

Superconducting Maglev: The Benefits for America



1st Generation Superconducting Maglev

- Invented by Powell and Danby in 1966
- U.S. did not develop – Japan did and built Powell & Danby’s 1st generation system
- Successfully operating at Yamanashi, Japan – World Speed Record @ 361 mph, has carried well over 50,000 passengers
- Japan Plans 300 mile route between Tokyo & Osaka with 100,000 passengers daily
- Passenger only – high guideway cost (60 M\$/mile)



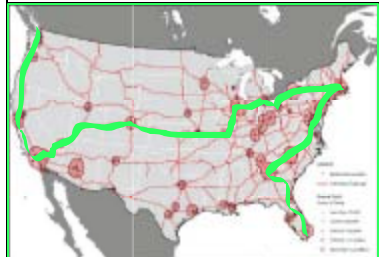
2nd Generation Superconducting Maglev

- Developed by Powell & Danby over last 12 years
- Maglev 2000 Guideway can transport intercity trucks, freight containers & personal autos as well as passengers
- Low-cost prefabricated guideway (22 M\$/mile; 2008 est.) can be rapidly erected at site by conventional cranes
- Revenues from 3000 Trucks/Day on Maglev-2000 Route (1/5th of highway traffic = 180,000 passengers/day)
- Levitated Maglev-2000 vehicles can travel on existing RR tracks in urban & suburban areas
- Full-scale Maglev-2000 hardware (magnets, beams, etc.) has been manufactured & successfully tested



National Superconducting Maglev-2000 Network

- 25,000 mile network connects all major metropolitan areas in U.S.; 70% of U.S. population live with 15 miles of a maglev stations
- Built on rights-of-way along U.S. Interstate Highways and railways
- Construction payback time less than 5 years for 3000 trucks/day on routes – attractive for private investment
- Cost of travel for passengers much less than by air, rail, and driving
- Trucks can roll-on to Maglev-2000 vehicles and travel thousands of miles @ 300 mph to a Maglev station near their destination at less cost than by highway



Golden Spike: 1st Phase of Nat'l Maglev Network

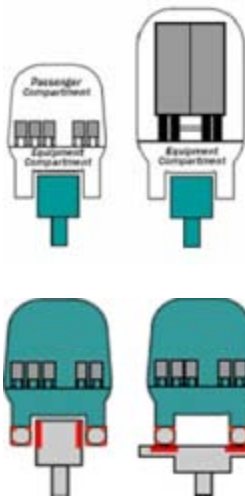
- 6150 miles of Maglev-2000 Network completed by May 19, 2019 (150th Anniversary of Transcontinental RR completion at Promontory, Utah)
- E-W Route (San Diego – Las Vegas – Denver-Chicago – Albany – Boston)
- N-S Routes (Seattle-San Diego & Boston – Miami)
- Golden Spike project construction easier than Interstate Highway System, which built 10,000 miles in first 5 years & 20,000 miles in first 10 years

1st Phase Golden Spike superimposed on Interstate Bottlenecks. Severe bottlenecks in metropolitan areas, located on the Interstate Highways, Source: American Association of State Highway and Transportation Officials

Important Benefits of Superconducting Maglev-2000 Transport for America

1. Large Reductions in Oil Imports
2. Much Smaller Trade Deficit
 - Oil Imports Now Cost 500 Billion Dollars Per Year at \$200/Barrel will soon cost 1 Trillion Dollars Per Year
 - Large World Market for Maglev Exports – Many B \$ Annually
 - One Container Ship can Export 20 Miles of Maglev 2000 Guideway and Vehicles
3. Major New U.S. Manufacturing Industry
4. Substantially Lower Greenhouse Gas Emissions
5. Improved Economic Productivity
 - Much Lower Cost for Transport
 - Much faster movement of People & Goods
 - Much Greater Energy Efficiency
6. Reduced Highway Deaths & Injuries – Less Health Damage From Micro-Particulates & Pollutants
7. Other Applications of Maglev
 - Long distance Low Cost Transport of Water (e.g. Columbia River to Las Vegas)
 - Low Cost Storage of Baseload Electric Power to Meet Peak Power Demand

Recommendation: Make U.S. Superconducting Maglev Network A Reality



1. Authorize 5 year Demonstration Program to Certify Maglev-2000 Guideway Systems and Vehicles as Public Carrier System (The legislative options are: Amendment to Amtrak Reauthorization Bill (HR 6003) or H.R. 6004 or Amendment to Infrastructure Bill, or Amendment to Defense Authorization Bill, or Amendment to 2nd Economic Stimulus Bill, or incorporation in new Transportation Bill or as new stand-alone authorization)

- Estimated 5 year cost is \$600 million dollars
- Appropriate about \$120 million per year FY2009-2013 to fund Maglev Demonstration and Certification as a Public Carrier Program

2. Establish National Maglev Administration in DOT for the purpose of establishing a “gauge standard” for a National Maglev Network

U. S. Transport Firsts

1820 - The first toll is collected on the Erie Canal.

1869 – Transcontinental Railroad

1903 – Wright Brothers

1914 - The Panama Canal is formally opened to traffic.

1956 – Interstate Highway

1969 – Moon Landing

2019 – Superconducting Maglev Golden Spike. Transcontinental Maglev Project

Unless U.S. acts soon other nations (e.g. China) will manufacture 2nd generation Superconducting Maglev & export it to U.S.