Executive Summary

The National Automated Highway System Research Program was begun in 1992 in response to a legislative mandate for the development of an automated highway system prototype and test track by 1997. To assist it in carrying out this mandate, the U.S. Department of Transportation (DOT) created the National Automated Highway System Consortium (NAHSC) in 1994, enlisting the participation of nine leading organizations from academe and the motor vehicle, highway, electronics, and communications industries. Envisioning a fully automated, "hands-off, feet-off" system that would greatly enhance highway safety and capacity, DOT charged NAHSC with staging a public demonstration of automation concepts and technologies within 3 years. The demonstration, held in San Diego, California, in August 1997, fulfilled this mandate. DOT also charged NAHSC with specifying a preferred automated highway system for future development and deployment. This goal was to be accomplished within 7 years.

Three years into the program, DOT asked the Transportation Research Board to convene an independent study committee to review the overall vision and mission of the National Automated Highway System Research Program, as well as the findings, performance, and future role of NAHSC. During the course of the committee's 7½-month assessment, DOT withdrew financial support from NAHSC. This decision apparently was driven by a desire on the part of the DOT to shift its priorities to encouraging adoption of nearer-term, safety-oriented technologies; it was hastened by a shortfall in research funds caused when the Intermodal Surface Transportation Efficiency Act expired in late 1997 and was extended temporarily by Congress. After critically examining the vision, mission, and approach of the National Automated Highway System Research Program in general, the study committee concurs with this decision.

Although Chapter 1 of this report contains a full explanation, the study committee's reasoning can be reduced to three fundamental issues:

- The task given to NAHSC of developing, evaluating, and selecting a preferred specification for a fully automated highway system in only 7 years was unlikely to be achieved because daunting technical, social, and institutional issues must be addressed and resolved.
- NAHSC was given dual, but conflicting, responsibilities: to promote a shared vision of automated highways and to objectively evaluate the prospects of addressing and overcoming the many complicated challenges arising in attempting to realize this vision.
- The consensus-based management and decision-making structure of NAHSC (as required by DOT) made it very difficult for the consortium to respond to changing government funding levels and priorities—as well as the results of some of its own research indicating the need for changes in program direction.

Despite its conclusion that the National Automated Highway System Research Program should not be continued, the study committee believes that the creation of NAHSC was a bold and innovative attempt to meet the nation's long-term highway capacity and safety needs. These needs are genuine and growing and will only worsen if neglected. Technology will be important to meeting these needs, and government-industry consortia offer a promising approach to bringing together the many public and private entities that must cooperate to integrate vehicular, computer, telecommunications, and other necessary technologies.

As DOT shapes future research and development initiatives on intelligent transportation systems, the committee urges it to

- Continue to explore opportunities for vehicle-to-vehicle and vehicle-to-infrastructure cooperation as part of long-range research aimed at meeting future transportation safety and capacity needs;
- Ensure that human factors considerations are thoroughly integrated into program plans and are prominent at all stages of research, development, and deployment;
- Independently evaluate the technical work of NAHSC and ensure that its findings are well documented for the benefit of future research and development efforts in this field;
- Continue to pursue public- and private-sector partnerships, while learning best practices and alternative organizational approaches from other collaborative activities; and
- Seek external, independent reviews of the mission, objectives, and progress of all major research and development initiatives.

Each of these recommendations is discussed at the conclusion of Chapter 1.