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Maglev To Dulles

What is fast, efficient, cost-effective and not under consideration?

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Transit projects don't come cheap, but a proposal such as the dual-track 22-mile extension of Metro is no value at $4 billion-plus, especially when a non-rush-hour Metro trip between Union Station and Dulles would take an hour. That would offer little incentive to take Metro instead of a taxi.

The Washington area's worsening congestion is forcing consideration of new transit lines, and this seems prudent in light of tightening world oil supplies. But why is it that a country with a tradition of high-tech accomplishments is considering 19th-century transit solutions, complete with their high operating and maintenance costs?

Most of America's rail transit systems are slow, bouncy, manually operated and expensive to maintain. They also are prone to frequent breakdowns and high labor costs. Operating and maintenance costs must be figured into any calculation of the true cost of a transit system.

During 40 years of friction, transit equipment wears out, and it costs plenty to replace. Escalators, elevators, vehicle brakes, rail switches and relays all eventually fail and require replacement. Worse, when a train fails during operation, the system is disrupted.

Some advanced systems coming online elsewhere in the world don't have these problems. Because they use electricity for propulsion, braking, suspension, guidance and operation, they have dramatically reduced operating and

maintenance costs. And they offer much higher reliability because they don't contend with friction. These automated all-electric systems are known as "maglevs," which is shorthand for magnetic levitation.

The world's first high-speed maglev began full-scale commercial operations this month in China. It runs 19 miles from Shanghai's new airport to an outlying subway station. So far, the system has functioned with 100 percent reliability.

The Shanghai maglev reaches speeds of 267 mph, so the trip from subway station to airport takes fewer than eight minutes. The system, designed and built by a German consortium, is the result of more than 30 years of research and development costing billions of dollars.

Outside Nagoya, Japan, a slower maglev system built by Hitachi is going through its commissioning process. This lower-speed maglev is designed for short-hop commuter rights of way where speeds higher than 60 mph are unnecessary or unattainable. The Nagoya system makes nine stops in 5.6 miles to connect two high-speed rail lines. Two additional models capable of 125 mph and 150 mph are being developed.

Regardless of technology, the lack of straight rights of way limits speed for any ground transportation system. Indeed, that is what slows Amtrak's Acela between Boston and Washington. One advantage of maglev systems is the use of elevated guideways to allow straighter routes that have less effect on surrounding communities than other transportation modes.

Maglevs also can run at grade or in tunnels and can climb steeper grades than traditional rail, regardless of weather conditions. They are computer controlled and essentially work like horizontal elevators. So why not deploy a maglev system for the proposed Metro extension?

Metro officials attended a presentation last winter given by engineers who priced a maglev system for the Dulles extension at $50 million per mile; most light-rail systems now cost in excess of $100 million a mile. At $1.1 billion a maglev would cost a quarter of the suggested retail price of the existing proposal for heavy rail to Dulles. For $4.3 billion, Northern Virginians could have an elevated 22-mile low-speed maglev for local connections plus an underground high-speed "dual-guideway" maglev traveling the 28.3 miles between Union Station and Dulles in 10 minutes.

Surprised by the numbers? Tunneling costs about $120 million a mile in the United States, but only $60 million a mile in Japan, despite higher labor costs and more difficult terrain. If a Japanese firm did the tunneling for Metro, it could cost $1.7 billion for 28.3 miles. Add $1.5 billion for equipment, guideways and three stations (adding a Tysons stop) for a cost of $3.2 billion for a high-speed underground maglev from Union Station to Dulles.

To put in an aboveground low-speed commuter maglev system from West Falls Church to Dulles would cost $1.1 billion. Cost for both lines: $4.3 billion. But also factor in a minimum operation and maintenance savings of 50 percent a year for 40 years, plus improved convenience and comfort.

If Metro was converted to maglev, its yearly $930 million operating and maintenance costs could be halved, saving at least $20 billion over the next 40 years. Even if this calculation was off by a few billion, the savings on operations and maintenance would make up for any variance in capital costs. Add this to the promise of higher system-wide reliability and 10-minute trips between the District and Dulles, and the value is obvious.

So, why are we pursuing outdated and underperforming transportation modes instead?

Beats me.

-- Kevin C. Coates *is an energy and transportation consultant and a specialist on maglev technology.*

kccoates@yahoo.com