

# Pedestrian Safety in Maryland

## Recommendations for Transportation Planners and Engineers

Maryland Bicycle and Pedestrian Advisory Committee  
Safety and Education Subcommittee

Pedestrians are legitimate users of the street network, and they should therefore be able to use the network safely and without unreasonable delay. With the exception of expressways and high-speed freeways, pedestrians have a right to walk along and to cross streets safely and, therefore, planners and engineers have a professional responsibility to plan, design, and install safe walking and crossing facilities. The first goal of the Maryland Department of Transportation's 20-Year Bicycle and Pedestrian Access Master Plan calls for the integration of pedestrian facilities into routine development policy. Pedestrians should be included as "design users" for all streets.

Pedestrian safety in Maryland is a pressing issue. Each year in Maryland, more than 100 pedestrians are killed and nearly 3,000 are injured. This accounts for 17 % of total traffic fatalities in the State and places Maryland 13<sup>th</sup> for pedestrian fatalities in the U.S. (per population). Children and the elderly are disproportionately impacted by pedestrian-vehicle crashes. Nearly 30 % of pedestrian-vehicle collisions involve children less than 16 years of age, yet this group makes up only 21% of the population. Further, while only 6 % of pedestrian crashes involve the elderly, they account for 16 % of all fatal pedestrian crashes.

A pedestrian safety objective of the Maryland State Highway Administration is to reduce the annual number of pedestrian fatalities on all roads in Maryland from 99 in 2001 to fewer than 90 by December 31, 2006 and to reduce the annual number of pedestrians injured on all roads in the State from 2,700 in 2001 to fewer than 2,400 by December 31, 2006.

Physical inactivity contributes to the risk and severity of numerous chronic diseases that can be reduced through regular lifestyle activity. Enhanced pedestrian safety can improve the quality of life by reducing barriers to walking as a mode of transportation and recreation.

It is a public responsibility to provide a safe, secure, and comfortable transportation system for all people who walk. Research in pedestrian safety has found the following planning, design and engineering measures useful for improving the safety of pedestrians:

1. Enhance pedestrian safety and mobility with sidewalks and walkways. This is a critical component of a pedestrian transportation network in urban and suburban areas. Rural roads should have shoulders for pedestrian travel. The permitting process for new construction and reconstruction of roadways should require that safe pedestrian access be included in plans as a condition for obtaining a permit.
2. Create substantial improvements at uncontrolled crosswalks (i.e., where there is no stop sign or traffic signal for the approach roadway) on multi-lane roads with traffic volumes above 12,000 vehicles per day. Consider adding traffic signals with pedestrian signals, providing raised median refuge islands, and/or initiating speed-reducing measures.
3. Provide raised median islands on multi-lane roads to provide a point of refuge and reduce pedestrian crash risk. Two-way left turn lanes and undivided highways present the highest crash risk for pedestrians.

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4. Provide nighttime lighting to enhance pedestrian safety in certain situations.
5. Apply countermeasures that are effective in reducing identified pedestrian risks related to right-turn-on-red (RTOR), such as the use of no-turn-on-red (NTOR) signs, illuminated, if necessary.
6. Consider inclusion of innovative pedestrian and motorist warning signs and signals to reduce vehicle speeds or conflicts between pedestrians and motorists, such as countdown pedestrian signal heads, standard and fluorescent yellow-green pedestrian warning signs, YIELD TO PEDESTRIANS WHEN TURNING signs, PEDESTRIANS WATCH FOR TURNING VEHICLES signs. Use appropriate walking speeds in timing pedestrian signals.
7. Install textured tactile pavements, pedestrian signals with audible and vibrating detectors, larger signs and pedestrian signals, and wheelchair ramps to address the needs of pedestrians with disabilities.
8. Ensure that sidewalk access is not blocked by street furniture (e.g., utility poles, benches, utility boxes), encroaching vegetation, damaged pavement or the lack of suitable wheelchair ramps.
9. Consider placing bus stops on the far side of an intersection and at locations with good sight distance and alignment (e.g., not on steep grades or on horizontal curves).
10. Carefully plan and design pedestrian overpasses and underpasses to encourage pedestrians to use the facilities and not continue to cross at street level. This will substantially improve safety for pedestrians needing to cross freeways or busy arterial streets at certain locations.
11. Convert two-way streets to one-way streets to greatly simplify the task of crossing a street, particularly if the one-way street conversion does not result in increased vehicle speeds.
12. Implement traffic-calming measures for neighborhood streets to reduce aberrant vehicle speeds and/or reduce cut-through vehicle traffic. Street closures, speed humps, chicanes, curbs extensions, diverters, and other measures are in use in various U.S. cities and have been found to be effective in improving safety for pedestrians and/or traffic as a whole based on reductions in crashes, vehicle speeds, and/or reductions in cut-through traffic on neighborhood streets.
13. Provide suitable alternative pedestrian access for persons with disabilities when existing pedestrian access is closed due to construction or maintenance activities.
14. Use channelizing devices such as median landscaping or appropriate fencing as well as signs, and/or curb markings to encourage crosswalk use by pedestrians.
15. Reduce the incidence of blocked pedestrian access to sidewalks during inclement weather (e.g. avoid placing the snow from roadways onto sidewalks during highway snow removal).

For further information on planning and engineering techniques to improve pedestrian safety, see:

*A Review of Pedestrian Safety Research in the U.S. and Abroad*, FHWA-RD-042, January 2004.

*Manual of Uniform Traffic Control Devices for Streets and Highways*, Federal Highway Administration, US DOT, 2003 Edition.

*The Traffic Safety Toolbox: A Primer on Traffic Safety*, Institute of Transportation Engineers, 1999.