

Preparing Terminal Facilities for Today's Aging Population
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With the aging of Americans, older adults will become a lucrative market niche for airports. Between 2001 and 2025 the number of air trips taken by older adults will more than double to 30 million. However, if we adapt airport terminals to facilitate use by older adults, there is a potential to accommodate as many as 60 million air trips. Why should airports care about making such adaptations? Because by 2025, older adults will offer airports an additional \$600 million in revenue annually.

Typically, efforts to facilitate air travel for older adults focus on people with disabilities through such accommodations as wheelchair ramps and boarding assistance. But another vital component is accommodating older adults with less severe age-related limitations. Long walking distances, prolonged waiting and difficulties in way finding are particularly onerous to the older adult passenger and airports need to be adapted to address these difficulties.

The attached Table 1 identifies the changes that a healthy person experiences as he or she ages and the implications of those changes on terminal design. Table 2, identifies potential terminal enhancements for older adults.

It is time for the aviation community and airports in particular to become more fully engaged in the provision of air transportation to older adults. Current research efforts on elderly mobility typically focus upon intraurban mobility. But the desire of independent minded baby boomers for intercity travel make adaptations to airports particularly important.

We need to broaden the extensive efforts to enhance elderly mobility to include air transportation. This can be done if airports, air transportation providers and government officials support and participate in: research projects at universities; initiatives to enhance mobility; and the development of senior friendly airport design standards.

In the next year, I recommend that a multi disciplinary team of experts -- airport and airline personnel, architects, planners, government officials, and geriatric specialists -- meet in a workshop setting to study all aspects of terminal design and function in relation to the travel needs of older adults. For additional questions, please contact me at hwolfe@mag.maricopa.gov. or consult my website at <http://www.harrypwolfe.com> under the heading "Airports and Air Travel for Seniors."

Table 1

Summary of Changes that Accompany Aging, Impacts on Human Functioning and Implications For Airport Design

Description of Change	Impacts of Change on Human Functioning	Implications of Change on Terminal Design
Decrease in size of eye's pupil and coloration of lens	A person of 60 requires triple the illumination to see as a 20 year old; it becomes more difficult to distinguish certain colors and color combinations	Color hue, lightness and saturation for signage and maps are important to way finding. Terminal lighting needs enhancements.
Changes in bones in the ear results in greater difficulty in transmitting sound	About 30 percent of seniors may have some hearing loss	Use both audible and text announcements and improve terminal acoustics
Impairment of shoulder joint because of arthritis, occupational trauma and disuse	Reduced range of motion (ROM), lessens grip strength and endurance.	Hauling baggage through terminals and retrieving baggage can be difficult.
Decline in hand functioning from arthritis, neurological impairment, vascular disease and trauma	Reduction in grasp and pinch function	Difficult to use vending machines, haul baggage, and retrieve items for security.
Impairments to gait and balance due to changes in neuromuscular systems	Makes seniors more likely to be susceptible to falls	Moving sidewalks, stairs and escalators pose hazards to seniors.
Loss of brain cells impairs cognitive skills	Takes longer to process information; heightens anxiety associated with the unknown	Terminal signage and "you are here" maps need to be as simple and easy to interpret as possible.
Changes in Cardio-vascular system such as deterioration of heart muscle and hardening of arteries results in reduced blood flow to body	Reduced stamina	Makes it more difficult to traverse long distances or to stand for a prolonged period of time.
Reduction in efficiency of respiratory system	Reduced stamina with shortness of breath and fatigue; lack of oxygen can increase anxiety	Makes standing and walking more difficult and makes way finding more anxiety provoking
Change in personality results in increased introspection and greater cautiousness	Unwillingness to venture out and take risks	Makes seniors more sensitive to the complexities of using airport terminals and deters travel

Sources: Mayo Clinic, Rochester Minnesota,¹⁸ Dr. Andrew Scharlach and Ms. Barrie Robinson, University of California Berkeley¹⁹ Excerpted from "Accommodating Aging Population Needs in Airport Terminals" by Harry P. Wolfe, Volpe Transportation Center, July 2003.

Table 2
Summary of Enhancements to Airport Terminals by Function

Function	Enhancement to the Terminal
Instructions and Way finding	Orient “You Are Here” Maps with the axis of the environment, select proper color combinations; use text on the map of sufficient size and make maps as simple as possible.
Arrival and Check-In	Use shuttle buses that have entryways at curb level or provide a platform to assist in boarding the bus; add more seating to people movers – about 20 - 25 percent of capacity; add maps and way finding aids within terminal parking garages and parking lots; provide seating curbside and/or immediately inside the terminal for seniors who use curbside check-in; provide seating near ticket counter;
Using Vending Machines	Work with manufacturers to consider design features that will standardize boarding pass machines and make them easier to use for seniors, such as the sensitivity of the screen or keyboard to touch; work with manufacturers of other vending machines to consider design features that will address issues such as size of the coin slot, ease of extracting product from the vending machine, and the size of the labels or text designating product choices.
Traveling to the Gate	Paint perimeter to steps; use audible announcements at the moving walkways entry and exit points; select electric carts that are easy to board and exit; add benches in concourses as resting points where necessary.
Passing Through Security	Provide seats adjacent to security; add larger tables for manipulating personal belongings; provide lifts to facilitate hoisting baggage on security screening conveyor belts or redesign the conveyor belts to enable the baggage to enter the device closer to floor level; place a railing near the entry to the passenger screening device.
Waiting and Embarking	Provide seats adjacent to and in full view of the gate area; provide clear instructions for boarding the aircraft; add text messaging to complement audible messages; increase lighting in the boarding bridge.
Arrival at Destination Airport	Add more and improved signs providing direction to baggage claim or ground transportation; add volunteers at gates or use airline personnel to provide directional guidance; consider location of off-airport rental car facilities in locations that will make it easier to access the roadway network.
Baggage Handling	Add seats in the baggage claim area; provide a method for moving baggage from the conveyor belt to the ground to facilitate baggage retrieval.
Exiting the Terminal	Mark path to exit door and place numbers on the inside and outside of doors; make maximum reliance of symbols on signs; provide seating near each doorway.

Source: Wolfe, Harry P. “Accommodating Aging Population Needs in Airport Terminals,” Volpe Transportation Center, July 2003.