



# United States Maglev Coalition

U.S. Maglev Coalition

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January 11, 2006

The Honorable Jerry Lewis  
Chairman  
Committee on Appropriations  
H-218 Capitol Building  
Washington, DC 20515

Re: Report to Congress: Costs and Benefits of Magnetic Levitation  
Prepared by U.S. Department of Transportation, Federal Railroad  
Administration, September 2005

Dear Mr. Chairman:

You are to be commended for attempting to get an objective comparison of the costs and benefits of magnetic levitation (maglev) transportation technology versus other modes of transportation, since maglev projects are being studied in your district and in other areas of the country.

We had high expectations that the US Federal Railroad Administration (FRA) would produce a fair and balanced report in response to your request, but after reviewing the FRA report, we are greatly concerned by its lack of appreciation of three things: the technology, maglev's potential role in the US transportation system, and the strategic importance of introducing maglev as a national transportation system in the 21<sup>st</sup> century. In short, FRA's inability to recognize the short and long term potential of maglev severely limits the usefulness and objectivity of this report.

While FRA's failure to communicate to you the benefits of maglev is disappointing, there is considerable cause for criticism of their report and the manner it focused on costs. Our comments are divided into two major categories: understanding the role of maglev in the US, and specific errors in the FRA's presentation.

## **I. Understanding the role of maglev**

The character of maglev is radically different from conventional steel-wheel systems and its role needs to be understood as such.

**A. Short Term:** Initially maglev's role would be largely that of an airport access mode. All the projects studied by the FRA under the US Maglev Deployment Program (MDP) in TEA21 contained an airport connection. Given this, it is puzzling that the FRA would take the view that the potential application of maglev would be primarily in intercity corridors.

Maglev is an effective airport connector because it can provide access where crowded urban highways have reached capacity. Its small footprint allows maglev to fit into existing corridors in an environmentally acceptable manner. This is the



case, for example, of the Baltimore/Washington and Atlanta-Chattanooga projects where building more highway capacity is simply unacceptable.

**B. Medium Term:** Maglev is key to creating regional systems that connect major cities in densely populated parts of the US, including but not limited to, the Northeast (Boston-New York-Philadelphia-Baltimore/Washington), Southern California (San Diego-Los Angeles-Las Vegas), Florida (Jacksonville-Orlando-Tampa-Miami), and the Southeast (Richmond-Raleigh/Durham-Atlanta). Unlike these 300-mile intercity corridors considered by the FRA, maglev can often fit into these regional networks along existing rail corridors that are environmentally problematic to expand, and/or lack the needed capacity due to increasing freight traffic.

Further, maglev offers capacity in the rapidly growing (6-10 percent per year) express parcel, express mail, and light container markets. Since these markets effectively double every ten years, efficient transportation is the life blood of the US high-tech sector for computers, autos, telecoms, electronics and bio chemicals.

**C. Long term:** Maglev is perhaps the only new transportation system that offers the opportunity to build a new national network that can serve the needs of both passenger and fast freight transportation by 2050. A maglev network can provide new capacity that neither traditional rail nor new highway can offer. Because of its environmentally friendly right-of-way features and its ability to perform at 250 to 300 mph, maglev offers the ability to shrink the travel times offered today by truck and rail by two-thirds.

Again, the FRA provided none of this perspective on the role of maglev.

## II. Specific errors in the FRA's presentation

The FRA Report not only exhibited a lack of appreciation for the benefits of maglev, it also mischaracterized much information underlying the report's conclusions:

**A. Costs:** First and foremost, in answering the central question of the request, the FRA erred in **focusing only on initial capital costs**. FRA concludes that Incremental High Speed Rail (IHSR) provides the most benefit. However, such a limited focus presents only a partial picture. A balanced investment analysis examines total costs, which include life cycle costs. As Members of Congress know so well, initial capital costs are only the tip of the iceberg. It is well documented that the operation and maintenance (O&M) of rail systems is enormously costly and very labor-intensive, most often leading to public subsidization.

Maglev's comparatively lower O&M costs, coupled with its much higher speed, offer the US a way out of a century-old paradigm that no longer works.<sup>1</sup>

**B. Experience with maglev vs. rail:** The report is silent on the decades of U.S. negative experience with IHSR at a time when Amtrak — the most comprehensive and visible example of IHSR — is criticized by Congress and the Administration for poor performance, particularly on-time performance, high O&M costs, and the inability to attract travelers from other modes to increase ridership revenue.

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<sup>1</sup> Comparing Operating Characteristics of High-Speed Rail and Maglev Systems" by Dr. Rongfang (Rachel)Liu and Yi Deng, New Jersey Institute of Technology, presented at the 2004 Transportation Research Board conference, Jan. 2004



- To support a bias for IHSR, the report selectively quotes findings from its seminal Commercial Feasibility Study (CFS), which was a much more extensive and balanced cost comparison report that discussed the positive potential for maglev in the U.S.
- The FRA report ignores the body of knowledge gained with studies performed in the 1990s jointly by the US, Germany and Japan.
- The FRA report refers to maglev as “embryonic” technology yet at the same time refers to New High Speed Rail capable of travel at 175 to 200 miles per hour (mph). We are not aware of any conventional rail system operating anywhere in the world today at 200 mph and there is certainly no U.S. experience at operating speeds above 150 mph.
- Congress dictated that all MDP projects were to be measured against a public yardstick of ten criteria that, significantly, included the ability to operate **without public operating subsidies**. The FRA’s own Programmatic Environmental Impact Statements<sup>2</sup> showed that at least two maglev projects had proven financial sustainability.

Yet, the only MDP study citation is to the high cost of the Baltimore-Washington maglev project, ignoring the fact that it is in the most highly urbanized area and includes the highest contingency factor in its calculation. The FRA also omitted any mention that fare box revenue could cover O&M costs without requiring a public operating subsidy.<sup>3</sup> The Baltimore study also found that the fare box would produce sufficient revenue to cover the debt service for substantial revenue bond funding for the project.

Finally, since April, 2004, the Shanghai maglev system in China has been operating in revenue service at a top speed of 267 mph, carrying almost five million passengers with excellent on-time performance and reliability. While the German test track is not a regular revenue service line, the maglev there has been operating for over 20 years, having covered 670,000 miles and carried 600,000 riders in complete safety. This performance record should not be denigrated by being referred to as “embryonic”.

In summary, years of positive experience which the FRA has had with maglev were not brought into evidence in this report.

**III. Additional observations:** First, while the FRA has jurisdiction over maglev, the FRA is a safety regulatory agency whose primary responsibilities are regulating freight and supporting Amtrak, so it apparently lacks the required depth of knowledge on maglev at present to produce an impartial report. Second, the Administration’s position opposing funds for maglev in SAFETEA-LU suggests that FRA might not have had the latitude to produce a report supportive of maglev.<sup>4</sup>

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<sup>2</sup> Environmental Impact Statement for Baltimore-Washington Maglev Project, Environmental Impact Statement for Pennsylvania Maglev Project, Federal Register Vol. 66, No. 139, July 19, 2001

<sup>3</sup> Baltimore-Washington Maglev Project Draft Environmental Impact Statement and Section 4(f) Evaluation October 2003

<sup>4</sup> February 11, 2004 Statement of Position on S1072 and March 30, 2004 Statement of Position on HR 3550



USMC Rep. Lewis Jan. 13, 2006

**IV. Conclusions:** We are especially critical of this report because of the selective presentation of facts. While the report creates the impression that maglev is unproven and uncertain, it completely ignores the positive information and experience on maglev, including its:

- operational reliability,
- inherent safety,
- environmental friendliness,
- energy efficiency and
- economic performance.

The report describes high-speed maglev as “embryonic” despite over thirty years of FRA’s own experience with the technology in the US and elsewhere. The FRA report also ignores maglev’s attributes and emphasizes the FRA’s view of maglev’s weaknesses. On the other hand, the FRA completely disregards the limitations on rail that are known to all:

- physical constraints on rail’s high speed
- higher O&M costs associated with rail’s higher speed
- lack of reliability in the US
- the annual requirement for significant operating subsidies to remain in operation at all

***These faulty premises inevitably lead to a faulty conclusion that federal funds that could promote safe, fast, clean and energy-efficient travel should be re-directed into other modes.***

Accompanying this letter is a detailed critique of points raised in the report. It would be unfortunate if the FRA report were to stand as the final word on the subject without the counterbalance of published opinions on the subject by other experts in the field.

We would appreciate the opportunity to appear before your committee when FRA’s Fiscal Year 2007 budget is being discussed.

Sincerely,

Richard B. Cochran  
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U.S. Maglev Coalition