REPORT OF THE VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION ON THE STUDY OF

RAIL PASSENGER SERVICE

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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BRISTOL RAIL PASSENGER STUDY

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

PREFACE

The 1994 Session of the General Assembly of Virginia directed the Virginia Department of Rail and Public Transportation "to conduct a feasibility study for the potential implementation of rail passenger service between Washington, D.C. and Bristol, and/or between Richmond and Bristol" (Chapter 966, Section 617.B of the 1994 Virginia Acts of Assembly).

Pursuant to this directive, staff of the Department of Rail and Public Transportation(DRPT) undertook such a study. The consulting firm of Frederic R. Harris, Inc. was hired to perform this study. Subcontractors on this project included Transportation Economics and Management Systems, Inc., and Saeed Associates, Inc. A description of the study effort, its findings and recommendations are contained in this report.

A Technical Advisory Committee was established to provide data for the study and to review the findings. This committee included representatives from the Department, the railroads, and local jurisdictions, as follows:

BRISTOL RAIL PASSENGER STUDY TECHNICAL ADVISORY COMMITTEE

NAME	ORGANIZATION
Mr. Alan Tobias, Project Manager	Department of Rail and Public Transportation
Mr. George R. Conner	Department of Rail and Public Transportation
Mr. Thomas F. Stewart	Department of Rail and Public Transportation
Mr. Kurt Wassenaar	City of Charlottesville Representative
Mr. Frederick H. Norvelle	City of Lynchburg Representative
Ms. Kathleen Benton	Northern Virginia Transportation Commission
Mr. Bill Schafer	Norfolk Southern Corporation
Mr. Wayne Strickland	Fifth Planning District Commission
Mr. Dennis E. Gragg	Central Virginia Planning District Commission
Mr. W. A. Dennison, Jr.	City of Bristol, Virginia
Mr. William F. Clark	City of Roanoke
Ms. Isabel Kaldenbach	National Railroad Passenger Corporation (Amtrak)
Ms. Hannah Twaddell	Thomas Jefferson Planning District Commission

Three public hearings on this study were held during November 1995. Hearings were held in Bristol on November 15, Roanoke on November 16, and Lynchburg on November 20. Approximately 150 people attended these three hearings, and 95 written and oral comments were submitted to the DRPT. These comments were overwhelmingly supportive of the study and of the proposal to implement rail service. A list of excerpts from these comments is provided in Appendix A. A complete set of these comments is on file with the Department.

EXECUTIVE SUMMARY

Chapter 966, Section 617.B of the 1994 Virginia Acts of Assembly states that:

> *$250,000 shall be allocated to the Department of Rail and Public Transportation to conduct a feasibility study for the potential implementation of rail passenger service between Washington, D.C. and Bristol, and/or between Richmond and Bristol.*

The Virginia Department of Rail and Public Transportation (DRPT) conducted this study during 1995. The purpose of this study was to:

1. Identify best routes to provide service.
2. Develop several different scenarios of service levels.
3. Project annual ridership for each of the proposed service scenarios.
4. Estimate capital costs, operating costs and revenues for each service scenario.
5. Determine which (if any) of the proposed service scenarios are economically feasible.
6. Recommend the most feasible alternative for additional study.
7. Identify issues and concerns which will require additional detailed analysis.

FINDINGS AND RECOMMENDATIONS

Routes The proposed routes include service from Bristol to both Richmond and Washington, D.C. Trains would travel northward from Bristol to Roanoke and then east to Lynchburg. From Lynchburg, one leg would follow the route of Amtrak's Crescent to Washington, D.C. via Charlottesville and Alexandria. The second leg would go east to Richmond by way of Farmville (See Figure 1). All of the proposed routes are on track owned by Norfolk Southern Corporation, with the exception of short segments of CSX railroad connecting to the Richmond stations, and in Alexandria.

Stations The proposed routes include 18 potential station locations, with eight manned and ten unmanned stations. Five of these proposed station locations are presently served by Amtrak (Washington Union Station, Alexandria, Manassas, Culpeper, Charlottesville and Richmond). Lynchburg also currently has Amtrak service, but the existing station is not located on the rail lines that would be used for the proposed Bristol service. In nearly all of the other locations an old passenger station structure still exists, but has been adapted for some other use. The number of stations and their locations are only proposals for consideration and serve as a basis for testing the feasibility of the proposed rail system. The specific station locations will ultimately be determined in close cooperation with local jurisdictions along the corridor.

Service Provided Table 2 outlines the operating alternatives which were considered. Scenario 6 is the recommended alternative. Under this scenario, modern tilt train equipment would operate on existing track without significant infrastructure improvements. Two trains per day would be operated in each direction to all stations in the system.

Ridership Ridership for each of the tested operating scenarios was estimated using a multi-tiered logit model. As shown in Table 4, annual ridership of 520,000 was estimated for the first full year of service, with growth to more than one million annual riders over the twenty year period studied. A significant portion of this ridership would be on trips which cover only a portion of the corridor, (for example, Bristol to Roanoke). Many trips would extend beyond the defined corridor, with some passengers coming from east Tennessee, and others traveling northward beyond Washington, D.C. on Amtrak's Northeast Corridor.

Capital Costs The use of the modern tilt equipment allows trains to travel at a high average speed rate without the need to make major improvements to the rail infrastructure. Capital costs are shown in Table 3. The recommended scenario will require the purchase of four trainsets at a total cost of $41.2 Million. Other identified capital costs include the construction of nine unmanned and two manned stations for $5.8 million, the construction of layover facilities in Bristol and Lynchburg (cost: $3.15 million), and the installation of a connection between Norfolk Southern and CSX lines in Richmond (cost: $3.8 million). The total capital cost for the recommended alternative is estimated to be approximately $54 million.

Operating Costs Operating costs were calculated using actual unit costs experienced by the Virginia Railway Express (VRE), the commuter rail service in Northern Virginia (see Table 6). Railroad access fees were calculated at the current rate that VRE has negotiated with Norfolk Southern. The capital cost of procuring rail equipment was included as an operating expense, with the cost of the vehicles amortized over a fifteen year period. Expenses were estimated using 1994 dollars, and annual operating costs are shown to decrease after 15 years, once the financing costs of the equipment are paid off. The annual operating cost for the first full year of service for the recommended alternative is projected to be $22.3 million (see Table 7).

Revenues Revenues were calculated using the projected ridership figures and assuming an average fare rate of $0.17 per mile, which is Amtrak's current average fare for trips of less than 400 miles. Table 5 shows that annual revenues are estimated to be $17.5 million during the first full year of operation for the preferred service alternative. Annual revenues are estimated to grow to $36.2 million after 20 years as a result in the increase in ridership. The service is projected to operate at a deficit initially, but revenues would grow to match operating expenses in approximately seven years. Over the twenty year period studied, revenues are projected to exceed operating expenses by 4%.

Institutional Issues This preliminary feasibility study did not attempt to analyze the potential conflicts between the proposed passenger service and Norfolk Southern's freight business. It is evident that there will be some conflicts created, and additional capital expenditures may be required to minimize these problems. This issue will need to be analyzed in much greater detail. In addition, issues of compensation, schedule, liability and capital improvements must be negotiated with the railroad.

Coordination between freight and passenger services may increase travel times of passenger trains and also affect the hours during which such service can operate. Any significant changes in operation will require a re-analysis of ridership and revenue projections.

Station locations and costs identified in this preliminary study are intended to be representative of actual operations. More detailed analysis of each potential location, including projections of demand, needs to be conducted in conjunction with the localities. There may be additions and/or deletions from the list of proposed stations.

CONCLUSION

This preliminary study has shown that it would be feasible to implement rail passenger service from Bristol to Washington, D.C. and to Richmond. Additional study is necessary to analyze in more detail issues concerning the operation of the proposed service.

STUDY CORRIDOR

The study identified an interest and potential demand for passenger service along the full length of both the Washington-Bristol and Bristol-Richmond corridors. It would appear that there is merit to operating a rail service along these corridors with up to eighteen stations. The stations would be located in major cities within the corridors and other cities and towns which passenger trains had served prior to the discontinuation of such service approximately twenty years ago. It is recommended, therefore, that additional study be conducted to evaluate the specific engineering and operational issues that would be need to be addressed in order to commence rail service and the financial requirements that such service would entail.

Bristol, Virginia was selected as the southwestern terminus of this Virginia Department of Rail and Public Transportation sponsored study because this city lies on the Virginia-Tennessee border. However, this study identified significant interest in extending proposed passenger rail service into Tennessee. The results of the traveler surveys conducted as part of the travel demand forecasting work, for example, indicated a demand for service well beyond the state border. Comments received during the public information meetings also indicated an interest in continuing passenger rail service into Tennessee. It would be beneficial, therefore, for the Commonwealth of Virginia to cooperate with the State of Tennessee in formally studying passenger rail service beyond the state boundary, perhaps as far as Chattanooga, Tennessee.

Certainly, other corridors potential passenger rail corridors exist between the proposed project termini. CSX, for example, owns a line between Charlottesville and Richmond via Gordonsville which currently carries, on average, two freight trains per day. This corridor was not pursued for a number of reasons. This line is constructed from jointed rail with a design speed of between 25 and 30 miles per hour. Significant track improvements would be required to accommodate the type of equipment contemplated for this project. Improvements in this corridor would be made at the expense of the Lynchburg-Richmond corridor which offers faster service between southwestern Virginia and Richmond. Southwestern Virginia is the area from which the greatest demand for service lies and in which transportation service is most in need of improvement.

Maintenance requirements would also be significant. While Norfolk Southern provides a high level of maintenance on the Bristol-Washington to accommodate their heavy freight schedule CSX might not be able to do the same on a Charlottesville-Richmond line without substantial financial assistance from the proposed passenger rail operation. The Charlottesville-Richmond line is owned by CSX while virtually all of the other track considered for passenger rail service is owned by Norfolk Southern. While both railroads would likely be open to negotiation of shared use of their tracks, introducing another party into the discussion (CSX) could increase difficulties in establishing acceptable terms for operating passenger rail service within these freight rail corridors.

EQUIPMENT

Two types of technology were examined as candidates for the proposed passenger rail service: conventional equipment as commonly used by Amtrak for intrastate routes and a technologically advanced train set with a hunting bogie system and using fossil fuel (diesel electric or gas-turbine)–a derivative of the European X2000 train set tested by Amtrak last year.

Both types of equipment would be capable of serving some segments of the corridor at speeds as high as 79 miles per hour, the maximum speed permitted under Norfolk Southern's current policy for shared operations. The "hunting bogie" design of the advanced train set would allow the train to operate at these speeds with fewer modifications to the existing track structure. X2000 TVA-type trains could operate over the entire system at speeds of at least 55 miles per hour, and frequently at speeds of up to 79 miles per hour, with no improvements to the track alignment. Only minor track improvements, which could include the construction of passing sidings on the existing Norfolk Southern tracks, and a new connection to link the service from Lynchburg through Burkeville to the Richmond downtown station, would be necessary. More extensive track improvements would be required to permit conventional trains to operate at these speeds throughout the system. Similar improvements would be required were X2000 TVA-type trains to operate throughout the system at speeds at or near 79 miles per hour.

Based upon the relatively high ridership that would be attracted and relatively low track improvement costs the X2000 TVA-type train equipment is recommended for the proposed service.

OPERATING SCENARIOS

Eight operating scenarios were examined under this study. The scenarios are intended to bracket the range of feasible service that might be offered within the corridor. All scenarios contemplate serving all stations as described in the previous section. The differences between the scenarios relate to differences in the type of equipment placed in service, improvements to the infra-structure, and frequency of service.

SERVICE RECOMMENDATIONS

Table 2 outlines the operating scenarios considered. Based upon the findings of this initial study, the alternative with the greatest potential for success is Scenario 6. Under this scenario, the X2000 TVA-type train would operate on essentially existing track without major improvements and provide two-trains a day in each direction to all stations in the system. It is recommended that Scenario 6 be investigated in greater detail. Specific engineering requirements, operational issues, including the ability to coordinate with existing and proposed Norfolk Southern freight operations, and financial issues, should be investigated in sufficient detail. Preliminary engineering plans for all track and facilities improvements should be developed. Specific rolling stock should be identified. Detailed costs for all capital, operating, and maintenance should be itemized and a

Given the range of possible service frequencies, one to four trains per day, it was determined that only the stations with the highest anticipated ridership would require staffing. Other stations would operate as unmanned stations, similar to the operation of most Virginia Railway Express (VRE) stations in northern Virginia. Table 1 lists the proposed and existing stations and the staffing plans for each. Figure 1 shows the location of the stations across the state.

All of the scenarios tested contemplate the construction of nine unmanned stations and two manned stations. The number of stations and locations are only proposals for consideration and serve as a basis for testing the feasibility of the proposed rail system. The specific stations that are ultimately built and operated will be determined subsequent to this study.

TABLE 1

PASSENGER STATIONS

STAFFING	EXISTING STATIONS	PROPOSED STATIONS
Manned	Lynchburg[1], Richmond, Charlottesville, Alexandria, Washington.	Bristol, Roanoke
Unmanned	Manassas, Culpeper	Abingdon, Marion, Wytheville, Pulaski, Radford, Christiansburg, Bedford, Appomattox, Farmville

[1] A second station is contemplated to serve the proposed east-west train service. This station would be constructed and operated as an unmanned station.

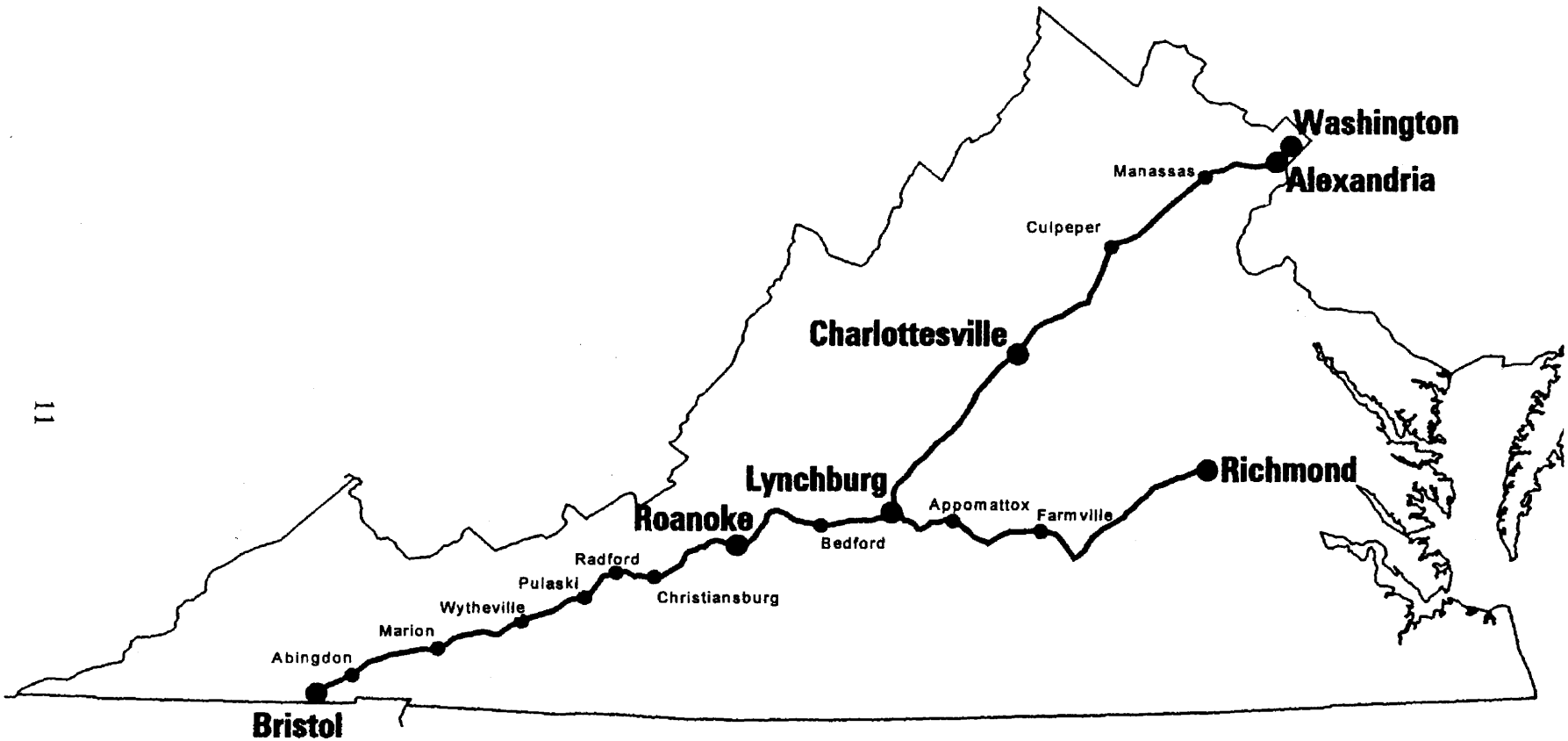

Figure 1
Proposed Routes and Stations

complete financial assessment performed to identify costs and revenues over the twenty-year period subsequent to commencing operations.

TABLE 2

OPERATING SCENARIOS

SCENARIO	TECHNOLOGY*	ENGINEERING	TRAINS PER DAY
1	Conventional	No improvements	1
2	Conventional	Improvements	1
3	Hunting Bogie (X2000 TVA)	No improvements	1
4	Hunting Bogie (X2000 TVA)	Improvements	1
5	Conventional	Improvements	2
6	Hunting Bogie (X2000 TVA)	No Improvements	2
7	Hunting Bogie (X2000 TVA)	Improvements	2
8	Hunting Bogie (X2000 TVA)	Improvements	4

* TVA denotes use of fossil fuel technology.
Shaded row denotes recommended option.

CAPITAL COSTS

Stations, track improvements, storage and maintenance facilities, and rolling stock would all be covered under an initial capital expenditure. Costs for each of these facilities were determined from Amtrak, VRE, and other railroad operations around the country. Table 3 summarizes the capital costs associated with each of the alternatives.

Rolling Stock

Conventional train sets are estimated to cost approximately $6.6 million each. X2000 TVA-type train sets are estimated to cost approximately $10.3 million each. It is recommended that train sets be procured under a lease/purchase arrangement to reduce the start-up costs of the proposed service. The recommended service, X2000/TVA-type trains operating with a frequency of two trains per day over unimproved tracks, would cost $41.2 million: a cost of approximately $3.1 million in 1997 and $4.2 million in 2006.

TABLE 3

SUMMARY OF CAPITAL COSTS (Millions of 1994$)

SCENARIO	ROLLING STOCK	STATIONS	TRACK WORK	STORAGE AND SIDING	TOTAL
1	19.86	5.80	3.80	3.15	32.61
2	19.86	5.80	114.74	3.15	143.55
3	30.96	5.80	3.80	3.15	43.71
4	30.96	5.80	113.09	3.15	153.00
5	26.48	5.80	114.34	3.15	149.77
6	41.20	5.80	3.80	3.15	53.95
7	41.20	5.80	113.09	3.15	163.25
8	82.56	5.80	113.09	3.15	204.60

Stations

The locations at which stations are proposed is intended to be illustrative of the possibilities. A number of general location criteria were developed as part of this analysis. The station locations selected are at sites which were previously served by passenger rail service and are no closer than approximately 20 miles apart (so as to allow the trains to accelerate and operate at higher speeds). Subsequent to their selection, the station sites were visited. In most locations there is an existing building, site, and landscaping which would require only minor modifications to make them usable for passengers. Clearly, some site improvements and arrangements with existing building owners and occupants would need to take place before a final selection could be made. However, it would appear that station costs at some locations could be appreciably less than is estimated. Some stations would need to be situated in locations entirely different from where they had historically been. This may require construction and right-of-way acquisition costs that could exceed the estimates used in this study. On balance, the cost estimates shown are conservative and should be adequate for planning purposes.

It is anticipated that stations would be constructed in cooperation with the local jurisdictions. The availability of funds, within certain limits, therefore, could dictate the final placement of stations along the rail line.

Two manned and nine unmanned stations would need to be constructed or refurbished (where stations currently exist but are not currently suitable for passenger use). No changes are proposed for stations on the existing line between Washington and Lynchburg nor Richmond. The cost for each unmanned station is estimated to be approximately $400,000, each manned station—$900,000. Station construction costs, therefore, would be approximately $5.8 million.

Track Improvement Costs

Some track improvements would be necessary to initiate and operate the proposed rail service regardless of the option selected. The nature and extent of those improvements would be dependent upon the specific service alternative that would selected for implementation. As a minimum, the connection in Richmond between the Norfolk Southern line running from Lynchburg to Richmond and the CSX north south line to permit trains to use the existing Richmond Station and proposed downtown stop at Main Street Station. This cost, which would include not only the train connection but modifications to the flood wall protecting the south bank of the river crossing, is estimated at approximately $3.0 million.

Because of the substantial track improvement costs for other options, as much as $114 million, Alternative 6, which entails no major track improvements, is recommended.

Storage and Sidings

Storage and sidings would be required to store a "spare" train set and regular equipment when not in actual operation. 1,000-foot sidings are recommended in Bristol, Lynchburg, and Washington.

Additional Cost Considerations

This preliminary report assumes that track or signal costs are limited to those improvements necessary to permit passenger rail operations at speeds of 55 mph or greater. Additional improvements may be necessary to facilitate the operation of passenger service within the heavily-traveled freight rail corridor. Further investigation in this area would be appropriate. Additional cross-overs, passing sidings, and other improvements may be required and would increase the capital expenditures to implement this service. The timing and allocation of such costs will also need to be developed further.

RIDERSHIP

Ridership was estimated for each of the operating scenarios through a multi-tiered, logit model. Based upon a state-wide survey of travelers using private automobile, existing Amtrak service, Greyhound bus service, and airlines originating in Bristol (Tri-Cities Airport), Roanoke, Lynchburg, Richmond, and Washington (Dulles and National airports), travelers' preferences with respect to the relative value of time and money were estimated in a stated preference survey. A preference for the proposed service was then established given the characteristics of the rail

operation and the business and non-business travelers' value on travel time and cost. These preferences were also examined in the future based upon forecasts of population, employment, and personal income between 1994 and the design horizon of this study. Table 4 shows the anticipated ridership for each mode of travel, including the proposed rail service in Alternative #6.

Changes in service on competing modes service could affect ridership. Because there are proposals under consideration it is recommended that there be further study of FAA, airport, and airline plans for service in the corridor. Similarly, access improvements to the rail stations (e.g., direct bus connections) could increase ridership. Consideration should be given to improvements in intermodal connections to the rail stations which could increase the attractiveness of the rail alternative.

Changes in the geographical limits of the proposed service could also have a significant impact upon total ridership. While this study indicates appreciable demand for passenger rail service beyond Bristol and into the state of Tennessee no analysis has been performed to gauge that demand. Subsequent study should take into consideration the potential for expanding service into Tennessee and securing cooperation from that state for more detailed analysis.

TABLE 4

TOTAL DEMAND RESULTS FOR THE RAIL SERVICE OPTION #6

Year	Total Study Area Demand (in 000's)	Total Corridor Demand (in 000's)	% Market Shares*				System Rail Demand (in 000's)
			Air	Bus	Auto	Rail	
1994	22,675	21,438	6.5	3.2	86.3	4.0	
1997	26,154	24,727	4.5	3.1	86.3	6.1	520
2002	32,053	30,304	4.5	3.1	86.2	6.1	640
2007	37,869	35,803	4.6	3.1	86.2	6.2	755
2012	43,628	41,248	4.6	3.1	86.2	6.2	873
2017	53,882	50,943	4.6	3.1	86.2	6.2	1,079

* Market share as a percentage of total corridor demand.

REVENUES

The revenues generated by the rail service options would include not just fares paid by passengers but also the revenues from car parking, car rental facilities, express package services, station concessions, and on-board services. For the purpose of this analysis, however, only revenues derived from the fare box have been included. While this source of revenue is the most significant, it represents an estimate of the potential income that the rail service options can generate. Additional non-passenger revenues, such as advertising, are not included in this estimate. Table 5 shows the anticipated revenues for Option #6 over the twenty-year planning horizon of this study.

TABLE 5

TOTAL REVENUE PROJECTIONS FOR OPTION #6 (Millions of 1994$)

Year	Annual Revenues
1997	17.5
2002	21.4
2007	25.6
2012	29.3
2017	36.2

OPERATING AND MAINTENANCE COSTS

Key cost items include the maintenance of track, signals and communications, rolling stock lease costs, the operations of trains including crew, energy costs, the care of passengers at stations and terminals and, finally, the management and administrative costs associated with marketing, financial control, operating and engineering management of the railroad. The annual operating and maintenance cost estimates were derived by applying unit costs to the relevant operating statistics such as number of train set miles, route miles, track miles and passengers. Table 6 presents an estimate of annual operating and maintenance costs for Option #6.

TABLE 6

ESTIMATED ANNUAL OPERATING AND MAINTENANCE UNIT COSTS FOR OPTION #6 (1994$)

Cost Item	Unit	Unit Cost	Annual Costs
Track Access Fees	Per Train Mile	$10.00	$6,841,120
Transportation Costs	Per Train Mile	(1)	(1)
Rolling Stock Maintenance	Per Train Mile	7.28	4,980,335
Train Crew	Per Train Crew Annually	3.16	2,160,000
Station Costs	Per Passenger	2.92	1,557,000
Energy	Per Train Mile	1.80	1,231,402
Administration	of Other Costs	7%	704,335
Sales and Marketing	Per Passenger	0.25	133,185
Insurance Costs	Per Passenger	1.88	1,001,553
Rolling Stock Lease Costs	Per Year (15 Years)	3,066,514	3,066,514

(1) *Included in Track Access Fees*

Some of these cost items will need to be negotiated. Track access fees, for example, will need to be negotiated with Norfolk Southern and other freight lines. The cost estimates used in this report should be considered preliminary.

FINANCIAL AND ECONOMIC ANALYSIS

Each of the alternatives was evaluated to determine the financial and economic costs and benefits that would accrue from their implementation. The following measures were employed:

Operating Ratio: The ratio of revenues to operating and maintenance costs gives an indication of the financial merits of the project. Comparable passenger rail service around the country has typically produced ratios of between 0.60 and 1.00. The operating ratio for this project is projected to be 1.04 over the twenty-year planning horizon of this study. Table 7 presents the results of the financial and economic analysis of the project.

User Benefits: Using the consumer surplus concept, transportation improvements provide time and cost saving to both existing users and new users who are induced to make a trip or diverted from a previously used mode.

Community Benefit: Non-travelers' benefit from the implementation of rail service through increase in household income, property values and the number of permanent jobs that would occur as a result of the project.

TABLE 7

TOTAL OPERATING & MAINTENANCE PROJECTIONS FOR OPTION #6
(Millions of 1994$)

Year	Operating & Maintenance Costs	Rolling Stock Lease/Purchase Costs	Total Operating Costs
1997	19.2	3.1	22.3
2002	21.3	3.1	24.4
2007	21.1	3.1	24.2
2012	21.1	0.0	21.1
2017	21.1	0.0	21.1

TABLE 8

FINANCIAL & ECONOMIC ANALYSIS

MEASURE	DESCRIPTION	MILLIONS OF 1994$	
Operating Ratio	Revenues/operating and maintenance costs	1.04*	
Consumer Surplus Benefit	1997	213.8	
	2017	442.5	
	Present Value	4,058.0	
	UNITS	ANNUAL	FOR 20-YEAR LIFE OF PROJECT
Community Benefits	Increase in Employment (number of full-time jobs)	657	13,140**
	Increase in Household Income (millions of 1994$)	52.9	585.1
	Increase in Property Values (millions of 1994$)	39.0	39.0
	Total (millions of 1994$)	--	624.1

* Does not include capital costs but does include rolling stock lease costs.

** Person-years of employment. i.e., number of jobs multiplied over 20 years.

INSTITUTIONAL ISSUES

Additional considerations will need to be addressed before a passenger rail service can be instituted. Some of these considerations arise from the fact that the proposed service would likely be operated by a contract operator rather than a free-standing transportation entity. Similarly, the right-of-way over which the proposed service would travel is by a private, independent, freight railroad company, Norfolk Southern Corporation. No detailed discussions have taken place between Norfolk Southern and DRPT. Issues of compensation, schedule, liability, and capital improvements will need to be negotiated with the railroad.

This study provides an estimate for the cost of constructing typical manned and unmanned stations at the various proposed stop locations. The actual cost of building new stations or rehabilitating existing stations will vary depending on local conditions. Subsequent studies will look at the station costs in more detail and identify potential funding sources that could be used by localities to construct station facilities.

Coordination between freight and passenger service may increase travel times of passenger trains and also affect the hours during which such service can run. Subsequent analysis will need to investigate the interplay between freight and passenger service as well as means of maximizing both operations through the construction of additional track and sidings and other means.

Another issue that may affect the ultimate schedule for passenger service is the speed restrictions on the existing tracks. Norfolk Southern authorizes speeds of up to 79 mph on the Washington-Lynchburg segment. Maximum speeds are lower on other segments. The reasons for these limitations will need to be investigated and means sought to overcome physical and other barriers to higher speeds.

Operations at the proposed Woodall station in Lynchburg will need to be investigated in greater detail. Means will need to be identified to minimize potential congestion and conflicts with Norfolk Southern's already congested operations at Kinney Yard.

None of these "institutional issues," however, would appear to preclude the feasibility of operating the proposed passenger rail service.

APPENDIX A

SELECTED WRITTEN AND ORAL COMMENTS RECEIVED CONCERNING THE BRISTOL RAIL PASSENGER STUDY

A total of 95 written and oral comments have been received by the Department of Rail and Public Transportation concerning the Bristol Rail Passenger Study. Excerpts from some of these comments are listed below. A complete set of all of the comments is on file with the Department.

COMMENTS FROM THE BRISTOL AREA

Jerry Wolfe, Mayor City of Bristol, Virginia
Bristol, Virginia

"I just wanted to officially make a comment that the City of Bristol, Virginia, is totally in favor of extending passenger rail service to the City of Bristol, Virginia through Roanoke and Abingdon, down through the valley of Southwest Virginia.

We see this as great economic development tool for Southwest Virginia, as well as for the tourism in the area, and we're very excited about the possibility of having passenger rail service here.

Transportation from this area to Richmond and Washington, while it is good, Interstate 81 is becoming very crowded, and there has been talk of the possibility of six-laning the Interstate, which we understand is extremely expensive. We see this as an alternative to that, as well as an alternative to the limited amount of jet air service from Tri-Cities Airport to either Richmond or Washington."

Kurt Pomrenke, Chairman of Board Bristol Chamber of Commerce
Bristol, Virginia

"On behalf of the Chamber of Commerce, we strongly support this proposal. We have over 700 members in our chamber, all of whom are in support of this proposal, will endorse it, and encourage ridership.

We see this as a tremendous economic tool for all of Southwest Virginia. It will create jobs, help bring industry here, and develop tourism. Additionally, it will help bring this part of the state in closer contact with our fellow citizens around Virginia. This could be one of the most important things the State of Virginia has ever done."

Joseph F. Loprete, President, Chairman and CEO Bristol Compressors, Inc.
Bristol, Virginia

"Bristol Compressors, Inc. is the largest employer in Southwest Virginia. Our success is the direct result of the fine efforts of our Bristol Compressors people. I am confident they would enthusias-tically support passenger rail service to our state and nation's capitals.

"Interstate 81 has become overburdened with traffic. The availability of rail service would certainly be a welcomed alternative to that mode of travel."

C. R. McCullar, President and Chief Executive Officer, Charter Federal Savings Bank
Bristol, Virginia

"I strongly support this initiative and expect to utilize such service upon its implementation."

Arthur S. Powers, Publisher and Executive Vice President, Bristol Herald Courier
Bristol, Virginia

"I believe it would be an outstanding contribution toward our economic development efforts. Additionally, it would provide us with a direct link to Richmond.

Passenger rail service to Bristol is a must."

Barbara Gillen, Administrative Support, CAMAC Corporation
Bristol, Virginia

"We are in agreement that this service could greatly enhance the economic, social and educational opportunities for our region."

Betsy Feathers, Proprietor, Lingerie Ltd.
Bristol, Virginia

"I would prefer rail service as opposed to other means of travel because of the convenience, as well as, economics."

Timothy J. Shean, Vice President Chemical Products Division, Sandvik Rock Tools
Bristol, Virginia

"One of the strategic needs of the Bristol community is to improve transportation. We must be doing this in all aspects: air, road and rail.

With recently announced cutbacks in air service to Tri-Cities Airport, we believe passenger rail service is needed even more than before."

Rob Simis, Edward Jones
Bristol, Virginia

"From an economic standpoint, the more people we can expose to the great opportunities and the natural beauty of the Tri-Cities area, the more people we can call on to settle here and enjoy the area's bountiful resources!"

Joe Macione, Jr., Executive Vice President & General Manager WCYB - Channel 5
Bristol, Virginia

"Improved transportation always results in added freedom in the Mountains!

The Bristol area is not connected to Virginia or United States capitals by a direct route by either highway or air, so the direct rail link will give us a freedom that should enhance tourism and other commerce with the result being an improved economy."

Richard R. Randles, Division President, Exide Corporation
Bristol, Tennessee

"For our traveling employees to have the flexibility to use a cost effective passenger rail service would be a very favorable option."

R. Henry Richards, M.D., Vice President for Governmental Affairs King Pharmaceuticals, Inc.
Bristol, Virginia

"We have found at King Pharmaceuticals that there is an important transportation encumbrance from this area to and from major centers of commerce. this situation prevails as a result of a marginally adequate access by air or by way of the single major interstate highway. The prospect of rail passenger service to Washington and Richmond with further extensions West to Nashville and South to Knoxville is therefore extremely important to us. Such additional transportation access is likely to provide a catalyst for future growth and development not otherwise possible."

Bernard Separ, Operations Manager Reynolds Metals Company - Can Division
Bristol, Virginia

"Because we operate our business in a very competitive industry, where margins are measured in cents/thousand, we are always looking for an advantage, rail service could offer that advantage. I see rail service between Bristol and Richmond as being cost effective in both time and dollars expanded.

Passenger rail service could do for Southwest Virginia in the year 2000 what the Interstate Highway System did in the seventies, bring new business' and high paying jobs to the area."

J. Scott MacMorran, Bristol City President First American National Bank
Bristol, Tennessee

"In my role as Chairman of the Bristol Economic Development Partnership I believe we would see a significant economic impact in Bristol and the entire region with passenger rail service."

Representative Richard Venable, Delegate Tennessee General Assembly
Kingsport, Tennessee

"I am a member of the Rail Study Committee of the Tennessee General Assembly.

I'm here to support the efforts of Virginia in establishing rail service from Washington to Richmond into the Tri-Cities area. Tennessee has made a commitment to look at the rail service between Bristol and Chattanooga. We feel like the efforts that have been made, thus far, in Virginia will assist us in our studies. I have been asked by the committee to come here and show our support for this effort and I am very happy to do so."

David Doughty
Bristol, Tennessee

"There are numerous benefits to this travel including tourism and relieving congestion on our roadways. It is about time that we return to a service that allows us to view our country's scenery without the hassle of driving."

Nancy Petersen
Bristol, Tennessee

"This is an excellent first study and very easy to understand. I only hope the meeting with more information for the public will continue. "Don't drag our feet." Bristol Needs this service very much.

"How about routes from Bristol to Atlanta?"

Kim Jonas
Bristol, Virginia

"Transportation in and out of SW Virginia is <u>really</u> weak - air travel is expensive (the current wave of competition hasn't reached the Tri-Cities yet), and no train (yet). We <u>need</u> this service.

Even if this project doesn't turn a profit, it's necessary and worthwhile. Our roads aren't expected to turn a profit, after all - but we're still big on roads in Virginia. The benefits to the people of SW VA are worth running a bit of a deficit, if necessary."

Bob Miller, Executive Vice President Kingsport Area Chamber of Commerce
Kingsport, Tennessee

"We are excited and hopeful that passenger service will become reality. With increasing traffic on Interstate 81 and the growth in business travel, we see this service as another building block for economic development."

Harold Dishner, President, Board of Directors The Chamber of Commerce - Johnson City, Jonesborough and Washington County
Johnson City, Tennessee

"In the spirit of regional cooperation and to further enhance economic and community development in Tri Cities TN/VA, we support the possibility of instituting rail passenger service between Bristol and Richmond, and also between Bristol and Washington, D.C.

Passenger rail service would be a grand way to travel and would be a boon to tourist development."

Johnson City Regional Planning Commission
Johnson City, Tennessee

"Now, Therefore Be It Resolved, that the Johnson City, Tennessee Regional Planning Commission endorse the extension of passenger rail service between Washington, D.C. and Bristol, Virginia;"

Ron Flanary, Executive Director LENOWISCO Planning District Commission
Duffield, Virginia

"We must view this as an investment in infrastructure to improve the quality of life in the Commonwealth, for the greater public good.

If properly planned, this service could also improve this strategic rail corridor for more freight intermodal growth, relieving I-81 of a considerable volume of truck traffic. Additional passing sidings or short stretches of double track, improved signalization and track work, grade separations and improved crossing protection, would contribute greatly to the continued growth of this emerging freight corridor."

Board of Supervisors, County of Washington
Abingdon, Virginia

"NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Washington County, Virginia fully supports and endorses the provision of passenger rail service from Bristol, Virginia to either Richmond, Virginia or Washington, D.C., or both, or any other locality the Virginia Department of Rail and Public Transportation deems advisable.

BE IT FURTHER RESOLVED that the Board of Supervisors of Washington County, Virginia encourages the Commonwealth of Virginia to approve and implement said passenger rail service and pledges its assistance to the Commonwealth in implementing said service."

Steve Galyean, Director of Tourism Abingdon Convention and Visitors Bureau
Abingdon, Virginia

"The re-establishment of passenger rail service into Southwest Virginia would provide yet another means of increasing visitation into our region."

Joseph P. Johnson, Jr., Delegate - 4th District Virginia General Assembly
Abingdon, Virginia

"I find it very attractive and exciting, since Interstate 81 that I travel up to I-64 to Richmond is heavily traveled and very dangerous."

"The time schedule...is very attractive for trips from south to north each day and return trips north back to south. The time is very reasonable."

"It's a very exciting venture and I support it 100%."

F. David Wilkin, President Virginia Highlands Community College
Abingdon, Virginia

"This improvement to our transportation system would help the economy of Southwest Virginia, as well as making VHCC personnel more productive."

Edward J. Verner, Director, Museum of the Middle Appalachians
Saltville, Virginia

"I believe that the Museeum is well-placed to provide significant in-put to the Bristol rail Passenger project on a tourism front, and that now would by no means be premature for us to explore the possibilities."

Betty L. Gillespie
Wytheville, Virginia

"As Interstates 81 and 77 become more obsolete and dangerous, it is imperative that the people of Southwest Virginia be afforded an alternative transportation system."

COMMENTS FROM THE NEW RIVER VALLEY AREA

Board of Supervisors, County of Pulaski
Pulaski, Virginia

"NOW, THEREFORE, BE IT RESOLVED that the Pulaski County Board of Supervisors of Pulaski County, Virginia fully supports and endorses the provision of passenger service from Bristol, Virginia to either Richmond, Virginia or Washington, D.C., or both, or any other locality the Virginia Department of Rail and Public Transportation deems advisable.

BE IT FURTHER RESOLVED that the Board of Supervisors of Pulaski County, Virginia encourages the Commonwealth of Virginia to approve and implement said passenger rail service and pledges its assistance to the Commonwealth in implementing said service."

Pulaski Town Council
Pulaski, Virginia

"NOW, THEREFORE, be it resolved by the Town Council of the Town of Pulaski, Virginia sitting in regular session on December 5, 1995 that the Town Council supports the Bristol Rail Passenger Study and urges the Commonwealth of Virginia Transportation Board to authorize continuation of the Bristol Rail Passenger Study to confirm preliminary conclusions and refine study projections."

Nancy Sexton Bowman, Executive Director, Pulaski County Chamber of Commerce
Pulaski, Virginia

> *"The Pulaski County Chamber of Commerce Executive Board of Directors, at its meeting on Friday, December 13, 1995, unaimously voted to give full support to the attached resolution from the Pulaski County Board of Supervisors in regard to the Virginia Department of Highways and Transportation* (sic) *Rail Passenger Proposal.*
>
> *"It is obvious tothe board members that this service would provide a much needed link to Richmond or Washington, D.C. as well as providing economic, cultural and social benefits to the citizens of Pulaski County and the New River Valley."*

Vincent D. Stover, Transportation Planner New River Valley Planning District Commission
Radford, Virginia

> *The Transportation Advisory Committee (TAC) has taken DRPT's Bristol Rail Passenger Service Study to the next step, which is working toward local government support for infrastructure development of passenger stations. The TAC has a study of its own,* The New River Valley: Regional Rail Corridor Plan, *which demonstrates our commitment to improving accessibility to the service for our citizens, and how we can enhance access and efficiency of service to those travelers coming into our region. The TAC is conducting this study to provide guidance to the localities on the benefits and costs associated with the provision of access points to the passenger service."*

Richard A. Roth
Blacksburg, Virginia

> *"I am writing to support the concept of daily (or even weekend) rail service (passenger) from Bristol to DC. Many of us in SW Va. are looking for an environmentally sensible, safe, and affordable alternative to driving up and down I-81."*

Tammy Balinsky
Copper Hill, Virginia

> *"HOORAY! Please use all my tax money earmarked for roads on this train instead! I want rail service!!"*

COMMENTS FROM THE ROANOKE AREA

City Council of Roanoke, Virginia
Roanoke, Virginia

"THEREFORE, BE IT RESOLVED by the Council of the City of Roanoke as follows:

1. The City Council urges the Commonwealth of Virginia Transportation Board to authorize continuation of the Bristol Rail Passenger Study to confirm preliminary conclusions and refine study projections."

Winfred D. Noell
Roanoke, Virginia

"I would like an all out effort made to get NS to be the contractor for this train, this would give NS more of a part in making this project succeed. Hopefully NS would be a willing partner instead of a reluctant participant."

Charles S. Tubman, Jr.
Roanoke, Virginia

"I have to urge that the highest degree of cooperation be established with Norfolk Southern as this project progresses. Setting this up will involve investing dollars in modifying NS' infrastructure to allow the efficient movement of both passengers and freight."

Jeffrey R. Wood
Roanoke, Virginia

"I like the schedule proposed. lit is very appealing for a Roanoke to D.C. business run. Return schedule likewise very good."

Randolph Gregg
Roanoke, Virginia

"Consider an agreement with local and inter-city bus companies, taxicab operators, even employer-sponsored car pools to pick up passengers in outlying areas and deliver them to train-side, reversing the process in the opposite direction. If people know they can get to and from a station easily, they will take the train in preference to some other form of transportation.

Consider stopping trains in small towns...I am surprised that there is no proposed stop in Orange, VA., which is approximately the size of Culpeper and has just as much patronage potential."

Frank G. Roupas
Roanoke, Virginia

"I love Amtrak and no one could be any happier tonight to know that we're going to have train service once again in Roanoke."

May Louise Sligh
Salem, Virginia

"Having a passenger rail service from Roanoke to surrounding areas simply makes sense. It would allow many individuals an opportunity to travel outside local boundaries (i.e. elderly, handicapped) on their own, without depending on family and friends."

COMMENTS FROM THE LYNCHBURG AREA

Flo Traywick, Member of the Governor's Economic Development unit in Central Virginia
Lynchburg, Virginia

"It does not make sense to me to keep spending more funds building bigger and bigger roads for more and more cars and trucks. Rail service has always proven to be more economically efficient."

Eddy Horner, Scott and Stringfellow
Lynchburg, Virginia

"I'd like to see an early morning schedule that will allow you to get into Richmond by 8:30 or 9:00 am at the latest. I think that you'll see a tremendous amount of business and corporate support in this area."

William Olewiler
Lynchburg, Virginia

"As possible schedules are established, please consider making it possible to make a round trip in one day, so that business travel may be facilitated."

Melissa McCann
Lynchburg, Virginia

"I am sure there would be great ridership of this proposed rail service, and the environment would benefit, too!"

COMMENTS FROM NELSON COUNTY

Lee Marmon, Oak Ridge Estate
Arrington, Virginia

> *"Oak Ridge in Nelson County is very interested in being included as a destination in the proposed state rail service--both as a flag stop and for weekend excursions. Oak Ridge would be a justified stop for reasons of economic viability, marketing potential, tourism and history along the Washington to Bristol corridor."*

Nelson County Board of Supervisors
Lovingston, Virginia

> *"NOW THEREFORE, BE IT RESOLVED, That the Board of Supervisors of Nelson County endorse the Virginia Department of Rail and Public Transportation's feasibility study for rail passenger service, and requests that the study include a stop at Oak Ridge in Nelson County on the Lynchburg to Washington Run."*

Gunter L. Muller, Executive VP and General Manager Wintergreen Resort
Wintergreen, Virginia

> *"We would like to be on record as supporting the Bristol Rail Study with a stop at Oak Ridge. A passenger stop on the Bristol-Washington state rail line has some very interesting marketing applications for us and could be very beneficial to Wintergreen and Nelson County."*

Frankee Love, Director Nelson County Division of Tourism
Lovingston, Virginia

> *"Tourism is the primary industry in Nelson County and a train stop would be one more step to develop our economic base. I urge the Virginia Department of Rail and Public Transportation to include Oak Ridge on its list of destinations."*

COMMENTS FROM THE SOUTHSIDE AREA

Farmville Area Chamber of Commerce
Farmville, Virginia

> *"THEREFORE, LET IT BE RESOLVED, that the Farmville Area Chamber of Commerce urges the creation of passenger rail service in the Commonwealth, with a stop, as proposed, Farmville."*

Tyler E. Williams, III
Drakes Branch, Virginia

"One thing that I have noticed over the years is that the existence of transportation options seems to have real weight with companies who are seeking to locate a facility here in Southside Virginia. Convenient access to the Interstate highway system, air and rail transport are no less important than an educated work force and plentiful water and other natural resources for any company considering a site in this area. While we are a substantial distance from the closest Interstate or airport, providing a passenger rail link from Lynchburg through Farmville to Richmond would be of immeasurable benefit to those of us trying to attract real economic development to this area."

COMMENTS FROM THE NORTHERN VIRGINIA AREA

Lucia Anna Trigiani
Alexandria, VA

"Travel to Southwest Virginia is difficult - no direct air service and a great time by car. I would see rail passenger service as highly beneficial to Southwest Virginia."

Walter L. Loftin
Alexandria, Virginia

"This service and other expanded service for Virginia rail passengers is very important and the most efficient way we can invest our limited transportation budget."

David L. Caskey
Arlington, Virginia

"Even though it would not provide a faster trip, the train would certainly provide a higher quality and productive trip for me."