

Testimony of Randal O'Toole
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On the Proposed Pennsylvania High-Speed MagLev
Before the Pennsylvania House Transportation Committee
November 6, 2009

Thank you for allowing me to submit written testimony on this issue. As a senior fellow for the Cato Institute (which is located at 1000 Massachusetts Avenue NW, Washington, DC 20001), I specialize in transportation and land-use issues and have examined public transportation and high-speed rail projects all over the United States. Based on my experiences and analyses, I can tell you that maglev is the wrong technology for Pennsylvania or anywhere in the country.

Maglev is a technology that has been tried and failed. Specifically, a 19-mile maglev line, very similar to the one proposed for Pittsburgh, was built from Pudong Airport to downtown Shanghai. Although financial details have been kept secret, it is likely that the line partially subsidized by the German manufacturer "largely as a sales tool" in the hope that China would build maglev lines over "for longer distances, such as Shanghai to Beijing."ⁱ

With well over 10 million people in its metropolitan area, Shanghai is far larger and has a much denser population than Pittsburgh. Reaching speeds of nearly 270 miles per hour, the Shanghai maglev is the fastest regularly scheduled train in the world. Yet ridership is well below expectations; rarely are more than one out of four seats filled. When the *New York Times* asked air travelers why they didn't use the train, they said it doesn't go where they want to go.

"It may take longer, but the taxi is more convenient," says one Shanghai traveler. "Once you get to the train station, I'd just have to get a taxi there," says another, "and I don't want to change cars again."ⁱⁱ

The low ridership of the Shanghai line plus the high cost of maglev—estimated to be twice conventional high-speed rail—led China to decide to use conventional high-speed rail technology between Shanghai and Beijing. Planners are also concerned that the maglev trains were not interchangeable with conventional trains.ⁱⁱⁱ

All of these concerns are just as valid in the United States. The proposed 17-mile Pittsburgh Airport-to-Greensburg maglev line is projected to cost \$3.7 billion, or nearly \$220 million per mile. Projects like this typically go over budget by an average of 40 percent, so the real cost is likely to be more than \$5.2 billion and more than \$300 million per mile. That is easily enough money to build an eight-lane urban freeway of the same length (which typically costs well under \$20 million per lane mile).

In exchange for this great cost, the environmental impact statement for the maglev project projects that the line will carry about 28,000 round trips per day in 2026. This estimate is probably optimistic, yet it is only a small fraction of the passenger travel that is carried by eight 17-mile-long freeway lanes in the Pittsburgh area.^{iv}

Aside from the high cost, the real problem with maglev—or any form of high-capacity mass transit—is that it doesn't go where most people want to go, and so few people will use it. Independent researchers have found that rail lines serving U.S. airports carry only 2 to 15 percent of air travelers to and from airports. Rail takes only about 4 percent of air travelers to Chicago's O'Hare, 6 percent to Boston's airport, 2 percent to Philadelphia's airport, and (depending on the study) 9 to 15 percent to Washington's Reagan National Airport.^v

Moreover, before-and-after studies of the introduction of rail transit to airports find that most rail travelers were previously taking airport shuttles.^{vi} This means that rail transit does not take many cars off the road; instead, it mainly takes business away from private companies. Because private bus companies have an incentive to fill as many seats as possible, private bus services tend to be among the most energy efficient and environmental friendly transportation available.^{vii} Thus, it seems particularly inappropriate for government to subsidize competition to these relatively unsubsidized services.

Americans simply have too many potential destinations for rail transit to be useful. Our homes, jobs, and other activity centers are finely spread throughout metropolitan areas. For example, York College economist William T. Bogart has shown that, in a typical American urban area, no more than 30 to 40 percent of jobs are located in downtowns and suburban centers.^{viii} As a result, rail transit will never capture enough travelers to make it worth its high cost.

The environmental costs of maglev, which requires enormous amounts of electricity to work, are particularly high. The Center for Clean Air Policy (CCAP) is an unabashed supporter of subsidies to high-speed rail and rail transit, yet it found that maglev uses two to four times as much energy and produces two to four times as much pollution as conventional high-speed electric trains.^x On many of the routes examined by CCAP, maglev produced more greenhouse gas emissions than the cars and other vehicles it replaced.^x

For example, CCAP estimates that TGV-type high-speed trains between Philadelphia and Pittsburgh would produce 12,000 tons of carbon dioxide emissions each year. CCAP projected that maglev in the same corridor would produce more than 40,000 tons. Since the cars and planes that high-speed rail would replace were projected to produce less than 36,000 tons, maglev is an environmentally irresponsible technology.^{xi}

It is worth noting that CCAP assumed that auto energy efficiencies would not significantly improve in the next 15 years.^{xii} If instead we assume that auto manufacturers meet the new Obama fuel-efficiency standards, then by 2025 the average car on the road will be as energy-efficient and produce as little greenhouse gases as even the most efficient passenger rail technologies.^{xiii}

In sum, the proposed Pennsylvania high-speed maglev line is too expensive, too environmentally harmful, and its main effect will be to take business away from more energy-efficient, private airport transport services. This is not an appropriate use of scarce tax dollars.

Notes

- i. Joe McDonald, "Germans Win Bid to Build China's Futuristic Rail Link," *The Independent*, January 23, 2001, tinyurl.com/yjok6om.
- ii. Howard French, "Shanghai Journal; All Aboard! But Don't Relax. Your Trip Is Already Over," *New York Times*, April 22, 2004, tinyurl.com/6g3deq.
- iii. "Rail Track Beats Maglev in Beijing-Shanghai High Speed Railway," *People's Daily*, January 18, 2004, tinyurl.com/yhhsrrv.
- iv. The average mile of Pittsburgh freeway lane carries about 9,700 vehicle miles per day, and at an average of 1.6 people per vehicle that is more than 15,000 passenger miles per day, or 2.1 million passenger miles for eight 17-mile-long freeway lanes. By comparison, in the unlikely event that all 28,000 maglev riders went the entire 17-mile length in both directions, the maglev would carry less than 1 million passenger miles per day. See *Highway Statistics 2007* (Washington: Federal Highway Administration, 2008), tables HM-72 and VM-1.
- v. Michael Cunneen, "Summary of Forecasts, Air Passenger Use of Rail Transit," unpublished paper, 2000, p. 2, available at tinyurl.com/ya34owa.
- vi. *Ibid*, p. 6.
- vii. "Updated Comparison of Energy Use and CO₂ Emissions from Different Transportation Modes," M.J. Bradley & Associates, Manchester, NH, 2008, p. 4, tinyurl.com/6p58ep.
- viii. William T. Bogart, *Don't Call It Sprawl: Metropolitan Structure in the Twenty-First Century* (New York: Cambridge, 2006), p. 7.
- ix. "High Speed Rail and Greenhouse Gas Emissions in the U.S." Center for Clean Air Policy and Center for Neighborhood Technology, Washington, DC, 2006, pp. 19-23, tinyurl.com/m4a5fs
- x. *Ibid*, p. 25.
- xi. *Ibid*, pp. B-4, B-6.
- xii. *Ibid*, p. 8.
- xiii. For a detailed review of the Center for Clean Air Policy's report, see Randal O'Toole, "Taking Illinoisans for a Ride: False Promises of High-Speed Rail," Illinois Policy Institute, Springfield, IL, 2009, pp. 13-14, tinyurl.com/yfr5a2o.