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Mr. Chairman, distinguished members of the Committee, it is my privilege to appear before this Subcommittee to testify on behalf of the Department of Transportation on one of the most interesting developments in transportation in recent years -- magnetically levitated high speed ground transportation or Maglev.

America's surface transportation speed is slowing down drastically. Congestion on our highways and at our airports is constraining intercity mobility to the point that economic growth may soon be adversely affected. Present conditions bode even more serious consequences for the future. Maglev, with very safe operating speeds in excess of 300 mph, offers the potential to dramatically improve surface transportation mobility using a technology that is energy-efficient and environmentally sound.

Initial maglev systems would likely develop on a regional basis with distances up to 600 miles, absorbing excess highway and airline demand. High speed maglev systems, connecting regional airports as well as city centers, could provide an attractive alternative to short distance airline travel and could prove effective in relieving airport congestion. Regional maglev systems could ultimately expand to form a nationwide system.

There are basically two types of maglev systems being tested today. One works on the magnetic attraction principle where the vehicle underframe, which wraps around the guideway, is drawn up to within three-eights of an inch of the bottom surface of the guideway. The German Transrapid system, now nearing the end of its prototype testing, is an example of the attraction technology. The other, the Japanese Railways' prototype, works on the magnetic repulsion principle, pushing the vehicle 4-6 inches above the guideway. During the Department's period of active maglev research and development (R&D), Germany, Japan and other countries now involved in maglev research shared the products of our individual efforts. We can see the embodiment of much of America's and DOT's own R&D developments in both the German and Japanese prototypes.

Although both the German and Japanese systems are in the full scale prototype testing stage, no high speed maglev system is presently in revenue service. The Germans have approved construction of a revenue service line to connect the Bonn/Cologne and Dusseldorf airports, a distance of approximately 50 miles. The Japanese, however, have decided to undertake further prototype testing and are considering the construction of a prototype test track in the suburbs of Tokyo.

Recently, I had the opportunity to visit Emsland, West Germany, to ride the prototype Transrapid Maglev and meet with its designers. Mr. Chairman, I understand you also recently had the opportunity to ride the German Transrapid system. Next week Secretary Skinner will be traveling to Europe and will also be riding this system. I have also had the opportunity to meet with State and local officials, and private investors who want to develop maglev systems in the U.S. DOT staff have also reviewed the Japanese prototype. We have come away from those meetings believing that maglev technology has the potential to play an important role in the Nation's transportation system in this decade and throughout the 21st century.

Both the Germans and Japanese have made impressive advances in developing this technology, but I believe that there is a potential for a U.S. designed, advanced maglev system that could become the system of choice for future high speed ground transportation systems. The task before us now is to determine the appropriate role of the Federal Government in this development.

I will begin my testimony by describing the Department's role in maglev development, what we have done, what we are doing, and what we believe should be done in the future.

PAST DOT EFFORTS IN THE DEVELOPMENT OF MAGLEV

The Department's earliest involvement with maglev dates from the High Speed Ground Transportation Act. Under that Act, we funded a wide range of research into all forms of high speed ground transportation. The Department rapidly became a world leader in maglev research and along with the National Science Foundation sponsored research which produced scale model demonstrations of the maglev concept. Research by the Department lead to the development of the linear motor, the motive power used by all current maglev prototypes. In 1974, a prototype linear induction motor research vehicle set a world speed record of 255.4 m.p.h. at the Department's Test Center in Pueblo, Colorado.

In recent years, the Department has funded feasibility studies by States considering high speed ground transportation systems and has been the catalyst for many efforts to define the potential for such systems, providing both seed money and technical assistance. Prominent among these are advanced projects proposed for Florida, Texas, Ohio, California/Nevada and Pennsylvania.

Finally, enactment of the Rail Safety Improvement Act of 1988 [45 U.S.C. 431(a)], specifically made the Federal Railroad Administration (FRA) responsible for establishing and enforcing maglev safety standards.

THE CURRENT STATUS OF MAGLEV IN THE U.S.

A number of States have investigated the feasibility of high speed maglev systems, and some have concluded that private maglev systems are feasible. The Florida High Speed Rail Transportation Commission is in the second phase in its process for awarding a franchise to build and operate a maglev line between Orlando Airport and the nearby theme park area, approximately 14 miles away. This line, which could begin construction as early as next year, would employ the German technology and be financed by Japanese banks. Public and private interests in Pittsburgh recently announced plans for a detailed feasibility study of a 27 mile link between the city's downtown and its airport using Transrapid Maglev and for developing maglev manufacturing activity in the Pittsburgh area. The Transrapid Maglev is likely

to be a serious contender as the high speed ground transportation system to connect Las Vegas with the Los Angeles region.

CURRENT DOT MAGLEV-RELATED ACTIVITIES

As the agency responsible for the safety of maglev systems, the Department has initiated a major research and testing effort to ensure the safety of U.S. maglev systems. Research on the Transrapid system, the system proposed for the Florida project, is underway and is being accelerated to ensure that unresolved concerns with safety do not slow implementation. This work will evaluate the adequacy of the existing German safety standards covering this maglev system, the compliance of the system with these standards, and the need for additional standards for operation in the U.S.

FRA's initial safety research focuses on Transrapid and attractive maglev technology because it has been formally proposed for implementation in the U.S., but we also intend to cover repulsive levitation technology as represented by the Japanese design. Our first priority in these efforts is safety, and we are working with the developers of the systems to ensure that FRA safety standards and regulations are clear and timely so that they may be considered in future system design. We want safety built into the systems, not added later, as is the case with some projects.

The Department is also assisting the Florida officials and developers in exploring the environmental issues related to the proposed Florida Maglev project, and will serve as the lead agency for preparation of any Federally required environmental documentation.

The Department is exploring the use of existing transportation rights-of-way, such as the Interstate Highway System and freight rail lines. Preliminary assessments by the Federal Highway Administration have indicated that the location of maglev systems in Interstate Highway median strips may be technically feasible in certain corridors where not otherwise constrained by horizontal curvature limitations. We are continuing to explore this issue and will work with interested parties to develop mechanisms to expedite the requisite approvals where highway segments can be used in a project.

At the direction of the Congress' Appropriations Committees, FRA is studying the feasibility of commercial maglev in the U.S. That study will be completed in June 1990, and will provide an initial insight into maglev's market potential, the economic and technical feasibility of commercial maglev systems, and legislative and other institutional changes that would facilitate the development of U.S. designed and manufactured maglev systems.

Although the study is still in progress, it is clear that both current maglev systems are still in the formative stage with some bugs to be worked out, including the rather substantial capital costs. This is a natural stage for any new technology, and it offers us the opportunity to improve on the existing technology and develop the second generation of maglev in this country that would become the system of choice in the 21st century.

FUTURE DOT MAGLEV ACTIVITIES

As you are no doubt aware, the President's budget request for Fiscal Year 1991 includes a request for approximately $10 million to explore the possibility of stepped-up U.S. efforts in maglev. Building on previous R&D and results of the current feasibility study, that program is designed to determine the appropriate role for maglev in the U.S. transportation system, the economic feasibility, the appropriate safety and operating standards, and the remaining technologies that must be developed to achieve an efficient, economically sound and environmentally acceptable U.S. system. The goal of the program is to facilitate private development of an operational maglev system in the U.S. based on a domestically designed and manufactured technology.

To avoid possible duplication of efforts, Federal agencies with interests in maglev have established a mechanism to coordinate their efforts. The Federal Maglev Executive Committee, chaired

by Federal Railroad Administrator Gil Carmichael and including Tom Larson, the Federal Highway Administrator, Major General Patrick Kelly from the Corps of Engineers and J. Michael Davis, Assistant Secretary for Conservation and Renewable Energy of the Department of Energy, will set policy for this effort, which we are calling the Federal Maglev Initiative. At the working level, the Federal Maglev Coordinating Committee is directing implementation of the programs and coordinating all Federal maglev efforts. NASA, EPA, FHWA, DOE and the Department of Commerce are participating in these efforts so that we can take advantage of their specialized expertise.

The process is working well. I believe the combining of the Corps' expertise in public works with the Department's expertise in transportation and in maglev technology will lead to thorough analysis and useful recommendations on the future of maglev in the U.S. The recommendations, to be completed in early 1992, will lay out the potential for maglev and the steps by the government and the private sector necessary to realize this potential.

The group's first joint endeavor will be a Government-Industry forum on May 2 and 3 to explain the Federal Maglev Initiative, to obtain private sector input, and to begin to develop the government-industry relationships that will be necessary if this effort is to be a success. I was pleased to learn that you,

Mr. Chairman, have agreed to address this gathering. The United States has a long history of scientific and technological breakthroughs that have permitted advances in transportation worldwide. The Department's Transportation Policy Statement, which was announced by President Bush and Secretary Skinner yesterday, builds on that expertise and supports a Federal initiative to assess the possibility of such a breakthrough with maglev. The Federal Government will serve as a catalyst in the process by supporting research and development of technical issues and working to ensure that regulatory and institutional barriers do not impede implementation of cost-effective, environmentally sound transportation options like maglev.

Maglev systems offer an infrastructure alternative that is less disruptive, and possibly less expensive, than the construction of new highways or airports. These maglev systems can wear the "Made in the USA" label if we all, Federal and State Governments and the private sector, pool our efforts toward that common goal.

Mr. Chairman, this concludes my statement and I will be happy to answer any questions that the Subcommittee might have.