



COMMONWEALTH of VIRGINIA

Thelma D. Drake
Director

DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
600 EAST MAIN STREET, SUITE 2102
RICHMOND, VA 23219-2416

(804) 786-4440
FAX (804) 225-3752
VIRGINIA RELAY CENTER
1-800-828-1120 (TDD)

December 28, 2010

The Honorable Sean T. Connaughton
Chairman, Commonwealth Transportation Board
Office of the Secretary of Transportation
Patrick Henry Building, 3rd Floor
1111 East Broad Street
Richmond, Virginia 23219

Dear Secretary Connaughton:

The Virginia General Assembly directed the Department of Rail and Public Transportation (DRPT) during its 2010 Session to provide the Commonwealth Transportation Board (CTB) with an assessment of the anticipated ridership and funding required to support daily bus connector service from the Roanoke Valley to Lynchburg as part of the on-going three year passenger rail demonstration project.

The enclosed report provides the information requested by the General Assembly and further examines an extension of the pilot project to Blacksburg in response to feedback received from stakeholders during the study process.

I will be happy to discuss the report and answer any questions at the Commonwealth Transportation Board's next meeting.

Sincerely,

A handwritten signature in blue ink that reads "Thelma Drake".

Thelma Drake
Director

Cc: Members of the Commonwealth Transportation Board

Assessment of the Anticipated Ridership and Funding for Amtrak Connector Bus Service in the Roanoke Valley-Lynchburg Corridor

December 28, 2010



Assessment of the Anticipated Ridership and Funding for Amtrak Connector Bus Service in the Roanoke Valley-Lynchburg Corridor

Table of Contents

I. EXECUTIVE SUMMARY..... 3

II. INTRODUCTION..... 4

III. BACKGROUND AND PREVIOUS STUDIES..... 4

IV. APPROACH..... 5

V. ANALYSIS OF POTENTIAL AMTRAK CONNECTOR SERVICE..... 6

I. EXECUTIVE SUMMARY

During its 2010 Session, the Virginia General Assembly directed the Commonwealth's Department of Rail and Public Transportation (DRPT) to provide the Commonwealth Transportation Board (CTB) with an assessment of the ridership and funding required to support a bus service pilot project (called "Amtrak Connector") that would link Roanoke with the existing Amtrak Virginia rail service in Lynchburg. This report includes the results of the assessment, as well as an assessment of extending the pilot project further southwest to Blacksburg. Consideration of extending the service to Blacksburg was largely based upon stakeholder input.

Amtrak Connector bus service between Roanoke and Lynchburg is projected to generate an additional 3,600 passengers per year on the Amtrak Virginia rail service. The estimated direct operating cost of the Connector service, if provided by a public transit agency, is approximately \$150,000 per year. The majority of the operating costs could be funded through federal and state transit grant programs administered by DRPT and passenger revenues, however, a public transit agency receiving grant funds would be required to provide a local match (approximately 35 percent of operating expenses net of fare revenues). A further extension of the Connector service to Blacksburg would raise operating costs substantially (over 40 percent) due largely to the increase in distance, while generating only modest additional ridership of approximately 800 passengers per year due to the trip length and schedule. Overall ridership on the Connector service could potentially be improved if train arrival/departure times in Lynchburg could be modified, but this could have other ridership impacts and operational impacts for service in Virginia and the Northeast Corridor.

The Amtrak Connector service would also require capital funding support for a public transit agency to purchase or lease buses for the service. The estimated annualized capital costs are approximately \$130,000, including depreciation. Similar to the operating costs, DRPT administers federal and state transit grant programs to assist with capital costs. These capital programs also require a local match from public transit agencies.

In addition to having a local public transit agency provide the Amtrak Connector service, DRPT also has the ability to amend its current agreement with Amtrak to allow Amtrak to contract with a private third-party bus operator. Amtrak estimates that the total cost (capital and operating expenses) of using a private third-party bus operator would be approximately \$330,000, which is 18 percent higher than the public transit agency option. With bus passenger revenues estimated at \$11,000, the state would have to fund the remaining \$319,000 of expenses because federal funds can not be used for a private third-party bus operator. This is compared to approximately \$36,000 of state funds under the public transit agency option.

Regardless of the delivery method, the Commonwealth Transportation Board is responsible for funding allocation decisions related to this type of service.

II. INTRODUCTION

As part of its 2010 Budget Bill, the Virginia General Assembly issued the following requirement to the Department of Rail and Public Transportation (DRPT):

Item 448.E. Not later than December 31, 2010, the Director shall provide the Commonwealth Transportation Board an assessment of the anticipated ridership and funding required to support a pilot project of daily bus connector service from the Roanoke Valley to the Kemper Street Station in Lynchburg as part of the on-going three year passenger rail demonstration project. Any support of this transit connector service shall be terminated if the Route 29 rail corridor project is not continued at the conclusion of the three year demonstration period.

This report provides the information requested by the General Assembly and further examines an extension of the pilot project to Blacksburg in response to feedback received from stakeholders during the study process.

III. BACKGROUND AND PREVIOUS STUDIES

Three separate studies of transit service between Roanoke and Lynchburg have been conducted since 2007:

- *TransDominion Express (TDX) Status Update Study:* The Virginia Transportation Research Council completed this study for DRPT in January 2007. It estimated both business and non-business rail passenger ridership along the proposed TDX routes between Bristol, Richmond, and Washington, DC.
- *Amtrak Ridership Analysis:* Amtrak conducted a study of estimated rail ridership along the Lynchburg-Washington, DC corridor (with continuing service through the Northeast Corridor). As part of this analysis, Amtrak looked at bus connector service from Bristol to Lynchburg, with intermediate stops in Marion, Wytheville, and Roanoke.
- *RVARC Staff Report:* The Roanoke Valley-Alleghany Regional Commission (RVARC) provided preliminary information in January 2010 concerning the viability of a bus connector service from the Roanoke Valley to Kemper Street Station in Lynchburg. The study was a “synthesis” of previous information (including the 2007 TDX status update) rather than a completely new analysis.

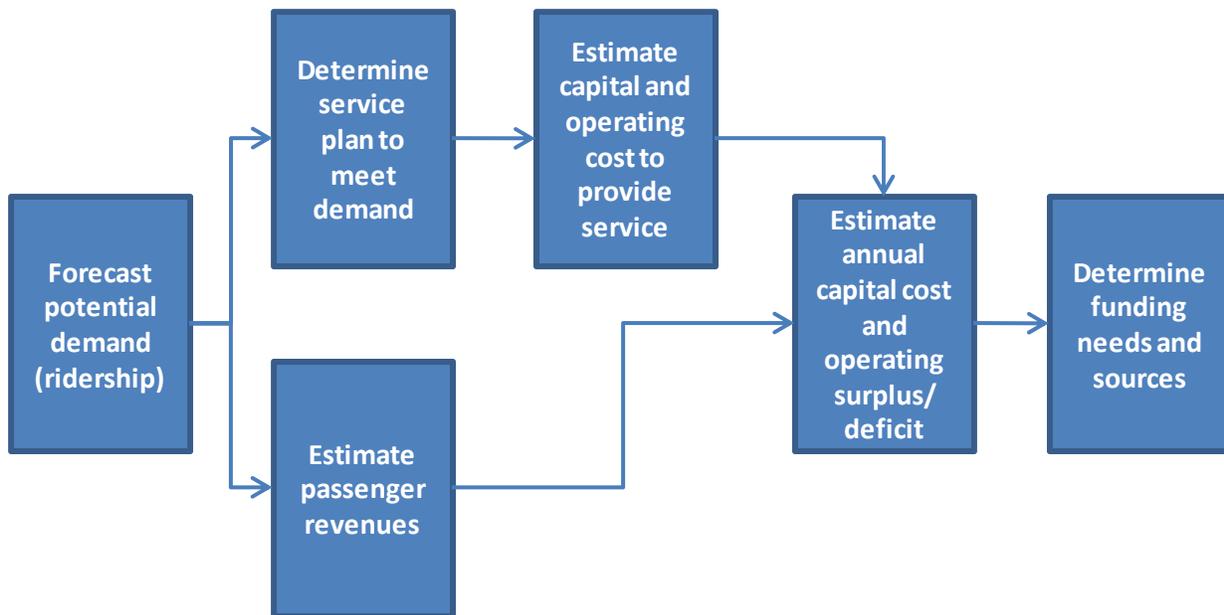
This report builds and expands on these previous study efforts.

IV. APPROACH

Throughout this report, the proposed transit service is referred to as “Amtrak Connector” bus service. The Amtrak Connector would provide dedicated bus service to passengers arriving at and departing from the Kemper Street Amtrak Station in Lynchburg. These passengers will be long-distance travelers (e.g., to/from Washington, DC, and other locations as far north as Boston) who typically do not make this type of trip daily. The travel market being served by the potential Amtrak Connector is separate and distinct from the potential commuter market that exists in the same corridor.

The essential analytical methodology for determining the feasibility of this service is presented in Figure 1 below:

Figure 1: Analytical Process



The analysis is driven by the forecast of potential demand or ridership. This estimate is then used to determine an appropriate service plan (i.e., the amount of service, including scheduling, miles and hours of service, and number of vehicles), as well as to estimate the amount of passenger revenue that will be generated. An estimated annual operating cost is then derived from the service plan. When combined with the passenger revenues, this provides an estimate of the “net” cost of providing the service. The final step is then to determine potential sources of funding to support this net cost.

V. ANALYSIS OF POTENTIAL AMTRAK CONNECTOR SERVICE

The DRPT-initiated Amtrak Virginia service extending to Lynchburg, which began in October 2009, has proven to be very successful. Annual ridership in the twelve months from October 1, 2009, to September 30, 2010, was over 126,000, which was more than double the target ridership of 51,000. As a result, the service also greatly exceeded its passenger revenue forecasts – over \$6.3 million in revenue was generated, compared to a target of \$2.6 million. DRPT’s longer-term goals for this service include multiple daily rail departures from Lynchburg, as well as expanding rail service beyond Lynchburg to Roanoke and potentially as far south as Bristol.

A possible first step in initiating any of these rail expansions is to build the transit market with dedicated bus connector (sometimes called “bus bridge”) service to Lynchburg from Roanoke and areas further south and west. This section analyzes the potential for that service to be successful.

Amtrak Connector – Ridership and Revenue

Using models developed for the Northeast Corridor (NEC), long distance trains, California corridors, and other markets, Amtrak has prepared forecasts for a variety of service initiatives nationwide, including Acela Express and NEC Regional trains, service improvements in state-supported corridors, and proposals for new local/state-supported corridor services (including for Virginia). Amtrak management uses the forecast results are used by Amtrak management to evaluate nearly all new initiatives/options that have ridership and ticket revenue implications.

Figure 2 below presents the ridership and revenue estimates for Amtrak Connector service at Lynchburg. The 2011 baseline is presented first, which is consistent with Amtrak’s internal estimates for the projected annual ridership and fare revenue associated with the Amtrak Virginia service to Lynchburg. Note that this baseline projects a modest growth in ridership over the FY10 figures of approximately 3 percent to almost 130,000, but a more substantial increase in revenue of 27 percent (to \$8.0 million) due to pricing changes. Then Figure 2 presents two options for Amtrak Connector service that are further described below.

- In Option 1, the bus service connects Roanoke and Lynchburg. This bus bridge service draws an additional 3,600 annual passengers to the rail service and generates \$199,000 in rail and bus passenger revenue. However, only \$11,000 of that revenue is attributable to the bus service, which is priced in this analysis at \$3.00 per trip. The vast majority of the revenue generated comes from the train tickets. The bus trip portion was priced relatively low to encourage ridership on the new bus service, similar to a promotional offer from a private business. The overall increase in ridership for Amtrak Virginia service to Lynchburg when the Amtrak Connector bus is introduced is approximately 2.8 percent, with a revenue increase of approximately 2.5 percent.

- In Option 2, the Connector service is extended beyond Roanoke to Blacksburg. The additional ridership generated by this extension is relatively low – only 800 passengers annually and \$38,000 in additional revenue. In this case, the bus fare was increased to \$4.50 per trip for Blacksburg to Lynchburg passengers.

Although these ridership figures are similar to bus connector forecasts performed for Amtrak services in other states (e.g., connecting to Carolinian and Piedmont trains in North Carolina), the attractiveness of this connector service is diminished by two factors. First, these are relatively long bus trips – approximately an hour from Lynchburg to Roanoke and another 45 minutes or more from Roanoke to Blacksburg. This may deter some potential users from seeing the bus connector as a viable travel option. The second factor is the timing of the service. No assumption has been made regarding an alteration of the existing train schedule, which means weekday buses would depart from Roanoke to Lynchburg in the morning at approximately 6:00am and arrive in Roanoke in the evening from Lynchburg at 10:00pm (see service plan section below for more information). The timing for Blacksburg is even later in the evening and earlier in the morning. Based on forecasting experience, the bus service will attract riders but overall the service is at the “outside edge” of acceptability for most travelers.

Figure 2: Amtrak Connector Ridership and Revenue

	Baseline			Option 1 (Roanoke Bus)			Option 2 (Blacksburg & Roanoke Bus)		
	Riders	Ticket Revenue	Passenger Miles	Riders	Ticket Revenue	Passenger Miles	Riders	Ticket Revenue	Passenger Miles
Washington-Lynchburg Train Route	129,900	\$8,011,000	30,580,000	133,500	\$8,199,000	31,550,000	134,300	\$8,234,000	31,699,000
Connecting Bus Route @ Lynchburg	0	\$0	0	3,600	\$11,000 \$3.06	270,000	4,400	\$14,000	361,000
TOTAL (unlinked)	129,900	\$8,011,000	30,580,000	137,100	\$8,210,000	31,820,000	138,700	\$8,248,000	32,060,000
TOTAL (linked)	129,900			133,500			134,300		
INCREMENT (relative to base)				3,600	\$199,000	1,240,000	4,400	\$237,000	1,480,000

Notes:

All figures estimated for 2011.

All figures are annual.

Modeling did not assume any capacity constraints.

Amtrak Connector – Service Plan

For Option 1 (Roanoke only), the bus would leave Roanoke on weekday mornings at 6:00am and arrive in Lynchburg at approximately 7:10am. This provides sufficient time to unload the bus and load passengers onto the train, as well as a few minutes of “padding” in the schedule to accommodate potential traffic delays. In the evenings, the bus would depart Kemper Street Station at 8:46pm (10 minutes after the scheduled train arrival) and arrive in Roanoke at 9:56pm. The bus timing on the weekends is similar, but shifted, because the trains depart Lynchburg at 9:59am and arrive back in the evening at 9:30pm on Saturdays and 10:20pm on Sundays.

For the Option 2 extension to Blacksburg, essentially the same arrival and departure times in Roanoke and Lynchburg are maintained. The weekday morning service would depart Blacksburg at 4:55am, and the evening service would return to Blacksburg at 11:05pm.

Amtrak Connector – Bus Service Costs

This report contains two separate approaches and cost estimates for providing the Amtrak Connector service. Amtrak provided the first cost estimate, while DRPT developed the second cost estimate.

Although Amtrak generally does not provide such connector bus services directly, they have relationships with many private and charter bus services and often request “quotes” for similar services. Thus, in addition to estimating the incremental costs, Amtrak also provided an independent price quote from a third-party bus operator, who was not specifically named. This motor bus service, which is all-inclusive of operating and capital costs, was estimated to cost \$329,200 for Option 1 (extending to Roanoke) and \$568,700 for Option 2 (extending to Blacksburg). This approach would require DRPT and Amtrak to amend their existing agreement to allow Amtrak to contract with a private third-party bus operator.

DRPT also developed cost estimates for the two bus service options under the assumption that a public transit agency would supply the service. The operating costs are driven primarily by estimates of the miles and hours of service required to provide the service and the associated costs for labor, fuel and materials, while the capital costs include necessary additional vehicles to provide the Connector service. Figure 3 provides a summary of the results:

Figure 3: Cost Estimates for Public Transit Agency to Provide Amtrak Connector Service

	Option 1 (Roanoke)	Option 2 (Blacksburg)
Key Cost Drivers		
Annual Hours	1,858	3,140
Annual Miles	80,300	143,080
Bus Operator Labor	\$27,913	\$45,811
Other Personnel Direct Labor	28,340	71,958
Fringe Benefits	18,563	38,864
Fuel	43,800	78,044
Other Materials and Supplies	24,491	30,894
Vehicle Insurance	9,000	9,000
Annual Operating Cost	\$152,106	\$274,571
Bus Capital Cost (Annualized)	\$79,318	\$79,318
Depreciation	50,833	50,833
Total Annualized Capital Cost	\$130,152	\$130,152
Total Cost	\$282,258	\$404,722

Based on DRPT’s assessment of the operating situation, it appears that providing Connector service from Roanoke to Lynchburg could be undertaken in a relatively “lean” fashion that requires relatively little additional labor from supervisors and mechanics. The extension to Blacksburg, however, would require significant additional operating costs.

In both options, the primary bus operations could be handled with one additional new bus. The bus capital cost in Figure 3 is shown on an annualized basis, rather than showing the entire upfront cost of the bus. This is done so that a total annual cost for both operations and capital can be estimated, similar to what Amtrak has provided. The capital cost estimate has been increased by 20 percent to account for the costs of providing a “spare” bus. In practice, this could involve the purchase of a second bus which could then be primarily utilized by the transit agency for other services, or it could involve the transit agency utilizing one of its existing fleet vehicles as the spare and receiving compensation. Note also that this cost includes a line item for depreciation. For a public transit agency, there is an assumption that this would be equivalent to funding the future bus replacement, in order to ensure that the service is maintained in a state of good repair, as desired by DRPT for all of the Commonwealth’s transit and rail services.

Amtrak Connector – Net Costs

Figure 4 below summarizes the annual net cost requirements for each of the two service provider options and for each routing option.

Figure 4: Net Costs for Amtrak Connector Service

	Amtrak Third-Party Provision		Public Transit Agency Provision	
	Option 1 (Roanoke)	Option 2 (Blacksburg)	Option 1 (Roanoke)	Option 2 (Blacksburg)
Amtrak Connector Revenue	\$11,000	\$14,600	\$11,000	\$14,600
Amtrak Connector Expenses	\$329,200	\$568,700	\$282,258	\$404,722
Net Revenue / (Subsidy)	(\$318,200)	(\$554,100)	(\$271,258)	(\$390,122)

Clearly, the extension to Blacksburg imposes significant additional costs, while generating relatively little additional ridership or revenue. As noted above, this is due to both the additional length of travel required on the bus, as well as the unattractive timing (early morning/late evening) required for travelers.