



Project Summary Report 0-4723-S

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Project 0-4723: State-Supported Intercity Passenger  
Rail Corridors—Project Costs and Funding Strategies  
Employed by Other States

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## Funding Strategies and Project Costs for State-Supported Intercity Passenger Rail: Summary Report

### PROJECT SUMMARY REPORT

Federal operating subsidies to the National Rail Passenger Association (Amtrak) and cooperation between urban transit agencies using federal public transportation funding have long been the normal avenues for funding intercity and commuter rail passenger service; however, states are now being asked by the federal government to take an increased role in determining both the routes and level of service for passenger rail within each individual state. Along with these new responsibilities, states are being asked to partner with the federal government in funding a national intercity rail passenger system based upon the successful federal-state partnership models already in place for highways, transit, and air modes.

Many states already provide financial support for passenger rail service in forms of:

- regional coalitions of states banding together to provide rail service connecting their major metropolitan areas,
- states providing funding to Amtrak for increased intercity rail service, and

- states participating in the funding of improvements to the freight rail infrastructure over which most intercity routes operate.

Texas, like many states, has a constitutional limitation that prohibits most direct state transportation fund expenditures from being used for rail projects. At the same time, the state legislature and others in both the public and private sectors are asking that the Texas Department of Transportation (TxDOT) study the feasibility of several intercity passenger rail projects throughout the state as a means to offset the increasing demands on the existing transportation network. In order to comply with such requests, TxDOT needs consistent data sources and tools regarding the costs and methodologies of funding intercity rail projects in other states.

### What We Did...

This research investigated project costs and funding strategies utilized by U.S. states and coalitions of states to fund intercity passenger rail projects. Four states (California, North Carolina, Pennsylvania, and

Virginia) and one multi-state coalition (the Pacific Northwest Corridor in Washington and Oregon) with documented histories of funding intercity passenger rail projects were selected for in-depth review (see Figure 1). Factors that were considered in the case studies included: state-level funding sources, project costs, and estimated costs for future projects.

A secondary goal of this project was to develop cost analysis tools, such as a cost per mile index, for use by state rail planners in evaluating proposed intercity passenger rail projects. The research team and TxDOT's project monitoring committee concluded that the development of universally applicable cost per mile indices for intercity rail was infeasible due to the great number of variables involved in rail construction and the relatively small sample size of recent, comparable projects. Variables involved include project-specific factors such as terrain type, drainage requirements, regional labor and material costs, signalization and communication upgrade requirements, and the condition/track classification/traffic levels of existing



infrastructure. A listing of variability examples that can affect project costs is shown in Table 1.

As a result, the project report documented example project cost data for recent intercity passenger rail projects. Model cost ranges by project type were reported in the cost categories determined by the Federal Railroad Administration.

## What We Found...

This project determined that while each of the case study states have committed to supporting intercity passenger rail, their funding methods for doing so are quite varied. Highlights of these differences are shown in Table 2. Because federal transportation funding that can be used by states for passenger rail support is limited, states have been forced to look for all possible funding sources and apply them based on a state-by-state determination of how best to use the funds. Several conclusions based upon the case studies and additional research into intercity rail project costs elsewhere in the United States led to the following conclusions:

- Accurate per-mile project cost estimates for intercity rail capital projects are very difficult to develop and depend upon many project-specific factors. Due to the

high number of project variables, project costs fall into ranges that can be narrowed as known project characteristics increase.

- Operational funding requirements for state-supported intercity rail projects are largely independent of the length of the service route. Instead, Amtrak now determines state operations cost for additional intercity passenger rail service based upon ridership, farebox recovery, and food sales on the route itself. Amtrak uses this Route Contribution Analysis “full-cost” methodology nationwide to determine these costs.
- The uncertain future of Amtrak and how it will be reformed adds to the uncertainty in determining future intercity passenger rail costs. The recent federal proposal to jointly fund future capital spending for intercity rail projects is promising; however, whether that funding is provided on a 50-50 federal-state basis or at a ratio closer to an 80-20 federal-state basis will greatly influence how involved states may become in financing such projects.
- A statewide study of potential intercity passenger rail routes and needs should be conducted. A subsequent funding needs

assessment would determine the potential cost of each route.

- Development of a functional state-sponsored intercity rail program takes both consistent funding and time for partnerships to mature.
- In order to develop a robust program, both a stable funding source and a long-term commitment by the state are necessary.
- State-supported intercity rail programs are more readily developed in states that have shown an emphasis on multimodal transportation planning and funding.

## The Researchers Recommend...

The research team recommends that the following actions be taken at the state level if Texas is to consider increasing its investment in intercity passenger rail.

- A survey of the condition of the statewide freight rail network is needed prior to making an assessment of intercity rail passenger costs for added service to any route.
- TxDOT needs to identify and work closely with any potential project funding partners. These contacts should include federal agencies, local government, and private-sector partners.
- Texas should move toward identification and establishment of long-term state-level funding sources for intercity rail improvements.
- TxDOT should continue to expand its capacity for the development of plans for intercity passenger rail routes and projects that improve both passenger and freight rail flows.
- Present funding limitations on TxDOT rail activities should be reexamined, including the prohibition against the state purchase of rail rolling stock.



Figure 1. Passengers Boarding the State-Supported Piedmont Train in North Carolina.

(Source: North Carolina Department of Transportation [NC DOT] Rail Division website, [www.bytrain.org](http://www.bytrain.org))



Table 1. Project Cost Variables for Intercity Passenger Rail Projects.

Project Variables	Examples of Variability
Project type	<ul style="list-style-type: none"> <li>• Upgrade of existing track</li> <li>• New track construction</li> <li>• Exclusive right-of-way or interaction with freight</li> </ul>
Site conditions	<ul style="list-style-type: none"> <li>• Soil type/preparation requirements</li> <li>• Drainage characteristics</li> <li>• Terrain/grade mitigation needs</li> </ul>
Regional cost differences	<ul style="list-style-type: none"> <li>• Labor costs</li> <li>• Materials availability/cost</li> </ul>
Condition of existing rail infrastructure (prior to upgrade)	<ul style="list-style-type: none"> <li>• Light density/deferred maintenance line</li> <li>• Heavily used mainline</li> <li>• Jointed rail or continuous welded rail</li> <li>• Required signal system upgrades</li> </ul>
Freight traffic levels	<ul style="list-style-type: none"> <li>• Near a container port generating heavy rail traffic</li> <li>• Along a transcontinental, capacity-constrained freight route</li> </ul>
Operational factors	<ul style="list-style-type: none"> <li>• Forecast ridership</li> <li>• Daily frequency of operations and time periods</li> <li>• Rail network congestion/chokepoints</li> <li>• Need for new dispatching training and/or facilities</li> </ul>
Right-of-way/support structure costs	<ul style="list-style-type: none"> <li>• Ratio of urban versus rural right-of-way</li> <li>• Upgrade or new construction of required stations and parking facilities</li> </ul>
Rolling stock costs	<ul style="list-style-type: none"> <li>• Locomotives</li> <li>• Coaches</li> <li>• Control-configured coaches</li> <li>• Federal Railroad Administration Compliant Diesel Multiple Unit (DMU) self-propelled passenger cars</li> </ul>

Table 2. State Funding Method Variability for Intercity Passenger Rail Projects.

Case Study	State Rail Agency	Types of Projects	State Funding Source(s)
California	Caltrans Rail Division	Operational subsidies Capital improvements Rolling stock	Public transportation account Intercity rail capital program State highway account Rail-eligible bond programs
North Carolina	NC DOT Rail Division	Operational subsidies Capital improvements	Highway fund Highway trust fund North Carolina Railroad Company (NCRR) lease revenue
Pennsylvania	Pennsylvania Department of Transportation (PennDOT) Bureau of Public Transportation	Operational subsidies Capital improvements	Annual \$7.5 M Federal Transit Administration (FTA) grant State/Amtrak agreement Annual public transit appropriations
Virginia	Virginia Department of Rail and Public Transportation (DRPT)	Stations Infrastructure	Direct state subsidies to Virginia Railway Express (VRE) Rail enhancement fund Transportation trust fund formula grants Local general funds One-time appropriations
Pacific Northwest Corridor (Washington and Oregon)	Washington State Department of Transportation (WS DOT) Public Transit and Rail Division Rail Office	Operational subsidies Capital improvements	Multimodal account Several state rail accounts
	Oregon Department of Transportation (ODOT) Rail Division	Operational subsidies Capital improvements	Allocation of federal Congestion Mitigation Air Quality (CMAQ) funding Federal earmarks



## For More Details...

The research is documented in Report 0-4723-1, *Funding Strategies and Project Costs for State-Supported Intercity Passenger Rail: Selected Case Studies and Cost Data*.

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TTI.PSR0501.0705.520 PSR 0-4723-S

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