

Rescuing

Neighboring states partner in building a transformational passenger-rail link

by Frederick Plous



the S Line



Northbound train No. 22, the *Silver Star*, kicks up snow in January 1962 on the double-track line between Crabtree Creek and Neuse, N.C. This line is the focus of a new rail corridor linking Virginia and North Carolina. Wiley Bryan; Robert Richardson collection





This bright, spacious concourse and waiting area welcomes riders to the new Amtrak station in Raleigh, North Carolina.

Virginia and North Carolina are up to something big. The two adjacent states are cooperating, collaborating, and co-funding the restoration of 134.5 miles of idle and — in some spots — missing railroad to create a 110-mph interstate passenger-rail speedway.

It's called the "S Line" and, once restored from Raleigh, N.C. to Petersburg, Va., it will transform the way people travel between the Southeast and Northeast. Advocates say the resurrected S Line could divert more than a million travelers a year from the airlines and congested I-95 to fast passenger trains.

Yesterday and today on the S Line

It was not a good time for American trains when the Seaboard Air Line Railroad and the Atlantic Coast Line Railroad merged in 1967. The Interstate Highway System was more than half completed, and new jet airliners were cutting flying times

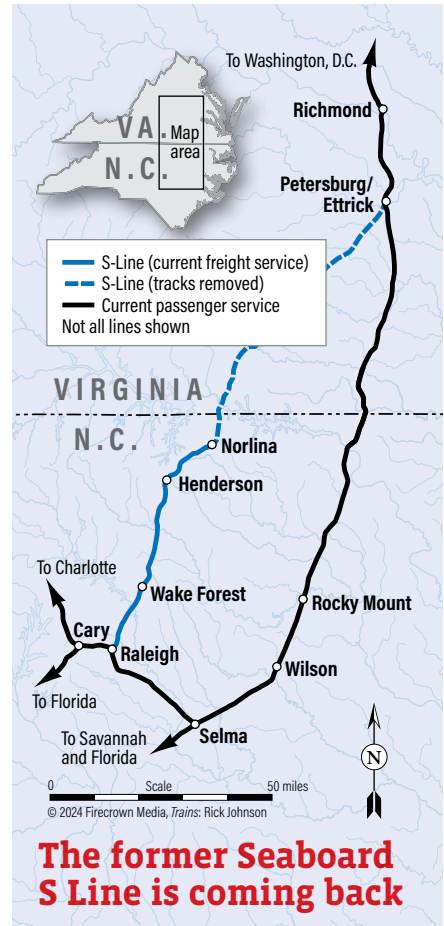
◀ A 2015 image, top left, shows the Raleigh wye before construction of the new Amtrak station. Seaboard (and later, SCL and Amtrak) trains once used the tracks curving to the left to head north on the S Line. The SAL/SCL/Amtrak station was located out of the picture to the left. When portions of the S Line were abandoned, the Amtrak stop was relocated to the former Southern Railway depot beyond the trees on the right leg of this wye. The new station, seen at the bottom left in the 2018 photo, was constructed in the middle of the wye with the new high-level platforms, facing to the south. When the S Line is reactivated, additional platform tracks will be built to serve that route from the station's north side. Three photos, Bob Johnson

in half. American travelers were bailing from the trains, including those serving the once hotly contested New York-Florida market, where Seaboard and ACL each ran a fleet of ballast-scorching overnight trains whisking vacationers from New York to Miami in 25 hours. The Boeing 707 did it in three.

Freight shippers were bailing too. As I-95 approached completion, Florida citrus and vegetables began barreling toward Northeastern markets in highway semi-trailers instead of railroad refrigerator cars. The remaining rail traffic could not support two competing carriers, so Seaboard and the ACL merged, eliminated many of their passenger trains, and consolidated so much freight service that the new company eventually would take hundreds of miles of duplicative main lines out of service.

Wherever the two railroads paralleled each other closely, the Atlantic Coast Line route was called the A Line, while the Seaboard route was called the S Line. Usually it was the Seaboard route that got chopped.

That's what happened to the 135 miles of former Seaboard track between Petersburg, Va., 27 miles south of downtown Richmond, and Raleigh, capital of North Carolina. Because the Atlantic Coast Line had a more direct New York-Florida alignment 30 miles east of Seaboard's, Seaboard successor CSX Transportation had shifted much of its traffic off the S Line between Petersburg and Raleigh by 1986. But the direct route to Florida was not the direct route to Raleigh. Shutting down that part of the S Line resulted in Amtrak's *Silver Star* following the A Line to Selma, N.C., and making a hard right turn to the northwest on Norfolk Southern's North Carolina Railroad to reach Raleigh through the back



door. Amtrak's New York-Raleigh-Charlotte *Carolinian*, introduced in 1990, would also use the "Selma elbow," adding an hour to both trains' running times.

While all passenger service was eliminated from this segment of the S Line, a freight fragment survived. CSX Transportation retained the southern 69 miles for a daily switching job serving local industries. But the retained segment lost its block signals, and maintenance was downgraded from fast-passenger to local-freight status. It also lost its northern connection: All 65 miles of the S Line track in Virginia was pulled up, leaving only ballast and weeds.

Now, four decades after its forced retirement, the S Line mileage between Petersburg and Raleigh is poised to undergo not just restoration, but transformation. It will become a 110-mph passenger railroad that will cut hours of running time from current passenger schedules and transform rail from a bit player to a star in the Southeast-to-Northeast travel market.

It also will transform Richmond-Raleigh into a hot new passenger-rail corridor. The key is a bi-state agreement virtually unprecedented in the history of government-funded passenger rail service in the U.S. Pursuant to an Interstate Compact established in 2004, Virginia and North Carolina are working — together — not just to

restore and rebuild the S Line, but to configure the passenger services that will operate over it into a regional corridor rather than a mere intermediate segment on an essentially long-distance route.

Big budget, long timeline

Restoration and transformation of the S Line is expected to cost around \$4 billion and take at least 6 years. But the first heavy lift, federal funding, is well under way. In 2020, the project received a \$47.5 million Consolidated Rail Infrastructure and Safety Improvements, or CRISI, grant for purchase of the right-of-way from CSX Transportation. North Carolina will use its share to purchase the 80.7 miles between Raleigh and Norlina, just south of the Virginia state line. Virginia will buy the 76.5 miles from Norlina to Petersburg.

In addition, North Carolina received a \$57.9 million Transit-Oriented Development grant for a study of station locations and a \$3.4 million Rebuilding American Infrastructure with Sustainability and Equity

(RAISE) grant for mobility-hub plans.

The last two grants are important because in addition to Amtrak through service from Raleigh to Richmond, North Carolina plans a commuter service linking Raleigh to its northern suburbs. Those potential stops were rural villages Seaboard's Florida trains bypassed. So identifying which are eligible to become commuter stations is essential.

Piedmont route will be extended

A \$1-billion Federal-State Partnership for Intercity Rail (FSPiR) grant — third largest in the history of the program — will fund design and construction of the initial 17-mile segment of the S Line from Raleigh to Wake Forest. When those improvements are completed, North Carolina's state-funded Charlotte-Raleigh *Piedmont* service will be extended and Wake Forest will be its new eastern terminal.

How to spend \$1 billion in 17 miles

Why so much money to restore such a small stretch of railroad?

Because the project isn't so much a restoration as it is the creation of a new railroad unlike anything ever seen in North Carolina.

"The first 17 miles — Raleigh to Wake Forest — represent a very complex engineering challenge because the area is so built up now," says North Carolina Department of Transportation Rail Director Jason Orthner. "Some of the two-lane country roads that were there 50 years ago are now six-lane city streets, so we're going to have to build grade separations where those streets cross the tracks. Some of the utilities — water mains, sewers, electrical lines, traffic signals, and street lighting — also will have to be reconfigured."

Growth drives need for rail

Population growth and urbanization may have confronted the S Line project with serious challenges. But that's a good thing, because they are the same forces that made the project necessary in the first place. The S Line had to be not just brought



Seaboard Air Line train No. 4, the northbound *Mail & Express*, roars over Crabtree Creek at Edgeton, N.C., shortly after crossing the original Norfolk Southern. In this photograph, taken in the early 1960s, one can see an original pre-Civil War stone pier under the modern bridge.

Wiley Bryan; Robert Richardson collection



back but transformed because the once-empty spaces along the alignment are now full of people and industries in need of fast intercity passenger and commuter trains.

That growth is no accident. Most can be attributed directly to the tri-campus academic/technology complex known as the Research Triangle, and the communities that grew up around it in the last 50 years.

In 1967, the year the ACL-Seaboard merger led to the closure of the S Line, Raleigh was a typical, sleepy Southern capital city. Its population was 133,000 and its chief industries were state government and tobacco, the latter a pillar of the North Carolina economy predating the state's establishment as a British colony in 1729.

But in the years following the 1964 Surgeon General's report documenting the connection between tobacco and lung cancer, cigarette factories and warehouses began to close, and tobacco acreage began a long decline. North Carolina business leaders, elected officials, and educators began planning a more robust and dynamic econ-

omy for the rolling Piedmont region between the Appalachians to the west and the windswept capes and tidal marsh country facing the Atlantic coast.

The solution they sought turned out to be hiding in plain sight. Three esteemed universities, all clustered within a short distance of the capital, formed the nucleus of a post-tobacco economy based on education, scientific research, and commercialization of research successes into new products, industries, and jobs. Duke University at Durham, the University of North Carolina at Chapel Hill, and North Carolina State University at Raleigh began a historic collaboration to re-invent the economy of the Piedmont region, and they succeeded.

Today the North Carolina Research Triangle has taken its place with California's Silicon Valley and the Route 128 Tech Corridor around Boston as a churning technocommercial incubator district. Where tobacco warehouses and cigarette factories once stood, laboratories and production

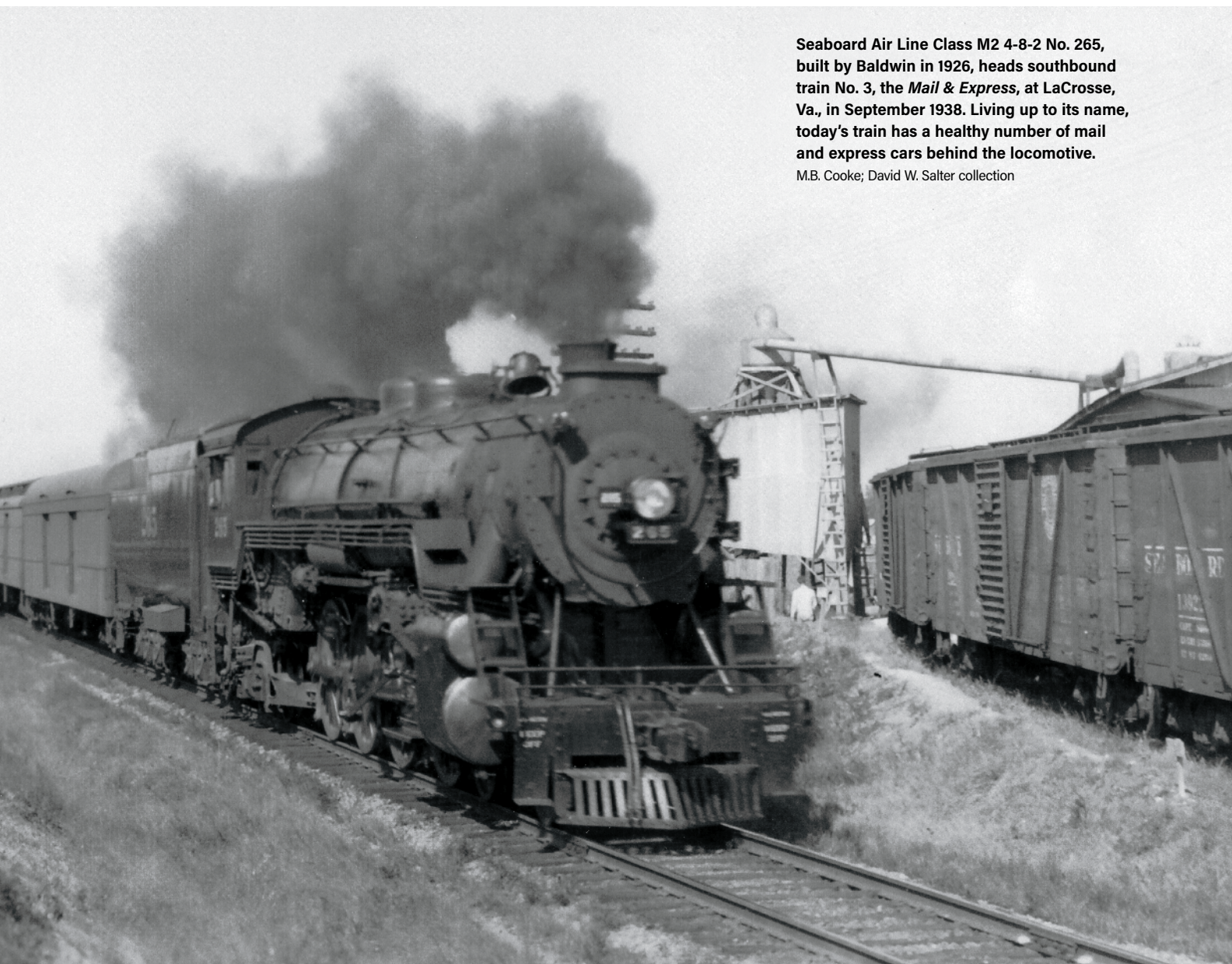
facilities for Panasonic, Merck, Siemens, Sumitomo, Infosys, and dozens of other household names now generate billions of dollars annually in sales, salaries, and taxes.

From its 1967 population of 133,000, the area now represented by the Research Triangle has exploded to a major metro area of over 2 million — and it's still growing. The Kennan Institute says it's the fourth-fastest-growing urban metropolis in the nation.

North Carolina gets into trains

One happy by-product of the Research Triangle's success was a new passenger-rail service to connect the fast-growing Raleigh-Durham-Chapel Hill metro area with the state's booming commercial and banking center, Charlotte.

Amazingly, even during the so-called Golden Age of Rail, Charlotte and Raleigh had never been connected by a through passenger train, even though the tracks connecting the two cities were owned by the state-owned North Carolina Railroad Co.



Seaboard Air Line Class M2 4-8-2 No. 265, built by Baldwin in 1926, heads southbound train No. 3, the *Mail & Express*, at LaCrosse, Va., in September 1938. Living up to its name, today's train has a healthy number of mail and express cars behind the locomotive.

M.B. Cooke; David W. Salter collection



The goal of rebuilding the Seaboard S Line seemed very far away when this photo was taken at Norlina, N.C., in October 2007. A structure once used for maintenance still stood but the right-of-way was no longer visible. Norlina is the place where the now-abandoned branch to Newport News, Va., once diverged. Two photos, Bob Johnston

and historically were leased to the Southern Railway. Southern scheduled its Raleigh trains only to Greensboro, where they connected with its mainline trains to Washington and New York. Raleigh-Charlotte traffic was deemed too modest to merit its own set of trains.

That changed in 1990, when Amtrak began operating its daily *Carolinian* between New York and Charlotte via Raleigh. Even though the loss of the more direct S Line forced the train to backdoor its way into Raleigh via the time-consuming Selma elbow, the train proved popular — and not just for interstate travel. North Carolinians began using it for local travel as well, inspiring the state to fund its own Charlotte-Raleigh service, using state-owned and maintained locomotives and rolling stock. The first *Piedmont* frequency was launched in 1995. A second trip was added in 2010, a third in 2018 and a fourth in 2023. Now acknowledged as a true corridor, Raleigh-Charlotte generates 600,000 rides per year.

And it's getting ready for more. Under its Piedmont Improvement Program, NC-DOT has expanded the corridor's capacity and increased train speeds by investing nearly \$600 million in new infrastructure since 1995. Slightly more than half the route — the 92 miles between Charlotte and Greensboro — is now double tracked, and the remaining 82 miles to Raleigh have been outfitted with reconfigured curves for higher speeds and additional passing tracks

accessed via high-speed, remote-controlled turnouts. Over the entire route, more than 40 grade crossings have been closed, and the 13 busiest have been replaced by viaducts that carry highways over or under the tracks.

The Richmond-Raleigh corridor is the most expensive state-supported passenger-rail infrastructure program outside of the California High Speed Rail project.

Virginia discovers rail

North Carolina's northern neighbor Virginia doesn't have a Research Triangle, but it does have the Golden Crescent, an arc of productivity, prosperity, and growth with one horn anchored in suburban Washington, D.C. and the other in Hampton Roads, the vast tidal estuary where container ships load and discharge their cargoes at the bustling twin ports of Norfolk and

Newport News.

But the Golden Crescent has developed some tarnish. Highways are jammed with truck traffic serving gigantic new warehouses, and charming rural villages have been turned into sprawling suburbs. A particular problem has been Interstate 95, the major asphalt link between the Northeast and Florida and the source of the largest and most persistent backups in the nation's highway system. The Golden Crescent is home to three of the top 90 most congested areas in the nation, including Greater Washington, which ranks No. 2.

Highway congestion first led Virginia to a rail solution in 1995, when the state established Virginia Rail Express to operate commuter trains into Washington from suburban Virginia points located on both

the Norfolk Southern and CSX Transportation's former Richmond, Fredericksburg & Potomac Railroad.

VRE's success — plus a seemingly uncontrollable growth in traffic congestion — later led Virginia to begin funding its own Amtrak corridor, starting with a Lynchburg-Washington/Northeast Corridor train over Norfolk Southern's former Southern Railway main line in 2009. Doubters claimed the new train would merely cannibalize passengers from Amtrak's *Southern Crescent*, which follows the same rails on its daily trip from New York and Washington to Atlanta, Birmingham, and New Orleans. But the new state-sponsored train, timed for local Virginia passengers, found its own market of 100,000 passengers in its first year and 150,000 in Year 2. *Crescent* ridership was not cannibalized. In fact, ridership on both trains just kept growing.

Virginia followed up by sponsoring startups on three more corridors. Washington-Richmond was extended to Norfolk in 2013; and for the first time, the aforementioned Lynchburg Regional was extended west over former Norfolk & Western tracks to Roanoke in 2018. The Newport News and Roanoke corridors now offer two round trips daily. The Washington-Norfolk line has three. And the main stem from Washington to Richmond has its own state-supported frequency along with the trains to Newport News and Norfolk. Plus, Virginians also can buy tickets for local passage on Amtrak's trains that pass through Virginia on their way to more distant points: the *Silver Star* and *Silver Meteor* to Florida, the *Palmetto* to Charleston, and the *Carolinian* to Charlotte.

Ridership on all of the Commonwealth-sponsored trains is growing robustly and seems to have exerted a multiplier effect on the greater system: In 2023 state-sponsored plus Amtrak trains carried a record total of more than 2 million passengers.

Funding and the authority to use it

Further growth, however, will depend on expanded capacity in the Richmond-Washington corridor. Virginia is going to create that capacity, but it had to take some unique legislative and legal steps to address the issue.

"One of the keys to success was the creation of a dedicated Passenger Rail Fund," said Danny Plaughter, executive director of Virginians for High Speed Rail. "In 2013 Virginia got a dedicated slice of the sales tax directed to passenger rail — \$50 million in the first year. That revenue continued growing until 2020 when the Legislature created the Virginia Passenger Rail Authority and restructured our entire transportation funding system."



Putting passenger rail development under an independent public authority instead of the typical state department of transportation has some unique advantages, Plaughter noted. An authority need not depend on a legislature for funding or for legal permission to act. It can act independently by owning rail assets, issuing its own infrastructure bonds, and spending its own funds with minimal interference from the executive or legislative branch. It can even use government's power of eminent domain to acquire private property for right-of-way and erection of buildings.

"VPRA has its own procurement rules, which are less onerous than the state's," Plaughter said. "Putting passenger rail into a body that could be a steady hand over time, providing continuity even as legislatures and governors come and go, makes it easier to plan and complete expensive, expansive and long-term projects."

That combination of independence and continuity is especially important in Virginia, Plaughter said, because of the state constitution limiting the governor to one term. An agency requiring funds for a long-term project cannot rely on leadership from a timed-out executive.

"A new governor spends his first two years just figuring out where the levers of power are," Plaughter said.

"By the time he figures out how to get things done, he's only got another two years to launch a project and there's not enough

time left for follow-through."

Buying ROW, building more tracks

In 2019, the Commonwealth of Virginia announced a novel approach to creating more passenger-train infrastructure: Under its new Transforming Rail in Virginia initiative it paid CSX Transportation \$386 million to purchase 223 miles of track and 163 miles of right-of-way without track.

That latter figure includes not just the Virginia segment of the S Line, but also some 120 miles of untracked space on CSX's double-tracked main line between Richmond and Arlington, Va., just across the Potomac from Washington, D.C.

Like most U.S. railroads, CSX's predecessor in the Richmond-Washington corridor — the Richmond, Fredericksburg & Potomac Railroad — acquired more land than it needed when it began assembling a right-of-way in the 19th century.

RF&P's footprint was 100 feet wide — enough for four tracks — but it never built more than two. So the Virginia Passenger Rail Authority bought the empty half, on which it will build its own 110-mph passenger track. That should provide enough capacity for hourly, 90-minute Richmond-D.C. shuttles, as well as for all the new interstate frequencies coming up from North Carolina via the restored S Line.

"And our trains will still have access to the two CSX freight tracks for meets and overtakes," Plaughter added.

A Charlotte-bound *Piedmont* continues on original trackage in September 2015, before additional tracks were added and the route shifted to the right. North Carolina roadbuilders participated in the upgrade, funded with a \$550 million federal grant.

No solution but rail

Acquiring the surplus CSX land, installing track and supplementing the century-old Long Bridge across the Potomac with a second double-track bridge just for passenger trains is going to cost Virginia an estimated \$4 billion. Together with what North Carolina is spending on its end, the Richmond-Raleigh corridor is the most expensive state-supported passenger-rail infrastructure program outside of the California High Speed Rail project linking Los Angeles and San Francisco. That cost probably will exceed \$20 billion.

Why so much spending and planning on a corridor that wasn't even on most planners' wish lists 20 years ago? Because growth — in populations, business activity, and personal and corporate income — is reconfiguring regional travel patterns and herding business and personal travel into new channels, some of which are best served by passenger trains. Passenger-rail advocates have long talked about the Northeast Corridor, the Chicago-Detroit Corridor and the Cascades Corridor. When the S Line is rebuilt, the Raleigh-Richmond-Washington Corridor will get its own entry in the Corridor catalog.

Ideal distance

But growth is only half the story. The other half is geography, including the fundamental issue of mileage: Raleigh and Richmond are 161.5 miles apart. Assuming the two endpoints are big enough and busy enough — and Raleigh and Richmond are — and assuming the track is fast enough, as the S Line will be, that's a passenger-rail corridor, with fast, frequent trains connecting the two end points (plus Washington, 127 miles further, a major driver of travel).

Because of commercial growth in the Triangle and Crescent, Raleigh-Richmond has become a serious business-travel corridor and so has Raleigh-Washington. But which mode the traveler chooses for corridor travel is problematic, because both Raleigh-Richmond and Raleigh-Washington fall firmly into the too-short-to-fly/too-far-to-drive bucket.

Driving especially is a pain because of the notorious backups on I-95, the nation's busiest Interstate. The road has a terrible accident record, and the right lanes teem 24/7 with those semi-truck trailers that had plundered the prime merchandise traffic from the Seaboard and the ACL.

"Everybody in this part of the country has at least one I-95 horror story," said Orthner. "The real interest in Raleigh-Washington travel is to give people productive time on the train compared to air travel. And there is a big travel market between Raleigh and Washington."

No way out

When the Virginia DOT conducted a study of possible solutions to the dire I-95 congestion, it soon found itself in over its head. Consultants said the standard congestion fix, simply adding more traffic lanes, could not solve the problem.

"The I-95 study analyzed many potential improvements to this critical corridor," VDOT Secretary Shannon Valentine reported in 2021. "It found that widening I-95 by one lane in each direction [from Richmond to Washington] would cost \$12.5 billion. While the cost was staggering, the most sobering part of the analysis was that by the time construction was completed in 10 years the corridor would be just as congested as it is today. That finding is what led Virginia to rail."

Nor does flying offer a practical alternative. Richmond and Raleigh are too close to make direct flights practical, so Raleigh travelers must take a feeder flight to Charlotte and change to another flight for the

leg to Richmond. Each leg takes about an hour of flight time, but the layover in Charlotte can run anywhere between 59 minutes and 4 hours, and ground travel to the airport plus the security and check-in rituals can eat up another hour of time, making flying no faster than driving. A round-trip air coach ticket costs about \$250.

Answer: a train corridor

Restoration of the S Line, including an upgrade to 110-mph passenger-train speeds, thus would be a boon to travelers between these two points. In fact, it's the only solution. A search of old timetables suggests the possibilities of an old route made new again.

In 1956, two of Seaboard's fastest New York-Florida trains ran non-stop between Raleigh and Petersburg. The *Silver Meteor* covered the 157 miles in 2 hours, 15 minutes, with another 32 minutes required for the 27 miles to Richmond. The *Silver Star* raced from Raleigh to Petersburg in 2 hours, 30 minutes, using 37 minutes to cover the last 27 miles to Richmond.

That level of performance could have been the basis for a Raleigh-Richmond corridor, except for two historic realities: Neither Raleigh nor Richmond was big enough or economically important enough at the time to form a rail corridor, and Seaboard was in the New York-Florida business and did not cultivate intermediate city pairs. The trains ran at the wrong time for Richmond-Raleigh business travelers, and there weren't enough frequencies.

But the potential was there. Seaboard's 1956 trains traveled at a maximum speed of 79 mph. The next generation of S Line trains will travel on track

signaled for 110 mph, covering the entire Raleigh-Richmond distance in about 2 hours, 30 minutes. A Raleigh-Washington trip will take about an hour longer. The airlines offer non-stop direct flights between Raleigh and Washington, but the total flying and ground time make air travel times about equal with rail timetables over the new S Line. And the deteriorating driving conditions on I-95 strongly suggests travelers in this corridor are ripe for a rail alternative.

A Northeast Corridor extension

The rise of the Research Triangle and Golden Crescent, plus reconstruction of the S Line, will create a new high-performance passenger-train corridor where none existed before.

More population, more jobs, and more personal income represent the ideal conditions for a rise in travel demand.



More population, more jobs, and more personal income represent the ideal conditions for a rise in travel demand and a change in travel habits, which is exactly what's been going on between Raleigh and Richmond and all the way to Washington.

Raleigh no longer is just a crew-change point for overnight trains between New York and Miami. It's a destination in its own right. All that's needed to complete the transition is a high-performance passenger-train service.

North Carolina has exhibited a strong degree of independence in organizing and managing its intra-state *Piedmont* corridor between Charlotte. It bought and refurbished its own fleet of railcars and locomotives, established its own maintenance shops and rebuilt or replaced all



the stations on the route. The service has its own website and phone number, volunteers who assist passengers on board and at stations, and its own advertising program.

But Orthner said the extension of rail service from Raleigh to Richmond and Washington, D.C., will resemble an Amtrak operation.

“Richmond has effectively become a southern extension of the Northeast Corridor, and most of the Raleigh-Richmond trains will continue on to Washington and New York,” he said.

In addition, the rolling stock is likely to be Amtrak’s new Airo-series coaches from Siemens Mobility. With Siemens now building a new factory to produce Airo cars along the Piedmont Corridor at Lex-

ington, N.C., shopping elsewhere for equipment would be unthinkable.

A night train possible?

But Amtrak operation does not totally rule out other options. The mileage between Charlotte and New York via the S Line is 523, a segment Seaboard’s *Silver Meteor* covered in 9 hours, 35 minutes.

Using the new 110-mph track in North Carolina, Virginia, and on the Northeast Corridor, a modern train could probably do the same trip in a little over 8 hours.

What if an overseas company such as European Sleeper or the Austrian Federal Railroad approached North Carolina with an offer to run an overnight Raleigh-New York sleeping-car train like those changing business-travel habits across Europe?

Seaboard Air Line train No. 23 rumbles through Bracey, Va. The 1967 merger between SAL and the Atlantic Coast Line led to the elimination of hundreds of mile of duplicative routes, including much of this 135-mile line between Petersburg, Va., and Raleigh, capital of North Carolina. Now it’s coming back. Wiley Bryan; Robert Richardson collection

“We are not leaving any stones unturned in our analysis, and that is certainly one of them,” said Orthner. “We are not dismissing any option for daylight or overnight travel.”

“That’s what this is all about,” said Raleigh Mayor Mary-Ann Baldwin as she accepted the \$1 billion grant for rebuilding the first 17 miles of the S Line last Dec. 5, “getting people from one place to the next in an easier, faster and cleaner way.” **I**