In Pursuit of Speed
Findings and Recommendations

High-speed rail systems are being proposed and evaluated in several U.S. corridors.

At the request of the U.S. Department of Transportation (DOT) the Transportation Research Board convened a committee of 19 experts to assess the applicability of high-speed ground transportation (HSGT) technologies to meet the demand for passenger transportation service in high-density travel markets and corridors in the United States. The results of the assessment were published in 1991 as *Special Report 233—In Pursuit of Speed: New Options for Intercity Passenger Transport.* The findings and recommendations of the committee are summarized here.

Findings

Technology and Its Availability

- Surface transportation technologies are available now that can operate safely at speeds up to 200 miles per hour.
- Surface transportation systems are being developed that are likely to achieve top operating speeds well in excess of 200 miles per hour.
- Regardless of the transportation technology, higher speeds cost more yet they yield diminishing returns in travel time reductions.

Costs, Ridership, and Revenue Potential

- The capital costs of new HSGT systems are dominated by the cost of construction of the track or guideway; the cost of the vehicles is a considerably smaller part of the total.
- In certain corridors, speed can be increased and rail service improved without constructing new HSGT systems. Investments in new rail equipment and selective alignment improvements cost less than construction of completely new systems.
- Ridership is the critical factor in determining the feasibility of an HSGT system, regardless of whether it is to be a private or public enterprise.
- The primary potential travel market for HSGT systems in the United States consists of intercity trips in the range of approximately 150 to 500 miles. Between major cities separated by distances within this range, HSGT would compete principally with air travel for ridership.
- It is unlikely that any new HSGT system in a major U.S. corridor would cover its capital and operating costs from fare box revenues.

Rationale for Public Investment

Users would benefit most directly from a new HSGT system, and the benefits would be reflected by the fares they pay. In addition, HSGT systems might generate addi-

tional user and nonuser benefits that are not accounted for by fare box revenues; these benefits could justify public support.

Institutional Arrangements and Safety Considerations

- Neither a categorical nor an intermodal fund currently exists at the national level or in most states to fund HSGT implementation.
- European and Japanese high-speed rail (HSR) systems have achieved superb operating and safety records. However, these systems do not meet current U.S. standards for rail passenger equipment. Changes in either the equipment or the regulations would be critical to any U.S. adoption of foreign HSR systems and domestic or foreign magnetic levitation (maglev) systems.

Potential for Developing New HSGT Technology

- For early implementation of an HSGT system in the United States, the technology must be imported because it is currently available only from foreign suppliers.
- Additional research and development is needed to determine the extent of maglev's potential to provide HSGT service.

Recommendations

Deployment and Funding of HSGT Systems

- The U.S. DOT and the states should develop the capacity to evaluate HSGT systems in the context of alternative intercity travel mode investments and ultimately to make funding decisions (or resource allocations) that reflect the most cost-effective investment opportunities, regardless of mode.
- If public subsidy for an HSGT system is justified in part on the basis of highway and airport congestion relief, the subsidy could include contributions from the national airport and airways or highway trust funds, as applicable.
- The U.S. and state DOTs should consider preserving and acquiring rights-of-way suitable for HSGT systems in the more promising corridors.
- In addressing intercity travel needs, states, special authorities, and the U.S. DOT should consider not only applications of new HSR or maglev systems but also incremental speed improvements to existing intercity rail services.

Federal Regulations Affecting HSGT Implementation

- Through a process already under way, the U.S. DOT, acting through the Federal Railroad Administration, should reevaluate, revise, or develop regulations, design criteria, and safety and operational standards to facilitate U.S. applications of new HSR and maglev technologies.
- The U.S. DOT should create, or cause to be created, a clearinghouse to facilitate environmental permitting in order to coordinate and streamline the approval process for proposed HSGT systems.

Research and Development

Maglev transportation systems are less developed than HSR systems, but they appear to offer the potential for higher operating speeds and technological breakthroughs that could lead to lower costs. However, realizing such potential requires substantial additional research and development. The federal government should carefully review the results of the National Maglev Initiative and conduct additional research into the potential market for maglev in the United States and abroad before proceeding to the next phase of development.

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