

RIDING THE RAIL



American MagLev's prototype magnetic levitation train uses high-speed train technology not currently operating commercially in the U.S. Photo by Mikel Chavers.

After Stimulus, States Hoping High-Speed Trains Draw Passengers

The U.S. may have taken the slow train when compared to the rest of the world and fast passenger train travel, but thanks to a new push for high-speed rail in the federal stimulus funds, states are jumping on the train to stimulate their own high-speed rail corridors. But the tracks ahead offer steep competition for the more than \$8 billion in federal stimulus grants and leave states facing the issue of how to fund fast train travel in the long term.

By Mikel Chavers

People in the Midwest get excited.

They get excited when they talk about taking faster trains from Chicago to Cincinnati, for example. That's because plans for high-speed trains will cut that trip in half from eight hours to four hours, according to the Midwest Interstate Passenger Rail Commission.

"Rail is one of those particular issues that goes across state lines," said Missouri Rep. Charles Schlottach.

And the benefits go across state lines.

Under the Midwest Regional Rail plan that calls for a system of railways radiating from a Chicago hub and an Ohio hub network, other Midwestern train trips will also decrease when the Midwest builds out and beefs up its passenger rail corridors for higher speeds. A trip from Chicago to St. Louis would decrease from 5 hours and 20 minutes to 3 hours and 50 minutes, according to Laura Kliewer of the Midwest Interstate Passenger Rail Commission, a part of The Council of State Governments Midwest office, the Midwestern Legislative Conference.

The trip from St. Louis to Kansas City could drop an hour and a half in travel time, according to Kliewer.

But for the Midwestern states and many states from Florida to California, fast trips aboard fast trains are like a dream that just got started late. The idea just hasn't taken off ... *yet*.

But now states are competing for startup funds—the more than \$8 billion in stimulus money the federal government is shelling out this year for faster train networks.

Trouble is, the stimulus only includes a limited pot of money—\$8.8 billion in the first year and another \$5 billion in coming years. Competing are 40 states and Washington, D.C., with grant applications for projects totaling a whopping \$102.5 billion, according to the Federal Railroad Administration, much more than the funding available. Those applications include plans for more than 270 projects, according to the Federal Railroad Administration.

It's going to be competitive, Joe Szabo, an administrator with the Federal Railroad Administration said at The Council of State Governments' Eastern Regional Conference annual meeting in August. The overwhelming response to the grants "demonstrates the pent-up demand for passenger rail service," he said.

Stimulus Won't Fund Everything

Even so, federal stimulus dollars from the American Recovery and Reinvestment Act won't be enough to get the whole job done, those in the states say.

A national high-speed rail network won't be completed under the stimulus funding, said Patrick Simmons, rail division director for the North Carolina Department of Transportation. "The recovery bill is not going to build all these systems. We understand that," Simmons said.

The states will have to continue the effort—a process that could take years if dollars are found either through state funding or leveraging private cash through public-private partnerships. In California, for example, the first high-speed passenger service could be available at the earliest in 2015, according to Curt Pringle, chairman of the California High-Speed Rail Authority.

It's true, high-speed trains are shuttling passengers at speeds in excess of 180 miles per hour in France, Japan and Spain, and all over Europe for that matter. But the U.S. just doesn't have that kind of fast train service.

The first phase of getting the train rolling in the U.S. is the stimulus funding.

"There needs to be a tremendous amount of public dollars invested up front," said Pringle, who is also the mayor of Anaheim, Calif. Heretofore it's been pretty hard to get even private companies to take on the risk of building the foundations for high-speed passenger rail, he said, without public dollars first.

"The public investment is that first step," Pringle said. While states struggled in the past to garner funding for high-speed rail, even private companies weren't fronting

THE WEST

Connecting California: Big plans in the West call for a 220 mile per hour train network in California linking the San Diego area, Southern California, Central California, the Bay area, San Jose and Sacramento. Estimates have the trip from San Diego to Los Angeles taking 1 hour and 18 minutes and costing about \$30 for the ticket. Other trip times include L.A. to Sacramento in 2 hours and 17 minutes and L.A. to San Jose in 2 hours and 9 minutes.

Visit <http://www.cahighspeedrail.ca.gov/>

Federal Stimulus Competition in the West

State	Total Applied for in Stimulus Grants
California*	\$24.2 billion
Nevada*	\$10.1 billion
Oregon	\$2.1 billion
Washington	\$1.8 billion
Arizona	\$237 million
New Mexico**	\$21 million
Idaho	\$5 million
Colorado	\$1 million
Montana	TBD

Alaska, Hawaii, Utah and Wyoming did not apply for high-speed rail stimulus funding. *Includes funds submitted by non-public entities. **State submitted on behalf of other states. Source: Federal Railroad Administration.



The Prototype high-speed magnetic levitation train built by American Mag-Lev Technology Inc., overlooks the test track in Powder Springs, Ga. Photo by Mikel Chavers.

the money either. “It’s very hard to get companies saying ‘yeah we’re going to take all that risk of time, and environmental clearance and purchasing of right-of-way and all of that.’”

Consider this: The entire California system is more than \$40 billion when you contemplate building it all out, Pringle said.

That said, the California High-Speed Rail Authority’s business plan is seeking federal funding, state funding, local participation and public-private partnerships, Pringle said.

Last year, California voters approved Proposition 1A, which means the state is committed to \$9.95 billion in bonds to fund high-speed rail.

“So you take \$9 billion worth of bonds and generous applications of federal dollars, that still doesn’t get you there; it barely gets you halfway,” Pringle said.

California also applied for the most in stimulus funding. Preapplications from the state asked for a total of \$24.2 billion in stimulus funds for multiple projects.

But California, like other states seeking to build high-speed passenger rail corridors, hopes once the

process gets started, funding for entire networks will come—funding that will exceed what’s available in the federal stimulus act.

“There are points at which, as you cover distances (and) as you get the volumes of passengers, our business model shows a revenue generation that comes off of the system,” Pringle said. “And with that, you can borrow against the streams of revenue, you can use those future earnings to expand the system and grow it and make sure you cover beyond that initial segment.”

For example, Japan is building a new high-speed train system that uses magnetic levitation technology where a train levitates and glides across a track using magnetics—all virtually frictionless. That new system is being funded from revenues generated from Japan’s existing high-speed train systems, Pringle said.

State officials hope something similar will happen in the Midwest to carry out an entire high-speed rail system radiating from a Chicago hub.

Take the proposed Chicago to St. Louis high-speed rail segment in the Midwest, a route Illinois is particularly focusing on.



THE MIDWEST

Chicago is the Hub: Big plans in the Midwest call for a 110 mile per hour train network with Chicago serving as the central hub. An Ohio hub network will also link to the Chicago network, creating the Midwest Regional Rail Plan. Plans call for a faster trip from Chicago to St. Louis at 3 hours and 50 minutes and a 4 hour trip instead of an 8 hour trip from Chicago to Cincinnati, according to the Midwest Interstate Passenger Rail Commission.

Visit <http://www.miprc.org/>

Federal Stimulus Competition in the Midwest

State	Total Applied for in Stimulus Grants
Ohio**	\$5.8 billion
Illinois**	\$3.6 billion
Wisconsin**	\$1.8 billion
Minnesota**	\$933 billion
Michigan	\$563 million
Iowa	\$228 million
Indiana**	\$166 million
Missouri	\$124 million
Kansas	\$17.2 million

*Nebraska, North Dakota and South Dakota did not apply for high-speed rail stimulus funding. *Includes funds submitted by non-public entities. **State submitted on behalf of other states. Source: Federal Railroad Administration.*

It will cost \$2.3 billion to fully build that route figuring in trains that can run up to 110 miles per hour, according to George Weber, bureau chief of the Illinois Department of Transportation Bureau of Railroads.

That price tag is to pay for upgrading track and adding more train trips—what Illinois is anticipating will be eight roundtrips a day for passengers traveling from Chicago to St. Louis, Weber said. There are currently three roundtrips subsidized by the state and two more that are a part of Amtrak’s basic system trains, Weber said.

The rest of the system will come later.

But as for a national high-speed rail network, the kind that European countries can boast about, that still is a long way off, Kliever, of the Midwest Interstate Passenger Rail Commission, said.

“The states have led the way in paying for increased frequencies and creating plans for significant passenger rail improvements even when there was no federal partnership for passenger rail development,” Kliever said.

“Yet even with all the attention it has received, and the wonderful boost of the \$8 billion in stimulus

funding, passenger rail is still only the only major mode of transportation that does not have a dedicated source of federal funding,” she said.

She hopes that will change in the future.

Upgrading Now, Innovating in the Future

When it comes to real innovation in building the first corridors for high-speed trains in the U.S., it seems this first phase aided by stimulus funding is more about creating foundation.

“Technically it’s just a faster train—it’s not that big of a leap in technology in itself,” said Rick Harnish, executive director of the citizens advocacy group, the Midwest High Speed Rail Association. “But on the other hand, when you get to these speeds, the product is revolutionary.”

In North Carolina, high-speed rail plans focus on linking Charlotte to Washington, D.C. But making the trip shorter is first about the many baby steps, such as upgrading rail crossings and expanding areas where trains can pass each other to get trains moving faster.

North Carolina isn’t gunning for superfast train travel all at once by investing in expensive, fast tech-

THE SOUTH

From Charlotte to Washington, D.C.: Big plans in the South call for the Southeast High-Speed Rail Corridor linking Charlotte, N.C., to Washington, D.C., with top speeds of 110 miles per hour. Plans call for the total trip to take an estimated 6 hours and 10 minutes to 6 hours and 50 minutes. Other trips include from Charlotte to Raleigh, N.C., at around 2 hours to 2 hours and 50 minutes and Raleigh to Richmond, Va., at an estimated 1 hour and 55 minutes to 2 hours.

Visit <http://www.sehsr.org/default.html> and www.bytrain.org

Federal Stimulus Competition in the South

State	Total Applied for in Stimulus Grants
North Carolina**	\$5.1 billion
Texas**	\$3.2 billion
Virginia	\$2.5 billion
Florida	\$2 billion
Oklahoma	\$2 billion
Alabama	\$787 million
Georgia	\$296 million
Louisiana**	\$202 million
South Carolina	\$115 million
Arkansas	\$1 million
West Virginia	\$400,000

*Kentucky, Mississippi and Tennessee did not apply for high-speed rail stimulus funding. *Includes funds submitted by non-public entities. **State submitted on behalf of other states. Source: Federal Railroad Administration.*



Photo by Mikel Chavers.

nology. Instead, plans for passenger rail in the state call for average speeds of 85 miles per hour, according to Simmons. Compare that to California's plans of a 220 mile per hour train system and the Midwest's plans for trains traveling 110 miles per hour.

"We're not going to get all of this in one bite," said Simmons in North Carolina. "We can go faster, but it's more expensive and it cost you like maybe 40 to 50 percent more to go faster and you get maybe 5 or 10 percent more riders. We've developed something—it doesn't stretch the bounds of technology; it serves the marketplace well."

Simmons said the state is instead focused on providing a foundation—raising the slowest speeds trains now travel. For example, in the segment from Charlotte to Raleigh, stimulus grant applications are for projects that would straighten track and lengthen what's known as passing sidings, or extra tracks off to the side where a train can stop over and wait for another to pass.

Those kinds of improvements would raise the top speed from 79 miles per hour to 90 miles per hour, Simmons said. Those are all near-term plans, he said.

Other plans call for raising the slow speeds trains

must travel in North Carolina by improving railroad crossing technology. In Durham, N.C., for example, trains had to slow from 59 miles per hour to 20 miles per hour and creep through the city. But thanks to improvements in railroad crossing technology, today trains can go through at 70 miles per hour, Simmons said.

So the U.S. won't be breaking any speed records but will be upgrading train service to compete with the rest of the world.

And even though stimulus funding won't be enough to fund an entire national network of high-speed passenger rail, it'll be a start, state officials say.

"We're not only building these high speed rail operations that will grow into a national network but we're changing our transportation network," Simmons said. "We need clear cut examples, clear cut projects that are ready to be built that demonstrate the concept." That's the purpose of the stimulus funding, he said.

"This is a catalyst."

—Mikel Chavers is associate editor of State News magazine.



THE EAST

Improving Existing High-Speed Rail: Maryland is asking for the most for stimulus grants with applications totaling \$11 billion in the East, according to the Federal Railroad Administration. Of that, \$3 billion would be for projects within the state—mostly on Amtrak’s Northeast Corridor, according to *Engineering News-Record* magazine. Major projects seeking funding also include money to replace rail bridges—some which date back to the late 1800s—and a high-speed rail project linking Baltimore to Washington, D.C., along the Northeast corridor.

Visit <http://www.mtmaryland.com/>

Federal Stimulus Competition in the East

State	Total Applied for in Stimulus Grants
Maryland**	\$11.2 billion
New York*	\$9.7 billion
Pennsylvania	\$6.8 billion
Connecticut**	\$3.2 billion
Massachusetts	\$2.1 billion
New Jersey	\$852 million
Delaware	\$258 million
New Hampshire	\$258 million
Vermont	\$121 million
Maine	\$106 million
Washington, D.C.	\$26 million
Rhode Island	TBD

Source: Federal Railroad Administration. *Includes funds submitted by non-public entities. **State submitted on behalf of other states.

Sharing the Tracks

In most states, plans calling for faster trains also call for those trains to share the tracks with freight trains. That could get tricky in some areas where there’s not enough space for trains to pull over and wait—extra tracks called siding—or where additional passenger trips are planned for certain corridors of track.

Congestion could be an issue, state officials say.

“Well obviously you need a signal system in place that for one will allow you to have your trains operating at speeds up to 110 miles per hour; and you want the capacity to separate them as much as possible,” said George Weber, bureau chief of the Illinois Department of Transportation Bureau of Railroads.

Right now, for example, the segment from Chicago to St. Louis only has one railroad track, Weber said. The one track has siding spaced throughout the corridor—to the railroad world’s version of passing lanes or tracks where a train sits while another one goes by—but if that corridor were to support eight roundtrips of passenger rail a day, Weber said, another track would be needed.

To compound what could amount to a lot of rail congestion, Union Pacific—the railroad that owns most of the corridor—is opening a new intermodal facility nearby next year and will be operating more freight trains on the route, Weber said.

“The fact that you would potentially be having 40 trains a day on this Chicago to St. Louis corridor requires the need for additional capacity,” Weber said.

Ironically, the corridor actually did have another track until back in the 1960s when one track was removed, Weber said.

“We would be putting that second track back in to accommodate both passenger and freight,” Weber said.

That is the case all too often when it comes to railroads.

“I think you’d find out that a lot of railroads wish that they’d never given up capacity or tracks that they had,” Weber said. Some tracks were taken out to save money or sold to communities or towns that later made bike paths out of them, Weber said.

So some of the stimulus applications in both Illinois and North Carolina, for example, call for rebuilding a railroad track that was removed decades earlier. In North Carolina, it’s the abandoned CSX corridor from Raleigh through Petersburg, Va., a segment that would connect Charlotte to Washington, D.C.

High speed rail plans don’t come cheap, especially when some states are seeking to rebuild or build all new railroad tracks.

—Mikel Chavers

Are Magnetic Levitation Trains Getting their Start?



American MagLev Technology Inc. tests a prototype magnetic levitation train just outside the Atlanta, Ga., metro. The company is hoping technology catches on. Photo by Mikel Chavers

Out in the middle of open land in rural Powder Springs, Ga., just outside the hustle and bustle of the busy Atlanta metro, a passenger train nicknamed the Magic Carpet floats and glides effortlessly down a raised track. There, a startup company called American MagLev Technology Inc. is testing its prototype train.

It's not the typical steel wheels on steel tracks train that comes to mind when you think of fast trains like France's TGV or Japan's Bullet trains or even the fast trains Amtrak operates in the U.S. No, this one is different. The technology is different.

This kind of train uses magnets to allow the train to levitate and raise itself off the track where it can glide, almost frictionless on its way. It's so light when it's levitating in fact, that American MagLev CEO Tony Morris, a middle-aged businessman, can actually push it down the track by himself.

And with a flurry of activity surrounding high-speed passenger rail and the more than \$8 billion available from the federal government this year to stimulate high-speed passenger rail around the country, proponents of magnetic levitation hope it will be the fast train technology of the future.

Morris said traditional street wheels on steel train systems generally cover only about a third of their operating cost with the fares people pay to ride the trains. "And so the taxpayer has to pay all the capital costs and two-thirds of the operating costs," he said.

He found that out in the early 1990s when he was working on a Georgia Tech study commissioned to see if the Atlanta Braves stadium could be moved to the suburbs—to eliminate traffic gridlock in the city—and connected with mass, rapid transit. But that study found it couldn't be done with the traditional train systems—mostly due to financing problems mentioned above, Morris said.

And that's how Morris' company, American MagLev was born. If traditional trains wouldn't work, then he'd find something that would.

Americans didn't invent magnetic levitation technology—the Germans did, Morris said. And the first commercially operating magnetic levitation train runs in China from the Shanghai airport to the downtown area, taking just more than seven minutes to travel the nearly 19 miles. But those trains are expensive and complex to build, Morris said.

His prototype is more economical—that's because its

speeds top out at 110 miles per hour and the train tracks aren't as complex to build as other more technology driven magnetic levitation models, Morris said.

"Our strategy has been instead of being technology driven, which is what the German approach has been and what you do if you want to go with supersonic airplanes or go to the moon or those sorts of things—you don't care what it costs, you just want the hottest technology," Morris said. "We're market-driven and that means we have to compete with other alternatives. We have to be the best price."

According to Morris, the American MagLev train system can be built for around \$20 million per mile. That price includes everything except the land where the raised tracks are placed. Morris has a solution for that.

He proposes putting the raised MagLev tracks along the interstates and highways in existing right-of-way corridors where the land is already owned by the state.

Morris also hopes to tout the green factor in his train systems. The American MagLev system uses 70 percent less energy than steel wheel trains on steel tracks, Morris said. The prototype in Georgia runs on the equivalent amount of electricity 15 hairdryers use, he said.

The American MagLev system also uses no drivers; many traditional train systems must have drivers to operate them.

And some states are interested in newer technology (well, new to the U.S., at least) for faster trains.

Part of a multistate application from Illinois and Wisconsin for high-speed rail stimulus funds is seeking money for new trains, according to George Weber, bureau chief of the Illinois Department of Transportation Bureau of Railroads.

The states are looking for the kinds of trains capable of doing 110 miles per hour—"possibly European-type equipment or if there was an American car that could meet the 110 mile per hour standards," Weber said.

The applications won't get as specific as naming a particular company, but once the grant is awarded, the process will likely go out to competitive bid for high-speed train equipment and technology, Weber said.

Since most of the high-speed train systems are manufactured in other countries where they are used, Morris is hoping the "Buy American" clause in the federal stimulus bill will encourage states to go with American-made equipment.

—Mikel Chavers