

Quiet Vehicles and Pedestrian and Bicyclist Safety

Background

In 1998, the California Air Resources Board (CARB) mandated requirements for auto manufacturers to produce limited numbers of “zero emission vehicles” (ZEV) for public use. Manufacturers created vehicles to meet those demands with the goal of zero tailpipe emissions. One consequence of adapting this technology is that these vehicles typically operate more quietly than their conventional internal combustion engine (ICE) propelled counterparts. Electrically Propelled Vehicles (EPV) are often referred to as quiet vehicles.

EPVs may have many benefits, including: fuel cost savings, driver performance, and environmental concerns for air quality and energy conservation. However, there is a downside. The low noise operation of these vehicles, at low speeds, has led to safety concerns for those who

depend on sound for the detection, identification, and location of moving vehicles. While audible detection of EPVs operating at higher speeds (30 mph and up) is not a problem, advocates of the visually impaired contend that visually impaired pedestrians are at increased risk of conflict with these quiet vehicles during low-speed operation. As a result, they have called for action on the part of automakers and the regulatory community.



Quiet Vehicles

The term “quiet vehicle” can be used to describe any automotive vehicle that can operate at a lower noise level than typically associated with normal internal combustion engine-powered vehicles. Travel modes include EPVs and human-powered vehicles, such as bicycles, scooters, and Segways®.

A Presidential Response

In response to the concerns, President Obama signed the Pedestrian Safety Enhancement Act of 2010 (PSEA) into law on January 4, 2011. This law directed the U.S. Department of Transportation to address the issue of increased risk to pedestrians posed by quiet vehicles through the National Highway Traffic Safety Administration (NHTSA) and the Federal Motor Vehicle Safety Standards by July 4, 2015.

NSTSCE

National Surface Transportation
Safety Center for Excellence

NSTSCE Study: An Assessment of Quiet Vehicles and Pedestrians and Bicyclist Safety

Did You Know?

The American Council for the Blind and the National Federation of the Blind represent 1.3 million visually impaired people in the United States.

The *Assessment of Quiet Vehicles and Pedestrian and Bicyclist Safety* study focused on providing a comprehensive and concise overview of the apparent safety issues presented to pedestrians and bicyclists by the operation of quiet vehicles on roadways. The project's final report describes implemented and proposed countermeasure methods in addition to opportunities for future potential research to address knowledge gaps and improve overall understanding of the issues.

Although advocates of the visually impaired have adamantly requested that EPVs be equipped with audible alert systems, researchers suggested that pedestrian conflicts with quiet vehicles such as bicycles are common and perhaps an even greater threat than that presented by EPVs. Electric motorcycles, electrically assisted bicycles, and personal mobility devices such as the Segway® run almost silently and at high enough speeds to be a significant threat to unwary pedestrians. Even transit buses, quieter now and equipped with rear-mounted engines and vertical exhaust pipes 40 ft. from the front of the vehicle, present a threat to pedestrians, an issue publicized by the U.S. Federal Transit Administration in recent calls for research. The combination of greater numbers and types of quiet vehicles, along with elevated levels of distraction by both drivers and pedestrians—and increased traffic density and ambient noise levels—will almost certainly lead to more frequent mutual conflicts with associated damages, injuries, and, potentially, fatalities. A better understanding of the overall threat of all types of quiet vehicles to pedestrians and cyclists is needed.

Final Report: Alden, A. S. (2014, June 13). *An Assessment of Quiet Vehicles and Pedestrian and Bicyclist Safety*. Retrieved from <http://vtechworks.lib.vt.edu/handle/10919/49686>



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