



High Speed Rail’s Impact on Hanover County & the Town of Ashland

(White Paper considered and approved by the Hanover Chamber of Commerce Board June 2, 2016.)

This analysis is presented to help our members, Hanover County and Town of Ashland officials and citizens to understand the background of the high-speed rail initiative, and the current Tier II study being conducted by the Virginia Department of Rail and Public Transportation. The information in this report was derived from personal interviews and documents and records accessible via the Internet, as noted. This White Paper was written and compiled by the current Hanover Chamber of Commerce Board President, Steve Ellis, and Government Relations/Partnerships Committee, Chairman Roger Bowers, along with the Executive Director, Melissa Miller. Please also note our companion document, a Resolution, approved alongside this report.

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Background

The Department of Rail and Public Transportation’s (DRPT) Tier I study report states that the enabling legislation that moved the concept of high speed rail forward occurred as far back as 1992 when the Southeast High Speed Rail (SEHSR) corridor was designated as one of five original high-speed rail corridors in the U.S.

In September 1997, Congress passed the Intermodal Transportation Efficiency Act which established a goal for developing high speed rail. This was followed in 1998 when Congress passed the Transportation Equity Act for the 21st Century (TEA-21). While the Act (which covered a period from October 1999 – September 2003) extended to all means of transportation, it specifically addressed rail transportation issues:

1. It authorized \$5 million per year through 2003 to be spent on the development of low speed magnetic levitation (MAGLEV) technology. However, even though the MAGLEV concept was born in the U.S., such systems currently only operate in Europe and Asia. While it could enable trains to operate at speeds in excess of 300 mph, it is a very expensive alternative.
2. To move HSR forward, an agreement was announced with Bombardier Transportation Company to develop a high-speed, light weight, non-electric locomotive which could operate at speeds in excess of 150 mph. While this agreement covered a two year development period and a shared cost estimated at \$25 million, no information was found to determine whether this project ever got off the ground.

The EIS Tier I plan called for four additional trains between Charlotte, NC and Washington, DC and four additional trains between Raleigh and Charlotte.

As we move through the Tier II portion of the SEHSR study, DRPT informs that their plan now envisions nine additional round trips between Washington, DC and Richmond. However, indications are that these are all intended to be high speed trains and, as a result, will not stop in Ashland and may not stop in Fredericksburg. The Tier II Study does not address freight usage.

Making High-speed Rail Work

In January 2011, an organization named America 2050 completed a study and published its report on high speed rail (<http://www.america2050.org/2011/01/high-speed-rail-in-america.html>). The report, compiled by the America 2050 organization, the Lincoln Institute of Land Policy and the Rockefeller Foundation found that:

1. High-speed rail works in very specific conditions, primarily in corridors of approximately 100-600 miles where it can connect major employment centers and population hubs.
2. Some of the most promising corridors for attracting ridership are in corridors of less than 150 miles (e.g., New York-Philadelphia).
3. Very large cities are potentially powerful generators of rail ridership. The presence of a very large city on a corridor with medium size and smaller cities has greater impact than connecting medium cities of the same size for generating ridership.
4. Composition of the workforce within a metro region may have significant implications on regional intercity travel. People who work in knowledge industries (e.g., financial sector) tend to be more mobile and travel more than those in the industrial sector.

The report also clarified how the U.S. definition of high-speed rail corresponded to what is found in other parts of the world. Outside the U.S., high-speed rail refers to travel above 150 mph. In its 2010 guidelines, the Federal Railroad Agency (FRA) set up three categories for high-speed travel in the U.S. to recognize the range of rail service levels and regional characteristics that exist across our country. In other words, the FRA felt it was inappropriate to have a “one size fits all” definition.

1. Core express corridors – these are corridors up to 500 miles in length where top speeds will range from 125 – 150 mph. Trains will operate between major metropolitan areas along dedicated tracks (except in the terminal areas), will provide frequent express service and the trains will be electrified. The Amtrak Acela trains operating in the Northeast Corridor fit into this category.

2. Regional corridors – these corridors will vary in length from 100 – 500 miles and have trains that operate at speeds of 90 – 125 mph. The trains will use a combination of dedicated and shared tracks (with freight carriers) and will provide frequent service between mid-sized urban areas and smaller communities. The Washington - Richmond Corridor would fall into this category.
3. Emerging/feeder routes – these routes will be 100 – 500 in length and trains will operate at speeds up to 90 mph. These trains will operate on shared tracks between moderate population centers, with smaller, more distant areas, and will operate with less frequency than regional corridor or core express trains.

The America 2050 organization also published an earlier report in 2009 entitled *Where High Speed Rail Works Best* (<http://www.america2050.org/pdf/Where-HSR-Works-Best.pdf>). In this report they studied 27,000 city pairs (e.g., Washington - Charlotte, New York - Boston) to determine the likelihood of success of a high-speed rail system based on certain criteria they felt were necessary for this success.

Their criteria were:

1. To ensure sufficient travel demand for high-speed rail services, it is best to locate stations in major metropolitan areas.
2. The competitive advantage of high-speed rail over other modes of travel is maximized at distances between 100-500 miles. Distances below 100 miles are better suited for auto and commuter rail services whereas distances greater than 500 miles are more efficiently traveled by air.
3. The report stated that “high-speed rail systems will attract greater numbers of riders if they begin and end in central locations within the metro region and tie seamlessly into existing commuter rail and transit systems.” However, the report goes on to say that “There are only [nine] American cities with sufficiently large transit systems capable of providing the connections to make HSR an attractive option.” Five of the nine are located in the Northeast. The report also says that “Without access to transit systems, intercity passengers are dependent on autos to begin or end their trips, significantly decreasing rail’s competitive advantage.”
4. The report also states that “high-speed rail systems depend heavily on business travel to sustain ridership and business travel is highest in places with more productive economies... GDP is the broadest measure that is associated with both economic productivity and personal income.” The report notes that 4 of the 10 most productive regions in the U.S. are located in the Northeast Megaregion (i.e. Boston - Washington) and accounts for one fifth of the nation’s GDP. This has led to a well established intercity travel market between the major cities. The Piedmont Atlantic Megaregion, which encompasses Richmond, is not one of the top 10 per capita GDP areas.
5. Congestion reduction at airports and on highways is a goal for building high-speed rail lines. “Metropolitan congestion increases intercity auto travel time making rail a more attractive option.” A group called the I-95 Corridor Coalition “estimates that over 60 percent of the urban road miles of I-95 are heavily congested. This Coalition (<http://i95coalition.org/the-coalition-2/member-agencies-2/>) comprises the state department of transportation, transportation authorities and other groups (e.g., Amtrak, FRA) of the states through which I-95 traverses from Maine to Florida. Washington, DC ranked 7th on their auto congestion level index. “While relieving auto congestion is a major potential benefit, high-speed rail systems tend to compete more with short haul air travel than intercity auto trips and have the potential to decongest some of the nation’s most congested airports.” Neither Washington, DC’s nor Richmond’s airports were on the list of most congested in the nation.

6. High-speed rail systems work best as part of a network with multiple connections, as has been shown in European and Asian Megaregions. Cities that are located in one of the 11 Megaregions are more likely to be part of a network of interconnected cities with the appropriate density to support high-speed rail systems, rather than an isolated city pair.

Applying these six criteria to each city pair, they developed a score to determine the likelihood of success of a high-speed rail system. Not surprisingly, the top 3 city pairs and their scores were:

1. New York – Washington (100.0)
2. Philadelphia – Washington (98.24)
3. Boston – New York (97.22)

Other rankings relevant to our study were:

17. Charlotte – Washington (88.39)
41. Charlotte – Philadelphia (85.60)
44. New York – Virginia Beach (85.52)

In January 2016, the Government Accounting Office (GAO) released a report (*GAO-16-67; Better Reporting, Planning, and Improved Financial Information Could Enhance Decision Making*) relating to Amtrak with part of the report addressing Amtrak's efforts to improve its infrastructure within the Northeast Corridor. The report states:

"Amtrak and its stakeholders have developed a plan to address critical Northeast Corridor infrastructure needs, but its implementation faces significant challenges. Many of the corridor's bridges and tunnels are aging and in need of replacement to bring them to a state of good repair. The Northeast Corridor Infrastructure and Operations Advisory Commission has developed a 5-year capital plan costing \$17.7 billion from fiscal years 2016 to 2020 to begin addressing the backlog of deferred investments and make other improvements. But implementing this plan presents challenges because it lacks funding for 60 percent of its costs and would require Amtrak, states, commuter railroads, or the federal government to provide additional funding of about \$2.1 billion per year through 2020.

"Although ... states' increased share of operating and capital equipment costs reduced Amtrak's reliance on federal funds by about \$100 million for these routes in fiscal year 2014 compared to 2013. Amtrak still required almost \$86 million in federal grants in fiscal year 2014 to cover operating losses from these routes, and Amtrak has indicated that it will continue to require federal funding for these routes."

This concern was also stressed in a Fredericksburg Free Lance Star article entitled *Northeast Corridor, America's premier rail superhighway, is crumbling* which was posted on their website on May 17, 2015 where Joseph Boardman, Amtrak's president, told Congress that the corridor "was experiencing a crisis brought on by decades of chronic underfunding." However, Congress, following a recent train derailment in Philadelphia which resulted in eight deaths, 200 injuries and significant rail travel closures and delays, reduced "Amtrak's federal funding [for 2016] by \$251 million, to \$1.1 billion." The article also notes that these reductions came at a time when Amtrak's ridership along the Northeast corridor was up 50 percent since 1998, primarily due to the high-speed train service between Washington, New York and Boston, to a level of 11.6 million riders in fiscal 2014.

The Free Lance Star article also cites specific portions of the infrastructure that need to be addressed which include:

1. The Portal Bridge over the Hackensack River which is 105 years old and the cost to replace it is estimated at \$940 million.

2. A swinging bridge over the Norwalk River in Connecticut was built in 1896 and its replacement is estimated to cost \$650 million.
3. A 1.4 mile tunnel in Baltimore, which was built in 1873, is “so narrow, decrepit and leak-prone that speeds are limited to 30 mph.”
4. The two-tube tunnel that connects New Jersey and New York, which was built in 1910, handles 170,000 passengers each weekday and is the site of chronic backups. However, New Jersey’s Governor Chris Christie “pulled the plug [on the rebuilding project] citing concerns about his state’s share of the project’s massive cost.” Hurricane Sandy flooded the tunnel, but corrosive salt water created extensive damage that will take 15-20 years to repair.

Sources for Services and Equipment

In Europe and Asia, high-speed rail is well integrated into the transit system of many countries. As a result, companies from many different countries have developed manufacturing capabilities to serve these markets.

Since high-speed rail has had such a slow start in the U.S., we do not have many manufacturing plants that can provide the engines, track, cars and electronics necessary to build and operate a high-speed rail system. As a result, it will likely be necessary to rely upon foreign manufacturers until we can develop that capability ourselves.

The Fresno Bee, in an article entitled *In California’s high-speed train efforts, worldwide manufacturers jockey for position*, which was posted on its website on December 27, 2014, notes that “Federal law requires that the trains and all of their components be American-made. That means that the company that ultimately wins the contract must establish a manufacturing plant in the U.S. as well as an American parts-supply chain.” Recognizing that the U.S. lacks manufacturing capability for high-speed train components, the FRA gave California “a waiver to allow up to two prototype trains to be foreign built in order to allow the winning bidder to set up a U.S. plant” which could take 1½ - 2 years. By the time a Virginia project gets underway, a similar waiver may not be necessary.

Foreign manufacturers are reported to be setting up U.S. factories which are expected to be capable of meeting the “American-made” requirements as well as delivery timetables and quality standards.

The Washington to Richmond Rail Corridor

The rail corridor section under study is the 123 mile route that extends from Union Station in Washington, DC to Centralia, VA which is located just south of Richmond in Chesterfield County about midway to Petersburg.

The Amtrak trains that now serve Fredericksburg, Ashland and Richmond are part of what Amtrak calls their Northeast Regional Service which carries passengers between Boston, MA and the Newport News and Norfolk/Virginia Beach areas. Other trains that travel through Hanover County to/from stations south of Richmond do not stop in Ashland.

DRPT has identified that high-speed rail service along this corridor will reduce travel time by 15-20 minutes. However, without a stop in Ashland, individuals who want to use a high-speed Amtrak train will have to travel to the Staples Mill Rd. train station and then find a parking spot, which can be problematic. Depending on where one lives in Hanover County, the drive to the Staples Mill station could offset any perceived savings in travel time on the high-speed train (plus incur the cost to pay for parking).

The EIS Tier II study is also examining the possibility of other Richmond vicinity station locations:

1. Making more full use of the recently renovated Main Street station in downtown Richmond
2. A new station on Boulevard near the bus terminal
3. A new station on Broad Street
4. A combination of stations

If any of these station options are selected, and Staples Mill is subsequently closed, the commuting time for the Hanover resident to pick up a high-speed rail train will be further increased.

Another element of the EIS Tier II study is to look at the Fredericksburg area. They are in a similar situation as we find ourselves in Ashland. Trains passing through Fredericksburg must also slow down and as a result, DRPT has virtually extended the same options to them as we have been given for Ashland:

1. Do nothing
2. Add a third track on the east side of the two current tracks that run through the city (and they will extend the train platform to accommodate it). This will also necessitate building a new bridge across the Rappahannock River.
3. Build an eastern bypass around the city.

If the high-speed train does not stop in Fredericksburg, their passengers won't have a lot of alternative choices so it is reasonable to expect that their commuting patterns will remain the same – drive into the city or to a commuter/car pool parking lot or use a Virginia Express Commuter rail train (VEC) which makes frequent local stops.

A discussion with Ms. Kasey Nabal, the Fredericksburg Chamber's Government and Military Affairs manager determined that the results of a recent member survey indicated that the main concern for their members was reducing congestion on the roads. Amtrak was rated near the bottom of their list of concerns. What this is telling us is that they hope high-speed rail takes enough cars and trucks off the road so that their commuting drive to/from Washington, DC will be easier.

In a 2010 report produced by DRPT (<http://drpt.virginia.gov/activities/files/SJ63%20Final%20Report.pdf>), it was noted that "Amtrak provides long distance service along the I-95, U.S. Route 29 and western end I-64 corridors. Long distance services in Virginia include the Crescent, tri-weekly Cardinal, Silver Meteor, Silver Star, Palmetto, and the Auto Train. These services, which operate over freight rail lines, are generally not very competitive with other modes and incur significant operating losses. However, they are popular with tourists and provide connections to many underserved rural communities. On-time performance is a significant issue with long-distance trains, adding to their lack of competitiveness. In addition, current labor agreements make it difficult to achieve cost savings by reducing or eliminating service. Thus, while these routes have been the focus of many reform efforts, it is expected that Amtrak will continue providing long distance service on these routes in the near future."

The National Association of Railroad Passengers published its statistics of rail traffic in Virginia on its website (www.narprail.org) looking at both ridership from individual stations and routes traveled:

Ridership

Station	Ridership			Top City Pairs	Top Revenue Pairs
	2013	2014	2015		
Ashland ¹	28,392	27,815	28,014	1. Washington 2. Alexandria 3. New York	1. New York 2. Washington 3. Alexandria
Staples Mill Rd.	365,000	352,300	356,000	1. Washington 2. New York 3. Alexandria	1. New York 2. Washington 3. Philadelphia
Richmond – Main St	38,107	40,636	44,732	1. Washington 2. New York 3. Alexandria	1. New York 2. Washington 3. Philadelphia
Fredericksburg ²	53,829	55,229	55,295	1. New York 2. Washington 3. Alexandria	1. New York 2. Philadelphia 3. Washington
Newport News	124,900	110,900	113,800	1. Washington 2. New York 3. Alexandria	1. New York 2. Washington 3. Philadelphia
Norfolk	38,181	41,092	43,606	1. Washington 2. New York 3. Alexandria	1. New York 2. Washington 3. Alexandria
Petersburg (Ettrick)	27,909	29,286	29,780	1. Washington 2. New York 3. Philadelphia	1. New York 2. Washington 3. Philadelphia

1- Approximately 65% of Ashland's traffic travels less than 100 miles (presumably Washington and Alexandria); 19% travels between 300-399 miles (presumably NYC)

2- Approximately 42% of Fredericksburg traffic travels less than 100 miles (presumably Washington and Alexandria); approximately 33% travel between 200-299 miles (presumably NYC)

Source: www.narprail.org

Routes

Route	Ridership			Top City Pairs	Top Revenue Pairs
	2013	2014	2015		
VA Service/Norfolk ¹	100,200	117,300	119,800	<ol style="list-style-type: none"> 1. Richmond-Washington 2. Norfolk-Washington 3. New York-Richmond 	<ol style="list-style-type: none"> 1. New York-Richmond 2. New York-Norfolk 3. Norfolk-Washington
VA Service/Richmond	N/A ²	139,400	138,700	<ol style="list-style-type: none"> 1. Richmond-Washington 2. New York-Richmond 3. Alexandria-Richmond 	<ol style="list-style-type: none"> 1. New York-Richmond 2. Richmond-Washington 3. Philadelphia-Richmond
Carolinian Service ³	311,000	297,800	295,500	<ol style="list-style-type: none"> 1. Charlotte-Raleigh 2. Raleigh-Washington 6. Richmond-Washington 	<ol style="list-style-type: none"> 1. Charlotte-New York 2. New York-Raleigh 3. New York-Richmond
Palmetto Service ⁴	203,600	199,900	206,300	<ol style="list-style-type: none"> 1. Richmond-Washington 2. Fayetteville-New York 9. New York-Richmond 	<ol style="list-style-type: none"> 1. New York-No. Charleston 2. Florence-New York 5. New York-Richmond
Silver Meteor ⁴	365,500	342,700	342,000	<ol style="list-style-type: none"> 1. New York-Orlando 2. Orlando-Washington 5. New York-Richmond 	<ol style="list-style-type: none"> 1. New York-Orlando 2. Orlando-Washington 3. Miami-New York
Silver Star ⁴	405,100	399,000	378,800	<ol style="list-style-type: none"> 1. Tampa-W. Palm Beach 2. Miami-Tampa 5. New York-Richmond 	<ol style="list-style-type: none"> 1. New York-Orlando 2. New York-Tampa 3. New York-Richmond

1 – Service to Norfolk began December 12, 2012

2 – Split from Northeast Regional Service October 1, 2013

3 – Stops in Virginia at the Alexandria, Quantico, Fredericksburg, Richmond and Petersburg stations

4 – Stops in Virginia at the Alexandria, Richmond and Petersburg stations

Source: www.narprail.org

The premier Amtrak route is in the Northeast Corridor which runs between Boston and Washington. Over 3.4 million passengers used this service in 2015 and the most frequent and most profitable route was between New York and Washington.

In Northern Virginia, commuter rail traffic to/from Washington is handled by Virginia Railway Express (VRE). Since 2010, VRE has been operated by Keolis Rail Services Virginia, a subsidiary of the French national railway. According to VRE's website (www.vre.org), one can get a sense of commuter demographics. A 2015 customer

satisfaction survey indicated that there are seven trains that operate daily on the VRE system from Fredericksburg which accounted for about 17 percent of the respondents to the survey. The most popular DC destination stations were L'Enfant Plaza and Union Station. The survey also indicated that nearly 80 percent of riders traveled alone by car to the station and over 75 percent of the commuters lived within 10 miles of the station.

Impact of the Proposed Western Bypass Through Hanover County

DRPT recognizes that implementing high speed service between Richmond and Washington, DC must take into account that the main rail line between the two cities runs directly through the middle of Ashland. As part of the Tier II Environmental Impact Study, four alternatives for the Ashland area are being considered.

1. Do nothing and let everything remain as it is now.
2. Make minor improvements to the rail system. (This was an alternative that was announced by DRPT at the April 2016 meeting at Patrick Henry High School)
3. Add a third track through Ashland.
4. Create a Western bypass.

DRPT developed a map of an initial proposed western bypass route, published it on the organization's website www.dc2rvrail.com in the Fall of 2015 and surveyed that route early in 2016. DRPT has subsequently taken that initial proposed route off its website and posted another slightly shorter proposed route that is currently available for review and is being surveyed.

Initially, Hanover County and Town of Ashland officials responded to DRPT that if high speed rail was deemed necessary, the western bypass was the preferred option. According to County and Town officials, this choice was made recognizing that:

1. It was impractical to believe that the high speed rail project would not move forward,
2. That putting a third track through Ashland would destroy the nature and quality of the town.

However, based upon input from citizens, the Board of Supervisors adopted a resolution at its April 27th board meeting that support for the western bypass was rescinded and a copy of the resolution was sent to DRPT. The Board emphasized their desire to work with DRPT to find an acceptable solution. The Ashland Town Council will be considering whether to adopt a similar position at an upcoming Council meeting.

To analyze the impact of this route on Hanover County, the proposed route that was published in May 2016 was overlaid on the county's GIS database to identify who would be affected and how much impact it would have on total assessed land values and the taxes that Hanover County derives from this real estate. The analysis was broken down into two categories:

1. Properties through which the proposed tracks would bisect (referred to as "targeted properties")
2. Properties that were closely adjacent to the affected properties (referred to as "adjacent properties")

The analysis recognizes that the value of other properties in an area (e.g., Cross Corner Rd., Elmont Rd.) might also be affected from an assessed value or selling potential standpoint, but this was not included in the analysis because of its more uncertain, speculative nature.

The GIS data analysis of the May 2016 version of the proposed western bypass route determined that:

1. A total of 69 properties will be impacted by the bypass. Of that total there are 45 targeted properties and 24 adjacent properties.
2. A total of 2,594.5 acres are involved of which 2,428.1 acres are on targeted properties.
3. The zoning breakdown of all 69 parcels shows that 95.7% is classified as A-1 and 4.3% is RC. No R-1 properties are affected by the new route.
4. The 2015 total assessments for targeted properties is \$10,365,500 and for adjacent properties is \$5,612,100. At Hanover's real property tax rate of \$.81 per \$100 valuation, the amount of (2015) tax dollars at risk is \$129,419.
5. In 2016, the total tax assessments rise to \$12,930,000 for targeted properties and \$6,017,100 for adjacent properties which translates to \$153,472 tax dollars at risk.
6. The percentage increase in total assessments for targeted and adjacent properties from 2015 to 2016 is 24.7% and 7.2% respectively. This calculates to an average assessment increase across all 69 properties of 16.0%. Assuming that an annual average assessment increase over the next nine years remains constant (to reflect a planned target of 2025 when the high speed rail system would begin), the total real property tax revenue at risk would be approximately \$220,704.
7. In addition to the risk of the County's losing or having reduced real property tax income is the potential revenue loss from:
 - a. Tax revenue from personal property if displaced individuals leave the county
 - b. Business equipment, machinery and sales taxes if businesses and farms are forced to close or reduce their size of operation.
8. Also affected would be individuals who have contracts for timbering and planting on affected properties as well as individuals who have plans to convert their land to other uses (e.g., farm land to residential development) whether such a transition was for investment or retirement purposes.
9. Further tweaks to the route by DRPT could alter these impact statistics.

The Richmond Times Dispatch article on April 28th that reported on the Board of Supervisors meeting (*Hanover board backtracks on high-speed rail endorsement*) noted that the advocacy group, Virginians for High Speed Rail, went on record to say that "a modified no-build alternative could potentially eliminate Amtrak service in Ashland because of the time associated with slowing down, loading/unloading passengers, and speeding back up. The easiest way to increase capacity without building more tracks is by no longer stopping passenger trains at that stop. We need to make sure that Ashland is not turned into a pass-through town where passenger trains no longer stop." The Chamber, when writing this report, did not research the impact that a complete loss of train service would mean to the Town of Ashland and Hanover County, but it is thought to be significant from a tourist, employment and financial aspect.

Despite this dire warning from the Friends of High-Speed Rail group, it is our opinion that a complete closing of the Ashland station is unlikely since there has been no indication to date from DRPT that high-speed rail is an "all or nothing" proposition. In fact, DRPT has stated in the past that adopting any of the options would necessitate improvements to the Ashland station.

Also, one of the key objectives behind high-speed rail is to reduce the number of people who use cars to commute to places such as Washington, DC. Completely closing stations, such as Ashland and Fredericksburg, to

accommodate high-speed rail trains would seem to be counter-productive and would likely be met with considerable opposition from the affected communities.

Funding High-Speed Rail Development Across the US

To anticipate the costs involved in developing a high speed rail system, it is instructive to look at the experiences that other parts of the country have had in planning and moving forward with their high-speed rail projects.

Rail in California

As noted in a Fredericksburg Free Lance Star article entitled *High-speed rail still illusive*, which was posted on its website on June 28, 2015, President Obama tried to jump start the high speed rail initiative in 2009 by awarding \$7 billion to the states of Florida, Wisconsin and California. However, Florida and Wisconsin both declined the award and their money allocation was shifted to California. The California project desires to link San Francisco with Los Angeles with a real-world travel time of no more than 2 hours and 40 minutes on trains traveling up to 200 mph. The project was begun after voters approved a \$9.9 billion bond measure in 2008. While the project has encountered both political and financial resistance, information from other news articles reflect that most of the legal challenges that have been raised have been rejected by the courts. In 2013, construction of a portion of the 520 mile project was begun between San Joaquin in the Central Valley area and San Jose. The cost of the entire project from San Francisco to Los Angeles is estimated at \$68 billion. It is also worth noting that in 2008, when California residents approved the \$9.9 billion bond issue, the project's anticipated cost was \$40 billion which is \$28 billion less than current estimates.

The article further notes that one of the biggest funding challenges in California has been the ideological differences between political parties. On one side, republicans want these types of capital projects to be privately funded and have the ability to "prove that their operations will at minimum be cost-neutral." To find the funding, California's governor, a democrat, "negotiated a dedicated funding stream for the bullet train through a separate program that raises money for businesses as part of an effort to reduce greenhouse gas emissions."

A more recent Free Lance Star article entitled "*Plagued by delays, California's high speed rail back in court*, which was posted on February 8, 2016, California's funding position includes the "voter approved bonds, \$2.5 billion in federal stimulus funds that must be spent by September 2017 and a quarter of fluctuating revenues from the state's cap-and-trade program, which could eventually hit \$500 million a year." While these funds will pay for the initial segment of the high-speed rail system, there is much greater uncertainty how the remainder of the project (\$43.5 billion) will be funded.

Mass Transit Magazine noted in an April 5, 2016 Internet posting entitled *CA: Senators Share Their Doubts About Bullet Train Financing With Rail Officials* (<http://www.masstransitmag.com/news/12190430/senators-share-their-doubts-about-bullet-train-financing-with-rail-officials>) that [California] politicians are coming under increasing pressure to justify the financing plan for the project. Senator Ben Allen said "we have the lieutenant governor talking down the project, and he may be the next governor." California recently reworked its capital spending plan for the project. The Mass Transit magazine article states "under the revised business plan, the state would have to extend the greenhouse program until 2050 and give the rail authority permission to borrow against future income from the fees ... which could diminish."

Mass Transit Magazine also wrote in a March 10, 2016 article entitled *CA: High-Speed Rail Agency Adds Money, Time to Right-of-Way Contracts* (<http://www.masstransitmag.com/news/12180137/ca-high-speed-rail-agency-adds-money-time-to-right-of-way-contracts>) that land acquisition delays are taking longer than expected and threaten to slow the pace of construction. California amended the terms of its contracts with engineering/surveying consultants and added \$10 million and two years to the term of their agreement. “The rail authority has identified 1,468 parcels that are needed for the railroad right of way” and to date, either through negotiated settlements or eminent domain action, only 668 of the parcels have been acquired.

A Fresno Bee news article advises that the first leg of the California system is expected to become operational in 2025. It will cover a distance of 133 miles from the San Joaquin Valley to San Jose and its cost is expected to be \$20 billion (in today’s value). Since the Richmond to Washington, DC project is 123 miles, this might be considered a reasonable initial guess for what our project might ultimately cost.

Rail in Texas

Texas has a project in the works to provide high-speed rail service along the 240 mile stretch between Dallas-Ft. Worth and Houston. Unlike the California project, however, the Texas Central High Speed Railway is actively seeking \$10-\$12 billion in private financing. Their plan is for travelers to move between the two cities in about 90 minutes compared to an hour by air (plus the time to drive to/from the airports, find parking and go through security) or spend 4 hours driving (which is expected to rise to 6.5 hours by 2035).

The train that will be used as part of this plan is the international version of Japan’s Tokaido Shinkansen system which includes the train, overhead catenary, tracks and signaling plus system maintenance and operations procedures. Service is expected to begin in 2021 with trains running every 30 minutes during peak hours and every hour during non-peak times. Fares, while not yet defined, are intended to be competitive with the airlines.

Rail from Las Vegas to Los Angeles

According to an article posted on the website of the advocacy group Progressive Railroading, Senators Heller, Reid and Heck proposed the idea of building a high-speed rail link between Las Vegas and Los Angeles. This will be a joint venture between XPressWest and China Railway International and will be funded entirely by private financing. They anticipate that with trains running every 20 minutes during peak hours and with an attractive round trip fare of \$89, they will be able to generate sufficient traffic to pay for their operating and capital costs. While China Railway has gained traction with projects throughout Asia, this will be its first entry into the U.S. market.

Rail in Virginia

An April 13, 2016 article in the Richmond Times-Dispatch noted that the current high-speed rail study is being funded by three sources:

1. Federal Railroad Administration (FRA) High Speed Rail Grant - \$44,308,000
2. Department of Rail and Public Transportation (DRPT) - \$8,101,000
3. CSX Transportation (CSXT) - \$2,976,000

This funding, totaling \$55,385,000, does not include any funds for the potential acquisition of land, system design, infrastructure development/improvement or the equipment that will be necessary to operate the high speed trains.

In addition, Jeremy Latimer of DRPT, at the 2014 annual meeting of the Virginia Association of Railway Patrons (http://varprail.org/2014_meeting.html), noted that “Virginia was assigned financial responsibility for their operations ...Virginia’s Intercity Passenger Rail and Operating Capital Fund, established in 2011, has been funded since 2013 by a 0.3% sales and use tax, with .125% dedicated to rail and transit. This fund will pay for Amtrak Virginia trains.”

According to Mr. Jason De La Cruz, Legislative Affairs Director for State Senator Ryan McDougal, cost estimates for the DC-Richmond line will cost between \$20 – 28 billion and he believes that it is very unlikely that the Virginia legislature would support allocating that level of funding for a project of this magnitude. More likely, he said, is that funding will be achieved through some kind of public-private partnership as has been done with toll roads that were recently completed in Northern Virginia. He also mentioned, however, that money is being put into the Richmond port to make it more attractive as an outlet for shippers. This will mean that more containerized shipments will be entering and leaving the Richmond area and that the only means for facilitating that are through increased rail and truck transportation. At some point down the road, Mr. De La Cruz acknowledges that rail and/or road improvements will be necessary to accommodate this increased influx in container traffic.

Mr. De La Cruz also noted that the new Federal administration that will take office in January 2017 may also affect the project. As mentioned earlier in the report, emphasis on high speed rail has varied from one administration to the next. It is uncertain how the new administration will emphasize and fund this project in the near future.

National Rail Issues and the Northeast Corridor (NEC)

The National Association of Railroad Passengers issued a report in 2015 entitled *The United States of Underinvestment: Unfunded Train Projects in America* (<http://narprail.org/our-issues/unfunded-train-projects-in-america/>) which noted that there are, across the US, rail projects totaling \$208.57 billion. This figure comes from an analysis of requests by state rail divisions, rail authorities and Amtrak.

Some of the areas relevant to this report that were addressed are:

1. New equipment – On a national level, the report estimated that \$5.4 billion was needed immediately for the “acquisition of new equipment and the repair and refurbishment of Amtrak’s rapidly aging fleet. NEC and National System trains utilize a fleet that is too small to meet current needs. Reliability and safety of outdated equipment is also a concern. This item doesn’t correlate to a specific grant; NARP extrapolated the figure based upon ridership needs and Amtrak’s most recent fleet plan.”
2. Northeast Corridor state of good repair – Amtrak produced a plan that outlined what it termed a minimum level of investment of \$52 billion to cover what it felt was needed for system repair and upgrades as well as capacity enhancements, anticipating a 60 percent increase in intercity and commuter ridership, by 2030. Some of these issues were noted earlier in this report.
3. Baltimore & Potomac Tunnel – Also noted earlier was the Baltimore & Potomac tunnel that was built in 1873 and needs to be replaced. “One-fifth of Amtrak trips and one-third of its ticket revenues depend on travel through Baltimore.” The tunnel also serves Maryland’s commuter trains (MARC) and freight rail traffic. Amtrak estimates the tunnel’s replacement cost at \$1.5 billion.

4. Gateway project - \$12.568 billion to replace track, tunnels, bridges and station capacity between Newark, NJ and New York City.
5. NEC high-speed replacement trainsets – Amtrak wants \$5.2 billion for trainsets that can operate up to 220 mph as part of what is called NextGen high speed rail service. These 28 trainsets will have a capacity of 400-450 seats and are expected to enter service in 2019.

System Integration

We already know that the grand plan for an east coast high-speed rail system is to facilitate rapid movement of passengers and freight between locations from Florida to Boston. However, to have this plan become an attractive alternative to other modes of transportation, other factors have to be taken into consideration.

The Virginia Association of Railway Patrons, a non-profit group based in Fredericksburg, has posted a draft of their statement on future rail passenger service in Virginia (<http://varprail.org/statement.html>) in which they stress:

1. Rail travel should be compatible and coordinated with other means of transportation in order for rail travel to be viewed as attractive, convenient and easy to use. They cite 3 examples:
 - a. A good example of system integration is National Airport station on the Washington Metro where passengers can use a moving sidewalk from the rail platform directly into the main terminal.
 - b. An “accidental integration” example would be Fredericksburg’s Amtrak station which is infrequently served by some bus routes and on schedules unrelated to train arrivals and departures.
 - c. Richmond’s Staples Mill Rd. station has little system integration. There is almost no bus service and the station is miles from downtown, the main bus terminal on Boulevard (across from the Diamond) and the airport.
2. Obtaining tickets should be easy and information on routes and connections should be readily available on the trains. Stations, like Ashland, cannot issue tickets and have no departure and arrival information. Prospective passengers have to do research to find fares, schedules and connections and they have to observe the train prior to its arrival at the station to determine which side of the platform will be used for boarding.
3. Passenger rail needs a consistent source of funding to allow quality service levels and prices to be competitive with other government-subsidized modes.
4. Rail service needs to be melded into the larger interstate and international transport systems. “Trains that serve airports must run frequently enough to get air travelers to and from flights throughout the day. Seven days a week.”
5. The VARP’s statement notes that while Washington-Fredericksburg has adequate rush hour service, Amtrak express trains serve the major intercity stops, but these are not the major commuting stops. They suggest that Amtrak be freed from its county boundaries and that the line be extended to include park-and-ride facilities in Spotsylvania and Caroline Counties. They also feel that weekend service on this segment is limited or non-existent at some stations while other important stops (e.g., Woodbridge) have too few trains.
6. While the Washington-Richmond line is being incrementally upgraded for HSR, they suggest that the Richmond station move to Main St from Staples Mill Rd. to make Richmond more accessible as a

destination. They also suggest a park-and-ride facility in Doswell as well as one in the south part of Chesterfield to anchor the north and south suburbs and using local commuter service to link with Petersburg and the airport.

7. To facilitate a more intermodal approach, their statement suggests having a station at Boulevard to link with the main bus terminal.
8. Having an integrated fare structure where Amtrak and VRE could offer family fares and integrated ticketing in addition to conventional fares. “With the exception of monthly VRE-Metro passes, neither VRE nor Amtrak offers integrated ticketing with the Washington Metrorail system making transfers expensive, particularly for groups or families ... The use of local transit and bus systems in combination with intercity or commuter rail should be nominal or free.”

A Retro Look at the DRPT Tier 1 EIS and Record of Decision

DRPT published on its project website the Tier 1 EIS and Record of Decision for the work it conducted in 2003 (http://www.dc2rvr.com/files/3214/1347/9745/SEHSRTier1_FinalEIS.pdf) which formed a basis for DRPT’s decision to move forward.

1. The study examined 9 alternative routes. From DC to Richmond, they all follow the existing CSX-owned corridor and show an eastern bypass (RF&P line) around Ashland. The differences between the different alternatives occur south of Richmond and involve various route combinations to provide service to Raleigh, Winston-Salem and Charlotte in NC.
2. In the 4th Q of 2001, the 9 routes were presented for public comments. The results were:

**Table 1.1
Public Comments: Support for and Opposition to SEHSR**

Location	For	Against	Other	Total
Winston Salem, NC	449	1	6	456
Henderson, NC	36	2	6	44
Roanoke Rapids, NC	24	1	5	30
South Hill, VA	19	0	1	20
Springfield, VA	19	0	26	45
Wilson, NC	19	0	3	22
Greensboro, NC	18	0	3	21
Cary, NC	12	0	1	13
Durham, NC	9	1	16	26
Charlotte, NC	9	0	2	11
Raleigh, NC	9	0	6	15
Richmond, VA	8	0	24	32
Salisbury, NC	8	0	2	10
Star, NC	4	6	4	14
Petersburg, VA	3	0	13	16
Fredericksburg	2	0	3	5
Sanford, NC	2	0	2	4
Emporia, VA	0	0	0	0
Totals	650	11	123	784

What is interesting is that 69% of the “for” comments came from the Winston-Salem area. The report noted “While most of the comments received from Winston-Salem did not specify support for a specific alternative, they all expressed support for service to Winston-Salem.” As a result of the feedback, DRPT selected a combination of two of the alternatives (A & B) because it had the “highest level of public support.” This conclusion is interesting since the comments were so highly skewed toward Winston-Salem

but are being projected to the entire route from DC southward. Only 49 comments (7.5%) were received from Virginia residents, all of whom were in favor of the project.

3. The map of the proposed route that was published shows the original intended eastern bypass route around Ashland:

Figure 1
Recommended Alternative
Alt. A + Alt. B



4. Even though both Ashland and Fredericksburg are being given a “no build” option, DRPT did address a no-build option in the Tier 1 study and concluded that it was not appropriate. They based this conclusion on road improvements that were committed for the I-95, I-85 and I-40 corridors, airport expansion plans designed to meet increased travel demands and a projected 20,000 annual hours of flight delays by 2003 linking southeast and northeast destinations. They felt that while the “anticipated no-build impacts are potentially spread out over a longer period of time (due to slower expansion of the systems), they could be accompanied by other impacts due to additional auto or air capacity needed to handle the trips which would not be diverted under the no build alternative. The no build alternative lacks the positive benefits of improved air quality and net energy reduction per passenger mile traveled in the corridor. It also fails to meet the other key purpose and need factors of offering additional transportation choices, easing of congestion, while improving overall transportation system safety and effectiveness minimizing environmental impacts.” It is reasonable to expect that these same factors will be applied to the EIS II study effectively removing this option from consideration.
5. The calculation that appears to be made to illustrate the time saved by traveling between Richmond (Staples Mill Rd. station) and Washington (Union Station), which is 109 miles, shows that the time to travel at the present top speed of 70 mph is 1.55 hours. When calculated at the planned higher speed of 90 mph, the travel time would be 1.21 hours. The time difference of .34 hours equals about 20 minutes. This assumes a constant speed along the route. Since reduced speeds for transit through Ashland and Fredericksburg would apply equally to both the old and new speeds as would times to accelerate and decelerate at station stops, the total travel time will increase, however, the difference between them would be about the same. Currently, the travel time between Staples Mill Rd. and Union Station is approximately 2.3 hours on the Northeast Regional route.

Balancing Freight and Passenger Rail Operations

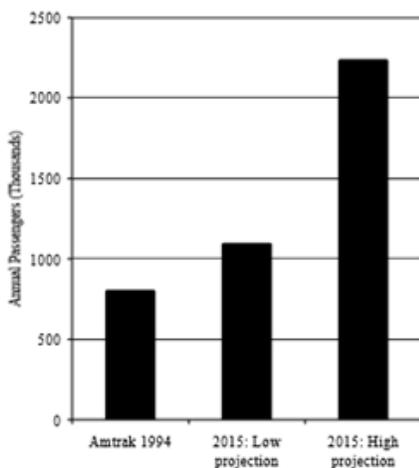
The Tier I study did not get into detail about the balance between freight and passenger rail traffic, but in 1999, FRA issued a report entitled *Potential Improvements to the Washington-Richmond Corridor* which predicted the transportation needs of the region would be in 2015. The report stated the following with respect to the balance between freight and passenger rail traffic:

“Because almost all intercity passenger and commuter trains on the Washington-Richmond Corridor operate during daylight hours, the line would, in theory, offer more flexibility to freight operations late at night. In practice, however, the for-profit freight carriers have far-flung operations of which the Washington-Richmond Corridor constitutes but one segment. Customer demands, scheduling requirements, and operating constraints elsewhere on their extremely large and complex networks have led the freight railroads to cluster their trains between Washington and Richmond in the 11:00 a.m. to 6:00 p.m. period. Conflicts between freight, intercity passenger, and commuter operations have ensued, particularly during the evening rush hour.”

The report also noted instances of delays that occurred when maintenance work closed portions of the track, when a derailment occurred and where freight trains were put on hold waiting for passenger trains to clear the tracks.

The 1999 report also made predictions about the number of passengers who would be traveling along the Washington-Richmond corridor by 2015 which was reflected in the following graph:

Figure 3: Demand for Intercity Corridor Train Services, Washington–Richmond¹¹



While no specific numbers appear in the report, this chart appears to indicate that on the low end of the scale, the predicted number of passengers in the Corridor would be a little less than 1.1 million and on the high end, passenger totals for 2015 would be about 2.4 million.

Based on the data gathered by the National Association of Railroad Passengers, the following chart indicates that the actual combined number of passengers traveling the corridor between Washington/Alexandria and the

Petersburg, Richmond’s Staples Mill Rd. and Main Street stations in 2015 was approximately 1.052 million which is closer to the low end of their passenger estimate.

Station	Total Ridership ²
Petersburg	29,780
Richmond – Main St	44,732
Richmond – Staples Mill Rd	356,000
Ashland	28,014
Fredericksburg	55,295
Quantico	18,446
Woodbridge	10,340
Williamsburg	60,625
Newport News	133,800
Norfolk	43,606
Lorton ¹	271,400
Total	1,052,038

1 – This is the Auto Train that operates non-stop to Sanford, FL

2 – These numbers reflect total ridership but do not delineate whether passengers were traveling to one of these stops (e.g., Richmond-Fredericksburg) and therefore the ridership number would be counted twice or the number of people who are traveling southbound beyond Petersburg. It also does not include ridership numbers of people who board trains north of Washington or south of Petersburg who travel through the corridor to another destination (e.g., Charleston – New York).

Concluding Analysis & Considerations Requested

1. Ashland Bypass Options

The options that have been presented to Hanover County and the Town of Ashland by DRPT do not offer any really good choices. The “do nothing” option appears to be unrealistic in light of growing travel demands, inexpensive gasoline, more fuel efficient cars and efforts to expand the capabilities of the Richmond port. These factors along with increased suburban development encourage people to rely upon their vehicles more frequently and to increase the use of trucks to move goods and equipment. While frustrations abound with air travel, people are flying in record numbers because the “time element” appears to be a bigger driving factor than the hassle that one has to go through with cramped seating and long security lines. Doing nothing at this point is just putting off the inevitable.

Putting a third rail line on the east side of the existing tracks through the middle of Ashland is also not a reasonable option. Ashland and Hanover residents value the look and feel of the town and a third track will significantly alter that landscape, if not completely destroy it.

At the April 4th meeting at Patrick Henry High School, DRPT announced that a “minor improvement” option to the existing rails was under consideration. Unfortunately, DRPT has not yet offered an explanation as to what this would entail so judgment on its value must be put on hold.

The last item is the controversial western bypass which, as noted in this report, will directly or significantly affect 69 properties. With DRPT having drawn proposed lines on a map, developers, realtors and prospective home buyers/sellers now find themselves in a quandary because of an uncertainty that could last at least until the Fall of 2017 when DRPT intends to publish its Record of Decision.

DRPT has also stated that eastern bypass routes whether using the Buckingham Line or tracking along I-95 have been studied and discarded as viable options, but only limited explanation has been made available to support their conclusions.

In studying an aerial Google map of the Ashland area, there is a potential east side route that we wish DRPT to consider:

Traveling on the CSX line southward:

1. At Doswell, intersect with the Buckingham Branch line along Doswell Rd to divert the rail line southeastward under southbound I-95 since that bridge underpass is already in place.
2. Transition the rail line between the north and south bound lanes of I-95 around MM 98.5.
3. Follow the I-95 median under the Rte 54 overpass.
4. Intersect with the Dominion Power right of way around MM 91.2 by going under the southbound lane of I-95.
5. Proceed in a southwesterly direction along the right-of way crossing under Rte 1.
6. Deviate to the west staying north of Boxwood Farm Lane to reconnect with the main CSX line about .5 mile north of where Elmont Rd crosses the CSX tracks.

The tracks would have to pass under five bridges using this route. It is also important to note that while interstate bridge construction standards require that bridges be at least 16.5' over the roadway, this is insufficient clearance for rail travel. According to DRPT's Basis of Design document, bridge clearance needs to be 24' 3" to allow for eventual electrification of the rail lines. This would require that either the existing bridges be raised or the track bed set low enough to comply with the required height specifications. The bridge locations are at:

- a. Route 30 west of Kings Dominion
- b. Old Ridge Rd. (Rte 738)
- c. Hickory Hill Rd. (Rte 646)
- d. Jamestown Rd. (Rte 698)
- e. England St. (Rte 54)

Road intersections (along the Dominion right-of-way):

- a. Ashcake Rd. (at the power station) east of Dow-Gil Rd
- b. Success St.
- c. Design Rd.
- d. Route 1 (north of Sheehy Ford)

We believe other positive aspects of this proposed route are that:

- a. Connecting the Dominion right-of-way at Route 1 to the CSX tracks in Elmont will likely directly impact fewer than 15 land parcels.
- b. It should not require any overhead trestle build-ups since all track would be at ground level. While we did not do cost comparisons between the two, we believe that a ground level rail system would be significantly less expensive to build and maintain than an elevated system.

2. Project Financing

As we've pointed out in this report, an important element that must be considered is the financial magnitude of this undertaking. In California, where a true high speed rail project is under construction, the estimated cost for the entire project is in excess of \$68 billion in today's dollars. In nine years, when the system is planned to become operational, that price tag will be significantly higher. California's current business plan is also showing that continued federal support will be necessary to fill the \$45 billion shortfall that they project will be necessary to cover the additional construction, development and operation of the rail system plus they haven't determined whether the project will be financially self-sustaining. Other states that desire high-speed rail service are learning from the California experience and seeking private funding to avoid the federal bureaucracy.

Virginia has around \$55 million to use for the formative phases of the project but the project is not far enough along to contemplate design, construction, land acquisition, operational and maintenance costs. In California, the price tag on a similar length project as the Washington-Richmond Corridor is estimated at about \$20 billion. The Virginia legislature estimates that the cost could be as high as \$28 billion.

It is our recommendation that before a final Tier II Record of Decision is published, that DRPT produce a report that defines:

- a. A comprehensive cost benefit analysis that will justify beginning a project of this magnitude
- b. The sources of the capital that will be needed to move forward with the project
- c. If funding will be wholly or in part through a public-private partnership, provide a clear breakdown of how the fund sources will be divided, how these private investors will be repaid and how the effort to "Buy American" will be fulfilled
- d. How the project, once completed, will be able to achieve a level of self-sufficiency and, therefore, require no ongoing federal support
- e. The impact that the rail line will have on the revenues and expenses of each county and independent city in Virginia through which it will pass

3. Sourcing of Materials

The American Recovery and Reinvestment Act (2008) laid the groundwork for high-speed rail funding, but it also included a "Buy American" provision for both the manufacturing of the materials and the supply chain. Therefore, overseas suppliers, if they wish to qualify as a vendor, have to build plants in the U.S. and hire U.S. workers. The Chinese are partnering with XPressWest to not only help finance the project but to gain traction in the burgeoning U.S. high-speed rail market. Kawasaki (Japan), Bombardier (Canada), Alstom (France) and Talgo (Spain) are examples of companies that have also established U.S. operations in order to participate in rail projects.

We ask that DRPT seek consultants, engineers and manufacturers who are U.S.-based and who can deliver high quality products and services in a timely manner at a fixed cost that meet or exceed established safety criteria. Whenever possible, resources based in Virginia (e.g., headquartered or with a functioning plant) should be given special consideration.

4. EIS I Project Approval Feedback

We ask that DRPT relook at how they interpreted the results of the EIS I comment period. To us, since the preponderance of comments came from the Winston Salem area, a more correct conclusion is that the citizens of Winston Salem desire to have high-speed rail rather than a conclusion that the entire route was acceptable. In our opinion, too few comments were received from Virginia residents to form that conclusion and the route presented illustrates an eastern bypass around Ashland. As the situation currently stands, this is a whole new ballgame.

5. Stations Being Served

The efficiency of a high-speed rail line is enhanced when it makes fewer stops. Ashland's passenger volume is probably too small to warrant consideration, however, we do encourage DRPT to consider a stop in Fredericksburg. This is a two-edged sword. If the train does stop, it will reduce the comparative time savings between current speeds and the planned higher speed. If it does not stop in Fredericksburg, their citizens will not be able to access the high-speed lines and therefore revert to their current commuting patterns. As noted earlier, the Fredericksburg Chamber's recent membership study indicated that relieving traffic congestion is the major issue on their minds. Since the Washington suburbs are spreading southward past Fredericksburg, we feel that including Fredericksburg, where ridership levels are already relatively high, will help accomplish one of the project's goal of relieving traffic congestion.

6. Convenience

For Ashland and Hanover residents, high-speed rail will not be much of an advantage. The small time savings gained by the train speed will potentially be negated by the time to drive to one of the Richmond area stations being proposed. That means Hanover and Ashland residents will have to continue to rely on current train schedules or vehicle commuting patterns to get to/from the DC area.

There is also the issue of what we'll call trainset compatibility. The SEHSR lines will be diesel. For those continuing their travels along the Northeast Corridor, they will have to switch trains in Washington because these lines are electrified and diesel-powered trains are not allowed in the train tunnels in major cities like New York. Unless the SEHSR and NEC train schedules are timed correctly, a lengthy delay between connections will significantly impact the advantage of high-speed rail. There are no plans to electrify the lines between Washington and Richmond.

We also encourage DRPT to take into considerations the following in its efforts to select a Richmond station:

- a. Ease of access for Hanover residents
- b. Adequate parking to accommodate the number of passengers that DRPT anticipates will be using the high-speed service when it becomes operational
- c. That GRTC buses, since they are the only public transportation resource available, coordinate its schedules with the arrival of trains and that the bus stops be in close proximity to the station to facilitate transfers