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A New Alignment: Strengthening America's Commitment to Passenger Rail

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"States will play an increasingly prominent role shaping the future of American passenger rail."

Summary

American passenger rail is in the midst of a renaissance. Ridership on Amtrak—the primary U.S. carrier—is now at record levels and growing fast. This research shows that the country's 100 largest metropolitan areas are primarily behind this trend, especially ten major metros responsible for nearly two-thirds of total ridership. Driving the connection between these metropolitan areas are short-distance corridors, or routes traveling less than 400 miles, that carry 83 percent of all Amtrak passengers. States now have formalized relationships with Amtrak to upgrade tracks, operate routes, and redevelop stations. The result is a new federalist partnership where Amtrak, the federal government, and states share responsibility for the network's successes and failures. To continue the reinvention, this report recommends that Amtrak, the federal government, and states should:

- Broker a new agreement between Amtrak and the states to share operating costs and other responsibilities for corridors longer than 750 miles;
- Refine existing programs to promote intermodalism, empower broader funding flexibility towards rail activities, and create a dedicated funding source for future rail investments;
- Complete a national rail plan, do more to promote multistate rail compacts, and foster a stronger relationship between public agencies and private capital and management firms

Introduction

Across the nation, there are ongoing deliberations as to which transportation and infrastructure assets will support the next American economy. The freight railroads tout their energy efficiency and role in exporting goods. Aviation is a key industry when it comes to fostering the global intermetropolitan connections critical for future economic growth. Car manufacturers are recasting themselves as consumer electronics manufacturers, expanding notions of *mobility* into *connectivity*. And many mass transit agencies are experiencing something of a renaissance as they contribute to building communities instead of just moving people from point A to point B.

What about passenger rail and its notoriously beleaguered provider, Amtrak? Considered by some to be a big, bloated bureaucracy incapable of change and dependent on federal subsidies, it may seem more representative of a bygone era and no longer relevant in the globally-oriented and technologically-enabled metropolitan economies of today.

But look again. Although faced with an uncertain future ever since its creation in 1971, Amtrak is reinventing itself.

A new partnership between states and the federal government focused on improving operations and financial sustainability is taking hold. As a result, it has opened up a valuable and important debate about the very future of American passenger rail.

This report is intended to inform that conversation by examining key trends of passenger rail in America today. First, we assess national rail travel trends over time, looking at passenger data since 1997. We then disaggregate those national passenger statistics to uncover the specific metropolitan areas generating the majority of travel. The next section analyzes routes based on their length, examining both ridership and financial performance. Finally, we synthesize these findings into a series of federal implications and implementable recommendations for policymakers.

In the end we find that because of this new policy alignment, passenger rail in the United States is on the track to success. But given Amtrak's complex and unique nature as a quasi-public national corporation, several key reforms are needed to enhance the new model for federalism and support dynamic metropolitan growth.

Background

For a generation, American passenger rail has existed in an amazingly difficult political sphere. From Amtrak's creation all the way through the recent dust-up over high speed rail, attitudes in Washington waxed and waned.

Following World War II, the private passenger rail industry in the United States suffered. Rapid decentralization of metropolitan areas and an aggressive national interstate highway construction program created a dramatic shift towards automobile and truck travel.[1] Subsequent advances in aviation further reduced ridership, and both freight and intermetropolitan passenger rail miles dropped sharply.

At several points, the federal government intervened, not only to maintain passenger rail service, but also to sustain and revitalize the railroad companies themselves. In the mid-1950s, declines in industrial production and increased operating costs, especially in the eastern United States, meant many railroad companies were in deep financial trouble. In response, Congress passed the sweeping Transportation Act of 1958. That law provided $500 million in loans to railroad companies and enabled them to abandon certain passenger routes and shift some of their services toward more profitable freight business.[2] Partly as a result, 75 percent of the passenger train mileage in the United States disappeared between 1958 and 1971.[3]

In order "to do something about improving the speed and the convenience" of passenger rail travel in the United States, President Lyndon Johnson signed the High-Speed Ground Transportation Act in September 1965, which provided funding to develop and demonstrate advanced rail technology in the Northeast Corridor from New York to Washington.[4] These original "Metroliners" were developed as a public-private partnership between the U.S. Department of Transportation and companies like General Electric and Westinghouse and began operation in 1969.[5]

Alarmed by continued ridership declines overall and threats of more route abandonment, Congress passed the Rail Passenger Service Act in 1970. For the first time, the federal government removed the mandate that rail firms provide passenger service. It also created the National Railroad Passenger Corporation, later known as Amtrak, allowing private rail companies to join the new national system. Amtrak was given the exclusive right to operate on the freight rail companies' tracks and was "given preference over freight railroads in regard to track use."[6] According to one analyst, it was the first time in American history that Congress intervened in the economy "to save a service that was being replaced by [other] alternatives."[7] Almost all private railroads would henceforth provide only freight service.

Amtrak was initially created as a for-profit enterprise with common stock issued only to railroads, though only four chose to become stockholders.[8] The law also charged the federal transportation secretary with choosing the metropolitan areas that would constitute the basic system of service. The initial plan was for lines radiating out from Chicago and New York, with routes chosen based on a set of clear criteria including cost effectiveness. However, once the plan was released for comment, "political resource allocation abounded through the system" and additional routes were added.[9]

While some freight companies enjoyed success under the new arrangement, major problems arose in the Northeast. A series of bankruptcies, including that of the enormous Penn Central Transportation

Company, forced Congress to create an Amtrak-like for-profit entity on the freight side, later known as the Consolidated Rail Corporation (Conrail). Importantly for passenger rail service, Amtrak acquired most of the railroad tracks between Boston and Washington as a result of the new legislation—about 365 miles. Previously, Amtrak did not own any of its trackage.[10]

Shortly thereafter, as operating losses continued to mount and it became clear that Amtrak would not be financially stable, Congress amended Amtrak's statute in 1978, so that it would now be "operated and managed as a for-profit corporation" instead of just "a for-profit corporation."[11] The idea behind this subtle change was that although Amtrak might not be totally free of federal subsidies to fund its operations, it would be run more like a business. It would have clear goals and sounder financial management, while making a transition to more alternative funding sources, especially from the states.

During the 1980s Amtrak drew little support from President Ronald Reagan, who proposed "zeroing out" Amtrak in all eight of his annual budget proposals to Congress. By the mid-1990s—and after over $20 billion in federal support—Congress opted for a different approach. The Amtrak Reform and Accountability Act of 1997 decreed that the corporation would be operationally self-sufficient within five years and authorized it to both add new routes and close others. The Amtrak Reform Council was established to oversee this transition.

The decree was not met. At the end of fiscal year 2001, Amtrak announced a record operating loss of $1.1 billion, and the Reform Council declared, "Amtrak is no closer to self-sufficiency today than it was in 1997."[12] The council advised continued government funding of the program while simultaneously laying out a plan for the restructuring of Amtrak. The proposal recommended that it be restructured as a federal agency that would provide oversight to two companies, one that would run national passenger rail operations and another that would deal specifically with the Northeast Corridor. After a transition period, Amtrak would have the authority to franchise certain routes and operations.

The Reform Council's plan met strong opposition in Congress and the federal government continued to provide financial support to Amtrak without implementing any of the council's major recommendations. In 2005 and 2006, the controversy over the future of America's passenger rail network boiled over. President George W. Bush's fiscal year 2006 budget once again proposed eliminating all operating subsidies, which stood at $700 million in 2005, and Amtrak's president was fired in November 2005 after refusing to step down.[13]

Despite the bleak period, Amtrak survived. But the years of tension and uncertainty required federal and state policymakers to broker a new arrangement to improve the company's finances and operating performance.

The Passenger Rail Investment and Improvement Act (PRIIA) of 2008 laid out a new vision and sought to reorient the federal-state relationship through a five-year authorization. Until PRIIA, Amtrak limped from annual appropriation each year "without knowing how much funding Congress would provide," making it difficult (and costly) for Amtrak to conduct long-term planning and investment decisions.[14] While the new arrangement does not provide for certainty in annual appropriations, it did allow for the restructuring of debt and loans and provided a longer-term approach for improving performance. PRIIA directed Amtrak to establish metrics and benchmarking across multiple operational categories. This included in-depth performance plans for the system's long-distance routes, and maintains the Federal Railroad Administration's authority to withhold funds if Amtrak failed to meet certain performance goals.

But achieving better performance—both financially and operationally—also demanded a new kind of commitment from Amtrak's state partners. Therefore, reinforcing the need for state involvement, PRIIA called for the development of state rail plans.[15] Those plans required: a central authority for operational management and representation with private and public authorities; coordination with other state and metropolitan investment plans; objectives and priorities for the rail program; and a reviewable plan of action. While drafting a plan is technically optional, failure to do so makes a state ineligible for new capital assistance grants under PRIIA.

PRIIA also sought to rationalize the funding responsibilities between the federal government and its state partners. Although Amtrak traditionally covered many of the costs associated with short-distance corridors, ranging from rolling stock to track maintenance, 15 states have paid at least a portion of the

Table 1. States Ranked by Operating Support for Amtrak Routes, Fiscal Years 2007-2011 (in thousands)

Sponsoring State	Number of Supported Routes	Total Support 2007-2011
California	3.00	$400,169
Illinois	3.25	$134,529
Pennsylvania	1.00	$40,487
Michigan	2.00	$35,362
Missouri	1.00	$33,539
Washington	0.50	$32,431
Oregon	0.50	$32,431
Wisconsin	0.75	$27,532
New York	1.00	$23,180
North Carolina	2.00	$22,167
Maine	1.00	$22,137
Vermont	2.00	$19,910
Oklahoma	0.50	$8,771
Texas	0.50	$8,771
Virginia	2.00	$135
Total		**$841,549**

Source: Brookings analysis of Amtrak internal financial data

operating expenses for 21 different routes in order to augment the rail service they would otherwise receive.[16] From 2007 to 2011, these state contributions totaled nearly $850 million (Table 1).

Some states devised their own agreements to share support for certain routes, such as Illinois and Wisconsin's 25/75 percent split for the *Hiawatha* service, and Oklahoma and Texas' 50/50 percent split for the *Heartland Flyer.* Other routes, despite crossing state borders, are only supported by one state. For example, while the *Downeaster* traverses three separate states in New England, Maine has served as the only sponsoring state beyond Amtrak. North Carolina, likewise, has served as the only sponsoring state for the *Carolinian*, despite the fact that this route extends from Charlotte to New York City. (See Box 1.)

A 2010 report found that few states have any dedicated funding for Amtrak operations. Support largely comes from annual appropriations from the general fund or from other transportation accounts. Exceptions include Pennsylvania, which dedicates a portion of the Public Transportation Trust Fund to intermetropolitan rail operations. Oregon uses a dedicated portion of revenue generated from personal license plate fees. Washington state taps motor vehicles sales taxes and car rental fees.[17] In contrast, other states restrict the use of other transportation funding, such as state gas tax proceeds, for anything but highways.

It is important to note that state support for intermetropolitan rail goes well beyond their operational support for certain Amtrak routes. Often states provide capital assistance for shared services like commuter rail, emerging high-speed rail, or other services like marketing and advertising.[18] Some states, such as California, also subsidize feeder bus services from rail stations to access rural areas.[19] In addition, metropolitan areas and localities can provide direct support, mostly through capital grants and contributions, for station rehabilitation.

With such variety in state operating and capital support, PRIIA attempted to bring more consistency to this federal-state partnership. It required Amtrak and the states to develop a uniform cost structure for intermetropolitan routes, taking into account the level of service provided, among other factors. The states reached agreement in March 2012 on a common funding formula for all parties, of which the operational funding potion will take effect in October 2013.[20] Importantly, this provision only applies to high-speed rail corridors and the short-distance rail corridors that stretch 750 miles or less from end to end and are located outside the Northeast Corridor (NEC). Long-distance routes, as such, are not included.

While PRIIA significantly altered the federal-state partnership on passenger rail, the program remains dependent on the federal general fund. Amtrak is still without a dedicated funding source for its operations and capital investments. In this way, PRIIA did not change the political dynamics in Washington.

Unexpectedly, it was the American Recovery and Reinvestment Act in 2009—and the $8 billion it provided to jumpstart the federal High Speed Rail program—that altered the political landscape. The program was hugely over-subscribed by state applicants seeking funding via the competitive grants; the federal government received $102 billion in pre-applications and $55 billion in final applications. In the end, federal authorities funded 38 projects in 31 states, with most funds flowing to 13 specific corridors.[21] By making major capital funding available, the federal government unleashed a wave of interest across the country.

Examples of State Innovation in Passenger Rail

Following PRIIA, states will play an increasingly prominent role shaping the future of American passenger rail. Along with Amtrak, they must target investments more precisely and develop plans more comprehensively, better tailoring maintenance needs and capital improvements to local demands. Some states, notably North Carolina and Maine, have already adopted such strategies and offer innovative and replicable models.

North Carolina: A Sustained Commitment

There are currently two state-supported routes in North Carolina, the *Carolinian* and the *Piedmont*, largely successful because of continued backing at the state level. Responding to increased ridership and revenues, the North Carolina Department of Transportation's (NCDOT) Rail Division has aimed to improve on-time performance, add service capacity, expand community engagement, and identify other long-term priorities along the two routes.[22]

The *Carolinian* runs between Charlotte and New York City, though North Carolina is the only state contributor to the route's operation. The state actively markets the service, which also benefited from the rehabilitation and construction of stations that allowed for greater access to passenger rail and heightened the economic potential of surrounding communities.[23]

Created in 1995, the *Piedmont* operates daily round-trip trains between Raleigh and Charlotte with several intermediate destinations. The *Piedmont* is unique compared to many other routes across the nation, as Amtrak operates it yet NCDOT designed and owns its rolling stock.[24] Perhaps most significantly, the *Piedmont* operates on tracks that fall under the authority of the state-owned North Carolina Railroad Company (NCRR).[25] While NCRR leases rights to Norfolk Southern Railway for freight movement, it encourages economic development along the rail corridor and completes various capital improvement projects. Since the state owns the NCRR, North Carolina is able to exert more control over its rail infrastructure, making it easier to repair tracks and consider other improvements. The *Piedmont*, as such, has met rising demand for passenger rail service and receives much needed investment for capital projects.

Maine: A New Governance Model

The Boston-Portland-Brunswick *Downeaster* is one of the fastest-growing Amtrak routes nationally, with state-led efforts primarily driving its creation and success.[26] The Maine State Legislature established the Northern New England Passenger Rail Authority (NNEPRA) in 1995 to manage passenger rail service from Boston to Maine. NNEPRA was critical in carrying out a $62 million track rehabilitation project to make way for the *Downeaster*.[27] More recently, NNEPRA has invested an additional $10 million to allow for greater speeds and improve service reliability.

As a regional body, NNEPRA has helped forge partnerships and coordinate action on passenger rail service at the state level. By working with local communities and stakeholders, including Pan Am Railways and the Massachusetts Bay Transportation Authority (MBTA), NNEPRA is able to develop an efficient and responsive planning strategy. Through this process, NNEPRA can also manage its capital projects and link the *Downeaster* service to broader economic development opportunities.

With NNEPRA's support, the *Downeaster* has benefited communities along its route in a variety of ways. Through a series of marketing campaigns, for example, the *Downeaster* has drawn thousands of additional travelers to Maine each year, increasing spending, tourism, and the potential for future development. In total, the *Downeaster* is estimated to directly or indirectly employ more than 200 people, while having a $12 million annual economic impact from visitors to Maine.[28]

Many of the winners from that process included members of multistate compacts. For example, the eight-state Midwest Regional Rail Initiative, who adopted a common rail plan in 2004 and jointly applied for ARRA funding, received nearly as much funding ($2.2 billion) as did California ($2.3 billion). Virginia and North Carolina also adopted a compact in 2004, and received a total of $620 million. Each of these states will partner with Amtrak for the high speed service. Most of the projects are directed to upgrading and modernizing the existing passenger rail network, such as improving signals and surfaces in Vermont, siding extensions in Washington state, and testing 110 mph service between Chicago and St. Louis.[29] For its part, Amtrak implemented required reforms, issuing performance reports on long-distance corridors and formally mapping a future for the Northeast Corridor.

Despite these successes, 2013 has the potential to be a pivotal year for American passenger rail. PRIIA expires in September and while Congress has pledged to make reauthorization of the law a priority, certain thorny issues like the future of long-distance corridors still remain. Meanwhile, the new requirement for states to financially support their short-distance corridors is less than a year away from implementation, meaning annual costs will go up in some places. Related, the potentially profitable routes on the coasts continue to be frequent targets in calls for privatization. Finally, even with PRIIA's significant federal-state partnership reforms, the program still remains dependent on the federal general fund and operates without a dedicated funding source.

In light of the divergent attitudes towards passenger rail in America, this research aims to inform that debate through the use of localized ridership and financial data. The data tracks the modern history of Amtrak starting in 1997, the same year as the signing of the Amtrak Reform and Accountability Act, and concludes in 2012, four years into PRIIA implementation. This is the first analysis to focus on metropolitan area statistics for passenger rail rather than individual stations or cities. Its findings will help policymakers and state leaders better understand the location dynamics of Amtrak: where it works well, and the areas poised to benefit from new and expanded services.

Findings

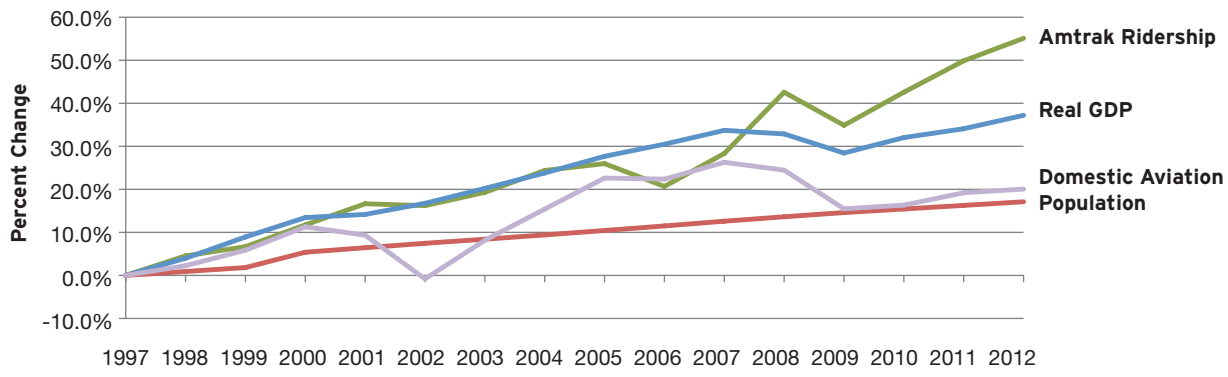
A. Amtrak ridership grew by 55 percent since 1997, faster than other major travel modes, and now carries over 31 million riders annually, an all-time high.

Amtrak experienced a significant increase in national ridership after 1997. Using Amtrak's fiscal period of October to September, Amtrak's total boardings and alightings jumped 55.1 percent from 1997 to 2012.[30] To put this increase in perspective, it outstrips population growth (17.1 percent) more than threefold over the same period and exceeds the growth in real gross domestic product (37.2 percent).[31] With Amtrak setting ridership records for nine of the past ten years, including the new all-time high in 2012, there is a great chance Amtrak's passenger growth will continue to far outpace growth in population and GDP.

In addition, Amtrak's passenger growth also exceeds all other domestic transportation modes (Figure 1).[32] The most appropriate modal comparison is domestic aviation, since Amtrak and major airlines compete along certain corridors. In this case, Amtrak more than doubled the growth in domestic aviation passengers (20.0 percent) over the same sixteen-year period. Similarly, Amtrak also far exceeded the growth in driving (measured by vehicle miles traveled per year; 16.5 percent) and transit trips (26.4 percent). All three modes do carry larger aggregate quantities of people, but these growth trends serve as evidence of changing attitudes toward train travel.

The ridership increase over the period was mostly one of continuous growth. As Figure 1 shows, in only three of the sixteen years was there an annual ridership drop in rail passengers, with the largest drop experienced between 2008 and 2009. The Great Recession affected passenger rail like most other industries, leading to a 5 percent drop in passenger levels between the two years. But since then Amtrak staged a major rebound—recapturing all of its passenger losses and setting record highs through the end of 2012. In contrast, the number of domestic airline passengers remains at late 2004 levels, still having not recaptured the record passenger levels pre-recession.

Figure 1. Growth Since 1997: Real GDP, Population, Amtrak Ridership, and Domestic Aviation



Source: Brookings analysis of BEA (Real GDP), Census (Population), Amtrak (Ridership), DOT (Aviation) data

B. The 100 largest metropolitan areas generate nearly 90 percent of Amtrak's ridership, especially those in the Northeast and West.

The country's 100 largest metropolitan areas are responsible for 87.8 percent of Amtrak's ridership. This was a slight increase from the same metropolitan areas' ridership share in 1997, proving there is a consistent ridership concentration in these large population centers.

While the largest metropolitan areas dominate Amtrak ridership, the story is even more telling when combined with national population shares. The 100 largest metropolitan areas generated 87.8 percent of all boardings and alightings in 2012, but they did so with only 65.0 percent of the country's population. Comparatively, the remaining metropolitan areas' ridership share was less than half of their national population share. Trailing even further, the micropolitan areas' ridership was only slightly over a quarter of their national population share. Last were the non-metropolitan/micropolitan areas, where ridership was merely an eighth of their national population share.[33]

Table 2. Amtrak Ridership, Fiscal Years 1997 and 2012, and Population, Calendar Year 2011

	1997		2012		2011	
Geography	**Ridership**	**Share**	**Ridership**	**Share**	**Population**	**Share**
System	**40,282,852**	**100.0%**	**62,481,130**	**100.0%**	**313,910,777**	**100.0%**
Micropolitan Areas	884,499	2.2%	1,625,536	2.6%	30,943,552	9.9%
Other Metropolitan Areas	4,202,729	10.4%	5,316,712	8.5%	56,592,916	18.0%
Non-Metro/Micro	513,706	1.3%	686,393	1.1%	24,649,462	7.9%
100 Largest Metropolitan Areas	34,681,919	86.1%	54,852,489	87.8%	201,724,847	64.3%
50 Largest Metropolitan Areas	*31,175,876*	*77.4%*	*48,210,938*	*77.2%*	*166,033,092*	*52.9%*
25 Largest Metropolitan Areas	*28,197,816*	*70.0%*	*43,163,838*	*69.1%*	*127,027,407*	*40.5%*
10 Largest Metropolitan Areas	*22,312,105*	*55.4%*	*32,926,198*	*52.7%*	*80,439,034*	*25.6%*
5 Largest Metropolitan Areas	*17,354,655*	*43.1%*	*23,535,255*	*37.7%*	*53,524,167*	*17.1%*

Note: Ridership measured as total boardings and alightings

Source: Brookings analysis of Amtrak and Census data.

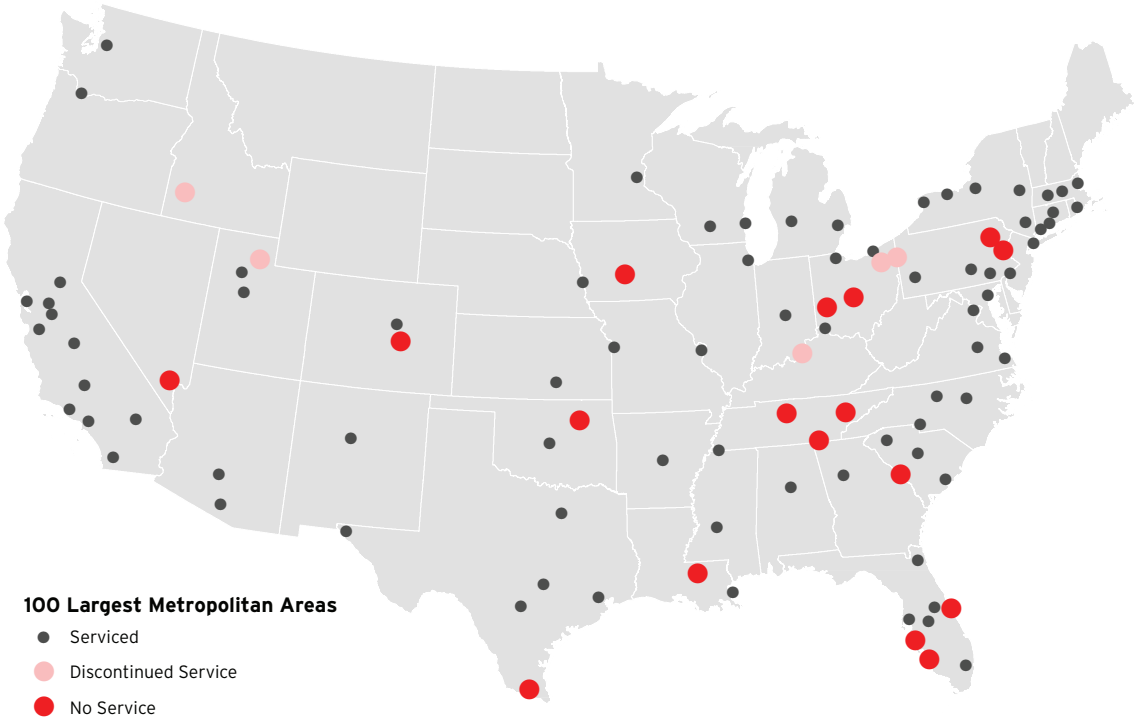
Table 3. Amtrak Ridership, Fiscal Years 1997 and 2012, 100 Largest Metropolitan Areas by Region

	1997		2012	
Region	**Boardings and Alightings**	**Share**	**Boardings and Alightings**	**Share**
Northeast	17,035,153	49.1%	25,103,926	45.8%
South	6,930,215	20.0%	11,051,615	20.1%
Midwest	3,579,625	10.3%	5,935,847	10.8%
West	7,136,926	20.6%	12,761,101	23.3%
All 100 Metros	**34,681,919**	**100.0%**	**54,852,489**	**100.0%**

Note: Ridership measured as total boardings and alightings

Source: Brookings analysis of Amtrak and Census data.

Map 1. 100 Largest Metropolitan Areas' Amtrak Train Service



Note: The Desert Wind route served metropolitan Las Vegas through part of 1997, but there is no metropolitan ridership data for that year

Source: Brookings analysis of Amtrak and Census data (Regions Determined by Census)

It is important to note that while this analysis focuses on the 100 largest metropolitan areas, only 77 of them actually maintain passenger rail service (See Map 1 and Appendix A.) The only two Northeastern metropolitan areas in the top 100 without service—Allentown and Scranton—are relatively close to metropolitan Philadelphia and New York. In addition, none of the Northeastern metropolitan areas saw their service discontinued during the sixteen-year period. Only four of the West's 23 large metros (not including Honolulu) were without Amtrak service during 2012, and two of those metros—Colorado Springs and Ogden—are adjacent to metros with service. The two remaining metros, Boise and Las Vegas, both lost Amtrak service in 1997.[34]

Of the 38 large metropolitan areas in the South, 10 never enjoyed Amtrak service and Louisville only maintained service during a short period in the 2000s. The missing service is especially pronounced in Tennessee, where only Memphis carries Amtrak service to the North and South. Five of the 19 large metros in the Midwest are without service including Columbus, the largest in the country without Amtrak. Interestingly, Columbus and Dayton expected to receive service via ARRA's high-speed rail grants, but the state returned the funding prior to any capital investments.

C. Only ten metropolitan areas are responsible for almost two-thirds of Amtrak ridership.

Passenger rail in the United States is dominated by just a handful of major metros concentrated on the coasts,with the exception of Chicago. These ten places also were the only metros to generate over a million boardings plus alightings, whether in 2012 or in any of the other sixteen years. Table 4 shows that all 10 metros' ridership growth exceeded their population growth over the same period. As discussed in the next finding, all 10 metros maintain at least one Amtrak short-distance service.

Irrespective of national ridership shares, the vast majority of the 100 largest metro areas with Amtrak service experienced ridership growth during the sixteen-year period. Across the country, 69 of the 75 metros that had service in 1997 increased their total ridership by 2012, with an average increase of 89.3 percent. The two metros that added service during the period, Oklahoma City and Phoenix, also generated dramatically more ridership from their initial service year to 2012.

Leading this growth was a group of twenty metro areas that at least doubled their passenger levels during the period. In general, these metro areas tended to either enjoy short-distance connections with regional peers, receive capital upgrades either within their metro area or along one of their connected corridors, or both. Eight of those metros more than tripled their ridership: Phoenix, Dallas, Austin, Tampa, Lancaster, Harrisburg, Oklahoma City, and Boston. Another group of twelve metro areas saw ridership double: Sacramento, Indianapolis, New Haven, Little Rock, Provo, Greensboro, San Jose, Providence, Milwaukee, San Francisco, St. Louis, and Bridgeport.

Amazingly, only six metro areas experienced ridership declines between 1997 and 2012. Worcester and Denver were the only metro areas to lose more than 20 percent of its ridership, though three other metro areas lost at least 10 percent: Cincinnati, Jacksonville, and Greenville, SC.[35] As discussed below, none of these six metro areas maintains short-distance corridor service.

Appendix A includes ridership statistics, measured by both boardings and alightings, for the 100 largest metropolitan areas.

Table 4. 10 Largest Metropolitan Areas by Amtrak Ridership, Fiscal Years 1997 through 2012

Metropolitan Area	Boardings and Alightings: 2012	Boardings and Alightings Change: 1997 to 2012	Population Change: 1997 to 2011	National Boardings and Alightings Share: 2012
New York-Northern New Jersey-Long Island, NY-NJ-PA	10,855,647	22.9%	10.6%	17.4%
Washington-Arlington-Alexandria, DC-VA-MD-WV	5,797,689	59.9%	27.2%	9.3%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5,295,206	26.0%	8.9%	8.5%
Chicago-Naperville-Joliet, IL-IN-WI	3,757,555	64.1%	9.2%	6.0%
Los Angeles-Long Beach-Santa Ana, CA	3,424,851	71.5%	9.8%	5.5%
Boston-Cambridge-Quincy, MA-NH	3,167,716	211.1%	9.0%	5.1%
San Francisco-Oakland-Fremont, CA	2,058,032	113.4%	11.4%	3.3%
Baltimore-Towson, MD	1,776,500	49.8%	10.3%	2.8%
Sacramento--Arden-Arcade--Roseville, CA	1,760,373	197.2%	29.6%	2.8%
San Diego-Carlsbad-San Marcos, CA	1,536,298	26.5%	15.4%	2.5%

Note: Ridership measured as total boardings and alightings

Source: Brookings analysis of Amtrak and Census data.

D. The short-distance routes consistently dominate Amtrak ridership share and captured nearly all of Amtrak's recent growth

Simply put, short-distance routes are the engines of Amtrak ridership.[36] When only considering corridors of 400 miles or less—an accepted distance for optimal rail ridership—these short corridors are responsible for over 80 percent of all Amtrak ridership.[37] This finding and Finding E subdivide routes according to Amtrak's reporting divisions and base distance on the weighted distance method. For more information, see Appendix C.

Ridership divides somewhat equally across the sub-400 mile category: twelve routes are less than 200 miles, six routes are between 200 and 300 miles, and eight routes are between 300 and 400 miles. Together, these routes produced 82.9 percent of national fixed ridership in 2012. Amtrak's departures tend to mirror this ridership share; about nine in ten daily departures occur on one of these 26 routes.

These short-distance routes are also responsible for nearly all of Amtrak's ridership gains during the sixteen-year period. They added over 10.3 million riders between 1997 and 2012; a 90.3 percent share of national ridership gains. Table 5 segments these routes by length and includes categories for those under 400 miles (the optimal length for competitive intermetropolitan rail), over 750 miles (those routes not required to have state operating support), and those in between.[38]

The under 400-mile routes are anchored by the strongest metropolitan performers from Finding C. The Northeast Corridor and Acela trains combined to move over one-third (36.5 percent) of all riders in 2012. This has generally been the historical trend: in the late 1990s the *Northeast Regional, Clocker,* and *Metroliner* routes (all of which operated along the Northeast Corridor) contributed over half of the nation's ridership. A major reason for this outsized share is the metros served by the corridor—the trains connecting Boston to Richmond through New York, Philadelphia, and Washington service 11 of the nation's 100 largest metropolitan areas.[39] The routes also enjoy 47 typical daily departures, creating optimal scheduling flexibility for passengers.[40]

The next two strongest performers are the intermetropolitan routes in Southern and Northern California. The *Pacific Surfliner* primarily connects San Diego and Los Angeles, with a portion of trains running north to Santa Barbara and San Luis Obispo via Oxnard. Traveling an average weighted distance of 183 miles, these twelve daily departures generated 8.5 percent of national ridership in 2012. To the north, the *Capitol Corridor* between Sacramento and Oakland or San Jose carried another 5.6 percent of riders. The *Capitol Corridor* is even shorter (113 weighted miles) but relies on 15 typical departures, creating less ridership per departure than its cousin to the south. All six of the remaining top 10 routes also travel less than 400 miles, and they too involve the same core metropolitan areas from the previous four routes.[41]

However, traveling a short distance is no guarantee of large ridership numbers. The routes producing three of the four smallest ridership shares also travel less than 400 miles: the *Hoosier State, Ethan Allen Express*, and *Heartland Flyer*. Yet, it is important to note that while these routes may generate low ridership numbers, their limited distance and operational costs are a small financial burden for Amtrak.

Table 5. Amtrak Ridership, by Route Length, Fiscal Years 1997 to 2012

	FY 1997		FY 2012		Change: FY97-FY12	
Corridor Length	**Ridership**	**Share**	**Ridership**	**Share**	**Ridership**	**Percent**
Under 400 Miles	15,491,167	78.6%	25,857,883	82.9%	10,366,716	66.9%
400 - 750 Miles	476,000	2.4%	600,511	1.9%	124,511	26.2%
Over 750 Miles	3,741,000	19.0%	4,736,187	15.2%	995,187	26.6%
TOTAL	**19,708,167**	**100.0%**	**31,194,581**	**100.0%**	**11,486,414**	**58.3%**

Note: These corridor statistics exclude all special trains, special buses, and connective bus service

Source: Brookings analysis of Amtrak data

More problematic are the far-traveling routes, such as the *Sunset Limited* and *Cardinal,* which generate low ridership levels, operate less than daily, and still require the capital and operational inputs necessary for long-distance train travel.[42] These routes also suffer from poor on-time performance—in 2012, Amtrak's long-distance routes averaged an on-time performance of only 70.7 percent, compared to 82.0 percent for short-distance routes and over 85 percent on the Northeast Corridor. Poor performance and delays further increase costs in terms of overtime payments to rail workers and increased fuel costs. On a more fundamental level, poor on-time performance discourages ridership due to the increased unreliability, which in turn leads to depressed revenues.

Appendix B includes ridership statistics for all 44 routes.

E. Combined, Amtrak's short-distance corridors generated a positive operating balance in 2011—while corridors over 400 miles returned a negative operating balance.

Amtrak's finances are a constant source of debate on Capitol Hill. However, catchall financial rhetoric ignores the considerable differences within the company's operating portfolio, especially when grouping corridors by travel distance. This Finding assesses Amtrak's financial performance by comparing corridor revenues and their operating costs, which exclude certain capital charges. These financial measures do not include non-passenger related revenues or other Amtrak costs, such as depreciation; they only reflect corridor-specific operations as far as Amtrak can appropriately assign them.[43]

Based on that metric, corridors of less than 400 miles delivered a positive operating balance to Amtrak in 2011, while all other corridors returned a negative operating balance (Table 6). Driving the financial disparity are the significantly higher ridership figures carried by the short-distance corridors and the sizable funding support many of those corridors receive from their state partners. In contrast, corridors over 400 miles carry less than 20 percent of system riders and none over 750 miles receive any state financial operating support.

Yet even with a positive operating balance, the sub-400 mile grouping includes two distinct types of corridor performances.

The first grouping includes the two most popular routes in the Northeast Corridor, the *Acela* and *Northeast Regional*. Combined, those two routes generated a net operating balance of $205.4 million in 2011, with $178.8 million derived from *Acela* operations alone. This is not a new phenomenon as over the five fiscal years ending in 2011, these two Northeast Corridor routes delivered an average positive balance of $135.9 million per year. They also generated this return via their own operations—the two routes received essentially no state funding support for operations during those five years.[44] However, since Amtrak owns most of the track in the Northeast Corridor and must maintain the tracks for its own services plus regional freight and commuter functions, it incurs higher long-term depreciation costs not included in these operating statistics.

State support was a major factor in the other grouping of sub-400 mile corridors. In 2011, these 24 corridors received a total of $185.1 million in direct funding, representing 31 percent of their routes' "revenue." By adding this support to their revenue-cost calculation, the 24 corridors improved their financial performance from a $351.2 million negative operating balance in 2011 to a $166.1 million

"Short corridors are responsible for over 80 percent of all Amtrak ridership."

Table 6. Financial Performance by Route Length, Fiscal Year 2011

	Financials ($ mil)			Number of Routes	
Corridor Length	**Revenue**	**Costs**	**Balance**	**Total**	**Share**
Under 400 Miles	$1,587.7	$1,541.1	$46.6	26	59.1%
400 - 750 Miles	$62.6	$78.9	($16.3)	3	6.8%
Over 750 Miles	$518.4	$1,116.0	($597.6)	15	34.1%
TOTAL	**$2,168.7**	**$2,736.0**	**($567.3)**	**44**	**100.0%**

Note: Does not include Special Trains and Thruway bus services

Source: Brookings analysis of Amtrak data

negative balance, more than cutting the annual loss in half. Critically, adding state financial support helped make sure these 24 corridors did not offset the positive balance from Northeast Corridor operations.

The story was considerably different for Amtrak's long-distance corridors. Every single one of the eighteen corridors traveling longer than 400 miles operated at a negative operating balance in 2011, whether traveling just over 400 miles on the *Pennsylvanian* or clear across the country on the *California Zephyr*. Moreover, the negative balances from these long-distance corridors were large enough to more than offset the short-distance corridors' positive balance. The long-distance corridors also did not benefit from outside help; only two of the routes between 400 and 750 miles long receive state funding support, a major difference from the sub-400 mile corridors.

The negative operating balances ranged from relatively minor to extremely large. The three corridors between 400 and 750 miles—the *Vermonter, Pennsylvanian,* and *Carolinian*—combined to lose only $10.4 million in 2011. These combined losses were less than half of the losses on some of the highest ridership corridors like the *Pacific Surfliner* and *Empire Service*. On the other end of the ledger, the two longest corridors in the Amtrak network—the *Southwest Chief* and *California Zephyr*—each lost over $60 million in 2011. Other corridors far exceeding 1,000 miles, like the *Empire Builder* and *Silver Star,* also lost at least $50 million in 2011.

As discussed below, the financial performance is only one aspect of how well a certain route performs. But it is an important consideration in the context of the upcoming reauthorization. In general, Amtrak corridors' financial performance suggests there could be a correlation between distance and Amtrak's definition of positive and negative operating balances.[45]

IV. Implications

Given the size of the country as well as the political, regulatory, and institutional circumstances to date, the story of America's passenger rail network is a complex one. This analysis is intentionally narrow in scope, focusing on critical trends intended to inform future debates around Amtrak and the emerging state and federal partnerships that will carry the railroad through difficult economic times.

Of course, scrutiny should be applied evenly to the entire American transportation network and not just to Amtrak alone. Much attention is given to the fact that other non-private passenger transportation modes are not "profitable," nor do they concern themselves with being so. Governments at all levels invest much more heavily in the key elements of the transportation network, whether through direct grants for highways, tax incentives for airlines, or appropriations for public transit and, overall, Amtrak covers a relatively large share of its costs.[46] As such, we agree that, like other transportation modes, "profitability" for Amtrak is not in and of itself the primary goal.[47]

Yet neither should Amtrak be exempt from scrutiny. There are several key implications that arise from this analysis that help us understand where it is efficient and effective, why it is successful or not, and what states and the federal government should consider.

A tale of two systems: operational efficiency versus geographic equity

Although a national system, America's passenger rail network is made up of two distinct types of routes: those less than 400 miles and those greater than 400 miles.[48]

The 26 routes traveling less than 400 miles make up the *operationally efficient* portion of the network. It includes the two most popular Northeast Corridor routes, the *Acela* and *Northeast Regional*, which operate between Boston and Washington D.C., including spurs into Virginia and western Massachusetts.[49] The positive operating balance from these two routes—which currently do not receive direct state operating subsidies—were enough to offset the net operating costs of the other 24 short-distance routes. Those other sub-400 mile routes typically enjoy direct state support (even before the federal PRIIA legislation) and always serve at least one large metropolitan area. In total, these 26 corridors carried 83 percent of all system riders in 2012.

The other 18 corridors traveling over 400 miles represent the *geographic equity* portion of the network. They include relatively short routes like the *Vermonter*, as well as the longest current service,

the *California Zephyr* between Chicago and San Francisco. They pass through nearly all 46 states that Amtrak serves, far more than their short-distance peers do. These routes also travel for vast stretches between major population centers and offer service to many smaller, relatively isolated communities with limited intermetropolitan alternatives. However, this regional coverage comes at the expense of low ridership figures: they carried only 17 percent of Amtrak's passengers in 2012 but, combined, constitute 43 percent of Amtrak's route-associated operating costs.

These are not arbitrary delineations. As previously discussed, research and international experience show that routes less than 400 miles are the most competitive, especially with air travel. In addition, current federal legislation makes a clear distinction between short- and long-distance routes by requiring states to financially support the former, but explicitly not the latter. However, many analyses, discussions, and testimony about Amtrak and its operations fail to recognize the sharp differences in the network.

Making metro connections: frequent service between large, regional metropolitan pairs

In addition to route length, having a direct connection between major metropolitan areas is another driver of higher Amtrak ridership. Across the past fifteen years, a consistent group of ten corridors, all less than 400 miles long, generate around 70 percent of total system ridership. Each of these routes involves many of the country's 100 largest metropolitan areas and benefit from the higher job and population densities present in those metropolitan cores.

The Northeast Corridor is particularly notable in this respect, connected by the metropolitan anchors of Boston, New York, Philadelphia, and Washington. These four metropolitan areas house over 35 million people, generate $2.3 trillion in annual output, and share historic and modern relationships. Similarly, all four metro areas suffer from high traffic volumes between them as well as the country's most congested airspace (New York-Philadelphia), making the rails an attractive alternative to some of the country's most delayed airports. Indeed, Amtrak boasts 75 percent of the share of the passenger rail/aviation market between New York and Washington.[50]

Beyond the Northeast Corridor, other well-traveled corridors also link large metropolitan partners. The *Pacific Surfliner* connects Los Angeles and San Diego, the *Capitol Corridor* joins San Francisco to Sacramento, and the *Hiawatha* connects Chicago and Milwaukee. These metropolitan areas are not only in close proximity to one another, but they are also economic engines of their respective regions, with at least one member of each pair experiencing above-average airport congestion and adding to intermetropolitan roadway traffic.

However, not every short-distance corridor benefits from such large metropolitan anchors. The *Hoosier State* runs between Chicago and Indianapolis, a similarly-sized anchor to Milwaukee on the *Hiawatha*. At double the distance and only one daily departure the *Hoosier State's* 2012 ridership (37,249) was just four percent of the Hiawatha's (819,493). Partly as a result, the Hoosier State lost over $100 per rider in 2012. Similarly, the *Heartland Flyer* connects Oklahoma City and Fort Worth, TX over a 206-mile, limited-stop alignment. Despite its connection to metropolitan Dallas, the fourth-largest metro area by population, the route carried fewer than 90,000 riders in 2012, and lost over $43 per rider that year.[51]

Several long-distance corridors also benefit from shorter segments connecting major metropolitan centers. The *Empire Builder* runs from Chicago to Seattle, but passes through metropolitan Milwaukee, Madison, and Minneapolis along the way. Over 120,000 passengers per year only travel this short-distance segment between Chicago and Minneapolis, and do so without the multiple daily departures typical of most short-distance corridors.[52] Similarly, the *City of New Orleans* runs between New Orleans and Chicago, but recent years show over 75,000 passengers only travel along the roughly 400 miles between New Orleans and Memphis.[53]

Policy and partnerships: the state commitment to intermetropolitan rail

Overall, the ridership and financial success of Amtrak's corridors are critically dependent on the company's operational and investment decisions. We found that state support for Amtrak operations and the policy environment under which the routes function are also important.

Prior to the federal PRIIA legislation in 2008, 15 states already recognized the importance of intermetropolitan rail and voluntarily subsidized operations for augmented service on 21 routes. Other

states—primarily those along the Northeast Corridor—contributed capital investments in stations and other improvements. In many cases, these contributions allow for additional rail service over and above Amtrak's base route system and for more frequent and efficient trains, which make the service more attractive and drive up ridership and ticket revenue.

PRIIA expands this relationship with its new formula for state support of short-distance routes, requiring states to contribute enough annual formula funds that each route is operationally break-even. By providing broader financial support, states have more "skin in the game" and are inclined to ensure their contributions receive prudent investment. Washington state and Oregon's commitment to the *Cascades* route demonstrates how this new financial dynamic reorients and strengthens the partnership between those states, freight rail companies, and Amtrak.[54] Passenger rail, in turn, adds a new dimension to statewide transportation plans and programs, provides more opportunities for intermodal approaches, and allows for bottom-up economic development strategies. In the past, states established a dedicated entity with planning and oversight authority or, in the case of Maine, established a new entity to develop and manage the system and serve as a direct conduit between policymakers and the traveling public.

States are also cooperating and collaborating with each other on multi-state compacts, as mentioned earlier with regard to the federal High Speed Rail program.[55] Several of those that missed out on awards did not have their multistate houses in order. For example, the corridor connecting Southern California with metropolitan Las Vegas suffered from having no dedicated funding and two competing alternatives. A southeastern agreement for a plan to connect Georgia, Tennessee, South Carolina, and North Carolina was formed only weeks before the announcement.

Successful operations also require cooperation between states, Amtrak, freight railroads, and commuter rail agencies.[56] This is not easy to do given the sometimes competing—though equally important—motivations and considerations for each party.[57] However, it is essential to ensure rail projects and plans do not stall.

But successful passenger rail service is also the by-product of prior reforms. For example, the frequency of trains and passengers in the Northeast Corridor largely resulted from Amtrak's ownership of most of the line between Washington, New York and Boston. Amtrak is also able to experiment with new technologies and faster speeds on other routes where it owns the tracks, such as the 62-mile segment between New Haven, Connecticut and Springfield, Massachusetts, 104 miles of the line between Harrisburg and Philadelphia, and a 97-mile segment of line in Michigan.

V. Recommendations

The remarkable shift toward federal-state collaboration on Amtrak should not be underestimated. While still a national program, the reformed roles for Amtrak and states are not representative of transportation's late 20th century federalism model where the federal government provides resources that rain down unencumbered to the state and metropolitan level. Rather, PRIIA encapsulates a new 21st century model that challenges our state and metropolitan leaders to develop deep and innovative approaches to solve the most pressing transportation problems.

However, more needs to be done.

With the economy in the midst of a slow recovery and state budgets adjusting to tighter times, every public investment should come under careful analysis and inspection. Yet, an emphasis on fiscal responsibility should not automatically mean scaling back of intermetropolitan rail investments or operations. In fact, these investments are as important as ever. Rather, states and the federal government should consider a range of recommendations to enable them to marshal the resources they already have and ensure that state efforts are more coordinated and efficient in the future.

As with other areas of infrastructure, recommendations for passenger rail tend to devolve into calls for increased federal spending. Such a call is probably justified especially over the long term for myriad reasons, including Washington's historically outsized support of other transportation modes. However, the recommendations below focus on how Washington and the states can operate better during this remarkably challenging time of fiscal constraint and overall aversion to increased funding.

In this way, we focus on a series of discrete reforms intended to inform the reauthorization of PRIIA,

the federal-state partnership it established, and the newly strengthened state role in rail. These recommendations are intended to be considered holistically. For example, an increased state role must be coupled with greater flexibility from the federal government.

Continue the evolution of long-distance intermetropolitan rail service

Ensuring an efficient and effective intermetropolitan rail network in a constrained fiscal environment will require building upon the federal-state partnership initiated in PRIIA and applying it broadly across the network.

In the reauthorization of PRIIA, it should be a top priority to expand the requirement for state operating support to include the long-distance routes. It is rational and appropriate to expect states to partner with the federal government on the operation of routes within their borders, as the legislation stipulates for routes under 750 miles. What is less understandable and defensible is why routes longer than 750 are exempt from this requirement on the grounds that, as many maintain, the routes are all designed to work together as an integrated network.

State and federal stakeholders have undertaken a rigorous and complicated exercise to establish standard pricing policies and cost methodology for short-distance routes in accordance with the federal law.[58] It is reasonable to apply a similar approach to long-distance routes, as well, through careful and collaborative work with state leaders and freight rail companies. This should be informed by the evaluative criteria Amtrak is required to establish for the long-distance routes and should recognize the symbiotic relationship and traffic that the short- and long-distance routes add to each other. It should also recognize that long-distance routes do not provide the same service to all states along its route, nor do they serve the same function as short-distance routes. For example, the *Lake Shore Limited* between Boston and Chicago only travels through Ohio during low-ridership overnight hours, but it serves other states during typical travel hours. A refined approach must also recognize the unique national connectivity these routes provide, especially to certain isolated rural communities.

However, this is not just a matter of offloading responsibility from the federal government to states. As seen in the short-distance routes that already enjoy state support, such a partnership results in a better sharing of risks and rewards. When states contribute to Amtrak operations, they have a vested interest in service quality, as discussed earlier. These benefits are increasingly framed as direct state economic benefits as is the case with the Downeaster.[59] When done right, intermetropolitan service could have a positive return on investment for states when examined broadly. Officials in North Dakota are considering supporting additional service on the long-distance *Empire Builder* to accommodate increased demand due to the oil and shale gas boom there.[60] New York State recently assigned $44 million in its current budget to support its obligation for the *Empire Corridor*.[61] Virginia supports expanded service to unserved areas in the southwest and southeast portions of the state.

The goal of such a policy reform is not to eliminate routes but to strengthen the federal-state partnership and reaffirm the commitment of states to long-distance routes over time. If states cannot agree that certain routes are worth supporting, then they should be scaled back in much the same way as short-distance routes. Indeed, some states are already struggling to support existing services such as the *Pennsylvanian* in the western part of the state.[62] Similarly, PRIIA required the development of a plan for restoring service to the *Sunset Limited* east of New Orleans that was suspended after Hurricane Katrina. The 2009 plan lays out several options but fails to identify sources for the operating subsidies, estimated to be between $4.8 and $18.4 million annually, depending on the service.[63] To date, officials at the federal and state levels have not agreed to a new service arrangement.

Another option would be to replace long-distance continental routes from coast-to-coast with shorter corridor-type service emanating out of major metros.[64] Concentrating long-distance resources in the most-trafficked shorter segments, like Memphis-New Orleans, could drive even higher demand for these intermetropolitan connections. States could also pursue other options, such as substituting intermetropolitan busses in certain corridors.[65]

Provide greater flexibility from Washington and dedicated funding

In exchange for greater responsibility from Washington, states should have added flexibility in how they allocate existing funds. For example, current federal law allows states and metropolitan planning organizations (MPOs) to transfer funds between highway and transit programs.[66] Among other

"An increased state role in passenger rail must be coupled with greater flexibility from the federal government."

benefits, this freedom of financing greatly assists in bottom-up problem solving and gives additional consideration to alternative solutions that achieve a more balanced transportation network. States and MPOs should gain the same flexibility when they support operating or capital investments for intermetropolitan passenger rail.[67] Current federal law allows states to use Congestion Mitigation and Air Quality (CMAQ) program dollars for rail operations, but the U.S. Department of Transportation limits this use to only three years. That cap should be removed. Federal policy should also expand CMAQ's passenger rail flexibility to MPOs that receive suballocated funds from their states.

Ideally, Washington should consider the statutes governing highways, transit, and intermetro rail concurrently. In 2003, when the major authorizing legislations were up for debate, Congress missed a prime opportunity to consider the statutes governing these areas of transportation policy during the same session. Today, the United States is still one of the only industrialized countries in the world that has not pursued an integrated approach to transportation policy. Nevertheless, the federal highway, transit, and railroad administrations should explore areas of cooperation in advance of the reauthorization of the highway and transit law in 2014.[68] This should build on current provisions that allow for limited support for commuter rail operations and certain intermodal connections.

Ultimately, Washington should create a dedicated and sustainable source of funding for intermetropolitan passenger rail. A recent report from the Eno Center for Transportation found that although 85 percent of Amtrak's operating budget is derived from non-federal sources like ticket sales, the remaining contributions are annual, highly politicized battles.[69] A dedicated source of funding, such as a ticket tax, would provide at least a small share of the annual stability that Amtrak's supporters demand. For their part, states support passenger rail through a variety of sources, including annual appropriations. A better approach would be a dedicated state trust fund-style source fed by a direct source, such as a portion of vehicle sales tax, ticket tax, or car rental fees.

Finally, Washington should continue to press Amtrak on its route-assigned financial reporting. This research shows that ridership, revenue, and cost performance vary by route—making routes a sound indicator of what does and does not work under the company's portfolio. However, precise analysis of performance is an extraordinarily complex exercise due to Amtrak's highly idiosyncratic nature and vagaries about how to assign costs such as annual depreciated capital, sale-and-leaseback deals, and loans on major assets like Penn Station in New York.[70] Amtrak has done much to improve its financial reporting over the years, and continuing that process will help answer more route specific questions.

Empower state rail plans and private sector partnerships

One of PRIIA's most important elements requires states to develop passenger rail plans as a condition to receive funding for capital projects. For the most part, these plans are integral to the development of a multimodal passenger and freight rail network. The federal government recently released draft guidance and comments from stakeholders are currently under consideration.

Just as critical is the development of a national rail plan, as called for by PRIIA. In a series of reports, the U.S. Government Accountability Office consistently found that the country would find it difficult to reform its passenger rail network, primarily due to the lack of expected outcomes, ambiguous goals, and unclear stakeholder roles.[71] In comparison, peer nations like France, Japan, and Germany all have explicitly adopted national rail plans to prioritize investments, establish funding streams and financial responsibilities, and evaluate progress towards goals. Such a plan is not only important to develop objective methodologies that guide federal investments, but it also has important implications for individual states whose plans must be consistent with the national one.

While a draft national rail plan was released in October 2009, the lack of a finalized plan continues to present uncertainties to stakeholders. The federal government should accelerate the completion of this plan to inform and assist efforts already undertaken by states. It should also require clear national goals, unlike the ambiguous requirements under PRIIA's Section 307 or the single passenger goal in the current draft National Rail Plan.

Separately, or as part of the development of their rail plans, states should continue to pursue close coordination—formally or informally—with one another. More than just backroom deals, states can foster long-standing relationships that bear real fruit in the form of finalized plans, environmental reviews, and dedicated shared funding agreements. States that pursued these strategies, after all,

appeared to have a significant advantage in securing ARRA funding compared to those that did not; by design, several of the award-winning corridors involved multi-state compacts.

Working with federal officials, states should also collaborate on joint procurement for new railcars and other capital procurements to spur investment in American manufacturing. The Illinois and California transportation departments recently collaborated on the $352 million purchase of 130 railcars that will be built with American workers and materials.[72] The next federal law could also build on PRIIA's establishment of the Next Generation Corridor Equipment Pool Committee formed to develop technical standards for new passenger rail equipment used in state-supported services. The Committee consists of representatives from Amtrak, the FRA, freight rail firms, equipment manufacturers, and relevant states.[73] The Committee could also elevate its statutorily-defined function to encourage cooperative agreements and a streamlined procurement process.

A more challenging and politically charged element to the future of Amtrak is the specter of privatization.[74] Yet the heretofore-limited focus on selling off the Northeast Corridor misses a critical opportunity to engage in meaningful public-private partnerships that tap into interested private capital markets and private firms' management expertise. Indeed, the very operation of Amtrak on privately-owned freight rail tracks represents a clear model for such a partnership. The reauthorization should strengthen the provisions in PRIIA for states to consider a competitive bidding process for the operation of passenger rail service beyond Amtrak. For example, in 2012 Florida East Coast Industries proposed a new privately-financed route connecting Miami and Orlando via the company's coastal right-of-way and new tracks into Orlando. Authorizing legislation should make it easier to develop similar privately-led projects, such as facilitated public bid solicitations and easier access to public financing vehicles.

Policymakers should also take a page from the international transit playbook and determine methods to use land-value capture around station investments.[75] Land-value capture techniques ensure public entities receive a share of land value increases caused by their capital investments. High-speed rail stations are ripe for this kind of land value increase, and are a common occurrence in international projects.[76] Such partnerships should also be an option for states as they consider their own options for supporting certain corridors.

VI. Conclusion

Intermetropolitan passenger rail is a vital component of the country's national transportation network. Amtrak carried over 31.2 million passengers in 2012, making it the fastest-growing domestic transportation mode over the last fifteen years. It also outpaced the growth in population and economic output, further illustrating its role in the broader American economy.

But to continue rail's ridership gains into the future, will require more purposeful action. Amtrak relies on a complex web of formal relationships with its state partners and the freight rail firms that own most track mileage, each of which has somewhat different goals for the national rail system. At the same time, the financial challenges of maintaining a national network that spans the continent means Amtrak's supporters continuously negotiate with Capitol Hill legislators over annual funding infusions. Sustaining and building Amtrak will require a better understanding of how to satisfy each of these parties' interests alongside Amtrak's own, as well as the overall goals for an efficient, effective, integrated transportation network.

The upcoming reauthorization and finalization of a national rail plan on the federal level, coupled with increased attention on the role of passenger rail in states, make this the right time to focus on the future of Amtrak, despite the fiscally constrained times.

Appendix A. Amtrak Station and Ridership Statistics by Metropolitan Area

Metropolitan Area	Region	Active Stations	Ridership Totals*			2012 System Ridership Share
			1997	2012	Change	
Akron, OH	Midwest	0	---	---	---	---
Albany-Schenectady-Troy, NY	Northeast	3	620,353	862,737	39.1%	1.4%
Albuquerque, NM	West	1	47,906	78,324	63.5%	0.1%
Allentown-Bethlehem-Easton, PA-NJ	Northeast	0	---	---	---	---
Atlanta-Sandy Springs-Marietta, GA	South	1	81,259	104,854	29.0%	0.2%
Augusta-Richmond County, GA-SC	South	0	---	---	---	---
Austin-Round Rock, TX	South	3	11,161	53,911	383.0%	0.1%
Bakersfield, CA	West	2	319,283	528,175	65.4%	0.8%
Baltimore-Towson, MD	South	3	1,185,856	1,776,500	49.8%	2.8%
Baton Rouge, LA	South	0	---	---	---	---
Birmingham-Hoover, AL	South	1	28,955	48,734	68.3%	0.1%
Boise City-Nampa, ID	West	0	3,455	---	---	---
Boston-Cambridge-Quincy, MA-NH	Northeast	10	1,018,297	3,167,716	211.1%	5.1%
Bridgeport-Stamford-Norwalk, CT	Northeast	2	232,447	478,149	105.7%	0.8%
Buffalo-Niagara Falls, NY	Northeast	3	183,619	195,247	6.3%	0.3%
Cape Coral-Fort Myers, FL	South	0	---	---	---	---
Charleston-North Charleston-Summerville, SC	South	1	49,629	84,956	71.2%	0.1%
Charlotte-Gastonia-Concord, NC-SC	South	3	107,766	213,457	98.1%	0.3%
Chattanooga, TN-GA	South	0	---	---	---	---
Chicago-Naperville-Joliet, IL-IN-WI	Midwest	11	2,289,103	3,757,555	64.1%	6.0%
Cincinnati-Middletown, OH-KY-IN	Midwest	1	19,235	16,209	-15.7%	0.0%
Cleveland-Elyria-Mentor, OH	Midwest	2	49,269	57,233	16.2%	0.1%
Colorado Springs, CO	West	0	---	---	---	---
Columbia, SC	South	2	26,967	41,276	53.1%	0.1%
Columbus, OH	Midwest	0	---	---	---	---
Dallas-Fort Worth-Arlington, TX	South	3	34,651	201,996	482.9%	0.3%
Dayton, OH	Midwest	0	---	---	---	---
Denver-Aurora, CO	West	1	143,098	113,393	-20.8%	0.2%
Des Moines-West Des Moines, IA	Midwest	0	---	---	---	---
Detroit-Warren-Livonia, MI	Midwest	7	229,100	253,457	10.6%	0.4%
El Paso, TX	South	1	11,117	12,329	10.9%	0.0%
Fresno, CA	West	1	214,134	394,074	84.0%	0.6%
Grand Rapids-Wyoming, MI	Midwest	1	32,618	56,832	74.2%	0.1%
Greensboro-High Point, NC	South	2	68,557	173,246	152.7%	0.3%
Greenville-Mauldin-Easley, SC	South	2	21,184	18,372	-13.3%	0.0%
Harrisburg-Carlisle, PA	Northeast	2	186,938	644,755	244.9%	1.0%
Hartford-West Hartford-East Hartford, CT	Northeast	5	236,047	299,163	26.7%	0.5%
Honolulu, HI	West	0	---	---	---	---
Houston-Sugar Land-Baytown, TX	South	1	16,380	20,327	24.1%	0.0%
Indianapolis-Carmel, IN	Midwest	1	11,811	34,863	195.2%	0.1%
Jackson, MS	South	2	35,006	51,764	47.9%	0.1%
Jacksonville, FL	South	1	91,599	77,512	-15.4%	0.1%
Kansas City, MO-KS	Midwest	3	128,609	201,238	56.5%	0.3%
Knoxville, TN	South	0	---	---	---	---
Lakeland-Winter Haven, FL	South	2	28,541	50,195	75.9%	0.1%
Lancaster, PA	Northeast	3	207,073	740,587	257.6%	1.2%
Las Vegas-Paradise, NV	West	0	---	---	---	---

Appendix A. Amtrak Station and Ridership Statistics by Metropolitan Area (continued)

Metropolitan Area	Region	Active Stations	Ridership Totals*			2012 System Ridership Share
			1997	2012	Change	
Little Rock-North Little Rock-Conway, AR	South	1	8,328	24,036	188.6%	0.0%
Los Angeles-Long Beach-Santa Ana, CA	West	14	1,997,381	3,424,851	71.5%	5.5%
Louisville-Jefferson County, KY-IN	South	0	---	---	---	---
Madison, WI	Midwest	3	22,686	36,549	61.1%	0.1%
McAllen-Edinburg-Mission, TX	South	0	---	---	---	---
Memphis, TN-MS-AR	South	1	37,912	73,116	92.9%	0.1%
Miami-Fort Lauderdale-Pompano Beach, FL	South	6	215,192	300,357	39.6%	0.5%
Milwaukee-Waukesha-West Allis, WI	Midwest	2	357,687	795,850	122.5%	1.3%
Minneapolis-St. Paul-Bloomington, MN-WI	Midwest	1	101,168	120,515	19.1%	0.2%
Modesto, CA	West	2	82,163	143,534	74.7%	0.2%
Nashville-Davidson--Murfreesboro--Franklin, TN	South	0	---	---	---	---
New Haven-Milford, CT	Northeast	3	276,021	808,300	192.8%	1.3%
New Orleans-Metairie-Kenner, LA	South	2	190,842	229,929	20.5%	0.4%
New York-Northern N.J.-Long Island, NY-NJ-PA	Northeast	8	8,830,040	10,855,647	22.9%	17.4%
North Port-Bradenton-Sarasota, FL	South	0	---	---	---	---
Ogden-Clearfield, UT	West	0	5,445	---	---	---
Oklahoma City, OK **	South	3	0	76,556	237.5%	0.1%
Omaha-Council Bluffs, NE-IA	Midwest	1	19,682	22,794	15.8%	0.0%
Orlando-Kissimmee, FL	South	4	427,748	518,574	21.2%	0.8%
Oxnard-Thousand Oaks-Ventura, CA	West	5	145,562	221,234	52.0%	0.4%
Palm Bay-Melbourne-Titusville, FL	South	0	---	---	---	---
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	Northeast	11	4,203,480	5,295,206	26.0%	8.5%
Phoenix-Mesa-Scottsdale, AZ **	West	1	0	10,804	931.9%	0.0%
Pittsburgh, PA	Northeast	4	135,024	152,048	12.6%	0.2%
Portland-Vancouver-Beaverton, OR-WA	West	3	410,670	778,791	89.6%	1.2%
Poughkeepsie-Newburgh-Middletown, NY	Northeast	2	161,365	265,729	64.7%	0.4%
Providence-New Bedford-Fall River, RI-MA	Northeast	3	368,117	874,436	137.5%	1.4%
Provo-Orem, UT	West	1	2,242	5,675	153.1%	0.0%
Raleigh-Cary, NC	South	4	133,611	258,374	93.4%	0.4%
Richmond, VA	South	4	267,580	427,087	59.6%	0.7%
Riverside-San Bernardino-Ontario, CA	West	7	30,542	53,196	74.2%	0.1%
Rochester, NY	Northeast	1	114,710	144,703	26.1%	0.2%
Sacramento--Arden-Arcade--Roseville, CA	West	6	592,236	1,760,373	197.2%	2.8%
St. Louis, MO-IL	Midwest	5	236,109	499,346	111.5%	0.8%
Salt Lake City, UT	West	1	29,672	42,502	43.2%	0.1%
San Antonio, TX	South	1	43,861	70,161	60.0%	0.1%
San Diego-Carlsbad-San Marcos, CA	West	4	1,214,056	1,536,298	26.5%	2.5%
San Francisco-Oakland-Fremont, CA	West	9	964,369	2,058,032	113.4%	3.3%
San Jose-Sunnyvale-Santa Clara, CA	West	3	148,871	357,646	140.2%	0.6%
Scranton--Wilkes-Barre, PA	Northeast	0	---	---	---	---
Seattle-Tacoma-Bellevue, WA	West	6	567,380	903,882	59.3%	1.4%
Springfield, MA	Northeast	2	134,766	156,550	16.2%	0.3%
Stockton, CA	West	3	194,937	326,421	67.4%	0.5%
Syracuse, NY	Northeast	2	111,189	154,053	38.6%	0.2%
Tampa-St. Petersburg-Clearwater, FL	South	1	32,242	150,844	367.8%	0.2%
Toledo, OH	Midwest	1	70,374	69,275	-1.6%	0.1%
Tucson, AZ	West	1	23,524	23,896	1.6%	0.0%

Appendix A. Amtrak Station and Ridership Statistics by Metropolitan Area (continued)

Metropolitan Area	Region	Active Stations	Ridership Totals*			2012 System Ridership Share
			1997	2012	Change	
Tulsa, OK	South	0	---	---	---	---
Virginia Beach-Norfolk-Newport News, VA-NC	South	2	147,949	195,263	32.0%	0.3%
Washington-Arlington-Alexandria, DC-VA-MD-WV	South	11	3,626,322	5,797,689	59.9%	9.3%
Wichita, KS	Midwest	1	10,878	14,131	29.9%	0.0%
Worcester, MA	Northeast	1	15,667	8,900	-43.2%	0.0%
Youngstown-Warren-Boardman, OH-PA	Midwest	0	1,296	---	---	---

** Some discontinued metro areas do not include reported ridership from 1997*

*** These metros did not start service until after 1997, meaning change is based on their initial service years*

Source Source: Brookings analysis of Amtrak and Census data

Appendix B. Amtrak Route Performance

Route	Weighted Distance (miles)	Average Weekday Departures	Ridership			2011 Operating Finances ($million)			
			1997	2012	Change*	State Support	Other Revenue	Costs**	Balance**
New Haven-Springfield	62	5	0	384,834	---	N/A	$11.6	$24.4	($12.9)
Hiawatha	86	7	361,000	838,355	132.2%	$7.7	$16.0	$25.9	($2.2)
Downeaster	111	6	0	541,757	---	$5.3	$7.2	$13.5	($1.0)
Capitol Corridor	113	15	490,000	1,746,397	256.4%	$28.1	$27.4	$69.6	($14.1)
Empire (NYP-ALB)	141	9	1,057,000	1,062,715	0.5%	N/A	$40.9	$71.9	($31.0)
Washington-Lynchburg	173	1	0	184,907	---	N/A	$10.1	$6.9	$3.3
Piedmont	173	2	43,000	162,657	278.3%	$2.7	$2.5	$7.1	($1.9)
Pere Marquette	176	1	65,172	109,321	67.7%	$2.6	$3.4	$6.8	($0.8)
Pacific Surfliner	183	12	1,635,000	2,640,342	61.5%	$27.2	$58.1	$115.4	($30.1)
Washington-Newport News	187	2	0	623,864	---	-$0.1	$30.9	$31.3	($0.5)
Keystone	195	13	442,000	1,420,392	221.4%	$9.2	$29.7	$47.0	($8.2)
Hoosier State	196	1	0	36,669	---	N/A	$0.9	$4.9	($4.0)
Heartland Flyer	206	1	0	87,873	---	$3.8	$2.1	$8.7	($2.7)
Ethan Allen	241	1	29,000	54,376	87.5%	$1.5	$2.6	$6.6	($2.5)
Chicago-Quincy (IL Zephyr/Carl Sandburg)	258	2	82,000	232,592	183.6%	$8.5	$5.9	$16.8	($2.4)
Cascades	262	5	335,000	845,099	152.3%	$12.6	$37.8	$66.1	($15.6)
Kansas City-St. Louis (MO River Runner)	283	2	156,000	195,885	25.6%	$8.6	$5.3	$14.1	($0.3)
Chicago-St. Louis (Lincoln Service)	284	4	256,000	597,519	133.4%	$14.9	$13.4	$32.4	($4.1)
San Joaquin	303	6	688,000	1,144,616	66.4%	$32.8	$38.3	$77.9	($6.8)
Wolverine	304	3	418,491	484,138	15.7%	N/A	$20.2	$37.2	($17.0)
Acela	308	25	0	3,395,354	---	N/A	$510.3	$331.6	$178.8
Chicago-Carbondale (Illini/Saluki)	309	2	89,000	325,255	265.5%	$6.7	$9.4	$20.6	($4.4)
Blue Water	319	1	123,504	189,193	53.2%	$5.4	$6.3	$14.0	($2.3)
Northeast Regional	330	22	7,041,000	8,014,175	13.8%	$0.2	$505.1	$477.3	$28.0
Albany-Niagara Falls-Toronto	347	3	0	407,729	---	N/A	$25.0	$30.9	($5.9)
Adirondack	381	1	99,000	131,869	33.2%	$7.6	$7.0	$13.3	$1.3
Pennsylvanian	444	1	160,000	212,006	32.5%	N/A	$9.4	$16.8	($7.4)
Vermonter	611	1	85,000	82,086	-3.4%	$3.2	$4.2	$9.3	($1.9)
Carolinian	704	1	231,000	306,419	32.6%	$2.0	$18.8	$21.9	($1.1)
Capitol Ltd.	780	1	179,000	226,884	26.8%	N/A	$22.4	$47.0	($24.5)
Palmetto	829	1	188,000	198,260	5.5%	N/A	$17.4	$34.0	($16.5)
Auto Train	855	1	241,000	264,096	9.6%	N/A	$69.9	$101.5	($31.5)
City of New Orleans	934	1	174,000	253,170	45.5%	N/A	$18.8	$41.6	($22.8)
Lake Shore Ltd.	989	1	355,000	403,700	13.7%	N/A	$32.9	$70.4	($37.5)
Cardinal	1,147	1	80,000	116,373	45.5%	N/A	$7.8	$26.4	($18.6)
Texas Eagle	1,305	1	95,000	337,973	255.8%	N/A	$26.6	$56.7	($30.1)
Coast Starlight	1,377	1	497,000	454,443	-8.6%	N/A	$44.3	$98.1	($53.8)
Crescent	1,377	1	247,000	304,266	23.2%	N/A	$32.3	$77.1	($44.8)
Silver Meteor	1,389	1	255,000	375,164	47.1%	N/A	$41.6	$85.6	($44.0)
Silver Star	1,521	1	270,000	425,794	57.7%	N/A	$36.3	$86.9	($50.7)

Appendix B. Amtrak Route Performance (continued)

Route	Weighted Distance (miles)	Average Weekday Departures	Ridership			2011 Operating Finances ($million)			
			1997	2012	Change*	State Support	Other Revenue	Costs**	Balance**
Sunset Ltd.	1,995	1	124,000	101,217	-18.4%	N/A	$12.6	$51.7	($39.1)
Empire Builder	2,230	1	347,000	543,072	56.5%	N/A	$57.7	$112.3	($54.6)
Southwest Chief	2,265	1	257,000	355,316	38.3%	N/A	$48.0	$114.5	($66.5)
California Zephyr	2,438	1	292,000	376,459	28.9%	N/A	$49.8	$112.5	($62.6)

**Change unavailble for some routes due to missing or nonexistent FY 1997 data*

***Does not include capital charges (such as depreciation), interest, and other costs*

Source: Brookings analysis of Amtrak data

APPENDIX C

For this analysis, we examined only intermetropolitan passenger rail services in the United States, all of which are provided by Amtrak. We do not include purely tourist services, such as excursion or heritage railroads or scenic train rides. Nor do we include commuter rail services such as the Long Island Rail Road in New York, Metrolink in Southern California, or the Virginia Railway Express in Washington, DC, even though some of these services are often comingled with Amtrak and share rights-of-way, ticketing services, and stations. Other states contract directly with Amtrak to provide commuter services, such as Amtrak's agreement with Connecticut to run its Shore Line East operations.

Utilizing data provided by Amtrak and other federal government sources, we analyzed the ridership and finances of passenger rail across the United States and its metropolitan areas. The report uses data from 1997 through 2012, based on the Amtrak fiscal year calendar that runs from October through September. (Unless otherwise noted, the years in the paper refer to Amtrak's fiscal years.)

Databases

To create the metrics found in this report, we created a series of databases based on information supplied by Amtrak. In certain instances, we added other economic indicators via other public data sources.

A national statistical database relies on Amtrak's monthly and annual reports, plus station-specific statistics, via the Amtrak Public Affairs Office. The comparison to other passenger transportation modes, population levels, and economic output utilized public statistics provided by the Federal Highway Administration (for driving levels), the Federal Aviation Administration (for passenger aviation levels), the American Public Transportation Association (for transit trips), U.S. Census (for population), and the Bureau of Economic Analysis (for national output). All data sources were amended to match Amtrak's fiscal year calendar.

A corridor-specific database relies on the same monthly and annual reports to construct ridership statistics for Amtrak's routes. This report divides routes based on Amtrak's reporting within the September Route Performance Report. For example, while published schedules reference extensions into Virginia's Newport News and Lynchburg as part of the Northeast Regional, the ridership reports separate those two extensions from overall Northeast Regional statistics. All ridership data through Amtrak Fiscal Year 2012 relies on these published annual reports, which include route ridership data alongside other financial metrics.

This analysis subdivides routes via their distance. However, since routes' distances vary based on each departure's origin and destination stations, the database includes a weighted distance for each. We created this weighted distance by manually coding the typical number of weekday departures for each route, subdivided by the particular departure's distance. We then combined these departures by count and distance, using a basic weighting function. This schedule data relied entirely on Amtrak's published train schedules, all of which were current as of November 14, 2012. The report does not analyze each year's "special trains" or bus service ridership.

The final database uses station-specific ridership to construct metropolitan- and micropolitan-level ridership. Since individual stations include boardings and alightings, or riders who get off and on, this geographic analysis includes both under total area ridership. By counting both riders who get off and on in a particular place, the boardings and alightings statistics will appear inflated in comparison to published passenger ridership statistics, which tend to rely on passenger tickets. As such, this paper does not compare overall system or route-specific passenger counts to place-specific boarding and alighting counts.

Spatial Data and Geographic Scope

Generating metropolitan passenger levels required an aggregation of every Amtrak station's passenger levels up to its particular metropolitan or micropolitan location. The analysis does not exclude any stations, irrespective of service regularity or annual passenger loads.

Creating those aggregations required use of core based statistical area (CBSA) geography and geographic analytical software. The U.S. Office of Management and Budget creates CBSA definitions.

A micropolitan area requires an urban cluster of at least 10,000 people, and then includes any adjacent counties that are tied to the urban center via commuting levels. A metropolitan area requires an urbanized area of at least 50,000 people and also includes surrounding counties connected via commuting. This report also subdivides metropolitan areas based on population rankings according to the 2010 decennial U.S. Census.

Passengers from stations not located in any CBSA locations are counted as non-CBSA travelers. In particular, this includes Amtrak passengers using the major stations in Canada.

Financial Analysis

Portions of this report analyze Amtrak's route-specific financial performance. The report does not, at any point, assess the overall financial performance or health of the entire company.

The majority of this financial information comes from final audited data within the company's Route Performance Report, which is included in every September Monthly Performance Report. The Route Performance Report provides revenue and certain costs for each route in the Amtrak system, thereby publishing a fully allocated contribution or loss (henceforth referenced as a balance) for each route.

However, the Route Performance Report does not assign certain Amtrak revenues and costs to specific routes. The major excluded item is depreciation, which in FY 2012 contributed over $663 million to Amtrak's annual operating costs. Since Amtrak is in the process of determining a "Capital Charge" assignment process for each route, depreciation is currently a separate, company-wide cost. This precludes us from applying such a significant charge to particular routes, and is a significant need for route-specific analysis in the future. In addition to depreciation, the Route Performance Report also does not assign interest, freight-related activities, or state capital payments to specific routes.

This report also assesses internal Amtrak data on state-operating support by route. While the Route Performance Report data already includes this state support under the revenue column, it does not differentiate these state sources from other revenue flows. As such, acquiring internal Amtrak data enables our analysis to show the share of route revenue contributed by the states.

Endnotes

1. For a thorough history of the American railroad industry, see: John F. Stover, American Railroads, Chicago: The University of Chicago Press, 1997. On passenger rail, see Donald M. Itzkoff, Off the Track, *The Decline of the Intercity Passenger Train in the United States,* Westport, CT: Greenwood Press, 1985.

2. Robert W. Harbeson, "The Transportation Act of 1958," *Land Economics,* Vol. 35(2),1959: 156-171.

3. Anthony Perl, *New Departures: Rethinking Rail Passenger Policy in the Twenty-First Century,* Lexington: University Press of Kentucky, 2002.

4. Lyndon B. Johnson, "Remarks at the Signing of the High-Speed Ground Transportation Act," September 30, 1965, online by Gerhard Peters and John T. Woolley, *The American Presidency Project*, http://www.presidency.ucsb.edu/ws/?pid=27281.

5. Allison L. C. de Cerreño, "High-Speed Rail Projects in the U.S.: Identifying the Elements for Success," New York University, Rudin Center for Transportation Policy and Management, 2004.

6. Amtrak Reform Council, "A Summary of Current Legislative Provisions Prescribing the Legal and Regulatory Framework Governing the National Railroad Passenger Corporation (Amtrak)," Washington, 2000.

7. George Hilton, *Amtrak: The National Railroad Passenger Corporation,* Washington: American Enterprise Institute, 1980.

8. Hilton, p. 15.

9. Hilton, p. 19.

10. The Staggers Rail Act of 1980 dramatically deregulated the freight rail industry and is attributed to dramtic improvements throughout the industry. See: Clifford Winston, "The Success of the Staggers Rail Act if 1980," AEI-Brookings Joint Center for Regulatory Studies, 2005.

11. Congressional Budget Office, "The Past and Future of U.S. Passenger Rail Service," 2003.

12. Amtrak Reform Council, "An Action Plan for the Restructuring and Rationalization of the National Intercity Rail Passenger System: A Report to the Congress," 2002.

13. Matthew Wald, "Amtrak Fires Its President in Dispute Over Future," *New York Times*, November 10, 2005.

14. Office of the Inspector General, "Amtrak Made Significant Improvements in its Long-Term Planning Process," Federal Railroad Administration Report Number: CR-2011-036, 2011.

15. For more information, see: Federal Railroad Administration, "State Rail Plan Guidance." Available: http://www.fra.dot.gov/Page/P0511.

16. Amtrak, "State-Supported Corridor Trains: FY 2011-12," 2012. http://www.amtrak.com/ccurl/298/423/Corridor-Trains-2011-Final.pdf.

17. Virginia Department of Rail and Public Transportation, "Funding Strategies for State Sponsored Intercity and High Speed Passenger Rail," 2010.

18. This is especially true in the Northeast Corridor where Amtrak is the primary owner of most of the route and maintains a very intricate relationship with commuter agencies, freight railroads, and states. See: NEC Master Plan Working Group, "The Northeast Corridor Infrastructure Master Plan," 2010.

19. The Alaska Railroad is another state-supported rail service but is unique in many ways and not included as part of this analysis. For a comprehensive assessment of state programs see: Curtis A. Morgan and others, "Funding Strategies and Project Costs for State-Supported Intercity Passenger Rail: Selected Case Studies and Cost Data," College Station, Texas, Texas Transportation Institute Report 0-4723-1, 2004.

20. Surface Transportation Board, Record of Decision, "Amtrak's Petition for Determination of PRIIA Section 209 Cost Methodology," March 13, 2012.

21. See: National Public Radio, "Interactive Map: U.S. High-Speed-Rail Proposals," Updated January 28, 2010. http://www.npr.org/series/112034391/on-the-fast-track

22. North Carolina Department of Transportation, "2009 Rail Plan." http://www.bytrain.org/quicklinks/reports/2009_railplanexecsum.pdf

23. In 2009, for instance, a new station was completed in Durham that conveniently neighbors the city's bus station and several area businesses. Future projects include the proposed creation of an urban transportation center in Charlotte and a similar facility in Raleigh that will allow for additional transit connections in the Research Triangle.

24. Morgan and others, 2004. California also owns a lot of its rolling stock.

25. North Carolina Railroad Company, "2011 Annual Report: Building a Better Railroad." http://www.ncrr.com/wp/wp-content/uploads/2011/10/Download-a-PDF-of-the-North-Carolina-Railroad-Companys-2011-Annual-Report.pdf

26. Northern New England Passenger Rail Authority, "Amtrak Downeaster FY2012 Year End Report." http://www.amtrak-downeaster.com/sites/default/files/Performance-Report-Q4-End-of-Year-Report.pdf

27. A special provision in the recent surface transportation law allowed Maine to use federal Congestion Mitigation and Air Quality funds for the operation of the *Downeaster* for a limited time. It also allowed Oregon to use the same funds to support the Cascades route.

28. Northern New England Passenger Rail Authority, "More Than Just A Ride." http://www.nnepra.com/sites/default/files/More%20Than%20a%20Train%20Ride.pdf

29. California represents a major exception as its ambitious high-speed rail plan will include brand new alignments and may not partner with Amtrak to operate the service.

30. Calculation based on Amtrak's internal station ridership data, not corridor passenger levels.

31. To match data with Amtrak's fiscal year, the GDP statistics use quarterly data and the population statistics use monthly data.

32. Due to the lack of official public statistics, this research does not include intercity buses. However, recent research suggests this mode is expanding rapidly following its record low ridership in the 1990s.

33. Since 1997, Amtrak's overall passenger levels move in lock-stop with passenger changes in the 100 largest metro areas. Statistics verify this inextricable relationship: their change in passengers levels over the sixteen-year period share a 0.99 correlation coefficient. In comparison, the remaining 266 metro areas and the country's micropolitan areas move in opposite directions from one another, and both are not nearly as correlated with national performance. The result is a national rail system that is essentially a proxy for large metropolitan usage.

34. For most major metros without rail service, Amtrak provides intercity buses.

35. Denver's drop can be partially attributed to discontinuing the *Pioneer*, a route between Seattle and Chicago through the Intermountain West. Similarly, Worcester also lost direct access to the Northeast Regional during this period.

36. Of course, many of the passengers on long-distance corridors actually travel around 400 miles or less, like *Cardinal* service between Chicago and Cincinnati and the *City of New Orleans* service between Memphis and New Orleans. Amtrak provided internal data that subdivided long distance corridors' ridership based on shorter segments, of which certain ones were 400 miles or less.

37. Note that Amtrak and the federal government tend to include all routes of less than 750 miles as "short distance" corridors. In addition, PRIIA identifies routes under 750 miles as those requiring state support. However, academic literature shows that the proper threshold should be no more than 400 miles because, under optimal conditions, this is the maximum distance for rail to assume a significant portion of air travel's market share. See, e.g.,: Mar González-Savignat, "Competition in Air Transport: The Case of the High Speed Train," *Journal of Transport Economics and Policy*, Vol. 38(1): 2004, pp. 77-108; Nicole Adler, Chris Nash, and Eric Pels, "High Speed Rail and Air Transport Competition," Tinbergen Institute Discussion Paper, TI 2008-103/3.

38. There are three routes that Amtrak identifies as "short distance" that are between 400 and 750 miles: the *Carolinian, Pennsylvanian,* and *Vermonter*. Amtrak, "PRIIA Section 210 Performance Improvement Plan: Auto Train – City of New Orleans - Coast Starlight – Empire Builder – Southwest Chief," 2012.

39. This does not include separately measured spurs into two top-100 metro areas: Springfield, MA and Virginia Beach-Norfolk-Newport News, VA, and a spur into a smaller metro in Virginia: Lynchburg. These additional 'spurs' are coded separately for ridership and thus removed in this particular corridor discussion.

40. According to the most recent Amtrak schedules (as of November 2012), the Service-Origin-Destination weekday departure breakdowns are as such: *Acela*-Boston-Washington: 9; *Acela*-New York-Washington: 15; *Acela*-Boston-New York: 1; *Northeast Regional*-New York-Washington: 10; *Northeast Regional*-Boston-Washington: 7; *Northeast Regional*-New York-Richmond: 2; *Northeast Regional*-Boston-New York: 1; *Northeast Regional*-Boston-Richmond: 1; *Northeast Regional*-New Haven-Washington: 1.

41. Interestingly, the sixth-most ridden route is the *San Joaquin*, Amtrak's service between California's Central Valley and Oakland / Sacramento. This route covers the same ground as the first segment of the future California High Speed Rail corridor, and proves there is growing demand for passenger rail service in this area; ridership is up 66.4 percent between 1997 and 2012.

42. Since August 2005 the *Sunset Limited* suspended service between New Orleans and Jacksonville due to damage from Hurricane Katrina. The route now only connects New Orleans and Los Angeles.

43. Brookings analysis of corridor financial performance includes numbers for the national train system, but these do not reconcile with Amtrak's annual Consolidated Statement of Operations. The specific missing elements are the revenues and expenses captured under Ancillary Customers, Freight and Other Customers, Net Depreciation, Net Interest Expenses, and State Capital Payments. For more information, see "Financial Performance of Routes" within Amtrak's September Monthly Performance reports.

44. The exception was $226,000 in support for *Regional* trains in 2011. This represented 0.04 percent of *Regional* revenue that year.

45. When correlating each corridor's weighted distance against its profit/loss in 2011, excluding the *Acela* and *Northeast Regional* routes, the correlation coefficient is 0.52. This suggests some relationship between the two statistics, although more rigorous analysis is necessary to uncover the detailed relationship between distance and financial performance.

46. See e.g.,: Angie Schmitt, "Drivers Cover Just 51 Percent of U.S. Road Spending," *DC.Streetsblog.org*, January 23, 2013.

47. New and emerging research calls into question narrow attention to transportation benefits such as travel time savings, operator costs, and direct externalities to the omission of benefits such as agglomeration and connectivity. See Andrew Salzberg and others, "High Speed Rail, Regional Economics, and Urban Development in China," *China Transport Topics,* No. 08, 2013.

48. Some would argue that the *Acela* and *Northeast Regional* routes constitute a different rail system given its unique characteristics and the fact that Amtrak owns most of the tracks and, as a result, interference with freight rail is minimal compared to the rest of the network.

49. The two Northeast Corridor routes cover a longer distance than 400 miles, but most of their departures tend to cover shorter distances like Boston-New York or New York-Washington.

50. Joan McDonald, "Northeast Corridor Future: Options for High-Speed Rail Development and Opportunities for Private Sector Participation," Hearing before the House Committee on Transportation and Infrastructure, 112th Cong. (2012.)

51. Brookings analysis of Amtrak and Census data.

52. Brookings analysis of internal Amtrak data.

53. Ibid.

54. Ron Zeitz, "Excess Success in the Northwest," *Rail,* No. 2, 2001.

55. Petra Todorovich, Daniel Schned, and Robert Lane, "High Speed Rail: International Lessons for Policy Makers," Cambridge: Lincoln Institute of Land Policy, 2011.

56. Amtrak currently has formal partnerships with 13 commuter agencies across the country.

57. Peter Kochansky, "Negotiating Passenger Rail Rights: Lessons Learned in Massachusetts," Prepared for American Public Transportation Association Rail Conference, 2011.

58. Surface Transportation Board, 2012.

59. See, for example, Center for Neighborhood Technology, "Amtrak *Downeaster:* Overview of Projected Economic Impacts," A Report to Northern New England Passenger Rail Authority, 2008.

60. Indeed, the need for state support is already becoming apparent on some long-distance routes. For example, communities along the long-distance *Southwest Chief* are in danger of losing service as the freight rail line on which it runs is relocated. Officials in New Mexico, Kansas, and Colorado are trying to come up with funds to repair the existing route. See: Shajia Ahmad, "No State Help Expected for Amtrak," *Garden City Telegram,* September 1, 2012.

61. Eric Anderson, "State to Keep up Amtrak Service," *Times Union,* January 25, 2013.

62. Mark Peters, "States Weigh Picking Up Train Tab," *Wall Street Journal,* January 22, 2013.

63. Amtrak, "PRIIA Section 226: Gulf Coast Service Plan Report," 2009.

64. As part of a national system Amtrak clearly benefits from being able to move equipment around its network such as the major train repair facility in Indianapolis. However, it could also conceivably lease space on private freight lines to move equipment.

65. A recent study identified intercity bus as the fastest growing form of intercity travel in the United States See: Joseph P. Schwieterman and others, "The Motor Coach Metamorphosis: 2012 Year-in-Review of Intercity Bus Service in the United States," DePaul University, Chaddick Institute for Metropolitan Development, 2013

66. While most federal funding ties to a specific transportation mode, federal law allows states and MPOs to use certain funds for a wide variety of projects, including transfers from highway accounts towards transit projects. The Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Surface Transportation Program (STP) are especially important to consider in this respect. The U.S. Government Accountability Office recently found that states transferred about 10 percent of available funds for transit projects with California, New Jersey, New York, and Virginia leading the way. U.S. GAO, "Flexible Funding Continues to Play a Role in Supporting State and Local Transportation Priorities," Report GAO-13-19R, 2012.

67. States would undoubtedly make better partners by removing the roads-only exclusion for their gasoline tax revenues. By committing a portion of revenues to other modes beyond highways, states would increase their ability to consider the entire transportation system, rather than isolated parts.

68. *Moving Ahead for Progress in the 21st Century* (MAP-21) expires in September 2014.

69. Eno Center for Transportation, "Transportation as Part of a Deficit-Reduction Package," Washington, 2012. Amtrak is not a federal agency but its Board of Directors are appointed by the President of the United States and must be confirmed by the U.S. Senate.

70. In fiscal year 2012 alone, depreciation was $664 million, which is more than the loss from all long-distance route operations. It is also constitutes over half of all Amtrak's reported losses for the year.

71. See e.g.,: U.S. Government Accountability Office, "Intercity Passenger and Freight Rail: Better Data and Communication of Uncertainties Can Help Decision Makers Understand Benefits and Trade-offs of Programs and Policies," Report GAO-11-290, 2011.

72. John Pletz, "Nippon Sharyo to Build High-Speed Rail Cars at Rochelle Factory," *Crain's Chicago Business*, September 27, 2012.

73. PRIIA, P.L. 110-432; Title 3, Sec. 305. (2008.)

74. An analysis prepared by Amtrak shows a mixed record of success in privatization experiences worldwide. "Privatization of Intercity Passenger Rail: International Experience," September 2012.

75. Emilia Istrate and David Levinson, "Access for Value: Financing Transportation through Land Value Capture," Brookings, 2012.

76. Alissa Ponchione, "Hotel Developers Eye High-Speed Rail Hubs," *Hotel News Now.com*, December 19, 2012.

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