

# IMPROVING MOBILITY AND SAFETY FOR OLDER PERSONS

*Colloquium Held at the  
National Academy of Sciences*



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and  
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*The 18 million drivers over the age of 65 in the United States experience greater than average risk on the nation's roads. Older drivers are more likely than the average driver to be involved in a fatal crash, and, when involved in a fatal crash with a younger driver, are at least 2.5 times more likely to be the victim. As the population in the United States ages over the next three decades, the number of drivers over age 65 will more than double. By initiating action and research today, society will be better able to provide safer mobility for tomorrow's older citizens.*

*To address the transportation needs of older adults, the Transportation Research Board is conducting a study on Improving Mobility and Safety for Older Persons (see related article in TR News No. 120, September–October 1985). The study committee, led by Dr. James L. Malfetti of Columbia University, held a colloquium in October 1987 at the National Academy of Sciences in Washington, D.C. Noted researchers, who had been commissioned to prepare papers for the study, presented their findings and recommendations to the committee and an audience of invited guests. The colloquium fostered an in-depth discussion of the papers, which will be used by the committee in developing the recommendations for its final report. Highlights of the commissioned papers follow.*

## Importance of Mobility for Personal Well-Being

Dr. Frances M. Carp, a psychologist with the Wright Institute and a pioneer researcher on the transportation problems of older persons, provided a broad, conceptual description of the importance of mobility for the economic, psychological, and social well-being of older persons. Carp stressed that "mobility is extremely important to well-being." Mobility is an essential element in meeting such basic needs as medical care and in maintaining the quality of life by facilitating visiting with friends and family and attending religious services.

Dr. Sandra Rosenbloom, Professor of Planning, University of Texas at Austin, presented a paper reviewing the mobility needs of older persons and how those needs will be met in the future. "The elderly in need of assistance," Rosenbloom noted, "are remarkably resourceful at finding it. The elderly of the next century may be even more resourceful, and, at the same time, demanding." Because of the size and complexity of these demands, Rosenbloom urged policy makers and planners to recognize that transportation policies should "maximize the flexibility and control by the elderly themselves over their own travel patterns." She pointed out that older persons today rely heavily on the automobile to make most of their trips and will do so even more in the future.

## Relicensing and Retraining Older Drivers

In her review of current state practices for renewing licenses, Dr. Patricia Waller, Associate Director, Highway Safety Research Center, University of North Carolina, reported that "by and large driver licensing programs have been designed to qualify young begin-

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*James L. Malfetti is the chairman of the TRB committee for the Study on Improving Mobility and Safety for Older Persons and also served as chairman of the colloquium held at the National Academy of Sciences.*



*The colloquium afforded many opportunities for informal discussion. Chairman Malfetti discusses a presentation with David E. Martin, recently retired from his position as Director of Automotive Safety Engineering at General Motors Corporation.*



*Patricia F. Waller, Associate Director for Driver Studies with the University of North Carolina Highway Safety Center, presented a paper on license renewal for older persons. Rachael Shrauner (left) is a member of the TRB study committee.*



*Robert E. Dewar, professor of psychology at the University of Calgary, comments on paper by Douglas Mace, research scientist, ERIM Corporation, on improving sign legibility.*



ning drivers, and relatively little attention has been given to the special needs and capabilities of the elderly." Waller urged adoption of a number of reforms, among them an explicit policy of gradually increasing the restrictions on the licenses of older persons. She recommended that "because of the rapid increase in crash risk after age 75," reexamination for renewal of licenses of drivers over the age of 75 should be required "at least every 2 years."

Dr. A. James McKnight, President, Public Services Research, reviewed current programs for retraining older drivers. He pointed out that a number of training programs exist for older drivers and are offered by organizations such as the American Association of Retired Persons, the American Automobile Association, and the National Safety Council. Although these programs can improve driving performance, McKnight noted that "even where insurance discounts are available to drivers who complete the training, participation does not exceed 2 percent of the eligible population." McKnight outlined a number of ways to improve the programs and raise the participation rate of older persons by expanding awareness of the programs and increasing the insurance discount.

### **Enhancing Vision Screening**

Dr. Ian L. Baily and Dr. James E. Sheedy, School of Optometry, University of California at Berkeley, noted that "vision is the primary sensory input on which the driver depends." They reported that some visual decrements are associated with aging, among them changes in color vision, decreased light sensitivity, diminished visual acuity, glaucoma, and narrowing of the field of view. Most state licensing agencies, however, only screen for static acuity (the ability to discern fine detail). Bailey and Sheedy recommended that states adopt uniform standards and made some suggestions for such standards. They also recommended the development of vi-

sion tests that would better identify individuals with increased sensitivity to glare, a common visual problem of older persons.

Dr. Frank Scheiber, a psychologist at Oakland University, Rochester, Michigan, reviewed the state of the art in current vision screening technology. He pointed out that rapid developments in computers and video disk technology will soon make it possible for licensing bureaus to perform much more sophisticated assessments of visual abilities at a relatively low cost. And further developments in both hardware and software will bring down the cost of such screening. Automated vision screening, according to Scheiber, could take advantage of emerging visual tests, "which are sensitive to the frequent ocular pathologies of old age." He noted that "optimization screening in the elderly would not result in significant increases in the prohibition of driving privileges but instead would yield improved visual functioning with an accompanying increase in driving safety."

### **Improving Highway Design and Operation**

Intersections, because of their complexity, pose a special hazard for older drivers and pedestrians. Dr. Ezra Hauer, Professor of Civil Engineering, University of Toronto, noted that each year more than 500 pedestrians over the age of 65 are killed at intersections and more than 6,000 are injured. Nearly 1,000 drivers over the age of 65 are killed at intersections each year and more than 70,000 are injured. Recommendations to improve the safety of older persons using intersections, however, are hampered by a lack of knowledge about the consequences of alternate designs and alternate levels of traffic control. Hauer recommended a number of steps to improve the state of knowledge. "Professionals," he suggested, "should be provided with guidance to enable them to estimate the future safety performance of the street networks they design and approve."

Dr. John A. Deacon, Professor of Civil Engineering, University of Kentucky, suggested that the diminished visual skills of older drivers can be enhanced by better delineation. The Federal Highway Administration is currently conducting a large-scale research project on the effects of wider edge lines on traffic safety. Pending the outcome of that study, Deacon recommended that a definitive recommendation of the benefit to older drivers be delayed. However, he added, because of the low cost of this countermeasure, the benefit need not be large—a reduction of 1 percent of crashes would be sufficient—for wider edge lines to be cost-effective.

Many older drivers complain about their inability to read highway signs in time to make an appropriate maneuver. Dr. Douglas J. Mace, ERIM Corporation, reported that, because of decreased visual abilities and slower motor responses, older drivers need additional time to make appropriate responses; "therefore, they need to see signs sooner than younger drivers." Mace urged adoption of a number of improvements, among them providing bigger and brighter signs, multiple signing for advance warning, and improved sign placement and maintenance.

### **Improvements in Vehicle Design**

Because older occupants of vehicles are much more vulnerable to injury when crashes occur, they can benefit more than the average highway user from improved crash protection. Dr. G. Murray Mackay, Director, Accident Research Unit, Birmingham University, England, suggested improvements in safety belt and airbag design to protect older occupants and urged development of vehicle grills that are less hostile to pedestrians.

Dr. Rudolph G. Mortimer, Professor, Department of Health and Safety Studies, University of Illinois, noted that sensitivity to glare and loss of night vision are common among older drivers.

Current vehicle design could be altered to directly benefit the aging population. Discomfort glare from the headlamps of following vehicles could be reduced by improvement in day/night mirrors, for example. "Automatic headlamp alignment," he pointed out, coupled with "improved factory and service aim, would allow improvements in beam patterns to be made that control glare and increase illumination."

Safer vehicles for older drivers might appear on the market if older drivers had better information about vehicle

features that would enhance safety and convenience. Dr. David E. Kanouse, a researcher with the RAND Corporation, stated that "increased attention should be given to the need to develop good consumer-oriented printed materials on how older drivers should go about making automobile purchase decisions that take their special needs into account." The federal government and motor vehicle manufacturers could take more steps to develop and disseminate materials to aid decision making on vehicle purchases by older persons.

## Next Steps

The purpose of the 2-day colloquium was to assist the study committee in identifying the most specific and useful recommendations among those proposed in the paper presentations. The committee will be considering the recommendations and plans to issue a final report in June 1988. The committee's report and the papers presented at the colloquium will be published by the TRB and copies will be available at that time.

# "BEYOND THE GREEN BOOK"

TRB sponsors conference on updating AASHTO's  
*A Policy on Geometric Design of Streets and Highways*

Two Transportation Research Board committees—Operational Effects of Geometrics and Geometric Design—recently teamed to develop and conduct a Conference on Beyond the Green Book (AASHTO's *A Policy on Geometric Design for Streets and Highways*), held in Austin, Texas. The conference brought together state highway designers, consultants, and transportation researchers to focus on new tools, techniques, and guidelines to improve and supplement the Green Book's use in design practice. The proceedings of the two-day meeting, a combination of presentation and workshop sessions, will be presented in a conference summary and research problem statements to be published by TRB in 1988 in the *Transportation Research Circular* series.



R. Kenneth Shearin, Jr. (left), Roy Jorgensen Associates, Inc., who organized the workshop sessions, confers with conference chairman Ronald C. Pfefer, Traffic Institute, Northwestern University, at the start of the TRB Conference on Beyond the Green Book.



John C. Glennon, consultant, chairman of the TRB Committee on Geometric Design (left), participates in workshop discussion with D. Westland of the Delft University of Technology, The Netherlands.

Three participants in a conference workshop session (from left): Joel P. Leisch, Jack E. Leisch & Associates; Jerome W. Hall, University of New Mexico (chairman of the TRB Committee on Operational Effects of Geometrics); and James J. Shuster, Villanova University.

