Potential Freeway Capacity Effects of Advanced Vehicle Control Systems
by Steven E. Shladover, Univ of California at Berkeley, Richmond, United States,

Document Type: Proceeding Paper

Part of: Applications of Advanced Technologies in Transportation Engineering

Abstract:
Intelligent Vehicle/Highway Systems (IVHS) are intended to improve the productivity (capacity) and safety of the road transportation system. The PATH program has placed a stronger emphasis on the Advanced Vehicle Control Systems (AVCS) aspect of IVHS than other current programs have, based on the potential that AVCS appear to offer for very significant improvements in capacity and safety. This paper explains how that potential for improvement has been estimated, and illustrates with some sample estimates of the lane capacity that could be achieved by operating vehicles in fully automated platoons. AVCS was subdivided into three evolutionary stages of development. AVCS I systems will provide driver warning and assistance, to help drivers avoid potential accident situations, while the drivers retain control of their vehicles. AVCS II systems will provide for full automation of vehicle steering and engine and breaking functions when the vehicles are operated on special restricted-access links in the highway network, while AVCS III will extend the AVCS II type of automation to complete networks, with automatic routing and scheduling of trips in the automated network.

Subject Headings: Control systems | Intelligent transportation systems | Highways and roads | Vehicles | Automated transit systems | System analysis | Traffic safety | Traffic capacity

Services: Buy this book/Buy this article

Return to search

Copyright © 1996 - 2019, American Society of Civil Engineers

Contact Us | Terms | Help | Privacy

A controlled-access highway is a type of highway which has been designed for high-speed vehicular traffic, with all traffic flow ingress- and egress-regulated. Common English terms are freeway (in Australia, South Africa, United States and Canada), motorway (in the United Kingdom, Pakistan, Ireland, New Zealand and parts of Australia) and expressway (parts of Canada, parts of the United States, and many Asian countries). Other similar terms include Interstate and parkway. Some of these may be limited 15 Subsystems of ITS Advanced Vehicle Control Systems A set of technologies designed to enhance driver control and vehicle safety. This ranges up to Automated Highway Systems (AHS), where the driver cedes all control to the system. Commercial Vehicle Operations Technologies to enhance commercial fleet productivity, including weigh-in-motion (WIM), pre-clearance procedures, electronic log books, interstate coordination. 4-Jan-09. Advanced Rural Transportation Systems Mostly safety and security technologies for travel in rural areas. Economic effects of autonomous vehicles. When autonomous driving becomes a reality, what effects will it have on our economy and society? Autonomous driving systems will free drivers from the task of driving, and eventually many driver jobs will be eliminated when such systems become a reality[6] This will enable trucking companies to transport larger quantities of freight at lower costs, resulting in an increase in economic benefits. Strategic Headquarters for the Advanced Information and Telecommunications Network Society (2017), “Public-Private ITS Initiative/Roadmap 2017: Toward the implementation of various highly automated driving systems in society”, Strategic Conference for the Advancement of Utilizing Public and Private Sector Data, 30 May.