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Impacts of low-speed vehicles on transportation infrastructure and safety

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Abstract

There are increasing numbers of low-speed electric vehicles (LSV) on public roadways. These vehicles are designed to be used within protected environments and on roadways with a maximum posted speed of 25 mph. Currently these vehicles are not subject to the same federal requirements for occupant protection as passenger cars. The research reported in the paper investigated safety standards, operating regulations, and LSV manufacturer materials from sources around the world. The purpose of the research was to determine positive and negative impacts that LSV, including Neighborhood Electric Vehicles (NEVs) and Medium Speed Electric Vehicles (MSEVs), are likely to have for the states such as Oregon, and whether adjustments in state regulations are needed to ensure that LSV do not negatively impact road safety and traffic operations, or expose the LSV operators to undue risk. The U.S. and Canadian federal motor vehicle safety agencies have harmonized their regulations and stipulated the maximum operating speed of these vehicles, however state and local roadway authorities have regulated the maximum speed of roadways and intersection characteristics on which these vehicles can operate. The significant recommendations of this research are: (i) appropriate state statues for LSV should be amended such that LSV are limited to public roadways with a maximum operating speed of 25 mph, and they are restricted to crossing higher speed roadways at four-way Stop or signal controlled intersections, (ii) local transportation authorities should develop parallel or secondary low-speed roadway networks that connect residential neighborhoods with major activity centers.

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