

Final Report

# The Economic Impact of Restoring Intercity Passenger Rail to Bristol, VA/TN

February 2019



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## **ACRONYMS AND ABBREVIATIONS**

AADT	annual average daily traffic
AAR	Association of American Railroads
APT	Amtrak Performance Tracking
DRPT	Virginia Department of Rail and Public Transportation
E–E	external–external
FRA	Federal Railroad Administration
FY	fiscal year
GDP	gross domestic product
I-66	Interstate 66
I-81	Interstate 81
I-95	Interstate 95
I–I	internal–internal
MPO	metropolitan planning organization
MSA	metropolitan statistical area
MTC	Multimodal Transportation Center
NLX	Northern Lights Express
O&M	operation and maintenance
VDOT	Virginia Department of Transportation

## Executive Summary

More than 10 million people will call Virginia home by 2040 (University of Virginia, 2018). Over the next two decades, Virginia will leapfrog New Jersey and Michigan to become the tenth most populous state. The Commonwealth is expanding intercity passenger service incrementally as part of its larger multimodal mobility strategy, to accommodate the coming growth. Investments in these services not only relieve congestion on its most traveled interstate corridors but also shape growth, support market connectivity, and foster the vitality of Virginia's economies.

The Virginia Department of Rail and Public Transportation has extended passenger rail service in the U.S. Route 29/Interstate 81 (I-81) corridor over the past decade, adding rail service to Lynchburg (2009 and 2017) and Roanoke (2016–2017), and the Virginia Breeze (December 2017) intercity bus service from Blacksburg to Washington Union Station. Service utilization has met or exceeded expectations, marking strong demand for an alternative mode of travel in this corridor that connects or is proximate to half of the Commonwealth's urban economies. With the resumption of service to Roanoke, Bristol is the next largest market in the corridor not served by passenger rail.

State rail plans identify Bristol as a possible new intercity passenger market over the long term. Based on the recent successes in nearby markets in the corridor and an ongoing statewide conversation about how to improve the performance of the I-81 corridor, Bristol's stakeholders have begun to question whether market conditions have accelerated the timetable for a Bristol connection and what such a connection could mean for the local economy.

This report has two related objectives. The first is to provide an unbiased, independent review of existing ridership and revenue projections of the Bristol extension. The second objective is to assess the economic impact on the Bristol, Virginia economy of extending Amtrak's *Northeast Regional* Virginia service, from its current terminus at Roanoke to Bristol, Virginia.

Key findings of the study include:

- Current projections of rail ridership and revenue for a Bristol extension offer a reasonable estimate of future outcomes.
- Because they omit the impact of numerous large events in Bristol, they likely are conservative. Investments to shorten the travel time to major Northeast Corridor markets or continue the train service southwest from Bristol would further increase use of the service.
- Passenger rail fills a gap in the region's transportation network, offering a more reliable trip than the Interstate roadways and a more affordable one than air travel. The rail trip would be longer than a trip by either of the alternative travel modes, but the time could be used for work or leisure pursuits.
- Bristol has a growing tourist economy. In addition, economic anchors such as Eastman report that they would benefit from and use rail service as part of their daily commercial activities. Community infrastructure is in place to leverage the value of the investment. The station is walking distance to the revitalized downtown and growing base of attractions. Downtown small business owners are prepared to evolve, to cater to the train-riding market.
- A preliminary assessment suggests that operating revenues could nearly offset operating costs under some scenarios.
- The 20-year economic development return-on-investment, based on net gains in employment and earnings, is positive on a net present value basis (at 4.5 percent), based on the best available information on capital costs at the time of this report.

The greatest source of uncertainty at this time is the requisite capital cost to implement the service. A potential Norfolk Southern study may inform this much-needed piece of the puzzle.

## Chapter 1: Introduction and Purpose

The Commonwealth of Virginia is expanding intercity passenger service incrementally as part of its larger multimodal mobility strategy. The investments in these services support the Commonwealth's larger program of initiatives to relieve congestion on its most heavily traveled Interstate corridors, such as the ongoing Atlantic Gateway (Interstate 95 [I-95]) Project, the Interstate 66 (I-66) Inside and Outside the Beltway projects, and future implementation of the Interstate 81 (I-81) Corridor Improvement Plan. Such investments support market connectivity and the vitality of the Commonwealth's urban economies.

The Washington, DC metropolitan area (formally known as the Washington–Arlington–Alexandria, DC–VA–MD–WV Metropolitan Statistical Area) that includes much of Northern Virginia is the southern terminus of Northeast Corridor spine (Washington, DC–New York–Boston). Through its passenger rail investments, Virginia steadily is developing a rail network that connects its urban areas to the Northeast Corridor via Washington, DC. Eight of Virginia's fourteen metro and micropolitan economies currently have passenger rail service. These emerging rail corridors generally have extended south, from the DC hub along the I–95 corridor (DC–Richmond–Norfolk) and southwest via Amtrak's Northeast Regional Virginia route, to serve many of the Commonwealth's mid–size economies along U.S. Route 29 and I–81 (DC–Culpeper–Charlottesville–Lynchburg–Roanoke). Extending service to Bristol, Virginia would add Virginia's two largest unserved urban areas to its passenger rail network; these are the Blacksburg–Christiansburg–Radford, VA Metropolitan Statistical Area (via a stop in Christiansburg) and the Kingsport–Bristol–Bristol, TN–VA Metropolitan Statistical Area (via a stop in Bristol, Virginia).

This report focuses on the latter corridor and has two related objectives. The first is to provide an unbiased, independent review of existing ridership and revenue projections of a possible Bristol extension. The second objective is to assess the economic impact on the Bristol, Virginia economy of extending Amtrak's existing Regional Virginia service from its current terminus at Roanoke to Bristol, Virginia. As shown in Table 1, most of the Commonwealth's mid–size economies are served directly or proximate to this rail corridor, connecting them to the large District-Maryland-Virginia metropolitan area and points north along the Northeast Corridor, such as New York and Boston. With the resumption of passenger rail service in Roanoke in 2017, Bristol is now the largest metro area in Virginia that is not served by passenger rail.

In the balance of this report, Chapter 2 provides context for the ridership and economic impact assessments that follow. It describes how passenger rail would fit with the other modes already serving Bristol's economy, the economic impact observed in other communities where rail service was started recently, and information on Bristol's economy. The chapter also contains a concise summary of the local and regional stakeholder perspectives on rail's value. This information was collected through several survey and public outreach efforts. The surveys and responses are described in detail in the appendices to the report.

**Table 1: Rail Service Among Virginia’s Metro and Micropolitan Economies (ranked by 2017 population)**

Pop. Rank	Rail Service? (1)	Economy Name	Population
1	✓	Washington–Arlington–Alexandria, DC–VA–MD–WV Metropolitan Statistical Area	6,196,188
2	✓	Virginia Beach–Norfolk–Newport News, VA–NC Metropolitan Statistical Area	1,772,840
3	✓	Richmond, VA Metropolitan Statistical Area	1,307,000
4	✓	Roanoke, VA Metropolitan Statistical Area	319,344
5	✓ if extended	<b>Kingsport–Bristol–Bristol, TN–VA Metropolitan Statistical Area</b>	<b>312,266</b>
6	✓	Lynchburg, VA Metropolitan Statistical Area	266,858
7	✓	Charlottesville, VA Metropolitan Statistical Area	237,765
8	✓ if extended	Blacksburg–Christiansburg–Radford, VA Metropolitan Statistical Area	186,332
9		Harrisonburg, VA Metropolitan Statistical Area	134,777
10	✓	Staunton–Waynesboro, VA Metropolitan Statistical Area	124,455
11		Bluefield, WV–VA Micropolitan Statistical Area	106,090
12	✓	Danville, VA Micropolitan Statistical Area	104,917
13		Martinsville, VA Micropolitan Statistical Area	66,494
14		Big Stone Gap, VA Micropolitan Statistical Area	61,372

Source: U.S. Census Bureau 2018 estimates of 2017 population. Note: (1) A check mark indicates that the market has rail service. Blue indicates a market in the study corridor and black indicates a market elsewhere in Virginia.

## Chapter 2: Study Background

The Virginia Department of Rail and Public Transportation (DRPT) has extended passenger rail service in the U.S. Route 29/I-81 corridor over the past decade, adding rail service to Lynchburg (2009) and Roanoke (2016–2017), and the Virginia Breeze (December 2017) intercity bus service from Blacksburg to Washington Union Station, with multiple intermediate stops including Christiansburg and Dulles Airport. Service utilization has consistently met or exceeded expectations, marking strong demand for an alternative mode of travel.

- Ridership in Lynchburg has exceeded projections, leading to discussions of a second daily corridor train. In total, Lynchburg is served currently by two trains in each direction daily -- one (1) daily corridor train and one (1) long-distance train (the *Crescent*).
- The service in Roanoke has met expectations in its first year. During the planning phase, the Roanoke extension was anticipated to generate just over 48,000 boardings and alightings in fiscal year 2013, the forecast base year. Amtrak is reporting first-year boardings and alightings of 54,000 in the 12 months ending in October 2018 (Jewell 2018).
- The Virginia Breeze intercity bus has far exceeded expectations. DRPT reports that total actual ridership from inception through September 2018 (10 months) was 14,501, doubling expected ridership in the first full year (December 2017–November 2018) of 7,125 passengers (VDOT 2018: 35–36).

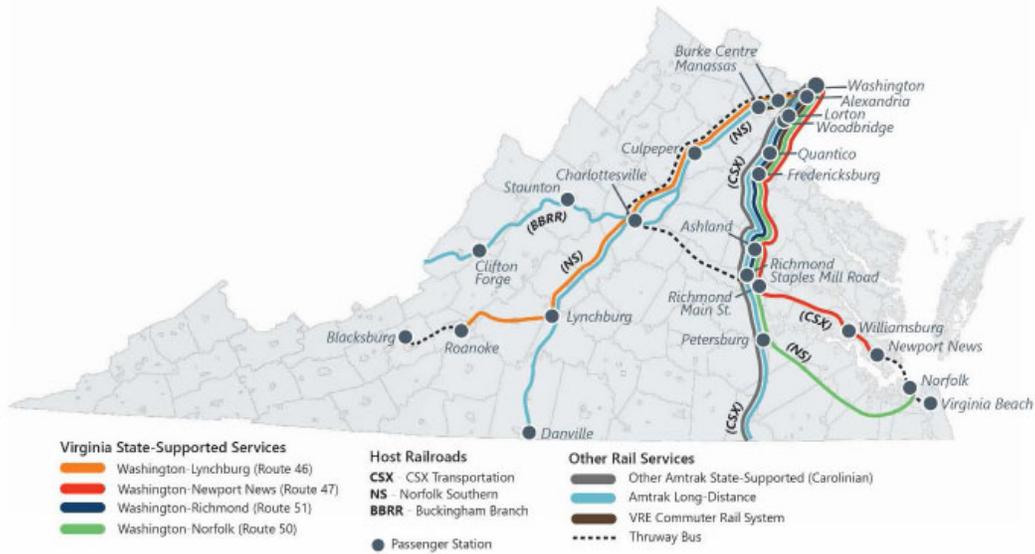
State rail plans identify Bristol as a possible new intercity passenger market that would extend the existing service provided. Figure 1 shows the existing rail service in Virginia. Based on the recent successes in nearby markets in the corridor, Bristol’s stakeholders have begun to question whether market conditions have accelerated the timetable for a Bristol connection. Box 1 summarizes the service scenario considered in this report.

A lot has changed since 1971, when Bristol residents last had the option of passenger rail service: the structure of Bristol’s and the broader region’s economy, traffic patterns on I-81, the availability of the Internet that makes work mobile, and the passenger rail network have all evolved in the intervening years. By contrast, one consistent trend has been Bristol residents’ and Virginia’s interest in restoring passenger rail service. The first study took place in the late 1970s and, including this current one, nine studies have examined various Bristol rail service scenarios. Moreover, despite the absence of service, policymakers have refurbished Bristol Station and have kept it in a state of good repair.

### Box 1: Bristol Rail Service Scenario Evaluated

- Frequency: one daily round-trip
- Anticipated fare: \$101 per trip
- Two stops between Roanoke and Bristol: Christiansburg and Wytheville
- Departure time from Bristol: 9:14 a.m.
- Arrival time to Bristol: 6:15 p.m.
- Travel time to Washington, DC: 9.5 hours
- Travel time to New York, NY: 13 hours

Urban and rural economies are complex systems of consumers and businesses that depend on the infrastructure that knit it all together. Sometimes the contribution that an individual component makes to a community’s economy changes over time or is not understood until it is gone. With ridership declining because of increased use of the automobile, railroads began consolidation in the mid-1900s. I-81 started opening in sections in Virginia in 1959, and all but one small segment was opened by 1971. Newspapers from the time report that 5 to 6 daily passengers typically boarded in Bristol when Norfolk & Western ended the Bristol to Lynchburg segment in 1971 to join Amtrak, and Amtrak chose not to continue service in the corridor (Mathews and Sorrell 2018).



Source: DRPT 2017

**Figure 1: Virginia's Current Passenger Rail Service**

Although some early studies were conducted in the late 1970s and early 1980s, interest in restoring service had grown sufficiently approximately 20 years after rail service in Bristol had ended for DRPT to undertake the first of what would be a series of studies examining the feasibility of re-introducing passenger rail service to Bristol (i.e., 1994, 1998, 2001a, 2001b, 2002, 2005, and 2007) as part of a new state service that has come to be known as the TransDominion Express. Over time, the studies began to incorporate input from Amtrak and Norfolk Southern, and thus the later studies with this guidance are considered more reliable. Key assumptions on travel times, daily frequency, and schedule varied across the studies, and therefore the projected ridership varied as well; specifically:

- Travel times in past studies ranged between 7 hours 27 minutes to 9 hours 52 minutes for a trip between Bristol and Washington, D.C (excluding high-speed rail implementation considered in one study).
- Daily frequencies varied between one and two trains.
- From Bristol to Lynchburg, ridership estimates ranged from 2,191 to 34,416 passengers annually.
- None of the studies considered special event ridership.

The latest study of Bristol service to Washington, DC via Lynchburg was conducted by Amtrak in 2016. It assumed one corridor train per day in each direction, six days a week, with stops in Bristol, Wytheville, and Christiansburg between Bristol and Roanoke. Ridership at Christiansburg was estimated at 20,100, Wytheville at 8,400, and Bristol at 11,800. Accounting for some losses at Roanoke for travelers who would drive from these southern markets to catch the train, the net increase in ridership was estimated at 37,700 annually for the segment between Bristol and Roanoke. Like the previous studies, the 2016 Amtrak study did not consider special event ridership. The inclusion of Wytheville and Christiansburg stops in the projection added additional uncertainty. To put those estimates in context, see Table 4 that lists the train frequencies and annual fiscal year 2017 boardings and alightings for stations in Virginia.

## Bristol's Intercity Transportation Challenge: Filling the Gap

For transportation investment to catalyze economic development, the investment needs to solve a transportation problem—to somehow fill a gap in the community's network of transportation services. Moreover, for intercity passenger rail to foster economic growth, it needs to be competitive with other intercity modes. With a commercial airport and a location directly on an Interstate corridor, Bristol's intercity transportation challenge is less visible than other communities that may lack such assets. To assess the impact of restoring rail, a service scenario was adopted—the same scenario that underpinned the ridership and revenue projections that were developed by Amtrak in 2016 for the service (Box 1). The scenario assumes one train in each direction per day, with a 9.5-hour trip time to Washington, DC<sup>1</sup>. The average fare per Bristol to Washington, DC trip is assumed to be \$101.

**Comparison with Air Service.** Bristol is served by three commercial airlines. Allegiant serves two locations from Bristol, the only non-stop service to Orlando and Clearwater–St. Petersburg. American offers direct flights to its Charlotte, North Carolina hub. Delta offers direct flights to its Atlanta, Georgia hub. Thus, a Bristol, Virginia traveler seeking to fly to Washington, DC, or New York first must fly south to connect and fly north. For a one-way trip from Bristol to Washington, DC, the minimum trip time is 3–4 hours, wheels up to wheels down. Allowing 90 minutes for parking, a security check, and boarding, the minimum flight time is 5.5 hours. Many layovers are longer than the minimum, extending the travel time to approximately 7+ hours. The cost with advance booking typically is \$225–\$250; the cost with little advance booking is typically \$480+ one-way. Thus, flying is two to four times more expensive than the train, but potentially would save between 2 and 4 hours of travel time.

**Comparison with Driving.** Bristol and Washington, DC also are within a comfortable driving distance of one another. The most likely routes rely on I-81 for much of the trip. The driving time takes about 6.5 hours without breaks, and the average fuel cost is estimated to be approximately \$22 one way (auto, 2018), excluding the cost of parking. Driving can be a challenging option for several reasons. First, the Interstate serves as a freight corridor with a 40 percent truck mode share, which is expected to rise in the future. This can be a challenging and stressful driving environment for auto vehicles mixed in with the truck traffic. Second, the interstate has a high propensity for incident delay, reducing the predictability of travel time. Among the Interstate corridors in the Commonwealth, I-81 has the lowest share of predictable recurring delay and the highest share of non-recurring, unpredictable incident delay, according to materials developed for the I-81 Corridor Improvement Study (VDOT, 2018).

**Highway Improvement Study.** The study reviewed crash data between 2013 and 2017 and found that over 2,000 vehicle crashes occurred annually, of which 26 percent involved a heavy truck. This is the highest percentage for any Interstate corridor in Virginia (as identified in the Virginia Department of Transportation [VDOT] Roadway Network System). Moreover, typically 45 major crashes occur each year that require more than 4 hours each to clear (VDOT, 2018).

Travelers needing to be at a specific location at a certain time are likely to add in buffer time to their schedules, reducing the difference in travel times between driving and taking the train. Collectively, the large truck share of corridor traffic and unpredictable time element reduce the appeal of driving (Figure 2).

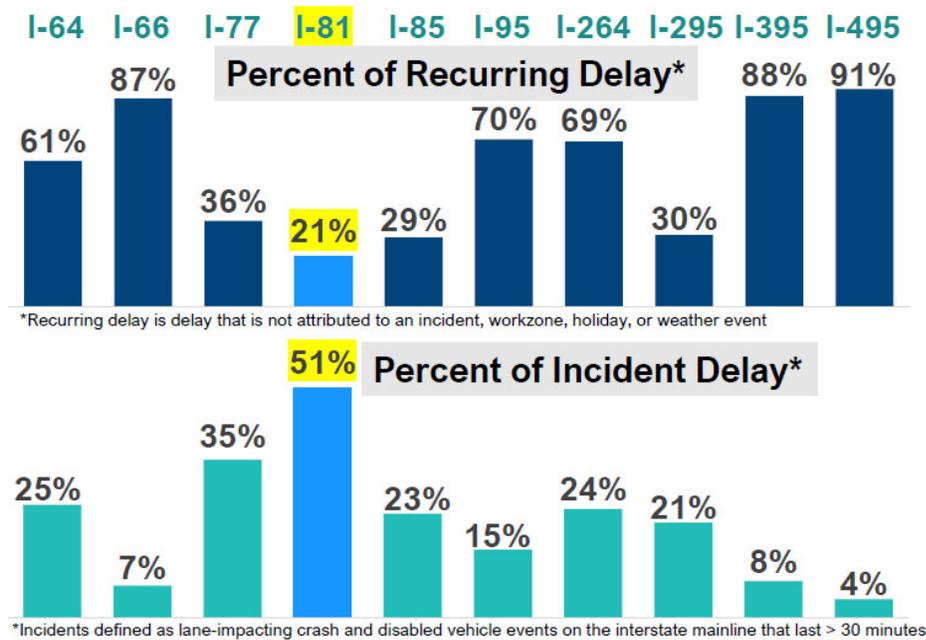
Because of the comparative cost advantage with flying, the reliability advantage relative to driving, and the comparative comfort (i.e., no security checkpoint/process, more legroom, ability to walk around or work productively), passenger rail service would offer a valuable travel option for Bristol residents and visitors.

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<sup>1</sup> The travel time to Washington, DC could be reduced with greater capital investment than assumed for this scenario. Sensitivity testing suggests that use of the service (ridership) increases with a faster travel time.

Thus, restoring passenger rail to Bristol would address a transportation need, creating opportunities for economic development as the market adopts and responds to the availability of the new service.

Two complementary economic development dimensions would exist to passenger rail service—that of Bristol residents and that of travelers seeking to visit Bristol. From the perspective of Bristol residents, the ability to readily access other locations from a home base in Bristol would make Bristol a more attractive place to live and would support retention of the household consumer base of the economy. The role of passenger rail as a community amenity for local residents was a theme that came through both the literature review and stakeholder outreach that was conducted for this study. From a visitor’s perspective, passenger rail would improve Bristol’s accessibility. The improved accessibility, in turn, would support the local tourism industry and business travel because some visitors would be encouraged to visit Bristol who previously may not have made the trip.



Source: VDOT, 2018

Figure 2: Comparison of Driving Delays across Virginia’s Interstate Corridors

In short, when the provision of passenger rail service will mitigate a transportation challenge, as it would in Bristol, the availability of the service would affect the local market’s response by:

- helping to retain local households and the consumer spending they offer by adding a valued amenity to the community;
- supporting ongoing commercial ventures in Bristol by facilitating access with a larger business network; and
- supporting growth in tourism by attracting visitors who would not have made the trip without the availability of rail.



*Amtrak seats and poster in Roanoke, VA at Visit Virginia's Blue Ridge*

Setting aside the construction jobs needed to extend the rail corridor to Bristol and the hiring needed to operate the service, rail's impact would be influenced by the economic base of the community itself, that is, whether the market could adapt and integrate the service into daily commerce.

### **Economic Impact of Amtrak Services to Lynchburg, Roanoke, and Norfolk**

Amtrak extensions to Lynchburg, Roanoke, and Norfolk were the most recent extensions of passenger rail service. Research was conducted through literature review (a list of which is provided in Appendix A), stakeholder interviews, and stakeholder surveys. Stakeholders in Roanoke were the most willing to discuss the economic impact of passenger rail extension. Stakeholders in Norfolk did not respond to requests to discuss their experience. The stakeholder survey instrument is provided in Appendix D. However, despite excellent response rates in all other aspects of the outreach effort, no responses to the survey came from other communities.

### **Meetings with Other Recent Amtrak Extension Communities**

The study team met and conducted interviews with the following entities to gain a better understanding of how passenger rail service has affected the recent Amtrak extension communities, with a particular focus on Roanoke as the most recent extension community and the closest community to Bristol:

- Roanoke Valley-Alleghany Regional Commission
- I-81 Corridor Coalition
- City of Roanoke Department of Economic Development
- Visiting Virginia's Blue Ridge
- Appalachian Regional Commission

The following were the major themes that emerged from the meetings and interviews with stakeholders in Roanoke:

- The City of Roanoke set up bus service to run from Roanoke to Lynchburg to prove the demand for passenger rail service.
- The Smartway Bus connects Blacksburg to Roanoke.
- Virginia Breeze connects colleges and universities along I-81, and Virginia Tech also has bus service.
- Christiansburg has property for a station; Bedford also is interested in train service.
- Trucks on I-81 make up 40 percent of the traffic on the roadway, which is expected to continue to rise.
- A demand exists for commuting between Roanoke and Lynchburg.

- A need exists to fill 20,000 jobs in Roanoke and Lynchburg.
- The labor-shed for Roanoke is 60 miles.
- The downtown station area/multimodal hub was leveraged for commercial and residential development, and redevelopment opportunities and historic tax credits helped.
- Several hotels have opened downtown, near the train station; hotels provide shuttle service to the train station.
- Roanoke is oriented north, toward Washington D.C. and New York.
- Roanoke has experienced 8 consecutive years of tourism growth.
- Bristol may not be a large enough destination; Knoxville, Tennessee may be a better terminus.

### *Survey of Amtrak Passengers*



*Amtrak passengers completing the rider survey*

For this study, weekday and weekend surveys were taken with existing Amtrak passengers to gain an understanding of the economic impact on passengers using the most recently added intercity rail services in Virginia. The surveys were conducted on board the train between Charlottesville and Roanoke. Questions included passenger trip information, including trip origin and destination location, trip purpose, group size/type, estimated spending on the train, at destination and if rail was not available, fare, and what mode they would have used if rail was not available (or if they would not travel at all). Appendix E provides a copy of the paper/online survey to train riders, and Appendix F provides the detailed survey results.



*Stakeholder meeting at the Bristol Chamber of Commerce*

Roanoke and Washington's Union stations were the two most common origin and destination stations among those surveyed. The survey revealed that some riders either started or finished their journey north of Washington, DC. Although none of the stations were used by a significant portion of travelers overall, they included Baltimore Penn, New York Penn, and Boston Back Bay

and Boston South stations. These stations are from 250 miles (in the case of Baltimore) to 680 miles (in the case of Boston) from Roanoke. Among origins or destinations north of Washington, DC, New York Penn Station made up nearly half the origins and nearly one-third of the destinations. This shows that although the train mostly serves riders traveling within Virginia, some use it to travel along the Northeast Corridor. The results from this survey were used for the economic impact analysis, detailed in the next sections.

## Local and Regional Stakeholder Standpoint

Local and regional stakeholder input was collected via stakeholder meetings, one-on-one interviews, and an online survey. A total of 219 stakeholder survey responses were received. Discussions were held with the following groups:

- Study Stakeholder Group
- Bristol Chamber of Commerce
- Bristol Rail Coalition
- Believe in Bristol (downtown business owners)
- Virginia Tobacco Region Revitalization Commission
- Bristol Rotary Club
- Eastman

Major themes from the local stakeholder meetings and interviews included the following.

- Positive responses regarding extended passenger rail service:
  - Business travelers from Bristol to points north would use the train.
  - Visitors arriving by train may help to fill in gaps between peak tourism periods.
  - Extended passenger rail service would open opportunities for expanded domestic and international travel.
  - It may reduce traffic on I-81.
  - Considering the impact on/benefit to the entire region, it could attract a different demographic that would expand demands for a range of services.
  - Bristol would serve as a gateway to Washington, DC and points north for communities in Tennessee.
  - The train would create business opportunities for local transportation/last mile connections.
  - New hotels that recently have been built or are under construction in Bristol may gain increased business.
  - It could be a catalyst for Virginia–Tennessee coordination.
  - The train would reduce the perception of Bristol as “remote” or being “just a bypass stop on I-81.”
  - Partnerships between businesses would encourage creating travel packages.
  - The train would drop people off in the middle of civic centers—in Bristol and also in Roanoke and Washington, DC.
  - The extended service would be a continuation of efforts to expand the vibrancy of downtown as a place to live, work, and play.
  - Major universities would be on the same rail line.
  - The area would see growth of technology, back office, and cyber security businesses.
  - The parking lots near the station already are owned by the City.
- Concerns about extended passenger rail service:
  - Would Bristol be a big enough destination by itself?
  - What would be the travel time to/from Washington, DC?
  - What would be the arrival/departure times?
  - What about last mile/regional transportation connections for arriving travelers?
  - What about Americans with Disabilities Act accessibility, the historic nature of the train station, and the amount of available parking at the train station?
  - How would the station upgrades be funded?
  - Who would pay for station operations?

- Would businesses have to change hours to be open when the train arrives?
- What security would be necessary at the station?
- Could the train reduce air travel at the nearby airport?
- Would a mega-bus be less expensive and faster?

The following groups responded via an online survey, as provided in Appendix B:

- Local business owners (23%)
- Public employees (15%)
- Non-governmental organization employees (16%)
- Bristol residents (31%)
- Regional residents (15%)

Major themes from the stakeholder survey responses included the following:

- Local residents and business owners would use the train themselves to travel to other locations for business and personal travel (72% of respondents).
- Passenger rail service to Bristol would attract tourists and promote the local economy (34% of respondents).
- The vast majority of local stakeholders do not have any concerns about passenger rail service in Bristol (83% of respondents); a few respondents mentioned concerns about safety at rail crossings, traffic congestion from train crossings, and lack of parking at the train station.
- Local stakeholders are excited about economic development potential and tourism opportunities from the extension of passenger rail service to Bristol; 91 stakeholders mentioned the potential to support existing and new events, 74 mentioned the tourism potential, and 51 mentioned the benefit to the local economy. The community as a whole seems to embody an entrepreneurial spirit.
- The community would be willing to leverage passenger rail service for economic development by: extending local business hours, modifying the local bus network to better connect train passengers to local destinations, changing zoning ordinances (e.g., to create a historic district), and promoting transit-oriented development, among other mechanisms.

A more detailed summary of the stakeholder survey results is provided in Appendix C.

### ***Survey of Bristol Visitors***

The study team also conducted an online and in-person survey of visitors to Bristol. City staff handed out surveys at the Food City 500. Surveys also were distributed to visitors by local businesses through Believe in Bristol. The survey instrument is provided in Appendix G. Overall, 51 completed surveys were received from visitors to Bristol. These visitors came from a variety of places, both within and beyond the region. Most respondents visit Bristol once or twice per year. Most visit Bristol for social, recreation, or leisure purposes and travel in a group. Currently, most travel to Bristol in a personal vehicle. Many respondents indicated their willingness to take a train to Bristol, if one was available, especially because of the ability to work or relax during the trip. A more detailed summary of survey responses is provided in Appendix H.

### **Recent Experience in Other Communities**

Three communities in Virginia have re-established passenger rail service in the past decade—Norfolk on the southeastern side of the state, and Lynchburg and Roanoke on the same corridor as Bristol, if service is added. Literature and stakeholders who are knowledgeable about the service resumption in these

communities were contacted to identify the type and expected magnitude of the impact<sup>2</sup>, to inform expectations for restored service in Bristol.

**Lynchburg.** Service was restored in 2009. The service includes one daily train in each direction. With a travel time ranging between 3.5 and 4 hours to Washington Union Station, the State-supported Northeast Regional train and Amtrak-funded *Crescent* makes Washington, DC a day trip for business or leisure. The top city pairs are Washington, DC and New York, NY (VDOT and Virginia Office of Intermodal Planning and Investment 2017). Ridership has grown steadily and consistently, and has exceeded expectations, making this route one of the most profitable markets served by Amtrak. The key differences between Lynchburg’s service and that proposed for Bristol are as follows:

- Greater frequencies—two northbound and two southbound trains (one corridor and one long distance) in Lynchburg versus one each in Bristol.
- Longer travel time to a major market—more than twice as long to travel from Bristol to Washington, DC than from Lynchburg, limiting Bristol’s daily round-trip market shed.

No specific quantitative, economic impact estimates were identified for the Lynchburg service, but stakeholders shared the Lynchburg Regional Connectivity Study (VDOT and Virginia Office of Intermodal Planning and Investment 2017), which presents a qualitative assessment of rail’s economic value to Lynchburg. Regional economic development stakeholders that were interviewed for that study reported that Amtrak corridor service “benefits both the tourism economy and the business community in the Lynchburg region...; that Amtrak is an asset when recruiting new hires considering moving to the area; and [the ability to make a day trip to Washington, DC] helps to ameliorate perceptions of remoteness. The service also provides an affordable, reliable and productive alternative to driving to DC, allowing businesses to avoid the cost of having staff tied up in traffic for ‘on-the-clock’ travel.”

**Roanoke.** Potential service to Roanoke was evaluated in the context of the City’s Multimodal Transportation Center (MTC). The MTC includes the Amtrak station as well as the City’s Greyhound bus station and a transfer center for the Greater Roanoke Transit Company, taxi service, and auto and bike rentals. Compared with Bristol’s proposed service, Roanoke has the following:

- Same level of service—As the southern terminus for the corridor, Roanoke’s service, which began in fall 2017, has one daily arrival from the north and one daily departure traveling back north up the corridor.
- Shorter travel time to a major market—Travel time between Roanoke and Washington, DC by train takes approximately 5 hours, compared with more than 9 hours from Bristol.

A Roanoke assessment quantitatively evaluated only the construction and direct operating effects associated with the hub. The estimates are detailed and allow the passenger rail operations component to be broken out from the balance of the hub impacts. The quantitative analysis determined that six jobs would be supported annually by rail’s share of the MTC operation. Fiscal impacts also were calculated, but they cannot be broken out by the modes sharing the hub. (City of Roanoke and DRPT 2015)

The Roanoke study expanded the economic assessment to include a calculation of user and non-user benefits (i.e., safety, travel cost savings, and value of road capacity freed up by diverting travelers from roads to trains). These benefits are not directly assigned to Roanoke residents or travelers to Roanoke, and

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<sup>2</sup> Economic impact assessments for Norfolk’s service were not identified in the course of this study; stakeholders contacted about Norfolk did not respond to requests for interviews. Thus, the balance of this discussion focuses on the two in-corridor markets that recently re-established service, Lynchburg and Roanoke.

in the case of road capacity, these benefit Virginia travelers that may have no connection to Roanoke. The road capacity impact shows how a “Roanoke” project also can benefit the broader Commonwealth.

The Roanoke study reports that before the re-introduction of passenger rail service, “Roanoke already has a vibrant downtown core... [with] many restaurants, and entertainment venues. In recent years, a number of the downtown storefronts and warehouses were converted into apartments or condos, attracting residents to the downtown area” and helping the area to be lively and vibrant after 5:30 p.m. The presence of several large banks, a medical center, and the regional conference center serves as a commercial anchor for the economy. The 2008 opening of the Taubman Museum of Art diversified the range of local Roanoke tourism options. The addition of rail helps connect more people with these tourism options and adds an additional amenity for those people choosing to live in Roanoke, supporting the success of both. Interviews with local stakeholders reiterated this perspective. The re-introduction of passenger rail did not spark the trend to convert the old buildings to residential uses and bring people back downtown; but it helped support the success of those investments.

Qualitatively, the analysis found that the addition of Amtrak service would help reinforce Roanoke’s redeveloping downtown area and support construction of a new upscale hotel to complement the 296-room Hotel Roanoke and the Convention Center. Although many mid to economy-scale lodging options are near the highway exits, growth in overall tourism would increase the number of higher income tourists, supporting demand for different downtown lodging options and a walkable getaway. Anecdotally, informal interviews with downtown hotel employees described a bustling downtown economy and the overall feeling of recent growth in tourism.

Collectively, the review of the Lynchburg and Roanoke experiences suggest that the following factors should be tracked as the economic impact of restoring service to Bristol is assessed:

1. Are tourism options available for visitors to enjoy? Do reasons exist to travel to Bristol? Transportation-led economic development is more than just riding trains—reasons are needed for getting off the train and visiting.
2. Does the Bristol economy have a residential and commercial base that could adopt train use into daily commerce and create value?
3. The economic impacts generated by passenger rail may include: construction effects, operational effects, net increase in tourism, travel cost savings, and fiscal impacts.
4. Based on the ongoing I-81 Corridor Improvement Study, the passenger rail’s impact on road capacity also may yield interesting results for Bristol.<sup>3</sup>

The rest of this chapter describes Bristol’s economy, addressing questions 1 and 2 above. The next chapter evaluates the ridership and revenue projections that underpin the economic impact analysis. The subsequent chapters describe the economic and fiscal impacts.

## Bristol’s Economy

Widely known for its unique political geography (see Box 2), Bristol is also a nationally recognized economic development success story that continues to unfold, creating upside risk for passenger rail investment to succeed here. Like many mid-size to small economies in the Southeast, Bristol went through a wrenching economic restructuring, led by the decline in tobacco farming/processing and the loss of

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<sup>3</sup> To the degree that rail diverts travelers from cars, crash costs will be avoided. Because the focus of the report is economic impacts on Bristol, safety benefits are not included in the analysis.

manufacturing in general, but especially by the textile industry. New growing industries such as technology and finance bypassed these areas for larger urban areas with access to universities, and thus the old economic base shrank and the new economic base did not locate in Bristol to replace the losses. The downtown suffered with many empty shops, buildings that fell into disrepair, and pawn shops/antique stores/quick loan establishments moved into areas of economic distress. Although the downtown was an easy walking distance to the train station, the economic base in 2005 was not one that could have used or benefitted from the availability of passenger rail service.

However, the City of Bristol and Bristol's local merchants began making incremental investments in the downtown from 2008–2009, and by 2014, the downtown had become a very different place. The city embraced its musical heritage and became a national center for bluegrass, country, and folk music. It began hosting the annual Rhythm and Roots Music Festival and was selected as the site of a Smithsonian-affiliated museum known as the Birthplace of Country Music. Local entrepreneurs formed the Believe in Bristol merchant organization, to support one another and work collaboratively. For example, several breweries located downtown and began offering venues for live music, but generally not offering a full menu, so as to support neighboring restaurants.

The downtown has become a 24-hour, mixed-use neighborhood with a 24-hour bakery/coffee shop, and refurbished buildings above storefronts serving as highly coveted lofts and apartments. By 2018, Bristol had developed a unique and diverse tourist base that includes: 1) outdoor recreation/hiking/biking/ motor biking; 2) NASCAR racing; 3) music festivals and performances; 4) and the walkable downtown itself, where people can enjoy the old restored buildings, interesting shops, and the novelty of standing in Virginia and Tennessee simultaneously on State Street. (Flaccavento 2016:109)

## Box 2: Bristol Political Geography

If train service were re-established in Bristol, the station would be in Bristol, Virginia. While many metropolitan areas span more than one state, Bristol is unique in that the state line division runs through the downtown, through the middle of State Street in Bristol, Virginia. This division is familiar to national television viewers through the GEICO advertisements. Taxes and permit requirements differ depending on which side of the street one shops, lives and does business.



But beyond the novelty of this division, the mix of jurisdictions is an important consideration for rail planning here. On the Virginia side of the border, Bristol, Virginia is an independent city. In Virginia, an independent city is government entity with the same powers and authority as a county. Bristol Virginia can plan and make governance decisions directly. The Bureau of Economic Analysis combines the city of Bristol, Virginia, with neighboring Washington County, Virginia, for statistical purposes only.

The twin city of Bristol, Tennessee, on the other side of State Street is not independent and forms part of Sullivan County, Tennessee for planning and governance. As a result, the city coordinates with the County for planning and governance decisions. Implementation of major infrastructure investments thus requires coordination among and would be supported by more jurisdictions than might be evident from the Bristol Virginia location on the map.

The twin cities that share a State Street have worked successfully to redevelop downtown Bristol. As an example of that partnership, the Mayor of Bristol Tennessee attended all key briefings for this rail study. While the political geography of this region is complicated, the reality is that the region is one economic marketplace. Bristol is a principal city of the Kingsport–Bristol–Bristol, TN-VA Metropolitan Statistical Area, which is a component of the Johnson City–Kingsport–Bristol, TN-VA Combined Statistical Area – commonly known as the "Tri-Cities" region. In the past, the Tri-Cities were one single metropolitan area. There are local efforts underway to work with the Office of Management and Budget (OMB) to “re-unify” the regional definition (OMB defines metropolitan area boundaries to ensure federal data and administration uses uniform spatial definitions). Regardless of the outcome, the effort underscores the economic and cultural interconnectedness of the Tri-Cities.

Interviews with planners and many of the downtown entrepreneurs highlighted flexibility and adaptability to capitalize on the community needs, thereby generating economic growth in the process. For example, with the establishment of the Hotel Bristol in downtown, a need exists for a shuttle service to ferry passengers arriving by air to the hotel. The hotel is working with local services to create that shuttle. A similar shuttle would be anticipated more rail service restored. Similarly, downtown merchants discussed how they would adjust commercial hours to cater to train passengers, along with packages and services that they could offer to allow train travelers to make the downtown their “base camp” for the weekend but still enjoy the region’s natural recreation, music, and cultural opportunities. The community offers a \$5,000 innovation award and business support in an annual competition to fund the next piece of Bristol’s recovery. Past winners, such as the bakery and a brewery, are now anchors of the downtown community. Rejuvenated Bristol has both the economic base and entrepreneurial infrastructure to capitalize on the availability of passenger rail, if the services are extended. As with the Roanoke and Lynchburg experiences, rail service would reinforce and strengthen the ongoing economic initiatives.

Businesses outside of the downtown area also report that passenger rail service would support their commercial activities. Box 3 provides a snapshot of one of the region’s largest employers with operations outside of Bristol, VA and a description of how the firm anticipated adopting rail into its daily operations if it became available.

The broader market outside Bristol is recognizing the changes in Bristol, and outside private investment is flowing into Bristol. The Hotel Bristol opened in fall 2018, an upscale boutique hotel in a historic building with a rooftop bar. A second boutique hotel is planned to open in 2019. Known as the Sessions Hotel, the facility will combine three historic buildings. Box 4 on the next page highlights some of the major economic milestones from 2017-2018.

The balance of this report describes the evaluation of the ridership and revenue projections, as well as the estimation of economic impacts associated with rail. In the estimation, the impacts that are shown are net new impacts and do not include the large and important support that rail would have for supporting the existing base of investment and economic activity in Bristol.

### Box 3: Eastman Outreach Summary

Eastman is a global company that produces a broad range of advanced materials, additives and functional products, specialty chemicals, and fibers that are found in products people use every day. The company serves customers in more than 100 countries and had 2017 revenues of approximately \$9.5 billion. Eastman is headquartered in Kingsport, Tennessee (part of the larger Bristol metro area) and employs approximately 14,500 people around the world. The company’s research and manufacturing facilities also are located in Kingsport.

Eastman was contacted as part of this study, to assess whether passenger rail service to Bristol would benefit its business. Representatives strongly favored restoration of such a service and identified a number of ways that the corporation would use it as part of daily business. Examples included the following:

**Research partnerships:** Eastman has a variety of research partnerships with universities, several of which are located along the rail corridor. The availability of rail service would facilitate intra-corridor trips for cooperative ventures.

**Business travel:** Eastman representatives frequently travel to Washington, DC to meet with legislators, regulators, and customers, including the military. Passenger rail would offer an alternative mode that would allow company employees to work more productively during trips.

**Customer visits:** Eastman customers frequently visit its corporate headquarters. In addition, the company organizes “customer days” to highlight new innovations and maintain good customer relations. Also, the company offers custom manufacturing services, which require a close working partnership between Eastman and its client firms.

In short, the availability of passenger rail service in Bristol could support many ongoing business functions for Eastman and companies like it in the region.

**Box 4: Bristol, Virginia Developments, 2017–2018*****Commercial/Industrial***

- American Merchant purchased the former Ball Corporation facility and will open a towel manufacturing operation by early 2019, investing over \$20 million and eventually employing 400 people.
- Aldi opened a new 20,000-square-foot store in 2018.
- Hobby Lobby opened a new 55,000-square-foot store in August 2018, employing 100 people.
- Euclid Avenue is now home to three new restaurants—Taco John, Popeyes, and McAlister’s Deli—and a new automated car wash.
- An automated car wash was constructed near Exit 7 on Linden Drive.

***Residential***

- Wildflower Ridge, a community of 30 single-family patio homes, was completed with an initial five units.
- The Oakmont Assisted Living facility added 25,000 square feet to accommodate additional living space for seniors.
- The Rehab Center of Bristol was under construction to provide 90 skilled nursing beds and 30 assisted living beds in a 60,000-square-foot facility.

**Bristol, Tennessee Developments, 2017–2018*****Commercial/Industrial***

- A new distillery now is located downtown.
- The TIF redevelopment project of the EW King Building resulted in more than 150 new jobs and new companies downtown.
- A new manufacturing company, Turtleon, is located downtown.
- Two new projects were completed on US Highway 11W, the Ford dealership expansion and a new commercial complex anchored by the new Chrysler center.
- A new fire station opened on US Highway 11W.
- Continuing expansion of the Royal Building Products facility and production
- Continuing expansion of the Bristol Metals facility and production was completed.
- A new industrial access road extension was added in the Partnership Park II.
- Approval was received for a Tennessee Department of Economic and Community Development \$1M site preparation grant for the Partnership Park II.
- Approval was received for an Appalachian Regional Commission \$350,000 grant for rail service site preparation for the Partnership Park II.
- Approval was received for a \$500,000 Tennessee Valley Authority site preparation grant for the Bristol Business Park.
- Continued employment expansion of Agero occurred.
- Continued employment expansion of U.S. Solutions occurred.
- The City held two job fairs in 2017–2018, with a third held in October.
- The Pinnacle added the retailers Torrid and Eddie Bauer, as well as Starbucks and the restaurants Burgerim and Drakes.

***Residential***

- A total of 98 new multi-family residential units were added on Island Road.
- Expansion of 16 multi-family residential units occurred on Bluff City Highway.

## Chapter 3: Ridership Forecast Evaluation

This chapter reviews the ridership projections and validates them against other ridership projections in the area, such as the Roanoke and Bedford stations. Amtrak provided ridership and revenue projections that it developed for the Lynchburg, Roanoke, Christiansburg, Wytheville, and Bristol markets, which were prepared in December 2016 at the request of the City of Bristol (Amtrak 2016a). The current service to Roanoke is one daily round trip, extending to Boston via Washington, DC and the Northeast Corridor, which was implemented in November 2017. As the train schedule for that round trip was not conducive for extending service to Bristol because of the arrival and departure times, the Amtrak forecast examined extending a potential additional Lynchburg train. This proposed service would include intermediate stops at Christiansburg and Wytheville, and would terminate in Bristol, Virginia. The projections are based on the schedule shown in Table 2. This schedule would offer morning departures and evening arrivals at Bristol Station, with an approximately 9.5-hour travel time to Washington, DC.

*Table 2: Proposed Bristol Extension Schedule*

Station	Southbound	Northbound
Washington, DC	8:45 a.m.	6:30 p.m.
Alexandria, VA	9:01 a.m.	6:15 p.m.
Burke Centre, VA	9:20 a.m.	5:45 p.m.
Manassas, VA	9:39 a.m.	5:28 p.m.
Culpeper, VA	10:14 a.m.	4:53 p.m.
Charlottesville, VA	11:13 a.m.	4:01 p.m.
Lynchburg, VA	12:31 p.m.	2:47 p.m.
Roanoke, VA	1:54 p.m.	1:27 p.m.
Christiansburg, VA	2:54 p.m.	12:27 p.m.
Wytheville, VA	4:24 p.m.	10:57 a.m.
Bristol, VA	6:15 p.m.	9:14 a.m.

Source: Amtrak 2016

Table 3 shows the Amtrak ridership forecast for the one daily round-trip service. The Lynchburg and Roanoke ridership forecasts below line up with the current ridership seen at those stations, and as a whole, the extension would produce additional Ons and Offs of approximately 75,400. This is less than that produced by adding Roanoke to the Lynchburg service (97,600 in the baseline forecast in Table 3) because with the extension, some baseline Roanoke riders can now board in Bristol or the new intermediate stops. Over two-thirds of that additional ridership would come from the intermediate stations of Christiansburg and Wytheville, with Bristol contributing approximately 23,600 annual Ons and Offs (which would be double the number of total trips, because each rider would count as an On and Off person), or an average

of approximately 65 Ons and Offs per day. Converting this number to new riders yields approximately 11,800 new annual riders or 33 new riders per day, to and from Bristol.

**Table 3: Amtrak Rail Ridership Forecast (annual Ons and Offs by market)**

Market	Baseline	Baseline + Extension	Difference
Lynchburg, VA	237,400	237,600	200
Roanoke, VA	97,600	89,200	(8,400)
Christiansburg, VA	–	40,200	40,200
Wytheville, VA	–	16,800	16,800
Bristol, VA	–	23,600	23,600
Other Markets	366,600	369,600	3,000
<b>Total Ons and Offs</b>	<b>701,600</b>	<b>777,000</b>	<b>75,400</b>
<b>Total Riders</b>	<b>350,800</b>	<b>388,500</b>	<b>37,700</b>

Source: Amtrak 2016

Bristol station is expected to have a large travel shed, with riders coming from up to an hour away to board the train. Local stakeholders who were interviewed intimated that the travel shed may be even larger than an hour because of the mindset of people living in the region and past travel patterns, but the analysis used the more conservative hour travel shed. Because the Amtrak forecast presented the Bristol ridership as one combined number, this analysis examined the demographics surrounding Bristol Station to determine what percentage of the Bristol rail ridership could be attributed to the city of Bristol directly, and what percentage of the riders would come from beyond Bristol. This was done by examining a weighted distribution of 2017 population numbers, which determined that up to 60 percent of the Bristol ridership would come from beyond Bristol. Table 5 shows the ridership split between the two geographic segments, indicating a potentially strong demand for rail even beyond Bristol

### Bristol Event Ridership

The Bristol area attracts a substantial number of visitors for special events, such as the Rhythm and Roots Festival and events at the Bristol Motor Speedway, which were not considered in the annual forecasts prepared by Amtrak. This type of ridership is based on “special generators,” which are activity centers such as universities, sports arenas, concert venues, and other tourist attractions. Because they tend to generate trips on an irregular basis, the trips to and from special generators are estimated outside typical travel demand models using sketch-planning tools. The events examined for this analysis and some of the assumptions that are used are shown in Table 6, with the sources listed in the footnote.

Table 4 shows the rankings of the existing Virginia Amtrak stations by number of Ons and Offs, with the addition of the Roanoke forecast (as it was not operational for all of fiscal year [FY] 2017, and its anticipated ridership will go down slightly with the Bristol extension) and the Bristol extension forecast. Bristol has the nineteenth highest ridership out of the 24 stations but performs better than the majority of other stations, with only one daily train in each direction.

**Table 4: Amtrak Virginia Station Ons and Offs, Fiscal Year 2017**

<b>Station</b>	<b>Daily Roundtrips</b>	<b>Annual Ons and Offs</b>
Richmond–Staples Mill	9	373,832
Lorton (Auto Train)	1	228,943
Alexandria	12	200,373
Charlottesville	3	145,140
Fredericksburg	7	119,065
Newport News	2	106,692
Lynchburg	2	82,251
Williamsburg	2	60,316
Norfolk**	1	47,493
Richmond–Main Street	2	46,354
Roanoke*	1	44,600
Ashland	4	30,892
Petersburg	5	30,801
Manassas	3	28,619
Quantico	5	24,036
Christiansburg*	1	20,100
Woodbridge	2	16,712
Culpeper	3	15,498
Bristol*	1	11,800
Burke Centre	1	9,939
Wytheville*	1	8,400
Danville	1	6,575
Staunton	1	6,487
Clifton Forge	1	2,339

Note:\*Indicates Bristol extension forecast Ons and Offs, not fiscal year 2017 actual numbers.

\*\*Norfolk values in the table correspond to one daily train in each direction. A second daily train in each direction will serve Norfolk beginning in the Spring of 2019.

Source: Amtrak 2017a

**Table 5: Bristol Ridership Geographic Segmentation**

	<b>2017 Weighted Population Distribution</b>	<b>Annual Ons and Offs</b>
Beyond Bristol	60%	14,200
Bristol Area	40%	9,400
<b>Total</b>	<b>100%</b>	<b>23,600</b>

Source: Compiled by AECOM in 2019

**Table 6: Bristol Event Assumptions**

<b>Event</b>	<b>Description</b>	<b>Average Annual Attendance</b>	<b>Travel Shed</b>	<b>Event Notes</b>
Rhythm and Roots Festival	3-day annual music festival put on by the Birthplace of Country Music	50,000 <sup>a</sup>	Large (low percentage from rail corridor)	Rail could potentially be used by attendees flying to the area
Bristol Motor Speedway Races	Races throughout the year	No official attendance numbers reported, but Food City 500 is estimated at 65,000 to 75,000 <sup>b</sup>	Large (low percentage from rail corridor) <sup>c</sup>	Focused on south and west, based on Bristol Visitor Survey
Virginia Tech University versus University of Tennessee Football Game	Football game held at the Bristol Motor Speedway (Battle of Bristol); last held in 2016, but anticipated again	156,900 <sup>d</sup>	Medium	Focused on Virginia and Tennessee
Speedway in Lights	Annual lightshow at the Bristol Motor Speedway	200,000 <sup>e</sup>	Small	Low anticipated rail ridership, as it requires a vehicle to drive through, but potentially could attract some riders

Sources: (a) Discover Bristol 2017; (b) Gregory 2016; (c) Bristol Visitor Survey data compiled by AECOM to determine travel shed; (d) USA Today 2016; (e) Brown 2013

Table 7 shows projections for potential rail ridership for each special event and anticipated attendance number. This was done by first estimating the percentage of event attendance that would have the option to take rail to the event (percent trips to/from corridor), as well as the rail mode share for each of these

events, which then was applied to obtain the final annual rail ridership number, which was converted to Ons and Offs for comparison with the Amtrak ridership forecast.

**Table 7: Special Event Rail Ridership**

Event	Event Trips	Percent trips to/from Corridor	Event Trips to/from Corridor	Rail Share <sup>a</sup>	Event Rail Ridership (Ons and Offs)
Rhythm and Roots Festival	50,000	10%	5,000	2.0%	200
Bristol Motor Speedway Races	300,000	10%	30,000	2.0%	1,200
Virginia Tech versus UT Football Game	157,000	30%	47,100	2.0%	2,000
Speedway in Lights	200,000	10%	20,000	0.5%	200
<b>Total</b>	<b>707,000</b>		<b>102,100</b>		<b>3,600</b>

Note: a. Rail mode share is based on similar representative market pairs for the recreation trip purpose from the AECOM Intercity Model. It is reduced for the Speedway in Lights event because of the requirement to have a vehicle to attend.

Source: AECOM Intercity Model assumptions

The total additional ridership generated by these special events (on an annual basis) are 3,600 Ons and Offs, which is a 29 percent increase over the base Amtrak ridership forecast of 11,800 for Bristol Station. This indicates the potential for rail to serve Bristol's growing tourism industry. Over one-third of Bristol's tourists originate in a market served by the rail corridor (Virginia Tourism Corporation, 2018). The City's Comprehensive Annual Financial Report estimates that about 300,000 tourists visit Bristol's downtown annually (City of Bristol, June 2018).

### Ridership Sensitivity Tests

In addition to the base rail ridership forecast for the extension to Bristol and the event ridership, the study team ran two sensitivity tests, based on community feedback. These included reducing the travel time between Bristol and Washington, DC, through track improvements, from the currently assumed 9.5 hours to as low as 7.5 hours, and examining what ridership potential would exist if the extension went farther west, to Knoxville or Chattanooga, Tennessee. To test the impact of reducing travel time from Bristol, the analysis ran tests with the AECOM Intercity Model, testing comparable market pairs and travel times, and determined a potential percentage increase in annual ridership of 15 to 20 percent over the tested schedule.

Developments within the Bristol economy may also impact the ridership outcome. A large destination casino resort complex was proposed for Bristol following the completion of the ridership analysis for this study. While the announcement of the potential investment came too late to be considered in the sensitivity analysis, Box 5 (on page 26) provides a discussion of how casinos have impacted ridership in other markets.

Table 8 shows the improved ridership by market, assuming a 20 percent increase in ridership from reducing the travel time by up to 2 hours.

**Table 8: Travel Time Sensitivity Test Results (annual Ons and Offs by market)**

Market	Amtrak Forecast			Reduced Travel Time Sensitivity Test	
	Baseline	Baseline + Extension	Difference	Baseline + Extension with faster travel time	Difference
Lynchburg, VA	237,400	237,600	200	237,600	200
Roanoke, VA	97,600	89,200	(8,400)	89,200	(8,400)
Christiansburg, VA	–	40,200	40,200	48,200	48,200
Wytheville, VA	–	16,800	16,800	20,200	20,200
Bristol, VA – Bristol Area	–	9,400	9,400	11,300	11,300
Bristol, VA – Beyond Bristol	–	14,200	14,200	17,000	17,000
Other Markets	366,600	369,600	3,000	369,600	3,000
<b>Total Annual Ons and Offs</b>	<b>701,600</b>	<b>777,000</b>	<b>75,400</b>	<b>793,100</b>	<b>91,500</b>

Source: AECOM Intercity Model analysis

The second sensitivity test considered the impact of extending the rail line beyond Bristol, so that it would not be an endpoint, but rather an intermediate stop. It would require another full model run to test the full ridership potential of this extension, which was not part of this analysis. Instead, the analysis re-examined the events-based ridership forecast, assuming that visitors would be able to use the train from both directions to attend events in Bristol, as opposed to coming only from the north. This allowed the percentage of event trips traveling to or from the corridor to more than double, based on the travel shed information obtained from the visitor survey and other event documentation. Table 9 shows the revised event ridership numbers, which show a 133 percent increase over the previous event ridership, with an additional 4,800 annual Ons and Offs, for a total of 8,400 annual rail Ons and Offs during special events. Adding in the regular ridership between the Tennessee end of the line and Bristol would increase that the event ridership number even more.

**Table 9: Special Event Rail Ridership Sensitivity Test**

<b>Event</b>	<b>Event Trips</b>	<b>Percent trips to/from Corridor</b>	<b>Event Trips to/from Corridor</b>	<b>Rail Share</b>	<b>Event Rail Ridership (Ons and Offs)</b>
Rhythm and Roots Festival	50,000	25%	12,500	2.0%	600
Bristol Motor Speedway Races	300,000	25%	75,000	2.0%	3,000
Virginia Tech vs. UT Football Game	157,000	70%	109,900	2.0%	4,400
Speedway in Lights	200,000	20%	40,000	0.5%	400
<b>Total</b>	<b>707,000</b>		<b>237,400</b>		<b>8,400</b>

Source: AECOM Intercity Model analysis

Table 10 shows all of the ridership projections, including an additional 75,400 Ons and Offs a year for the Amtrak Baseline + Extension scenario; an additional 58,700 annual Ons and Offs, attributed to the scenario which includes both special event trips and extending the rail past Bristol. The additional event ridership impact primarily is focused on Bristol because those trips would be traveling to/from Bristol, with the other ends of the trips being distributed according to the overall ridership distribution. Although the sensitivity test plus special events trips scenarios would have similar increases in ridership over the baseline, the distribution of those trips would not be the same; specifically:

- For the Amtrak Extension + Special Events + Faster Travel Time, the increased trips would be traveling between the Northeast and the stations on the Bristol extension.
- For the scenario extending past Bristol, the additional riders would be between the areas further west of Bristol, traveling to and from Bristol.
- The Amtrak Extension + Special Events + Not a Terminus case would have the overall highest ridership for Bristol Station, with a total of 19,600 annual Ons and Offs.

This would move Bristol Station up to the sixteenth highest ridership out of the 24 stations in Virginia, as shown in Table 4

Table 4, not including the regular ridership that would be generated on an annual basis between Bristol and the other stations further west.

**Table 10: Annual Rail Ridership Forecast Comparison (Ons and Offs by market)**

	<b>Amtrak Baseline</b>	<b>Amtrak Baseline + Extension</b>	<b>Amtrak Extension + Special Events</b>	<b>Amtrak Extension + Special Events + Not a Terminus</b>	<b>Amtrak Extension + Special Events + Faster Travel Time</b>
Lynchburg, VA	237,400	237,600	238,600	238,600	238,600
Roanoke, VA	97,600	89,200	89,600	89,600	89,600
Christiansburg, VA	–	40,200	40,400	40,400	48,500
Wytheville, VA	–	16,800	16,900	16,900	20,300
Bristol, VA – Bristol Area	–	9,400	13,000	17,200	15,600
Bristol, VA – Beyond Bristol	–	14,200	14,200	14,200	17,000
Other Markets	366,600	369,600	371,300	381,100	371,300
<b>Total</b>	<b>701,600</b>	<b>777,000</b>	<b>784,000</b>	<b>798,000</b>	<b>800,900</b>
<b>Difference from Baseline</b>		<b>75,400</b>	<b>82,400</b>	<b>96,400</b>	<b>99,300</b>

Source: AECOM Intercity Model analysis

## Chapter 4: Impacts on the Regional Economy

The economic benefits resulting from the reintroduction and operation of passenger rail service in Bristol would range from one-time impacts from construction activities to the recurring economic impacts from improved regional economic performance. The type and extent of economic impacts would change over time as the Bristol extension moved forward and the opportunities created by the rail service were recognized by the market. Benefits are estimated as the change between two scenarios: 1) a base case in which no rail service would be available in Bristol (the status quo); and 2) an improvement case in which passenger rail service would be available in Bristol. The impacts on the regional economy would be as follows, described in the order in which they would be realized:

- Construction jobs from the new rail line and associated facilities;
- Incremental rail employment from increased rail traffic;
- Capacity being freed up as travelers are diverted from their existing travel modes (likely auto on I-81) to use the new rail service; and
- The development potential created by new rail corridor; including an increase in tourism.

### Impacts of Construction Cost and Effects

The initial impact of reintroducing service in Bristol would be generated by the direct expenditures associated with constructing and upgrading the rail line and associated facilities, and the employment and income generated for residents of the region. Construction spending would support employment for the duration of the construction period, both in the construction industry as well as for the broader economy of the Bristol metropolitan statistical area (MSA) and the Commonwealth of Virginia, because of increased local consumer demand by those employed in the construction industry.

#### Box 5: Potential Casino Impact

The potential establishment of a casino and family-friendly resort complex in Bristol was not publicly known at the time this analysis was completed. However, ridership experience and studies in other locations can help inform the likely impact. In Connecticut, rail service was re-established between New Haven and Springfield, Massachusetts in June 2018. Ridership has exceeded expectations. The service met its 6-month ridership target in the first week of operations.

The MGM Springfield Casino opened 3 months later, at the end of August 2018. Although both the rail service and casino market are new and still maturing, rail ridership has experienced what the Connecticut Department of Transportation describes as a “modest uptick.”

In a separate example in Minnesota, rail planners with the Department of Transportation’s Northern Lights Express (NLX) project (connecting Minneapolis to Duluth) considered the possibility of constructing a direct passenger rail connection and station at Grand Casino Hinckley, rather than operating NLX on the existing Burlington Northern Santa Fe Railway, with a station in downtown Hinckley. The final ridership forecasts found that locating the train stop at the casino would increase overall ridership for the NLX Project by up to 7 percent.

In short, the expectation is that a new casino in Bristol would represent an upside risk for the ridership and revenue projections. They indicate a solid performance on their own, growth above Amtrak’s projections when special events are considered, and the expectation is that ridership and revenue would increase further, if plans for the casino materialize.

## Capital Costs

Capital costs for the service reintroduction in Bristol were estimated with the help of previous capital cost estimates. Estimates from a 2002 report by the Woodside Consulting Group (Woodside 2002) were used for the analysis, because they were developed with input from Norfolk Southern, the owner of the track between Roanoke and Bristol. Although the study covered more than the Roanoke to Bristol segment, costs pertaining only to that segment were selected. At the time of the 2002 study, no service existed to Roanoke as presently is available; therefore, the analysis assumed that some of the improvements at the Roanoke station could have been completed when service was extended to Roanoke. Because of this uncertainty, high and low cost estimates were developed, with the low estimate assuming only half of the cost of improvements to Roanoke Station, and high estimate assuming full costs. Table 11 shows the uninflated high and low cost estimates.

**Table 11: Bristol Extension Cost Estimates by Segment – High and Low Estimates (2018 \$ M)**

Component	High Estimate	Low Estimate
Create second main track through Roanoke terminal and upgrade station trackage	\$4.90	\$2.45
Construct second crossover at Montgomery (MP N 284.6)	\$1.30	\$1.30
Extend Second Main Track from Walton (MP NB 297.6) to Plum Creek (MP NB 298.9)	\$1.80	\$1.80
Construct crossover at Radford	\$2.20	\$2.20
Extend Wysor Siding Westerly to MP NB 311.4	\$2.90	\$2.90
Construct siding between MP NB 326 (near Gunton Park) and MP NB 328.0 (near Max Meadows)	\$4.90	\$4.90
Construct siding between MP NB 368.8 (near McMullin) and MP NB 371.4 (near Seven Mile Ford)	\$8.30	\$8.30
Construct Siding between MP NB 395.4 and MP NB 397.5, west of Abingdon	\$5.60	\$5.60
Construct and rehabilitate Bristol trackage	\$0.80	\$0.80
<b>Total</b>	<b>\$32.70</b>	<b>\$30.25</b>

Note: MP = mile post; NB =north bound

Source: Woodside 2002:115

The costs shown in Table 11 are in 2002 dollars and were inflated to 2018 dollars using the All-Inclusive Index Less Fuel, from the Association of American Railroads (AAR) and the White House gross domestic product (GDP) deflator for non-defense capital spending (AAR 2018). Since 2003 was the earliest year in AAR's All-inclusive Index Less Fuel, the White House GDP deflator was used to inflate costs to 2003 dollars, bridging the gap between the original costs and AAR's index. Because capital costs were shown by project on the segment but not split into construction and professional services, the inflated costs were split into construction, professional services, and contingency using the Federal Railroad Administration's (FRA)

guidance on capital cost estimating (FRA 2016). The analysis assumed that no right-of-way acquisitions would occur for the Bristol extension project.

Table 12 shows the FRA guidance on cost share of construction, professional services, and contingency, as well as the percentages applied for the Bristol extension project.

**Table 12: Capital Cost Allocation Ranges for Complex Passenger Rail Projects**

<b>Elements</b>	<b>Percentage of Total Project Cost</b>	<b>Percentage Used in Analysis</b>
SCC 10 – 50 Construction	60 – 75%	75%
SCC 80 Professional Services	20 – 35%	20%
SCC 90 Unallocated Contingency	5 – 8%	5%

Source: FRA 2016:10

For calculating construction impacts, unallocated contingency was allocated proportionally between construction and professional services categories. Bristol extension costs then were split by expenditures that likely would be made in the Bristol MSA and expenditures made elsewhere in Virginia. The analysis assumed that construction resources for segments within approximately a 1-hour drive from Bristol would be sourced from Bristol MSA, while the rest of the segments would obtain construction resources from elsewhere in Virginia. Therefore, construction expenditures for segments south of Seven Mile Ford, Virginia were assigned to Bristol MSA. The analysis also assumed that all of the professional services expenditures would be made in Bristol MSA. Table 13 shows high and low costs inflated to 2018 dollars, with a breakdown by cost categories and presumed geographic area of expenditure.

Table 13: Estimated Bristol Extension Construction Costs (2018 \$ M)

Component	Total Cost	Construction	Professional Services	Unallocated Contingency	Total Construction (including contingency)	Total Professional Services (incl. contingency)
Create second main track through Roanoke terminal and upgrade station trackage						
<i>High</i>	\$7.33	\$5.50	\$1.47	\$0.37	\$5.78	\$1.54
<i>Low</i>	\$3.66	\$2.75	\$0.73	\$0.18	\$2.89	\$0.77
Construct second crossover at Montgomery (MP N 284.6)	\$1.94	\$1.46	\$0.39	\$0.10	\$1.53	\$0.41
Extend second main track from Walton (MP NB 297.6) to Plum Creek (MP NB 298.9)	\$2.69	\$2.02	\$0.54	\$0.13	\$2.12	\$0.57
Construct crossover at Radford	\$3.29	\$2.47	\$0.66	\$0.16	\$2.60	\$0.69
Extend Wysor Siding Westerly to MP NB 311.4	\$4.34	\$3.25	\$0.87	\$0.22	\$3.42	\$0.91
Construct siding between MP NB 326 (near Gunton Park) and MP NB 328.0 (near Max Meadows)	\$7.33	\$5.50	\$1.47	\$0.37	\$5.78	\$1.54
Construct siding between MP NB 368.8 (near McMullin) and MP NB 371.4 (near Seven Mile Ford)	\$12.41	\$9.31	\$2.48	\$0.62	\$9.80	\$2.61
Construct siding between MP NB 395.4 and MP NB 397.5, west of Abingdon	\$8.37	\$6.28	\$1.67	\$0.42	\$6.61	\$1.76
Construct and rehabilitate Bristol trackage	\$1.20	\$0.90	\$0.24	\$0.06	\$0.94	\$0.25
<b>Total – High Estimate</b>	<b>\$48.90</b>	<b>\$36.67</b>	<b>\$9.78</b>	<b>\$2.44</b>	<b>\$38.60</b>	<b>\$10.29</b>
<b>Expenditures in Bristol MSA – High</b>	<b>\$27.65</b>	<b>\$16.49</b>	<b>\$9.78</b>	<b>\$1.38</b>	<b>\$17.35</b>	<b>\$10.29</b>
<b>Construction Expenditures Elsewhere in Virginia – High</b>	<b>\$21.25</b>	<b>\$20.19</b>	<b>\$0.00</b>	<b>\$1.06</b>	<b>\$21.25</b>	<b>\$0.00</b>
<b>Total – Low Estimate</b>	<b>\$45.23</b>	<b>\$33.93</b>	<b>\$9.05</b>	<b>\$2.26</b>	<b>\$35.71</b>	<b>\$9.52</b>
<b>Expenditures in Bristol MSA – Low</b>	<b>\$26.88</b>	<b>\$16.49</b>	<b>\$9.05</b>	<b>\$1.34</b>	<b>\$17.35</b>	<b>\$9.52</b>
<b>Construction Expenditures Elsewhere in Virginia – Low</b>	<b>\$18.36</b>	<b>\$17.44</b>	<b>\$0.00</b>	<b>\$0.92</b>	<b>\$18.36</b>	<b>\$0.00</b>

Note: Assumes all professional services costs will be expended in the Bristol MSA. Source: Woodside 2002

### Construction Impacts

For this analysis, the IMPLAN multiplier model was used to calculate impacts of construction. The IMPLAN model is one of the most commonly accepted models used for economic impact analysis. The IMPLAN model is an economic modeling, input–output based, social account matrix software. It is used to estimate the economic impacts to a defined region resulting from expenditures in an industry. A social account matrix reflects the economic interrelationships between the various industries (and commodities), households, and governments in an economy and measures the economic interdependency of each industry on others through multipliers. Multipliers are developed within the IMPLAN model from regional purchase coefficients, production functions, and socioeconomic data for each of the economic impact variables and are specific to each region.

For this study, the economic impact of construction was estimated for both the Commonwealth of Virginia and the Bristol MSA. Costs were assumed to be expended in Bristol MSA and the rest of Virginia. Earnings and jobs impacts were separated into construction jobs and earnings, and professional services jobs and earnings. Jobs are shown in job–years, while earnings are shown in 2018 dollars. One job–year is one job for one person over 1 year.

Table 14 shows the number of jobs supported by construction in the Bristol MSA, as well as in the rest of Virginia.

**Table 14: Employment Impacts of Construction of Amtrak Extension to Bristol (job–years)**

	Low Estimate		High Estimate	
	Direct	Total	Direct	Total
Construction Impacts Bristol	154	223	154	223
Professional Services Bristol	71	124	76	134
<b>Total Bristol Impact</b>	<b>225</b>	<b>347</b>	<b>231</b>	<b>357</b>
Construction Impacts Elsewhere in Virginia	134	211	155	245
<b>Total Employment Impact</b>	<b>359</b>	<b>559</b>	<b>386</b>	<b>602</b>

Note: All jobs estimates are for the duration of the construction period. Total jobs includes the direct employment linked to this Amtrak extension and the indirect employment across a variety of industrial sectors and occupational categories that is supported by increase in local consumer demand generated by those employed for the duration of the construction project.

Source: Compiled by AECOM in 2019

Construction of the extension of Amtrak service to Bristol would support between 225 and 231 direct jobs in the construction and professional services industries, and between 347 and 357 total jobs in Bristol MSA, which would include indirect employment across a variety of industrial sectors and occupational categories that would be supported by an increase in local consumer demand, generated by those employed for the duration of the construction project. In the rest of Virginia, the Bristol extension project is expected to support between 134 and 155 direct jobs and between 211 and 245 total jobs. Together, the project is expected to support between 559 and 602 jobs in the Commonwealth of Virginia and Bristol MSA during the project construction period. The jobs supported by construction of this project would generate earnings both in the construction industries as well as the broader economy. Table 15 shows the earnings supported by construction in the Bristol MSA, as well as in the rest of Virginia.

**Table 15: Earnings Impacts of Construction of Amtrak Extension to Bristol (2018 \$)**

	Low Earnings Estimate		High Earnings Estimate	
	Direct	Total	Direct	Total
Construction Impacts Bristol	\$6,856,000	\$9,638,000	\$6,856,000	\$9,638,000
Professional Services Bristol	\$3,926,000	\$6,060,000	\$4,244,000	\$6,551,000
<b>Total Bristol Impact</b>	<b>\$10,782,000</b>	<b>\$15,698,000</b>	<b>\$11,099,000</b>	<b>\$16,189,000</b>
Construction Impacts Elsewhere in Virginia	\$7,380,000	\$11,383,000	\$8,541,000	\$13,175,000
<b>Total Earnings Impact</b>	<b>\$18,162,000</b>	<b>\$27,082,000</b>	<b>\$19,641,000</b>	<b>\$29,364,000</b>

Note: All earnings estimates are for the duration of the construction period. Total earnings would include the direct earnings linked to this Amtrak extension and indirect earnings across a variety of industrial sectors and occupational categories that would be supported by an increase in local consumer demand, generated by those employed for the duration of the construction project. Earnings are rounded to the nearest 1,000 dollars.

Source: Compiled by AECOM in 2019

Construction of the extension of Amtrak service to Bristol would support between \$10.8 and \$11.1 million in earnings in the construction and professional services industries, and between \$15.7 and \$16.2 million in total earnings in Bristol MSA, which would include earnings generated across a variety of industrial sectors and occupational categories that would be supported by an increase in local consumer demand, generated by those employed for the duration of the construction project. In the rest of Virginia, the Bristol extension project is expected to support between \$7.4 and \$8.5 million in earnings in the construction industry, and between \$11.4 and \$13.2 million in total earnings. Together, the project is expected to support between \$27.1 and \$29.4 million in earnings across all industries in the Commonwealth of Virginia and Bristol MSA together, for the duration of the construction period. On a per-job year basis, this would amount to average earnings of approximately \$49,000.

The construction spending will also generate sales, property, income, and other types of taxes in the state of Virginia, on both statewide and local levels. While this is not a supplemental benefit, but a transfer payment to the jurisdictions that construction spending happens in, it will provide additional tax revenue to governments. Table 16 shows the estimated annual state and local tax revenue generated through construction activities for the Amtrak Extension to Bristol.

The construction of the Amtrak extension to Bristol is expected to generate between \$2.3 and \$2.5 million in state and local tax revenue over the duration of the construction period, including over \$900,000 in sales taxes and over \$700,000 in property taxes.

**Table 16: State and Local Tax Revenue Generated from Construction of Amtrak Extension to Bristol (2018 \$)**

<b>Tax Type</b>	<b>High Scenario Amount</b>	<b>Low Scenario Amount</b>
Sales Tax	\$978,000	\$916,000
Property Tax	\$772,000	\$704,000
Income Tax	\$419,000	\$374,000
Other Taxes	\$345,000	\$319,000
<b>Total</b>	<b>\$2,514,000</b>	<b>\$2,313,000</b>

Note: Sums may not equal to total due to rounding. Other Taxes include licensing and corporate taxes  
Source: AECOM analysis

### Impacts of Operation and Maintenance Cost and Effects

The operation and maintenance (O&M) spending would support employment for the duration of the operation of the service, in the rail industry, as well as the broader economy because of increased local consumer demand by those employed in the rail industry.

#### *Operation and Maintenance Costs*

The O&M costs were estimated based on existing Amtrak operating costs for the Washington-Lynchburg route (Amtrak 2018). At the time of the analysis, FY 2018 operating costs for the Washington-Lynchburg route were available for the cumulative period of October 2017 to April 2018. These costs were scaled up proportionally to a full FY. As a validation of the estimate, the cost was compared to FY 2017 O&M costs for the route, as reported by Amtrak in its preliminary end of year report (Amtrak 2017b). Relative to FY 2017 costs, the FY 2018 cost estimate is 3.25 percent higher, reflecting a reasonable year-over-year escalation, based on the current economic environment.

Because some of the costs are fixed, such as general and administrative costs, and other costs are variable, such as crew wages, fuel, maintenance of way, and maintenance of equipment, a high and a low estimate of O&M costs were developed for the Bristol extension project. The high estimate used a fully allocated operating cost estimate for the Washington-Lynchburg route as the basis for O&M costs. This implies that all costs are considered variable with service, and that cost components would be scaled up proportionately to run the new service. Because economies of scale can be assumed with the extension, but to what degree they will be realized is unknown, the high O&M cost estimate represents the maximum estimated O&M cost for the Bristol extension project.

A low O&M cost estimate, representing a likely minimum cost, assumed that no additional fixed costs would be attributable to the project, and only additional variable costs would be incurred because the project would be an extension of an existing route rather than a completely new route. This cost estimate is conservative. To determine what percentage of total costs would be composed of fixed costs, the Methodology for Amtrak Cost Accounting was consulted (DOT 2016). Cost families and their respective percentages based on unaudited Amtrak Performance Tracking (APT) allocated data for FY 2014 were used to identify fixed costs to be excluded for the estimate, and to derive a percentage to factor down the cost estimate to represent only the variable costs that correspond with changes in service. Table 17 shows the

cost families, percentages based on FY 2014 APT data, as well as the revised percentages and the reasoning for the adjustments.

**Table 17: Share of O&M Costs by Cost Family and Shares Used for Low Estimate**

<b>Cost Family</b>	<b>Original Share</b>	<b>Adjusted Share Used for Low Estimate</b>	<b>Adjustments and Reasoning</b>
Maintenance of Way	11.2%	11.2%	
Maintenance of Equipment	14.9%	14.9%	
Ops Transportation	35.9%	32.5%	Assumes minimal change in station operating costs, as station is already open
Sales and Marketing	4.3%	2.6%	Excludes marketing
General and Administrative	31.2%	0.0%	Excludes administrative costs
Utilities	0.1%	0.1%	
Police, Environmental and Safety	2.4%	2.4%	
<b>Total</b>	<b>100.0%</b>	<b>63.7%</b>	

Source: DOT 2016:Volume 2, Appendices A – F, B-5

These adjustments were applied to the estimated Washington–Lynchburg route O&M cost for FY 2018, factoring it down to 63.7 percent of the original cost. The resulting cost served as the basis for the low O&M cost estimate.

Both the aforementioned high and low O&M cost estimates then were converted to cost per mile per train by dividing the rail distance between Washington, DC and Lynchburg, and assuming two trains per day. High and low O&M costs for extending the service from Roanoke to Bristol then were estimated, based on distance between the two stations and assuming two trains per day.

Table 18 shows the annual O&M high and low cost estimates for the Bristol extension. The analysis estimated \$7,924,000 for the high cost estimate, and \$5,043,000 for the low cost estimate, both in 2018 dollars.

Cost estimates were compared to revenue estimates based on ridership projections. A fare of \$101 per passenger was assumed for the estimate, based on Amtrak incremental revenue and ridership information (Amtrak 2016a:5). Using the ridership forecast that was developed for this study, fare revenue was estimated for three scenarios: the Amtrak extension scenario, extension scenario with special events ridership, and extension scenario with special events ridership and a faster travel time between Bristol and Washington, DC (from 9.5 hours to as low as 7.5 hours). The estimated revenues then were compared with the estimated annual O&M costs, to determine the likely net surplus or shortfall. Table 18 shows the results.

**Table 18: Estimated Annual Fare Revenue and Surplus/Shortfall Estimates (2018 \$)**

Scenario	Estimated O&M		Estimated Revenue	Surplus (Shortfall)	
	High Estimate	Low Estimate		High Estimate	Low Estimate
Amtrak Extension			\$3,821,200	\$(4,102,800)	\$(1,221,800)
Amtrak Extension + Special Events	\$7,924,000	\$5,043,000	\$4,175,953	\$(3,748,047)	\$(867,047)
Amtrak Extension + Special Events + Faster Travel Time			\$5,032,429	\$(2,891,571)	\$(10,571)

Notes: Costs rounded to the nearest \$1,000.

Amtrak Extension+ Special Events +Not a Terminus scenario excluded, because additional O&M costs would be incurred, for which insufficient information exists at this time to make an estimate.

Source: Compiled by AECOM in 2019

Although these estimates are based on preliminary information, they serve as an approximate gauge of the subsidy needed to run the service. As more information regarding the service becomes available, more detailed modeling will cause the ridership and revenue calculations to change, presenting a more accurate estimate. In addition, as travel habits start to change, revenue may increase, bridging the estimated shortfall shown. Furthermore, the current estimate does not include any revenues from sales of food and drink on the train.

### ***Operation and Maintenance Impacts***

As with the construction analysis, the IMPLAN multiplier model was used to calculate impacts of O&M. For this project, the economic impacts of O&M were estimated for the Commonwealth of Virginia, because on which geographic areas the O&M spending would be concentrated and from where labor and any materials would be sourced are unknown. Although some of the jobs created likely would be located in Bristol, others would be elsewhere in the state. Because the share of O&M costs to be spent within the Bristol MSA is not known at this time, impacts were calculated only for the Commonwealth of Virginia. Table 19 shows the employment and earnings that would be created by operation of the Amtrak service to Bristol in the Commonwealth of Virginia for the high and low-cost estimates. Jobs are shown in job-years, and earnings are shown in 2018 dollars. One job-year is one job for one person over 1 year.

**Table 19: O&M Impacts of Amtrak Extension to Bristol**

	<b>Employment (job-years)</b>	<b>Earnings (2018\$)</b>
<b>High Cost Estimate</b>		
Direct	22	\$2,372,000
<b>Total</b>	<b>57</b>	<b>\$4,392,000</b>
<b>Low Cost Estimate</b>		
Direct	14	\$1,510,000
<b>Total</b>	<b>36</b>	<b>\$2,795,000</b>

Source: Compiled by AECOM in 2019

The new service is expected to generate between 14 and 22 direct jobs and between 36 and 57 total jobs throughout the Commonwealth of Virginia, which would include indirect employment across a variety of industrial sectors and occupational categories that would be supported by increase in local consumer demand. Because O&M spending would be expended every year the service operates, unlike construction employment, O&M employment would be recurring annually. Although exactly how much of this employment impact would be in the Bristol MSA is unknown, a study on the economic impact of a proposed multimodal transportation center in Roanoke projected three direct and six total jobs from Amtrak operations (CHMURA 2015). A similar number of jobs could be expected within the Bristol MSA, with the extension of Amtrak service to the city.

The O&M spending also would generate between approximately \$1.5 million and \$2.4 million, or \$107,000 per job-year in earnings for those employed by the rail industry, and between \$2.8 million and \$4.4 million, or approximately \$77,000 per job-year, across the entire economy. The O&M spending also would generate sales, property, income, and other types of taxes in the Commonwealth of Virginia and at local levels. Although this would not be a supplemental benefit but a transfer payment to the jurisdictions that O&M spending happens in, it would provide additional tax revenue to the government.

Table 20 shows the estimated annual state and local tax revenue that would be generated through O&M activities for the Amtrak extension to Bristol.

**Table 20: Annual State/Local Tax Revenue Generated from O&M of Amtrak Extension to Bristol (2018 \$)**

<b>Tax Type</b>	<b>High Scenario Amount</b>	<b>Low Scenario Amount</b>
Sales Tax	\$104,000	\$66,000
Property Tax	\$139,000	\$88,000
Income Tax	\$99,000	\$63,000
Other Taxes	\$52,000	\$33,000
<b>Total</b>	<b>\$394,000</b>	<b>\$251,000</b>

Notes: Sums may not equal to total because of rounding. Other Taxes include licensing and corporate taxes.

Source: Compiled by AECOM in 2019

The O&M of the Amtrak extension to Bristol is expected to generate between \$251,000 and \$394,000 in tax revenue annually, which would include between \$88,000 and \$139,000 in property taxes and between \$66,000 and \$104,000 in sales taxes.

### Impacts of Amtrak Purchasing

Rail service operations require purchases of services and supplies—everything from food, paper goods, and cleaning supplies to maintaining on-board customer amenities, to legal and advertising services. The potential for some of these purchases to be made in Bristol is evaluated in this section, if rail service is extended to the city.

The analysis relied on publicly available Amtrak procurement spending data in Virginia and Tennessee, as well as statistics on the largest employers in the study area. Publicly available procurement data were collected from Amtrak’s state factsheets for FYs 2015, 2016, and 2017 for both Virginia and Tennessee. Table 21 shows the spending by state and jurisdiction for all areas reported. The geographic pattern of spending is annotated to indicate whether the jurisdiction currently has Amtrak service.

**Table 21: Amtrak Procurement Spending for Virginia and Tennessee (FY15–FY17)**

<b>Jurisdiction</b>	<b>Amtrak Service Available</b>	<b>Fiscal Year 15</b>	<b>Fiscal Year 16</b>	<b>Fiscal Year 17</b>
<b>Virginia</b>				
Alexandria	Yes	\$1,658,139	\$1,035,548	\$ –
Arlington	No	\$ –	\$13,549,117	\$18,498,514
Burke	Yes	\$4,224,583	\$2,856,688	\$2,481,019
Chantilly	No	\$3,312,327	\$ –	\$ –
Chesapeake	No	\$3,530,412	\$2,736,085	\$4,645,827
Fairfax	No	\$11,628,410	\$9,376,228	\$10,403,239
Falls Church	No	\$ –	\$ –	\$1,389,955
Herndon	No	\$7,055,084	\$12,091,423	\$13,055,837
McLean	No	\$27,731,145	\$32,461,550	\$21,674,526
Norfolk	Yes	\$1,711,956	\$2,679,739	\$2,959,831
North Chesterfield	No	\$1,138,896	\$1,226,805	\$ –
Oakton	No	\$24,057,099	\$16,966,168	\$21,629,850
Reston	No	\$20,382,694	\$7,712,590	\$6,063,755
Tysons Corner	No	\$ –	\$ –	\$7,279,113
Vienna	No	\$1,325,500	\$1,405,079	\$ –
Virginia Beach	Bus connection only	\$3,737,475	\$3,452,054	\$2,565,915
<b>Virginia Total</b>		<b>\$111,493,720</b>	<b>\$107,549,074</b>	<b>\$112,647,381</b>
<b>Tennessee</b>				
Chattanooga	No	\$1,471,883	\$1,531,986	\$1,571,524
Knoxville	No	\$1,881,517	\$2,560,712	\$2,348,027
Mascot	No	\$ –	\$1,280,866	\$1,452,102
<b>Tennessee Total</b>		<b>\$3,353,400</b>	<b>\$5,373,564</b>	<b>\$5,371,653</b>
<b>Virginia and Tennessee Total</b>		<b>\$114,847,120</b>	<b>\$112,922,638</b>	<b>\$118,019,034</b>

Source: Amtrak 2015, 2016b, 2017a

Amtrak's procurement spending does not align with locations served by rail. As seen in the preceding table, over three-quarters, or 13 of the 16 Virginia jurisdictions providing goods and services to Amtrak

currently do not have Amtrak rail service. For example, neither Tysons Corner nor Reston has Amtrak service, but Amtrak has purchased goods or services there. Both Lynchburg and Charlottesville have rail service, but local firms provided no services or goods to Amtrak. Similarly, Chattanooga, Knoxville, and Mascot do not have rail service but have served as points of purchase for Amtrak.

Based on the pattern described above, Bristol would be unlikely to see a measurable impact from Amtrak procurement from the extension of rail services. To take the analysis one step further and assess whether the economic composition of Bristol's economy may support rail operations, independent of whether rail service would be available locally, the production of the region's largest employers was examined to find inter-industry connections with the passenger rail industry.

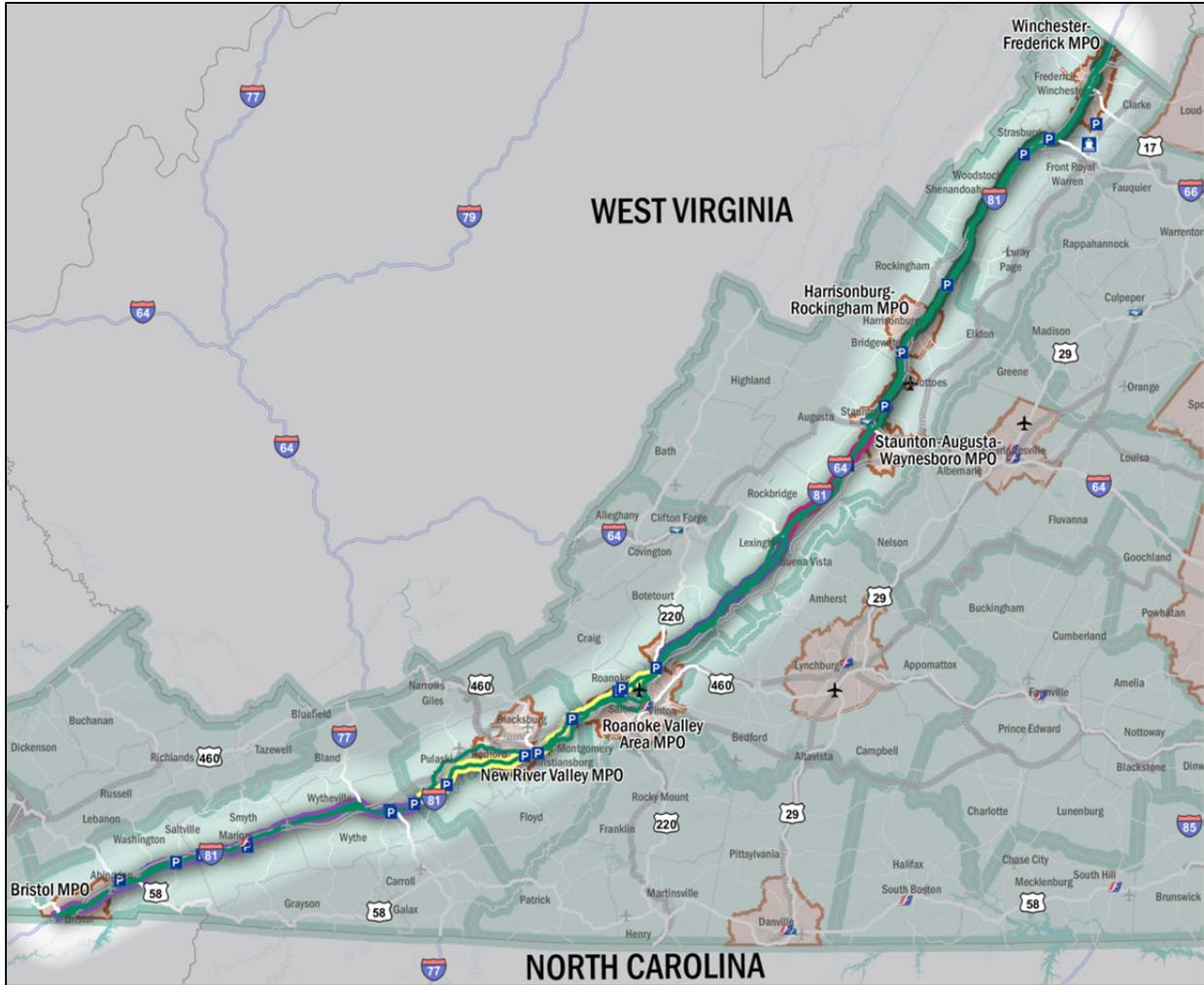
Specifically, 50 of the largest employers in Bristol City and Washington County, Virginia (Virginia LMI 2018), and the 10 largest employers in Sullivan County, Tennessee (NETWORKS Sullivan Partnership 2018) were examined to determine whether any of them could provide goods and services to Amtrak. The aim was to identify companies that served the rail transportation industry. For Bristol City and Washington County, no companies on their respective lists of largest employers specifically serve the rail industry. Sullivan County is home to one of the facilities of Modern Forge, a company specializing in metal forging that serves a number of markets, including the rail industry. However, whether Amtrak would make purchases from this producer is unknown. In short, although Amtrak possibly may purchase goods or services from Bristol area firms, the following two findings suggest that this economic impact likely would be small at best:

- the purchase decision is not correlated with the presence of Amtrak service; and
- Amtrak is not making purchases in Bristol currently.

### Impacts of Reducing I-81 Traffic

Travel options to and from the Bristol area currently are limited to auto and air, and extending rail to Bristol would allow the opportunity to shift auto traffic away from I-81 and onto the rail line. Using a two-step method, the number of diverted vehicles on I-81 because of the Bristol Amtrak extension was calculated. Travel demand patterns that were developed for the VTrans2040 Multimodal Transportation Plan and traffic counts collected by VDOT were used to create an origin/destination vehicle trip table for those traveling to and from communities along the rail corridor, such as Roanoke, Lynchburg, and Washington, DC. Then, by applying mode share elasticities to the trip table with the addition of the rail extension, the results included the number of vehicles switching to rail. This process is described in detail next.

The first step of the process was to develop an internal-external trip destination distribution, based on the travel flows from the metropolitan planning organizations (MPOs) along the I-81 corridor in the VTrans2040 Multimodal Transportation Plan (VTrans 2018). The six MPOs along the corridor in Virginia that were identified in the analysis are Bristol, New River, Roanoke Valley, Staunton-Augusta-Waynesboro, Harrisonburg-Rockingham, and Winchester-Frederick, as shown in Figure 3. Other destinations were identified outside those six areas, both extending along the I-81 corridor (i.e., Tennessee, Washington, DC, and Maryland), as well as other areas off the corridor, such as southeastern Virginia.



Source: VTrans 2018

Figure 3: I-81 Corridor

The trip distribution table then was condensed to include only origin/destination pairs that would require traveling on the I-81 corridor, and the result is shown in Table 21. This table shows the distribution of all trips originating in each of the MPOs along the corridor and the relative size of the destination markets. In addition to the six origin MPOs, the destinations also include trips further south of Bristol on I-81 (into Tennessee), and trips north of Winchester–Frederick on I-81 (into Maryland and beyond). For example, 92 percent of all travel on the I-81 corridor from Bristol is destined for locations south of Bristol (into Tennessee). Shorter trips are more common in the distribution, with the New River and Roanoke Valley MPOs in particular having a large amount of travel between them. Because the trips that are shown in Table 22 are solely internal–external trips, they do not include trips within the MPOs.

The next step was to examine the VDOT traffic counts along the I-81 corridor, to determine the annual average daily traffic (AADT) on I-81 for each of the six MPOs along the corridor, and to determine the number of vehicles that would be eligible to be diverted to rail, based on the flow distribution shown in Table 22. Because the traffic counts include all trips at that point, this process has to remove the external–

external (E–E) trips, which are trips through the MPOs and internal–internal (I–I) trips, which are trips within the MPOs from the counts, to avoid double–counting. The VTrans 2040 Multimodal Transportation Plan (VTrans 2018) includes the distribution of trips that are E–E, I–I, and I–E/E–I (Internal–External/External–Internal) for each of the MPOs, which was used to remove those trips. Table 23 shows the directional traffic counts, the percentage of trips for each area that are I–E, and the directional trips for each origin that are possible to divert to rail. Overall, the daily traffic counts by direction are relatively constant across the MPOs, ranging from 18,750 to 29,000 vehicles in each direction per day originating in, destined for, or traveling through each MPO. Of those daily vehicle trips, the percentage that are originating in each MPO range from 10 to 20 percent, because most of the traffic volumes along the I–81 corridor are trips traveling through the MPOs. Using these two numbers, the number of daily vehicle trips originating in each MPO that potentially could be diverted to rail then was calculated, as shown in the last column of Table 23, with ranges from approximately 2,275 for Staunton–Augusta–Waynesboro up to almost 5,700 for the Harrisonburg–Rockingham.

To determine the baseline amount of the average daily vehicle trips (shown in Table 25) that potentially could be diverted to rail, the study applied the trip destination distribution for each MPO (shown in Table 22) to the average daily divertible vehicle trips. It was necessary to convert the trip ends to flows in this way because the mode share calculations take into account the travel times and costs between market pairs. The number of potential vehicle trips is shown in Table 24.

Not all market pairs that are shown in Table 24 would be served by the new rail extension, and thus the next step of the analysis was to remove the unfeasible market pairs, leaving market pairs available for vehicles to be diverted from I–81 based on the proposed rail extension to Bristol. Reasons for removing market pairs included any market pair that currently is served by rail, or if the market is far from the rail line, requiring a long access or egress trip. This is the case on the northern end of the I–81 corridor, where I–81 and the rail line diverge substantially.

**Table 22: I-81 Corridor Internal-External Trip Distribution by Origin**

Market Pair	South of Bristol	Bristol	New River	Roanoke Valley	Staunton–Augusta–Waynesboro	Harrisonburg–Rockingham	Winchester–Frederick	North of Winchester–Frederick	Total
Bristol	92%	0%	3%	4%	0%	1%	0%	1%	100%
New River	4%	2%	0%	70%	15%	8%	0%	1%	100%
Roanoke Valley	4%	2%	42%	0%	31%	16%	2%	2%	100%
Staunton–Augusta–Waynesboro	0%	0%	10%	17%	0%	67%	5%	2%	100%
Harrisonburg–Rockingham	2%	0%	8%	9%	61%	0%	9%	11%	100%
Winchester–Frederick	1%	0%	15%	2%	10%	61%	0%	11%	100%

Source: VTrans 2018

**Table 23: I-81 Divertible Trips by Metropolitan Planning Organizations**

Metropolitan Planning Organization	Directional Daily Traffic Count	Internal-External Trip Percentage	Divertible Average Daily Vehicle Trips
Bristol	23,000	16%	3,565
New River	18,750	14%	2,531
Roanoke Valley	21,250	19%	4,038
Staunton–Augusta–Waynesboro	22,750	10%	2,275
Harrisonburg–Rockingham	29,000	20%	5,655
Winchester–Frederick	22,000	20%	4,400

Sources: VDOT 2016 AADT traffic counts; VTrans 2018

The market pairs that are available for vehicles to be diverted from I-81 based on the proposed rail extension include trips with at least one end in the MPOs that are located along the rail extension (Bristol and New River) and the other end in the other areas that are along the I-81 corridor, served by the existing rail service (Roanoke Valley, Staunton–Augusta–Waynesboro, and Harrisonburg–Rockingham). Because Bristol Station would be the end of the line, the travel shed is expected to be greater than other stations along the line, and therefore trips from south of the Bristol area are considered to be available for diversion to areas north of Bristol. Market pairs that are not considered to be divertible are shown in grey.

One market pair that is not considered to be divertible for this analysis is travel from south of Bristol to Bristol, which is almost 3,300 daily vehicle trips in each direction. Because Bristol is the end of the rail extension, these trips would not be an available market for rail, but if the rail extension was to continue past Bristol, they would represent a bigger potential for diverting automobiles than many of the other market pairs.

After removing the non-divertible market pairs, the study team converted Table 24 into a symmetrical trip matrix, to account that, on an annual basis, average daily trips originating in and destined for a particular location are approximately equal. Table 25 shows the final trip matrix of all daily trips that would have the potential to be diverted to rail with the rail extension to Bristol.

Not every traveler to a rail-served location would be divertible—time of day, purpose of trip, intervening destinations, and sheer preference for auto travel all would influence the likelihood to divert. AECOM has developed the NEC FUTURE Interregional Model, of which the mode choice portion was applied to the base auto trip table, to determine the number of diverted trips, based on travel time and cost elasticities. Automobile is the predominate mode in the corridor, with a small amount of intercity bus service between Blacksburg and Roanoke. Because this analysis is focused on diverting auto travel and the intercity bus market is small, the elasticities were applied directly to the auto trip matrix, with the understanding that a small portion of the total rail ridership for the New River–Roanoke Valley market pair reasonably would come from the intercity bus. This process involved creating the associated service data for the auto trip table (i.e., travel time and cost for auto and rail), to generate the mode shares for each market pair in the trip table, and then applying the mode share to the base auto trip table. The service data by mode were estimated as follows:

- Auto
  - Travel time – Google Maps estimate
  - Travel cost – incremental cost of \$0.15/mile (NEC FUTURE Interregional Model assumption), using a Google Maps estimate of distance
- Rail
  - Access/egress time – average of 20 minutes to access/egress the stations
  - Line haul travel time – from the proposed Amtrak schedule
  - Rail fare – calculated average fare/passenger mile based on Amtrak–provided revenue projections and passenger rail projections, applied to station-to-station distances

Table 24: I-81 Corridor Baseline Daily Vehicle Internal-External Trips

Market Pair	South of Bristol	Bris tol	New River	Roanoke Valley	Staunton–Augusta– Waynesboro	Harrisonburg– Rockingham	Winchester– Frederick	North of Winchester– Frederick	Total
Bristol	3,271	–	110	147	–	18	–	18	3,565
New River	101	51	–	1,772	380	203	–	25	2,531
Roanoke Valley	179	90	1,705	–	1,256	628	90	90	4,038
Staunton–Augusta– Waynesboro	–	–	217	379	–	1,517	108	54	2,275
Harrisonburg– Rockingham	112	–	449	524	3,445	–	524	599	5,655
Winchester–Frederick	46	–	638	91	433	2,690	–	502	4,400

Note: Greyed out cells indicate market pairs that are not feasible for diverting auto trips, based on the proposed rail extension.

Source: Compiled by AECOM in 2019

**Table 25: I-81 Corridor Divertible Daily Vehicle Trip Matrix**

<b>Market Pair</b>	<b>South of Bristol</b>	<b>Bristol</b>	<b>New River</b>	<b>Roanoke Valley</b>	<b>Staunton–Augusta–Waynesboro</b>	<b>Harrisonburg–Rockingham</b>
South of Bristol			101	179	–	112
Bristol				118	–	9
New River	101	–		1,738	298	326
Roanoke Valley	179	118	1,738		818	576
Staunton–Augusta–Waynesboro	–	–	298	818		
Harrisonburg–Rockingham	112	9	326	576		

Source: Compiled by AECOM in 2019

### Results and Comparison to Amtrak Forecast

The NEC FUTURE mode share elasticities then were applied to the market pairs that had available rail service, and the number of daily diverted auto vehicle trips is shown in Table 26. The biggest market for diverting auto travel is between the New River and Roanoke Valley MPOs, which account 71 percent of the diverted travel. This is because of having a strong base auto travel market and a competitive rail service. The other market pairs are less desirable, primarily from a travel time perspective. Overall, 62 daily vehicles are removed from I-81, which does not make a noticeable impact on the traffic levels, with bi-directional AADTs ranging from 25,000 to 70,000. By comparison, Lynchburg Station sees approximately 220 percent of the ridership forecast for the Bristol extension; therefore, it similarly is expected that a relatively small impact on vehicle trips would occur in the area.

Applying an average auto occupancy of 1.6 persons/vehicle, this yields 99 rail riders per day, or just over 36,000 riders per year, which is comparable to the Amtrak-provided forecast of 37,700 annual new rail riders resulting from the Bristol extension, allowing some proportion of the rail riders to be induced travel as well as switching from the small intercity bus market.

As mentioned in reference to Table 22, one of the biggest potential markets for reducing travel on I-81 corridor is from Bristol extending south into Tennessee. If the Amtrak extension was to continue into Tennessee, more potential would exist for reducing vehicle trips.

**Table 26: Daily Auto Vehicle Trips Diverted to Rail**

Market Pair	South of Bristol	Bristol	New River	Roanoke Valley	Staunton–Augusta–Waynesboro	Harrisonburg–Rockingham	Total
South of Bristol	–	–	–	1	–	–	1
Bristol	–	–	–	–	–	–	–
New River	–	–	–	22	1	1	24
Roanoke Valley	1	–	22	–	4	2	29
Staunton–Augusta–Waynesboro	–	–	1	4	–	–	5
Harrisonburg–Rockingham	–	–	1	2	–	–	3
<b>Total</b>	<b>1</b>	<b>–</b>	<b>24</b>	<b>29</b>	<b>5</b>	<b>3</b>	<b>62</b>

Source: Compiled by AECOM in 2019

### Impacts of Increased Tourism

The extension of Amtrak service to Bristol would provide an additional mode of transportation for tourists who are visiting the Bristol MSA. The Bristol MSA is defined to include the city of Bristol, Scott and Washington counties in Virginia, and Hawkins and Sullivan counties in Tennessee. Although the availability of Amtrak service would cause a mode shift for some tourists who would prefer taking the train instead of

driving, it also would create induced tourist trips, as some people who would not be able to drive to Bristol now would have a viable transportation option. These induced tourist trips represent the increase in tourism as a result of extending the service and would generate revenue for local businesses, thus supporting jobs and economic activity in the Bristol area.

### ***Increase in Tourism***

The increase in tourism was estimated using the ridership forecast developed for this service extension (see Chapter 3). The ridership forecast estimated the number of Ons and Offs by travel market for three scenarios:

- Amtrak extension and special events;
- Amtrak extension and special events assuming Bristol would not be a terminus, with service extending into Tennessee; and
- Amtrak extension and special events assuming a faster travel time (from 9.5 hours to as low as 7.5 hours between Bristol and Washington, DC).

For this analysis, ridership projections were used for only the Bristol area. The Ons and Offs were converted to riders and were grouped as regular Amtrak riders or special event riders. The analysis assumed that half of the riders were visiting Bristol from other areas, with the other half being Bristol residents using the train to travel to other destinations along the route. The number of induced tourists was estimated by applying the percentage of riders who would not make the trip if Amtrak was unavailable, which was 18.66 percent, to the ridership. The percentage was sourced from the Amtrak rider survey that was conducted for this study. The resulting amount constituted the projected increase in tourism. Table 27 shows the estimated riders and induced tourists for the three scenarios.

### ***Tourist Spending***

To estimate the change in spending from the increase in tourism, estimated spending per tourist was applied to the number of new tourists, broken out into regular tourists and special event attendees. Spending per regular tourist was assumed to be \$211, as determined by the Amtrak rider survey, and spending per special event attendee was \$566, as determined by the Bristol visitor survey. Table 28 shows the annual tourist spending for regular tourists and special events attendees.

**Table 27: Rider and New Tourist Projections for the Bristol Area**

	Amtrak Extension + Special Events	Amtrak Extension + Special Events + Not a Terminus	Amtrak Extension + Special Events + Faster Travel Time
<b>Riders</b>			
Amtrak Forecast Riders	2,350	2,350	3,200
Special Event Riders	1,800	3,900	1,800
<b>Total Riders</b>	<b>4,150</b>	<b>6,250</b>	<b>5,000</b>
<b>Induced (New) Tourists</b>			
Regular Tourists	200	200	300
Special Event Attendees	350	750	350
<b>Total Induced Tourists</b>	<b>550</b>	<b>950</b>	<b>650</b>

Note: The number of induced tourists is part of the number of total riders. Values rounded to the nearest 50 riders or tourists.

Source: Compiled by AECOM in 2019.

**Table 28: Annual Spending by New Tourists (2018 \$)**

	Amtrak Extension + Special Events	Amtrak Extension + Special Events + Not a Terminus	Amtrak Extension + Special Events + Faster Travel Time
Tourist Spending in Bristol - regular tourism	\$46,000	\$46,000	\$63,000
Tourist Spending in Bristol - special events	\$190,000	\$412,000	\$190,000
<b>Total Tourist Spending in Bristol</b>	<b>\$236,000</b>	<b>\$458,000</b>	<b>\$253,000</b>

Note: Estimates rounded to the nearest \$1,000.

Source: Compiled by AECOM in 2019

### ***Economic Impact of Tourist Spending***

To calculate the economic impact of the estimated new tourist spending, total spending was divided into three major categories: lodging, dining, and entertainment. A study conducted by the Bureau of Labor Statistics using the Consumer Expenditure Survey found that for an average domestic trip of at least one night, 38.7 percent of travel expenditures go toward transportation, 26.6 percent go toward food and alcohol, 26 percent go toward lodging, and 8.8 percent go toward entertainment (BLS 2015). Because the analysis assumed that tourists would arrive in Bristol by train and most then would travel around town on foot for a majority of the time, spending on transportation was assumed to be negligible. Therefore, to provide a conservative estimate, the spending by cost category was adjusted to exclude the transportation category, resulting in 43 percent going towards food and alcohol, 42 percent going toward lodging, and 14

percent going toward entertainment. The most appropriate IMPLAN industry categories then were selected for the multiplier analysis. Table 29 shows the IMPLAN industry categories that were selected for each of the spending categories.

**Table 29: IMPLAN Industry Categories**

<b>Spending Category</b>	<b>Industry Number</b>	<b>Industry Category Name</b>
Entertainment	490	Racing and track operation
	492	Independent artists, writers, and performers
	496	Other amusement and recreation industries
Lodging	499	Hotels and motels
Food and alcohol	501	Full-service restaurants
	502	Limited-service restaurants
	503	All other food and drinking places

Source: BLS 2015; IMPLAN

Where multiple industry categories were assigned to a spending category, spending was evenly divided among industry categories. For “Racing and track operation” and “Independent artists, writers and performers” categories, however, entertainment spending was allocated only for special event attendees; regular tourist entertainment spending was fully allocated to “Other amusement and recreational industries.”

For this analysis, the IMPLAN multiplier model was used to estimate the impacts of new tourism. IMPLAN is one of the most commonly accepted models used for economic impact analysis. The IMPLAN model is an economic modeling, input-output based, social account matrix software. It is used to estimate the economic impacts to a defined region resulting from expenditures in an industry. A social account matrix reflects the economic interrelationships between the various industries (and commodities), households, and governments in an economy and measures the economic interdependency of each industry on others through multipliers. Multipliers are developed within IMPLAN from regional purchase coefficients, production functions, and socioeconomic data for each of the economic impact variables and are specific to each region.

Additional tourism that was generated by the availability of Amtrak’s service to Bristol would, in turn, result in more spending on goods and services in the MSA. This increase in local consumer demand would create jobs and earnings across a variety of industry sectors and occupational categories within the MSA. Jobs are calculated in job-years, and earnings are in 2018 dollars. One job year is one job for one person over 1 year.

Across the three scenarios, the extension project is expected to create between 5 and 10 new jobs across a number of industries, and to generate between \$121,000 and \$235,000 in earnings. This would translate to approximately \$24,000 in earnings per job year.

Table 29 shows the employment and earnings supported by additional tourist spending from Amtrak service to Bristol under the three ridership forecast scenarios.

**Table 30: Employment and Earnings Supported by Additional Tourist Activity from Amtrak Service to Bristol**

Scenario	Employment	Total Earnings	Average Earnings Per Job Year
Amtrak Extension + Special Events	5.0	\$120,000	\$24,000
Amtrak Extension + Special Events + Not a Terminus	9.8	\$230,000	\$24,000
Amtrak Extension + Special Events + Faster Travel Time	5.3	\$130,000	\$24,000

Note: Total earnings rounded to the nearest \$10,000; average earnings rounded to nearest \$1,000.

Source: Compiled by AECOM in 2019

Tourist spending also would generate tax revenue. Although this would not be a supplemental benefit but would be a transfer payment to the jurisdictions where the spending would occur, it would provide additional tax revenue to state and local governments. Using the IMPLAN model, state and local tax revenue was estimated. The extension would contribute from an estimated \$26,000 to \$51,000 in total tax revenue annually, depending on the scenario. Most of the tax revenue would be generated through sales tax, with property taxes being the second largest contributor. Table 31 shows the breakdown of tax revenues by type for each of the ridership forecast scenarios.

**Table 31: State and Local Tax Revenue Generated by Additional Tourist Activity from Amtrak Service to Bristol (2018 \$)**

Scenario	Sales Tax	Property Tax	Income Tax	Other Taxes	Total
Amtrak Extension + Special Events	\$15,000	\$8,000	\$1,000	\$3,000	\$26,000
Amtrak Extension + Special Events + Not a Terminus	\$28,000	\$15,000	\$2,000	\$6,000	\$51,000
Amtrak Extension + Special Events + Faster Travel Time	\$16,000	\$8,000	\$1,000	\$3,000	\$28,000

Source: Compiled by AECOM in 2019

In addition, the tourists induced by the Amtrak service extension to Bristol would generate demand at local hotels. Based on the estimated number of tourists who would not have otherwise made the trip, the number of induced tourist hotel nights was calculated. According to the Virginia Tourism Corporation, the average tourist in the southwestern part of the state stays overnight an average of 3.3 nights per trip (Virginia Tourism Corporation 2018). The average hotel room occupancy for regular and special event tourists was estimated based on results of the Amtrak rider and Bristol visitor surveys that were conducted for this study (see Appendix 6 and Appendix 8, respectively). The average hotel room occupancy of 1.58 was used for regular tourists and occupancy of 2.39 was used for special event tourists. The analysis also assumed that all special event visitors who take the train would stay in hotels, while 63 percent of regular tourists would stay in hotels and the rest would stay with friends or family or in RVs. The percentage of

tourists staying with friends or family was derived from information provided by the Virginia Tourism Corporation for the southwestern part of the state. Table 32 shows the estimated hotel room demand that would be induced by the extension of Amtrak service to Bristol, measured in room-nights.

**Table 32: Estimated Hotel Room Demand Induced by the Amtrak Bristol Extension (room-nights)**

Scenario	Amtrak Extension + Special Events	Amtrak Extension + Special Events + Not a Terminus	Amtrak Extension + Special Events + Faster Travel Time
Regular Tourist Room-Nights	300	300	400
Special Event Attendees Room-Nights	450	1,000	450
<b>Total Induced Tourist Room-Nights</b>	<b>750</b>	<b>1,300</b>	<b>850</b>

Source: Compiled by AECOM in 2019 Note: Values rounded to nearest 50.

The Amtrak extension from Bristol is expected to generate demand for hotels in the range of 700 to 1,300 room-nights per year, depending on ridership forecast scenario.

## Travel Cost Savings

This section describes the estimation of travel cost savings for Bristol residents that would be attributable to the project. The extension would cause some travelers to shift from car, bus, or air travel to train, which would create potential cost savings. These savings would represent real gains for Bristol-area households, and the additional spending from these gains would represent a boost to the local economy. This analysis estimates that the potential gains and economic benefits resulting from the travel cost savings for Bristol residents who would switch to train use.

## Ridership

The number of Bristol residents who would take the train was estimated using the ridership forecast developed for this study, where several scenarios were considered, including a scenario with faster travel time. Special event ridership was excluded from the estimates because special events would bring in visitors from outside the Bristol MSA. The analysis assumed that the savings realized by riders would be spent in, and thus would benefit their home jurisdictions. Therefore, although riders from outside the Bristol MSA also may realize travel cost savings, their economic benefits would not be realized in the Bristol economy. Among regular riders, the analysis assumed that half of them would be Bristol residents taking a trip destined outside the MSA, and the remaining half would reside outside the MSA and would be making a trip to Bristol.

Based on the Amtrak rider survey conducted for this study and described in Appendix E, the number of riders diverted from each mode was estimated. Riders who took the survey were asked what mode they would take if Amtrak was unavailable, with options being bus, personal vehicle, rental vehicle, airplane, other, or that they would not have made the trip at all. The percentages of respondents who picked each option were used to estimate the number of riders who would switch from each mode to the train. Table 33 shows the percentages that were used for the analysis.

**Table 33: Assumed Distribution of Bristol Resident Train Riders by Original Mode**

<b>Mode Specified</b>	<b>Percent of Respondents</b>
Bus	9%
Personal Vehicle	50%
Air	14%
Rental Vehicle	7%
Other	1%
Did not travel at all	19%

Source: Compiled by AECOM in 2019

### **Travel Costs**

Travel costs were estimated for each mode. Using the results of the Amtrak rider survey that was conducted for this study, the analysis assumed that 85 percent of Bristol residents taking the train would be traveling to a destination south (and inclusive) of Washington, DC, and the remaining 15 percent would be traveling to destinations north of Washington, DC. Representative destinations of Roanoke and Washington, DC were used for calculations involving riders traveling south of Washington, DC, and Philadelphia and New York City were used for riders who would be traveling north of Washington, DC. For both sets of riders, an even distribution of destinations along the routes was assumed. In other words, a rider was assumed to be equally as likely to be traveling to Roanoke as to Washington, DC. Using these assumptions, travel costs were calculated for each mode.

Bus fares from Bristol to Roanoke, Washington, DC, Philadelphia, and New York City were obtained from the Greyhound website (Greyhound 2019). Roanoke and Washington, DC fares were averaged to represent the average fare for riders traveling to a destination south of Washington, DC, and Philadelphia and New York City fares were averaged to represent the average fare for riders traveling to a destination north of Washington, DC.

For personal autos and rental vehicles, the average of the distances between Bristol and Roanoke and Bristol and Washington, DC were used to represent the average distance traveled by riders driving to a destination south of Washington, DC. For riders traveling to a destination north of Washington, DC, the average of the distances between Bristol and Philadelphia, and Bristol and New York City were used to represent the distance traveled by a typical traveler. These mileage estimates then were factored by vehicle operating costs per mile for personal and rental vehicles. A personal vehicle operating cost of \$0.40 per mile and a rental vehicle operating cost of \$0.25 were used for the analysis (AAA 2017).<sup>4</sup> Costs were converted to 2018 dollars using the White House GDP Deflator, as needed. Parking costs also were factored into the analysis, with an average daily parking cost of \$8 used for destinations south of Washington, DC, and an average daily parking cost of \$29 used for destinations north of Washington, DC. The analysis conservatively assumed that parking would be paid only for 1 day. The average cost of traveling by car then was converted to the average cost of traveling by car per occupant, by dividing the cost by the average auto occupancy. Average auto occupancy was derived from the results of the Amtrak

<sup>4</sup> Rental vehicle cost per mile is assumed to be industry norm, based on information from Avis and Hertz.

rider survey that was conducted for this study. Riders were asked whether they likely would be traveling alone or in a group, and if they would be traveling in a group, how many people likely would be in the group. Using these responses, a weighted average of group size was calculated and was assumed to be the auto occupancy for travelers switching to Amtrak. The weighted auto occupancy that was used amounted to 1.58 people per vehicle.

Current air fares for flights from Bristol to Washington, DC (Tri-Cities Regional Airport to Ronald Reagan Washington National Airport) were used for those traveling south of Washington, DC. Because flights between Bristol and Roanoke or Lynchburg are limited, the analysis assumed that travelers would choose to fly only if they were traveling to Washington, DC. For those traveling north of Washington, DC, the average of air fares between Bristol to Philadelphia (Tri-Cities Regional Airport to Philadelphia International Airport) and Bristol to New York City (Tri-Cities Regional Airport to John F. Kennedy International Airport) were used. The average airfare from Bristol to Washington D.C. was calculated to be \$320, and the average airfare for someone traveling north of Washington, DC was calculated to be \$315. For the remaining percentage of riders who picked “other” as the mode that they would use if Amtrak was unavailable, an average of the bus, personal vehicle, and rental vehicle costs per person was used.

To calculate train travel costs that riders would incur when switching travel modes, the average fare along the corridor from Bristol to Washington, DC was calculated using estimated ridership and revenue sourced from Amtrak (Amtrak 2016a). Because riders traveling north of Washington, DC then would have to transfer at Union Station in Washington, DC, the average fare from Washington, DC to Philadelphia and New York, respectively, was obtained from Amtrak. The fare used was the Value Fare on the Northeast Regional service. These fares were averaged, and the resulting number was added to the average fare from Bristol to Washington, DC for those traveling north of Washington, DC. Assuming the aforementioned 85 percent/15 percent distribution, a weighted average fare per rider was calculated.

Total travel costs then were computed by multiplying the number of riders diverted from each mode by the estimated cost per rider. These costs then were summed to represent the costs avoided because of mode shift. As an offset, the fares that would be paid for riding Amtrak were calculated by multiplying the total diverted riders by the average Amtrak fare per rider. The total travel cost savings by Bristol residents was determined by subtracting the total Amtrak fares from the travel costs that would be avoided because of the mode shift.

**Travel Cost Savings**

Annual total travel cost savings to Bristol residents would range from \$11,000 to a little over \$15,000, depending on the ridership forecast scenario. Table 34 shows the travel cost savings by scenario.

**Table 34: Travel Cost Savings to Bristol Residents from the Amtrak Extension**

	<b>Amtrak Baseline + Extension</b>	<b>Amtrak Extension + Special Events</b>	<b>Amtrak Extension + Special Events + Faster Travel Time</b>
Annual Travel Cost Savings	\$11,850	\$11,850	\$15,125

Source: Compiled by AECOM in 2019. Note: Values rounded to nearest \$25.

Although the travel cost savings would not be large, they would represent a benefit to the residents of Bristol and the local economy because of the availability of a lower cost mode of transportation. Because

of the magnitude of the benefits, these savings alone would be unlikely to support employment throughout the industry, but they would generate demand for goods in services in the area, helping to boost profits of local businesses.

## Chapter 5: Findings

This report addressed two questions: 1) whether existing projections of ridership and revenue were reliable, and 2) what economic impacts might be observed in Bristol if passenger rail service were restored.

Chapter 3 evaluated the projections and found them to be reasonable, and perhaps conservative given that they omit the impact of multiple large special events that take place annually in Bristol. Factoring in special events increased expected use of the system. Additional sensitivity analyses found that ridership increased if travel times could be reduced by two hours or if train service continued south and west of Bristol so that Bristol was no longer the terminus. Interviews with Amtrak riders, Bristol residents and business representatives yielded strong support for rail, providing qualitative survey confirmation of the model findings. While the link between rail service and Bristol's burgeoning tourism sector is very clear; the stakeholder interviews also described commercial links between existing businesses in Bristol and universities, commercial clients/contractors, and government agencies located along the corridor. The case study of Eastman Chemical highlights how passenger rail service would support these connections and further knit Bristol's economy together with the larger commercial base of the corridor.

While early in the planning process, the projected revenues for some of the scenarios tested appeared to be close to the preliminary operating and maintenance cost estimates. While at an early stage of planning and subject to further refinement, this is a promising finding.

Chapter 4 described the estimation of a variety of individual economic impacts. These spanned the jobs and earnings supported by the construction activity, the ongoing jobs to operate and maintain the service, and the net change in tourism associated with a rail extension. These impacts describe net new changes that would not occur but for rail's availability. While passenger rail supports all of Bristol's tourism sector, the net impacts described in Chapter 4 are jobs and earnings that would not occur but for rail. This is based on survey responses that described trips that would not have been made except for the availability of rail—induced demand.

Individually, the economic impacts are small, but collectively they yield a positive economic development return on investment relative to the capital costs<sup>5</sup> when considered over a 20-year payback period. This economic return on investment sets aside the value of bolstering Bristol's economic turnaround and focuses only on the net new gains that could be measured. Table 35 summarizes these findings. As the impacts describe a net new gain to the economy, these represent an expansion of the tax base as well. Table 36 describes the tax yield associated with this gain.

Given the information available at the time this analysis was completed and the assumptions made, restoring passenger rail service would yield a positive economic development return on investment. Moreover, there are a number of upside risks that could drive larger results. The introduction of a casino, investing to support faster service, and continuing the train to Tennessee would all increase ridership and strengthen the impacts.

Capital costs are based on the best available information from past studies at the time of the study. New engineering costs were not developed as part of this study. It is anticipated that Norfolk Southern may

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<sup>5</sup> Capital costs are based on the best available information from past studies at the time of the study. New engineering costs were not developed as part of this study. Norfolk Southern may study the exact capital investments needed to accommodate and support passenger rail service to Bristol in partnership with VDRPT in the future. These results were not available to the economics team at the time of the study; hence the reliance on past study findings.

undertake a study of the exact capital investments needed to accommodate and support passenger rail service to Bristol in partnership with VDRPT. These results were not available to the economics team at the time of the study; hence the reliance on past study findings. The largest downside risk to the findings of this report are that the eventual cost estimates required to keep the freight rail operations that share the track whole are much higher than anticipated in this study.

**Table 35: Summary of Temporary and Recurring Impacts**

<b>Temporary Impacts (construction)</b>					
<b>Estimate</b>	<b>Average Job Years over Construction Period</b>	<b>Total Job Years</b>	<b>Average Total One-Year Earnings (2018 \$)</b>	<b>Total Earnings (2018 \$)</b>	<b>NPV Total Earnings @ 4.5% (2018 \$)</b>
High Cost Estimate	201	602	\$9,800,000	\$29,400,000	\$26,900,000
Low Cost Estimate	186	559	\$9,000,000	\$27,100,000	\$24,800,000
<b>Recurring Impacts, including O&amp;M Cost and Tourism Impacts (20-year analysis period)</b>					
<b>Estimate</b>	<b>Average Job Years</b>	<b>Total Job Years (over 20-year period)</b>	<b>Average Total One-Year Earnings (2018 \$)</b>	<b>20-Year Total Earnings (2018 \$)</b>	<b>NPV 20-Year Total Earnings @ 4.5% (2018 \$)</b>
<b>O&amp;M Impact</b>					
O&M High Cost Estimate	57	1,144	\$4,400,000	\$87,800,000	\$50,100,000
O&M Low Cost Estimate	36	728	\$2,800,000	\$55,900,000	\$31,900,000
<b>Tourism Impact</b>					
Amtrak Extension + Special Events	5	100	\$120,000	\$2,400,000	\$1,400,000
<b>Total</b>					
High Cost Estimate Total	-	1,244	-	\$90,200,000	\$51,500,000
Low Cost Estimate Total	-	828	-	\$58,300,000	\$33,300,000

Notes: NPV means net-present value at 4.5 percent discount rate. Impacts include Bristol and elsewhere in Virginia. Construction is scheduled for 2019–2021; service is assumed to start in 2022. Values rounded.

Source: Compiled by AECOM in 2019

**Table 36: Summary of State and Local Fiscal Impacts**

<b>State and Local Taxes</b>	<b>Average Annual Impact (2018 \$)</b>	<b>Total Revenue Yield (2018 \$)</b>	<b>NPV Total Revenue Yield @ 4.5% (2018 \$)</b>
<b>Temporary Impacts</b>			
High Cost Estimate	\$838,000	\$2,500,000	\$2,300,000
Low Cost Estimate	\$771,000	\$2,300,000	\$2,100,000
<b>Recurring Impacts, including O&amp;M Cost and Tourism Impacts (20-year analysis period)</b>			
O&M High Cost Estimate	\$420,000	\$8,400,000	\$4,800,000
O&M Low Cost Estimate	\$277,000	\$5,500,000	\$3,200,000
<b>Total Fiscal Impacts (Temporary and Recurring)</b>			
High Cost Estimate Total	-	\$10,900,000	\$7,100,000
Low Cost Estimate Total	-	\$7,800,000	\$5,300,000

Notes: NPV means net-present value at 4.5 percent discount rate. Impacts include Bristol and elsewhere in Virginia. Construction is scheduled for 2019–2021; service is assumed to start in 2022. Values rounded. Tourism estimate uses the “Extension + Special Events” scenario.

Source: Compiled by AECOM in 2019

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## Appendix B Online Survey Questionnaire to Stakeholders in Greater Bristol

**Introduction:** We are conducting an important survey that will help plan transportation in your area. This survey is completely voluntary and any answers you give are kept strictly private. We will be asking you questions about the economic development potential in the area if Amtrak intercity passenger rail service serves Bristol.

1. Are you a Bristol resident?  
 Yes  
 No
  
2. What is your **main** connection to Bristol? (select one)  
 Business owner  
 Public employee  
 Non-governmental organization employee  
 Other: \_\_\_\_\_
  
3. How would Amtrak intercity passenger rail service in Bristol benefit you and/or your business?  
\_\_\_\_\_  
\_\_\_\_\_
  
4. Do you have **any** concerns related to potential Amtrak service in Bristol?  
*(For example, safety issues, traffic congestion, aesthetic change, etc.)*  
\_\_\_\_\_  
\_\_\_\_\_
  
5. What are some potential economic development and/or tourism opportunities (including special events) that would be made feasible or improved with Amtrak service in Bristol?  
*(For example, supporting current and new events, promoting new businesses, developing new relationships with organizations in other cities, etc.)*  
\_\_\_\_\_  
\_\_\_\_\_
  
6. What types of mechanisms for leveraging Amtrak intercity service for economic development would you be willing to employ and/or support?  
*(For example, keeping restaurants and shops open later hours, encouraging zoning changes, modifying the local bus network to feed the station, promoting transit-oriented development around the station, etc.)*  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix C Bristol Stakeholder Survey Summary

The online survey was administered between April 2nd and May 1st, 2018. A total of 219 stakeholders responded to the survey. Out of the 219 stakeholders, 162 (74 percent) are Bristol residents and the remaining 57 are from other towns and cities. The survey was advertised through several means including: press notices, announcements at local meetings, and cards distributed at local shops and venues.

Among the stakeholders answering the surveys, there were business owners, NGO employees, public employees, as well as Bristol and neighboring cities' residents that are not any of the three categories above.

Main Connection to Bristol	Total	Percentage	Number of Residents	Number of Non-Residents
Business owner	51	23%	38	13
Public employee	32	15%	25	7
Non-governmental organization employee	35	16%	30	5
Other: Bristol resident	68	31%	68	–
Other: Bristol non-resident	32	15%	–	32

The survey asked four open-ended questions to all stakeholders. Answers were classified by categories to summarize the feedback.

### How would Amtrak intercity passenger rail service in Bristol benefit you and/or your business?

This question was answered by 204 stakeholders who identified two main benefits to Bristol residents and businesses. Among the respondents, 72 percent mentioned that they would use the train for personal or business travel, and 34 percent agree that the new service would attract tourists and promote the local economy. A small number of stakeholders (2 percent of all responses) expressed that the new service would not benefit them or their business.

Benefits to you and/or your business	Reponses	Percentage
Increase personal or/and business travel	129	63%
Promote tourism helping local businesses	50	25%
Both	19	9%
None	5	2%

### Do you have any concerns related to potential Amtrak service in Bristol? (For example, safety issues, traffic congestion, aesthetic change, etc.)

The majority of stakeholders stated that they do not have any concerns related to the new service (i.e., 151 out of 182 responses). Among the mentioned concerns, the top three were traffic congestion, safety issues, and lack of parking at the station.

The table below presents the main concerns highlighted by stakeholders. They identified between one and three concerns each, of a total of 10 different options. In addition to the concerns listed below, they

mentioned cost of the new service, lack of local transportation services within Bristol, connectivity with other big cities not proposed for the extension, and the need to offer a faster service (and not adding stations between large towns).

Main concerns	Responses
None	151
Safety (at crossings, rail lines)	9
Congestion	7
Lack of parking at the station	8
Aesthetics (preservation, maintenance, and care of the historic Bristol Train Station)	4
Criminal activities	3

**What are some potential economic development and/or tourism opportunities (including special events) that would be made feasible or improved with Amtrak service in Bristol?** (For example, supporting current and new events, promoting new businesses, developing new relationships with organizations in other cities, etc.)

Stakeholders provided a large array of answers to this question, with a number of them mentioning several economic opportunities. The three most cited opportunities were to promote existing and new events and festivals; to promote tourism in general; and to boost local businesses (including hotel, restaurants and retail shops). Out of 168 answers, 91 stakeholders mentioned events, 74 mentioned tourism, and 51 mentioned the local economy.

Complementing the referenced main opportunities, stakeholders highlighted the importance of coordinating with other cities and developing new partnerships. Attracting new residents, increasing transportation services downtown, and promoting real estate development were mentioned as well. Only 2 stakeholders said that there would be no economic benefits from the potential new service.

Main economic opportunities	Responses
Promote events/festivals	91
Promote tourism	74
Boost local business	51
Promote new partnerships	10
Attract new residents	6
Increase transportation services	4
Promote real estate development	3
None	2

**What types of mechanisms for leveraging Amtrak intercity service for economic development would you be willing to employ and/or support?** (For example, keeping restaurants and shops open later hours, encouraging zoning changes, modifying the local bus network to feed the station, promoting transit-oriented development around the station, etc.)

A total of 146 stakeholders answered this question. Aligned with previous answers, 110 of them agree and support at least one of the following mechanisms: modifying the local bus network, extending the business hours of restaurants and shops, making changes to the zoning ordinance, and/or promoting transit-oriented development in downtown. Over 20 stakeholders expressed interest in advertising the new service. There are 81 stakeholders that requested that the bus network is modified, the transportation network companies (TNC) and /or taxi companies increases, or trolley/shuttle bus options are added.

Mechanisms for leveraging Amtrak services	Responses
Extend business hours	84
Modify local bus network	75
Change zoning ordinance (e.g. create “Historic District”)	55
Promote transit-oriented development	56
Advertise and patronize the service	21
Increase TNC/taxi service	15
Assign new parking locations	4
Add trolley/shuttle bus options	4
Attract new businesses	7
Encourage rental car business	4
I don't know	9
None	3

Among the stakeholders expressing interest in extending the business hours, 69 are residents and 15 are not. Out of the 69 residents, 22 are business owners.

## Appendix D Online Survey Questionnaire to Stakeholders in Lynchburg, Roanoke and Norfolk

**Introduction:** We are conducting an important survey that will help plan transportation in the Greater Bristol area. This survey is completely voluntary and any answers you give are kept strictly private. We will be asking you questions about the economic development in your area “before and after” Amtrak service started operating.

1. Are you a resident of Lynchburg, Roanoke or Norfolk?
  - Lynchburg
  - Roanoke
  - Norfolk
  - Not a resident of any, but I have a connection to one of these places
  
2. What is your **main** connection to Lynchburg, Roanoke, or Norfolk? (select one)
  - Business owner
  - Public employee
  - Non-governmental organization employee
  - Other: \_\_\_\_\_
  
3. In advance of the extension of Amtrak intercity passenger rail service to your community, what steps did you or your community take to make the service viable? And later successful?  
*(For example, increased hours of restaurants and shops downtown, promoted transit-oriented development around station, changed the local bus network, changed zoning ordinances to allow for development near the station, etc.)*  
\_\_\_\_\_  
\_\_\_\_\_
  
4. What types of economic development did you anticipate occurring with the implementation of Amtrak service in your community?  
*(For example, supporting current and new events, promoting new businesses, developing new relationships with organizations in other cities, etc.)*  
\_\_\_\_\_  
\_\_\_\_\_
  
5. What types of economic development actually occurred with the implementation of Amtrak service in your community?  
\_\_\_\_\_  
\_\_\_\_\_
  
6. Were there **any** barriers or challenges in bringing Amtrak service to your community? If so, what were they and how were they overcome?  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix E Amtrak Rider Survey

**Introduction:** The City of Bristol, Virginia in conjunction with the Community Transportation Association of America (CTAA) is conducting an important survey that will help plan transportation in your area. This survey is completely voluntary and any answers you give are kept strictly private. We will be asking you questions about the current trip that you are taking on Amtrak. *Please note that this survey is being conducted with permission from Amtrak, but is not sponsored by Amtrak.*

Date of Survey: 04/ \_\_\_ / 2018 Train Number: \_\_\_\_\_ Direction:  Northbound  Southbound

1. What city or town are you traveling from (before going to the train station)?  
Origin city: \_\_\_\_\_ ; Origin state: \_\_\_\_\_
  
2. Which one of the following best describes the **main** form of transportation you used to get to the station to board the train? (**Select only one answer**)
  - 1 Transit (bus or rail)
  - 2 Personal vehicle – parked at station
  - 3 Personal vehicle – dropped off at station
  - 4 Taxi, Uber or Lyft
  - 5 Rental vehicle
  - 6 Walk or bike
  - 7 Some other way (specify): \_\_\_\_\_
  
3. At which station did you board the train? \_\_\_\_\_
  
4. At which station did you get off the train? \_\_\_\_\_
  
5. What city or town is your final destination (after leaving the train station)?  
Destination city: \_\_\_\_\_ ; Destination state: \_\_\_\_\_
  
6. Which one of the following best describes the **main** form of transportation you used to get from the station to your final destination? (**Select only one answer**)
  - 1 Transit (bus or rail)
  - 2 Private vehicle – parked at station
  - 3 Private vehicle – picked up at station
  - 4 Taxi, Uber or Lyft
  - 5 Rental vehicle
  - 6 Walk or bike
  - 7 Some other way (specify): \_\_\_\_\_

7. What is the **primary** purpose of your trip? **(Select only one answer)**
  - 1 Commuting to or from regular work location
  - 2 Other business travel
  - 3 Traveling to/from school
  - 4 Social, recreation or leisure
  - 5 Personal business (errands, healthcare appointment)
  - 6 Other purpose: \_\_\_\_\_
  
8. Did you purchase a one-way or a round-trip ticket for this trip?
  - 1 One-way
  - 2 Round-trip
  
9. What total fare do you remember paying for your train ticket (either one-way or round-trip, as you reported above)? If you traveled with other people, please just provide the amount for your individual fare.  
 \$\_\_\_\_\_
  
10. Did you travel alone or in a group on this trip?
  - 1 Alone Skip to Question 13
  - 2 In a group Continue with all questions
  
11. Which one of the following **best** describes the other people in your group?
  - 1 Family
  - 2 Friends
  - 3 Business associates
  
12. **Including yourself**, how many people were in the group? \_\_\_\_\_
  
13. If rail were not available for your trip, what mode would you have used (or would you not have traveled at all)? Example one-way travel times and costs are shown below for the major mode options for a trip between Roanoke and Washington, D.C. **(Select only one answer)**

	<b>Auto</b>	<b>Bus</b>	<b>Air</b>	<b>Rail</b>
Travel Time	4 hours	6 hours	1 hour	5 hours
Travel Cost	\$40 (fuel only)	\$50	\$300	\$80

- 1 Personal vehicle
  - 2 Rental vehicle
  - 3 Bus
  - 4 Air
  - 5 Other: \_\_\_\_\_ (e.g. taxi, Uber, Lyft)
  - 6 Not traveled at all
- 
14. How much money do you estimate you spent for **yourself** (not your entire group) while on the train (e.g. food/drinks)?  
 \$\_\_\_\_\_ (one-way)

15. How much money do you estimate you spent for **yourself** (not your entire group) away from home during your trip (including food/drinks, retail, event tickets, transit/parking/taxi, etc.)?

\$\_\_\_\_\_ (for the entirety of your time at your destination, not including the travel to and from)

16. Comments you would like to share (for example, trip experience, willingness to return, etc.):

---

## Appendix F Amtrak Rider Survey Results

As the travel market can change over the course of a week, the survey was administered on two week days and two weekend days: April 11<sup>th</sup>, 12<sup>th</sup>, 14<sup>th</sup>, and 15<sup>th</sup>. The April 11<sup>th</sup> and 12<sup>th</sup> surveys were conducted to capture southbound and northbound weekday ridership, respectively. April 14<sup>th</sup> and 15<sup>th</sup> surveys were conducted to capture southbound and northbound weekend ridership, respectively. The surveys were conducted on both weekdays and weekends, in order to cover a variety of trip purposes. Weekday trips may have a larger business share, while weekends can be more recreationally focused. Table 37 shows the schedule for the trains passing through the two stations, on which we based the surveyor schedule.

*Table 37: Schedule of Surveyed Trains*

Day	Monday–Friday		Saturday		Sunday	
Direction	SB	NB	SB	NB	SB	NB
Train Number	171	176	147	156	145	156
Lynchburg	8:33 p.m.	7:34 a.m.	8:06 p.m.	9:52 a.m.	8:26 p.m.	9:52 a.m.
Roanoke	9:58 p.m.	6:15 a.m.	9:32 p.m.	8:33 a.m.	9:52 p.m.	8:33 a.m.

A total of 136 riders on 4 trains filled out the 16–question survey, either in paper form while on the train, or later online, using the URL provided on a card. Table 38 summarizes the completed surveys by train number. Two respondents provided an incorrect train number and one respondent did not know the number of their train.

*Table 38: Number of Respondents Surveyed per Train*

Day Type	Weekday		Weekend	
Day	April 11	April 12	April 14	April 15
Direction	SB	NB	SB	NB
Train Number	171	176	147	156
Number of surveys	30	33	35	35

### *Origin and Destination of Riders*

Among the questions asked as part of the survey, were the origin and destination stations of travelers. The results are presented in Table 39. The table does not represent the origin–destination pairs but instead shows the most common major stations that served as the origin or destination.

**Table 39: Origin and Destination of Surveyed Riders**

Station	Origin		Destination	
	Count	Percentage	Count	Percentage
Roanoke, VA	56	41%	34	25%
Lynchburg, VA	16	12%	10	7%
Charlottesville, VA	3	2%	19	14%
Alexandria, VA	5	4%	12	9%
Washington, DC – Union Station	27	20%	31	23%
Other	29	21%	30	22%
North of Washington, DC	25	18%	20	15%
<i>Other Virginia</i>	4	3%	9	7%
<b>Total</b>	<b>136</b>		<b>136</b>	

Roanoke and Washington’s Union Station were the two most common origin and destination stations among those surveyed. The survey revealed that some riders either started or finished their journey north of Washington, DC. While none of those stations made up a significant portion of overall travelers, they included Baltimore Penn, New York Penn, and Boston Back Bay and Boston South stations. These stations are anywhere from 250 miles, as in the case of Baltimore, to 680 miles, as in the case of Boston, away from Roanoke. Among origins or destinations north of Washington, DC, New York Penn Station made up nearly half the origins and nearly one third of the destinations. This shows that while the train mostly serves riders traveling within Virginia, there are some who use it to travel along the Northeast Corridor.

As seen in Table 40, three quarters of all riders traveled for less than 300 miles by train, and nearly one half of all riders traveled between 200 and 300 miles. Fourteen percent of riders traveled over 400 miles, which highlights that to some the route serves as a connection to other cities along the Northeast Corridor.

**Table 40: Distance Traveled Between Origin and Destination Stations**

Distance Traveled	Number of Respondents	Percentage
0–100 Miles	7	5%
100–200 Miles	30	22%
200–300 Miles	65	48%
300–400 Miles	15	11%
400+ Miles	19	14%
<b>Total</b>	<b>136</b>	<b>100%</b>

### ***Main Trip Purpose***

Surveyed riders were also asked about the main purpose of their trip. They were only able to select one answer. The results are shown in Table 41, broken out by weekday and weekend passengers.

**Table 41: Weekday and Weekend Riders by Trip Purpose**

Trip Purpose	Weekday		Weekend		Total	
	Count	Percent	Count	Percent	Count	Percent
Social, recreation or leisure	40	63%	50	69%	<b>90</b>	<b>66%</b>
Personal business (errands, healthcare appointment)	8	13%	8	11%	<b>16</b>	<b>12%</b>
Other business travel	12	19%	5	7%	<b>17</b>	<b>13%</b>
Other purpose (please specify)	1	2%	4	6%	<b>5</b>	<b>4%</b>
Traveling to/from school	2	3%	4	6%	<b>6</b>	<b>4%</b>
Commuting to or from regular work location	1	2%	1	1%	<b>2</b>	<b>1%</b>
<b>Total</b>	<b>64</b>	<b>100%</b>	<b>72</b>	<b>100%</b>	<b>136</b>	<b>100%</b>

There was a drop in business travel during the weekend, but otherwise, there were no significant differences between trip purpose of weekday and weekend riders. Among all riders surveyed, two thirds were making the trip for social, recreation, or leisure purpose, with 12 percent and 13 percent making the trip for personal business and business travel, respectively. Additionally, those who cited “Other” as the purpose of their trip generally specified a purpose that would likely be considered recreational or social, like going hiking or visiting family and loved ones. In the context of extending the rail service to Bristol, there is a high likelihood that a substantial portion of trips will be made for social, recreational, or leisure purposes, generating tourism revenue for the Bristol area.

### ***Number of People Traveling***

Riders were asked whether they were traveling alone or in a group, and if they were traveling in a group, how many people were in the group. Table 42 shows the responses.

**Table 42: Number of Surveyed Riders Traveling Alone or in Groups**

<b>Number of People Traveling</b>	<b>Total Respondents</b>	<b>Percent of Total</b>
Alone	89	65%
2	28	21%
3	6	4%
4 or more	13	10%
<b>Total</b>	<b>136</b>	<b>100%</b>

Nearly two thirds of respondents indicated that they were traveling alone and 21 percent stated they were traveling with another person. Those who were not traveling alone were asked whether they were traveling with family, friends, or business associates. The responses are shown in Table 43.

**Table 43: Number of Surveyed Riders by Type of Group**

	<b>Total Respondents</b>	<b>Percent of Total</b>	<b>Percent of Group Travelers</b>
Alone	89	65%	
Family	27	20%	57%
Friends	15	11%	32%
Business associates	5	4%	11%
<b>Total</b>	<b>136</b>	<b>100%</b>	<b>100%</b>

The majority of surveyed riders who were not traveling alone stated they were traveling with family, and nearly one third stated they were traveling with friends. In context of extending the rail service to Bristol, this finding ties in with the social/recreational purpose of many of these trips, as many people who travel in groups travel in the company of their family and friends.

### ***Average Fare***

Approximately 70 percent of respondents purchased round trip tickets, with the rest purchasing one-way tickets. To account for this difference, fares were calculated for a one-way trip. One-way fares for travel within Virginia and Washington, DC ranged from \$18 to \$83, depending on distance between origin and destination stations. For riders traveling further on the Northeast Corridor, one-way fares ranged from \$25 to \$212, depending on distance between origin and destination stations.

### ***Average Reported Spending on Trip and on Train***

Riders were asked to estimate spending on their trip (for themselves only, excluding expenses incurred while traveling to their destination, like train fare), as well as their spending on the train on food, drink,

and similar items, during a one-way trip. The average of the reported amounts, by trip purpose, is summarized in Table 44.

**Table 44: Average Spending per Respondent by Trip Purpose**

Trip Purpose	Spending on Trip			Spending on Train (one-way)		
	Weekday	Weekend	All Respondents	Weekday	Weekend	All Respondents
Social, recreation or leisure	\$213	\$210	\$211	\$7	\$8	\$8
Personal business (errands, healthcare appointment)	\$266	\$103	\$184	\$8	\$30	\$19
Other business travel	\$352	\$340	\$348	\$12	\$8	\$11
Traveling to/from school	\$88	\$33	\$51	\$0	\$0	\$0
Commuting to or from regular work location	\$0	\$40	\$20	\$24	\$0	\$12

Overall, business travelers reported spending the most during their trip, followed by leisure travelers and those making the trip for personal business. Commuters and students traveling to/from school were the two groups that spent the least on their trips. These results are in line with expectations, as business travelers are likely to spend the most and commuters and students would be spending less than leisure travelers, given the nature of the trips and that their trips are also less likely to be multi-day trips that require hotels and other discretionary spending. Spending during the trip was generally higher on weekdays, especially for those making the trip for personal business.

Spending on the train had a much smaller variance across the trip purposes, where riders making the trip for personal business spent the most money, followed by commuters, and business travelers. Leisure travelers and students spent the least while on the train.

### ***Mode Used if Amtrak Were Unavailable***

Surveyed riders were also asked what mode they would have used to travel if Amtrak service were unavailable. The results are presented in Table 45. As the respondent's home station is unknown, answers were combined to account for both origin and destination stations.

The majority of the riders surveyed stated that they would have made the trip using their personal vehicle, if Amtrak were unavailable. Nineteen percent of all surveyed riders stated that they would not have traveled at all. Of note, 21 percent of Roanoke travelers (one in five) responded that they would not have made the trip but for the availability of rail. Roanoke is the current southern terminus on the corridor. Traveling by plane, bus, and rental vehicle were the next most popular responses.

***Mode Used to Travel to or From Station***

Surveyed riders were also asked what mode they used to travel to and from the train station. As the respondent's home station is unknown, answers were combined for origin and destination stations. The results are presented in Table 46, broken out by station.

While the most common mode to travel to and from the station was a private vehicle, the responses varied by location. Among riders from Roanoke, Lynchburg, and Charlottesville, this was the most common response; it was less common in Alexandria, and especially in Washington, DC. Transit was a more common option for stations near a robust public transit system.

Table 45: Mode Used if Amtrak Was Unavailable

	Roanoke, VA	Lynchburg, VA	Charlottesville, VA	Alexandria, VA	Washington, DC – Union Station	Other	Total
Bus	8%	8%	19%	12%	9%	7%	9%
Personal vehicle	54%	50%	33%	59%	58%	40%	50%
Air	11%	27%	10%	0%	7%	26%	14%
Not traveled at all	21%	15%	19%	18%	19%	16%	19%
Rental vehicle	4%	0%	19%	12%	7%	7%	7%
Other (e.g. taxi, Uber, Lyft. Please specify)	1%	0%	0%	0%	0%	5%	1%
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Results color coded, with darker shades of blue representing higher percentages and lighter shades of blue representing smaller percentages.

Table 46: Mode Used to Travel to and from the Station

	Roanoke, VA	Lynchburg, VA	Charlottesville, VA	Alexandria, VA	Washington, DC – Other Union Station	Total	
Private vehicle – dropped off or picked up at station	38%	54%	38%	24%	9%	28%	30%
Transit (bus or rail)	11%	4%	0%	29%	36%	20%	18%
Taxi, Uber or Lyft	19%	12%	24%	29%	34%	35%	26%
Private vehicle – parked at station	27%	31%	24%	6%	10%	10%	18%
Walk or bike	4%	0%	14%	12%	10%	5%	7%
Other (including rental vehicle)	1%	0%	0%	0%	0%	2%	1%
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Results color coded, with darker shades of blue representing higher percentages and lighter shades of blue representing smaller percentages.

### ***Respondent Comments***

Respondents also had a chance to leave additional comments. Approximately half of the respondents left a comment at the end of the survey. The Table 47 summarizes the nature of these comments.

**Table 47: Types of Feedback Received**

<b>Type of Feedback</b>	<b>Count</b>	<b>Percentage</b>
Positive Feedback About Current Service	44	32%
Positive Feedback About Bristol Extension	11	8%
Negative Feedback About Current Service	6	4%
Negative Feedback About Bristol Extension	1	1%
Other Comments	11	8%
No Feedback	63	46%
<b>Total</b>	<b>136</b>	<b>100%</b>

Most comments received were positive feedback about the Amtrak service they are currently taking. Several riders complained about delays or the quality of the Wi-Fi signal, but overall were happy with their trip. Several people left comments that were supportive of the extension of Amtrak service to Bristol.

There were not many negative comments, with only one pertaining to the extension of Amtrak service to Bristol. The rest of the comments could not be classified as either purely positive or negative. Some of them included either additional information about the respondent's trip or suggestions to improve the service overall. Some of the more relevant comments in the "Other" category included:

- "At least 2 trips of trains: one leave in the AM and one leave in the PM"
- "Divert a Northeast Regional train to Lynchburg and then on to the normal Lynchburg to Boston Route"

## Appendix G Bristol Visitor Survey

**Introduction:** The City of Bristol, Virginia in conjunction with the Community Transportation Association of America (CTAA) is conducting an important survey that will help plan transportation in the Bristol area, with the potential to extend Amtrak service from Roanoke to Bristol (connecting to the Northeast Corridor). This survey is completely voluntary and any answers you give are kept strictly private. We will be asking you questions about your travel to Bristol. *This survey makes no promise of future service.*

1. Do you live in the Bristol Metropolitan Area?
  - 1 Yes
  - 2 No

**STOP SURVEY if respondent answers “Yes”**

2. In which city or town do you live?  
Home city: \_\_\_\_\_ ; Home state: \_\_\_\_\_
3. On average, how often do you visit the City of Bristol? **(Select only one answer)**
  - 1 Weekly
  - 2 Monthly
  - 3 3–4 times per year
  - 4 1–2 times per year
  - 5 Rarely
4. What is your **primary** purpose for visiting Bristol? **(Select only one answer)**
  - 1 Commuting to or from regular work location
  - 2 Other business travel
  - 3 Traveling to/from school
  - 4 Social, recreation or leisure
  - 5 Personal business (errands, healthcare appointment)
  - 6 Other purpose: \_\_\_\_\_
5. Do you have any other reasons for visiting Bristol? **(Can select multiple answers)**
  - 1 Commuting to or from regular work location
  - 2 Other business travel
  - 3 Traveling to/from school
  - 4 Social, recreation or leisure
  - 5 Personal business (errands, healthcare appointment)
  - 6 Other purpose: \_\_\_\_\_
  - 7 No other purpose
6. What specific events do you attend in Bristol? **(Can select multiple answers)**
  - 1 NASCAR races
  - 2 Rhythm & Roots Festival
  - 3 Sporting events
  - 4 Other event: \_\_\_\_\_
  - 5 None

Now regarding the event you are participating :

7. For **this** trip to Bristol, are you traveling alone or in a group?
  - 1 Alone                      Skip to Question 9
  - 2 In a group                Continue with all questions
  
8. Which one of the following **best** describes the other people in your group?
  - 1 Family
  - 2 Friends
  - 3 Business associates
  
9. **Including yourself**, how many people are in the group?  
 \_\_\_\_\_
  
10. Which one of the following best describes the **main** form of transportation you used to travel to and from Bristol?
  - 1 Personal vehicle
  - 2 Rental vehicle
  - 3 RV
  - 4 Bus
  - 5 Air
  - 6 Other mode: \_\_\_\_\_ (e.g. taxi, Uber, Lyft, etc.)
  
11. How much money do you estimate that you spent for **yourself** (not your entire group) while traveling **to and from** Bristol (including food/drinks, fuel, parking, lodging, etc.)?  
 \$ \_\_\_\_\_ (round trip)
  
12. How much money do you estimate you will spend for **yourself** (not your entire group) for your stay in Bristol (including lodging, food/drinks, transportation around Bristol, event tickets, retail, etc.)  
 \$ \_\_\_\_\_ (for the stay, not including travel)

For the next two questions, we would like to ask about how you might travel to Bristol in the future, if rail service is introduced extending Amtrak from Roanoke to Bristol. For your reference, the table below shows example characteristics of a one-way trip from Bristol to Washington, D.C.

	<b>Auto</b>	<b>Bus</b>	<b>Air</b>	<b>Rail</b>
<b>Travel Time</b>	6 hours	11 hours	3.5 hours	9.25 hours
<b>Travel Cost</b>	\$55 (fuel only)	\$85	\$275	\$100
<b>Requires Transfer</b>	No	Yes	Yes	No

13. On a scale of 1 to 10, if rail service is introduced extending Amtrak from Roanoke to Bristol, connecting up to the Northeast Corridor, how likely are you to take the train instead of your current transportation mode? **(Circle one option)**

1—not at all   2   3   4   5—possibly   6   7   8   9   10—very likely

14. Select **up to three of the top factors** that will influence you to take the train to the City of Bristol, assuming rail is available:

- Less travel time
- Convenience of schedule (departure and arrival times)
- Ability to work or relax during the trip
- Novelty of taking the train
- Lower overall travel cost
- Ease of traveling in a group
- None, would not travel by train
- Other: \_\_\_\_\_

15. Comments you would like to share (for example, trip experience, willingness to return, etc.):

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***If you would like to be entered into a raffle for a prize, please enter your contact information here so that we can notify you if you win!***

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Thank you for your time!

## Appendix H Bristol Visitor Survey Results

The survey was administered from April 6th to May 29th in order to capture information from visitors attending several major events that were held in Bristol, including the Food City 500 NASCAR race and DER Bracket Racing competition. The results of the survey highlight the origin of Bristol visitors, the purpose of their visit, how often they visit the area, and how much they spend while they are in Bristol. All results are based on the total number of survey records and are not necessarily representative of all Bristol visitors. This information will be used to support the economic impact analysis of an Amtrak extension to Bristol. Table 48 shows the events held in Bristol during the survey period.

*Table 48: Events during the Survey Period*

Event	Location	Dates
NASCAR Weekend (Food City 500)	Bristol Motor Speedway	April 13–15, 2018
DER Bracket Racing Series	Bristol Motor Speedway	April 20–22, 2018
Short Track US Nationals (Racing)	Bristol Motor Speedway	May 18–20, 2018

Survey flyers were also placed at local businesses with the help of the Believe in Bristol organization to broaden the visitor response. To ensure that only visitors from outside the Bristol Metropolitan Statistical Area (MSA) were surveyed, respondents were asked whether they were from the Bristol area, and then were asked from what city they were coming. Some respondents indicated that they are not from the Bristol area but provided an origin city that is within the Bristol MSA (Johnson City, Tennessee, for example); therefore they were classified as locals. Out of 90 surveys, 58 were filled out by visitors to Bristol. Of the 58 visitor respondents, seven did not fill out the rest of the survey. Table 49 shows the breakdown of the number of visitors and resident responses.

*Table 49: Number of Respondents Surveyed*

	Responses	Percent of all Respondents
Bristol MSA Residents	32	36%
Bristol Area Visitors (unfinished surveys)	7	8%
Bristol Area Visitors (completed surveys)	51	57%
<b>Total</b>	<b>90</b>	<b>100%</b>

### *Origin of Visitors*

Since this is a study for an intercity train service, the analysis was performed only on the 51 surveys filled out by respondents from outside of the Bristol MSA, as those visitors could potentially use the proposed service to attend events in the MSA. There was a separate survey conducted for local stakeholders as well as public outreach, to help assess the benefits of the proposed service to Bristol MSA residents.

The respondents in this survey came from a variety of states, with Tennessee being the most common origin state, followed by Ohio, Illinois, and North Carolina. No city or metropolitan area made up a substantial portion of surveyed visitors, however. There were also a small number of international visitors, mostly from Canada, highlighting some international appeal of events held in Bristol, especially the NASCAR races. Table 50 shows the number of surveyed visitors by origin.

*Table 50: Number of Visitors by Origin*

<b>Origin</b>	<b>Number of Visitors</b>	<b>Percent of All Visitors Surveyed</b>
Tennessee	11	22%
<i>Rogersville</i>	2	4%
<i>Other</i>	9	18%
Ohio	5	10%
Illinois	4	8%
North Carolina	4	8%
Michigan	2	4%
Florida	2	4%
Georgia	2	4%
Indiana	2	4%
Maryland	2	4%
Missouri	2	4%
Pennsylvania	2	4%
Virginia	2	4%
District of Columbia	1	2%
Iowa	1	2%
Maine	1	2%
Mississippi	1	2%
South Carolina	1	2%
Texas	1	2%
Wisconsin	1	2%
Outside of United States	4	8%
<b>Total Visitors</b>	<b>51</b>	<b>100%</b>

### ***Frequency and Purpose of Visits to Bristol***

Visitors were also asked about the frequency of their visits to Bristol. Most respondents stated that they visit Bristol one to two times per year. Table 51 shows the frequency of visits to Bristol among surveyed visitors.

**Table 51: Frequency of Visits to Bristol**

<b>Frequency of Visits to Bristol</b>	<b>Count</b>	<b>Percent of Visitors Surveyed</b>
Monthly	1	2%
3–4 times per year	7	14%
1–2 times per year	40	78%
Rarely	3	6%
<b>Total</b>	<b>51</b>	<b>100%</b>

Visitors were also asked about the purpose of their trip. Most respondents stated that their primary purpose for visiting was social, recreation, or leisure. Nearly as many people chose “Other” as their purpose, and indicated that they were making the trip either to see a race or visit family. These reasons could also be considered as part of the “Social, recreation, or leisure” category. Table 52 shows the primary purposes of visits among visitors to Bristol.

**Table 52: Primary Purpose of Visits to Bristol**

<b>Primary Purpose</b>	<b>Count</b>	<b>Percent of Visitors Surveyed</b>
Social, recreation or leisure	26	51%
Personal business (errands, healthcare appointment)	2	4%
Other purpose (please specify)	23	45%
<i>Visiting family</i>	3	6%
<i>Race</i>	20	39%
<b>Total</b>	<b>51</b>	<b>100%</b>

Additionally, visitors were asked whether there were any other purposes to visit Bristol, beyond their primary stated purpose. Most stated that there was no other purpose, however, a sizable portion of respondents indicated they also come to Bristol to attend races, which could be considered as part of the “Social, recreation or leisure” category. Table 53 shows other purposes for visiting Bristol, provided by surveyed visitors.

**Table 53: Other Purposes for Visits to Bristol**

<b>Purpose</b>	<b>Count</b>	<b>Percent of Visitors Surveyed*</b>
Social, recreation or leisure	4	8%
Personal business (errands, healthcare appointment)	2	4%
Commuting to or from regular work location	1	2%
No other purpose	27	53%
Other purpose (please specify)	18	35%
<i>Race</i>	12	24%
<i>Family and/or friends</i>	5	10%
<i>Shopping</i>	1	2%

Note: \*Does not sum to 100 percent since visitors could identify more than one other purpose.

Respondents were asked what specific events they attend in Bristol (not necessarily for the trip they were surveyed about). The vast majority stated they attend NASCAR races, with 14 percent stating they attend the Rhythm & Roots Festival. Additionally, respondents selecting the “other” category cited visiting the Highlands Festival and the Barter Theatre in Abingdon, Virginia among the purposes for their trip to the Bristol MSA. Table 54 shows the responses among surveyed visitors.

**Table 54: Specific Events Attended in Bristol**

<b>Event</b>	<b>Count</b>	<b>Percent of Visitors Surveyed*</b>
NASCAR Races	45	88%
Rhythm & Roots Festival	7	14%
Sporting Events	3	6%
None	1	2%
Other (e.g. festivals, college events)	3	6%

Note: \*Does not sum to 100 percent since visitors could identify more than one other event.

### ***Number of People Visiting***

Respondents were also asked whether they were traveling alone or in a group, and if they were traveling in a group, how many people were in the group. Table 55 shows the responses.

**Table 55: Number of Surveyed Visitors Traveling Alone or in a Group**

	Count	Percentage
Alone	6	12%
2 people	28	55%
3 people	8	16%
4 or more	9	18%
<b>Total</b>	<b>51</b>	<b>100%</b>

The majority of respondents (nearly 90 percent) indicated that they were traveling with at least one other person. Those who were not traveling alone were asked whether they were traveling with family, friends, or business associates. The responses are shown in Table 56.

**Table 56: Number of Surveyed Visitors by Type of Group**

	Count	Percent of Visitors Surveyed	Percent of Group Visitors
Alone	6	12%	
In a group	45	88%	
<i>Family</i>	32	63%	71%
<i>Friends</i>	13	25%	29%
<b>Total</b>	<b>51</b>	<b>100%</b>	<b>100%</b>

The majority of all surveyed visitors, and more than two thirds of visitor groups surveyed, stated that they were traveling with family.

### ***Mode Used to Travel to Bristol***

Visitors were also asked about the mode of transportation that they took for the trip. Nearly nine out of ten respondents indicated that they drove to Bristol in a personal vehicle with the rest of surveyed visitors using an RV, bus, or a rental vehicle. Table 57 details the modes taken by respondents.

*Table 57: Mode Taken to Bristol*

<b>Mode</b>	<b>Count</b>	<b>Percentage</b>
Personal vehicle	45	88%
RV	3	6%
Bus	2	4%
Rental vehicle	1	2%
<b>Total</b>	<b>51</b>	<b>100%</b>

***Amount Spent on Trip***

Visitors were asked about their spending for their visit. First, they were asked to estimate the amount they spent on themselves while traveling to Bristol (excluding the time spent in Bristol). This amount includes food, drinks, fuel, parking, lodging, and any other similar expenditures. The responses were sorted by primary trip purpose. Table 58 shows the average amount spent by primary trip purpose.

*Table 58: Amount Spent While Traveling to Bristol*

<b>Primary Purpose</b>	<b>Amount Spent</b>
Social, recreation or leisure	\$257
Personal business (errands, healthcare appointment)	\$38
Other purpose (please specify)	\$893
<i>Visiting family</i>	<i>\$270</i>
<i>Race events</i>	<i>\$987</i>

Among the available trip purposes, visitors coming to Bristol for social, recreational, or leisure purpose spent significantly more than those traveling to Bristol for personal business. Among those that selected “Other purpose”, those who visited for races, on average, spent the most, however, this includes international travelers, some of whom reported very high travel costs, therefore, their spending may not be indicative of a typical visitor. International travelers could be a potential market for traveling to Bristol by rail though, if convenient airport connections are available.

Visitors were also asked about their spending while in Bristol, including on lodging, food/drinks, transportation around Bristol, event tickets, and retail. The responses were also sorted by primary trip purpose. Table 59 shows the average amount spent by primary trip purpose.

**Table 59: Amount Spent while in Bristol**

<b>Primary Purpose</b>	<b>Amount Spent</b>
Social, recreation or leisure	\$566
Personal business (errands, healthcare appointment)	\$0
Other purpose (please specify)	\$689
<i>Visiting family</i>	<i>\$267</i>
<i>Race events</i>	<i>\$752</i>

As with the amount spent while traveling to Bristol, visitors coming to Bristol for social, recreational, or leisure purpose spent more than those who came for personal business. Visitors who specified “Other purpose” but were there for a race spent more than visitors in any other category.

### ***Likelihood of Making Trip by Train***

Visitors were also asked about their likelihood of making the trip to Bristol by train, on a scale of 1 to 10, with 1 being the least likely and 10 being most likely. Responses were sorted by primary trip purpose. Table 60 shows the average likelihood of taking the train to Bristol by trip purpose.

**Table 60: Likelihood of Making the Trip by Train**

<b>Primary Purpose</b>	<b>Likelihood of Taking Train</b>	<b>Number of Respondents</b>
Social, recreation or leisure	5.8	26
Personal business (errands, healthcare appointment)	6.0	2
Other purpose (please specify)	7.7	23*
<i>Visiting family</i>	<i>7.3</i>	<i>3</i>
<i>Race events</i>	<i>7.8</i>	<i>20</i>

Note: \*Composed of "Visiting family" and "Race events" responses.

Visitors who were visiting for personal business were slightly more likely to take the train for their trip than those who were visiting for social, recreation, or leisure purpose; however, few people were visiting for personal business, which affects the results. Those who chose “Other purpose” were the most likely to take the train, regardless whether they were in Bristol to visit family or attend a race event.

### ***Factors Influencing the Choice of Taking Train to Bristol***

Visitors were also asked to list the top three factors that would influence them to take the train to Bristol, if such service were available. Table 61 shows the top factors listed by respondents, ranked from most to least commonly chosen.

**Table 61: Factors Influencing the Choice of Taking a Train to Bristol**

	<b>Count</b>	<b>Percent of All Visitors Surveyed*</b>
Ability to work or relax during the trip	27	53%
Convenience of schedule (departure and arrival times)	23	45%
Novelty of taking the train	21	41%
Less travel time	18	35%
Lower overall travel cost	17	33%
Ease of traveling in a group	7	14%
None, would not travel by train	5	10%
Other	2	4%

Note: \*Does not sum to 100% since visitors could identify more than one factor.

Over half of respondents picked the ability to work or relax during the trip, with convenience of schedule, and novelty of taking the train being the next most popular factors that would influence the surveyed visitors to take the train to Bristol. Travel time and overall travel cost were also popular factors, chosen by approximately one third of respondents. Only 10 percent of respondents indicated they would not travel by train. Only two respondents, or 4 percent of all surveyed visitors indicated another reason, which included the ability to bring a pet and the lower stress of taking train than driving.

### ***Additional Comments***

Visitors were also asked if they have any additional comments. Of 58 surveyed visitors, only 10 left any comments, which were a mix of comments pertaining to their visit in Bristol and expressions of support for expanding train service.

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