 5

8d. Medical conditions that may affect driving ability 1 2 3 4 5

8e. Medications that may affect driving ability 1 2 3 4 5

8f. Counseling older adults who must surrender their license 1 2 3 4 5

9. To what extent are license examiners in your state present at local gatherings such as senior centers, health fairs, etc. concerning older road user safety issues?

- Rarely or not at all
 Occasionally
 Often
 Uncertain/do not know

10. To what extent do license examiners in your state engage in other public education activities with respect to older road user safety and mobility (e.g., hosting booths at shopping malls, serving on community advisory panels).

- Rarely or not at all
 Occasionally
 Often
 Uncertain/do not know

11. Approximately how many drivers each year are referred to your office for reevaluation of their fitness to drive? _____

11a. About how many of these referrals are age 65 or older? _____

11b. Is information maintained on the sources for these referrals? Yes No

If yes, approximately what percentage are referred:

by physicians or other medical professionals _____ %

by law enforcement officers _____ %

by courts _____ %

by family members or friends _____ %

by the individual himself/herself (e.g., self-reported medical conditions) _____ %

based on crash and/or violation records _____ %

by other means _____ %

(Total should = 100%)

THANK YOU!

Please use the space below (or attach separate page) to provide any additional comments or information, and be sure to include copies of relevant materials with your completed survey.

APPENDIX E

State Motor Vehicle Department Survey Results

State	1. Older road user safety/mobility information available on website?			
	2. License offices provide educational materials for older road users?		3. Provide assistance on accessing alternative transportation?	
				4. Collaborate with law enforcement on older drivers?
Alabama	No	No	Not formally	No
Alaska	Yes	Yes	Yes—On website	No
Arkansas	No	No	No	No
California	Yes	Yes	Yes	Yes
District of Col.	Yes	Yes	Yes	No
Florida	Yes	Yes	Yes—On website	Yes
Georgia	No	Yes	No	No
Idaho	No	No	Yes—Way to Go program	No
Illinois	Yes	Yes	Yes—Directory of Services provided	No
Iowa	Yes	Yes	Yes—Local information and brochures through examiners	Yes—Law enforcement participate in local older driver conferences
Kansas	No	No	No	No
Maine	No	No	No	No
Maryland	Yes	Yes	Yes—Local coordinator	Yes
Massachusetts	Yes	Yes	Yes—Elder Outreach program since 1998	No
Michigan	Yes	Yes	No	Yes
Missouri	No	Yes	No	No
Montana	No	In past	Yes—Examiner advises	No
Nebraska	No	Yes	Yes—Via telephone	Yes
Nevada	No	—	No	No
New Jersey	No	No	Yes—Driver medical review hearings	No
North Dakota	No	No	Yes—Include provider contact information	No
Ohio	No	No	No	No
Oklahoma	No	No	No	Yes—Law enforcement sends report
Oregon	Yes	Yes	No	No
Pennsylvania	Yes	Yes	No	No
South Dakota	No	No	Yes—Individual counseling	No
Texas	No	No	Yes—Individual counseling	DPS is a law enforcement agency
Utah	No	—	No	Yes—Review at request of law enforcement
Vermont	No	No	Yes—All offices have information	No
Virginia	Yes	No	Yes—GrandDriver program in May 2004	Yes—Brochure on dementia
Washington	Yes	Yes	No	No
West Virginia	No	No	No	No
Wisconsin	Yes	Yes	No—But some agencies will provide contact information for Dept. of Aging	No—But enforcement does fill out Behavior Reports
Wyoming	No	No	Yes—Refer to AARP, older driver programs	No

State	5. Coordinate with other agencies or organizations to provide information or programs?		
		5a. If yes, agencies coordinate with	5b. If yes, information/program provided
Alabama	Yes	AARP, NSC	Driver training booklets
Alaska	Yes	Dept. of Health and Social Services	Information from website
Arkansas	No	—	—
California	Yes	Alzheimer's program, CA DHS	Form for requesting reexamination of a driver
District of Col.	Yes	Office on Aging, D.C. Transit Auth.	GrandDriver program
Florida	Yes	At-Risk Driver Council (32 agencies), local organizations	Tailored to organization. TLC: Driver SAFER Longer, Mature Driver TLC, How to Report an Unsafe Driver
Georgia	No	—	—
Idaho	No	—	—
Illinois	Yes	AARP	Referrals to program (DMV certifies and monitors)
Iowa	Yes	Generations on Aging, Public Health, Alzheimer's Association	"Choices, not Chances" program developed by Iowa
Kansas	No	—	—
Maine	No	—	—
Maryland	Yes	~35 consortium members	Rehabilitation services, alt. transportation, etc.
Massachusetts	Yes	Hospital rehab., private groups, AARP	Elder Outreach program
Michigan	Yes	Driving instructors, rehab. agencies	Provide training related to procedural requirements
Missouri	Yes	AAA, Alzheimer's Assoc., others	Brochures, pamphlets, flyers, etc.
Montana	No	—	—
Nebraska	Yes	Med. Assoc., Univ. of Neb. Safety Center, Safety Council, AAA	Referral to "standard" driver assessment review and driver improvement training
Nevada	No	—	—
New Jersey	No	—	—
North Dakota	(Yes)	AARP	Presentations to AARP instructors
Ohio	No	—	—
Oklahoma	Yes	AARP	Education programs
Oregon	Yes	Refer to various organizations	Referrals
Pennsylvania	Yes	Dept. of Aging, AAA, AARP	Approve mature driving programs, pamphlets, videos
South Dakota	No	—	—
Texas	Yes	Dept. of Public Safety, a law enforcement agency	Both examiners and troopers give presentations on request
Utah	No	—	—
Vermont	No	—	—
Virginia	Yes	Dept. for the Aging	GrandDriver program
Washington	Yes	AAA, AARP, local Safety Council, local Senior Center, WA Traffic Safety Education Assoc.	Certified their driver accident prevention courses
West Virginia	No	—	—
Wisconsin	Yes	Health & Family Services, Dept. of Aging, Alzheimer's Assoc., Epilepsy Found., Diabetes Assn., other advocacy groups	Knowledge of Wisconsin driving law; how to report medically impaired driver; older driver number to call; restricted license information
Wyoming	Yes	Ten Stars driver education program for seniors	Provide guidance and approval of lesson criteria. Provide driving manuals

State	6. Other activities or programs?	7. Do local license offices provide help identifying:			
		Driver refresher courses?	Resources for driving assessment?	Resources for training/remediation?	Available alternative transport?
Alabama	No	Yes	No	No	No
Alaska	No	Yes	Yes (if avail.)	Yes	Yes
Arkansas	No	No	No	No	No
California	Yes—Research studies	Yes	No	Yes	Yes
District of Col.	Yes—Smooth Operator	No	No	No	Yes
Florida	Yes—Study conducted, statewide outreach	Yes	Yes	Yes	Yes
Georgia	Yes—Brochures	No	No	Yes	No
Idaho	No	Yes	No	Yes	Yes
Illinois	Yes—Rules of Road Review Course and Super Seniors Program	Yes	No	Yes	Yes
Iowa	Yes—Work with AARP	Yes	Yes	Yes	Yes
Kansas	No	Yes	No	No	No
Maine	(No)	No	No	No	No
Maryland	Yes—Many	Yes	Yes	Yes	Yes
Massachusetts	No	Yes	Yes	Yes	Yes
Michigan	Yes—Governor’s Traffic Safety Advisory Committee participation. Hosting conference	No	No	No	No
Missouri	Yes—Confidential reporting, road sign test required	No	No	No	No
Montana	No	Yes	Yes	Yes	Yes
Nebraska	Yes—Will soon include self-assessment quiz in renewal notices	Yes	Yes	Yes	No
Nevada	No	No	No	Yes	No
New Jersey	Yes—Participate in seminar series by Voorhees Transportation Policy Institute	No	No	No	No
North Dakota	No (other than AARP)	Yes	No	Yes	Yes
Ohio	No	No	No	No	No
Oklahoma	Yes—Medical, handicap assessment	Yes	No	Yes	No
Oregon	Yes—Driver Improvement Program, Bioptic Telescopic Lens, PSAs	Yes	No	No	Yes
Pennsylvania	Yes—Roadway and signage	Yes	No	No	No
South Dakota	No	Yes	Yes	Yes	Yes
Texas	Yes—Medical Advisory Board	—	—	—	—
Utah	No	No	No	No	No
Vermont	No	Yes	Yes	Yes	Yes
Virginia	Yes—General safety programs	Yes	Yes	Yes	Yes
Washington	No	Yes	No	Yes	No
West Virginia	No	No	No	No	No
Wisconsin	Yes—Roadway improvements	No	No	No	Yes
Wyoming	Yes—Various public service information gatherings	Yes	Yes	Yes	Yes

State	8. On scale of 1 (no training) to 5 (comprehensive training), extent license examiners in state receive training regarding:					
	Observation	Visual declines	Cognitive declines	Medical conditions	Medications	Counseling when stop
Alabama	5	5	5	4	4	2
Alaska	2	1	1	2	1	2
Arkansas	1	5	1	1	1	1
California	3	3	3	2 (others)	1 (others)	3
District of Col.	1	2	1	3	2	1
Florida	5	5	2	5	1	1
Georgia	4	4	4	4	1	1
Idaho	1	1	1	1	1	1
Illinois	3	3	2	2	2	1
Iowa	5	5	3	4	4	5
Kansas	5	4	4	5	5	4
Maine	1	1	1	2	2	1
Maryland	2	2	2	2	2	2
Massachusetts	1	5	1	4	4	1 (others)
Michigan	1.5	1.5	1.5	1.5	1.5	1.5
Missouri	5	3	3	3	3	1
Montana	5	5	4	4	4	5
Nebraska	3	3	3	3	2	3
Nevada	5	5	5	5	5	5
New Jersey	2	1	1	2	1	1
North Dakota	4	3	3	3	2	3
Ohio	1	1	1	4	4	1
Oklahoma	1	1	1	1	1	1
Oregon	2	1	1	1	1	1
Pennsylvania	3	3	1	3	1	1
South Dakota	4	1	3	3	1	3
Texas	4	4	4	4	4	3
Utah	2	2	2	2	1	2
Vermont	2	1	1	2	1	1
Virginia	4	4	4	4	4	3
Washington	3	3	3	3	2	1
West Virginia	2	2	2	2	2	2
Wisconsin	4	2	2	3	3-4	2
Wyoming	4	3	3	4	3	4

State	9. Extent examiners present at local gatherings?	10. Extent examiners engage in other education activities?	11. No. of drivers referred annually for reevaluation of fitness to drive?	11a. Percentage of age 65+	11b. Information available on sources of referrals?
Alabama	Rarely/never (safety ed. does)	Rarely/never	260	Unknown	No
Alaska	Rarely/never	Rarely/never	300	Unknown	No
Arkansas	Rarely/never	Rarely/never	183	90%	Yes
California	Rarely/never Other Occas.	Rarely/never	29,185	12,766	Yes (not always clear)
District of Col.	Rarely/never	Rarely/never	Unknown	Unknown	—
Florida	Often	Often	6,428 (med.)	Unknown	Yes
Georgia	Rarely/never	Rarely/never	3,622	50%	Yes
Idaho	Rarely/never	Rarely/never	650	500	No
Illinois	Often (others)	Often (others)	2,460	1,323	(Yes)
Iowa	Often	Often	2,500	Unknown	Yes
Kansas	Rarely/never	Rarely/never	6,000	95%	Yes
Maine	Rarely/never	Rarely/never	1,100	800	—
Maryland	Occasionally	Rarely/never	7,000 (non-alcohol)	70%	Yes
Massachusetts	Often	Occasionally	5,000–10,000	Unknown	No
Michigan	Rarely/never	Rarely/never	5,100 (form)	3,251	Yes
Missouri	Occasionally	Occasionally	~2,280	1,648 (72%)	Yes
Montana	Rarely/never	Rarely/never	200	75%	Yes
Nebraska	Occasionally	Occasionally	1,000	95%	Yes
Nevada	Rarely/never	Rarely/never			
New Jersey	Occasionally	Occasionally	3,000	Unknown	No
North Dakota	Rarely/never	Rarely/never	226	Unknown (but majority >65)	No
Ohio	Occasionally	Occasionally	2,401	Unknown	No
Oklahoma	Occasionally	Rarely/never	560 + 1,120 handicap	Unknown	No
Oregon	Rarely/never	Rarely/never	1,800	Unknown	No???
Pennsylvania	Often	Occasionally	50,000	40%–45%	Yes
South Dakota	Rarely/never	Rarely/never	400	Unknown	No
Texas	Rarely/never	Rarely/never	11,744 (FY03)	Unknown	(Yes)
Utah	Occasionally	Occasionally	575	80%	Yes
Vermont	Rarely/never	Rarely/never	149	Unknown	Yes
Virginia	Occasionally	Rarely/never	7,200	2,554 (age 70+)	Yes
Washington	Rarely/never	Rarely/never	4,500 (all reexam.)	3,825 (85%)	No
West Virginia	Rarely/never	Rarely/never	206	Unknown	(Yes)
Wisconsin	Unknown	Rarely/never	4,000	1,800	Yes
Wyoming	Rarely/never	Rarely/never	~5,000	~2,000	No

STATE	11. Source of referrals for driver reevaluations:						
	Medical professional	Law enforcement	Courts	Family or friends	Self - refer	Crash/violation records	Other
Alabama							
Alaska							
Arkansas	25%	10%	15%	40%	5%	3%	2%
California	~65%	~22%			~13%		
District of Col.							
Florida	30%	22%	0.5%		10%	21%	17%
Georgia	35%	15%	5%	35%	5%	3%	2% therapist
Idaho							
Illinois	~10%	~80%					~10% DMV examiner
Iowa	(fourth most)	(next most)		(third most)		(most)	
Kansas	50%	5%		5%		10%	30%
Maine	90%	5%				5%	
Maryland	18%	35%	(w/enforcement)	11%	1%	(w/DMV)	35% DMV staff
Massachusetts							
Michigan	15%	65%	5%	10%		(+367)	5%
Missouri	15%	28%	0%	6%			51% license office/self
Montana	40%	40%		20%			
Nebraska	10%	70%		20%			
Nevada							
New Jersey							
North Dakota							
Ohio							
Oklahoma	~45%	~25%		~20%	~8%	(w/law)	~2%
Oregon	13%	60%		27%			
Pennsylvania	80%	7%	1%	5%	3%	4%	
South Dakota							
Texas	Only maintain the name of the person making the referral.						
Utah	6%	80%	3%	10%			1%
Vermont	40%	40%		20%			
Virginia	513	1,023	160	188			98 DMV, 12 citizens, 367 Dept. of Blind, 193 applications
Washington							
West Virginia							
Wisconsin	40%	50%		10%			
Wyoming							

APPENDIX F

State Highway Safety Office Survey

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Project 20-5, Topic 35-10 IMPROVING THE SAFETY OF OLDER ROAD USERS

STATE GOVERNOR'S HIGHWAY SAFETY OFFICE SURVEY

The growing number of older road users, combined with their risk of injury and death in roadway crashes, are pressing societal concerns. This survey is being sponsored by the National Cooperative Highway Research Program to help identify strategies for improving the safety of older road users. Separate surveys are being sent to state transportation departments (DOTs), motor vehicle departments (DMVs), and state agencies on aging.

The focus of the survey is on **older road users**, and in particular **older drivers and pedestrians**. We are seeking information on planned or implemented programs, activities, policies, and/or legislation aimed at improving the safety of older road users. The questions below address the areas of planning, safety programming, public information and education, driver improvement, and law enforcement. However, we invite you to share any thoughts or comments you may have beyond the specific questions on the survey.

Please return the completed survey and any supporting materials or documentation by (date) to:

Dr. Jane Stutts
University of North Carolina
Highway Safety Research Center
730 Airport Road, Campus Box 3430
Chapel Hill, NC 27599-3430

A return address label has been enclosed for your convenience.

If you have any questions, please feel free to contact Dr. Stutts by telephone at (919) 962-8717, or by e-mail at jane_stutts@unc.edu.

Respondent Information

Name:	Title / Department	Phone:	E-mail

1. Does your office have a statewide highway safety plan? Yes No

If yes,

1a. Does the plan address older road user safety and mobility? Yes No

1b. Please list below any goals or objectives included in the plan that specifically address older road users. (Alternatively, attach paper copy with your completed survey or provide a web-based reference.)

2. Does your office collaborate with any other **state agencies** on older road user safety issues? Yes No

If yes, please provide a brief description of who you have collaborated with and why.

3. Does your department collaborate with any **public or private sector organizations** (e.g., AARP, medical society, etc.) to address older road user safety issues? Yes No

If yes, please provide a brief description of who you have collaborated with and why.

4. Does your office have any formal or informal liaison with your state office on aging?
 No
 Yes, informal
 Yes, formal

5. Some states have formed coalitions, task forces, etc., to address safe mobility for older citizens in a more comprehensive way. Are you aware of any such effort in your state, current or past? Yes No

If yes, please describe, indicating who is taking (or took) the lead in this effort

6. In the past 5 years, has your office provided financial support for any local programs or activities addressing older road user safety and mobility issues? Yes No

If yes, please describe: _____

7. Has your office engaged in any public information and/or education activities addressing older road user safety and mobility issues? Yes No

If yes, please describe: _____

8. Has your office engaged in any activities with law enforcement or judicial personnel related to older road user safety and mobility? Yes No

If yes, please describe: _____

9. Are you aware of any programs or activities undertaken by other agencies or organizations in your state that address older road user safety and/or mobility? (Do not include national programs such as AARP's 55 Alive/Driver Safety Program or the AAA Mature Operator Program.) Yes No

If yes, please describe: _____

10. In your opinion, what is the **greatest barrier** to increased attention to older road users by the highway safety community?

THANK YOU!

Please use the space below to provide any additional comments or information, and be sure to include copies of relevant materials with your completed survey.

APPENDIX G

State Highway Safety Office Survey Results

State	1. Does highway safety plan address older road user safety/mobility and, if so, identified goals or objectives		2. Does office collaborate with other state agencies on older road user safety issues?	
Alabama	No		No	
Arkansas	No		No	
District of Col.	No		Yes	With DMV for GrandDriver program
Georgia	No		No	
Idaho	No		No	
Illinois	No		No	Provided funding to Dept. on Aging for PI&E (Public Information and Education) materials in past
Iowa	Yes	Funded pavement marking visibility and signage studies. Part of safe communities, overall enforcement/education efforts	Yes	Through Safety Management System, worked with DOT and Depts. of Public Health, Education, and Elder Affairs. Conducted statewide Older Driver Forum, developed guide and video
Kentucky	No		No	
Massachusetts	Yes	Reviewing state of practice and compiling baseline data for older driver resource library	No	
Michigan	Yes	Supporting North American “Best Practices” Conference, Sept. 04	Yes	Workgroup with Depts. of Community Health, Education, State, State Police, and Office of Services to the Aging
Nevada	Yes	Provide public information to older drivers	Yes	Older Driver public information a cooperative project with DMV
New Jersey	No		No	
New Mexico	No		No	
Ohio	Yes	Developing senior driver informational program to reduce [at fault] crashes	Yes	Ohio State Highway Patrol within Ohio Department of Public Safety
Oklahoma	No		Yes	DPS Driver Improvement Medical Review Division and Dept. of Human Services Aging Services Division
South Carolina	—	Plan addresses general population including older road users	Yes	Council on Aging, DOT, Dept. of Health and Environmental Control
South Dakota	Yes	Subcommittee of SD Roadway Safety Committee addresses	Yes	Dept. of Health, Dept of Public Safety— State Highway Patrol, DOT
Tennessee	Yes	Four goals specific to older drivers	No	
Texas	No	Plan addresses all road users	Yes	Plan developed with input from 43 reps. including TxDOT, other state agencies, and private organizations, with several strategies that include age of driver
Vermont	No		No	
Utah	No		Yes	Participation in DOT Pedestrian, Bicycle and Traffic Safety Council
Washington	No		Yes	Dept. of Licensing working group on senior driver issues
West Virginia	No		No	
Puerto Rico	Yes	Reduce documented older pedestrian problem	Yes	Governor’s Office for Elderly Affairs

State	3. Collaborate with public/private organizations to address older road user safety issues?	4. Liaison w/ state office on aging?	5. Statewide coalition to address older road user safety and mobility?
Alabama	No	No	No
Arkansas	No	No	No
District of Col.	No	No	No
Georgia	Yes (Safe America takes simulators to locations with seniors; Safe Community organizations)	No	No
Idaho	No	No	Yes (Dept. of Aging)
Illinois	—	Yes, informal	No
Iowa	Yes (AARP, AAA, and State Farm and GuideOne Insurance)	Yes, informal (also with regional AAAs)	Yes (Task Force part of the SMS. Includes DOT, Office of Traffic Safety, Driver Services, Governor's Traffic Safety Bureau, DPS)
Kentucky	No	No	No
Massachusetts	No (Previously worked with Registry MV)	No	No
Michigan	Yes (Workgroup includes government groups, insurance agencies, universities, AARP, etc.)	Yes, formal	Yes (Michigan State Safety Commission worked with SEMCOG to develop statewide plan. OHS Planning lead agency.)
Nevada	Yes (AARP, local senior and health organizations)	Yes, informal	Yes (Community Partnership Organizations with AARP and local senior and health groups)
New Jersey	No	No	Yes (Ocean County CTSP has a Senior Safety Task Force)
New Mexico	Yes (AAA, AARP driver safety courses)	Yes, informal	No
Ohio	No	Yes, informal	Yes (Through Safe Communities network)
Oklahoma	Yes (Univ. OK Health Sciences Center, AMA, AAA, AARP)	Yes, informal	No
South Carolina	Yes (AARP, others)	No	No
South Dakota	Yes (AARP, Safe Communities)	No	Yes (Coordinate with State Roadway Safety Committee to develop goals and objectives)
Tennessee	No	No	Yes (AARP, AAA)
Texas	Yes (Through both safety and research projects)	No	No
Vermont	No	No	No (But DOH has an injury prevention committee)
Utah	Yes (Citizens for Utah Traffic Safety)	Yes, informal	No
Washington	Yes (Mini-grants to senior driver programs, support for instructor training, speakers, etc.)	No	Yes (Licensing looking at mandatory retesting issues)
West Virginia	No	No	No
Puerto Rico	Yes (Worked with AARP in past)	Yes, formal	No

CTSP = Community Traffic Safety Program.

State	6. Support for local programs addressing older road user safety and mobility?		7. Engaged in public information and education (PI&E) activities addressing older road user safety and mobility?	
Alabama	No		No	
Arkansas	No		No	
District of Col.	Yes	GrandDriver	Yes	GrandDriver program
Georgia	Yes	Safe America grant; some Safe Community OD programs	Yes	Brochure developed 2 years ago, 50,000 copies printed
Idaho	No		No	
Illinois	Yes	Circuit Court of Cook County—broad program	Yes	Dept. of Aging PI&E materials
Iowa	Yes	Iowa Senior Mobility Forum (public and private participants)	Yes	Development of mobility handbook, decision guide, and video with IDOT
Kentucky	No		No	
Massachusetts	No		No	
Michigan	Yes	Funded projects listed over past 7 years	Yes	Presentations at statewide and national meetings and conferences
Nevada	Yes	Public information campaigns for older drivers and pedestrians	Yes	See Question 6
New Jersey	Yes	400 Walk Safely Senior Kits distributed statewide	Yes	PSAs aired on all radio stations in the state in fall of 2002 and 2003
New Mexico	Yes	Public Transportation Programs Bureau purchased vans for elderly and disabled transportation	No	
Ohio	Yes	Statewide education programs. High-visibility street signage in Cincinnati area	Yes	Seat belt campaign beneficial for elderly. Distribution of educational brochures (ODPS and NHTSA) also through Safe Communities
Oklahoma	Yes	Staff attendance at workshop on aging, AMA training, speakers at annual traffic safety forum	Yes	See Question 3
South Carolina	No		Yes	Developed mature driver handbook and promoted safety courses (in past)
South Dakota	Yes	Funding for AARP's state conference and training	Yes	Recently implemented child seat and risk factor awareness programs for older drivers
Tennessee	No		No	
Texas	Yes	Dept. of Health SafeRiders Program; Texas Cooperative Extension Program	Yes	"On the Road in Texas" radio PSAs include messages for older drivers
Vermont	No		No	—
Utah	No		Yes	Participated at aging conference by providing information on elderly drivers
Washington	Yes	Pilot project for free senior driving classes, national speaker on "Giving up keys," support for class items	No	—
West Virginia	Yes	Some regional programs are involved with AARP Driver Safety Program	No	—
Puerto Rico	Yes	With Office for Elderly Affairs, coordinated education programs, supported facilitators, sponsored conferences, seminars and training sessions, conducted PI&E campaigns	Yes	Continued PI&E campaigns including TV, radio, and print ads geared toward elderly pedestrians

State	8. Worked with law enforcement or judicial personnel on older driver safety and mobility issues?		9. Programs by other agencies or organizations?	
	Yes	No	Yes	No
Alabama	No		Yes	Regional CTSPs, general traffic safety presentations, DOT signage
Arkansas	No		No	
District of Col.	No		No	
Georgia	No		Yes	See Questions 3 and 6 above
Idaho	No		No	
Illinois	No	(But did fund Circuit Court of Cook County, see Question 6)	Yes	IL Office of Sec. of State's Seniors and Community Services Division provides Rules of the Road Review course
Iowa	Yes	Law Enforcement represented on Older Driver Task Force and were active participants in Senior Mobility Forum	—	—
Kentucky	Yes	KY State Police has seven officers trained in the AAA Mature Driver Program	No	
Massachusetts	No	—	No	
Michigan	Yes	Law enforcement representation on both Task Force and Workgroup	Yes	Traffic Improvement Association of Oakland Co. provides assessments. AAA 1B in Southfield conducts "You Decide: Senior Driving Program"
Nevada	No	But do fund pedestrian enforcement operations that benefit all road users	No	
New Jersey	No	—	No	
New Mexico	No	—	No	
Ohio	Yes	Provides grant funds to Ohio State Patrol to educate senior drivers	Yes	A number of hospitals throughout the state have been focusing on mobility issues regarding senior drivers
Oklahoma	No		No	
South Carolina	No		No	
South Dakota	Yes	Partner with law enforcement annually to provide training/education at state AARP conference and training to community advocacy groups	No	
Tennessee	No		No	
Texas	Yes	"On the Road in Texas" is combined effort with DPS, with HP troopers as official spokespersons	No	
Vermont	No		Yes	Signs being made bigger and brighter
Utah	No		Yes	VA Hospital has a program for assessing driving ability of patients with physical or mental disabilities
Washington	No		Yes	"Seniors Getting There Safely" is a statewide program overseen by Wash. Traffic Safety Educators Association
West Virginia	No		No	
Puerto Rico	Yes	Training programs for law enforcement, prosecutors, and judicial programs that stress older drivers and pedestrians	Yes	Facilitate ongoing local programs at senior centers. Also, Metropolitan Autobus Authority has special alternative bus service program for elderly and handicapped

State	10. Greatest barrier to increased attention
Alabama	Lack of information on need for increased public awareness and education.
Arkansas	Limited funds that are committed to seat belt and impaired driving.
District of Col.	Funding, and not enough interest at this time.
Georgia	Lack of data regarding older road users (being addressed).
Idaho	Not a NHTSA focus area, therefore no funding.
Illinois	Lack of funding to directly address the concern. Cannot make physical changes to roadway/traffic controls. Still need to focus on 16–34 year olds who are biggest problem.
Iowa	—
Kentucky	No resources specifically devoted to older drivers at this time. Drivers 55+ account for 26% of all licensed drivers, but only 16% of crashes. Most federally funded grant programs target drivers ages 18–34 who are in majority of crashes, injuries, deaths.
Massachusetts	Until recently did not have adequate data on serious and fatal injuries for drivers age 70+. Working with Governor’s Highway Safety Program Traffic Safety Research Center at University of Mass., Amherst.
Michigan	Lack of funds to implement changes that will promote safe mobility for our aging population.
Nevada	Conflicting priorities.
New Jersey	Other programs loom as larger safety problems. Perhaps we need more awareness of the problem. We realized we had a senior pedestrian problem, but other than the kit, have not put nearly enough resources into senior safety programs.
New Mexico	Issues regarding testing and licensure of older drivers. Lack of public transportation statewide.
Ohio	Ohio combines urban centers with good public transportation with rural areas with very limited public transportation. The need to overcome dependence on the transportation available is a key factor with senior drivers.
Oklahoma	Lack of funding to create or expand current programs. Need to address following three areas: engineering changes to roadway; adequate public transportation system; better system of medical evaluation and treatment and expanded driver evaluation and training program by the state.
South Carolina	—
South Dakota	Older population growing in SD, and rural nature of state and lack of public transportation requires continued driving by seniors to maintain independence.
Tennessee	Lobby groups, lack of targeted funding.
Texas	Funding dollars from federal and state sources have become reduced or earmarked for specific programs and campaigns.
Vermont	The highway safety office/plan focuses on issues that are a higher priority for us that others do not see as a priority (seatbelts, DUI). Older drivers are addressed by Council on Aging, DOH, others.
Utah	It will require a focused commitment by NHTSA or FHWA to bring attention and funding to this growing segment of drivers and pedestrians.
Washington	Lack of funds—this population doesn’t contribute significantly to the total fatalities we see (compared to DUI, lack of seatbelt, etc.)
West Virginia	Attention has been focused on alcohol and belts. We need to pay more attention to older drivers and will consider this in the future.
Puerto Rico	—

APPENDIX H

State Unit on Aging Survey

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Project 20-5, Topic 35-10 IMPROVING THE SAFETY OF OLDER ROAD USERS

STATE AGENCY ON AGING SURVEY

The growing number of older road users, combined with their risk of injury and death in roadway crashes, are pressing societal concerns. This survey is being sponsored by the National Cooperative Highway Research Program of the Transportation Research Board. The purpose of the survey is to gather information on current and planned programs and activities aimed at improving the safety of older road users. The resulting information will be published in an NCHRP Synthesis Report entitled "Improving the Safety of Older Road Users." In addition to state agencies on aging, the project is also gathering information from state transportation departments (DOTs), state motor vehicle departments (DMVs), and state offices of highway safety.

The typical approach in preparing NCHRP synthesis reports is to survey state transportation departments, motor vehicle departments, and in some cases state offices of highway safety. For the current synthesis, however, we wanted to go beyond these traditional sources of transportation safety programming and also gather information on activities undertaken by state and local offices on aging.

The focus of the survey is on programs to improve the safety of **older road users**, and in particular **older drivers and pedestrians**. *The completed synthesis will NOT address programs intended primarily to provide alternative transportation to those who cannot drive.*

We invite you to share with us information on programs and activities being undertaken or planned in your state, so that we can include this information in our report. In addition to summarizing the results of the survey, the completed synthesis report will highlight "best practices" that we hope will encourage more states to undertake activities in this important area.

Please return the completed survey and any supporting materials by (date) to:

Dr. Jane Stutts
University of North Carolina
Highway Safety Research Center
730 Airport Road, Campus Box 3430
Chapel Hill, NC 27599-3430

A return address label has been enclosed for your convenience.

If you have any questions, please feel free to contact Dr. Stutts by telephone at (919) 962-8717, or by e-mail at jane_stutts@unc.edu.

Please let us know who completed this survey, so that we can contact them if any further clarification is needed:

Name: _____ Phone: _____

Agency: _____ E-mail: _____

1. Is your office involved in any programs or activities addressing older road user safety? Yes No

If yes, please describe: _____

If collaborating with other agencies or organizations in this effort, please tell us who.

2. Are you aware of any (other) activities addressing older road user safety in which area agencies on aging in your state are involved? Yes No

If yes, please describe, identifying any collaborating partners. If there is someone else we should contact for this information, please provide a name and phone number.

3. Does your office make information on **driving safety** available to older adults and/or family members and friends? Yes No

If yes, please describe, and provide examples of any materials with your survey return.

4. Does your office make information on **safe walking** available to older adults? Yes No

If yes, please describe, and include examples of any materials with your survey return.

5. Does your office provide assistance to family members or friends concerned about an older adult's safety behind the wheel? Yes No

If yes, please describe: _____

6. Does your office address older road user safety on its website? Yes No

If yes, please provide the website address: _____

THANK YOU!

Please use the space on back to provide any additional comments or information about your programs. IMPORTANT! Please attach copies of relevant program materials, reports, etc. with your completed survey.

APPENDIX I

State Unit on Aging Survey Results

State	1. Involvement in older road user safety programs, and if so, please describe	Others with whom there is collaboration on these programs
Arkansas	No	
Delaware	Yes	Staff representation on committees and task forces on older driver safety issues
Idaho	No	
Illinois	Yes	Seeking DOT and other funding for Senior Drivers Safety Initiative involving 3 AAAs as demonstration projects for improving roadways for seniors
Indiana	No	(Refer to Easter Seals, AARP, NSC)
Kansas	Yes	Information available upon request, sessions at annual conference, information on topic in key booklet
Missouri	No	Not directly. Caseworkers distribute brochures regarding reporting unsafe drivers, investigate reports of unsafe driving and make referrals to appropriate agencies
Nevada	No	But senior centers participate in AARP Driver Safety program
New Hampshire	Yes	Active participation in NH Older Driver Coalition
North Dakota	No	But Area Agencies participate in AARP Driver Safety program
Ohio	No	
Oregon	Yes	Participation in At-Risk Driver Work Group
Pennsylvania	Yes	Older drivers discussed at State Plan Town Meetings (seven sites); brochure distribution
Rhode Island	Yes	Finalizing report for RI Commission on Aging on Elder Driver Safety
Vermont	Yes	Partners with AARP, which conducts workshops at their annual "Successful Aging and Independent Living" conference
Washington	No	State office not involved, but several local agencies have active programs
West Virginia	Yes	Charter members of ROADS Consortium (Reassessment of Aging Driver's Skills)
Wyoming	Yes	Provide funding for senior centers who provide the direct service

State	2. Do area agencies on aging (AAAs) have programs and if so, please describe		3. Provide information on driving safety and, if so, please describe	
Arkansas	No		No	
Delaware	No	No AAAs in state	Yes	Purchased and distributed brochures at community events
Idaho	Yes	Most partner with AARP to teach classes at senior centers or community centers	No	
Illinois	Yes	Information in AAA newsletters, offer classes, partner with AARP, partner with local police departments	Yes	See above. Also PI&E regarding "Senior Drivers and Alcohol" (brochure attached)
Indiana	Yes	Information and referrals to resources	No	(Handled by local AAAs)
Kansas	Yes	Most AAAs have information available and a few have active programs	Yes	Booklets, website, AARP
Missouri	Yes	Activities of various Area Agencies on Aging described	Yes	Brochure for reporting unsafe drivers (attached)
Nevada	No		No	
New Hampshire	Yes	"Prime Time" Center for Healthy Aging in Manchester engages in variety of educational activities to support older drivers	Yes	Upon request
North Dakota	Yes	Partner with AARP to provide Driver Safety course	Yes	ND Senior Info Line offers information on request
Ohio	Yes	Dayton (Kettering Medical Center) testing materials for national public information and education (PI&E) program; Cincinnati (AAA participation on Safe Community coalition)	Yes	Development Brief from their website
Oregon	No		Yes	Videos and flyers distributed by DMV
Pennsylvania	No	(Area Agencies on Aging will be submitting local plans shortly)	Yes	Referral to AARP program. Also send out brochure upon request
Rhode Island	No	No AAAs in state	No	
Vermont	No		Yes	Partners with AARP
Washington	Yes	Pierce County and Southwest Washington area agencies engaged in a variety of programs for older drivers	No	
West Virginia	No		No	
Wyoming	No		Yes	Referral to senior centers who provide driver safety classes through AARP

State	4. Provide information on safe walking and if so, describe		5. Assistance to concerned family or friends and if so, describe		6. Info on website?
Arkansas	No		No		No
Delaware	Yes	Purchased and distributed brochures at community events	No		No
Idaho	No		No		No
Illinois	Yes	Brochure on “Common Safety Tips for Senior Pedestrians” distributed to AAAs, service providers, others on request	Yes	Handled locally by AAA case management services. Use “When You Are Concerned” booklet, other resources available from Administration on Aging website	Yes
Indiana	No		No	Refer to Easter Seals, AARP, NSC	No
Kansas	No		Yes	Information only	Yes
Missouri	No	Not directly	Yes	Referrals to agencies/ organizations/family members to assist older adults with driving tests, eye exams, etc.	No
Nevada	No		No	(But funding available for senior centers and others providing transportation services to seniors)	No
New Hampshire	Yes	Participation in statewide coalition initiative promoting liveable, walkable communities	Yes	Information provided upon request, either through state agency or NH Service Link network for seniors and their families	No
North Dakota	No		Yes	See response to Question 3	No
Ohio	No		Yes	Provide information and referral upon request. (See Question 3)	Yes
Oregon	No		Yes	—	No
Pennsylvania	Yes	PA Dept. of Aging includes safe walking as part of its PEPPI exercise program; Friends fall risk initiative; Prime Time health programs	Yes	Provide “Talking with Older Drivers” brochure; refer to AARP Driver Safety program	Yes
Rhode Island	No		No		No
Vermont	No		Yes	Partners with AARP	No
Washington	No		No		No
West Virginia	No		(No)	Refer to Henshaw Geriatric Center (trying to make seniors more aware of their driving assessment protocol through ROADS Consortium)	No
Wyoming	No		No		No

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation