

The Dream of an Automated Highway

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The General Motors Futurama exhibit at the 1939 World's Fair in New York featured a vision of technologically advanced superhighways where cars would navigate curves at speeds up to 80 kilometers (50 miles) per hour using "automatic radio control" to maintain safe distances. Cities would have elevated walkways where pedestrians could travel safely without being endangered by the vehicle traffic beneath them. Hundreds of thousands of visitors were mesmerized by this dream of new cities with gleaming skyscrapers, spectacular highways, and the promise of greater mobility. Sound unbelievable? This vision in the late 1930s pictured the transportation system as it would be in 1960, only 21 years into the future!

The Futurama exhibit was such a huge hit that General Motors hosted Futurama II at the next New York World's Fair in 1964. In the "near future," according to Futurama II, the "City of Tomorrow" would eliminate all traffic problems by building urban living centers above advanced freeways, where computer-guided vehicles would travel swiftly, safely, and efficiently. Moving walkways would carry pedestrians quickly and safely to shopping areas and other attractions. To make this vision a reality, a five-story-tall, atomic-powered road-building machine would construct 1.61 kilometers (1 mile) of

elevated, four-lane freeway every hour, 24 hours a day. Without regard for environmental concerns, a 30.5-meter (100-foot)-long laser tree cutter preceded the road builder, spraying the cleared areas with chemicals to retard future growth. Dazzling cities sprang up out of the jungle on either of side of the giant road-building machine.

More recently, the Intermodal Surface Transportation Efficiency Act of 1991 authorized the U.S. Department of Transportation's (USDOT) Automated Highway System (AHS) program to "develop an automated highway and vehicle prototype from which future fully automated intelligent vehicle-highway systems can be developed" to demonstrate the vision and technology needed to make highway driving more efficient, safe, and predictable.

The AHS program spearheaded formation of the National Automated Highway System Consortium (NAHSC) to carry out this vision. The NAHSC included such transportation stakeholders as automobile manufacturers, infrastructure builders, and State and local transportation agencies, and was assisted by top-level academic transportation centers and engineering, communications, and aerospace firms. The work of the NAHSC culminated in August 1997 with an AHS proof-of-concept demonstration on I-15 in San Diego, CA, where more than 20 fully automated vehicles operated flawlessly for 4 days on two protected lanes (normally the HOV lanes) that had been blocked off from other traffic. The demonstration provided participants with a "hands-off, feet-off" driving experience and gave the public a tantalizing taste of the future.

Although the AHS program ended with the 1997 demonstration, automated highway concepts continue to emerge from various sources. For example, some futurists have suggested that placing cars on trains could offer significantly greater efficiency and have proposed innovative mechanical methods to facilitate critical intermodal transfers. Others have proposed underground automated highways, which would involve digging connector tubes between major urban areas or within the metropolitan areas themselves.

Proponents of the automated highway envision that the concept could solve transportation problems within a 2030 to 2060 timeframe. Others disagree. Some transportation experts consider the concept to face considerable challenges and believe that it is unlikely to be technically, commercially, or environmentally viable, even in the distant future.