

# Intercity Rail Passenger Systems Update



No. 17

Summer 2011

## Current Research and Development in Intercity Rail Passenger Systems

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*Intercity Rail Passenger Systems Update* is published exclusively on the Internet. The table of contents offers links directly to each article, or you can scroll down to read the entire newsletter. Please keep your bookmark at [www.trb.org/Publications/PubsStandingCommitteeNewsletters.aspx](http://www.trb.org/Publications/PubsStandingCommitteeNewsletters.aspx) for upcoming editions.

The Transportation Research Board's Committee on Intercity Passenger Rail (AR010) is concerned with research that will lead to better planning and implementation of intercity rail passenger systems, with particular emphasis on the full range of high-speed systems including new technology. This research will include demand analysis, financial considerations, economic impacts (including consideration of user and social benefits), and institutional arrangements including public-private partnerships. The research should also address impacts on other rail operations, coordination with other modes, rail-highway interfaces, corridor versus system concerns, technology assessment, environmental impacts, and implementation strategies.

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*Intercity Rail Passenger Systems Update* is published intermittently by the Transportation Research Board to disseminate information about current research and development in intercity rail passenger systems. Matthew J. Melzer, Editor; David P. Simpson, Chair, TRB Committee on Intercity Passenger Rail; Ann Purdue, TRB Senior Program Officer. Any findings and conclusions are those of the authors and not of TRB. TRB Publications Office: Lea Camarda, Editor; Paul deBruijn, Design. Submit news items to Ann Purdue, Transportation Research Board, 500 Fifth Street, NW, Washington, DC 20001, telephone 202-334-3208, or e-mail [apurdue@nas.edu](mailto:apurdue@nas.edu). [www.TRB.org](http://www.TRB.org)

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## FROM THE CHAIR

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### Dear Friends and Colleagues:

As you may be aware, Daniel Roth recently stepped down as chair of the Rail Group Executive Board because of unanticipated business and personal demands. Consequently, Anthony Perl agreed to serve as Daniel's replacement, and I accepted the role of chair of the Committee on Intercity Rail Passenger Systems. Fortunately, both Daniel and Anthony will continue to serve on this committee.

I am honored and somewhat humbled to assume the chairmanship of this committee. My transition is made easier by our dedicated committee staff and the committee's solid foundation, established by Anthony over the past 5 years.

This newsletter is the last to be organized and published under Matt Melzer's leadership as editor. On behalf of all the committee members, I would like to offer our sincere thanks for the dedication and professional energy that he brought to this role. Matt will be succeeded by Penny Eickemeyer, Assistant Director for Program Management, Region 2 University Transportation Research Center, City College of New York.

We live in a time of great promise and of great peril for both rail transportation and the future of our economy. This committee can play a significant role in advancing informative research and discussion relevant to intercity passenger rail transportation, to better frame the advantages and disadvantages of rail investment to the transportation community. In contrast to that of other surface modes, the fundamental economics and appropriate targeting of new rail investment remain controversial, even among those who favor an enhanced position for rail in the North American economy. Our input in the new National Cooperative Rail Research Program, work with state and regional agencies, and ongoing collaboration with the U.S. Department of Transportation all provide important channels for our collective expertise and perspective to succeed. Objective, dispassionate research is the balm that can cool the overheated rhetoric that characterizes many of our public policy discussions.

I look forward to working with all of you in the months and years to come. We have opportunities before us that few would have dreamed to imagine—even 5 years ago. Carpe diem!

—David Simpson, Chair  
David P. Simpson Consultants  
[simpsonconsult@comcast.net](mailto:simpsonconsult@comcast.net)

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## EDITOR'S INTRODUCTION

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Congratulations—and a debt of gratitude—are due to Anthony Perl on his appointment as chair of TRB's Rail Group Executive Board. His strong, visible leadership as committee chair has been invaluable at a vital time for passenger rail and will continue to be an asset to the Rail Group as a whole. Please also welcome incoming committee chair David Simpson, who brings many years of proven leadership and scholarship in passenger rail development. Finally, this is your editor's final issue of *Intercity Rail Passenger Systems Update*. It will be left in the capable hands of incoming editor Penny Eickemeyer, who leads this issue with a recounting of the report given to the committee by new U.S. House of Representatives Subcommittee on Railroads, Pipelines, and Hazardous Materials chair Bill Shuster (R-Pa.)—the first such visit from a sitting member of Congress. Shuster elucidated his vision for targeted investment in high-speed rail—with great private sector involvement—against the backdrop of a nation purportedly finding itself in a situation of fiscal triage.

John Heffner then shares insights on an approach to expanding intercity passenger service.

Dominic DiBrito and Committee on Intercity Rail Passenger Systems secretary Camille Tsao describe Caltrain's successful effort to gain a waiver for its future operations from the Federal Railroad Administration (FRA), which allows noncompliant electric commuter and high-speed rail trainsets to intermingle with conventional equipment on a shared-use corridor. The evolution of regulations along with safety technology improvements is seen as a key tool to maximize the efficiency and utility of passenger rail investments.

Finally, in a reminder of how human behaviors influence modal choice, Joseph Schwieterman and Lauren Fischer present research that illustrates vividly the advantages that trains may have in enabling productivity using electronic devices—and why passengers select the mode that meets their technology needs.

—Matthew Melzer  
[mjmelzer@gmail.com](mailto:mjmelzer@gmail.com)

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## “MISSED OPPORTUNITIES” IN HIGH-SPEED RAIL: A DISCUSSION WITH THE NEW HOUSE RAILROADS SUBCOMMITTEE CHAIR

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**Penny Eickemeyer**  
peickemeyer@utrc2.org

*Eickemeyer is Assistant Director for Program Management, Region 2 University Transportation Research Center, City College of New York, New York. She also is incoming editor of this publication.*

When Rep. Bill Shuster (R-Pa.), Chair of the U.S. House of Representatives Subcommittee on Railroads, Pipelines, and Hazardous Materials, spoke at the Intercity Passenger Rail Committee's annual meeting on January 25, 2011, it signified a historic first—the first time that the committee had been joined by a congressperson.

Shuster, who discussed “The Perspectives and Outlook of Intercity Passenger Rail,” began by describing the rich rail history of Pennsylvania's 9th congressional district, which includes Altoona, home of Norfolk Southern's Juniata Locomotive Works and of the Horseshoe Curve, a national civil engineering landmark dating to 1854. He continued to the heart of his talk: focused funding in profitable locations, an emphasis on the Northeast Corridor, and leveraging private funds for financing.

Describing himself as “a poster child for intercity rail,” he commended Amtrak's Keystone Service, noting that ridership increased by 40 percent after train speed rose along the corridor, up to 110 mph. According to Shuster, the Keystone Corridor would be even more attractive if speeds were greater than 110 mph, and the United States is “behind the curve” when compared with China, Japan, and France, where train speeds exceed 150 mph. Shuster commented that he was encouraged by the \$8 billion in funds for high-speed rail (HSR) allotted by the American Reinvestment and Recovery Act of 2009, but expressed his view that an opportunity was missed by neglecting to allocate funds to the densely populated Northeast Corridor. He stated that he prefers corridors in which trains can travel at speeds of 150 mph, and warned that “spreading too thinly will set us back.”

Shuster indicated that all of these issues—as well as the issue of not interfering with existing high-quality freight rail service—will feature in future Congressional legislation. He asserted that the recommended approach will be to leverage private funds, rather than rely on public subsidy, though he predicted that the debate “will pit Democrats against Republicans.”

Regarding the proposed HSR projects selected by FRA so far, Shuster called for transparency, stating that his subcommittee and the U.S. House of Representatives Transportation and Infrastructure Committee, chaired by U.S. Rep. John Mica (R-Fla.), will evaluate the selection process closely to determine how and why projects were chosen.

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**The Intercity Passenger Rail Committee gathered at the TRB Annual Meeting, January 25, 2011. U.S. Rep. Bill Shuster (R-Pa.) delivered a presentation later in the meeting. (Photo: Risdon Photography)**

The session then turned to questions and answers, initiated by Henry Posner III, Chair, Railroad Development Corporation. He commented that speeds were not the only significant factor in planning for high-speed rail, but that local rail links were perhaps even more important in minimizing end-to-end journey times. He also commented that the United States should be open to foreign participation in projects in order to import best practices.

Another question raised was whether high- or higher-speed rail should be viewed as a capital investment rather than a subsidy obligation—particularly in light of tea party efforts to slash federal funding. Shuster responded that while he agrees that HSR is a capital investment and the federal government needs to make significant cuts in spending during tough financial times, HSR might not raise sufficient revenue to cover its costs.

David Simpson then observed that the National Surface Transportation Revenue and Policy Study Commission suggested that funding mechanisms be restructured in the new federal authorization bill, giving flexibility to states and breaking down modal stovepipes. Shuster agreed with providing flexibility to spend money on rail or transit if it makes sense, but noted that rail should not rely on highway funding. He added that both political sides regard the vehicle miles traveled tax—a potential funding alternative—to be a “Big Brother issue,” and that raising the gas tax is unpopular during this current economic climate.

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## OBSTACLES TO NEW INTERCITY PASSENGER SERVICE: A WAY TO PROCEED

**John D. Heffner**  
j.heffner@verizon.net

*Heffner is an attorney based in Washington, D.C. He represents short line and regional railroads, public agencies, political subdivisions, and railroad industry vendors in freight and passenger rail transactions.*

Now that the 2010 midterm elections are over, it is time to evaluate their impact on the initiation of new intercity rail passenger service. Amtrak interprets the terms of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) as defining routes less than 750 miles as short-haul routes, to be funded by state and local agencies, and routes more than 750 miles as Amtrak-supported national routes. Yet, according to PRIIA, “nothing in this Act is intended to preclude Amtrak from restoring, improving, or developing non-high-speed intercity passenger rail service.”

Amtrak's interpretation may prevent the implementation of many worthwhile services and could cost the railroad needed political support. Amtrak's national network currently is a skeletal system of 15 long-distance routes, the Northeast Corridor, and some legacy short-haul routes.<sup>1</sup> Most of the other short-haul routes have been initiated and funded by approximately 15 states, many considered to be “blue states.” There is little reason that a newly elected conservative member of Congress would want to support a national network that provides minimal or no service to the heartland. Current proposals to extend an existing state-supported short-haul train, the *Heartland Flyer*, traveling from Fort Worth, Texas, to Oklahoma City, to Amtrak's Chicago–Los Angeles line—and to reinstate the *Pioneer* between Denver, Colorado, and Portland, Oregon—illustrate the practical difficulties of this approach:

- In the case of the *Heartland Flyer*, Amtrak proposes to provide the equipment and operate the train if the state of Kansas will pay the operating deficit.
- Amtrak has been reluctant to restore the *Pioneer* as a national route, fearing that the limited ridership potential will not justify the substantial capital and operating costs.

<sup>1</sup> PRIIA requires that in 2013 states assume the responsibility for these short-haul trains, which have been operating since Amtrak's formation in 1971. Examples include certain trains operating between New York City, Albany, and Buffalo, New York; Chicago, Illinois, and Detroit, Michigan; and Chicago and St. Louis, Missouri.

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**A southbound *Heartland Flyer* boards at the Norman, Oklahoma, station.  
(Photo: Nicholas Benson)**

Interstate passenger trains are inherently difficult to initiate at the state level. Individual states have different philosophies and approaches on funding railroad and transit-related projects. Some have no aversion, either legally or philosophically, to subsidizing passenger rail service, while others cannot or do not want to fund trains. Some states claim their constitution precludes subsidizing commercial enterprises or funding projects of internal improvement—a concern voiced by many legislators is that the service would require a never-ending subsidy. Other states, such as Kansas, are willing to provide capital matching funds for track, right of way, and facility improvements that include engines and rolling stock, but not for operating grants. Kansas has an ongoing program of funding light-density rail freight projects and could justify a similar investment in projects that benefit both freight and passenger service. U.S. Senator Jerry Moran (R-Kans.) has been a longtime advocate for the short-line railroad tax credit and for federal branch line assistance programs, and likely would support this approach to passenger rail.

One possible solution is for a state to ask Amtrak to initiate an interstate route as part of its national network for a trial period. The state would purchase or lease the engines and rolling stock and make them available to Amtrak. The state also would be responsible for financing or providing passenger-specific facilities and track or right of way upgrades and for providing an initial agreed-upon working capital account. As with recent state-initiated Amtrak services, the state would set certain performance criteria and goals for Amtrak to meet during the initial term. To the extent that the train covered its direct operating costs, Amtrak and the state then would split those “profits” and reinvest them in the service. If the train met or exceeded performance goals, the train would become a permanent part of Amtrak’s national system. If not, the train could be discontinued—absent a state subsidy agreement.

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## CALTRAIN RECEIVES FIRST-OF-ITS-KIND FEDERAL WAIVER

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**Dominic DiBrito and Camille Tsao**

DDiBrito@ltk.com; CTsao@hntb.com

*DiBrito is Senior Vehicle Engineer and San Francisco Bay Area Manager, LTK Engineering Services, Santa Rosa, California. Tsao is Principal Transportation Planner and Associate Vice President, HNTB Corporation, Oakland, California.*

In May 2010, the FRA granted a conditional waiver to Caltrain, a San Francisco Bay-area commuter rail operator, to run a mix of conventional diesel-haul equipment and noncompliant electric-powered vehicles on its San Jose–San Francisco corridor. The first of its kind to be granted to a U.S. commuter railroad, the waiver reflects the growing demand for lighter-weight, high-performing trains that operate all over the world—but that are not permitted to operate on the same tracks and during the same time as conventional trains, under current FRA regulations. Recent support for high-speed rail across the country also has raised this issue, since high-speed trains use similar vehicle technology and are being planned in existing rail corridors. In some cases, they would share right of way—or even track—with conventional freight and passenger trains in these corridors.

While the Caltrain corridor is one section of the proposed California high-speed rail system, the waiver only applies to Caltrain as it exists today, with the addition of electrified commuter service operating in the 50-mile corridor owned by the Peninsula Corridor Joint Powers Board. The waiver is a critical step in modernizing Caltrain's systems and equipment and will allow the operator to proceed with its vehicle replacement program, which includes replacing a majority of its diesel-powered locomotives and gallery cars with electric multiple units. The waiver was granted on the following conditions:

- That freight trains would be temporally separated from passenger trains—running only late at night, with all other hours reserved for passenger operations—except in the South Terminal area, where freight currently operates at all hours of the day;
- That grade crossing improvements would be implemented, where practical, to reduce the probability of incidents at those locations; and
- That Caltrain would install a positive train control system, which would provide train-to-train protection, overspeed protection, and roadway worker protection.



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**Proposed next-generation Caltrain  
equipment at Menlo Park, California.**

**(Photo: Alstom Transport)**

The FRA recently commissioned the Railway Safety Advisory Committee to convene a task force to recommend a standardized approach to applying for and obtaining shared-use waivers similar to the one granted to Caltrain. Shared-use advocates throughout the industry hope that this effort will lead to waivers that consider certain European-style vehicles equivalent to FRA-compliant vehicles. This would allow these vehicles to operate on any railroad that meets basic safety and operational requirements and possibly would eliminate the need for traditional temporal separation, as well as other common conditions placed on shared-use waivers such as speed restrictions. Shared-use advocates also see these developments as a precursor to the revision of the Code of Federal Regulations, which would eliminate the need for a waiver altogether.

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RAIL'S NEW ADVANTAGE? THE GROWING USE  
OF PORTABLE ELECTRONIC TECHNOLOGY  
AMONG TRAVELERS

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**Joseph P. Schwieterman and Lauren Fischer**

[jschwiet@depaul.edu](mailto:jschwiet@depaul.edu); [lfische6@depaul.edu](mailto:lfische6@depaul.edu)

*Schwieterman is Director, Chaddick Institute for Metropolitan Development and Professor, Masters of Public Service program, DePaul University, Chicago, Illinois. Fischer is Associate Director at the Chaddick Institute.*

In the six months leading up to March 2011, the strengthened economy, improved on-time performance, and new service in some corridors have led to a robust growth in passenger train traffic in intercity corridors—approximately 8 percent over the same period the previous year. Fuel-price escalation and the resulting rise in the cost of auto and airline travel may also be a contributing factor. At least some of the growth seems to come from a less-appreciated factor, however: an increase in the percentage of people who use portable electronic devices such as smart phones and netbook computers for work- or pleasure-related tasks while traveling.

Fifteen months ago, we launched a study to assess how intercity passengers use portable technology. Our study measures the extent to which travelers use electronic devices at randomly selected points on intercity trips and considers the type of technology involved—for example, whether the activity observed involves the use of an LCD screen, such as those on laptops or smart phones, or whether it involves an audio function, such as cell phones or music players.

The data-collection team, which includes several advanced graduate students, has collected data on 235 bus and rail trips so far, recording more than 15,000 unique-passenger observations. The team has found that Amtrak riders and curbside bus passengers, such as those using Megabus services, use technology at substantially higher rates than users of other modes. At any given point, roughly 37–38 percent of these passengers are engaged with portable devices—compared to approximately 18–22 percent on commercial flights. Usage of portable electronic devices on the *Acela Express* was unsurpassed, exceeding 50 percent of passengers on some trips.

Recent advances in portable technology appear to provide a powerful new advantage for bus and train operators. Anyone who has observed someone foolishly trying to send a text message while driving—or hastily trying to complete a cell phone call before a flight—understands how mode choice can affect communication options. Air travel is at a particular disadvantage because of its restrictions on the use of electronic devices and the inconvenience created by dense cabin configurations.

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These findings offer a perspective on why carriers have invested so heavily in the installation of power outlets and WiFi over the past year. WiFi became available on Acela Express last spring but remains absent on most conventional trains. A phased roll-out is advancing in certain Amtrak corridors. Greyhound also is installing WiFi on many routes.

In late 2010, we consistently saw a 2–3 percentage-point increase in the number of train travelers using technology compared to the same period in 2009. We also find that travelers use video devices to a much greater extent, which suggests that they are engaged in more intensive tasks. Finally, our data shows that technology use on bus trips tends to fall as conditions become more crowded. This is not observed on passenger trains, where the seating configuration is more spacious.

*These results were presented at the TRB Annual Meeting on January 24, 2011. For a copy of the paper or to provide feedback, e-mail [jschwiet@depaul.edu](mailto:jschwiet@depaul.edu).*

## Newsletter Comments

We look forward to your feedback on the format and the content of this publication. Comments on this newsletter, and most especially, continued contributions by committee members, friends of the committee, and others can be sent to the editor:

Penny Eickemeyer  
[peickemeyer@utrc2.org](mailto:peickemeyer@utrc2.org)